

for complementing protests with strikes or sit-ins. But what remains clear is that the regime has been unable to appease, repress, or tire out the protesters.

Beyond addressing these substantive questions, this piece has also highlighted one potential benefit of conducting surveys through Facebook advertisements. While not nationally representative, the lower cost of these surveys allows one to keep the survey running for longer, permitting us, cross-sectionally, to track change over time. Especially when examining questions like protest fatigue, such surveys can be particularly useful.

SURVEYING NUCLEAR ATTITUDES IN THE MIDDLE EAST:

PERCEPTIONS, MISPERCEPTIONS, AND FUTURE RESEARCH¹

By Matt Buehler, University of Tennessee

The Middle East and North Africa (MENA) has recently experienced what Mehran Kamrava has dubbed a “nuclear renaissance.”³⁵ Since 2000, nearly a dozen Arab states have either launched nuclear energy programs or declared intent to develop advanced civilian nuclear technology. Most notably, the United Arab Emirates (UAE) has aggressively pursued a nuclear energy program, while Jordan, Algeria, Morocco, and Saudi Arabia have each undertaken major steps to develop nuclear energy. Morocco has had an active nuclear research program since the mid-1980s, with an operational research reactor at its Maamora site since 2009.³⁶ Even Tunisia, with its economic problems following the 2011 revolution, has shown interest in civilian nuclear energy, signing a deal in 2016 with Russia’s state-owned nuclear reactor vendor company, Rosatom, to help develop its civilian nuclear program.³⁷ Kuwait started a civilian nuclear program in 2009, but abandoned it for fear that a meltdown—on the scale of Chernobyl—could leave this entire small country’s

territory uninhabitable.³⁸

How do ordinary Arab citizens feel about these nuclear programs? Few studies have analyzed public attitudes toward the burgeoning nuclear programs of Arab states in the MENA. We know little about how Arab citizens view these programs’ possible benefits and costs, their aftereffects on intra-regional relations, and their repercussions for international treaties and organizations—especially the 1968 Nonproliferation Treaty (NPT) and the International Atomic Energy Agency (IAEA). Tracking citizens’ attitudes toward these nuclear programs furnishes a richer, more complete understanding of their origins, development, and future potential in the MENA.

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Contemporary methods of survey research can help explore individual-level variation in attitudes toward the MENA’s new nuclear programs. Collaborating with the University of Tennessee’s Howard H. Baker Jr. Center for Public Policy and the Institute for Nuclear Security, in 2016 I launched a 2000-respondent nationally-representative survey in Morocco, one of the Arab world’s aspiring nuclear energy states. Morocco has had an active nuclear energy research program since the 1980s, so it is reasonable to expect that most its citizens will have at least a basic understanding of their country’s quest to obtain nuclear power.³⁹ Other Arab states’ nuclear programs are newer (most have been established since 2000), so citizens’ understanding might be more hypothetical and less based on historical knowledge. Of course, survey evidence gleaned from one country case study is limited, though it provides a starting-point for more research. Future studies might seek to examine how attitudinal trends from Morocco about nuclear programs either parallel or contradict public

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opinion in other MENA states.

Exploring Nuclear Attitudes in the Middle East: Preliminary Results from Morocco

My Morocco-based survey revealed two key findings in attitudinal trends. First, nuclear energy has widespread support among ordinary Moroccans. My survey found that only 19 percent of citizens think that nuclear power should be banned worldwide, while 71 percent disagreed with that proposition. This indicates considerable popular support for nuclear energy in Morocco, specifically. It may suggest, more broadly, that such support could exist in neighboring Arab countries as well, though new surveys are needed to confirm if this is true.

More research, however, should explore which types of citizens are more or less supportive of nuclear power. This approach would parallel research in the U.S. and Western European countries, where past studies have assessed variation in public support for nuclear energy.⁴⁰ Generally, research from the advanced industrialized countries shows that specific demographic, educational, and generational cohorts can have either more or less support for nuclear energy. The few studies of this topic in the Middle East, notably Nicolas Seeley's and Jillian Schwedler's studies of Jordan, suggest that citizens with concerns about the environmental and fiscal costs of nuclear energy tend to oppose it.⁴¹ Preliminarily, my survey's results suggest that variables like citizens' degree of adherence to post-materialist values⁴² and their level of nationalism may influence their support for (or opposition to) civilian nuclear energy.

Second, my survey results illustrate how nuclear politics interact with intraregional relations amongst MENA states in different ways that support and contradict previous analysis. For example, one result confirms conventional wisdom on Israel's nuclear program. Even though Israel has never officially confirmed or denied that it possesses nuclear weapons, and practices a policy of nuclear opacity (*amimut*), scholars and policymakers nearly universally agree that it does

have them.⁴³ Surveyed Moroccans concur, with over 90 percent of citizens affirming that Israel does have a nuclear program for military purposes, like building nuclear bombs. Despite the fact that Israel has never publicly tested a nuclear bomb, which constitutes the "gold standard" of proof for a state's nuclear weapons power status, ordinary Moroccans nonetheless overwhelmingly agree with scholars and policymakers that it does have them.

Respondents also seem to have accurate information about Egypt's nuclear weapons program. Egypt aggressively pursued building a nuclear weapon in the 1960s but formally abandoned this initiative by 1973 to support establishing a nuclear weapons free zone in the MENA.⁴⁴ Most Moroccans seem to understand this facet of regional history, as over 73 percent do not think Egypt has a nuclear program for military purposes. Yet it is somewhat unclear why this is so, and may relate to coverage in the local media or to knowledge of Egypt's 1979 bilateral peace treaty with Israel. In effect, Moroccans may presume that Egypt has eschewed a nuclear weapons program given the absence of a strategic threat from Israel, as had existed in the 1960s and 1970s.

In contrast, other results from this battery of questions contradict conventional wisdom. They suggest that ordinary Moroccans may have some misunderstandings about nuclear politics and intraregional relations among MENA states. For example, while Moroccans have accurate information about Egypt's former nuclear weapons program, they seem to know less about its civilian nuclear energy program. Even though Egypt has had a quite active civilian nuclear research program since the 1955 establishment of the Egyptian Atomic Energy Authority, nearly 40 percent of Moroccans were unaware of this program's existence.⁴⁵ Similarly, ordinary Moroccans did not have accurate information about Pakistan's nuclear program. For example, even though Pakistan successfully tested five nuclear weapons in 1998,⁴⁶ what became known as the 'Islamic bomb' in media accounts, nearly 40 percent of Moroccan citizens were unaware that this country has a nuclear program for military

purposes. Perhaps latent stereotypes about these two countries have indirectly influenced these responses. For instance, since Pakistan has a lower level of economic development than Morocco (in terms of both its Human Development Index and GDP per capita rankings), respondents may presume it doesn't have the technical capacity to possess a nuclear weapon, if Morocco itself does not have one. However, more research would be needed to understand why certain information is accurate or not.

My survey's questions also showed that ordinary Moroccans did not have fully accurate information concerning Iran's nuclear program. The Joint Comprehensive Plan of Action (JCPOA), which was formally signed in October 2015 and practically implemented in January 2016, placed Iran's civilian nuclear program under IAEA safeguards, significantly reducing the chances such technology could be diverted for military purposes.⁴⁷ The agreement ensures Iran's right to a civilian nuclear program, if dedicated solely to peaceful purposes (like energy production) and placed under safeguards specified in the NPT.⁴⁸ Despite these changes, however, about 70 percent of Moroccan citizens in my survey (which was completed four months after the JCPOA's implementation) overwhelmingly believed that Iran still had a nuclear program for military purposes. This finding suggests that some Moroccans may concur with Emily Landau that Iran practices "strategic deception in the nuclear realm."⁴⁹ Since negotiations around Iran's nuclear program received extensive media coverage in Morocco, and generally had high issue salience throughout the MENA, these opinions of Moroccan respondents may reflect underlying anti-Shia or anti-Iranian biases or general distrust of Iran, rather than direct answers to the survey questions.

My survey's results suggest that many Moroccan citizens perceive certain countries as having nuclear weapons, which have never formally tested them or have put their civilian nuclear programs under IAEA safeguards. Further, many citizens view certain countries as not having nuclear weapons, which in fact do have them. This

point also holds true for civilian nuclear energy. Often these attitudinal trends do not constitute majorities of the respondent sample, yet they nonetheless show significant misperceptions about nuclear politics in the MENA among ordinary citizens. These findings are important, because they suggest that decision makers who make policy about nuclear programs do so in a low information environment, where their own constituents and those of neighboring states may have numerous misunderstandings about nuclear programs and their intent. Such misunderstandings could provoke strategic misperceptions, leading some citizens—for example—to feel unnecessarily threatened by a neighboring state's civilian nuclear energy program that they mistake for a nuclear weapons one. Not only do such strategic misperceptions foster anxiety among ordinary citizens, but they could also possibly stimulate public pressure for pro-proliferation policymaking or future nuclear cascades.

Future Research

Extending this research, I can see four potentially fruitful future research topics regarding citizens' nuclear attitudes in the Middle East and North Africa. First, the development of civilian nuclear energy programs does not occur in a vacuum, but must be weighed against other energy policy options—solar, wind, natural gas, and oil. In investing tax monies, MENA politicians will ask citizen taxpayers to weigh the costs and benefits of nuclear energy vis-à-vis other energy programs. Additional survey research in the region could help to track how much ordinary citizens understand the trade-offs between different types of energy policies. Future surveys, for example, could assess whether citizens find that the regional prestige accompanying nuclear energy outweighs its potential expense and environmental risks.⁵⁰ Similarly, surveys could determine whether citizens consider the environmental benefits of solar and wind energy greater than the reliability of nuclear energy, which provides more consistent electrical current for large-scale industrial operations essential for the economy.

Second, although scholars have examined the link

between nuclear energy and nuclear weapons,⁵¹ we know little about how ordinary citizens view this relationship. Do they fully understand the difference between the two, or do they presume inaccurately that the former necessarily produces the latter? The process of converting nuclear energy technology into nuclear weapons technology is complex and often requires considerable extra expertise in uranium enrichment, ignition and delivery mechanisms, and other ancillary technology. Future research, however, might try to unearth the circumstances under which ordinary citizens would support diverting civilian nuclear technology for military purposes.

Third, we know little about how citizens of the MENA region view international organizations, notably the IAEA, in the arena of nuclear politics. This organization conducts inspections and monitoring—which some Arab autocrats have described as invasive⁵²—to ensure nuclear materials are under adequate safeguards as specified by NPT treaty obligations. Do citizens support allowing foreigners (and often Westerners) access to their state's nuclear facilities if it means that in return they will receive international assistance in nuclear technology development from the IAEA? It seems likely that historical memories of both colonial occupation and Western military intervention, respectively, could shape variation in Arab citizen trust (or distrust) in the IAEA and its inspection process. Yet only future survey research could uncover, document, and track such attitudinal

trends.

Fourth, we know little about how citizens see the role of nuclear weapons states—especially the United States, France, Russia, and China—that often act as foreign patrons, furnishing technical assistance for nuclear programs in the MENA. In pursuing full-scale nuclear energy power plants, Arab states have nearly always sought the assistance of international vendors from foreign countries for purchasing nuclear technology and reactors. Many of these vendors are either purely state-owned or public-private hybrid corporations. To buy its nuclear reactors, the United Arab Emirates contracted a quasi-governmental South Korean company (the Korea Electric Power Corporation), which underbid U.S., Russian, and French companies. Jordan, by contrast, has reached out—like Tunisia—to forge agreements with Russia's Rosatom. Such reactor deals not only can serve as a major financial boon for foreign countries—South Korea earned about \$20 billion from its deal with the Emirati government⁵³—but can also provide exceptional opportunities for these states to expand their soft power in the MENA through manipulative contracting and loan arrangements.⁵⁴ In this vein, it could be interesting to run a survey assessing which foreign vendor—U.S., Russian, South Korean, Chinese, or French—citizens trust more as a collaborating partner in purchasing nuclear reactors. Such a study would help to inform U.S. and western policymakers best strategies to help mitigate growing Russian influence in the MENA.

³¹ There are two other known biases in the Algerian Facebook population, but these are correctable. The first is gender: men represent 50.6% of the population, but 64% of Facebook users.³¹ Second, Facebook users tend to be younger than average: 64% of the overall population are less than 35, but 76% of Algerian Facebook users are less than 35. We corrected for age and gender biases by creating separate Facebook advertisements for each age-gender demographic (i.e., women aged 25-34). We then increased the number of ads shown to demographic groups under-represented on Facebook, such as older women, in order to create a more balanced sample.

³² For a list of those arrested, see: <https://www.tsa-algerie.com/les-personnalites-mises-en-detention-depuis-le-depart-de-bouteflika/>

³³ See Bruce Riedel, "Unveiling Algeria's Dark Side: The Fall of the Butcher of Algiers," Brookings, May 8, 2019. <https://www.brookings.edu/blog/order-from-chaos/2019/05/08/unveiling-algerias-dark-side/>

³⁴ See <https://www.france24.com/en/20190802-algeria-protest-civil-disobedience>.

Buehler notes:

³⁵Kamrava, Mehran. 2014. *The Nuclear Question in the Middle East*. London: Hurst. 2.

³⁶Nacir, B. 2010. "Moroccan Triga Mark II Research Reactor Utilization." Centre Nationale de l'Energie des Sciences et des Techniques Nucléaires.

³⁷Rosatom. 2016. "Tunisia and Russia signed an Inter-governmental Agreement on Peaceful Uses of Atomic Energy," September 26, 2016. <https://www.rosatom.ru/en/press-centre/news/tunisia-and-russia-signed-an-intergovernmental-agreement-on-peaceful-uses-of-atomic-energy/>

³⁸Ebinger, Charles, John Banks, Kevin Masssy, and Govinda Avasarala. 2011. "Models for Aspirant Civil Nuclear Energy Nations in the Middle East." *Brookings Institution*. 55-57.

³⁹For an excellent survey of Morocco's contemporary civilian nuclear program, see: Adamson, Matthew. 2017. "Peut-on faire une histoire nucléaire du Maroc? Le Maroc, l'Afrique et l'énergie nucléaire," *Afrique contemporaine* n. 261-262. 94-97. Also, for a fascinating study of Morocco's nuclear politics in the 1950s, see: Adamson, Matthew. 2017. "The Secret Search for Uranium in Cold War Morocco," *Physics Today*. 55-60.

⁴⁰Rosa, Eugene A. and Riley E. Dunlap. 1994. "Nuclear Power: Three Decades of Public Opinion," *Public Opinion Quarterly* 58: 295-325; de Groot, Judith I.M. 2013. "Values, Perceived Risks and Benefits, and Acceptability of Nuclear Energy," *Risk Analysis* 33(2)..

⁴¹Schwedler, Jillian. 2014. "Jordan's Nuclear Project is Bound to Fail." *Middle East Report*; Nicholas Seeley, "The Battle Over Nuclear Jordan," *Middle East Report* (2014)

⁴²Inglehart, Ronald. *Modernization and Postmodernization: Cultural Economic, and Political Change in 43 Societies* (Princeton: Princeton University Press, 1997).

⁴³Cohen, Ibid. 34-55.

⁴⁴Rost Rublee, Maria. 2009. *Nonproliferation Norms: Why States Choose Nuclear Restraint*. Athens: Georgia University Press. 109-118

⁴⁵Ebinger et al. Ibid., 38

⁴⁶Samina Ahmed. 1999. "Pakistan's Nuclear Weapons Program: Turning Points and Nuclear Choices" *International Security* 23(4).

⁴⁷Parsi, Trita. 2017. *Losing an Enemy: Obama, Iran, and the Triumph*

of Diplomacy. New Haven: Yale University Press.

⁴⁸Barzegar, Kayhan. "Iran's Nuclear Program" in *The Nuclear Question in the Middle East*, ed. by Mehran Kamrava, 225-264. London: Hurst 2014.

⁴⁹Landau, Ibid. 102.

⁵⁰Ahmad, Ali & M.V. Ramana. 2014. "Too Costly to Matter: Economics of Nuclear Power for Saudi Arabia." *Energy*; Luomi, Ibid. 125-158.

⁵¹Fuhrmann, Matthew. 2009. "Spreading Temptation: Proliferation and Peaceful Nuclear Cooperation Agreements." *International Security* 34(1): 8-10. Fuhrmann, Matthew and Benjamin Tkach. 2015. "Almost Nuclear: Introducing the Nuclear Latency Dataset." *Conflict Management and Peace Science* 32(4): 443-461..

⁵²Tucker, Jonathan. 1993. "Monitoring and Verification in a Non-cooperative Environment: Lesson from the U.N. Experience in Iraq." *The Nonproliferation Review*.

⁵³World Nuclear News, "South Korea and UAE seek cooperation beyond Barakah." February 27, 2019. <https://www.world-nuclear-news.org/Articles/South-Korea-and-UAE-look-for-cooperation-beyond-Baraka>

⁵⁴Ahmad, Ali. 2015. "Economic Risks of Jordan's Nuclear Program," *Energy for Sustainable Development* (29): 34.

Blackman notes:

⁵⁵ Ala' Alrababa'h and Lisa Blaydes. "Authoritarian Media and Diversionary Threats: Lessons from Thirty Years of Syrian State Discourse." *Working Paper* (2019); Nathan Grubman, "Ideological Scaling in a Neoliberal, Post-Islamist Age," *APSA Middle East Politics Newsletter* (2019); Jennifer Pan and Alexandra Siegel, "How Saudi Crackdowns Fail to Silence Online Dissent," *Working Paper* (2019).

⁵⁶ Christopher Lucas, Richard A. Nielsen, Margaret E. Roberts, Brandon M. Stewart, Alex Storer, and Dustin Tingley, "Computer-Assisted Text Analysis for Comparative Politics," *Political Analysis* 23, no. 2 (2015): 254-277.

⁵⁷ Richard Nielsen, *Deadly Clerics: Blocked Ambition and the Paths to Jihad* (Cambridge: Cambridge University Press, 2017).

⁵⁸ Grubman 2019.

⁵⁹ Pan and Siegel 2019; Alexandra Siegel, "Using Social Media Data to Study Arab Politics," *APSA Middle East Politics Newsletter* (2019); Amaney A. Jamal, Robert O. Keohane, David Romney, and Dustin Tingley, "Anti-Americanism and Anti-Interventionism in Arabic Twitter Discourses," *Perspectives on Politics* 13, no. 1 (2015): 55-73.

⁶⁰ Ala' Alrababa'h, "Quantitative text analysis of Arabic news media," *APSA Middle East Politics Newsletter* (2019); Alrababa'h and Blaydes 2019. For a relevant application using U.S. news media, see: Rochelle Terman, "Islamophobia and Media Portrayals of Muslim Women: A Computational Text Analysis of US News Coverage," *International Studies Quarterly* 61, no. 3 (2017): 489-502.

⁶¹ Richard Nielsen, "What Counting Words Can Teach Us About Middle East Politics," *APSA Middle East Politics Newsletter* (2019); Richard Nielsen, "Women's Authority in Patriarchal Social Movements: The Case of Female Salafi Preachers," *American Journal of Political Science* (2019).

⁶² For more details on preprocessing steps, see: Matthew J. Denny and Arthur Spirling. "Text Preprocessing For Unsupervised Learning: Why It Matters, When It Misleads, And What To Do About It." *Political Analysis* 26, no. 2 (2018): 168-89. Arabic texts can present a challenge because the same sequence of characters can