Can the outcome of revolutions be predicted? At the beginning of 2011, riots and revolutions broke out across North Africa and the Middle East in a number of countries. Widely considered a rebellion against bad autocratic regimes, many in the international community optimistically called this movement the "Arab Spring." seeing it as the beginning of a new era of democracy for the region. Researchers at the New England Complex Systems Institute (NECSI), however, predicted otherwise. Their analysis pointed to a low success rate for fledgling democracies that might result from these revolutions. They also predicted problems with power vacuums and the use of force to reestablish order. Today, six years after the original report was published, events have proven them correct.

What is the reason for the failure of revolutions to achieve democracy? According to the analysis, the answer is complexity.

A democratic government possesses greater complexity than an autocracy. Consider America's interlocking system of government and laws compared to the consolidated will of a dictator. Demolishing a simple system and replacing it with a more complex one is not an easy task.

Time is a key factor. After a government has been overthrown, a replacement must be established quickly to restore basic order and essential services. Under this deadline, military rule or another autocracy are quicker and easier to put in place than a new democracy. Violent revolutions in particular are likely to damage basic societal institutions and infrastructure, further reducing the baseline complexity of society and placing a successful democracy even further out of reach.

So how have the countries of the Arab Spring fared in the past six years? Using data on democratic and autocratic ratings, NECSI researchers assessed the outcomes for 16 states in the Levant and North Africa. Among them, Tunisia is the only clear success story with a marked increase in democratic measures. Somalia established a government after years of lacking one, a success arguably not attributed to the Arab Spring. Other countries were not so successful.

Revolts in three other countries resulted in full-scale civil wars: Syria, Libya, and Yemen have become failed states filled with violence and terrorism, spurring a mass refugee crisis. Despite initial efforts toward democracy, Egypt and Bahrain have ultimately shifted towards more autocracy. The balance of states, Algeria, Djibouti, Jordan, Kuwait, Lebanon, Mauritania, Morocco, Oman and Saudi Arabia, have experienced only minor changes, returning to or retaining a pre-Arab Spring status quo.

The outcomes of the Arab Spring may have disappointed many of those who were involved and outside observers, but the reasons can be understood and this information has implications for the future. "A functioning democracy is a very complex system," says NECSI President Yaneer Bar-Yam. "Achieving a higher level of complexity of governance is much more likely to come about through peaceful processes that replace rather than destroy existing societal structures."

Predicting the behavior of social systems is difficult, but progress has been made. Ultimately, the lessons of the Arab Spring show that the success of other social movements can be understood using a complexity framework.


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