Using news media and Twitter to provide a quantitative overview of factors related to the outbreak, successes and failures of the "Arab Spring"

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# Introduction

Goldstone's (2011) recent assessment of the drivers of instability and revolutionary success during what has come to be known, for better or worse as the Arab Spring, suggest that a recurrent causal story played a role in the early revolutionary successes in Egypt, Tunisia and Libya. Goldstone states that ``virtually all successful revolutions were forged by cross-class coalitions...pitting society as whole against the regime'' (pg. xx). He then provides qualitative evidence that the revolutions in three countries were no different. In Egypt, Tunisia and Libya, previously disparate social groups combined under a united ``cross-class coalition'' of protesters and revolutionaries, which made the revolutions significantly more likely to succeed.

In later work, Goldstone (2013) suggests that several additional predictors were important in determining whether or not a particular government was ultimately overthrown. Chief amongst these predictors, he argued, was the structure of the overarching regime had a strong impact on whether or not the government was ultimately overthrown. Goldstone defines a *personalist* regime as one in which a single individual – who may have begun as an elected leader, or head of a military or even party regime – takes total or nearly total control of the national government. He then provides qualitative evidence for his believe that ``the single best key to where regimes in MENA have been overturned or faced massive rebellions is where personalist regimes have arisen'' (pg. xx).

Goldstone's critiques are two of many articles to consider what may have led to the revolutions that spread throughout the MENA region and whose effects still continue to reverberate globally today. One factor of primary interest was the use of social media, which was originally suggested by popular media to be the sole cause of the spread of the revolution. At this point, it is almost common knowledge that this emphasis on social media as a *cause* of the revolutions is overblown (Bruns, Highfield, & Burgess, 2013; Comunello & Anzera, 2012; Goldstone, 2013). However, many scholars have pointed to the fact that the use of social media may have aided certain aspects of the revolutions in important ways for different people (Gallé, Renders, & Karstens, 2013; Lotan et al., 2011; Starbird & Palen, 2012; Tufekci & Wilson, 2012). This fits with the current understanding of the causal structures involved, as scholars now suggest that a breadth of heavily intertwined issues came together in a unique and unpredictable fashion to provide the conditions necessary for the spread of both successful and unsuccessful revolt and protest throughout the region.

In contrast to work considering the causal role that social media played in the revolution, recent work has suggested that data from social media data may help to inform this broader understanding of how the revolutions grew and spread (some citation here). This use of social media data takes as a given that these tools were used in some way during the revolution and goes beyond this in assuming, via the well-worn notion of media multiplexity (e.g. Haythornthwaite, 2002), that causal processes of the revolution which existed ``offline'' are likely to have played out ``online'' as well. Such work has shown that, for example, **X, Y, Z**. Similarly, recent work has suggested that data from news media during the time of the Arab Spring also may be of use in better understanding these processes (Joseph, Carley, Filonuk, Morgan, & Pfeffer, 2014; Pfeffer & Carley, 2012). Combined, efforts with social and news media data from the Arab Spring have shown the value in using this data to a) provide evidence for or against prior hypotheses presented in the literature using quantitative metrics on large sets of data, and b) use the available data to generate new or more nuanced understandings of the incredibly complex web of factors that have been implicated in a causal role.

The present work provides an example of how social and news media data can be used in each of these two ways. First, we extract quantitative evidence for the assertions of (Goldstone, 2011). More specifically, we consider the following two claims made by Goldstone and consider the extent to which they played out in social and news media across Egypt, Libya and Tunisia as well as fourteen other nations in the MENA region:

* **H1:** *If a country has more disparate groups, it is more unstable*
* **H2:** *If these groups align under a revolutionary cause, the revolution is more likely to succeed*

These two hypotheses are directly quantifiable via a combination of social media and news data and external indicators based on expert opinion. **In order to evaluate H1, we consider ... In order to evaluate H2, we ...**

In the second part of the paper, we provide a characterization of how social media use may have differed in nations with personalist regimes as opposed to nations with other types of regimes discussed by Goldstone. We combine a host of metrics measured on both news and social media and use a variety of statistical techniques to extract differences. **We find XYZ. This leads to an interesting extension/correlary/etc of Goldstone in that XYZ...**

# Related Work

The immense number of complexities and historical artifacts that played a role in the beginnings, successes and failures of the Arab Spring prohibit a full exploration here. Instead, we provide only a summary of some of the more widely accepted factors, and ones that readers should be aware of and keep in mind throughout our analysis. For a more detailed overview, we direct the reader to Gelvin's (2015) recent book. In this section, we also discuss recent work utilizing social and/or news media during the Arab Spring, detailing how the methods and data used here are both similar and different.

## Causal factors of the Arab Spring

Two broad classes of causal factors can be considered - those that prompted revolution, and those which affected the success or failure of revolutions. We briefly review each set of factors here.

## Causes of protests and their spread

A host of historical factors led to the conditions in 2011 that made many nations in the Arab world ripe for protest. One long-standing issue was the increasing extent of economic problems caused by ineffective, corrupt and state-run economies. These issues led to high levels of unemployment and inflation (Dewey, Kaden, Marks, Matsushima, & Zhu, 2012) as well as to both food shortages and huge hikes in food prices, all of which contributed to high levels of civil unrest (Comunello & Anzera, 2012; Goldstone, 2013). The effect of high unemployment rates was particularly important because its effect was particularly strong on well-educated youth populations, individuals who had often been promised that their education efforts would be rewarded with jobs (Dewey et al., 2012; Gelvin, 2015). This, combined with a ``youth buldge'' in which a disproportionate percentage of the population was between the ages of 15-29 in many of the MENA region countries, provided a fodder of civil unrest that required only a spark to ignite and a gust of wind to spread throughout the region.

On December 17th, 2010, a spark came in the form of Mohamed Bouazizi, who immolated himself in Sidi Bouzid, Libya in response to reported harassment from both a local policewoman and local municipality officers. Bouazizi's case resounded with other citizens of Sidi Bouzid who were tired of being harassed and victimized by a corrupt government. These individuals quickly took to the streets in protest. Although early protests were relatively small and were met with violence from government forces, social media sites like Twitter, Facebook and YouTube were used to record these events and display them to the broader public.

This access to social media, or more aptly, the existence of communication infrastructures that supported all forms of new media (Tufekci & Wilson, 2012; Wolfsfeld, Segev, & Sheafer, 2013), served as a causal element in the spread of the protests from Tunisia, to Egypt, to Libya and on to several other nations in the Arab world. Even before the protests, the existence of internet connectivity allowed individuals within the Arab region to observe the democratic processes existent in other regions of the world, stoking their desire to live in that type of environment (Hussain & Howard, 2013). During the early moments of the revolutions, these tools allowed both deliberate diffusion processes, defined as those ``carried out via the conscious sharing of tactics and frames by activists who are linked by networks that may be transnational'' and demonstration diffusion effects, `` ' the power of precedent' '' (pg. xx) to occur, rapidly engulfing an increasing number of actors in an increasing number of nations in protest (Bellin, 2012). Through both logics, a further cause of spread was the strengthening of an underlying Arabic identity, which united protesters in their unified goal of empowerment and the ending of corruption. (Bellin, 2012).

## Causes of Varying Outcomes

The above discussion implicates a variety of factors providing the fodder for revolution in many Arabic nations. As one of the primary factors of revolution was prior revolutionary activity in neighboring countries, we also discussed a variety of ways in which information spread rapidly throughout the region. However, while these conditions existed in many Arab nations, and information of prior revolutions had the capability of spreading to almost each, there was a diverse array of outcomes in the success of protests held across the MENA region. We now turn our attention to the factors that influences these successes and failures.

A consistent take on the primary factor influencing the success or failure of revolutions in different countries in the region was the structure of the ruling regime (Bellin, 2012; Comunello & Anzera, 2012; Goldstone, 2013). Goldstone's (2013) work argues that personalist regimes were the most susceptible because their power was tied to their ability to provide economic and political incentives to their constituency, particularly in nations that depended on oil production. While Comunello & Anzera (2012) note that personalist, or as they refers to them, neopatrimonial states, had controlling arms that made it difficult to organize any sort of formal protest, three other factors led to conditions in which such formal protests could arise in these nations.

One such factor that has already been discussed was the economic conditions under which the revolution occurred. While these economics played a role in bringing about revolution, they also prevented personalist regimes from being about to ``buy their way out'' of the protests, and thus also had a role in the revolutions' successes. The second factor that played into the success of personalist regimes in the face of revolution was the relationship of the regime to the military (Battera, 2014). This relationship can be boiled down to one decision the military made - whether or not to shoot at the protestors (Bellin, 2012)[[1]](#footnote-1). In countries where the military made the decision to quell protests with violent force, protesters were able to flood the streets without fear of the full wrath of the state. This lack of impunity led to stronger protests that eventually led to the downfall of the Tunisian and Egyptian regimes. In contrast, in Saudi Arabia, for example, where the military opted to side with the regime and use force to quell protests, regimes managed to maintain power.

In making the decision of whether or not to fire on protestors, one important factor the militaries of these various nations considered was the extent to which previously disparate social groups formed a cross-class coalition in their protests and revolutionary efforts (Goldstone, 2011). A unified coalition of protestors made it more difficult for the military to justify the use of force in their response to the protest for two reasons. First, the combination of various social groups lessened the military's ability to claim that violent actions were a response to a particular out-group in the interest of protecting the ``nation''. Second, the sheer size of such a coalition would relegate military action to being viewed as ``illigitimate slaughter'' (Bellin, 2012).

The development of these unified coalitions across various social groups also provided an opportunity for the news media to characterize protestors under a national identity, rather than as protests via one specific subgroup. As we discuss shortly, the portrayals of the revolutions by news media thus had an important impact on revolutionary outcomes in that their coverage ultimately influenced a final factor in revolutionary success, which was the extent and type of involvement in the revolutions in the various nations from international powers (Comunello & Anzera, 2012; Goldstone, 2013). This applies both to the actions of the West during the revolutions as well as the actions taken by Arab nations themselves.

Social media, of course, had much the same effect, increasing both the level of information spread and the extent to which individuals felt compelled to participate in protests (Bellin, 2012; Tufekci & Wilson, 2012; Wolfsfeld et al., 2013). As insinuated above, it is generally agreed upon that social media, and new media more generally, played at least some role in the spread and success of certain revolutions that occurred during the Arab Spring. There do exist, however, many scholars who feel this effect has been overstated, or that no such effect exists at all. (Comunello & Anzera, 2012) give an overview of a significant amount of work focusing on the relationship between social media and the Arab Spring. The authors consider how, across 8 different properties of social media, technological determinists (people who believed social media played *the* causal factor) and the techno-realists (people who believed social media played *no* causal role) differ on their opinions regarding the effect of social media. Additionally, Hussain & Howard (2013) provide a unique analysis of the role that communication infrastructures played in coordination with other effects on the revolutions.

## Using new media to study the Arab Spring

Having given thought to the role of social media during the Arab Spring, we now turn to how data from social media has been used to better understand the processes inherent to the revolution as a whole. In particular, we focus on Twitter, as this is the data available to us in the present study. Of the many studies which have focused on Twitter in the context of the Arab Spring, we here highlight three important facts that have been derived in general from recent work.

First, it is clear that both social and informational structures differed across the different nations. Several researchers have, using datasets collected via keyword, geospatial and user-based sampling approaches[[2]](#footnote-2), shown that tweets pertinent to different nations within the MENA region were unique in the structure of the social networks and the information that people focused on. For example, (Lotan et al., 2011) stress the strong interplay between Twitter and news media, and showed that the relationships between mainstream media outlets, activists, journalists and bloggers differed in datasets collected from Tunisia and Egypt. (Bruns et al., 2013) observed that Egypt and Libya displayed differing amounts of tweets in the two languages, with Egypt having significantly more tweets in Arabic than English, and Libya the other way around.

Second, recent work has suggested that, like in more general studies of diffusion both within and outside of Twitter, there existed elite actors that acted as information brokers within the social system. (Lotan et al., 2011) showed that journalists and activists appeared to serve as primary information sources, with their efforts being retweeted by a variety of other types of actors. (Meraz & Papacharissi, 2013) showed how elites acted as gatekeepers of information, making decisions that shaped the information environment in Egypt during the conflict.

Finally, not only did information and social structures differ with respect to nation, but they also differed with respect to language. (Bruns et al., 2013) found, consistent with a variety of previous work, that Arabic and English speaking users mostly interacted amongst themselves, and thus that there existed only a few actors who bridged the two communities. This suggests that international interests varied and that within these nations there was varying levels of use of Twitter. (Bruns et al., 2013) observed that these patterns changed over time, with the English-speaking world gradually losing interest. Both of these findings fit quite well with other recent work comparing the structures of social networks across an even larger number of countries in the region (Carley, Wei, & Joseph, forthcoming).

There have been, of course, many studies outside of the Arab Spring that have used Twitter data to make interesting and important advancements in our understanding of social processes. These efforts have relied on increasingly complex analysis techniques, some of which are leveraged in the present work. Where appropriate, such work is referenced in the methodological descriptions below.

## The role of the news media

(Hussain & Howard, 2013) - “international news organizations played in giving them the global exposure to help stave off overtly violent reactions from security forces.”

(Goldstone, 2011)- “The impact of public media in favor of the protestors is also greater if media representation shows protestors as representative of the whole society, rather than as one particular group seeking partisan advantages for itself.”

1. While regimes certainly had other forces willing to deal with the protestors, the extent and breadth of the protests eventually came to a point at which it ``is sufficient to look at the character of the military and its capacity and will to repress in order to reckon the immediate chances of regime survival.'' (Bellin, 2012, pg. xx). [↑](#footnote-ref-1)
2. For more details on their similarities and differences, we refer the reader to (Joseph, Landwehr, & Carley, 2014) [↑](#footnote-ref-2)