Does Cyber-Proximity Matter? An Evidence from Facebook International Friendship Network and Arab Spring

K. Hazel Kwon

Assistant Professor

Walter Cronkite School of Journalism/Mass Communication

Arizona State University

Purpose of the Presentation

- ONLINE social network impact on global social change OFFLINE
- Can we test it quantitatively?
- Online social network effect = Cyber-proximity effect

Protest Literatre

- Social movement /protest scholarship:
  - (1) Resource mobilization/distribution
  - (2) Framing
  - (3) Political opportunity
  - (4) Focus on temporal processes

Protest Literature

- Social movement /protest scholarship:
  - (1) Resource mobilization/distribution
  - (2) Framing
  - (3) Political opportunity
  - (4) Focus on temporal processes (Diffusion)

Diffusion: Spread of a practice from a source to an adopter

Temporal Models of Protest Diffusion (1)

1. Threshold Models (Granovetter, 1978; Hedstrom, 1994; Valente, 1995)
   - Internal growth rate model based on network exposure
   - Personal network exposure (Valente, 1995)

$$E_i = \frac{\sum W_{ij} Y_j}{\sum W_i}$$

(W: relational proximity matrix)

Temporal Models of Protest Diffusion (2)

2. Event History Diffusion Models (Andrew & Briggs, 2006; Myers, 2000; Strang, 1991; Strang & Soule, 1998)

- Effects of different covariates on likelihood of protest occurrence over time.
- Different communication channel effects (interpersonal and mass)
- Network exposure concept as a covariate.

Research Question

Does cyber-proximity influence global diffusion of protest offline?

More precisely:

RQ: Does the exposure to cyber-proximate countries' having a protest increase the chance of the exposed country's having a protest?

Research Topic

- Arab Spring
  - ❖ Democratic movement that arose in the MENA region in 2011
  - ❖ Unfortunately not been translated into a prosperous pathway to democracy
  - ❖ However, the role of online networks studied extensively from political opportunity, resource mobilization, framing perspectives
  - ❖ No diffusion modeling study

Research Design: Variables

- Unit of analysis: Country
- Cyber-proximity: Global Facebook friendship share among countries in 2010

- Network exposure to cyber-proximate countries
- Network exposure to physically proximate countries
- DV: Protest occurrence in a country
- Time interval: Weekly
- Controls: GDP, Dictatorship years, Al-Jazeera viewership

Model Design(1)

- **Binary Time-Series-Cross-Section Analysis (BTSCS)** (Beck et al., 1998)

- Outcome: Offline Protest Occurrence Data
  - Guardians and Al-Jazeera's data journalism project
  - 16 MENA countries for 55 weeks

Model Design(2)

- Dictatorship Years:
  - Democracy repression
  - Data from Howard and Hussain (2013).
- GDP:
  - Economic constraint
  - Data from World Bank 2010
- Al-Jazeera viewership
  - Transnational media effect
  - Data form Marketing company Allied-Media

Model Design(3)

- Pyhsical-proximate Network Exposure
  - Regional exposure in MENA
  - Count of the total number of countries who had protests in a week except the focal country.

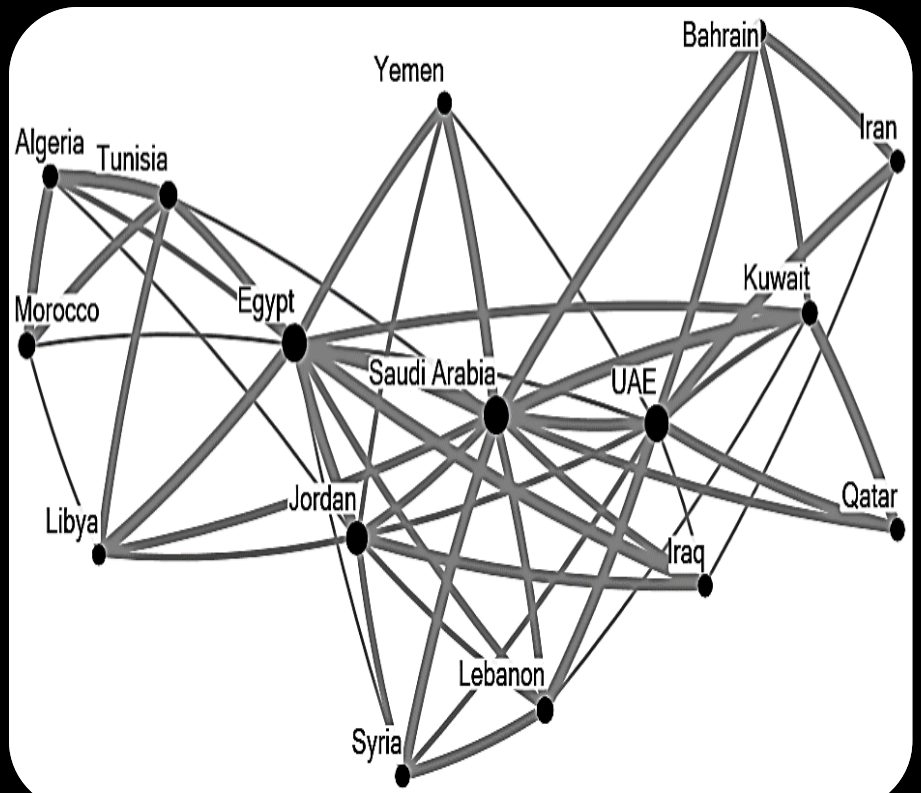
- Cyber-proximate Network Exposure
  - Protest exposure weighed by the Facebook friendship share between the two countries

Model Design(4)

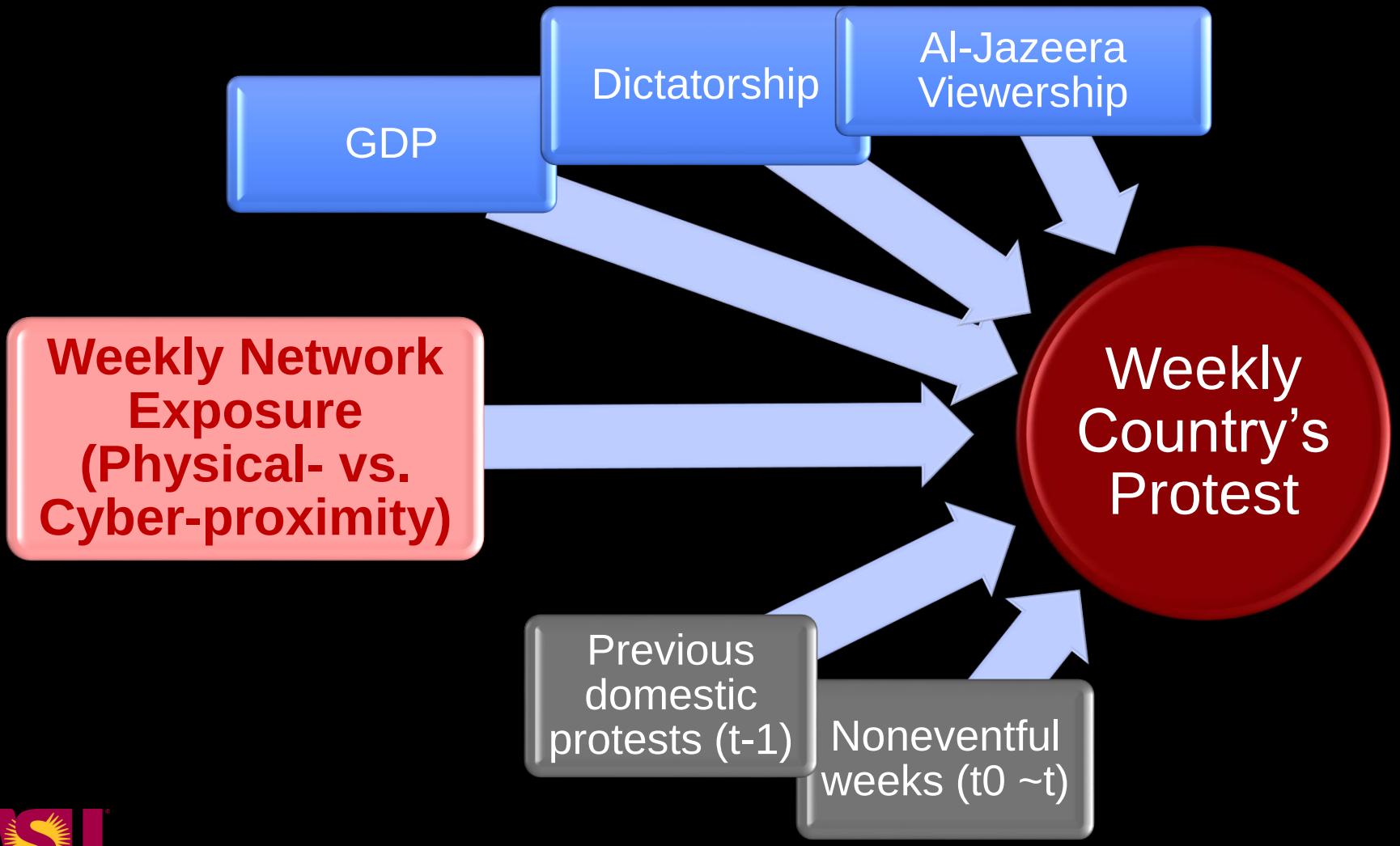
Cyber Proximate Network Exposure

$$E_{it} = \frac{\sum W_{ij} Y_{jt}}{\sum W_i}$$

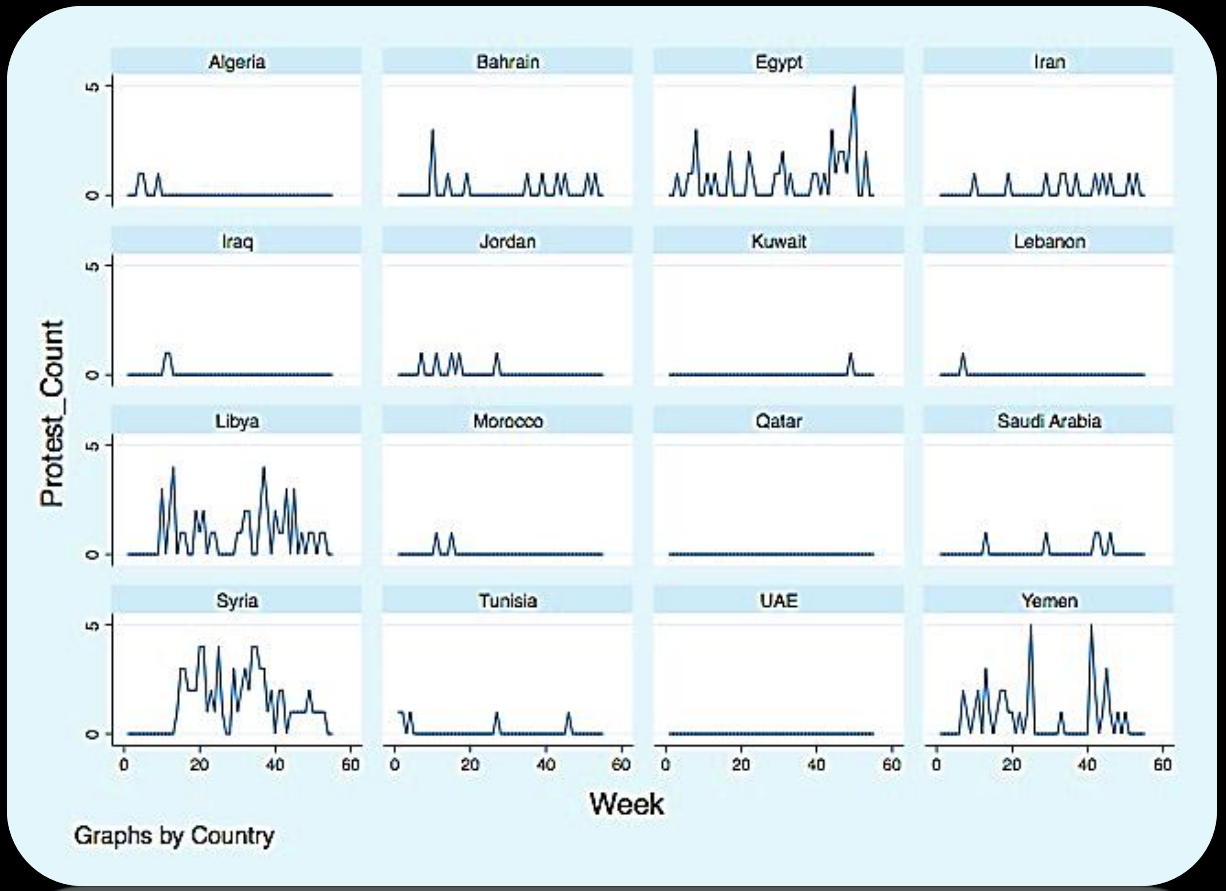
- *Wij* = Country *i's* friendship proportion composed of Country *j*
- *Yjt* = Protest occurrence in *j* in week *t*
- *Wi = total FB friendship share by all MENA countries*



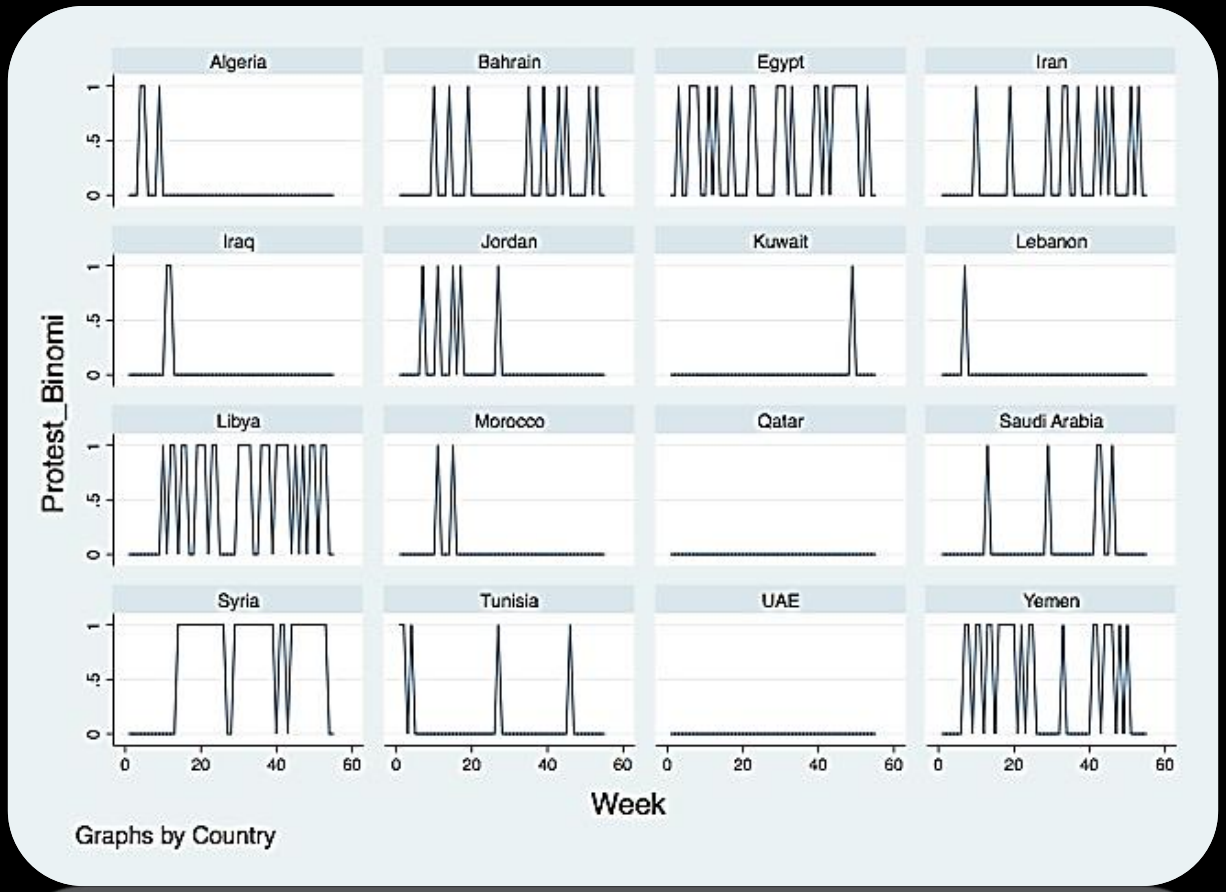
Model Design(5)



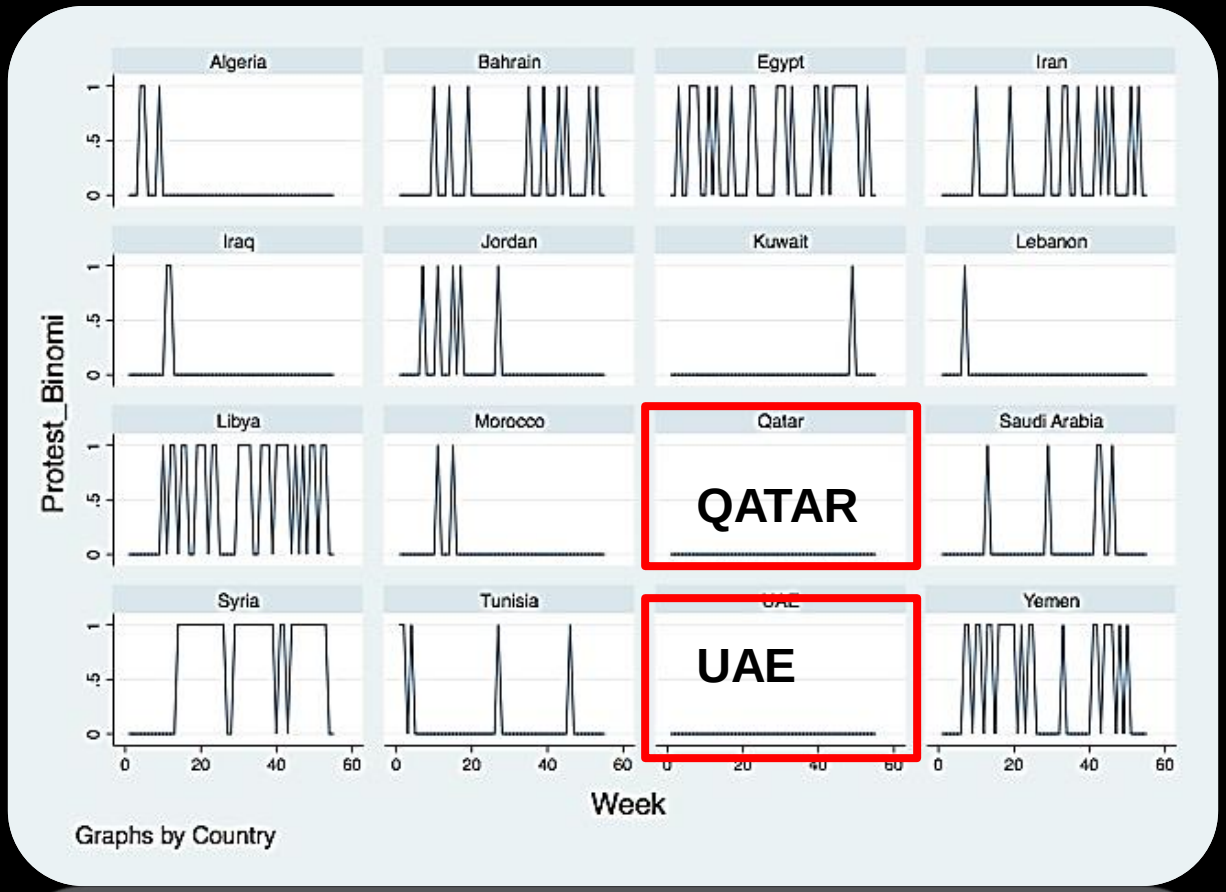
Results – Protest Occurrences



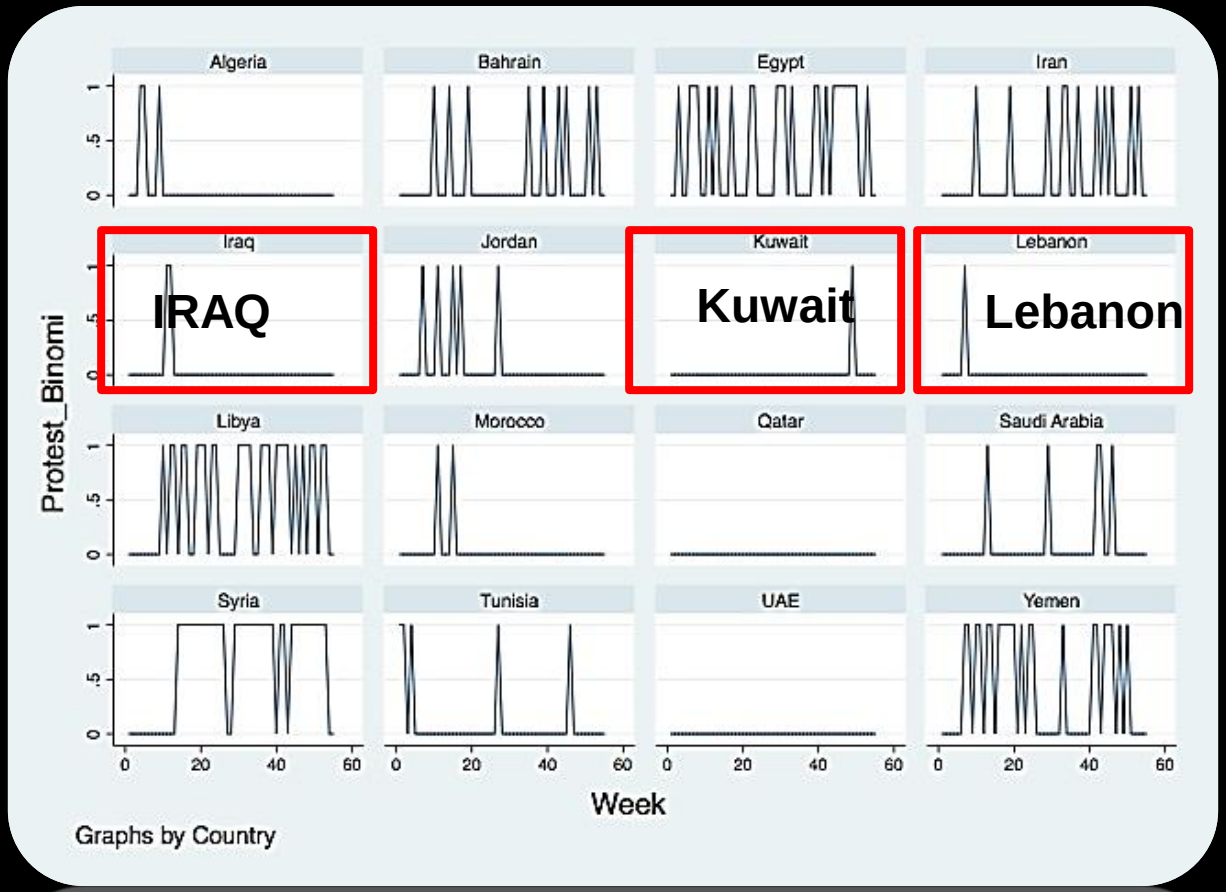
Results – Protest Occurrences



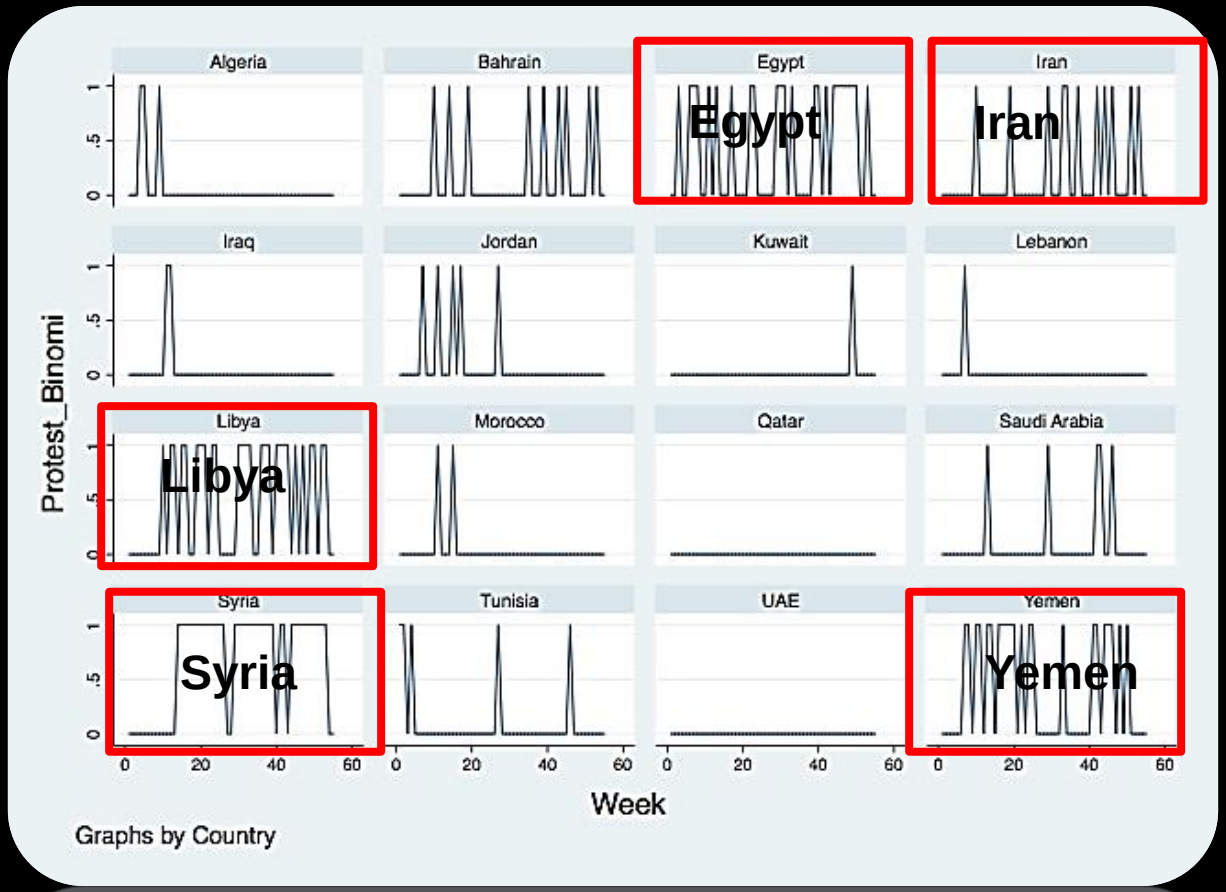
Results – Protest Occurrences



Results – Protest Occurrences



Results – Protest Occurrences



Results – Network Exposure Effect

	Physical Proximity	Cyber Proximity
GDP	Y	Y
Dictatorship	Y	
Al-Jazeera		
Network Exposure at t		Y
Network Exposure at t-1		
Previous domestic protests until t-1	Y	Y
Non-eventful week until t-1	Y	Y

Conclusion/Discussions (1)

- What do the results tell us?

  - Evidence of the effect of online network exposure in global protest diffusion
  - Online social network as global bottom-up communication infrastructure
  - More influential than physical proximity? (but, highly correlated with each other)

Conclusion/Discussions (2)

- Future trajectory–continues:

  - Online network exposure effect only for a short period time. Lagged weekly effect non-significant (Need future research)
  - Other online data that represent cyber-proximity among spaces?
  - Cyber-proximity effect on other events?

Thank You

For Question and Comments:

Email: khkwon@asu.edu

Twitter: @HazelKwonASU