An Exploration of Terror Networks, Lethality, and Survival

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License to Kill: Terrorist Group Relationships and Lethality

Research Context

Alliances

- Increase access to resources
- How does this affect lethality?
    - Number of alliances or connectedness of alliances?

Rivalries

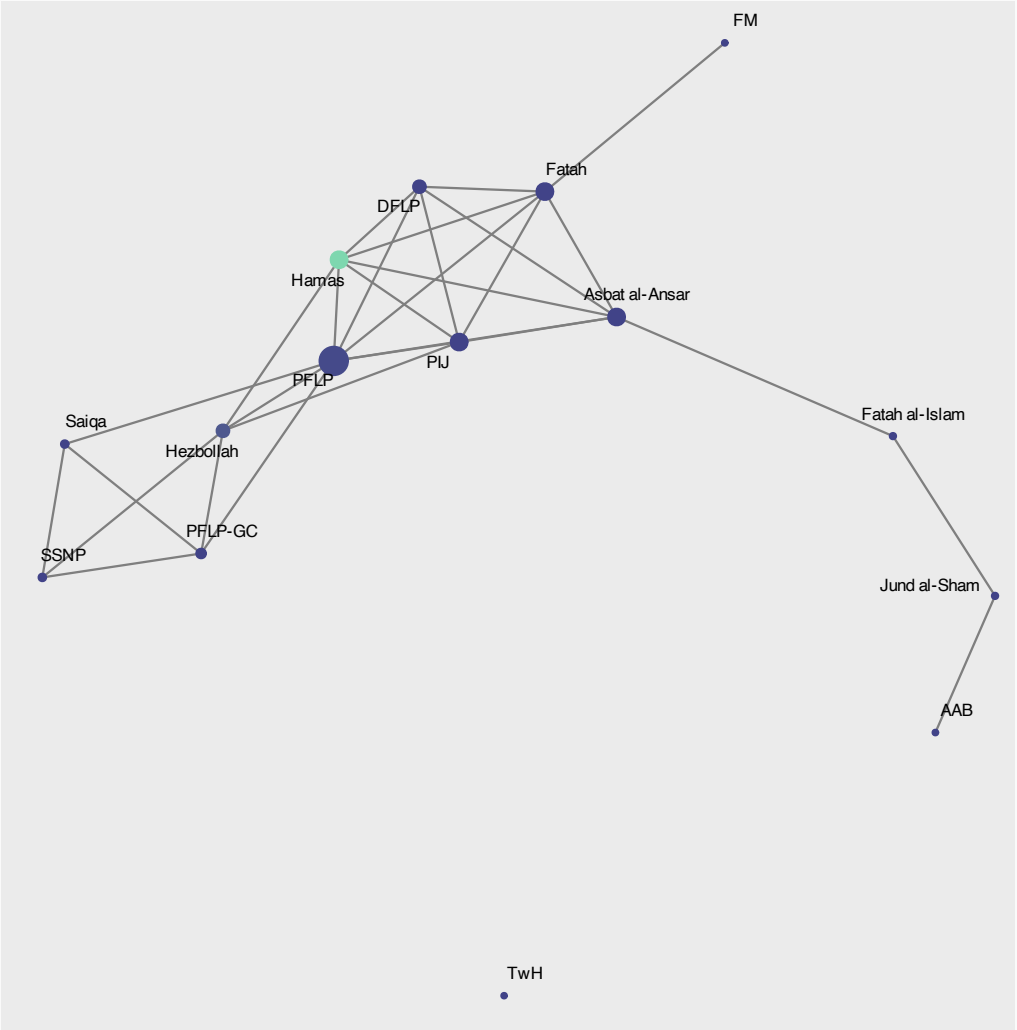
- Outbidding

Hypotheses

- **H1**: Terrorist organizations with a higher number of alliances will be more lethal.
    - Expect that null cannot be rejected
- **H2**: Terrorist organizations that are more embedded in the alliance network will be more lethal.
- **H3**: Terrorist organizations with a higher number of rivalries will be more lethal.

Research Design: Network Data

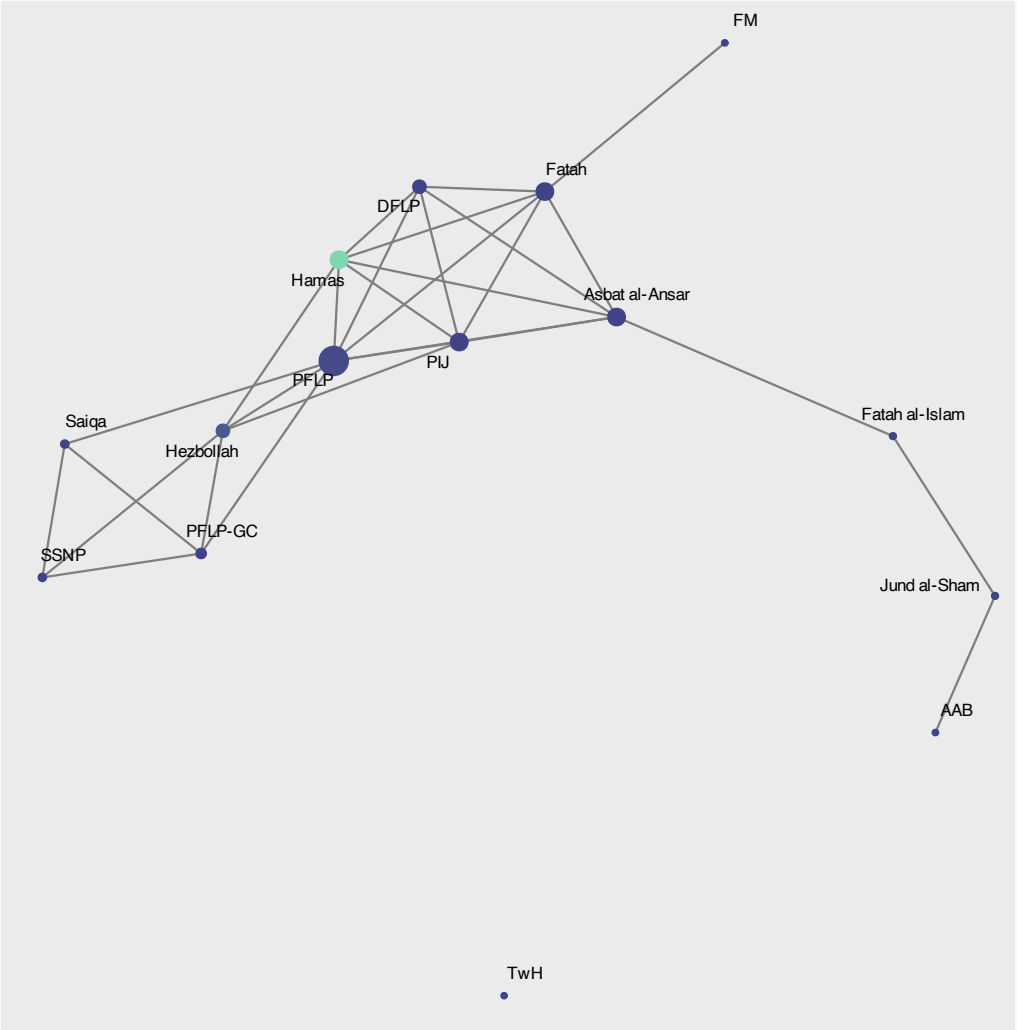
- Original data
- Sample: Terrorist groups in Lebanon. 2000–2016.



2016 Alliance Network

Research Design: Network Data

- Original data
- Sample: Terrorist groups in Lebanon. 2000–2016.
- Yearly networks
  - Alliances: Tactical or logistical cooperation
  - Rivalries: Physical violence against each other



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- Temporal network autocorrelation model with negative binomial
- Dependent variable: Count of attacks

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  - Ally degree centrality (H1)
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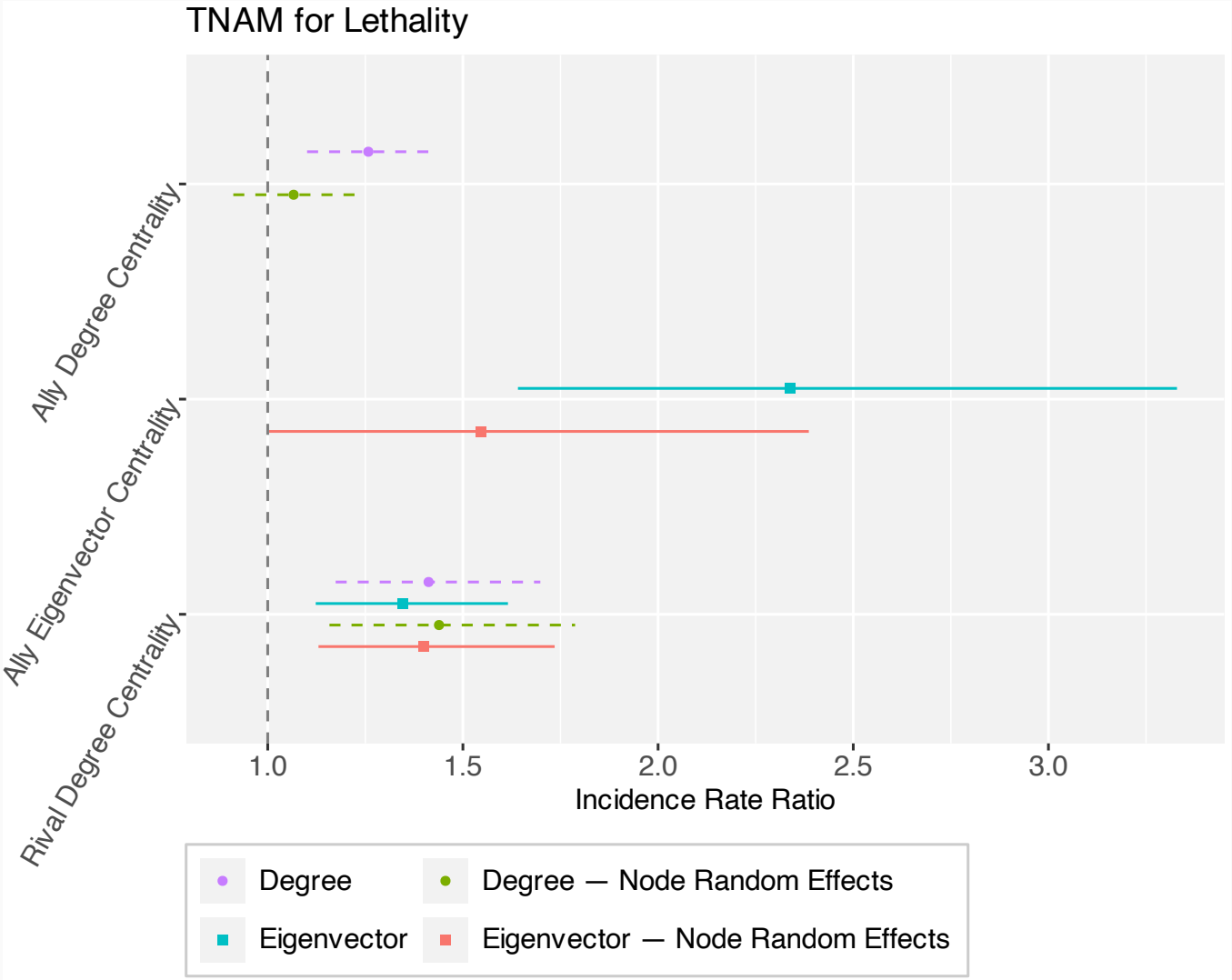
Research Design: Model

- Temporal network autocorrelation model with negative binomial
- Dependent variable: Count of attacks
- Main explanatory variables
  - Ally degree centrality (H1)
  - Ally eigenvector centrality (H2)
  - Rival degree centrality (H3)
- Controls
  - **Organizational**: religious, state sponsorship, multiple bases, government, duration
  - **Network**: cliques, spatial lag, spatial and temporal lag

Findings



Node random effects included in Models 3 and 4

Ally and rival cliques, spatial lag, spatial + temporal lag, religious, state sponsorship, multiple bases, government, duration included in models

90% confidence interval

Findings

- H1 not supported, as expected. No evidence that the number of allies affects lethality.
- Support for H2. Having more connected allies leads to increase in lethality.
- Support for H3. More competition increases lethality.

Live and Let Die: Terrorist Group Lethality, Survival, and Success

Research Context

- How does terrorist group lethality affect group success?
- Overall organizational lethality
    - Drawing from literature on lethal attack types and civil war
- Success
    - Long-term goals
    - Measured with end type

Theory: Success

- End type: victory/political process
- Lethality as a signal
  - Low levels: weak signal
  - High levels: undermined bargaining power
- Success is most likely at a moderate level of lethality
- **H1 : Terrorist groups that exhibit moderate levels of lethality are more likely to end by achieving victory or joining the political process.**

Theory: Failure

- End type: Forcible termination
- Lethality as a signal
  - Low levels: little threat
  - As lethality increases, threat and state reponse increase
  - ...BUT
  - High lethality groups have higher capacity
- Forcible termination is most likely at a moderate level of lethality
- **H2 : Terrorist groups that exhibit moderate levels of lethality are more likely to end by being forcibly terminated.**

Theory: Failure

- End type: Splintering
- Reasons for splintering
  - Infighting
    - Infighting — tactics
    - Splinter groups found to be less violent[1]
    - Extrapolate that splintering happens at high lethality
  - Loss of external support
    - Alienating supporter base
- **H3 : As organizational lethality increases, the likelihood of ending by splintering increases.**

[1] Robinson, Kaitlyn, and Iris Malone. 2024. "Militant Splinter Groups and the Use of Violence." *The Journal of Conflict Resolution* 68(2-3): 404–430.

Research Design

- EDTG group-year data.[2] 760 groups. 1970–2016
- Time to group end type
- Cause specific competing risk Cox models

[2] Hou, Dongfang, Khusrav Gaibulloev, and Todd Sandler. 2020. "Introducing Extended Data on Terrorist Groups (EDTG), 1970 to 2016." *Journal of Conflict Resolution* 64(1): 199–225.

Research Design

- EDTG group-year data.[2] 760 groups. 1970–2016
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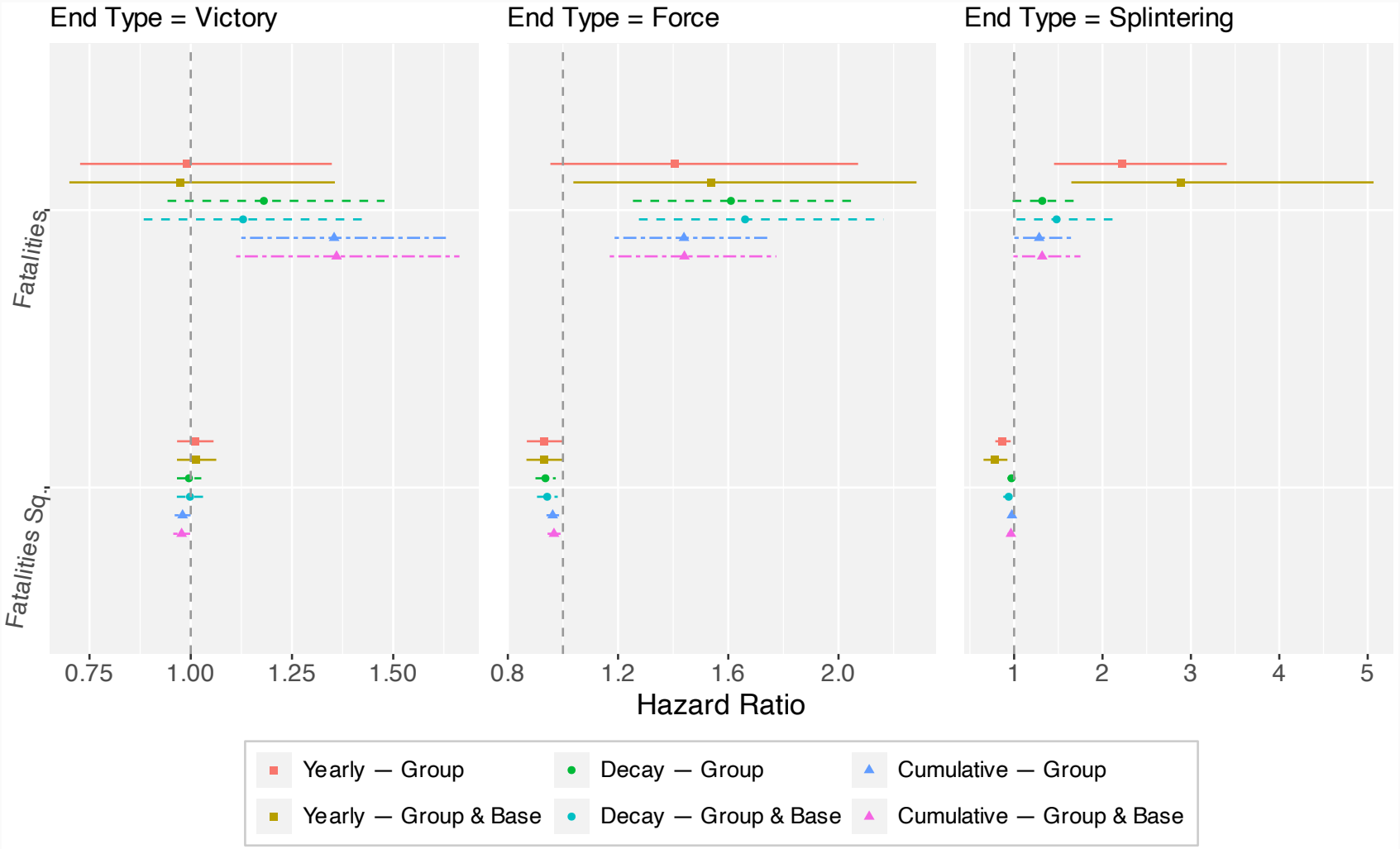
Research Design

- EDTG group-year data.[2] 760 groups. 1970–2016
- Time to group end type
- Cause specific competing risk Cox models
- Main explanatory variables: fatalities, fatalities with decay, cumulative fatalities. & squared version
- Control variables
  - Group: orientation, goals, attack diversity, transnational terror attacks, multiple bases
  - Base country: population, GDP per capita, V-Dem democracy index, ethnic fractionalization, tropics, elevation, region

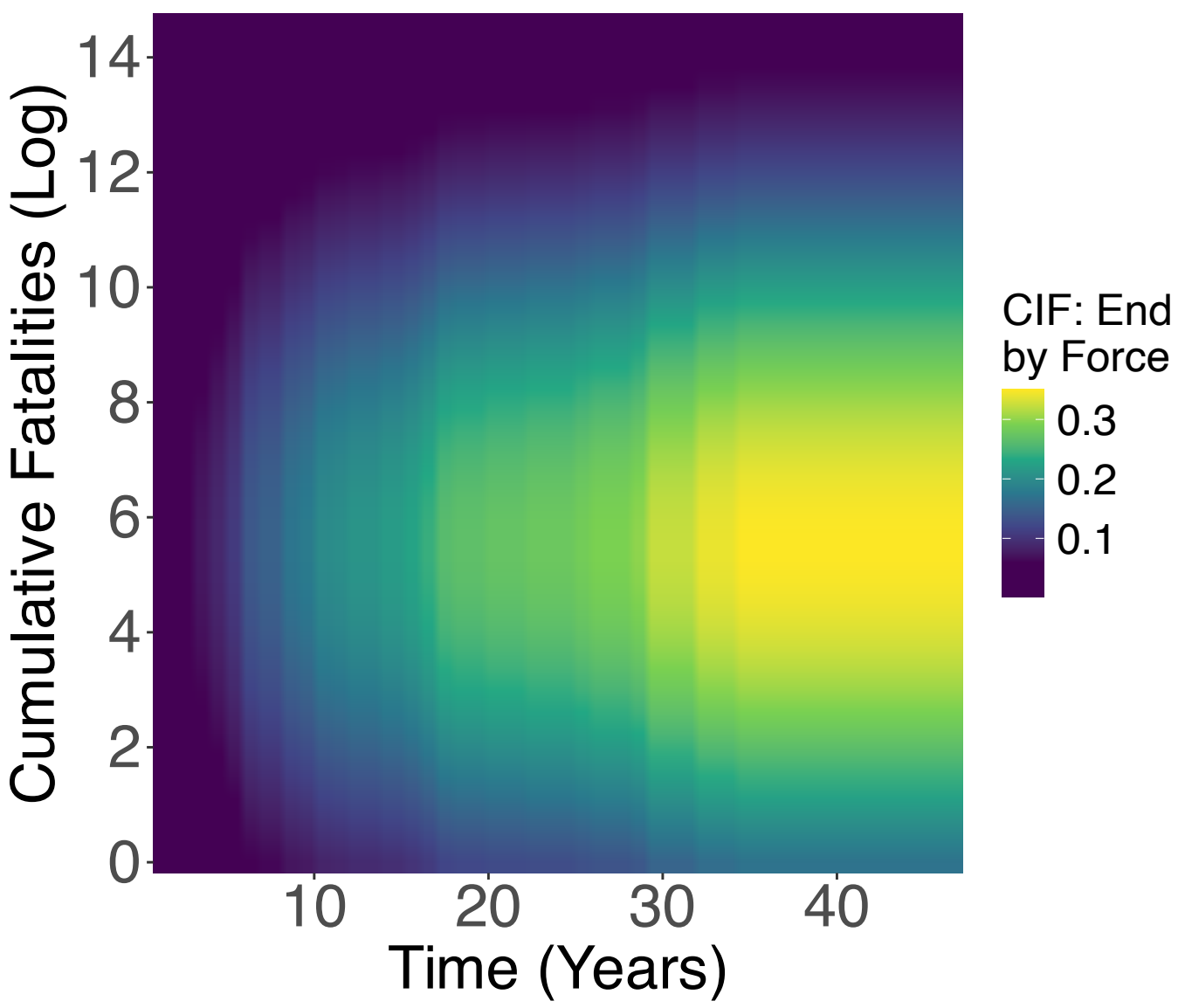
[2] Hou, Dongfang, Khusrav Gaibulloev, and Todd Sandler. 2020. "Introducing Extended Data on Terrorist Groups (EDTG), 1970 to 2016." *Journal of Conflict Resolution* 64(1): 199–225.

Findings



Fatalities logged base 2
Control variables included
90% confidence interval

Findings



Effect of continuous variable on ending by force

Findings

- Some support for H1. Terrorist groups with a moderate level of lethality are more likely to end in victory.
- Strong support for H2. Terrorist groups with a moderate level of lethality are more likely to end in force.
- H3 not supported. Results for splintering are ambiguous.

No Time to Die: The Effect of Lethality and Alliances on Terrorist Group Survival

Research Context

- How does lethality affect survival?
- How does lethality affect survival when the network of alliances is accounted for?
- How do alliances affect survival?

Theory: Lethality

- Lethality as capacity
- Lethality as a signal
    - Low levels
        - Not a big threat, little bargaining power
        - **Survival is likely**

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    - **Termination becomes more likely**

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    - Bargaining power undermined
    - High threat but high capacity to evade elimination
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Theory: Lethality

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    - High threat but high capacity to evade elimination
    - **Survival is likely**
- H1 : Terrorist groups that exhibit moderate levels of lethality are more likely to end.

Theory: Alliance Network

- Allies enable greater access to resources
- H2: Terrorist groups that are more embedded in the alliance network of terrorist groups will survive longer.

Research Design

- Two strategies: stochastic actor-oriented models (Siena models); accelerated failure time models

[3] Hou, Dongfang, Khusrav Gaibulloev, and Todd Sandler. 2020. "Introducing Extended Data on Terrorist Groups (EDTG), 1970 to 2016." *Journal of Conflict Resolution* 64(1): 199–225.

[4] Blair, Christopher W., Erica Chenoweth, Michael C. Horowitz, Evan Perkoski, and Philip B.K. Potter. 2021. "Honor Among Thieves: Understanding Rhetorical and Material Cooperation Among Violent Nonstate Actors." *International Organization* 76(1): 164–203.

Research Design

- Two strategies: stochastic actor-oriented models (Siena models); accelerated failure time models
- Group-year data from EDTG.[3] 652 groups after cleaning
- Alliance data primarily from MGAR.[4] Extensive cleaning. Supplemented with other datasets.
    - Alliances intended to capture tactical or logistical cooperation
- Lethality measured as yearly fatalities caused by group

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- Siena models a “behavior” and a network evolution at the same time
- Diffusion extension reduces to proportional hazards model

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- Diffusion extension reduces to proportional hazards model
- Network effects
  - Density — tendency of the network to have ties. Intercept
  - GWESP — triadic closures
  - Degree activity + popularity — rich get richer
  - Region homophily
  - Ego duration
- Behavior effects — behavior is group end
  - **Number of allies**
  - **Fatalities; fatalities squared**
  - Territory goal, religious orientation, multiple bases, base country population, base country GDP per capita, base country polity, duration

Research Design: Siena

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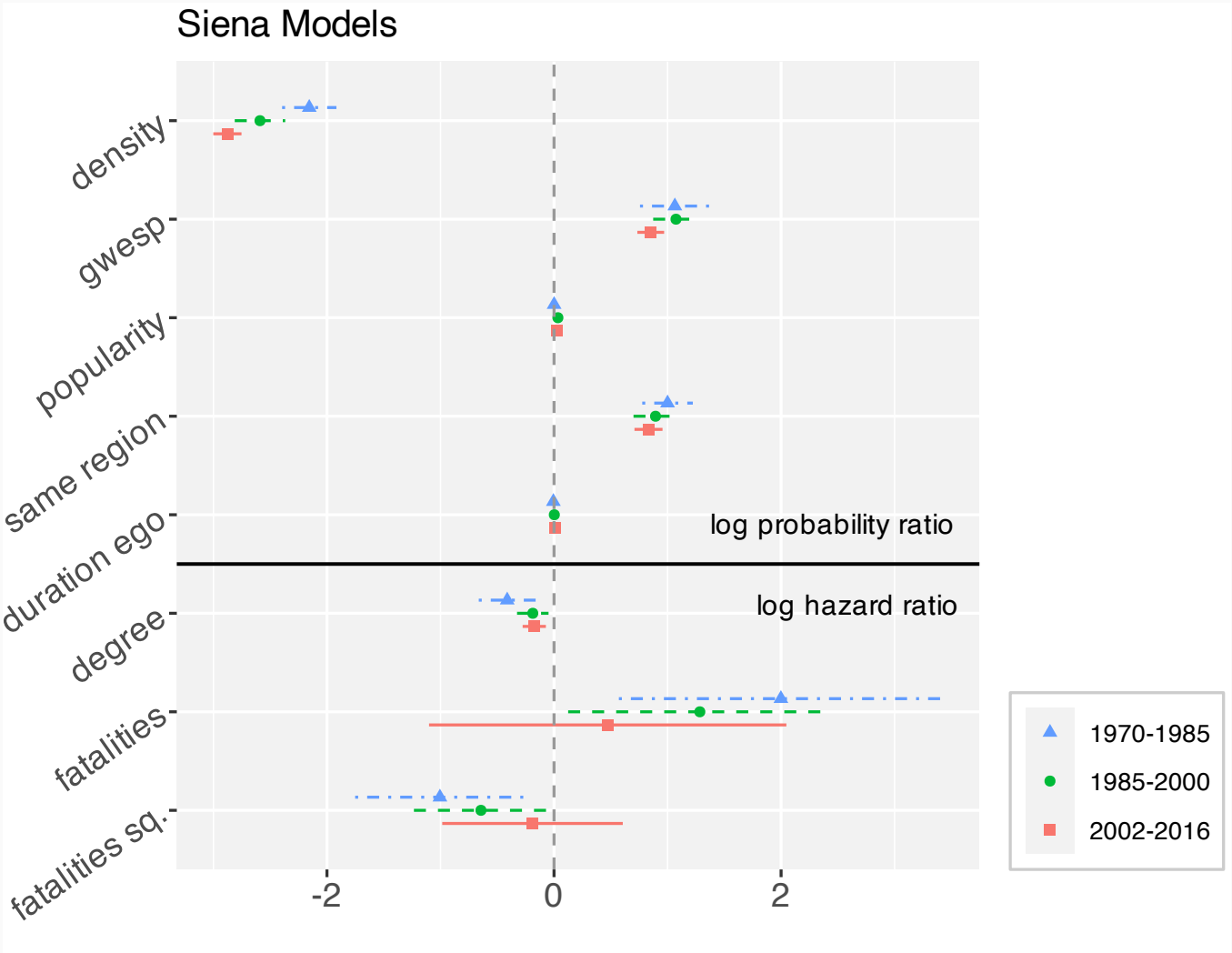
- Split into 3 time intervals

Findings: Siena

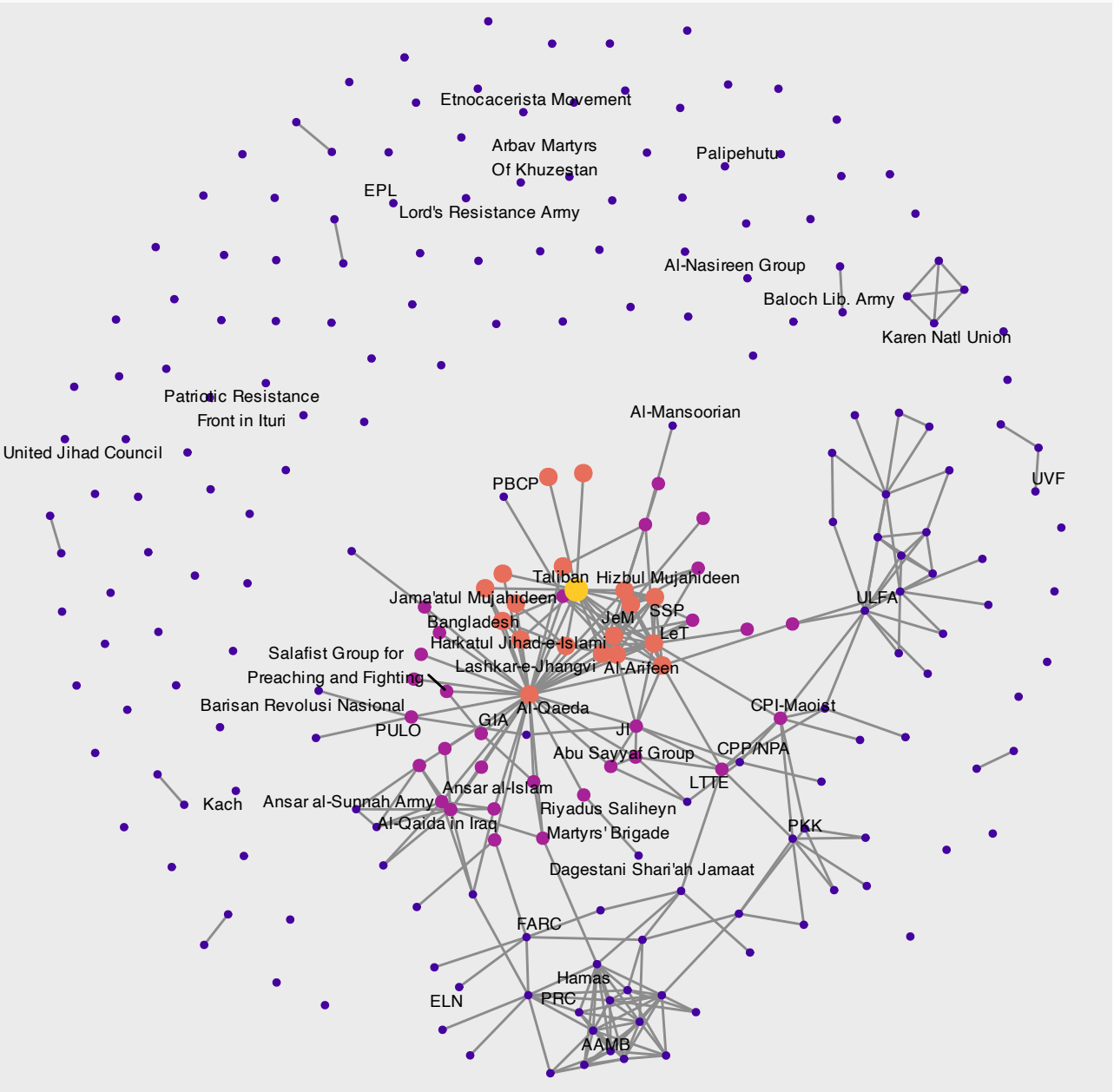


Fatalities logged base 2
Behavior control variables included

Research Design: AFT

- Network embeddedness measured three ways: degree centrality, eigenvector centrality, neighborhood order 2

Research Design: AFT



Neighborhood

- ego
- order1
- order2
- other

2005 Taliban neighbor-hood order 2

Research Design: AFT

- Network embeddedness measured three ways: degree centrality, eigenvector centrality, neighborhood order 2
- Lethality as fatalities. Squared term included

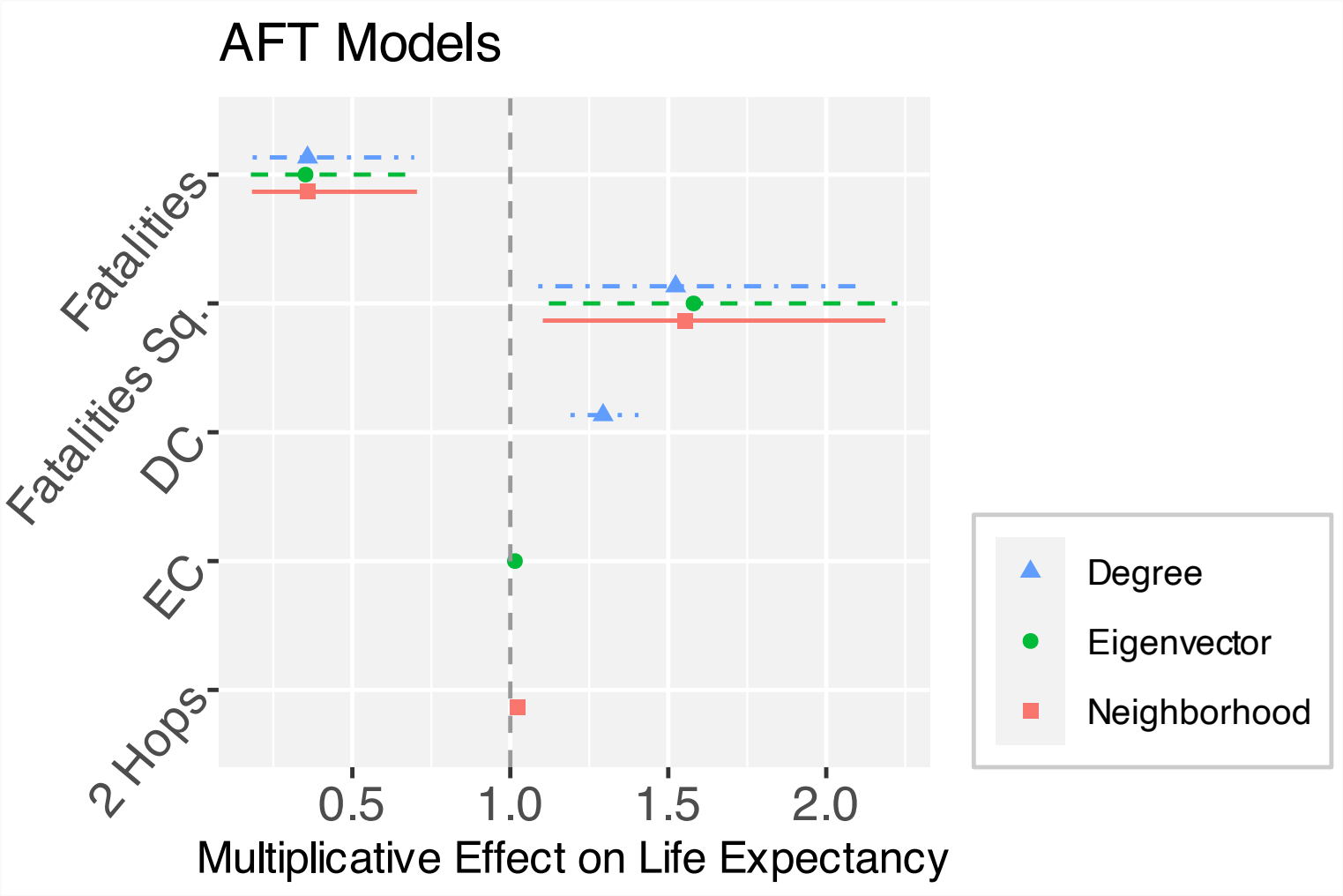
Research Design: AFT

- Network embeddedness measured three ways: degree centrality, eigenvector centrality, neighborhood order 2
- Lethality as fatalities. Squared term included
- Control variables: clustering coefficient, attack diversity, transnational attacks, multiple bases, orientation, goals, region, base country population, base country GDP per capita, base country V-Dem democracy index

Research Design: AFT

- Network embeddedness measured three ways: degree centrality, eigenvector centrality, neighborhood order 2
- Lethality as fatalities. Squared term included
- Control variables: clustering coefficient, attack diversity, transnational attacks, multiple bases, orientation, goals, region, base country population, base country GDP per capita, base country V-Dem democracy index
- Effect of covariates on "life expectancy" (not hazard of ending)
  - H1 expects inverted U-shape for proportional hazard model
  - H1 expects U-shape for AFT

Findings: AFT

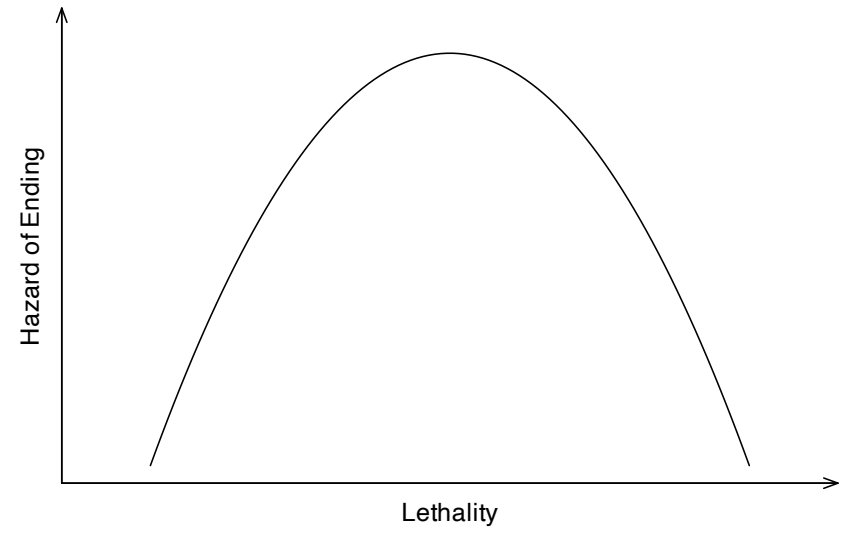


Fatalities

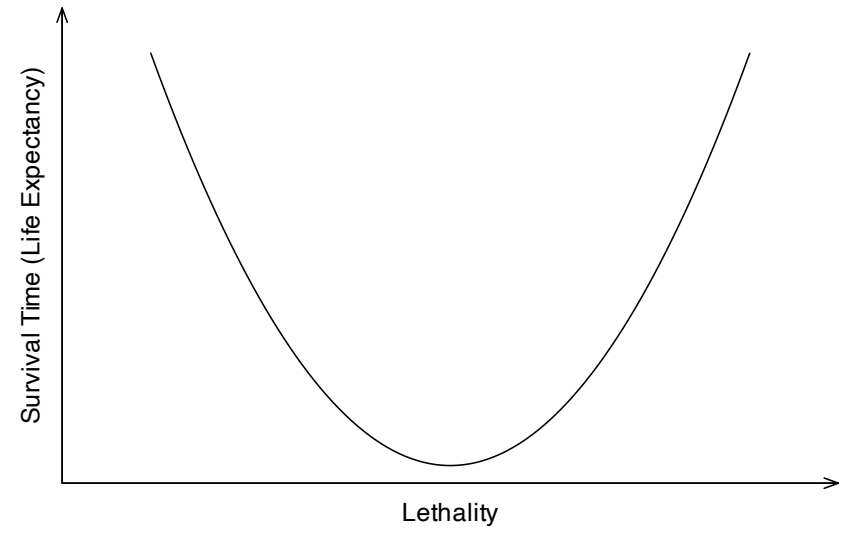
logged base 2
control variables included
frailty models not reported here

Thank you!

Appendix: U Shape Expectation

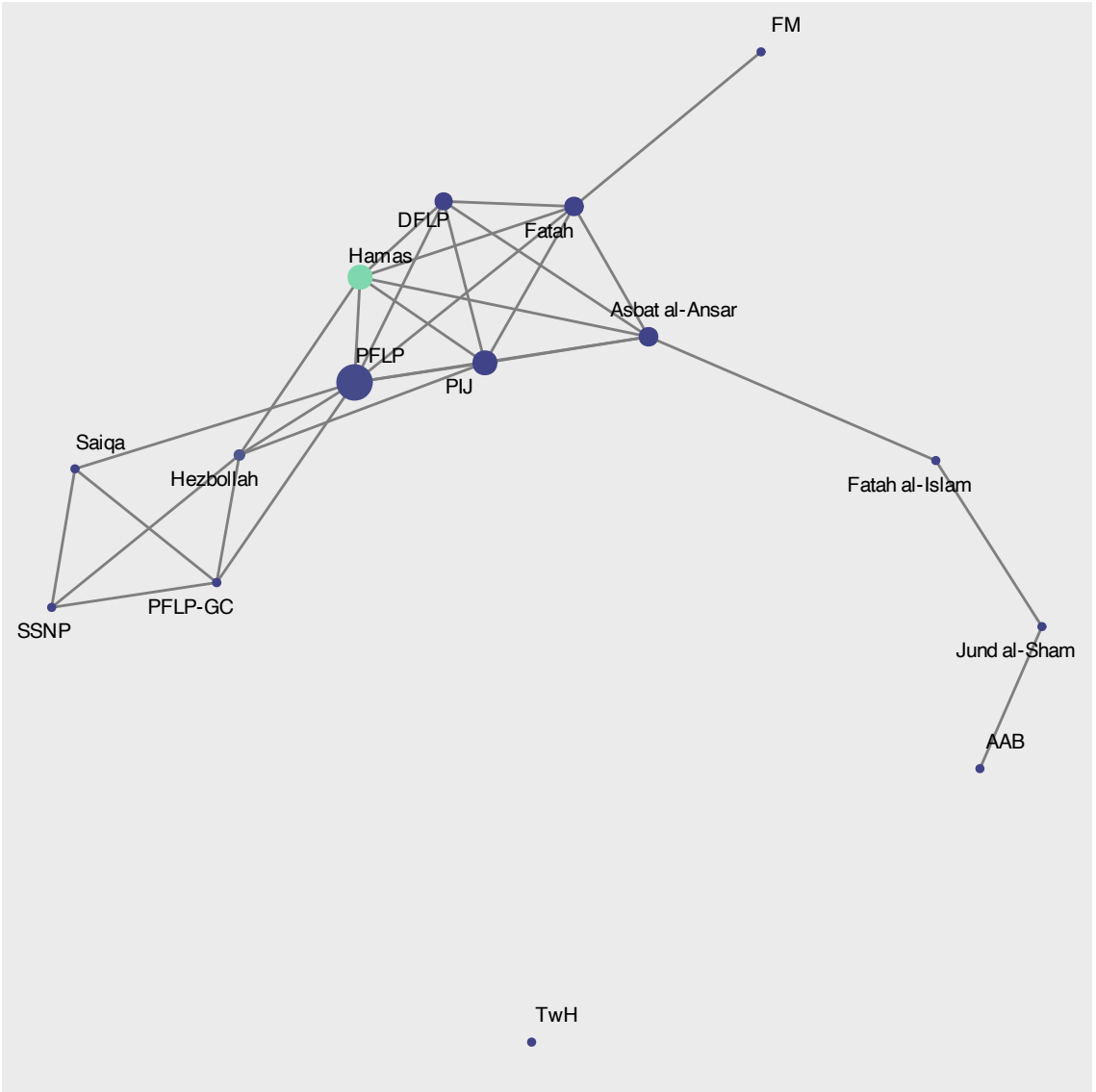


Siena Inverted U-Shape

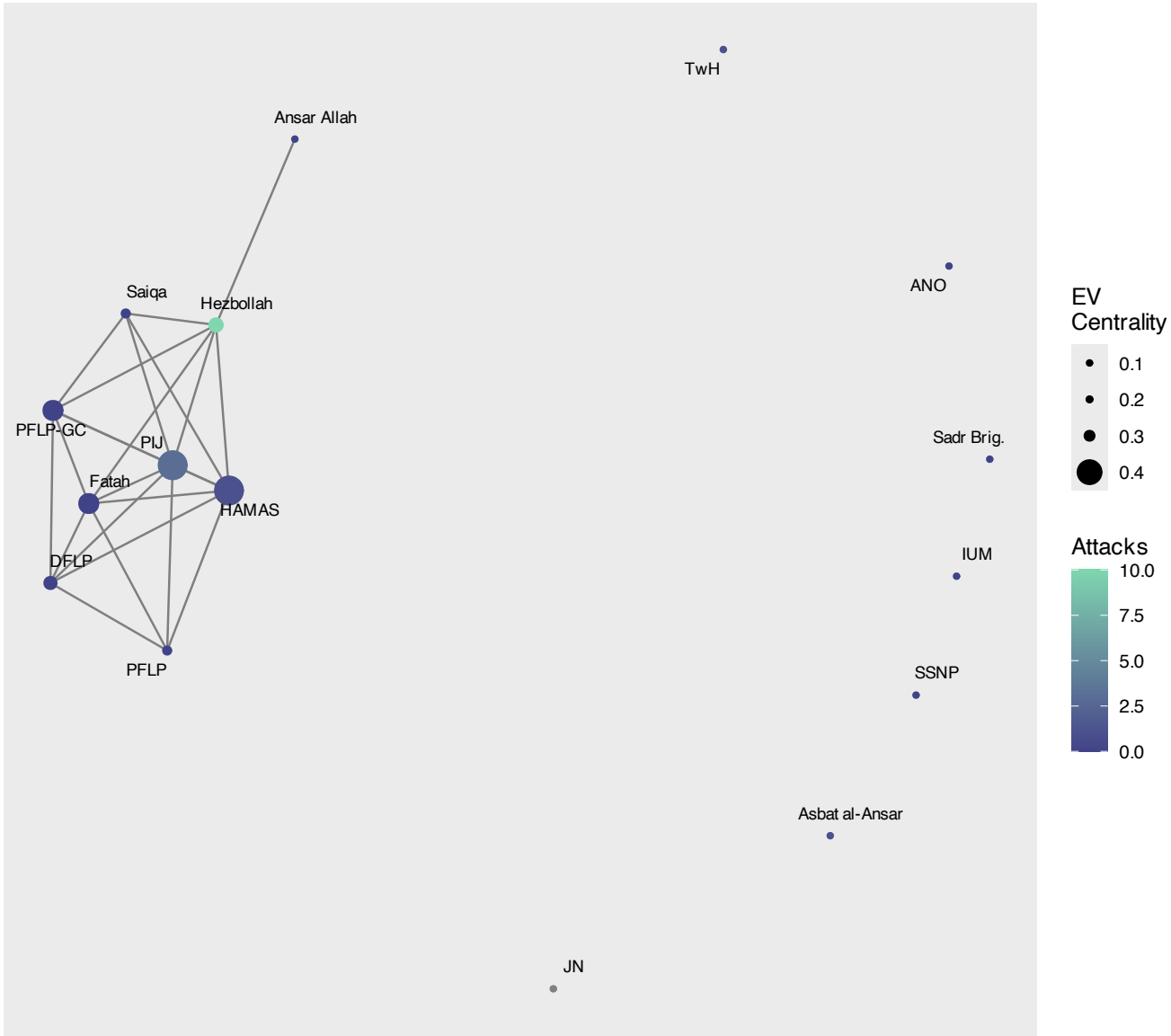


AFT U-Shape

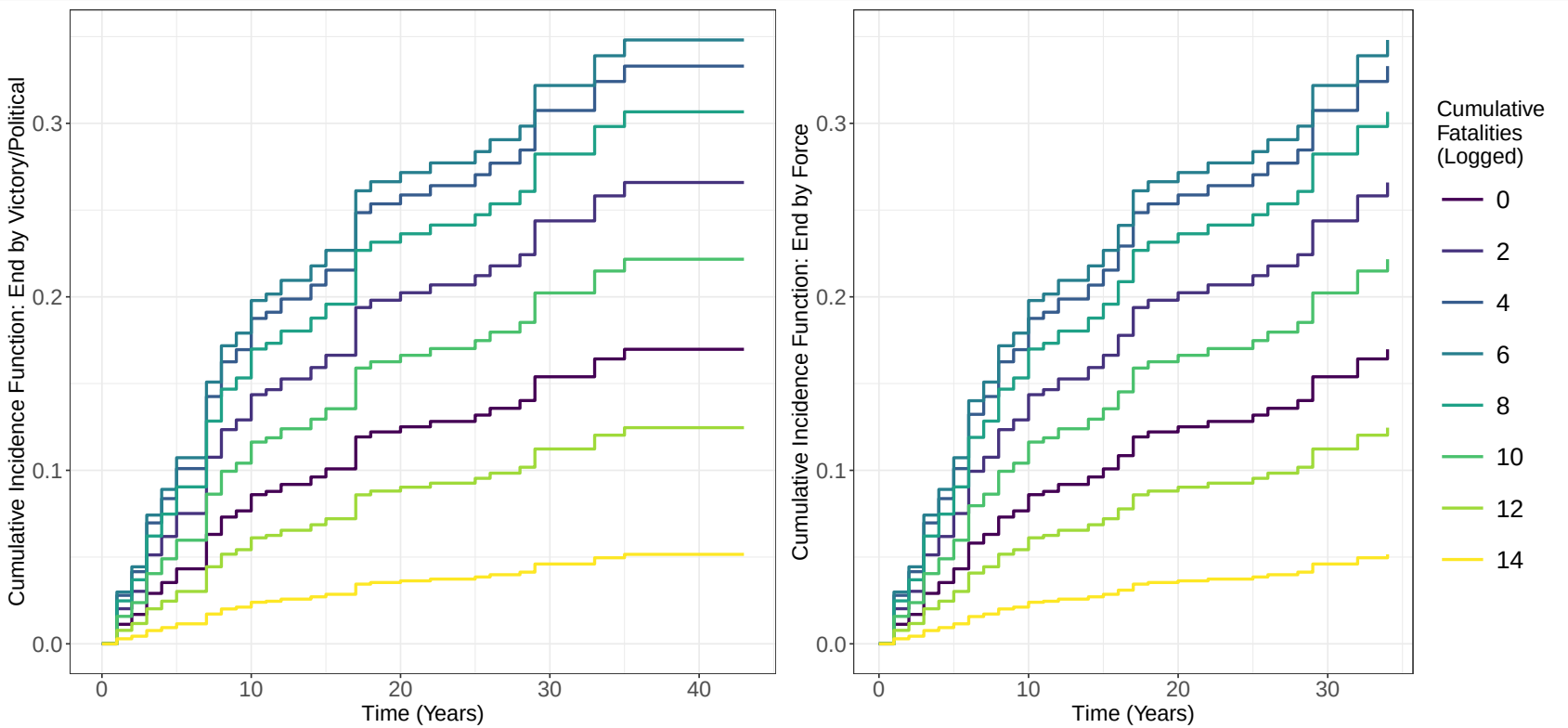
Eigenvector Centrality 2016



Eigenvector Centrality 2000



CIF Lines


Cumulative Incidence Function: End by Victory/Political
0.0
0.1
0.2
0.3
0
10
20
30
40
Time (Years)
Cumulative Incidence Function: End by Force
0.0
0.1
0.2
0.3
0
10
20
30
Time (Years)
Cumulative Fatalities (Logged)
0
2
4
6
8
10
12
14