Deadly Dates

The Effect of Holy Days on Terrorism

Caleb Lucas

March 22, 2019

Michigan State University

Question

How do Islamic holy days affect the incidence of terror attacks?

Evidence for an Increase

"Jihad fighters... [t]his month of Jihad (Ramadan) has come with all its blessings and with the double reward [granted to Jihad fighters] in its course. Come closer to Allah through the blood of infidels, do not relent in spilling [their blood]...!"

-Saud Bin Hamoud al-Utaybi
Senior Member of AQAP

Evidence for a Decrease

- Ashura commemoration in Karbala, Iraq (2012)
  - 2 million+ pilgrims gathered in Karbala for the holiday
  - No attacks occurred

Competing Findings

- Encourage attacks?

Competing Findings

- Encourage attacks?
  - Decreased coordination costs (Toft & Zhukov, 2015)

Competing Findings

- Encourage attacks?
  - Decreased coordination costs (Toft & Zhukov, 2015)
  - Communicate with the divine on these days (Juergensmeyer, 2017)

Competing Findings

- Encourage attacks?
  - Decreased coordination costs (Toft & Zhukov, 2015)
  - Communicate with the divine on these days (Juergensmeyer, 2017)
- Discourage attacks?

Competing Findings

- Encourage attacks?
  - Decreased coordination costs (Toft & Zhukov, 2015)
  - Communicate with the divine on these days (Juergensmeyer, 2017)
- Discourage attacks?
  - Civilian sensitivities to violence (Reese et al., 2017)

Competing Findings

- Encourage attacks?
  - Decreased coordination costs (Toft & Zhukov, 2015)
  - Communicate with the divine on these days (Juergensmeyer, 2017)
- Discourage attacks?
  - Civilian sensitivities to violence (Reese et al., 2017)
  - Religious respect (Hassner 2011)

Expectation

- My argument: heterogeneous holiday effect

Expectation

- My argument: heterogeneous holiday effect
  - Extant research overlooks count-terror measures

Expectation

- My argument: heterogeneous holiday effect
  - Extant research overlooks count-terror measures
  - State is able to deter attacks on certain days

Expectation

- My argument: heterogeneous holiday effect
  - Extant research overlooks count-terror measures
  - State is able to deter attacks on certain days
  - Decreased likelihood during short holidays (Eids)

Expectation

- My argument: heterogeneous holiday effect
  - Extant research overlooks count-terror measures
  - State is able to deter attacks on certain days
  - Decreased likelihood during short holidays (Eids)
  - Increased likelihood during long holidays (Ramadan)

Theory

Theory - Substitution Effects

- Important finding in counter-terror literature (Sandler & Lapan, 1988; Enders & Sandler, 1993; etc.)

Theory - Substitution Effects

- Important finding in counter-terror literature (Sandler & Lapan, 1988; Enders & Sandler, 1993; etc.)
- Governments strategically allocate scarce counter-terror resources (Powell, 2007)

Theory - Substitution Effects

- Important finding in counter-terror literature (Sandler & Lapan, 1988; Enders & Sandler, 1993; etc.)
- Governments strategically allocate scarce counter-terror resources (Powell, 2007)
    - Appealing targets $\rightarrow$ unappealing

Theory - Substitution Effects

- Important finding in counter-terror literature (Sandler & Lapan, 1988; Enders & Sandler, 1993; etc.)
- Governments strategically allocate scarce counter-terror resources (Powell, 2007)
  - Appealing targets $\rightarrow$ unappealing
  - Changes payoffs for terrorists

Theory - Substitution Effects

- Important finding in counter-terror literature (Sandler & Lapan, 1988; Enders & Sandler, 1993; etc.)
- Governments strategically allocate scarce counter-terror resources (Powell, 2007)
  - Appealing targets $\rightarrow$ unappealing
  - Changes payoffs for terrorists
  - Deter terrorists from attacking primary target

Theory - Substitution Effects

- Important finding in counter-terror literature (Sandler & Lapan, 1988; Enders & Sandler, 1993; etc.)
- Governments strategically allocate scarce counter-terror resources (Powell, 2007)
  - Appealing targets $\rightarrow$ unappealing
  - Changes payoffs for terrorists
  - Deter terrorists from attacking primary target
  - Terrorists substitute primary target for another target

Theory - Substitution Effects

- Important finding in counter-terror literature (Sandler & Lapan, 1988; Enders & Sandler, 1993; etc.)
- Governments strategically allocate scarce counter-terror resources (Powell, 2007)
  - Appealing targets $\rightarrow$ unappealing
  - Changes payoffs for terrorists
  - Deter terrorists from attacking primary target
  - Terrorists substitute primary target for another target
  - Aircraft hijacking and kidnappings (Landes, 1978)

Theory - Terrorist's Holiday Strategy

- Incentives to attack on Islamic holidays

Theory - Terrorist's Holiday Strategy

- Incentives to attack on Islamic holidays
  - Interrupts religious practices of the target population

Theory - Terrorist's Holiday Strategy

- Incentives to attack on Islamic holidays
  - Interrupts religious practices of the target population
  - Demonstrates religiosity and divine inspiration

Theory - Terrorist's Holiday Strategy

- Incentives to attack on Islamic holidays
  - Interrupts religious practices of the target population
  - Demonstrates religiosity and divine inspiration
  - Activate and incite societal divisions

Theory - Terrorist's Holiday Strategy

- Incentives to attack on Islamic holidays
  - Interrupts religious practices of the target population
  - Demonstrates religiosity and divine inspiration
  - Activate and incite societal divisions
  - Challenges government legitimacy

Theory - Terrorist's Holiday Strategy

- Incentives to attack on Islamic holidays
  - Interrupts religious practices of the target population
  - Demonstrates religiosity and divine inspiration
  - Activate and incite societal divisions
  - Challenges government legitimacy
  - $\rightarrow$ Imposes relatively more terror than other days

Theory - Government's Holiday Strategy

- Seek to prevent attacks from occurring on holidays

Theory - Government's Holiday Strategy

- Seek to prevent attacks from occurring on holidays
- Governments design holiday-specific security plans

Theory - Government's Holiday Strategy

- Seek to prevent attacks from occurring on holidays
- Governments design holiday-specific security plans
  - Karbala: 30,000 troops deployed during Ashura

Theory - Government's Holiday Strategy

- Seek to prevent attacks from occurring on holidays
- Governments design holiday-specific security plans
  - Karbala: 30,000 troops deployed during Ashura
  - Islamabad: One person per scooter during Muharram
    ↪ Ashura: Cut cell service, added checkpoints, etc.

Theory - Government's Holiday Strategy

- Seek to prevent attacks from occurring on holidays
- Governments design holiday-specific security plans
  - Karbala: 30,000 troops deployed during Ashura
  - Islamabad: One person per scooter during Muharram
    ↪ Ashura: Cut cell service, added checkpoints, etc.
  - Mosul: Banned niqabs during Ramadan

Theory - Government's Holiday Strategy

- Seek to prevent attacks from occurring on holidays
- Governments design holiday-specific security plans
  - Karbala: 30,000 troops deployed during Ashura
  - Islamabad: One person per scooter during Muharram
    ↪ Ashura: Cut cell service, added checkpoints, etc.
  - Mosul: Banned niqabs during Ramadan
- Max. efficiency of scarce counter-terror resources

Theory - Government's Holiday Strategy

- Seek to prevent attacks from occurring on holidays
- Governments design holiday-specific security plans
  - Karbala: 30,000 troops deployed during Ashura
  - Islamabad: One person per scooter during Muharram
    ↪ Ashura: Cut cell service, added checkpoints, etc.
  - Mosul: Banned niqabs during Ramadan
- Max. efficiency of scarce counter-terror resources
  - Resource constraints force government to focus on focal points for violence

Theory - Government's Holiday Strategy

- Seek to prevent attacks from occurring on holidays
- Governments design holiday-specific security plans
  - Karbala: 30,000 troops deployed during Ashura
  - Islamabad: One person per scooter during Muharram
    ↪ Ashura: Cut cell service, added checkpoints, etc.
  - Mosul: Banned niqabs during Ramadan
- Max. efficiency of scarce counter-terror resources
  - Resource constraints force government to focus on focal points for violence
  - Leads to hetergenous holiday effect

Theory - Short and Long Holidays

- Short holidays- focal points, unambiguous symbolism

Theory - Short and Long Holidays

- Short holidays- focal points, unambiguous symbolism
  - Government: Implement massive security plans

Theory - Short and Long Holidays

- Short holidays- focal points, unambiguous symbolism
  - Government: Implement massive security plans
    - Contextualized to confront specific threats

Theory - Short and Long Holidays

- Short holidays- focal points, unambiguous symbolism
  - Government: Implement massive security plans
    - Contextualized to confront specific threats
  - Terrorists: Select out of attacking

Theory - Short and Long Holidays

- Short holidays- focal points, unambiguous symbolism
  - Government: Implement massive security plans
    - Contextualized to confront specific threats
  - Terrorists: Select out of attacking
    - Costly to overcome security

Theory - Short and Long Holidays

- Short holidays- focal points, unambiguous symbolism
  - Government: Implement massive security plans
    - Contextualized to confront specific threats
  - Terrorists: Select out of attacking
    - Costly to overcome security
    - No time to update

Theory - Short and Long Holidays

- Short holidays- focal points, unambiguous symbolism
  - Government: Implement massive security plans
    - Contextualized to confront specific threats
  - Terrorists: Select out of attacking
    - Costly to overcome security
    - No time to update
- Long holidays

Theory - Short and Long Holidays

- Short holidays- focal points, unambiguous symbolism
  - Government: Implement massive security plans
    - Contextualized to confront specific threats
  - Terrorists: Select out of attacking
    - Costly to overcome security
    - No time to update
- Long holidays
  - Government: Marginally increase security

Theory - Short and Long Holidays

- Short holidays- focal points, unambiguous symbolism
  - Government: Implement massive security plans
    - Contextualized to confront specific threats
  - Terrorists: Select out of attacking
    - Costly to overcome security
    - No time to update
- Long holidays
  - Government: Marginally increase security
    - Much higher relative cost to protect

Theory - Short and Long Holidays

- Short holidays- focal points, unambiguous symbolism
  - Government: Implement massive security plans
    - Contextualized to confront specific threats
  - Terrorists: Select out of attacking
    - Costly to overcome security
    - No time to update
- Long holidays
  - Government: Marginally increase security
    - Much higher relative cost to protect
    - Neg. externalities of long-term security measures

Theory - Short and Long Holidays

- Short holidays- focal points, unambiguous symbolism
  - Government: Implement massive security plans
    - Contextualized to confront specific threats
  - Terrorists: Select out of attacking
    - Costly to overcome security
    - No time to update
- Long holidays
  - Government: Marginally increase security
    - Much higher relative cost to protect
    - Neg. externalities of long-term security measures
  - Terrorists: Conduct attacks

Theory - Short and Long Holidays

- Short holidays- focal points, unambiguous symbolism
  - Government: Implement massive security plans
    - Contextualized to confront specific threats
  - Terrorists: Select out of attacking
    - Costly to overcome security
    - No time to update
- Long holidays
  - Government: Marginally increase security
    - Much higher relative cost to protect
    - Neg. externalities of long-term security measures
  - Terrorists: Conduct attacks
    - Length allows updating

Theory - Short and Long Holidays

- Short holidays- focal points, unambiguous symbolism
  - Government: Implement massive security plans
    - Contextualized to confront specific threats
  - Terrorists: Select out of attacking
    - Costly to overcome security
    - No time to update
- Long holidays
  - Government: Marginally increase security
    - Much higher relative cost to protect
    - Neg. externalities of long-term security measures
  - Terrorists: Conduct attacks
    - Length allows updating
    - Maximises benefits relative to costs

Theory - Short and Long Holidays

- Short holidays- focal points, unambiguous symbolism
  - Government: Implement massive security plans
    - Contextualized to confront specific threats
  - Terrorists: Select out of attacking
    - Costly to overcome security
    - No time to update
- Long holidays
  - Government: Marginally increase security
    - Much higher relative cost to protect
    - Neg. externalities of long-term security measures
  - Terrorists: Conduct attacks
    - Length allows updating
    - Maximises benefits relative to costs
- Muharram & Ashura in Pakistan

Hypotheses

	Day Type	Expectation
	Non-holiday	Baseline
H1:	Short Islamic Holiday	↓
H2:	Long Islamic Holiday	↑

Data

Data

- Afghanistan, Pakistan, Iraq (2004-2014)

Data

- Afghanistan, Pakistan, Iraq (2004-2014)
  - Possibility of terror attacks

Data

- Afghanistan, Pakistan, Iraq (2004-2014)
  - Possibility of terror attacks
  - Active security forces

Data

- Afghanistan, Pakistan, Iraq (2004-2014)
  - Possibility of terror attacks
  - Active security forces
  - 97% Muslim

Data

- Afghanistan, Pakistan, Iraq (2004-2014)
  - Possibility of terror attacks
  - Active security forces
  - 97% Muslim
- Unit: Province-days (Iraq & Pakistan) and Regional Command days (Afghanistan)

Data

- Afghanistan, Pakistan, Iraq (2004-2014)
  - Possibility of terror attacks
  - Active security forces
  - 97% Muslim
- Unit: Province-days (Iraq & Pakistan) and Regional Command days (Afghanistan)
- 124,588 observations

Data

- Afghanistan, Pakistan, Iraq (2004-2014)
  - Possibility of terror attacks
  - Active security forces
  - 97% Muslim
- Unit: Province-days (Iraq & Pakistan) and Regional Command days (Afghanistan)
- 124,588 observations
- Controls

Data

- Afghanistan, Pakistan, Iraq (2004-2014)
  - Possibility of terror attacks
  - Active security forces
  - 97% Muslim
- Unit: Province-days (Iraq & Pakistan) and Regional Command days (Afghanistan)
- 124,588 observations
- Controls
  - Temperature, Precipitation

Data

- Afghanistan, Pakistan, Iraq (2004-2014)
  - Possibility of terror attacks
  - Active security forces
  - 97% Muslim
- Unit: Province-days (Iraq & Pakistan) and Regional Command days (Afghanistan)
- 124,588 observations
- Controls
  - Temperature, Precipitation
  - Elevation, Land Area (km^2)

Data

- Afghanistan, Pakistan, Iraq (2004-2014)
  - Possibility of terror attacks
  - Active security forces
  - 97% Muslim
- Unit: Province-days (Iraq & Pakistan) and Regional Command days (Afghanistan)
- 124,588 observations
- Controls
  - Temperature, Precipitation
  - Elevation, Land Area (km^2)
  - Battlefield violence

Data

- Afghanistan, Pakistan, Iraq (2004-2014)
  - Possibility of terror attacks
  - Active security forces
  - 97% Muslim
- Unit: Province-days (Iraq & Pakistan) and Regional Command days (Afghanistan)
- 124,588 observations
- Controls
  - Temperature, Precipitation
  - Elevation, Land Area (km^2)
  - Battlefield violence
  - Population (km^2)

Data

- Afghanistan, Pakistan, Iraq (2004-2014)
  - Possibility of terror attacks
  - Active security forces
  - 97% Muslim
- Unit: Province-days (Iraq & Pakistan) and Regional Command days (Afghanistan)
- 124,588 observations
- Controls
  - Temperature, Precipitation
  - Elevation, Land Area (km^2)
  - Battlefield violence
  - Population (km^2)
  - Road density

Dependent Variable

- Outcome: binary variable indicating whether a terror attack occurred (GTD)

Dependent Variable

- Outcome: binary variable indicating whether a terror attack occurred (GTD)
  - Only 5% of province/RC days experience more than one attack

Dependent Variable

- Outcome: binary variable indicating whether a terror attack occurred (GTD)
  - Only 5% of province/RC days experience more than one attack
  - 15% of observations experience a terror attack

Key Independent Variable

- Categorical variable with three levels

Key Independent Variable

- Categorical variable with three levels
  - Non-holidays: 48% (baseline)

Key Independent Variable

- Categorical variable with three levels
  - Non-holidays: 48% (baseline)
  - Short Holidays: 18%

Key Independent Variable

- Categorical variable with three levels
  - Non-holidays: 48% (baseline)
  - Short Holidays: 18%
  - Long Holidays: 34%

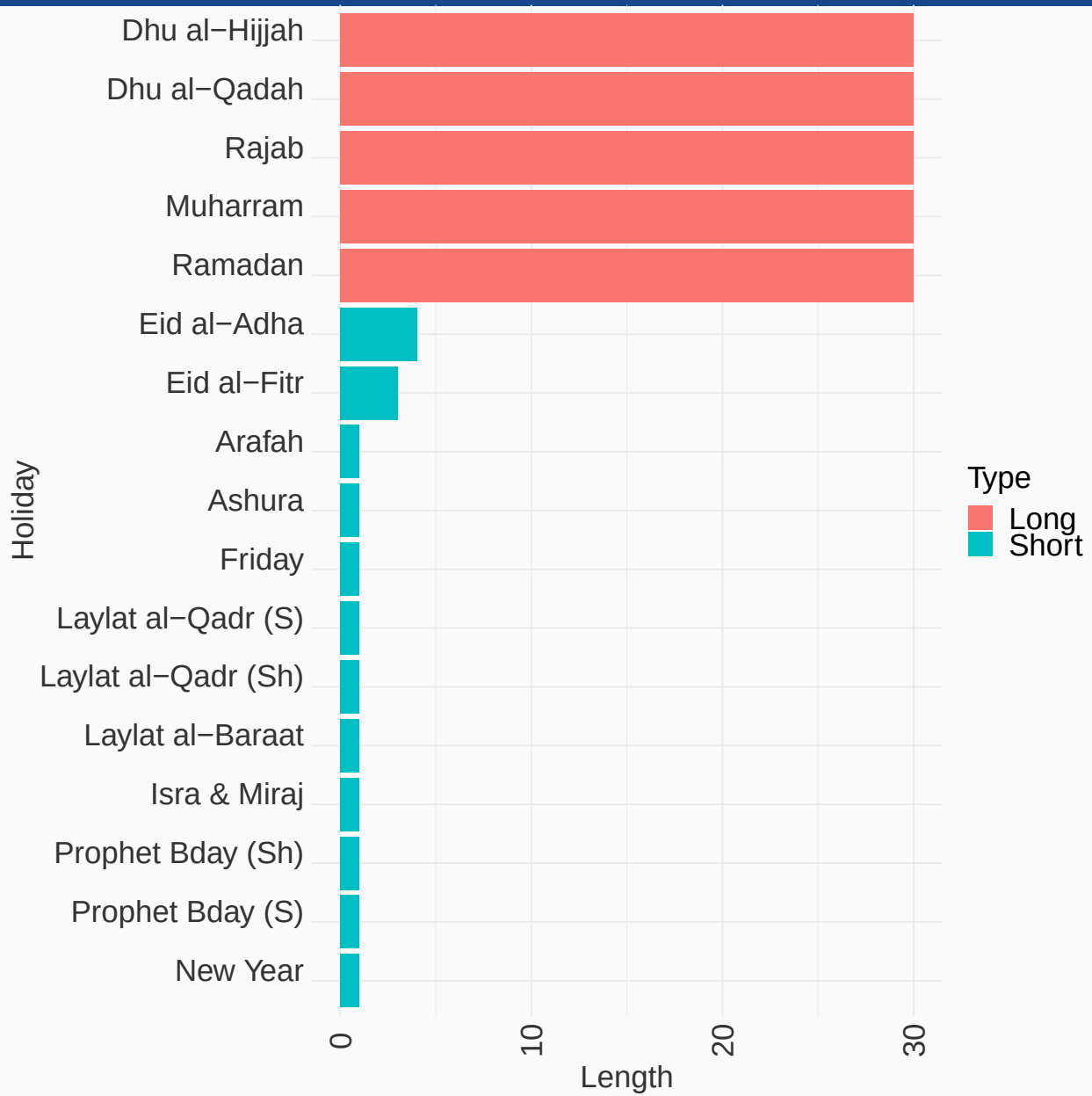
Key Independent Variable

- Categorical variable with three levels
  - Non-holidays: 48% (baseline)
  - Short Holidays: 18%
  - Long Holidays: 34%
- Coding of individual holidays relies on data from Reese et al. (2017)

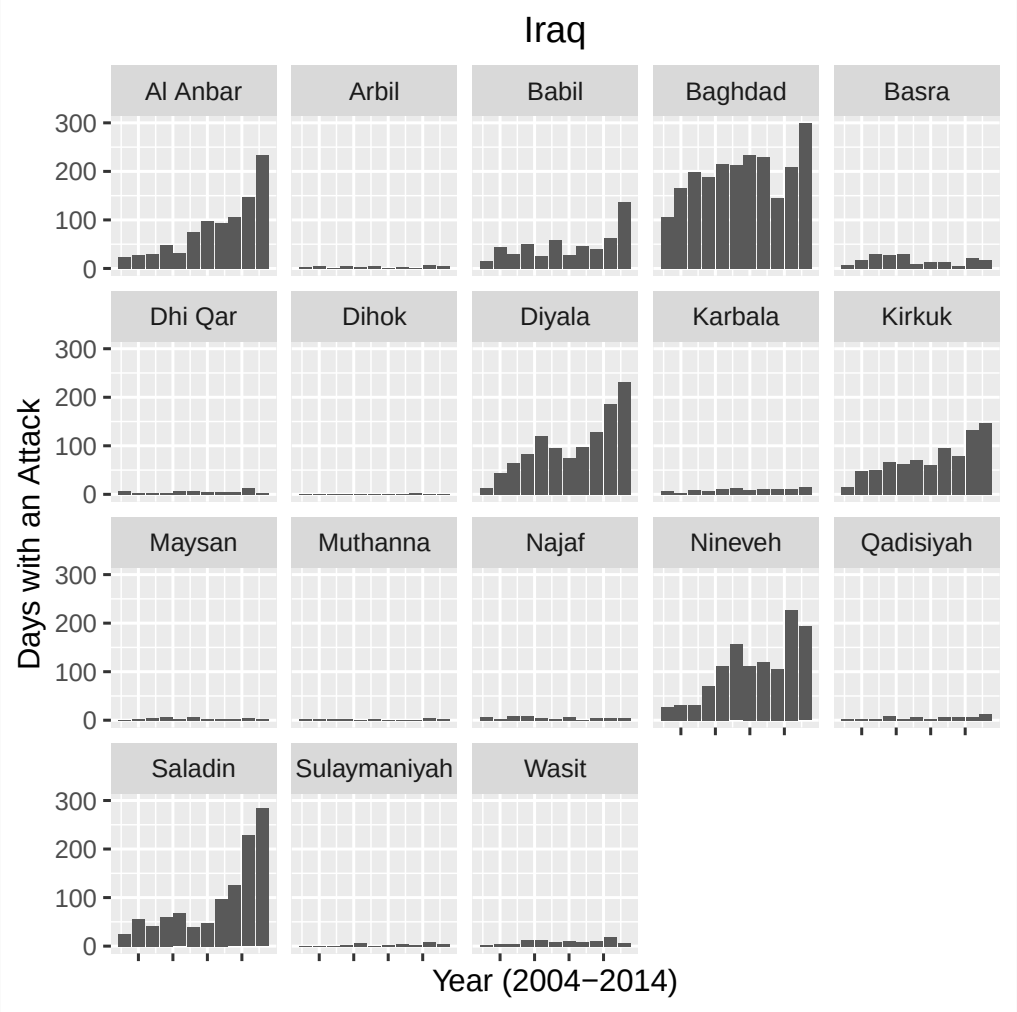
Key Independent Variable

- Categorical variable with three levels
  - Non-holidays: 48% (baseline)
  - Short Holidays: 18%
  - Long Holidays: 34%
- Coding of individual holidays relies on data from Reese et al. (2017)
  - Different categorization scheme

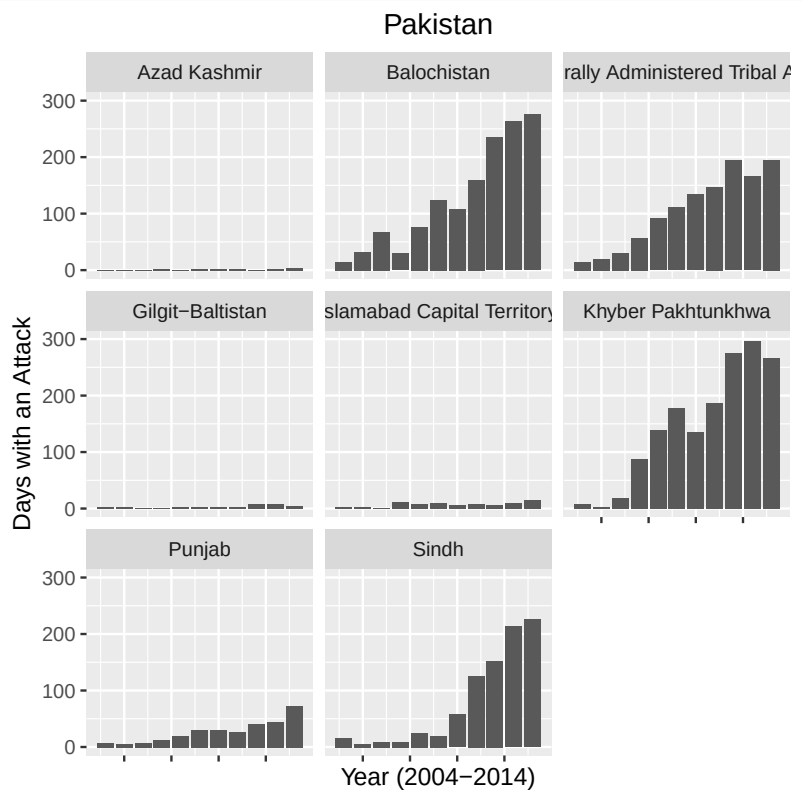
Key Independent Variable

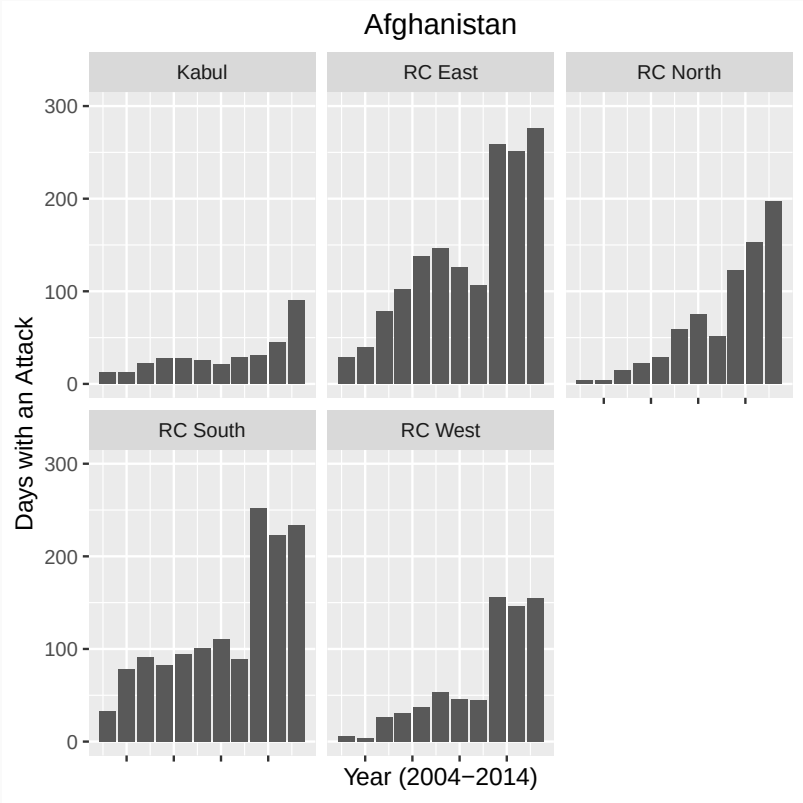


Variation in attacks by provinces (2004-2014)



Variation in attacks by provinces (2004-2014)





Model

Multilevel Model

- Data exhibit a clear hierarchical structure

Multilevel Model

- Data exhibit a clear hierarchical structure
  - Predictors at different levels: population and temperature

$$p(y_{ijk} = 1) = logit^{-1}(\beta_0 + \beta_1 \cdot X_{1ijk} + \beta_2 \cdot X_{2jk} +$$

$$\beta_3 \cdot X_{3k} + provyear_{jk} + prov_k)$$

Results

Logistic Regression Results

Expectation	Day Type
H1: ↓	Short Holiday

*p < .05

Logistic Regression Results

Expectation	Day Type	Coef
H1: ↓	Short Holiday	-0.276*

*p < .05

Logistic Regression Results

Expectation	Day Type	Coef	SE
H1: ↓	Short Holiday	-0.276*	0.027

*p < .05

Logistic Regression Results

Expectation	Day Type	Coef	SE
H1: ↓	Short Holiday	-0.276*	0.027
H2: ↑	Long Holiday		

*p < .05

Logistic Regression Results

Expectation	Day Type	Coef	SE
H1: ↓	Short Holiday	-0.276*	0.027
H2: ↑	Long Holiday	0.051*	

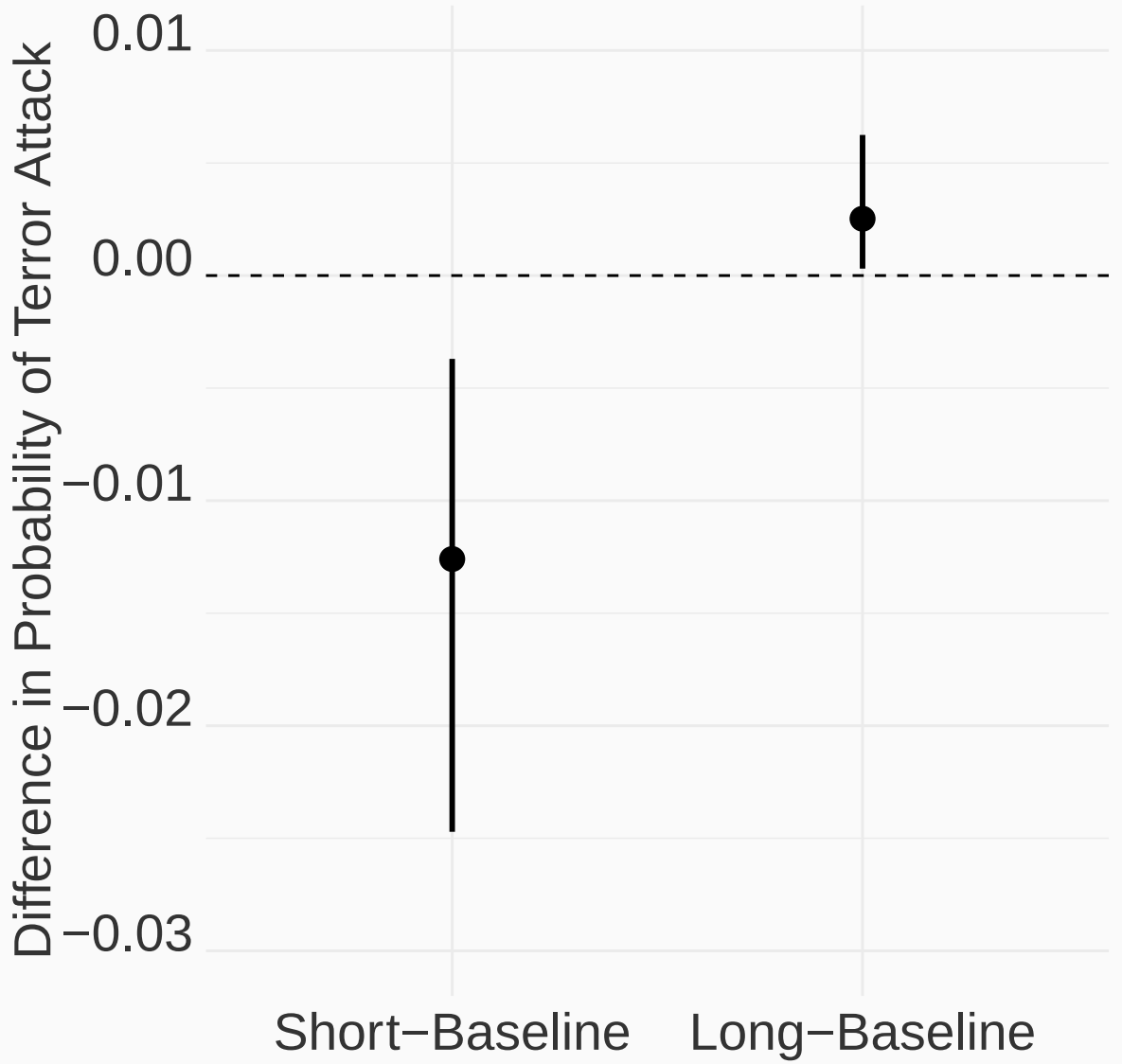
*p < .05

Logistic Regression Results

Expectation	Day Type	Coef	SE
H1: ↓	Short Holiday	-0.276*	0.027
H2: ↑	Long Holiday	0.051*	0.021

*p < .05

First Differences



Conclusion + Next Steps

Conclusion + Next Steps

- Heterogeneous holiday effect

Conclusion + Next Steps

- Heterogeneous holiday effect
- Data from Afghanistan, Iraq, Pakistan

Conclusion + Next Steps

- Heterogeneous holiday effect
- Data from Afghanistan, Iraq, Pakistan
    - Terrorism less likely on short holidays

Conclusion + Next Steps

- Heterogeneous holiday effect
- Data from Afghanistan, Iraq, Pakistan
  - Terrorism less likely on short holidays
  - Terrorism more likely on long holidays

Conclusion + Next Steps

- Heterogeneous holiday effect
- Data from Afghanistan, Iraq, Pakistan
  - Terrorism less likely on short holidays
  - Terrorism more likely on long holidays
- Attacks immediately before/after holidays (Toft & Zhukov, 2015)

Conclusion + Next Steps

- Heterogeneous holiday effect
- Data from Afghanistan, Iraq, Pakistan
  - Terrorism less likely on short holidays
  - Terrorism more likely on long holidays
- Attacks immediately before/after holidays (Toft & Zhukov, 2015)
- Strategic targeting on Islamic holidays

Conclusion + Next Steps

- Heterogeneous holiday effect
- Data from Afghanistan, Iraq, Pakistan
  - Terrorism less likely on short holidays
  - Terrorism more likely on long holidays
- Attacks immediately before/after holidays (Toft & Zhukov, 2015)
- Strategic targeting on Islamic holidays
- Model government/terrorist learning

Thank you!

Caleb Lucas
clucas@msu.edu