

Terrorism Financing, Recruitment and Attacks

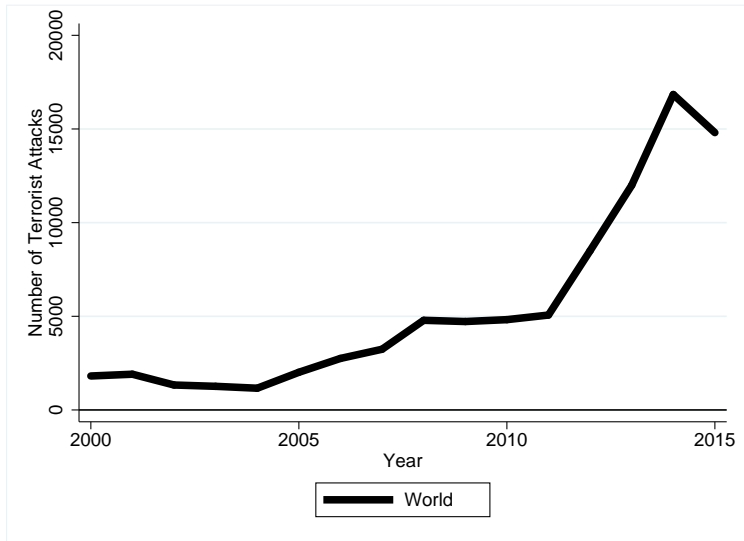
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Global Terrorism on the Rise



Definition

Increase in Attacks and Terrorism Financing

Terrorism financing part of such surge (Feldstein, 2008)

Global effort in curbing this link, especially post 9/11

Lack of evidence on this relation

→ Challenging to measure the object of study

→ Tough quasi-experimental setting

This is costly

→ Scope of regulation under attack

→ Existence and funding of financial counter-terrorism

Research Question

Does Terrorism Financing promote Attacks?

How does Financing interact with Recruitment?

Key Question

Do the timing and location of finance affect attacks?

Not trivial - frictions to the internal capital market

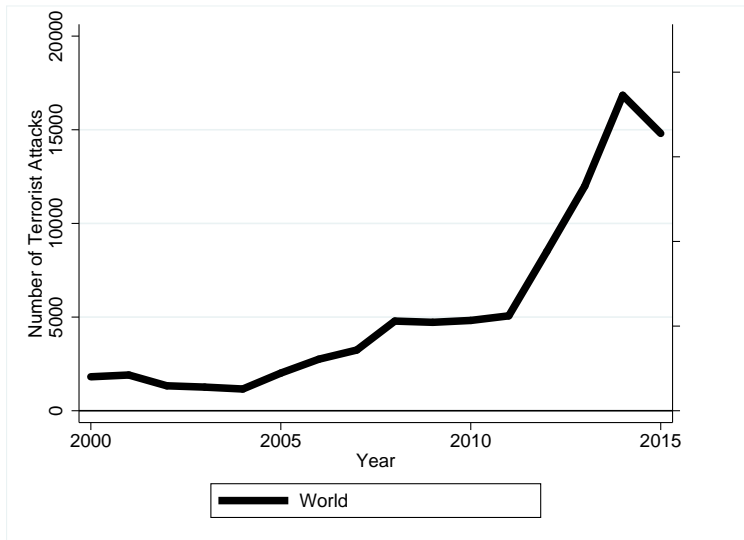
✓ Frictionless world → No relation, smoothing

✓ Frictions to transfers → Immediate relation

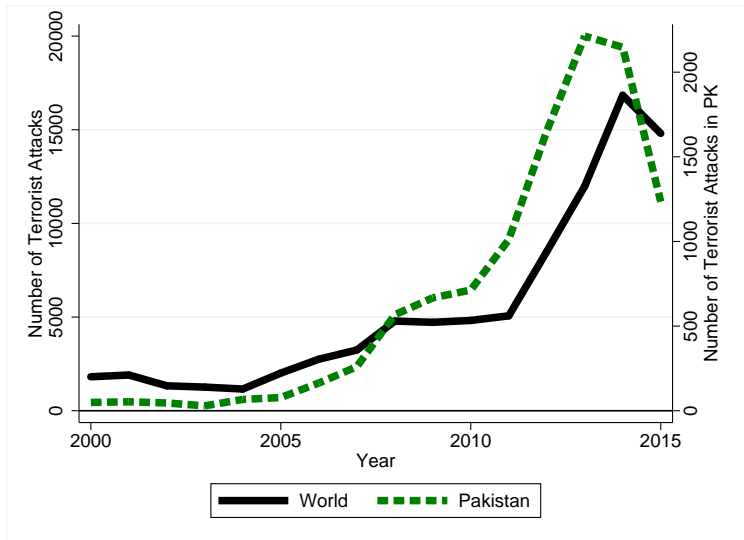
My Paper → Evidence of frictions & immediate attacks

Implications → Financial counter-terrorism can lower attacks and casualties

A Case Study



A Case Study - Pakistan



This Paper

Empirical Test & Two Novel Methods

Empirical Test in Pakistan

1. Panel of 1545 Cities over 96 quarter-years '92-'15
2. Universe of Terrorist Attacks ($\sim 12,000$ events)
3. Natural Experiment \rightarrow Exogenous Variation in Terr. Financing

Methods

1. Novel City-Organization Variation
 - * Dissect supply vs demand & estimate elasticity
2. Measure Terrorist Recruitment
 - * Dark web data on Jihadist fora, judges & machine learning

This Paper & Results

Empirical Test & Two Novel Methods

Empirical Test in Pakistan → **Financing leads to Attacks**

1. Panel of 1545 Cities over 96 quarter-years '92-'15
2. Universe of Terrorist Attacks ($\sim 12,000$ events)
3. Natural Experiment → Exogenous Variation in Terr. Financing

Methods

1. Novel City-Organization Variation → **Supply is Key**
 - * Dissect supply vs demand & estimate elasticity → **(0.25)**
2. Measure Terrorist Recruitment → **Complementarity L-K**
 - * Dark web data on Jihadist fora, judges & machine learning

Organizational Economics of Terrorist and Violent Groups:

- * Berman (2011) and Shapiro (2013),
- * [Shapiro and Siegel \(2007\)](#), Bueno de Mesquita (2005, 2013), Berman, Shapiro and Felter (2011), Fetzer (2014), Wright (2016), Crost and Felter (2016), Beath, Christia and Enikolopov (2017)
- * recruitment - [Scanlon and Gerber \(2014\)](#) and [Mueller and Rauh \(2018\)](#),

Determinants of Terrorism:

- * Krueger and Malečková (2002), Abadie (2006), Benmelech and Berrebi (2007), Krueger and Malečková (2009), Blair, Christine Fair, Malhotra and Shapiro (2013)

Income Shocks and Conflict:

- * cross-country - Miguel, Satyanath and Sergenti (2004), Miguel and Satyanath (2011), Besley and Persson (2011), Bazzi and Blattman (2014);
- * within-country - [Dube and Vargas \(2013\)](#), Nunn and Quian (2014), Crost, Felter and Johnson (2014), Berman, Couttenier, Rohner, and Thoenig (2017), Amodio, Baccini and Di Maio (2018), Sviatschi (2019)

A Roadmap

1. The Natural Experiment

2. Data & Empirics

3. Methods & Placebo

Natural Experiment

Exogenous Variation in Terrorism Financing



Exogenous Variation in Terrorism Financing

Zakat

- Islamic Obligation → Donations at Ramadan
- Individual & voluntary contribution by Muslims
- Donations through charities (specializing in Zakat) ... BUT in PAK
- Mandatory Gvt Scheme (2.5% levy on bank deposits \geq *threshold*)
- Gvt taxes ↓ → charity donations ↑ → financing & attacks ↑

Identification

- timing
- geography
- threshold

Timing - it nets out seasonality

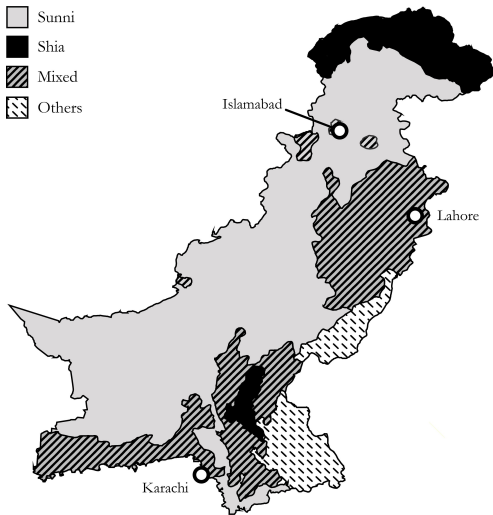
Tax only paid on first day of Ramadan

Ramadan follows Lunar Calendar → shifts every year (control seasonality, income shocks)

Ramadan Year	Ramadan 1st day
1992	4 April
1995	1 February
1998	30 December
2001	16 November
2004	16 October
2007	12 September
2010	11 August
2013	8 July

Geography - Sunni vs Non-Sunni

PAK is a Sunni Islamic Republic → Sunni vs Non-Sunni cities & org.

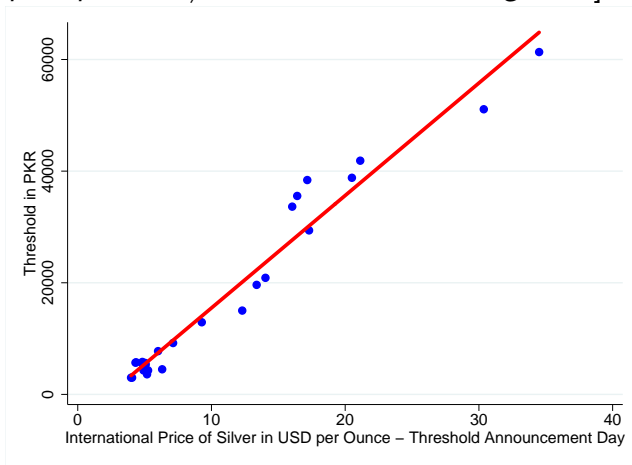


Exemptions

Threshold - Exogenously Determined to PAK

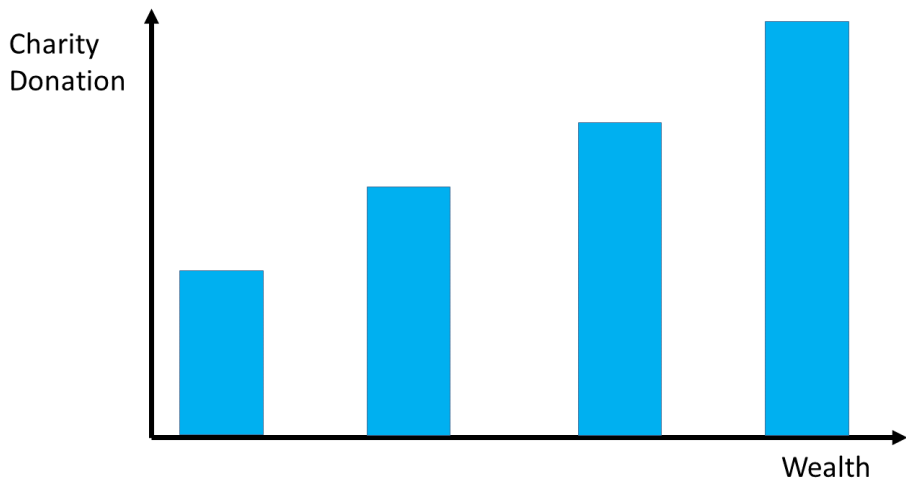
The value of 612.32 grams of silver (52 tolas) at *current* price (0.98 correlation) - Local Sharia Interpretation - Avg. value is 250 USD
[*PK not top 20 producer/consumer, silver as exogenous*]

Vol.ty



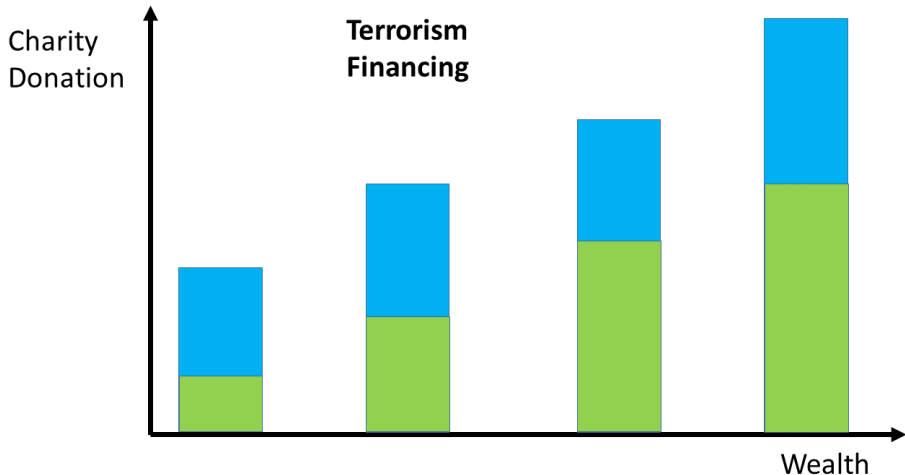
Threshold affects Terrorism Financing

Some donations → terrorist organizations. Zakat Tax: diverts funds away from charity donations & depending on the price of silver!



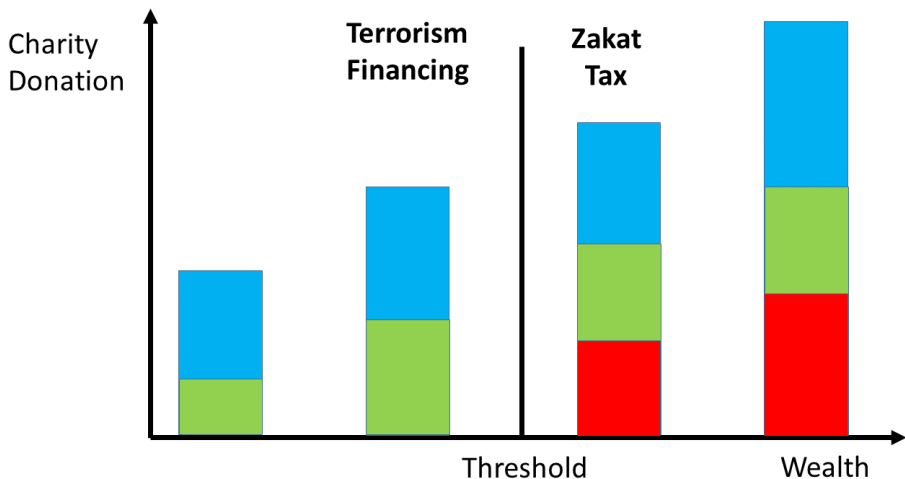
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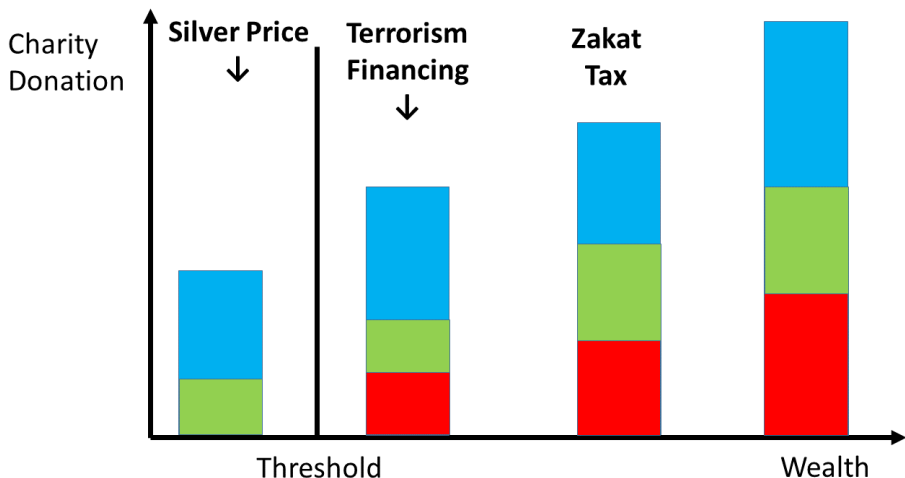
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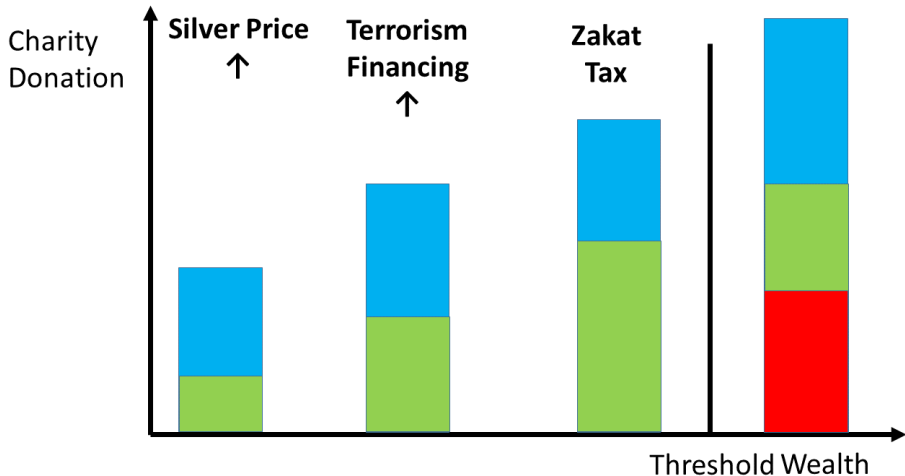
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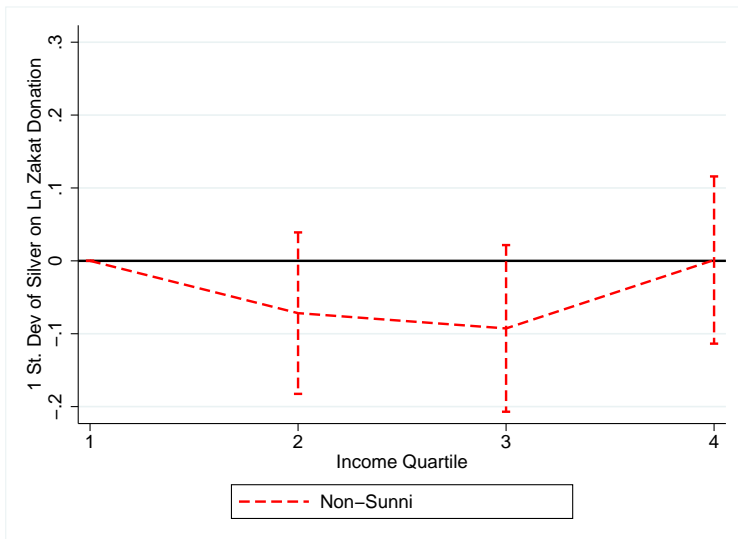
Relation between Donations and Silver

Table 1: Zakat Donations and Silver

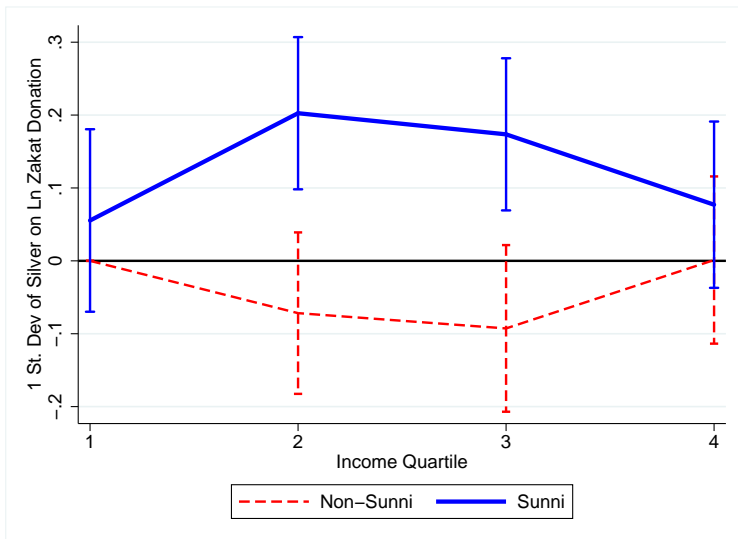
Variables	(1)	(2)
	Zakat Donated Ln(PKRs)	
$Silver_t \times Sunni_d$	0.0753** (0.0371)	0.0940** (0.0396)
Ln Yearly Income		0.160*** (0.0196)
Observations	5467	5467
Division, Year FE	Yes	Yes
Adj. R sq.	0.139	0.187
Mean Dep. Var.	8.043	8.043
S.D. Dep. Var.	1.330	1.330

Notes: Standard errors in brackets clustered at household level. Data from the PSLM survey conducted by the Pakistan Bureau of Statistics.

Non-Sunni Donations don't respond to Silver



Sunni Donations **respond** to Silver



Way Ahead

1. Anecdotes on Charities & Terrorism Financing
2. Stylized fact on more attacks in Sunni cities when silver \uparrow
3. Dissect Demand vs Supply and Elasticity of Attacks to Finance
4. Terrorist recruitment & Complementarity
5. Placebo with Eid Adha & Silver + Robustness Checks

Charities, Terrorism and Silver

Terrorist Groups control Charities

Pakistan on FATF grey list for not fighting hard terrorist financing

One key anecdote (more in the paper)



Hafiz Saeed, founder of Lashkar-e-Taiba and wanted for 10M USD in by State Dpt. Running his own charity until Feb 2018.

“Pakistan bans charities linked to founder of militant group” (Reuters)

GVT Aware Zakat Money to Terrorists



LAHORE: Information Minister Pervaiz Rashid has advised people to pay Zakat and charity to institutions which save lives and not to those producing suicide bombers.

Dawn, most circulated Pakistani newspaper, July 13th 2015, Link

Terrorism Financing and Attacks

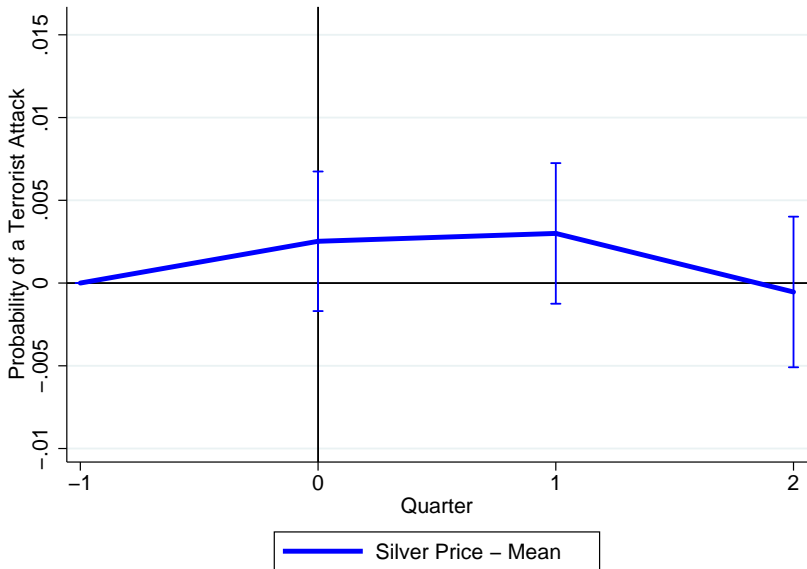
Panel of Cities and Attacks

1,545 Cities & Universe of Attacks ($\sim 12,000$), 1992-2015

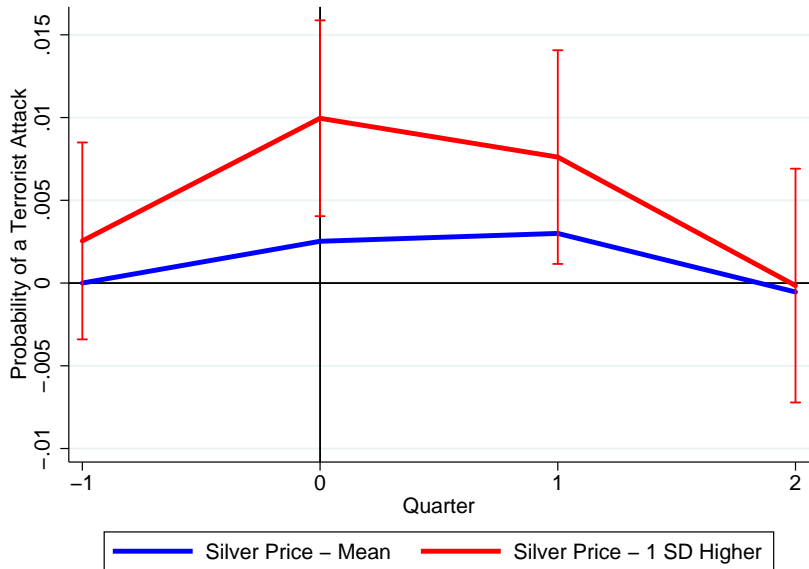
1. *Lead-and-Lag* - Terror attacks regressed on
 - a. over 4 dummies around Ramadan
 - b. interacted with a dummy for Sunni City and Silver Prices
 - c. including city and quarter-year FEs
2. *Difference-In-Difference*

$$\begin{aligned} \text{Error}_{ct} = & c_1 \text{Sunni}_c \times \text{Silver}_t + c_2 \text{Sunni}_c \times \text{Ramadan}_t + \\ & + c_3 \text{Sunni}_c \times \text{Silver}_t \times \text{Ramadan}_t + \iota_c + \iota_t + \varepsilon_{ct} \end{aligned}$$

Error_{ct} - dummy in c and t , Ramadan_t - quarter of Ramadan and following; Silver_t - standardized price !!! **Placebo Eid Adha !!!**



Average Silver Price → No Terrorist Attacks after Ramadan



Higher Silver Prices → More Terrorist Attacks *only after* Ramadan

Table 2: Terrorist Attacks, Sunni Cities and Silver

Variables	(1) Terror Dummy	(2) Attacks Ln(1+N)	(3) Casualties Ln(1+N)
$Sunni_c \times Silver_t$	0.00115 (0.00296)	0.00216 (0.00420)	-0.00111 (0.00587)
$Sunni_c \times Ramadan_t$	0.00324** (0.00155)	0.00149 (0.00145)	0.00149 (0.00254)
$Sunni_c \times Silver_t \times Ramadan_t$	0.00727*** (0.00219)	0.00471** (0.00196)	0.00685* (0.00360)
City FE	Yes	Yes	Yes
Quarter-Year FE	Yes	Yes	Yes
Obs.	148320	148320	148320
Adj. R sq.	0.183	0.280	0.226
Mean Dep. Var.	0.0314	0.0311	0.0428

Notes: Standard errors clustered at city level.

Only Capital-Intensive Attacks ↑

Use the GTD classification of attacks

Define a new variable “Capital-Intensive Attacks”

This includes:

→ Bombing/Explosion

→ Unarmed Assault (chemical, biological and radiological weapons)

→ Assassinations (typically done through bombings)

Evidence of increase in these attacks only

Other attacks do not react (e.g. kidnapping, knife attacks et cetera)

Method #1

Dissect the Demand and Supply of Terrorist Attacks

New - City-Organization Variation

Panel of 1,545 Cities → City - Time Variation

Example: (Karachi, 2010q1) (Karachi, 2010q2)...

Observe an “equilibrium” attack, cannot dissect demand from supply

Idea → Build a City-Organization-Time Panel

Example: (Karachi, Taliban, 2010q1), (Karachi, Intiqami, 2010q1)...

Model - City-Organization Variation

Can focus on *same* city-time & *different* terr. organizations, by

- ✓ Coding treated organizations (Sunni vs non-Sunni)
- ✓ Exploiting within-city and within-organization variation

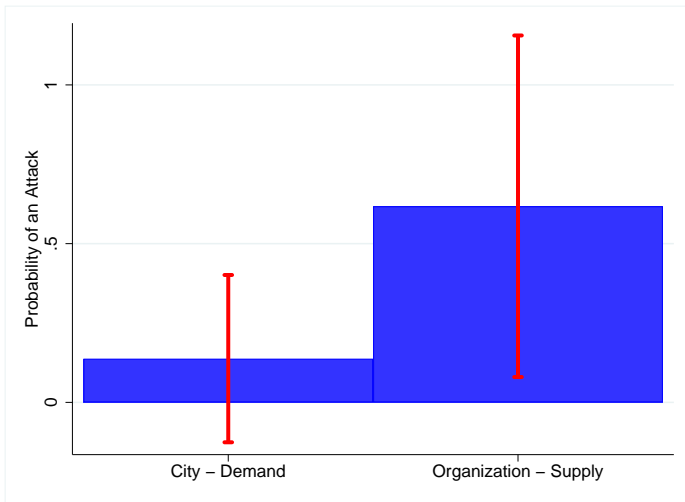
Smaller panel - 485 cities, 20 organizations for 96 quarter-years

Model (with and without ι_{ct} and ι_{ot} FEs)

$$\begin{aligned} \text{Error}_{cot} = & d_1 \text{Sunni}_c \times \text{Silver}_t + d_2 \text{Sunni}_c \times \text{Ramadan}_t + \\ & + d_3 \text{Sunni}_c \times \text{Silver}_t \times \text{Ramadan}_t + d_4 \text{Sunni}_o \times \text{Silver}_t + d_5 \text{Sunni}_o \times \text{Ram.}n_t \\ & + d_6 \text{Sunni}_o \times \text{Silver}_t \times \text{Ramadan}_t + \iota_c + \iota_o + \iota_t + \varepsilon_{cot} \end{aligned}$$

Attacks ↑ due to Sunni Organizations

Elasticity



Notes: Standard errors clustered at city and organization. Results with city, organization and time fixed effects.

Method #2

Measuring Terrorist Recruitment

Measuring Terrorist Recruitment

Hard task - not observable. Idea - use the dark web!

Dark web - network that requires specific access software (TOR - The Onion Router), not browsers or search engines

Illicit markets (guns, drugs, pornography, gambling) & organizations (Biryukov et al. (2014))

Use message platforms (similar to Reddit) of Jihadi groups to measure recruitment

Scraped & joined forces with the AI Lab Dark Web - University of Arizona

Downloaded 50+ GB: 28 boards in 5 languages (En, Ar, Fr, De, Ru), 2000 - 2012 [Platforms List](#)

Measuring Terrorist Recruitment

Method from “*Security Informatics*” by Scanlon and Gerber (2014)

Replicate, improve and expand (only ENG for now)

Steps

1. random sample of messages
2. two separate judges in the US evaluate the “intent to recruit violent extremists to some group or movement”
3. mark each post with a dummy Yes or No (11%)
4. use natural language processing and support vector machine to backout the textual regularities of “recruitment” posts
5. generates a dummy for all platforms & languages (8M messages)

Performance and Messages

Two posts rated as recruitment (1)

In a conversation commenting the arrest of a member, the following appeared:

*"a*****m a***i g****1 if you need help im your brother and closer then you think. inshallah just ask and i will help you as best as i can inshallah"*

*"i must tell you i was with ***** a few days before he was arrested and he knew it was coming. he is doing ok now."*

bro there are a few brothers out there that are true to Allah and are very close to you." [Back](#)

Two posts rated as recruitment (2)

Another message with members discussing the joining of militants in Somalia

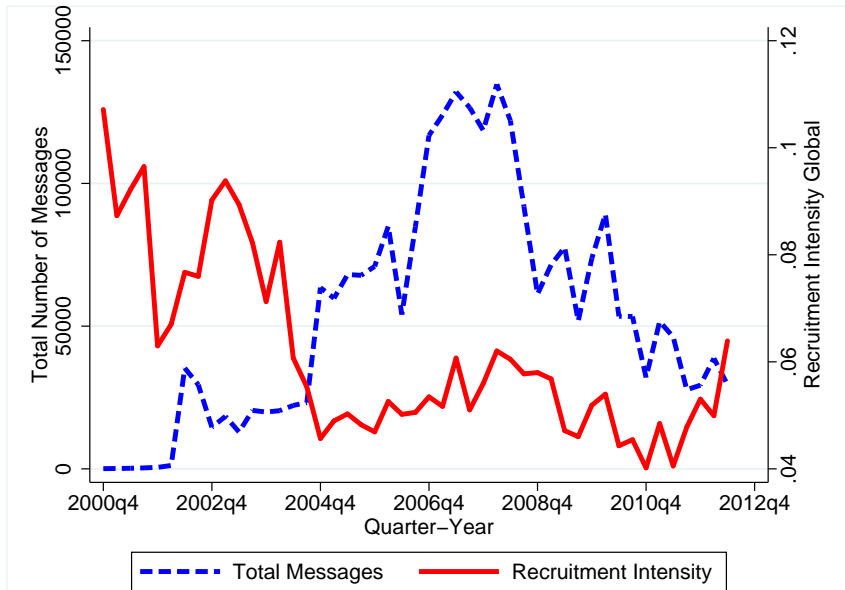
A***| K**i states: *"Somalia could actually be an ideal base for physical and weapons training. . . and from there one could join the brothers in the liberation of Mogadishu and from there move on to other Jihadi fronts"*

Other member: *"God help me for I am certain that this is the ideal alternative front to Afghanistan in producing terrorism and exporting it to the entire world"*

Others went on to discuss practical details, including how to get there.

Directed towards a militant Islamist website run by foreign jihadis in Somalia with helpful information. [Back](#)

Recruitment & Messages over time - ENG



Recruitment

Recruitment Intensity in PK \rightarrow recr. messages mentioning PK

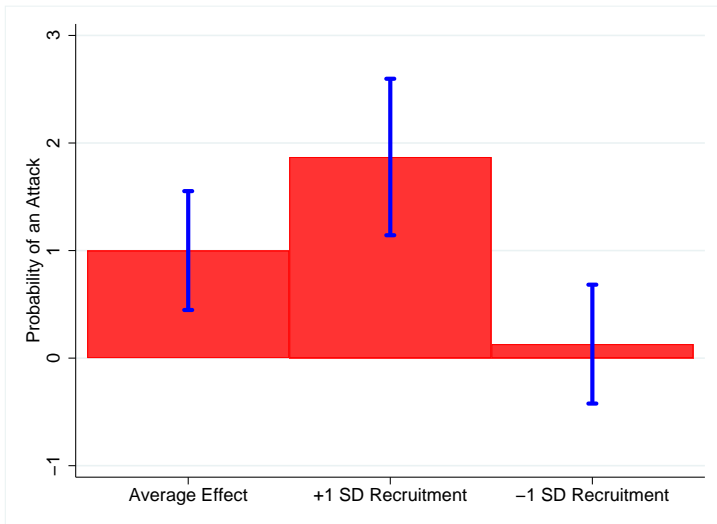
$$\text{Recruitment}_t = \frac{\text{Recruitment Messages}_t}{\text{Total Messages}_t} \text{ Stats PK Recruitment } \text{Recruitment PK}$$

Interpretation \rightarrow financing unexpected, effect conditional on recruitment

Smaller sample - 2000-2012 (rather than '92-'15). Model (Recruitment_{t-1} given):

$$\begin{aligned} \text{Error}_{cot} = & g_1 \text{Sunni}_o \times \text{Silver}_t + g_2 \text{Sunni}_o \times \text{Ramadan}_t + \\ & + g_3 \text{Sunni}_o \times \text{Silver}_t \times \text{Ramadan}_t + g_4 \text{Sunni}_o \times \text{Recruitment}_{t-1} + \\ & + g_5 \text{Sunni}_o \times \text{Silver}_t \times \text{Recruitment}_{t-1} + g_6 \text{Sunni}_o \times \text{Ramadan}_t \times \text{Recruitment}_{t-1} + \\ & + g_7 \text{Sunni}_o \times \text{Silver}_t \times \text{Ramadan}_t \times \text{Recruitment}_{t-1} + l_o + l_{ct} + \varepsilon_{cot} \end{aligned}$$

Strong Complementarity Capital-Labour



Notes: Standard errors are clustered at organization and city. Fixed effects at City, Organization and Time.

Placebo and Robustness Checks

Placebo - Eid Adha

1. City-level seasonality - local economic Shocks
2. State-time fixed effects - states on different Trends
3. Replace silver with time FEs and correlate with Silver
4. The independent effect of commodities on Terror
5. Local wages & labour supply - no Response
6. Common Support Sunni vs non-Sunni Groups
7. Robustness to classification of 2 Groups
8. No effect of mines on Attacks
9. No effect of Zakat on Religiosity Religiosity

Concluding Remarks

1. Evidence that Terrorism Financing & Recruitment → Attacks

- Mechanism based on Terrorist Organizations

- Fascinating setting & country

2. Three innovative elements

- Demand vs supply in conflict and crime

- Estimate the elasticity of terror attacks to financing

- Study terrorist recruitment through machine-learning

3. Future

- More data, judges & *funding* (suggestions welcome)

Thank You

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