Econometrica Supplementary Material

SUPPLEMENT TO "TERRORISM FINANCING, RECRUITMENT, AND ATTACKS"

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This document offers additional material to supplement the paper "Terrorism Financing, Recruitment, and Attacks," which is mentioned in the manuscript. The first section presents a stylized theoretical framework. In the second section, a presentation of additional features of the Zakat levy are described and discussed. The third section reports the categorization of the affiliations of terrorist groups. The fourth section explains the measurement and description of the data related to terrorist recruitment. The fifth section reports additional figures and tables for the robustness checks section of the manuscript.

APPENDIX A: THEORETICAL FRAMEWORK

A TERRORIST ORGANIZATION O is composed of multiple cells c that operate at local level. Each c shares the mission stated by O and can raise funding locally: it finds capital K with probability p or zero with probability $1-p$. The cell can allocate such funds in its local activities, k_c, which generate an increase in terrorist attacks, and these increase the probability of achieving the mission $y_c = A(r)k_c$, in which $A(r)$ is the productivity of the attack, and is also a continuous, monotonic, and a twice-differentiable function in its argument r, which measures the availability of recruits. The higher is r, the more an attack will be productive, and for simplicity, I assume that this parameter is normalized so that $A(1) = A > 1$. Therefore, as long as at least one recruit is available ($r = 1$), the productivity of the attack exceeds 1. Alternatively, cell c can send these resources to the central organization, k_O, which organizes other activities to increase the probability of success through the following concave technology $y_O = k_O^\alpha$ with $\alpha \in (0, 1)$.

The capital transfers from c to O are expensive, and I model this financial friction through the parameter $\tau \in (0, 1)$. Such friction can be interpreted as the probability that the transfer fails, as the police may stop the payment, in the case of a transfer using a traditional payment system (e.g., a bank wire, etc.). Alternatively, τ may be the cost of using an alternative transfer method (like individuals carrying money, storage in remote locations). From a theoretical standpoint, this is equivalent to an iceberg cost: if cell c transfers k_O units of capital to the organization O, its net transfer is $(1-\tau)k_O$, as τk_O is lost as a transfer cost.

This friction can be interpreted as a reduced-form measure of the costs associated to moving funds faced by terrorist groups: under $\tau = 0$, they do not face any friction across cells, while in the extreme case of $\tau = 1$, the frictions are extreme and capital is not transferable. Hence, there is no movement of funding across cells, and the organization is a sum of independent cells. In this simple setting, recruitment r is predetermined.

The capital allocation problem of cell c can be summarized as follows:

$$\max_{k_O} (1-\tau)k_O^\alpha + A(r)k_c \quad \text{s.t. } pK = k_c + k_O,$$

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which leads to the solutions $k_O^* = (\frac{\alpha(1-\tau)}{A(r)})^{\frac{1}{1-\alpha}}$ and $k_c^* = pK - (\frac{\alpha(1-\tau)}{A(r)})^{\frac{1}{1-\alpha}}$. Therefore, the optimal amount of capital reaching the central organization, k_O^*, declines in the extent of financial frictions, τ, and in the productivity of local attacks, $A(r)$. At the same time, the optimal amount of capital allocated in local attacks by the cell increases in the extent of financial frictions, τ, and in the productivity of local attacks, $A(r)$. It is also important to note that a shock to the amount of available capital, K, generates a positive effect on the local level of capital, k_c^*. If this variable is plugged into the production function of local attacks $y_c^* = A(r)[pK - (\frac{\alpha(1-\tau)}{A(r)})^{\frac{1}{1-\alpha}}]$, it is possible to see that there is also a complementarity between K and r as $\frac{\partial y_c^*}{\partial K} = A(r)$. Therefore, in the presence of a shock to the available funding K, there is a complementarity between capital, K, and recruitment, r. These results are summarized in the proposition below.

PROPOSITION: *In the presence of financial frictions to the internal capital market of a terrorist group, $\tau \in (0, 1)$, a positive shock to the availability of capital in the location of cell c, K, leads to an increase in the local terrorist attacks performed by the cell. This effect is increasing in the availability of recruited individuals.*

APPENDIX B: ADDITIONAL FEATURES ON THE ZAKAT LEVY

B.1. *Zakat Revenue and Silver Prices*

The upper left panel of Figure B.1 reports the countrywide government collection of Zakat revenue in real 2010 PKR between 1980 and 2018, while the upper right panel shows the high and negative correlation of the yearly government revenue with the corresponding silver prices when the threshold is announced in that year, −0.79. The two lower panels break down the correlation between Zakat Revenue and Silver Prices between the pre-2000 period, on the left, and the post-2000 period on the right. Both panels show a negative correlation, which is respectively −0.38 and −0.82. The average government revenue from the Zakat is 363 million United States Dollars (USD), with a standard deviation of 283 and a minimum of 31 and a maximum of 904. While this is not a large amount for the Pakistani government, which presents a yearly tax revenue of roughly 15 billion USD,[1] this amount may be sufficiently large to impact the behavior of charities and terrorist organizations. Finally, Figure B.2 in Appendix B plots the volatility of the international price of silver, showing that the exact value of the threshold, and hence the revenue and donations may be hard to predict ex ante given that silver is one of the most volatile metallic commodities. Figure B.2 offers two plots in this direction. The left panel compares the quarterly volatility in the price of silver (solid line) and gold (dashed line) for the past 15 years and shows that silver is 43% more volatile than gold. The right panel offers a long-term perspective on silver volatility, showing its large swings over time.

B.2. *Legal Disputes and the Zakat Levy*

In the year 2000, the Supreme Court of Pakistan ruled on the mandatory payment of the Zakat levy by Sunni individuals and introduced an opt-out procedure, as discussed in the text. It could be thought that this decision could weaken our identification, as the link between silver and deposit volatility may become feebler. While this legal challenge was

[1] Refer to the International Monetary Fund report available at https://www.imf.org/external/pubs/ft/scr/2016/cr1602.pdf.

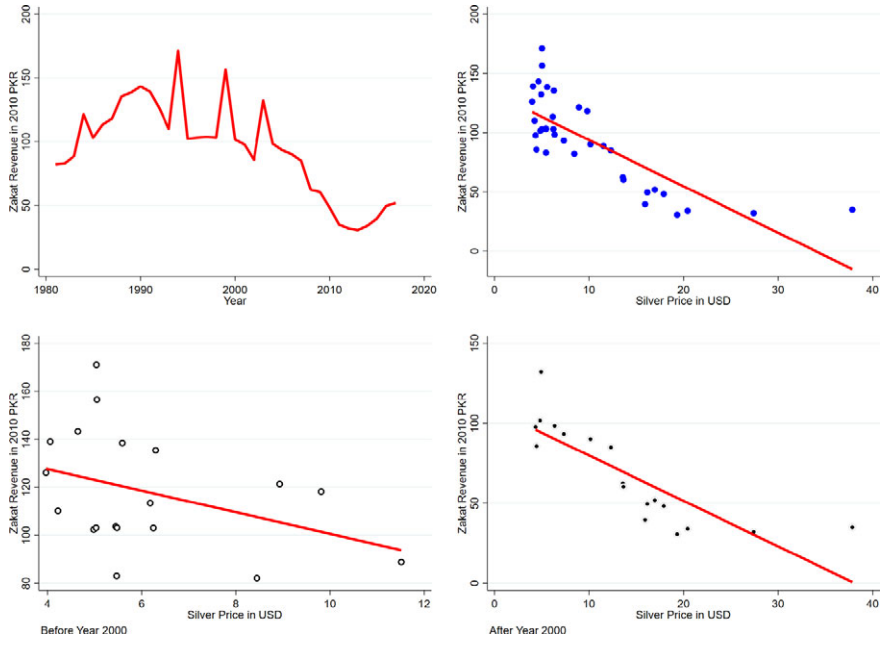

FIGURE B.1.—Zakat Revenue and Silver Prices. *Notes:* This figure reports four panels. The upper left panel shows the evolution of the government Zakat revenue in 2010 Pakistani Rupees over time. The upper right panel shows the relation between the Zakat revenue collected by the government in 2010 PKR, on the y-axis, and the international price of silver per ounce in USD at the announcement day, x-axis. The correlation between the two is -0.79. The two lower panels evaluate the correlation between the Zakat revenue and silver prices at Ramadan for the years before 2000, on the left, and after the year 2000, on the right. The correlations are negative in both cases: -0.38 on the left and -0.82 on the right.

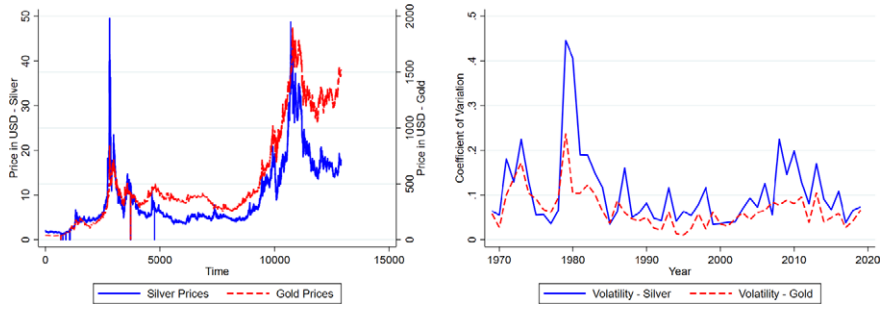

FIGURE B.2.—Silver and Gold Prices. *Notes:* This figure reports two panels. The left one shows the evolution over time of daily silver prices in USD (solid line) from January 2, 1969, to December 31, 2019, using the y-axis on the left, and the evolution of gold prices (dashed line), using the y-axis on the right. The second panel report the coefficient of variation of silver and gold prices, defined as the yearly standard deviation of daily prices, which is divided by the average yearly price of the commodity. The coefficient of variation of silver prices is plotted through a solid line, while the coefficient of variation of gold prices is reported through a dashed line. Silver prices are more volatile than silver prices: the average of the yearly coefficient of variations are 10.7% for silver and 6.8% for gold.

considered and ruled upon by the Supreme Court, its implementation was significantly less straightforward, and its effect on depositors' behavior was rather marginal.[2]

All in all, the Supreme Court ruling is not a problem for our identification for two reasons. First, it does not eliminate effect of silver prices on individual behavior and, therefore, the correlation between silver price and donations. As the lower panels of Figure B.1 report, the correlation between the Zakat revenue and silver prices is negative both in the pre-2000 period, before the Supreme Court decision, and in the post-2000 period, after this challenge. Despite this negative correlation, it is important to highlight that this decision may not have an effect on my findings: I am exploiting the changes in charitable donations by individuals who are likely to be around the threshold and change their donations as a consequence of being subject to the levy. As shown in the paper, these individuals have relatively low deposits, as the threshold average 250 USD during the period in analysis. At the same time, such opt-out procedure is plausibly going to be used by wealthy Sunni individuals, whom I show do not respond to silver prices in their charitable donations. Second, I separate the effect of silver prices in any other period by focusing on a different Islamic celebration and verifying that silver prices in that period do not generate a differential effect on terrorism.

APPENDIX C: Religious Affiliation and Categorization of Terrorist Groups

This Appendix describes and categorizes the terrorist organizations listed in the Global Terrorist Data set (GTD). Each organization has been classified as Sunni-majority or non-Sunni-majority and the sources guiding this definition are reported accordingly.

1. *Ahle Sunnat Wal Jamaat (ASWJ-Pakistan)*—This paramilitary Sunni organization has operations in Pakistan and Somalia. They aim to produce an official recognition of certain religious groups as non-Muslim, those belonging to the Shia school of Islam. Beyond sectarian violence against other religious groups, they also run violent attacks against Sunni mosques and government objectives to achieve territorial control. The group Sipah-e-Sahaba Pakistan used to cooperate with this group. This group is classified as Sunni. Sources: https://www.trackingterrorism.org/group/ahle-sunnat-wal-jamaat-aswj, https://en.wikipedia.org/wiki/Sipah-e-Sahaba_Pakistan.
2. *Al-Intiqami al-Pakistani*—This terrorist organization, alternatively referred to as Revenge of Jehadi, Revenge of the Pakistanis and Revenge of the People of Pakistan, is mainly known for its attack against a Christian school in Murree in 2003. Al-Intiqami al-Pakistani is a religious extremist organization which fosters resentment against western countries. According to The Guardian, the members belonging to Al-Intiqami al-Pakistani are also connected to Lashkar-e-Jhangvi, which

[2]Two elements weakened the implementation of the opt-out from a practical and legal standpoint. First, from a practical perspective, Sunni individuals wishing to not pay this levy are subject to a specific procedure. In terms of money and time, an individual wishing to be deselected from this levy needs to fill a judicially-stamped paper, have it signed by a notary public official and two witnesses, and finally, provide it to their bank branch through a lengthy and costly procedure. Details are available at https://www.dawn.com/news/833270. Most importantly, this exposes the individual to personal risk, as such a process forces the individual to reveal both his/her religion and choice not to pay the levy. Second, there is limited public knowledge regarding this opt-out procedure, as discussed in a 2009 article on the *Pakistan News Service*. The same article encourages the government and banks to engage in information campaigns promoting the adoption of this procedure, and effectively challenging the government intentions to follow the ruling adopted several years before. Available at http://paktribune.com/news/Stop-Zakat-deductions-216762.html. For additional information, refer to https://www.dawn.com/news/1012932.

is a terrorist organization promoting Sunni's dominance through the use of violence. Because of the close ties between Al-Intiqami al-Pakistani and Lashkar-e-Jhangvi, I identify Al-Intiqami al-Pakistani as a Sunni organization. Sources: https://terroristprofiles.wordpress.com/page/2/, https://www.nytimes.com/2002/08/07/world/after-pakistan-raid-3-mysterious-suicides.html, https://terroristprofiles.wordpress.com/2011/12/14/al-intiqami-al-pakistani/, and https://www.theguardian.com/world/2002/aug/06/pakistan.rorymccarthy.

3. *Amr Bil Maroof Wa Nahi Anil Munkir*—Also known as Promotion of Virtue and Prevention of Vice, this was a pro-government Sunni militant organization born in the Bara tehsil of Khyber. Part of its militants are reported to have joined the Islamic State. This group is classified as Sunni. Sources: https://www.thenews.com.pk/print/16698-pro-govt-militant-body-dissolved-in-khyber-agency and https://www.thenews.com.pk/print/19680-50-amr-bil-maroof-militants-join-daish.
4. *Ansarul Islam (Pakistan)*—This is a Sufi-influenced Sunni organization operating in North-west Pakistan. It is an extremist suborganization of Jamiat Ulema-e-Islam, a Sunni political party in Pakistan. For this reason, this group is coded as Sunni. Sources: https://en.wikipedia.org/wiki/Ansar_ul-Islam, https://www.thenews.com.pk/latest/544287-federal-govt-bans-jui-fs-sub-organisation-ansar-ul-islam, and https://en.wikipedia.org/wiki/Jamiat_Ulema-e-Islam_(F).
5. *Balochistan Independentists*—This classification collects several organizations fighting for the independence of the Baloch: an ethnic group displaced between Afghanistan, Pakistan, and Iran. The vast majority of Baloch are Sunni Muslims, which leads this group to be classified as Sunni. The following organizations have been agglomerated to Balochistan Independentists: Balochistan Liberation United Front, Free Balochistan Army, Lashkar-e-Balochistan, Balochistan National Army, Baloch Liberation Army (BLA), Baloch Liberation Tigers, Baloch Waja Liberation Army, Baloch Militant Defense Army, Baloch Mussalah Diffah Tanzim (BMDT), Baloch National Liberation Front, Baloch Nationalists, Baloch Republican Army (BRA), Baloch Republican Guards (BRG), Baloch Republican Party, Baloch Young Tigers (BYT), Tehrik-e-Nifaz-e-Aman Balochistan-Jhalawan Brigade (TNAB-Jhalawan Brigade), United Baloch Army (UBA), Zehri Youth Force (ZYF). Sources: https://en.wikipedia.org/wiki/Baloch_nationalism and https://www.ispionline.it/sites/default/files/pubblicazioni/analysis_266__2014.pdf.
6. *Deobandi, Brelvi and Islamist Extremists*—This group is composed of several attackers identified with Barelvi and Deobandi religious principles. This group is categorized as Sunni, because Barelvi and Deobandi are schools within Sunni Islam. An example of such radical groups is Tehreek-e-Labaik Pakistan, which was founded by the Sunni Barelvi cleric Allama Khadim Rizvi in 2015. The following organizations have been agglomerated to Islamist Extremists: Sunni Muslim Extremists, Brelvi Muslims. Sources: https://en.wikipedia.org/wiki/Barelvi, https://en.wikipedia.org/wiki/Deobandi, https://southasianvoices.org/the-barelvis-tilt-towards-extremism-in-pakistan/, and https://thediplomat.com/2021/05/tehreek-e-labbaik-pakistan-from-street-power-to-electoral-force/.
7. *Fedayeen Imam Mahdi*—This terrorist organization became notorious on media due to its involvement in the killing of the leader of Sipah-e-Sahaba group, Maulana Azam Tariq, in 2003. According to the New York Times and The Independent, the organization is Shia and, therefore, it is categorized as non-Sunni. Sources: https://www.nytimes.com/2003/10/08/world/world-briefing-asia-pakistan-violence-after-sunni-funeral.html and https://www.independent.ie/world-news/asia-pacific/mourners-go-on-rampage-in-pakistan-after-slain-mps-funeral-25925302.html.

8. *Hafeez Brohi Group*—According to several media sources, Hafeez Brohi is running a group of terrorists in the southern Sindh province. This organization is also involved in the bombing at the Sehwan Sharif shrine that killed 90 people. Given the close ties with the Islamic State, this group is classified as Sunni. Sources: https://www.reuters.com/article/us-pakistan-militants-network-idUSKBN1AM0W6 and https://www.thefridaytimes.com/the-hunt-for-hafeez-brohi/.
9. *Harakat ul-Mujahidin Al-Almi*—Originated in Karachi from as a split-up of the Sunni group of Harkat-ul-Mujahideen (HuM), this organization became notorious on media outlets since it attempted to assassinate the Pakistani prime minister in 2002. It is identified as Sunni. Sources: https://en.wikipedia.org/wiki/Harkat-ul_Mujahideen_al-Alami and https://www.satp.org/satporgtp/countries/pakistan/terroristoutfits/HuMA.htm.
10. *Islami Jamiat-e-Talaba (IJT)*—This is a large organization involving young members in Pakistan, which aims at eliminating non-Islamic elements and secularism from public institutions. It is the student-wing of the Jamat-e-Islami (JI) and the Sunni scholar Naeem Siddiqui is their religious inspiration. Hence, this group is classified as Sunni. Sources: https://en.wikipedia.org/wiki/Islami_Jamiat-e-Talaba, https://en.wikipedia.org/wiki/Naeem_Siddiqui, and https://www.dawn.com/news/742642/bleeding-green-the-rise-and-fall-of-the-ijt.
11. *Jaish Usama*—Jaish Usama, also known as Jaish-e-Usama, is a terrorist organization devoted to oppose the presence of the North Atlantic Treaty Organization (NATO) in Khyber. According to media sources, the organization has ties with Taliban, which is a conglomerate of several terrorist organizations of Sunni affiliation. Because of those aforementioned ties, Jaish Usama is defined as a Sunni organization. Sources: https://nation.com.pk/05-Mar-2014/not-bound-to-follow-ceasefire-jaish-e-usama and https://www.highbeam.com/doc/1G1-360573709.html.
12. *Jaish as-Saiyouf (Army of Swords)*—The Army of Swords is a terrorist organization primarily operating in Balochistan. It received substantial media attentions for some attacks with guns and bombs in the 2000s. Official sources also mention that its violent operations were motivated by public behavior considered disrespectful of Islamic traditions and norms. Because of the regions of operation and its defense of traditional Sunni beliefs, I categorized this group as Sunni. Sources: https://www.dawn.com/news/1088301, https://www.start.umd.edu/gtd/search/IncidentSummary.aspx?gtdid=201402200021, and http://public.tableau.com/views/GlobalTerrorismStaticDashboard/StaticDashboard?%3Aembed=y&%3AshowVizHome=no&%3AshowTabs=y&%3Adisplay_count=y&%3Adisplay_static_image=y.
13. *Jaish-e-Islam*—This terrorist organization mainly operates in Balochistan and has perpetrated several attacks against Shia Muslims, which became notorious toward the beginning of 2010s. According to the Global Terrorism Database, the organisation operates in compliance with Sunni beliefs. Because of their actions against Shia Muslims, the geographic location of their operations and the reports provided by the Global Terrorism Database, this organization is classified as Sunni. Sources: http://www.start.umd.edu/gtd/search/IncidentSummary.aspx?gtdid=201406080006, https://tribune.com.pk/story/719308/23-pilgrims-killed-in-taftan-bombing/, and http://www.start.umd.edu/gtd/search/IncidentSummary.aspx?gtdid=201212300002.
14. *Jaish-e-Khorasan*—This terrorist group was originally originated in Khorasan, a region of Iran, but it has subsequently spread in neighboring Pakistan regions. It is

thought to be both a consultative body—"shura" in arabic—and a forward operating base for core al-Qaida. Khorasan is thought to have played a major role in trying to smooth the differences between ISIS and the Nusra Front. The group has strong ties with Al-Qaeda and operates in compliance with Salafist beliefs, which borrow from Sunni ideologies. As a result, this group is coded as Sunni. Sources: https://en.wikipedia.org/wiki/Khorasan_group, https://en.wikipedia.org/wiki/Salafi_jihadism, https://edition.cnn.com/2015/10/18/middleeast/syria-khorasan-leader-killed/index.html, and https://www.npr.org/sections/thetwo-way/2014/10/03/353498827/al-qaida-reasserts-itself-with-khorasan-group?t=1633329595826.

15. *Jaish-e-Mohammad*—This terrorist group is a Deobandi Muslim jihadist organization, mainly operating in Kashmir. Multiple sources have confirmed Jaish-e-Mohammad's ties with Sunni organizations like the Pakistani Taliban and anti-Shia groups such as the Lashkar-e-Jhangvi, Sipah-e-Sahaba-e-Pakistan, and Al-Qaeda. Because of their adherence to Deobandi principles and their ties with Al-Qaeda, this terrorist group is coded as Sunni. Sources: https://en.wikipedia.org/wiki/Jaish-e-Mohammed and http://web.stanford.edu/group/mappingmilitants/cgi-bin/groups/view/95.
16. *Jamaat-E-Islami (India/Pakistan)*—Originated in colonial India in 1941, this is the radical wing of a Sunni Islamist political party. In 1953, the Jamaat campaigned against the Aḥmadiyyah religious group, leading to 2000 deaths. It had an active and prominent role during the dictatorship and it is known for dehumanizing non-Muslims, Shias, and Sufi Muslims. Given its connection to a Sunni political party, this group is classified as Sunni. Sources: https://en.wikipedia.org/wiki/Jamaat-e-Islami_Pakistan, https://www.britannica.com/topic/Jamaat-i-Islami, and https://theprint.in/report/why-kashmir-jamaat-e-islami-is-south-asian-version-of-muslim-brotherhood/323249/.
17. *Khorasan Chapter of the Islamic State*—This group is the local branch of the Islamic State and operates in the border area between Afghanistan and Pakistan. It is responsible for over 100 attacks against civilians and 250 attacks against the military forces. This group is led by local Sunni leaders and incorporates several preexisting organizations. Being a Salafist group, its classification is Sunni. Sources: https://www.csis.org/programs/transnational-threats-project/terrorism-backgrounders/islamic-state-khorasan-k and https://en.wikipedia.org/wiki/Islamic_State_%E2%80%93_Khorasan_Province.
18. *Lashkar-e-Taiba*—This terrorist organization mainly operates in Punjab and received funding from Osama Bin Laden. The main aim of Lashkar-e-Taiba is to oppose Pakistan's ruling forces. The organization begun its operations as a militant wing of Markaz-ud-Dawa-wal-Irshad, an Islamist organization influenced by the Wahhābī school of Islam, which belongs to the Sunni school. Because of its ties with Markaz-ud-Dawa-wal-Irshad and the support received by Bin Laden, this organization is classified as Sunni. The following organizations have been agglomerated to Lashkar-e-Taiba: Al-Mansoorian, Harkatul Jihad-e-Islami. Sources: https://en.wikipedia.org/wiki/Lashkar-e-Taiba, https://www.britannica.com/topic/Lashkar-e-Taiba, and https://web.archive.org/web/20201031185344/https://dopel.org/JuD.htm.
19. *Majlis-e-Askari*—This organization is allegedly connected to the Muttahida Majlis-e-Amal political party, which has proved to uphold Wahhabi beliefs. This group has been classified as Sunni for two reasons: first, the news has reported connections between Majlis-e-Askari and Pakistani Talibans; second, the organization is supposedly supported by Muttahida Majlis-e-Amal, a Sunni party. Sources: https://

tribune.com.pk/story/980401/cross-border-afghan-fire-kills-7-fc-troops, http://test.outlookindia.com/newswire/story/seven-pak-soldiers-killed-in-cross-border-firing-from-afghan-militants/918293, and https://en.wikipedia.org/wiki/Muttahida_Majlis-e-Amal.

20. *Muslim United Army (MUA)*—This organization became notorious in the media after a series of attacks in the city of Karachi in 2002. In an official statement, this group declared its origination from the merge of several preexisting Sunni groups, among which Lashkar-i-Jhangvi and is classified as Sunni. Their targets are primarily the US forces, the police, the military, and the non-Muslims. Sources: https://www.satp.org/satporgtp/countries/pakistan/terroristoutfits/mua.htm and https://www.dawn.com/news/102330/newspaper/newspaper/column.
21. *Mutahida Majlis-e-Amal*—This terrorist organization is a political alliance consisting of ultra- conservative, Islamist, religious, and far-right parties of Pakistan. Mutahida Majlis-e-Amal operates in compliance with principles belonging to Wahhabism, which is a current of the Sunni school of Islam. The political parties supporting this organization (Jamiat Ulema-e-Pakistan and Sami ul Haq Group) are Sunni. Because of its ties with Wahhabism and the endorsement received by Sunni parties, this organization is coded as Sunni. Sources: https://en.wikipedia.org/wiki/Muttahida_Majlis-e-Amal, https://en.wikipedia.org/wiki/Wahhabism, and https://www.globalsecurity.org/military/world/pakistan/mma.htm.
22. *Muttahida Qami Movement*—This terrorist organization is the operative fringe of Muttahida Qami Movement, a Pakistani political party. The aforementioned party has been recognized as a force capable of mobilizing riots in Pakistan. Amnesty international accused the movement of supporting violence and extremism. Muttahida Qami Movement claimed not to side with a specific religion, and for this reason, this group is not defined as Sunni. The following organizations have been agglomerated to Muttahida Qami Movement: Mohajir National Movement. Sources: https://en.wikipedia.org/wiki/Muttahida_Qaumi_Movement, https://www.trackingterrorism.org/group/muttahida-qami-movement-mqm, and https://web.archive.org/web/20210309162713/https://www.theguardian.com/world/2007/jun/02/uk.pakistan.
23. *Sindh Independentists*—These terrorist organizations strive to impose Sindh's separatism. Official law enforcement agencies in Pakistan recognize many of these movements as a terrorist group. The groups belonging to this movement are not categorized as Sunni for two reasons: (1) they operate in the Sindh province, which does not present without a clear religious majority; (2) these groups promote Sindh independence and are not concerned with establishing a religious supremacy in the region. The following organizations have been agglomerated to Sindhu Desh Liberation Army: Sindh Liberation Front, Sindhi nationalists, Sindhudesh Revolutionary Army (SRA), Jeay Sindh, Jeay Sindh Muttahida Mahaz (JSMM). Sources: https://en.wikipedia.org/wiki/Sindhudesh and https://www.usip.org/sites/default/files/PW104-Conflict-Dynamics-in-Sindh-Final.pdf.
24. *Sipah-e-Sahaba/Pakistan (SSP)*—This organization is also called Millat-e-Islamia. It is a Sunni Deobandi political organization. From 2002 to 2018, it has been classified as a terrorist organization by the Pakistani authorities. In fact, it has been alleged to be involved in terrorist violence, primarily targeted against the Shia community in Pakistan. It originates in the city of Jhang, an area characterized by large land holdings and a high inequality across religious groups. Given its Sunni inspiration and anti-Shia stance, this group is classified as Sunni. Source: https://en.wikipedia.org/wiki/Sipah-e-Sahaba_Pakistan.

25. *Sipah-I-Mohammed*—This movement presents significant popular support in various Shia communities across Pakistan, and ran a "virtual state within a state" in the majority Shia town of Thokar Niaz Beg in the 1990s. The organization originated with the aim of countering anti-Shia actions in Punjab led by Sipah-e-Sahaba or Lashkar-e-Jhangvi. Because the group's main aim is to promote safeguard of Shia Muslims from attacks planned by Sunni organizations, this is not categorized as Sunni. Sources: https://en.wikipedia.org/wiki/Sipah-e-Muhammad_Pakistan and https://web.archive.org/web/20201031192535/https://dopel.org/SEM.htm.
26. *Tawheedul Islam*—This group was originated in Land Kotal, Khyber province, as pro-government and an anti-Taliban organization to restore peace in the region. Its most important operations have taken place in the area of the Zaka Khel tribe, which traditionally is considered of Sunni religious affiliation. Given these elements, this organization is classified as Sunni. Sources: https://www.dawn.com/news/758167, https://www.outlookindia.com/newswire/story/four-killed-in-blast-in-paks-northwest/866521, http://frc.org.pk/wp-content/uploads/2017/08/FRC-book.pdf, https://www.tnn.com.pk/tauheed-ul-islams-ameer-changed-after-sundays-clashes-between-two-factions/, and https://en.wikipedia.org/wiki/Afridi#Religion.
27. *Tehrik-e-Tuhafaz (Pakistan)*—This group represents the extremist wing of a political party. Two elements lead to classify this group as Sunni. First, there is evidence that the founders of this group were Sunni. This movement has also been associated to the Barelvi school of Islam. This school is considered as part of the Sunni school of Islam. Sources: https://en.wikipedia.org/wiki/Tehreek-e-Tahaffuz-e-Pakistan, https://tribune.com.pk/story/1458791/gujrat-police-arrest-christian-man-blasphemy-charges, and https://en.wikipedia.org/wiki/Barelvi.
28. *Tehrik-i-Taliban Pakistan*—Tehrik-i-Taliban Pakistan (TTP), alternatively referred to as the Taliban, is a terrorist group organized as an umbrella organization of various militant groups based in the northwestern Federally Administered Tribal Areas, along the Afghan border in Pakistan. The TTP has close ties with the Afghan Talibans, which is a terrorist group promoting Sunni dominance. The TTP believes in the Pashtunwali, a nonwritten ethical code belonging to Deobandi Muslims, making the TTP a Sunni-majority organization. For all of these reasons, this group is classified as Sunni. The following organizations have been agglomerated to Tehrik-i-Taliban Pakistan: Afghan Guerrillas, Al-Jihad, Al-Nawaz, Al-Qaida, Ansar Wa Mohajir (Pakistan), Jamaat-ul-Ahrar, Lashkar-e-Islam (Pakistan), Lashkar-e-Omar, Mujahideen Ansar, Qari Kamran Group, Tanzeem al-Islami al-Furqan, Tehrik-e-Khilafat, Tehrik-e-Nafaz-e-Shariat-e-Mohammadi, Abdullah Azzam Brigades, Al-Qaeda in the Indian Subcontinent, Ansar al-Sharia (Pakistan), Egyptian Islamic Jihad (Al-Jihad), Hafiz Gul Bahadur Group, Halqa-e-Mehsud, Haqqani Network, Hizb-ul-Ahrar (HuA), Islambouli Brigades of al-Qaida, Jundallah, Lashkar-e-Islam (Pakistan), Lashkar-e-Jhangvi, Mullah Nazir Group, Orakzai Freedom Movement, Punjabi Taliban, Taliban, Taliban (Pakistan), Tehrik-e-Taliban Islami (TTI). Sources: https://en.wikipedia.org/wiki/Tehrik-i-Taliban_Pakistan, http://www.start.umd.edu/baad/narratives/tehrik-i-taliban-pakistan-ttp#_edn15, and https://ctc.usma.edu/a-profile-of-tehrik-i-taliban-pakistan/.
29. *Tribesmen*—This organization is composed by an unidentified mixture of tribesmen, which by definition practice indigenous religions other than Islam. The tribesmen group mainly operates in the Federally Administrated Tribal Areas of Pakistan.

Because Tribesmen's actions are inspired by religions other than Islam, these organizations are classified as non-Sunni. The following organizations have been agglomerated to Tribesmen: Mazari Tribesmen, Tribesmen, Ujjan Tribe, Afridi Tribe, Bhittani tribe, Kaka-Tribesmen, Kalpar Tribesmen, Mahsud Tribe, Tanzeem Ittehad, I, Ulema Qabail (Tiuq) Tribesmen, Tribal Group.

Other Entries. The remaining entries on the GTD data set were not classified as belonging to any group and included in the city-organization panel. In most these cases, the available reports on these attacks made references to the unstructured nature of the perpetrator of the terrorist attack, lacking an explicit organizational setting (like lone attackers, criminal gangs, movement of protest).

APPENDIX D: Terrorist Recruitment and Online Fora

D.1. *Building the Terrorist Recruitment Variable and Geolocalization*

The following steps lead to construct an algorithm identifying whether a post presents recruitment material:

1. I use the same sample of random messages from the Ansar Al-Jihad Network used by Scanlon and Gerber (2014);
2. Two judges in the US were asked to separately and independently evaluate whether each post presents the intent to recruit violent extremists to some group or movement;
3. The judges marked each post with a dummy for "*contains violent extremist recruitment*" (11% of these posts are marked as actively seeking recruitment);
4. I create an algorithm using supervised learning and natural language processing to back out the textual regularities of "recruitment" posts. In particular, the Gaussian Naive Bayes' algorithm offers a strong performance with an accuracy score of 0.8461, once its parameters are optimally set through a k-fold validation; and
5. The algorithm codes a recruitment dummy to all messages and geocodes the city in which the users are likely to reside in.

This method effectively replicates the work of thousands of judges in marking each post with a dummy for recruitment. To provide some anecdotal material, in the next subsection I report two messages that are graded as containing recruitment material by the algorithm. This constitutes an innovative way to measure terrorist recruitment, which may offer a useful method for future studies involving the use of experts in assessing third-party material. However, it is important to underline that this is a specific measure of recruitment, and there are alternative channels of recruitment beyond this specific record (e.g., recruitment through other social media, interaction in public spaces, schools, and religious events). At the same time, it is plausible that these measures are correlated, and this indicator is likely to capture the ability of terrorist groups to reach out to new recruits across various platforms and locations over time.

The geolocation of users is another important aspect in my study. Given the lack of established and standardized algorithms to geolocalize messages in Urdu, I implemented a simple procedure by combining the list of 1750 cities used in cities in the study with the online fora messages. I count the number of cities that each individual, identified through the unique username, mentions in his/her messages, and assign to an individual the city that is cited the largest numbers of times. The right panel of Figure D.1 reports a geographic map indicating the geography of the cities mentioned in the online fora and across the recruitment messages.

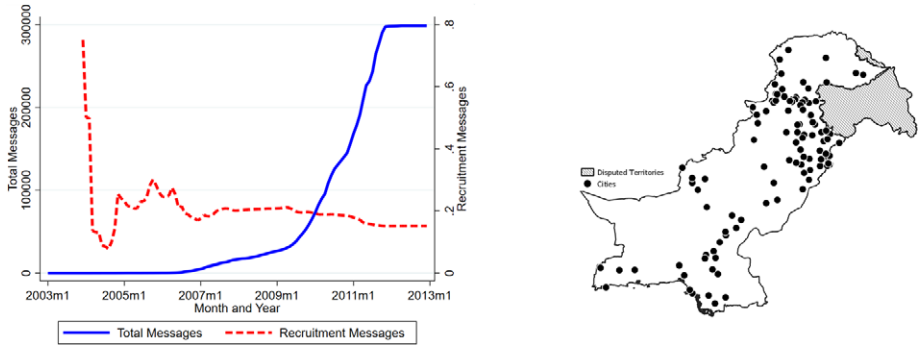

FIGURE D.1.—Recruitment and Geolocation. *Notes:* This figure shows two pictures. The left panel shows the evolution of the total number of messages through the solid line (left y-axis) and the share of recruitment messages through the dashed line (right x-axis) per month from January 2003 to December 2012. The right panel presents a map with the geographic location of recruitment messages in Pakistan. For more details on the definition of recruitment and the geolocalization, refer to Appendix D in the Online Appendix.

The left panel of Figure D.1 reports the evolution over time for the number of messages through a solid line, and share of messages described as recruitment by our algorithm between 2003 and 2012 through a dashed line. It is interesting to note a steady increase in the number of messages at the end of 2011, after which there is stability in the number of messages, as users move toward encrypted mobile apps. At the same time, the share of recruitment messages seems to be relatively stable at 20%, after a preliminary period in which this number was much higher due to a small number of messages exchanged on these platforms.

D.2. *Recruitment and Zakat*

Having access to this information, I investigate whether recruitment is more intense when a positive funding shock, like the Zakat experiment, takes place. Two tests explore this hypothesis: (1) an event study specification; (2) a difference-in-difference analysis.

The following empirical model presents the event study specification:

$$Recruitment_{cmy} = \sum_{j\neq -1, j=-5}^{6} c_{1j} Sunni_c \times D_j + \sum_{j\neq -1, j=-5}^{6} c_{2j} Sunni_c \times D_j \times Silver_y + \iota_{cy} + \iota_{my} + \varepsilon_{cmy},$$

where the natural logarithm of the cumulated number of recruitment messages in city c during month m of year y, $Recruitment_{cmy}$, is regressed on two interactions and various fixed effects. The first set of regressors is composed of an interaction between a variable measuring the Sunni composition of a city, $Sunni_c$, and a set of 12 Ramadan counter-month fixed effects, D_j, which span from 5 months before the month marking the beginning of Ramadan, when Zakat donations are paid, (-5), to 6 months after the month of Ramadan. The second set of regressors are composed of the previous variables, $Sunni_c \times D_j$, which are further interacted with the standardized international price of silver used to calculate the Zakat threshold and recorded 2 days before the beginning of

Ramadan, $Silver_y$. In this equation, all coefficients are relative to the month before the beginning of Ramadan (D_{-1}), which is the omitted category. Standard errors are clustered at the city level.

After this specification, I explore a standard

$$Recruitment_{cmy} = g_1 Sunni_c \times Ramadan_{my} + g_2 Sunni_c \times Ramadan_{my} \times Silver_y + \iota_{cy} + \iota_{my} + \varepsilon_{comy}$$

in which the natural logarithm of the cumulated number of recruitment messages, and total messages, exchanged on these platforms and geolocated to city c during month-year my are regressed over two terms already presented: (1) an interaction between a variable describing the extent to which a city is Sunni-majority and a dummy taking unit value for the month marking the beginning of the Ramadan festivity and the following month, $Sunni_c \times Ramadan_{my}$; (2) a further interaction between these two variables and the standardized international price of silver, $Silver_y$. As in the previous empirical models, fixed effects are introduced for city-year and month-year, and standard errors are clustered at the city level.

Figure D.2 presents the results of the event study specification. The left panel shows that the arrival of the Ramadan induces a differential increase in recruitment in Sunni-majority cities compared to non-Sunni ones. This effect becomes statistically different from zero and averages 20% only 3 months after Ramadan and stays positive for the following 2 months, hence from month +3 to month +5. The central panel studies whether this increase in recruitment is particularly intense when silver prices are one-standard deviation higher than the mean. This does not seem to take place: in fact, none of these coefficients can be rejected to be equal to zero in a statistical sense. Finally, the right panel shows the estimates of both panels and clarifies that there appears to be an increase in recruitment in Sunni-majority city after the beginning of the Ramadan festivity, but this is not affected by silver prices.

Table D.I reports the results of the difference-in-difference specification. It shows that neither the number of recruitment messages nor the number of total messages change

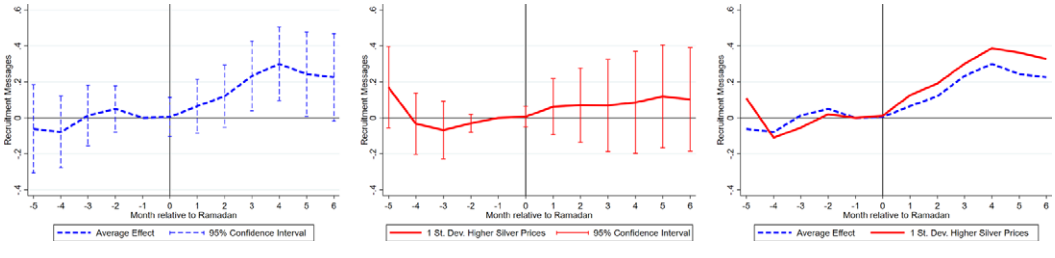

FIGURE D.2.—Recruitment, Zakat, and Silver Prices—Event Study. *Notes:* This figure reports the coefficients of the event study specification described in Section D.2. The left panel displays the value of the coefficients, c_{1j}, which describe differential evolution in the number of recruited individuals in a Sunni-majority city relative to a non-Sunni-majority city around the 12 months around the month when Ramadan starts and when silver prices present their average level. The center panel displays the value of the coefficients, c_{2j}, which describe the additional number of recruited individuals in a Sunni-majority city relative to a non-Sunni-majority city around the 12 months around the month when Ramadan starts and when silver prices are one-standard deviation higher than their average level. The right panel reports the point estimates of both panels. The month marking the beginning of the Ramadan festivity is month zero on the x-axis and exhibits a vertical black line. The bars around each observation represent the 95% confidence interval. Standard errors are clustered at the city level and city-year and month-year fixed effects are included.

TABLE D.I

RECRUITMENT AND ZAKAT.

Variables	(1) Recruitment Messages	(2) Total Messages
$Sunni_c \times Ramadan_{my}$	−0.0765	0.0125
	(0.0603)	(0.0636)
$Sunni_c \times Ramadan_{my} \times Silver_y$	−0.00652	−0.0340
	(0.0497)	(0.0593)
City-Year FE	Yes	Yes
Month-Year FE	Yes	Yes
Obs.	7680	7680
Adj. R sq.	0.972	0.975

Note: This table presents ordinary least squares (OLS) estimates, where the unit of observation is city c in month-year t. City-year and month-year fixed effects are present in all columns and standard errors are clustered at the city level. The dependent variable in column (1) is the natural logarithm of 0.01 plus the total number of recruitment messages, while in column (2) is the natural logarithm of 0.01 plus the total number of messages exchanges on the online fora. These are regressed over the Sunni composition of a city, $Sunni_c$; the standardized price of silver at the announcement of the Zakat threshold, $Silver_y$; and a dummy taking unit value for the month in which Ramadan begins and the following month, $Ramadan_{my}$.

differentially during the Ramadan months in Sunni-majority cities, also when silver prices are higher. In particular, the triple interaction in both columns (1) and (2) are negative, small in magnitude, and not statistically different from zero. These results are consistent with those of Figure D.2.

D.3. *Two Recruitment Messages*

The following two messages come from two different conversations between two users and are both classified as a recruitment message:

> *"In response, (name of user) also does not miss any opportunity in which he could not carry out a terrorist attack on (geopolitical reference). So you already knew something."*
> *"Hey brother, I don't know my own name, so how and what do you write, so I wrote the interview of the mysterious personality. Mysterious means any soul you take. Yes, now you have to carry out an attack and suffer from a bomb. Finally, tomorrow you have to test the bomb of all times. I hope that the bomb will not be an atomic bomb."*

APPENDIX E: TABLES AND FIGURES

See Tables E.I–E.XII and Figures E.1–E.3.

TABLE E.I

TERRORIST ATTACKS AND EVENT STUDY SPECIFICATION.

Variables	(1) Probability of Attack	(2) Number of Attacks	(3) Number of Casualties
$Sunni_c \times -5_{my}$	−0.000292	−0.00155	−0.0107
	(0.00168)	(0.00812)	(0.00820)
$Sunni_c \times -4_{my}$	0.00110	0.00502	−0.00112
	(0.00132)	(0.00636)	(0.00672)
$Sunni_c \times -3_{my}$	0.000923	0.00377	−0.000428
	(0.00133)	(0.00639)	(0.00639)
$Sunni_c \times -2_{my}$	0.000706	0.00330	0.00448
	(0.00139)	(0.00671)	(0.00735)
$Sunni_c \times 0_{my}$	0.00325	0.0153	0.0121
	(0.00134)	(0.00651)	(0.00726)
$Sunni_c \times 1_{my}$	0.00379	0.0176	0.0101
	(0.00121)	(0.00581)	(0.00589)
$Sunni_c \times 2_{my}$	7.01e−05	0.000583	−0.00245
	(0.00142)	(0.00684)	(0.00683)
$Sunni_c \times 3_{my}$	0.00121	0.00583	0.00465
	(0.00126)	(0.00605)	(0.00603)
$Sunni_c \times 4_{my}$	0.00178	0.00826	0.00754
	(0.00147)	(0.00694)	(0.00783)
$Sunni_c \times 5_{my}$	0.00264	0.0126	0.00827
	(0.00142)	(0.00687)	(0.00726)
$Sunni_c \times 6_{my}$	0.00260	0.0119	0.00828
	(0.00132)	(0.00644)	(0.00687)
$Sunni_c \times -5_{my} \times Silver_y$	−0.000979	−0.00472	−0.0224
	(0.00319)	(0.0156)	(0.0177)
$Sunni_c \times -4_{my} \times Silver_y$	−0.000658	−0.00400	−0.0102
	(0.00216)	(0.0103)	(0.0109)
$Sunni_c \times -3_{my} \times Silver_y$	0.00147	0.00604	−0.00846
	(0.00214)	(0.0108)	(0.0124)
$Sunni_c \times -2_{my} \times Silver_y$	0.00121	0.00605	−0.00304
	(0.00236)	(0.0113)	(0.0118)
$Sunni_c \times 0_{my} \times Silver_y$	0.00596	0.0280	0.0238
	(0.00188)	(0.00897)	(0.0101)
$Sunni_c \times 1_{my} \times Silver_y$	0.00579	0.0266	0.0139
	(0.00203)	(0.0102)	(0.0111)
$Sunni_c \times 2_{my} \times Silver_y$	−0.000644	−0.00294	−0.00959
	(0.00232)	(0.0111)	(0.0122)
$Sunni_c \times 3_{my} \times Silver_y$	0.00303	0.0147	0.0164
	(0.00188)	(0.00910)	(0.00950)
$Sunni_c \times 4_{my} \times Silver_y$	0.00241	0.0114	0.0105
	(0.00206)	(0.00967)	(0.0106)
$Sunni_c \times 5_{my} \times Silver_y$	0.00161	0.00742	0.00762
	(0.00241)	(0.0117)	(0.0128)
$Sunni_c \times 6_{my} \times Silver_y$	0.00209	0.0105	0.00171
	(0.00227)	(0.0110)	(0.0125)
Obs.	1,029,000	1,029,000	1,029,000
Adj. R sq.	0.281	0.325	0.271

Note: This table presents ordinary least squares (OLS) estimates, where the unit of observation is city c in month-year my. City-year and month-year fixed effects are present in all columns and standard errors are clustered at the city level. The dependent variables are the probability of a terror attack in column (1); the natural logarithm of 0.01 plus the number of terrorist attacks in column (2); and the natural logarithm 0.01 plus the number of terrorist-related casualties in column (3). These are regressed over the Sunni composition of a city, $Sunni_C$; the standardized price of silver at the announcement of the Zakat threshold, $Silver_Y$; and a series of counter dummies taking unit value from the month −5 to the month +6 around the month in which Ramadan begins, -5_{my} to 6_{my}, respectively.

TABLE E.II

EID ADHA AND TERRORIST ATTACKS.

Variables	(1) Probability of Attack	(2) Number of Attacks	(3) Number of Casualties
$Sunni_c \times Adha_{my}$	−0.000400	−0.00199	0.00113
	(0.000785)	(0.00374)	(0.00406)
$Sunni_c \times Adha_{my} \times Silver_y$	−0.000475	−0.00237	0.00583
	(0.00121)	(0.00584)	(0.00653)
City-Year FE	Yes	Yes	Yes
Month-Year FE	Yes	Yes	Yes
Obs.	1,029,000	1,029,000	1,029,000
Adj. R sq.	0.281	0.325	0.272

Note: This table presents ordinary least squares (OLS) estimates, where the unit of observation is city c in month-year my. City-year and month-year fixed effects are present in all columns and standard errors are clustered at the city level. The dependent variables are the probability of a terror attack in column (1); the natural logarithm of 0.01 plus the number of terrorist attacks in column (2); and the natural logarithm 0.01 plus the number of terrorist-related casualties in column (3). These are regressed over the Sunni composition of a city, $Sunni_c$; the standardized price of silver before the beginning of the Eid Adha celebration, $Silver_y$; and a dummy taking unit value for the month in which the Eid Adha begins and the following month, $Adha_{my}$.

TABLE E.III

SANCTIONS AND ZAKAT PAYMENTS.

Variables	(1) Probability of Sanction	(2) Number of Sanctions
$Sunni_c \times Ramadan_{my}$	−0.000488	−0.00224
	(0.000626)	(0.00289)
$Sunni_c \times Ramadan_{my} \times Silver_y$	0.00141	0.00664
	(0.000774)	(0.00365)
City-Year FE	Yes	Yes
Month-Year FE	Yes	Yes
Obs.	336,000	336,000
Adj. R sq.	0.103	0.103

Note: This table presents ordinary least squares (OLS) estimates, where the unit of observation is city c in month-year my. City-year and month-year fixed effects are present in all columns and standard errors are clustered at the city level. The dependent variables are the probability of that a sanction for terrorism and terrorism financing is approved to an entity operating in city c during month-year my in column (1); the natural logarithm of 0.01 plus the number of sanctions on terrorism and terrorism financing are approved to an entity operating in city c during month-year my in column (2). These are regressed over the Sunni composition of a city, $Sunni_c$; the standardized price of silver at the announcement of the Zakat threshold, $Silver_y$; and a dummy taking unit value for the month in which Ramadan begins and the following month, $Ramadan_{my}$.

TABLE E.IV

SUNNI CITIES, NON-SUNNI CITIES, AND BOUNDARIES.

Variables	(1) Probability of Attack	(2) Number of Attacks	(3) Number of Casualties	(4) Probability of Attack	(5) Number of Attacks	(6) Number of Casualties	(7) Probability of Attack	(8) Number of Attacks	(9) Number of Casualties
	Only Sunni vs Non-Sunni			≤ 75km from border			≤ 150km from border		
$Sunni_c \times Ramadan_{my}$	0.00241	0.0112	0.00868	0.00220	0.0100	0.00874	0.00259	0.0120	0.00979
	(0.000562)	(0.00266)	(0.00322)	(0.000656)	(0.00311)	(0.00397)	(0.000578)	(0.00274)	(0.00330)
$Sunni_c \times Ramadan_{my} \times Silver_y$	0.00426	0.0197	0.0162	0.00435	0.0199	0.0201	0.00462	0.0214	0.0184
	(0.00101)	(0.00484)	(0.00445)	(0.00117)	(0.00562)	(0.00589)	(0.00103)	(0.00495)	(0.00461)
City-Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Month-Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	836,724	836,724	836,724	269,892	269,892	269,892	669,732	669,732	669,732
Adj. R sq.	0.268	0.307	0.246	0.257	0.284	0.203	0.281	0.323	0.263

Note: This table presents ordinary least squares (OLS) estimates, where the unit of observation is city c in month-year my. City-year and month-year fixed effects are present in all columns and standard errors are clustered at the city level. The dependent variables are the probability of a terror attack in column (1); the natural logarithm of 0.01 plus the number of terrorist attacks in column (2); and the natural logarithm 0.01 plus the number of terrorist-related casualties in column (3). These are regressed over the Sunni composition of a city, $Sunni_C$; the standardized price of silver at the announcement of the Zakat threshold, $Silver_Y$; and a dummy taking unit value for the month in which Ramadan begins and the following month, $Ramadan_{my}$. The sample includes only cities that are either Sunni-majority or non-Sunni majority in columns (1), (2), and (3). The sample includes only cities that are within 75km from the border between Sunni-majority and non-Sunni-majority cities in columns (4), (5), and (6). The sample includes only cities that are within 150km from the border between Sunni-majority and non-Sunni-majority cities in columns (7), (8), and (9).

TABLE E.V

HETEROGENEOUS EFFECT OF SILVER PRICES.

Variables	(1) Probability of Attack	(2) Number of Attacks	(3) Number of Casualties
$Sunni_c \times Ramadan_{my} \times 1stTercile\ Silver_t$	0.000355	0.00183	0.000216
	(0.000442)	(0.00213)	(0.00245)
$Sunni_c \times Ramadan_t \times 2ndTercile\ Silver_t$	−0.000167	−0.000974	−1.80e−06
	(0.000507)	(0.00240)	(0.00266)
$Sunni_c \times Ramadan_{my} \times 3rdTercile\ Silver_y$	0.00735	0.0346	0.0274
	(0.00154)	(0.00732)	(0.00832)
City-Year FE	Yes	Yes	Yes
Month-Year FE	Yes	Yes	Yes
Obs.	1,029,000	1,029,000	1,029,000
Adj. R sq.	0.281	0.325	0.271

Note: This table presents ordinary least squares (OLS) estimates, where the unit of observation is city c in month-year my. City-year and month-year fixed effects are present in all columns and standard errors are clustered at the city level. The dependent variables are the probability of a terror attack in column (1); the natural logarithm of 0.01 plus the number of terrorist attacks in column (2); and the natural logarithm 0.01 plus the number of terrorist-related casualties in column (3). These are regressed over the Sunni composition of a city, $Sunni_c$; a dummy taking unit value for the month in which Ramadan begins and the following month, $Ramadan_{my}$; and three dummies describing the tercile in which the price of silver at the announcement of the Zakat threshold belongs to, $Tercile\ Silver_y$.

TABLE E.VI

ZAKAT, SILVER, AND MINES.

Variables	(1) Probability of Attack	(2) Number of Attacks	(3) Number of Casualties	(4) Probability of Attack	(5) Number of Attacks	(6) Number of Casualties	(7) Probability of Attack	(8) Number of Attacks	(9) Number of Casualties
	≤ 50km from a mine			≤ 75km from a mine			≤ 100km from a mine		
$Sunni_c \times Ramadan_{my}$	0.00229	0.0106	0.00736	0.00211	0.00973	0.00706	0.00213	0.00950	0.00480
	(0.000591)	(0.00279)	(0.00310)	(0.000636)	(0.00304)	(0.00359)	(0.000764)	(0.00367)	(0.00437)
$Sunni_c \times Ramadan_{my} \times Silver_y$	0.00469	0.0216	0.0181	0.00480	0.0221	0.0181	0.00510	0.0233	0.0175
	(0.00100)	(0.00481)	(0.00460)	(0.00110)	(0.00526)	(0.00522)	(0.00136)	(0.00645)	(0.00629)
$Sunni_c \times Ramadan_{my} \times Mine_c$	0.000164	0.00104	0.00230	0.000337	0.00181	0.00202	0.000274	0.00181	0.00412
	(0.000432)	(0.00207)	(0.00224)	(0.000466)	(0.00224)	(0.00255)	(0.000592)	(0.00285)	(0.00335)
$Sunni_c \times Ramadan_{my} \times Silver_y \times Mine_c$	0.000200	0.00128	0.00206	$1.01e-05$	0.000247	0.00148	−0.000314	−0.00101	0.00186
	(0.000732)	(0.00353)	(0.00360)	(0.000811)	(0.00388)	(0.00392)	(0.00106)	(0.00502)	(0.00492)
City-Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Month-Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	1,029,000	1,029,000	1,029,000	1,029,000	1,029,000	1,029,000	1,029,000	1,029,000	1,029,000
Adj. R sq.	0.281	0.325	0.271	0.281	0.325	0.271	0.281	0.325	0.271

Note: This table presents ordinary least squares (OLS) estimates, where the unit of observation is city c in month-year my. City-year and month-year fixed effects are present in all columns and standard errors are clustered at the city level. The dependent variables are the probability of a terror attack in column (1); the natural logarithm of 0.01 plus the number of terrorist attacks in column (2); and the natural logarithm 0.01 plus the number of terrorist-related casualties in column (3). These are regressed over the Sunni composition of a city, $Sunni_C$; the standardized price of silver at the announcement of the Zakat threshold, $Silver_Y$; a dummy taking unit value for the month in which Ramadan begins and the following month, $Ramadan_{my}$; and a dummy taking unit value if a city in proximity to a mine, $Mine_C$. This variable is calculated for cities within: 50km from a mine in columns (1), (2), and (3); 75km from a mine in columns (4), (5), and (6); 150km from a mine in columns (7), (8), and (9).

TABLE E.VII

THE TYPE OF TERRORIST ATTACKS.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Variables	Panel A—Probability of						
	Bombing Explosion	Armed Assault	Unarmed Assault	Hostage Taking	Hijacking	Infrastr. Attack	Assass.
$Sunni_c \times Ramadan_{my}$	0.000902	0.000960	3.01e−05	0.000140	1.81e−05	6.40e−05	0.000338
	(0.000421)	(0.000342)	(2.61e−05)	(0.000250)	(3.72e−05)	(0.000122)	(0.000207)
$Sunni_c \times Ramadan_{my} \times Silver_y$	0.00251	0.00165	7.74e−05	0.000487	−4.53e−05	−0.000138	8.42e−05
	(0.000773)	(0.000562)	(4.64e−05)	(0.000361)	(2.66e−05)	(0.000308)	(0.000279)
Variables	Panel B—Number of						
	Bombing Explosions	Armed Assaults	Unarmed Assaults	Hostage Takings	Hijacking	Infrastr. Attacks	Assass.s
$Sunni_c \times Ramadan_{my}$	0.00404	0.00466	0.000160	0.000785	8.37e−05	0.000346	0.00152
	(0.00201)	(0.00161)	(0.000119)	(0.00115)	(0.000172)	(0.000567)	(0.000969)
$Sunni_c \times Ramadan_{my} \times Silver_y$	0.0116	0.00780	0.000344	0.00226	−0.000209	−0.000570	0.000292
	(0.00370)	(0.00263)	(0.000213)	(0.00169)	(0.000123)	(0.00142)	(0.00133)
Variables	Panel C—Number of Casualties from						
	Bombing Explosions	Armed Assaults	Unarmed Assaults	Hostage Takings	Hijacking	Infrastr. Attacks	Assass.s
$Sunni_c \times Ramadan_{my}$	0.00191	0.00559	9.63e−05	–	0.000259	0.000324	0.00144
	(0.00241)	(0.00194)	(0.000200)	–	(0.000141)	(0.000213)	(0.00116)
$Sunni_c \times Ramadan_{my} \times Silver_y$	0.00869	0.00967	0.000245	–	−3.02e−05	0.000115	0.000575
	(0.00441)	(0.00320)	(0.000218)	–	(0.000107)	(0.000273)	(0.00164)
City-Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Month-Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	1,029,000	1,029,000	1,029,000	1,029,000	1,029,000	1,029,000	1,029,000

Note: This table presents ordinary least squares (OLS) estimates, where the unit of observation is city c in month-year my. City-year and month-year fixed effects are present in all columns and standard errors are clustered at the city level. The dependent variables are the probability of different types of attack in Panel A; the natural logarithm of 0.01 plus the number of different types of terrorist attacks in Panel B; and the natural logarithm 0.01 plus the number of different types of terrorist-related casualties in Panel C. The types of attacks are defined in Section IV of the Codebook of the Global Terrorism Data set, which is available in the data folder and are the following: Bombing/Explosion in column (1), Armed Assault in column (2), Unarmed Assault in column (3), Hostage Taking in column (4), Hijacking in column (5), Infrastructure Attacks in column (6) and Assassination in column (7). These are regressed over the Sunni composition of a city, $Sunni_c$; the standardized price of silver at the announcement of the Zakat threshold, $Silver_y$; and a dummy taking unit value for the month in which Ramadan begins and the following month, $Ramadan_{my}$. The number of casualties from hostage taking are reported for zero for all the attacks and, therefore, the corresponding regression cannot be computed.

TABLE E.VIII

THE WEAPONS OF TERRORIST ATTACKS.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	Panel A—Probability of an Attack using							
	Explosives	Firearms	Vehicles	Other	Melee	Incendiary	Chemical	Biological
$Sunni_c \times Ramadan_{my}$	0.000851	−2.12e−05	−2.35e−05	1.86e−05	−8.91e−05	2.85e−05	2.01e−05	−2.12e−05
	(0.000429)	(2.76e−05)	(2.78e−05)	(1.40e−05)	(0.000132)	(0.000109)	(1.81e−05)	(2.76e−05)
$Sunni_c \times Ramadan_{my} \times Silver_y$	0.00253	4.28e−05	2.35e−05	2.47e−05	−7.59e−05	−0.000156	3.63e−05	4.28e−05
	(0.000764)	(3.07e−05)	(2.95e−05)	(1.93e−05)	(0.000214)	(0.000273)	(3.52e−05)	(3.07e−05)
Variables	Panel B—Number of Attacks using							
	Explosives	Firearms	Vehicles	Other	Melee	Incendiary	Chemical	Biological
$Sunni_c \times Ramadan_{my}$	0.00380	−9.81e−05	−0.000108	8.59e−05	−0.000399	0.000205	9.28e−05	−9.81e−05
	(0.00203)	(0.000127)	(0.000128)	(6.46e−05)	(0.000604)	(0.000455)	(8.33e−05)	(0.000127)
$Sunni_c \times Ramadan_{my} \times Silver_y$	0.0116	0.000198	0.000108	0.000114	−0.000369	−0.000722	0.000168	0.000198
	(0.00366)	(0.000142)	(0.000136)	(8.91e−05)	(0.00103)	(0.00127)	(0.000162)	(0.000142)
Variables	Panel C—Number of Casualties from Attacks using							
	Explosives	Firearms	Vehicles	Other	Melee	Incendiary	Chemical	Biological
$Sunni_c \times Ramadan_{my}$	0.00104	–	−0.000183	7.30e−05	−0.000502	6.16e−06	0.000131	–
	(0.00256)	–	(0.000212)	(7.27e−05)	(0.000695)	(0.000322)	(0.000104)	–
$Sunni_c \times Ramadan_{my} \times Silver_y$	0.00809	–	0.000240	0.000104	−0.000605	−1.25e−05	0.000223	–
	(0.00406)	–	(0.000213)	(0.000104)	(0.00122)	(0.000228)	(0.000201)	–
City-Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Month-Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Obs.	1,029,000	1,029,000	1,029,000	1,029,000	1,029,000	1,029,000	1,029,000	1,029,000

Note: This table presents ordinary least squares (OLS) estimates, where the unit of observation is city c in month-year my. City-year and month-year fixed effects are present in all columns and standard errors are clustered at the city level. The dependent variables are the probability of attack using different weapons in Panel A; the natural logarithm of 0.01 plus the number of terrorist attacks using different weapons in Panel B; and the natural logarithm 0.01 plus the number of terrorist-related casualties using different weapons in Panel C. The weapons of attacks are defined in Section V of the Codebook of the Global Terrorism Data set, which is available in the data folder and are the following: Explosives in column (1), Firearms in column (2), Vehicles in column (3), Other Unspecified Weapons in column (4), Melee in column (5), Incendiary in column (6), Chemical in column (7), and Biological in column (8). These are regressed over the Sunni composition of a city, $Sunni_C$; the standardized price of silver at the announcement of the Zakat threshold, $Silver_Y$; and a dummy taking unit value for the month in which Ramadan begins and the following month, $Ramadan_{my}$.

TABLE E.IX

TERRORIST ORGANIZATIONS, ZAKAT, AND ATTACKS.

Variables	(1) Probability of Attack	(2) Number of Attacks	(3) Number of Casualties	(4) Probability of Attack	(5) Number of Attacks	(6) Number of Casualties	(7) Probability of Attack	(8) Number of Attacks	(9) Number of Casualties
				Capital Intensive			Noncapital Intensive		
$Sunni_o \times Ramadan_{my}$	0.00969	0.0469	0.0375	2.64e−06	0.0435	0.0498	3.63e−06	0.0109	0.00311
	(0.0151)	(0.0328)	(0.0422)	(9.10e−06)	(0.0355)	(0.0411)	(3.67e−06)	(0.0175)	(0.0193)
$Sunni_o \times Ramadan_{my} \times Silver_y$	0.170	0.151	0.255	8.30e−05	0.135	0.233	3.29e−05	0.121	0.0993
	(0.0450)	(0.0524)	(0.0546)	(2.32e−05)	(0.0505)	(0.0519)	(9.13e−06)	(0.0292)	(0.0253)
Organization FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Month-Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	17,052	17,052	17,052	17,052	17,052	17,052	17,052	17,052	17,052
Adj. R sq.	0.191	0.208	0.200	0.180	0.208	0.199	0.146	0.158	0.104

Note: This table presents ordinary least squares (OLS) estimates, where the unit of observation is organization o in month-year my. Organization and month-year fixed effects are present in all columns and standard errors are clustered at the organization-year level. The dependent variables are the probability of a terror attack in columns (1), (4), and (7); the natural logarithm of 0.01 plus the number of terrorist attacks in columns (2), (5), and (8); and the natural logarithm 0.01 plus the number of terrorist-related casualties in columns (3), (6), and (9). Columns (1), (2), and (3) study all types of attacks, columns (4), (5), and (6) focus on capital intensive attacks, while columns (7), (8), and (9) analyze noncapital intensive attacks. These are regressed over the Sunni classification of an organization, $Sunni_O$; the standardized price of silver at the announcement of the Zakat threshold, $Silver_Y$; and a dummy taking unit value for the month in which Ramadan begins and the following month, $Ramadan_{my}$.

TABLE E.X

TERRORIST ATTACKS, CHARITIES, AND CONFOUNDERS.

Variables	(1)	(2)	(3)	(4)
	Probability of Attack			
$Sunni_c \times Ramadan_{my}$	0.000811	0.00140	0.00962	0.000101
	(0.000850)	(0.000940)	(0.0106)	(0.0128)
$Sunni_c \times Ramadan_{my} \times Silver_y$	0.00190	0.00280	0.0231	0.0128
	(0.00128)	(0.00145)	(0.0171)	(0.0209)
$Sunni_c \times Ramadan_{my} \times Cash\ Share_d$	0.00475	0.00389	0.00575	0.00370
	(0.00533)	(0.00556)	(0.00549)	(0.00597)
$Sunni_c \times Ramadan_{my} \times Silver_y \times Cash\ Share_d$	0.0147	0.0134	0.0171	0.0148
	(0.00720)	(0.00733)	(0.00745)	(0.00794)
$Sunni_c \times Ramadan_{my} \times Number_d$	−0.00302	−0.00309	−0.00314	−0.00308
	(0.00115)	(0.00122)	(0.00118)	(0.00124)
$Sunni_c \times Ramadan_{my} \times Silver_y \times Number_d$	−0.00437	−0.00452	−0.00467	−0.00461
	(0.00156)	(0.00163)	(0.00160)	(0.00165)
$Sunni_c \times Ramadan_{my} \times Income_d$		−0.00220		−0.00228
		(0.00128)		(0.00157)
$Sunni_c \times Ramadan_{my} \times Silver_y \times Income_d$		−0.00304		−0.00247
		(0.00204)		(0.00253)
$Sunni_c \times Ramadan_{my} \times Education_d$			−0.00223	0.000336
			(0.00275)	(0.00336)
$Sunni_c \times Ramadan_{my} \times Silver_y \times Education_d$			−0.00538	−0.00260
			(0.00440)	(0.00547)
City-Year FE	Yes	Yes	Yes	Yes
Division-Month-Year FE	Yes	Yes	Yes	Yes
Obs.	1,029,000	1,029,000	1,029,000	1,029,000

Note: This table presents ordinary least squares (OLS) estimates, where the unit of observation is city c in month-year my. City-year and division-month-year fixed effects are present in all columns and standard errors are clustered at the city level. The dependent variables are the probability of a terror attack in column (1); the natural logarithm of 0.01 plus the number of terrorist attacks in column (2); and the natural logarithm 0.01 plus the number of terrorist-related casualties in column (3). The dependent variables in columns (7), (8), and (9) describe exclusively terrorist events from capital intensive attacks, defined as those involving bombings/explosions and armed assaults. These are regressed over the Sunni composition of a city, $Sunni_C$; the standardized price of silver at the announcement of the Zakat threshold, $Silver_Y$; a dummy taking unit value for the month in which Ramadan begins and the following month, $Ramadan_{my}$; the average share between the number of charities using cash as means of payment over the number of charities using all other means of payment in a division, $Cash\ Share_d$; the standardized average number of charities operating in a division, $Number_d$; the standardized average income per capita in a division, $Income_d$;the standardized average level of education in a division, $Education_d$.

TABLE E.XI

TERRORIST ATTACKS, SUNNI CITIES, AND SILVER—INVERSE SINE TRANSFORMATION.

Variables	(1) Number of Attacks	(2) Number of Casualties	(3) Number of Attacks	(4) Number of Casualties	(5) Number of Attacks	(6) Number of Casualties
			Capital Intensive		Noncapital Intensive	
$Sunni_c \times Ramadan_{my}$	0.00228	0.00260	0.00161	0.00210	0.000639	0.000260
	(0.000574)	(0.00113)	(0.000501)	(0.00109)	(0.000329)	(0.000408)
$Sunni_c \times Ramadan_{my} \times Silver_y$	0.00435	0.00655	0.00367	0.00567	0.000473	5.01e−05
	(0.000978)	(0.00173)	(0.000830)	(0.00168)	(0.000530)	(0.000592)
City-Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Month-Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	1,029,000	1,029,000	1,029,000	1,029,000	1,029,000	1,029,000
Adj. R sq.	0.449	0.297	0.428	0.280	0.286	0.185

Note: This table presents ordinary least squares (OLS) estimates, where the unit of observation is city c in month-year my. City-year and month-year fixed effects are present in all columns and standard errors are clustered at the city level. The dependent variables are the inverse sine transformation of the number of terrorist attacks in columns (1), (3), and (5); and the inverse sine transformation of the number of terrorist-related casualties in columns (2), (4), and (6). Columns (1) and (2) study all types of attacks, columns (3) and (4) focus on capital intensive attacks, while columns (5) and (6) analyze noncapital intensive attacks. These are regressed over the Sunni composition of a city, $Sunni_C$; the standardized price of silver at the announcement of the Zakat threshold, $Silver_y$; and a dummy taking unit value for the month in which Ramadan begins and the following month, $Ramadan_{my}$.

TABLE E.XII

TERRORIST ATTACKS, SUNNI CITIES, AND SILVER—CONDITIONAL FIXED EFFECT POISSON.

Variables	(1) Probability of Attack	(2) Number of Attacks	(3) Number of Casualties	(4) Probability of Attack	(5) Number of Attacks	(6) Number of Casualties	(7) Probability of Attack	(8) Number of Attacks	(9) Number of Casualties
				Capital Intensive			Noncapital Intensive		
$Sunni_c \times Ramadan_{my}$	−0.0248	0.0563	−0.854	−0.0370	0.0159	−1.260	0.0551	0.167	−0.0235
	(0.0375)	(0.0647)	(0.769)	(0.0363)	(0.0693)	(0.807)	(0.0535)	(0.0803)	(0.732)
$Sunni_c \times Ramadan_{my} \times Silver_y$	0.0596	0.00912	0.632	0.0610	0.0231	0.813	0.00398	−0.0460	−0.231
	(0.0264)	(0.0463)	(0.412)	(0.0238)	(0.0469)	(0.412)	(0.0270)	(0.0423)	(0.416)
City-Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Month-Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	1,029,000	1,029,000	1,029,000	1,029,000	1,029,000	1,029,000	1,029,000	1,029,000	1,029,000

Note: This table presents the marginal effects of a conditional fixed-effect Poisson estimation, where the unit of observation is city c in month-year my. City-year and month-year fixed effects are present in all columns and standard errors are clustered at the city level. The dependent variables are the probability of a terror attack in columns (1), (4), and (7); the the number of terrorist attacks in columns (2), (5), and (8); and the number of terrorist-related casualties in columns (3), (6), and (9). These are regressed over the Sunni composition of a city, $Sunni_c$; the standardized price of silver at the announcement of the Zakat threshold, $Silver_y$; and a dummy taking unit value for the month in which Ramadan begins and the following month, $Ramadan_{my}$.

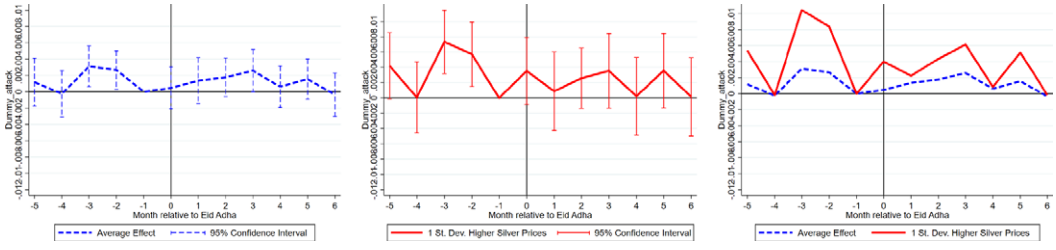

FIGURE E.1.—Terrorism, Eid Adha, and Silver Prices—Event Study. *Notes:* This figure reports the coefficients of the event study specification described in equation (2), but replicated around the Eid Adha festivity instead of the Ramadan festivity. The left panel displays the value of the coefficients, c_{1j}, which describe differential evolution in the probability of a terrorist attack in a Sunni-majority city relative to a non-Sunni-majority city around the 12 months around the month marking the beginning of the Eid Adha period and when silver prices present their average level. The center panel displays the value of the coefficients, c_{2j}, which describe differential evolution in the probability of a terrorist attack in a Sunni-majority city relative to a non-Sunni–majority city around the 12 months around the month marking the beginning of the Eid Adha period and when silver prices are one-standard deviation higher than their average level. The right panel reports the point estimates of both panels. The month marking the beginning of the Eid Adha festivity is the month zero on the x-axis and exhibits a vertical black line. The bars around each observation represent the 95% confidence interval. Standard errors are clustered at the city level and city-year and month-year fixed effects are included.

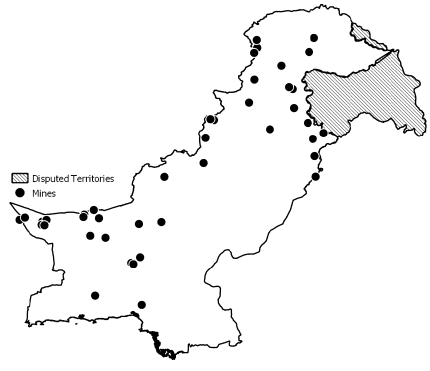

FIGURE E.2.—Mines in Pakistan. *Notes:* This map presents the geographic location of mines in Pakistan. The source is the Geological Survey of Pakistan, Ministry of Energy of Pakistan. Additional information and documentation is available in the data folder.

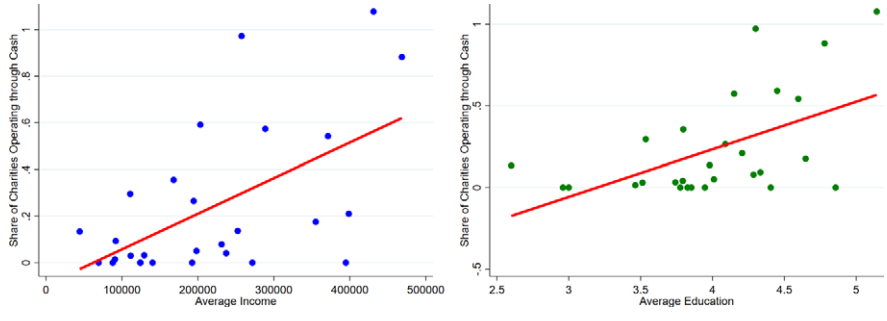

FIGURE E.3.—Cash use of Charities, Income, and Education. *Notes:* These scatterplots show the correlation between the share of charities using cash and income per capita in PKR (on the left) and levels of education (on the right). The correlations are respectively 0.61 and 0.55. For graphic convenience, I exclude the Hazara division, which presents a particularly high share, which makes the figure less clear but does not change the sign of the correlation. All of these variables are averages per division across all years in the sample.

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