Islam and Suicide Terrorism: An Empirical Analysis

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Whether Islam is responsible for increased suicide terrorist attacks is a salient but highly controversial issue. Using independently produced demographics data, we investigate whether there is a correlation between Islam and suicide attacks. We find that (1) countries with greater Muslim populations are likely to experience more suicide attacks, (2) countries with greater Sunni Muslim populations are likely to encounter more suicide attacks, and (3) countries with greater Hanafi Muslim populations, in contrast to other Sunni legal schools, face the greatest risk of experiencing suicide attacks. The overall analysis suggests that Islam is positively associated with suicide attacks, although the degree of its association is not uniform among all branches.

Determinar si el Islam es responsable del aumento de los atentados terroristas suicidas es un tema relevante, pero muy controvertido. A partir de datos demográficos obtenidos de forma independiente, investigamos si existe una correlación entre el islam y los atentados suicidas. Comprobamos que (a) los países con mayor población musulmana están expuestos a más atentados suicidas, (b) los países con mayor población musulmana suní están expuestos a más atentados suicidas y (c) los países con mayor población musulmana hanafí, a diferencia de otras escuelas jurídicas suníes, corren el mayor riesgo de sufrir atentados suicidas. En el análisis general se sugiere que el islam tiene una relación positiva con los atentados suicidas, aunque el grado de su relación no es consistente entre todos los sectores.

La question de savoir si l'islam est responsable de l'augmentation des attaques terroristes suicides est une question essentielle mais très controversée. Nous utilisons des données démographiques produites de manière indépendante et nous étudions s'il existe une corrélation entre l'islam et les attentats-suicides. Nous constatons que (a) les pays à forte population musulmane sont susceptibles de subir davantage d'attentats-suicides, (b) les pays à forte population musulmane sunnite sont susceptibles de subir davantage d'attentats-suicides, et (c) les pays à forte population musulmane hanafite sont confrontés au plus grand risque d'attentats-suicides contrairement à ce qui intervient pour les autres écoles juridiques sunnites. Notre analyse globale suggère que l'islam est indéniablement associé aux attentats-suicides bien que le degré de cette association ne soit pas uniforme pour toutes les branches de l'islam.

On March 29, 2002, Ayat al-Akhras blew herself up at the entrance of the main supermarket in the Jerusalem neighborhood of Kiryat HaYovel, killing three people and injuring twenty-eight (Bennet 2002). On July 10, 2017, an Iraqi TV station showed a news footage in which a woman holding an infant in her arms committed a suicide bombing against a group of Iraqi troops flushing out Islamic State in Iraq and Syria (ISIS) fighters from the city of Mosul. While the explosion claimed the lives of the woman and infant instantly, it only injured some civilians and two Iraqi soldiers (Roberts 2017). When a suicide bomber from ISIS killed nineteen people in Syria on January 16, 2019, he instilled great fear among both residents and foreigners (Schmitt, Hubbard, and Callimachi 2019). By blowing themselves up in northeast Nigeria, three Boko Haram bombers killed twenty-eight people and wounded eighty-two others, causing personal fear for individual citizens and national fear for the country's security (The Guardian 2017). What motivates these militant extremists to perpetrate suicide attacks—the most deadly and destructive tactic of terrorist organizations—against their own states, people, and foreign entities?

The reason that people engage in suicide attacks despite their being so costly[1] may be rooted in altruism, transcendentalism, and/or religion (e.g., Atran 2003; Acosta 2016). In this study, we focus on potential religious motivations of suicide attackers. Unlike most previous studies, we base our arguments on scripture, hadith, and classical Islamic political and legal thought and break down Islam into subbranches to examine the effects of different Islamic legal schools on suicide attacks. We put forward two arguments. First, all other things being equal, Islam is likely to be a strong and consistent predictor of suicide attacks. Second, the effect of Islam varies, depending on its branches. These arguments are not deterministic but probabilistic, for some deeply religious countries are peaceful while others are not and not all religious countries behave in similar ways. We believe that just as "religion [was] a driving force behind [the Catholic Crusading movement]" (Shah and Toft 2006; Toft 2007; see also Horowitz 2009, 192), it is possible that Islam—a religion—is correlated with increased suicide attacks. This plausibility finds evidence in the 2006 US Quadrennial Defense Review which contends that "the United States is engaged in a war against terrorists who justify their actions in the name of Islam" (quoted in Horowitz 2009, 162–63).

By relying on independent data on religious demographics and original data on terrorist attacks in states, we examine country-level propensity to experience suicide attacks in relation to the country-level percentage of population that is Muslim. Our empirical findings suggest that (1)

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[1] Suicide attacks are also considered to be irrational from the material cost–benefit perspective of the attackers (e.g., Merari 1990; Mazarr 2004).

countries with greater Muslim populations are more prone to suicide attacks; (2) within Islam, countries with greater Sunni Muslim populations are more prone to suicide attacks; and (3) among the Sunni legal schools, countries with greater Hanafi Muslim populations face the greatest risk of experiencing suicide attacks.

This is the *average/empirical* tendency of suicide attacks across country-years. Such patterns are rarely observable from qualitative studies that scrutinize one or a few attacks or journalistic accounts. For example, the experience of Sri Lanka at first blush would appear to deviate from our empirical findings. That country once experienced one of the highest rates of suicide attacks in the world (though other countries have eclipsed it since), yet the perpetrators were Hindu (not Muslim) Tamil militants pursuing a secular, nationalist objective, not a religious one. Such cases well demonstrate that suicide attacks are not *uniquely* Islamic. However, our empirical analysis indicates that *over time and space*, Muslim majority states are, on average, highly correlated with increased suicide attacks than states of other religions. Our other finding, that suicide attacks mostly take place in majority Hanafi countries, may also appear to be inconsistent with single-case studies such as Nigeria (where the Muslim population is mostly Maliki but which has experienced numerous suicide attacks since 2011) and Somalia (mostly Shafii). Again, although we acknowledge the particularities of single cases, we find in probabilistic terms that countries with Hanafi populations have been most prone to suicide attacks over the past three decades.

A Brief Literature Review

Since the 9/11 attacks, terrorism scholars have sought to identify motivators of suicide attacks, such as education, religion, poverty, oppression, autocracy, internal displacement, and foreign occupation (e.g., Piazza 2013; Brockhoff, Krieger, and Meierrieks 2014; Choi and Piazza, 2016; 2017; Choi 2019). Morris (2020) finds that contrary to popular belief, new recruits with poorer education and literacy in Islam are more likely to volunteer for a suicide mission. Pape (2003, 2005) argues that suicide terrorism is an effective tool to wrest policy concessions from the targeted countries, especially democracies. Yet, although militant organizations use violence as a costly signal to show strength or capacity (Hoffman and McCormick 2004; Kydd and Walter 2006), doing so may work out (Pape, 2003, 2005; Kydd and Walter 2006) or it may not (Abrahms 2012; Acosta and Childs 2013; Fortna 2015). By attacking other Muslim branches, militant organizations may attempt to distinguish themselves from the crowd (Kydd and Walter 2006; Joseph and Dugan 2014). However, empirical evidence for this outbidding terrorist strategy is scarce (Findley and Young 2012a). In their recent study, Barceló and Labzina (2020) also demonstrate that by seeking to broaden its support base through violence, the Islamic State actually reduces the number of its supporters, rendering the strategy counterproductive.

Many existing studies do not explore a direct relationship between suicide attacks and religiously based ideology (e.g., Berman and Laitin 2008; Wright 2016; on religious violence in Judaism, see Aran and Hassner 2013). These studies tend to include Islam as a control variable but provide little explanation since it is not part of their main theoretical argument (e.g., Wade and Reiter 2007; Piazza 2008; Horowitz 2010a; Acosta and Childs 2013; Santifort-Jordan and Sandler 2014; Asal and Hastings 2015). Nevertheless, several scholars look into direct connections between Islam and suicide attacks (e.g., Atran 2003, 2006; Pedahzur 2005; Küntzel

2008; Fair, Hamza, and Heller 2017; Hutchins 2017). Brym and Araj (2006) uncover a pattern of religious conflicts in which Palestinian suicide bombers retaliate against Israeli killings of Palestinians. Piazza (2009) demonstrates that suicide attacks are more prevalent among religious terrorists than secular terrorists. Henne (2012) finds that a group's religious ideology greatly increases the number of deaths from a suicide attack, regardless of varying group motivations and structural factors. Carson and Suppenbach (2018) show that the Global Jihadist Movement disproportionately relies on suicide attacks as its tactic, because of the martyrdom culture. Moghadam (2009) and Henne (2012) link Islamic terrorism directly to Islamist ideology (see also Tosini 2010a, 408–11; Maher 2016; Henne 2019; Hegghammer 2020). Other studies attribute causes to cultural differences with non-Muslim targets (e.g., Juergensmeyer 2003; Bloom 2005). Recently, Choi and Acosta (2020) found evidence that sectarianism between Sunni Muslims and non-Sunni Muslims emerges as a substantive, significant, and positive predictor of suicide attacks.

This brief literature review indicates that with some exceptional studies, such as those just reported, empirical studies on Islam as the main trigger of suicide attacks are still thin. More importantly, they treat Islam as a monolithic belief and thus ignore intra-Islamic differences. To fill this gap in the current literature, we theorize the relationship between Islam and suicide terrorism on the basis of scripture, hadith, and classical Islamic political and legal thought. In addition, using a newly compiled dataset on world religion, we also examine the effects of different Islamic branches on suicide attacks, which previous studies neglect. In doing so, we attempt to elucidate the relationship between Islam and suicide attacks, which Horowitz (2015, 17) defines as "murky . . . still unclear," in his review.

Islam and Suicide Attacks

Almost all previous studies overlook the plain reality that suicide attacks are more frequently observed in countries where Islamic scripture and thought both are ubiquitous and influence a willing population. We are sensitive to this observation's potential to foster the very stereotype that we ourselves oppose. However, we premise that militant organizations in such countries often justify suicide attacks as their political tool on the basis of *Islamic* history and theology. This premise is supported by Kelvington's (2019, 2) analysis: Muslim fundamentalists seek to expand "the global jihadist movement *through selective citation of Islamic texts*, sensationally coercive methods of jihadist groups, and dissemination of ideas on the Internet" (emphasis added).

Islam maintains that people can achieve salvation only through their actions, not by membership in a select group, by attaining enlightenment, or receiving the gift of another's supreme sacrifice (Badr 1999, 99). The path to salvation in Islam is obedience to God's law. Fulfillment of and submission to God's law constitute happiness in this life, however physically arduous it seems, by giving one the inner satisfaction that his/her next life is assured in heaven (Khadduri 1955, 24). Indeed, the word *Islam* in Arabic means "surrender" or "submission" to the will of God (Kelsay 2007, 9). Islam seeks to restore humankind to its original condition, in which all people submit to God (Martin 1991, 96) and in doing so achieve salvation. This is accomplished through the community (*umma*)—a brotherhood of believers bound by common obligation to God. The *umma* is necessary to suppress the aggressive and evil

propensities of man. This is the logic, in Islamic political theory, by which the state is established (Tibi 1996, 140–41).

In Islamic political theory, the locus of sovereignty resides in God, whose sovereignty is absolute and who is accountable to none. In contrast to Western conceptions of the social contract between subjects and (earthly) sovereign, God is a party to the Islamic social contract. In the doctrine of bay'a, subjects pledge allegiance to, and bestow God's blessings (*ridwan*) on, the ruler. However, the ruler must comply with certain responsibilities, and furthermore God's blessing must be contingent on the ruler ruling according to the norms of political behavior established by God (Ghunaimi 1968, 92–93; Weeramantry 1988, 117; Nakhleh 1995, 205).[2]

The divine, therefore timeless, origin of Islamic political theory raises a difficult question: To what extent, if any, do Islamic norms of political behavior evolve? The answer lies in the outcome of the conflict between Islamic rationalism and Islamic traditionalism in the ninth and tenth centuries CE. Rationalists argued that all theological claims, including interpretations of the Quran and the traditions of the Prophet (the Sunna), must adhere to principles of rational thought and be subordinate to human reason (Weeramantry 1988, 95). Islamic traditionalism posits the opposite—that human reason, while still important, must be subordinated to God's will (recorded in the Quran and Sunna), otherwise people follow their own wills instead of God's. The traditionalist Ghazali maintained that human intellectual rigor must remain within the boundaries of the major premises and tenets of Islam (Weeramantry 1988, 100).

By the end of the thirteenth century CE, the Traditionalist School had prevailed (Aslan 2005, 158–69). This outcome gave the orthodox Muslim scholars the sole authority to interpret the fixed, immutable text of the Quran. Since an eternal Quran could not be solely of and for Muhammad's society, historical context could play no further role in interpreting it. The result was to freeze into place those standards that its contemporaneous interpreters claimed—at that moment in time—were mandated by God. Those standards became permanent, notwithstanding the possibility that the thirteenth-century interpreters themselves were reacting to historical circumstances or that their own (human) logic was flawed. Islamic fundamentalists today similarly reject the Rationalist School in favor of the Traditionalist one.

Traditionalist Islamic political theory, law, and worldview thus have remained stagnant, incongruous with the sociopolitical realities in which Muslims find themselves today (Martin 1991, 109). For the most part, today's Islamic societies' governments have bent to the realities of coexisting in a multicultural global setting and state system originating from another religion (the Westphalian state system, from Christianity). However, Muslim fundamentalists seek to force today's reality to fit the confines of Islamic law as it existed in another time and place (see Pipes 1983, 11), much as the political psychology literature posits that people tend to force contrary information to fit within their biased worldviews and perceptions.

The Rise of Islamic Fundamentalism

Many Muslims today express considerable grievance against their governments. Such discontent lies partially in the material disadvantages of non-elites that are typically associated with autocracy and thus are not specific to fundamentalist or even mainstream Islam. However, Islamic fundamentalists' grievances are also rooted in the belief, instilled particularly by the works of Hasan al-Banna and Sayyed Qutb (Mellor 2017), that their governments no longer enjoy God's blessing. In their eyes, governments of modern Muslim states have strayed from the principles of Islamic governance commanded by God directly or derived logically by the early classical Islamic jurists. They have conformed to Western international law and joined Western institutions, such as the United Nations, and in doing so have subordinated Islamic law to both. They have allowed a non-Muslim state (Israel) to thrive in the heart of Islam's domain. They have allowed Western liberalism, with its (perceived) immoral, sexualized lifestyles, to encroach on Islamic society, and their governments' power and rulers' lavish lifestyles are supported by the West. They have allowed Western cultural and military domination in the Islamic world (Lewis 2003; Ball and Dagger 2020, chapter 10, 338–361). In sum, they not only have gone too far to accommodate the Western world but have even surrendered to it. This is the basis of fundamentalist Muslims' fear for the future, and such fear is a strong motivator of suicide attacks (Berman 2009).

Such grievances alone may not necessarily prescribe jihad. However, Arab states' multiple defeats by Israel destroyed the legitimacy of Arab secular governments, leading to a cascade of disillusionment and culminating in the revival of jihad as a program of political action (Cook 2009). The doctrine of the lesser jihad, already well documented in other literature, denotes the outward, physical struggle of the domain of Islam to resist oppression and/or extend that domain. Classical Islamic jurists regarded jihad as the means for establishing God's political supremacy—a necessary component of the supreme authority of God's word (Khadduri 1955, 59–60; Ghunaimi 1968, 137; Bukay 2006). Jihad was the vehicle not merely for expanding the abode of Islam but also for enforcing its politico-religious authority. The Riddah Wars (632–633 CE) provide the historical foundation for this. When Muhammad died, several Arab tribes claimed that their oaths of allegiance were annulled. Most Arabs outside Hijaz broke from the central leadership and began following local prophets. Muhammad's successor, Abu Bakr, declared war against these "apostates" and embarked on military campaigns against these false/fake prophets, claiming that "wherever the religious leadership is admitted, its corollary is political leadership" (Ghunaimi 1968, 63). Repudiating the pledge to the immortal community of God was a sin against God, warranting force in response (Aslan 2005, 118–19).

For reasons described in the preceding text, fundamentalist Muslims perceive the contemporary autocratic governments of Muslim countries as apostates (Shahzad 2008; Acosta 2010; Hafez 2010).[3] This is a different kind of grievance from that which is attributed to material indignities typically associated with autocracy. That contemporary Muslim fundamentalist groups would chafe against today's autocratic governments is expected—mainstream Muslims do also (as do societies of other religions) and that phenomenon is controlled for in our empirical analyses. However, unlike mainstream religionists, fundamentalist Islamist organizations generally do not espouse liberal democracy as their goals. Traditional Islamic political theory prioritizes orderly service and obedience to God over individual liberties, resulting in a Hobbesian-like approach to governance in which a strong, even oppressive, state is necessary for

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[2] The intertwining of Islam and state often leads to claims that the ideal type of polity in Islamic thought is a theocracy (for a dissenting view, see Khadduri 1955 and Ghunaimi 1968). This is a gross oversimplification, but debunking this claim lies beyond this article's scope.

[3] Al-Qaida in Iraq (now IS) further claims that the current government of Iraq is dominated by Shiites, not Sunnis, therefore not the purest Muslims in their eyes (see Tosini 2010b, 291–96).

security (Khadduri 1955, 3–13). The Quran and other traditional sources consistently assert that order must supplant anarchy, even at the cost of imposing tyranny. The maxim "Sixty years of tyranny is better than one day's anarchy" is often attributed to the Prophet (Ayoob 2008, 4).

Following the example of the Riddah Wars, fundamentalist Islamist organizations are willing to resort to violence to replace the existing regimes with regimes that follow the true path of God. They have cultivated the idea that contemporary Muslim governments and even Muslim societies have strayed not merely from ideal Islamic behavior but even into apostasy, and that makes them all legitimate targets in their struggle to reestablish the sharia state (Cook 2009, 181–82). While the putative "foreign oppressors" are worthy targets of jihad, the need to restore Islam to Muslims is even more urgent; therefore, attacking their own infidel states and societies is actually the higher priority.

But why now? Although jihad did become the foundation of foreign relations in traditional Islamic thought, it did not gain strength immediately due to the Islamic world's material weakness relative to the West (Khadduri 1955, 64–65). However, the creation of Israel (with Western support) and its overwhelming military successes have prompted Muslim fundamentalists to reconsider the meaning of jihad. In the meantime, the sentiment of the Muslim mainstream has also been sympathetic to violent responses against non-Muslims such as the 9/11 attacks (Haddad and Khashan 2002). The successful suicide attack on the US Marine barracks in Beirut in 1983—successful because the attackers achieved their goal of US withdrawal from Lebanon—signaled to other Islamic fundamentalists that jihad was necessary to fight back.

In this way, suicide attacks emerged as a viable tactic for militant organizations.[4] However, diffusion patterns differed among them. As Horowitz (2010a, 2010b) aptly shows, the tactic diffused to newly founded organizations more quickly than to old organizations, which were too bureaucratized and set in their ways to actually adopt it. As Horowitz (2010a, 61) put it, "the dominant adoption dynamic appears to involve some sort of transmission from group to group and organizational factors play a significant role in influencing whether a group is open to and able to adopt." Walter (2017a, 2017b) alludes to a huge potential advantage for militant organizations: information and communication technology have made it easier for militant organizations to quickly emulate and utilize innovations in suicide bombing tactics worldwide.

Martyrs and Suicide Attacks

When Muslim fundamentalists harboring grievances against their governments resort to suicide terrorism, they must justify their violence. Despite Islam itself not being *necessarily* violence-prone, Muslim fundamentalists exploit it to their political advantages by selectively citing Islamic texts (Kelvington 2019).

But what texts? We find one significant doctrine in Islamic thought providing particularly fertile ground for militant organizations to exploit: extolment of the martyr (*shahid*). The heavenly rewards for dying for the cause of Islam are quite lavish, especially compared to those for Muslims dying from other causes (Quran 3:14–15; 158,169–71; see also see Quran 2:154; Quran 2:208; Quran 9:111; Quran 22:58; Quran 52:17–20; Quran 55:47–56; Quran 55:70–72; Kushner 1996; Tibi 1996, 138; Rapoport 1988; Israeli 2002; Kelsay

2007, 26). They include extremely bountiful sexual pleasures for men, as described graphically in some *hadith* literature (Cook 2005, 27–28)—the seventy beautiful virgins and the like (Bukay 2006, citing Quran 44:514, 52:17–20, 55:47–72 *passim*, 56:224). Thayer and Hudson (2010) attribute the appeal of suicide attacks among young Muslim men to two factors. One is circumstances diminishing their likelihood to procreate, such as inability to financially support a wife let alone afford the traditionally lavish wedding. The other factor is a culture of polygyny that reduces the availability of women to the less affluent. We find their logic sound.

Male-oriented sexual incentives obviously do not explain the rising number of female *shahid*s, the strategic and tactical advantages that have only been recently discovered.[5] Literature suggests that Muslim women's motives are rooted less in sexual desire than in desires for redemption of lost honor, release from emotional pain of personal tragedies or indignities against their persons, and revenge for loss of loved ones (see Witlox 2012; for a dissenting view, see Berko 2007). Some of these motivators may stem from the unequal status of women inculcated in several cultures, not just Islamic. However, in Islam, martyrdom promises a better life in heaven and a cure for all of the foregoing traumas. Islam motivates both men and women to martyrdom, albeit sometimes in different ways.

A good example of *shahid* is the Beirut attack cited in the preceding text. The perpetrator, Islamic Jihad, was a fundamentalist Shi'ite organization. The subsequent withdrawal of US forces illustrated the potential of suicide attacks as a successful means of inducing policy changes by stronger opponents—not only foreign military forces but also the attackers' own governments. Organizations increase their legacies by diffusing their modus operandi to other organizations with congruent ideological platforms (Acosta and Childs 2013, 50). Hence, fundamentalist Sunni organizations have borrowed the Shi'ite theological basis for these tactics and adopted them as their own (Cook 2009, 184–86; Acosta 2010; Tibi 2012, 12–16, 152). Although Sunnis and Shi'ites have important theological differences and are often in conflict, they still have far more in common with each other culturally than with non-Muslims, making Sunnis more likely than other religionists to embrace a Shi'ite modus operandi. It follows that Muslim organizations harboring beliefs in their own oppression would most likely adopt tactics similar to those of other successful *Muslim* organizations, including suicide attacks.

Bukay (2006) reports on the rationales articulated today by suicide attackers and their organizations. The most prominent of these rationales are religious prescriptions for active jihad. Tosini (2010a: 408–11) reports on similarly altruistic motives expressed by attackers. These motivators are not necessarily specific to Islam. However, other, more Islam-specific factors further strengthen Islamic fundamentalists' incentives for suicide attacks. Death in battle in the service of Islam is considered the surest path to the cleansing of sin and admission into heaven—all others must first face trial before being admitted (Khadduri 1955, 61–62; Cook 2005, 15). In contrast, martyrs in Christianity and Buddhism are venerated for *submission* to their oppressors' wrath rather than forcible resistance, despite the dominance of a holy war ethic in both religions in various time periods and/or sects (Cahill 1994; Cadoux 1982, 147–52; Yoder 1994; *Yodhājīva Sutta*, SN 17, sec. 3; *Mahāsīlava Jātaka*, J 51;

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[4] Mohammad (1985) and Tibi (2012) dispute that the radicals' agenda is Islamic in nature.

[5] Bombs are more easily hidden in female Muslim clothing and cultural taboos against physical contact with the opposite sex, increasing the effectiveness of female suicide attackers.

Seyya Jātaka, J 282; see also Reichberg 2009, 156; Jerryson and Juergensmeyer 2010; Brown 2020).[6]

The foregoing events paved the way for the radical fundamentalism of al-Banna and Qutb in the 1930s and 1950s to evolve into the ideology that today embraces militarism. This is not to say that Islam itself is inherently violent but that Muslim fundamentalists are violence prone by exploiting Islamic thought for their own political purposes. In other words, countries with high levels of Muslim populations are likely to experience more suicide attacks than countries with populations primarily of other religions.

Sunni and Hanafi Islam and Suicide Attacks

Not all branches of Islam are equally favorable to suicide attacks; therefore, not all predominantly Muslim states are equally vulnerable to them. Khadduri (1955, 66–67) contrasts Shi'ite doctrines of jihad with those of Sunni Islam. In Shia Islam, jihad is one of the primary functions of the *imam* (leader), who is infallible and to whom obedience is due from all subjects. However, the disappearance of the imam has, in Khadduri's words, "left the duty of declaring the jihad unfulfilled." The doctrine of jihad, therefore, is dormant and only the imam's return can revive it again— an unlikely event after many centuries of schism between the two branches. In contrast, there is no such gatekeeper in Sunni Islam. This feature of Shia Islam certainly does not eliminate suicide attacks by Shi'ites altogether (recall Beirut), but Shi'ite populations have lower propensities to commit them even when their politico-economic positions are endangered or they are most fearful. For example, Iraq experienced few suicide attacks when the Shi'ites were oppressed, probably because the Shi'ite population during the Saddam period was disarmed and had little ability to cultivate the use of suicide attacks. However, Iraq has experienced an outlying surge of them now that Sunnis view themselves as oppressed. At a more macro-political level, the worldwide population of Sunnis dwarfs that of Shi'ites. This fact puts Sunnis as a whole in a far better position to challenge non-Muslim (or apostate) leadership than Shi'ites.

Are fundamentalists of all Sunni legal schools the same or are those of some schools more likely to commit suicide attacks than others? Of the four major schools in Sunni Islam (Hanafi, Shafii, Maliki, and Hanbali), the Hanafi school was the first to systematize the principles regulating Islam's relationship with non-Islam (Khadduri 1966, 25). The original works of the school's founder, Abu Hanifa, are unavailable. However, his disciple, Muhammad ibn al-Hasan al-Shaybani, developed the first treatises on *siyar*, the Islamic law of nations (Shaybani 1966). Shaybani's starting point is jihad against disbelievers (Shaybani 1966, 76). An entire chapter devoted to apostasy begins with the duty to offer Islam to the apostate and kill him if he does not accept it (Shaybani 1966, 195). Although the word "martyr" appears nowhere in the translated text of the *Siyar*, the word does appear extensively in *Sahihayn*: the *Sahih Bukhari* (Al-Bukhari 2009; ninety-six times) and the *Sahih Muslim* (Muslim ibn al-Hajjaj 2007; thirty-three times). Bukay (2006), offering a scriptural basis for radical Muslims' incentives to martyrdom, also notes that the *Sahih Bukhari* offers the greatest support for the practice. In contrast, the foundational works of the Maliki and Shafii schools, *al-Muwatta* (Malik ibn Anas 1980) and *al-Risala* (al-Shafi'i 1997), respectively, contain the word only ten times

between them.[7] The foundational Hanbali work, Hanbal's *al-Musnad* (bin Hanbal 2012), contains the word more than thirty times.

Lending further support are studies that explore the positive relationship between terrorist violence and a country's size. Larger countries are more heterogeneous and, thus, more likely to have alienated segments of the population inclined toward (suicide) terrorism to influence their governments (Wade and Reiter 2007; Piazza 2013). As indicated in table 1, of the most populous countries experiencing high suicide attack rates, Muslims are predominantly Hanafi in all but one (Indonesia) and Shafii to a lesser degree. This point is observable in the real world. Hanafi Muslims are numerous in Iraq, Pakistan, Russia, Turkey, Bangladesh, and Egypt, all of which have aggrieved populations willing to lash out violently, and Shafii Muslims are in Iraq, Israel, Saudi Arabia, Yemen, and Egypt. The people carrying out suicide attacks are in/originate from Hanafi or Shafii countries, but they are not themselves necessarily Hanafi or Shafii. These suicide attackers subscribe to ultra-conservatism espoused by the Salafi movement, especially by Salafi jihadists. As Wiktorowicz (2001, 20) points out, "Salafi thought has influenced the ideological orientation of many practicing Muslims and some of the most well-known Islamic organizations in the Muslim world, including the Gamiyya lslamiyya in Egypt, various branches of Islamic Jihad, the Armed Islamic Group in Algeria, and mainstream movements such as the Muslim Brotherhood." Accordingly, the Salafi movement is not confined to any single school and advocates violent attacks against those that it deems to be enemies of Islam, especially Muslim regimes that they deem to be apostate (Moghadam 2009; Maher 2016; Kelvington 2019; Hegghammer 2020).

Those suicide attackers adhere to an ultraconservative ideology that seeks to institute strict sharia law and aim to establish a transnational caliphate using military force, while rejecting democracy as well as Shia rule. These attackers terrorize the Hanafi or Shafii regime because they view it as an interference in religious affairs and political goals. The Hanafi regime "is known for its liberal religious orientation that elevates belief over practice and is tolerant of differences within Muslim communities."[8] Hanafi doctrines are the most liberal, particularly with respect to personal freedom and women's rights in contracting marriages (Meron 1969; Makdisi 1979; al-Jaziri 2009; Hallaq 2012). Since Hanafi Islam is considered the most liberal school of law, it is not compatible with the ultimate political goal of the Salafi movement. To turn Hanafi regimes into part of a transnational caliphate, they frequently use suicide bombings to overthrow them so that they can gain political power (Horowitz 2009; Walter 2017a, 2017b). We view that Shafii Islam faces similar problems since it is also known for its relative tolerance as practiced in Iraq, Israel, Saudi Arabia, Yemen, Egypt, and some broad Indo-Pacific countries (Makdisi 1979; al-Jaziri 2009; Hallaq 2012). Accordingly, we reason that high levels of suicide attacks in Hanafi or Shafii countries are related to the subversive aspect of the Salafi movement. This reasoning is indeed in line with the high prevalence of Hanafi or Shafii Islam at the top of table 1. Until recently, no data on intra-Sunni demographics were available to empirically test whether the propensity to martyrdom is stronger in Hanafi or Shafii thought than in that of other schools. Now that such data are available, we offer the first empirical tests.

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[6] Japanese kamikaze pilots in World War II were motivated by Shintoism, not Buddhism.

[7] The other foundational work of the Shafii school, *Kitab al-Umm*, is not available in English.

[8] See: https://www.globalsecurity.org/military/intro/islam-hanafi.htm.

Table 1. Countries and suicide attacks

	Santifort-Jordan and Sandler and CPOST, 1998–2010		
Country	*Number of suicide attacks*	*Predominant religion(s)*	*Most Sunnis are:*
Iraq	1330	Sunni and Shia Islam	Hanafi, Shafii
Pakistan	249	Sunni Islam	Hanafi
Israel	173	Judaism	Hanafi, Shafii, Hanbali
Sri Lanka	74	Buddhism	*
Russia	61	Orthodoxy and non-religion	Hanafi*
Turkey	28	Sunni Islam	Hanafi
Algeria	26	Sunni Islam	Maliki
India	22	Hinduism	Hanafi
Saudi Arabia	14	Sunni Islam	Hanbali, Shafii, Maliki
Morocco	12	Sunni Islam	Maliki
Yemen	12	Sunni and Shia Islam	Shafii
Bangladesh	11	Sunni Islam	Hanafi
Uzbekistan	8	Sunni Islam	Hanafi
Philippines	7	Catholicism	Shafii*
Egypt	6	Sunni Islam	Hanafi, Maliki, Shafii
Indonesia	6	Sunni Islam	Shafii
Iran	6	Shia Islam	Hanafi and Shafii*
Colombia	5	Catholicism	*
United Kingdom	5	Protestantism	Hanafi*
United States	5	Protestantism and Catholicism	*
France	3	Catholicism	Maliki*
Jordan	3	Sunni Islam	Shafii
Tajikistan	3	Sunni Islam	Hanafi
Sweden	2	Protestantism	*
Bolivia	1	Catholicism	*
China	1	Chinese Complex	Hanafi
Ethiopia	1	Ethiopian Orthodox	Shafii
Finland	1	Protestantism	Hanafi and Shafii*
Greece	1	Orthodox Christianity	Hanafi*
Hungary	1	Catholicism and Protestantism	Hanafi*
Ireland	1	Catholicism	*
Italy	1	Catholicism	Hanafi, Maliki, Shafii*
Kenya	1	Protestantism and Catholicism	Shafii*
Lebanon	1	Mixed	Hanafi, Shafii, Hanbali
Macedonia	1	Orthodox Christianity	Hanafi
Malaysia	1	Sunni Islam	Shafii
Mauritania	1	Sunni Islam	Maliki
Nepal	1	Hinduism	*
Qatar	1	Sunni Islam	Hanbali
Spain	1	Catholicism	*
Sudan	1	Sunni Islam	Maliki
Syria	1	Sunni Islam	Hanafi, Shafii, Hanbali
Tanzania	1	Mixed	Shafii
Tunisia	1	Sunni Islam	Maliki
Uganda	1	Catholicism and Protestantism	Maliki*
United Arab Emirates	1	Sunni Islam	Unknown

Notes: Zero suicide attacks: Albania, Angola, Argentina, Armenia, Australia, Austria, Azerbaijan, Bahrain, Belarus, Belgium, Benin, Bhutan, Brazil, Bulgaria, Burkina Faso, Burundi, Cambodia, Cameroon, Canada, Central African Republic, Chad, Chile, Comoros, Congo-Kinshasa, Congo-Brazzaville, Costa Rica, Croatia, Cuba, Cyprus, Czech Republic, Denmark, Djibouti, Dominican Republic, Ecuador, El Salvador, Equatorial Guinea, Eritrea, Estonia, Fiji, Gabon, Georgia, Germany, Ghana, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, Jamaica, Japan, Kazakhstan, South Korea, Kuwait, Kyrgyz Republic, Laos, Latvia, Lesotho, Liberia, Libya, Lithuania, Madagascar, Malawi, Mali, Mauritius, Mexico, Moldova, Mongolia, Montenegro, Mozambique, Namibia, Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Oman, Panama, Papua New Guinea, Paraguay, Peru, Poland, Portugal, Romania, Rwanda, Senegal, Sierra Leone, Singapore, Slovenia, Solomon Islands, South Africa, Suriname, Swaziland, Switzerland, Thailand, Togo, Trinidad and Tobago, Turkmenistan, Ukraine, Uruguay, Venezuela, Vietnam, Zambia, Zimbabwe.
*Small percentage.

The conceptualization between Islam and suicide attacks that we have laid out yields the following testable hypotheses:

H$_1$: States with greater Muslim populations are associated with more suicide attacks.

H$_2$: States with greater Sunni Muslim populations are associated with more suicide attacks.

H$_3$: States with greater Hanafi or Shafii Muslim populations are associated with more suicide attacks.

Building Suicide Attack Models

Since our conceptual argument revolves around events observable by country-year, we compiled a cross-national, time-series dataset of 151 countries from 1980 to 2010, with the unit of analysis being the country-year. The dataset includes Muslim-majority as well as Muslim-minority countries (see table 1). The time period is determined by availability of data on suicide attacks and country-year religious demographics data at the time of writing.

The dependent variable is the total number of suicide attacks, against either civilians or soldiers, defined as attacks in which the attackers did not intend to escape alive. Drawing on this definition, we offer two sets of suicide attack models, distinguished by different data sources on the dependent variable, which should increase the robustness of our findings regardless of the choice of data sources. In the first set, we combine data from Santifort-Jordan and Sandler's (2014) suicide terrorist data[9] and the Chicago Project on Security & Threats (CPOST) Suicide Attack Database (CPOST 2015), tallying the frequency of suicide attacks during the overlapping period between the two sources, which is 1998–2010.[10] We combine these two existing datasets to create a more complete collection of suicide attacks. (When we employed separate analyses on the two data sources individually, the main findings of this study did not change.) In the second set, we compile the total number of suicide attacks from Acosta's Suicide Attack Network Database (SAND; see Acosta and Childs 2013). Because SAND starts in 1980, the second set of models covers the longer period 1980–2010.

All Islam-related independent variables are operationalized as the percentage of adherents of tested religions in the country's population during the observed year since the size is an effective way to capture the strength of religious beliefs. These variables come from country-year estimates of religious demographics, including sects within the Sunni and Shia branches, from the Religious Characteristics of State dataset project (Brown and James 2018). Since the percentage of religious adherents varies from year to year within countries, they are not fixed values. For the first hypothesis, we test Muslims (all branches combined); for the second, the first-level branches within Islam (Sunni, Shia, etc.); and for the third, the second-level branches within Sunni Islam (Hanafi, Shafii, etc.).[11] We shall elaborate momentarily.

To avoid spurious results, we include seven confounding variables common to previous research: human rights protection, democracy, foreign occupation, armed groups, economic development, civil war, and total terrorist attacks.[12]

Since these confounding variables should influence both the dependent variable and independent variable, causing a spurious association, they should serve as powerful explanations for why suicide attacks occur.

Suicide attacks may become prevalent when people become highly desperate, frustrated, and hopeless in the face of an oppressive state. Atran (2004) asserts that suicide attacks are a result of rising politico-economic aspirations in societies lacking liberal governments and that numerous suicide attacks against the United States occurred due to US support for regimes that denied human rights to their citizens. With individual incidents, we observe an association between human rights violations and suicide attacks. For example, Leila, a 22-year-old university student, volunteered to become a suicide bomber. "Her life, she said, had become a prison. 'My movement is restricted courtesy of the checkpoints and my human basic right to move freely around my territory has been denied,' she said" (Jaber 2003). We control for human rights using Fariss' (2014) measurement of human rights protection. In doing so, we test whether state behavior vis-à-vis its citizens is statistically related to suicide attacks.

The terrorism literature is inconclusive regarding the effects of democracy (Choi 2010, forthcoming; Pape 2005; Wade and Reiter 2007; Saiya 2015). While some studies argue that suicide attackers are likely to target democratic countries that tend to yield to their political demands due to public outcry (Pape 2005), others find no relationship between the two (Wade and Reiter 2007). However, we expect autocracies to be more prone to suicide attacks because their repression is likely to create more grievances. Using the country's Polity score (Marshall and Jaggers 2014), we control for democracy. We convert their continuous measure, ranging from -10 (least democratic) to $+10$ (most democratic), into a dichotomous measure by coding 1 if a country ranks 6 or above on that scale, otherwise 0. This dichotomous measure accounts for Vreeland's (2008) insight: countries in the middle of the Polity scale (-5 to $+5$) potentially include political violence within their rankings, making it difficult to control for the impact of regime type.

Some argue that terrorist movements are most likely to deploy suicide attacks to repel foreign military occupations by democracies (Pape 2003; Collard-Wexler, Pischedda, and Smith 2014; Choi and Piazza 2017). However, this argument is widely and vociferously challenged. For example, Ashworth et al. (2008, 269) provide a critique of Pape's (2003) analysis, contending that "he 'samples on the dependent variable' (The data only contains cases in which suicide terror is used.)." Although controversial, we choose to control for the effect of foreign occupation. We create a dummy variable coded 1 if the country is experiencing a foreign military occupation, otherwise 0. We constructed the variable using the category of "occupation" from the "regimeny" variable in Wahman, Teorell, and Hadenius' (2013) Authoritarian Regime Dataset.[13] We also operationalized the foreign occupation variable based on a category of -66 in the composite democracy score of Polity that documents cases of foreign "interruption" (Marshall and Jaggers 2014). Because the results are similar to those from the first measurement, we do not report them in the next section to save space.

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[9] To create a dataset of about twenty-five hundred suicide terrorist incidents for 1998–2010, Santifort-Jordan and Sandler combined the Global Terrorism Database, the International *Terrorism: Attributes of Terrorist Events*, and the RAND Database of Worldwide Terrorism Incidents.

[10] When suicide attacks are recorded in only one dataset, the combined dataset uses that information. When there is an observational discrepancy between the two data sources, the combined dataset takes the highest number of suicide attacks per country-year.

[11] It is true that the boundaries between "official" sub-branches are quite fluid and it is challenging to distinguish them in practice. Since our study is not about how precise it is to conceptualize those sub-branches, we simply embrace the classification put forward by the data compilers (Brown and James 2018). Meron (1969), Makdisi (1979), al-Jaziri (2009), and Hallaq (2012) offer detailed theories and practices of those sub-branches.

[12] Because Gaibulloev, Sandler, and Sul (2014) are critical of including the lagged dependent variable on the right side of the equation, a lagged suicide terrorism variable is not included as a predictor. However, including it anyway does not alter our main findings.

When we include country, year, and/or region fixed-effects in the estimation, the main results do not change substantively. When only a dummy variable for

Middle Eastern countries was tested in the analysis, the main findings of this study remained the same.

All the above test results are omitted to save space.

[13] See: https://sites.google.com/site/authoritarianregimedataset/data.

The theory of outbidding suggests that domestic competition among terrorist groups for attention and notoriety drives the proliferation of suicide attacks (Crenshaw 1981; Bloom 2004; Kydd and Walter 2006; Choi 2018). Some empirical studies provide empirical evidence for the outbidding theory (e.g., Choi 2018). Yet, others fail to find concrete support for the theory. For example, Findley and Young (2012a) measure outbidding as the total number of terrorist organizations drawn from the Global Terrorism Database (GTD) and find scant evidence for the association between outbidding and suicide attacks. Following in previous studies' footsteps, we measure that effect by counting the total number of terrorist groups. We expect this to be a significant, positive predictor of suicide attacks within countries. Data are obtained from Young and Dugan (2014), who measure the number of primary terrorist groups that operated in an organization's primary country in a given year.

There is no consensus on the relationship between economic development and suicide terrorism. Some studies contend that economic development reduces economic grievances of potential recruits of terrorist organizations, thus also reducing terrorist attacks (Caruso and Schneider 2011; Freytag et al. 2011; Choi and Luo 2013; Choi 2014, 2015, 2018, 2019). Notwithstanding some scholarly dissent (e.g., Piazza 2006), we control for economic development, measured as GDP per capita (data obtained from the World Bank's *Economic Development Indicator 2014*).

Politically stable countries should provide militant groups with fewer opportunities to terrorize (Eubank and Weinberg 2001). In contrast, political instability within a country tends to create a greater opportunity for suicide attacks (Piazza 2013). It is notable that each of the top five countries listed in table 1 experience ongoing armed conflict episodes associated with suicide terror: Iraq, Pakistan, Israel, Sri Lanka, and Russia. We control for political instability, operationalized as ongoing civil war and sourced from the Uppsala and PRIO Armed Conflict Dataset (Version 4—2015). A civil war is defined as a contested incompatibility between a government and one or more opposition groups resulting in at least twenty-five battle deaths in a year. The civil war variable is coded 1 when a civil war is ongoing and no civil conflict had occurred within the past two years, otherwise 0.

Young and Findley (2011, 418) suggest that "models that explain terrorism in general should be applied to different forms such as suicide terror to see whether cross-national and temporal differences exist." Given this suggestion, it is important to control for how terrorist attacks in general are associated with suicide attacks. Suicide attacks are more likely in countries where attacks are more likely. The terrorism variable is a log transformation of the annual total number of domestic and international terrorist events that occurred in a country, collected from the GTD. Although there are other datasets on terrorism (e.g., Mickolus et al.'s 2006 data on transnational terrorism), the GTD is the most comprehensive dataset as it includes incidents of both domestic and international terrorism.

We first evaluate the overall effect of Islam on suicide attacks as follows:

$$\text{Suicide Attacks}_{it} = \alpha_1 + \alpha_2\text{Islam}_{it\text{-}1} + \alpha_3\text{Human Rights Protection}_{it\text{-}1} + \alpha_4\text{Democracy}_{it\text{-}1} + \alpha_5\text{Foreign Occupation}_{it\text{-}1} + \alpha_6\text{Armed Groups}_{it\text{-}1} + \alpha_7\text{Economic Development}_{it\text{-}1} + \alpha_8\text{Civil War}_{it\text{-}1} + \alpha_9\text{Total Terrorist Attacks}_{it\text{-}1} + \varepsilon_1$$

We then test four different branches of Islam: Sunni, Shia, Khariji (encompassing solely Ibadi Muslims

today), and a constructed category labeled "Liminal Muslim"[14]:

$$\text{Suicide Attacks}_{it} = \beta_1 + \beta_2\text{Sunni}_{it\text{-}1} + \beta_3\text{Shia}_{it\text{-}1} + \beta_4\text{Khariji}_{it\text{-}1} + \beta_5\text{Liminal Muslim}_{it\text{-}1} + \beta_6\text{Human Rights Protection}_{it\text{-}1} + \beta_7\text{Democracy}_{it\text{-}1} + \beta_8\text{Foreign Occupation}_{it\text{-}1} + \beta_9\text{Armed Groups}_{it\text{-}1} + \beta_{10}\text{Economic Development}_{it\text{-}1} + \beta_{11}\text{Civil War}_{it\text{-}1} + \alpha_{12}\text{Total Terrorist Attacks}_{it\text{-}1} + \varepsilon_2$$

As shown in the next section, the Sunni branch turns out to be the only consistently and statistically significant predictor of increased suicide attacks among the major branches of Islam. In view of this result, we decided to explore whether any one of the four major legal schools is the main force driving the positive association of Sunni Islam as a whole. Therefore, this model is constructed to examine the effects of the Hanafi, Maliki, Shafii, and Hanbali schools within Sunni Islam, as follows:

$$\text{Suicide Attacks}_{it} = \gamma_1 + \gamma_2\text{Hanafi}_{it\text{-}1} + \gamma_3\text{Maliki}_{it\text{-}1} + \gamma_4\text{Shafii}_{it\text{-}1} + \gamma_5\text{Hanbali}_{it\text{-}1} + \gamma_6\text{Human Rights Protection}_{it\text{-}1} + \gamma_7\text{Democracy}_{it\text{-}1} + \gamma_8\text{Foreign Occupation}_{it\text{-}1} + \gamma_9\text{Armed Groups}_{it\text{-}1} + \gamma_{10}\text{Economic Development}_{it\text{-}1} + \gamma_{11}\text{Civil War}_{it\text{-}1} + \alpha_{12}\text{Total Terrorist Attacks}_{it\text{-}1} + \varepsilon_3$$

As indicated in the *t* subscripts, the independent variables at time *t-1* are assumed to predict the dependent variable at time *t*.[15] Lagging all explanatory variables one year behind the outcome variable mitigates the possibility that the latter causes the former.

Because the dependent variable is a count measure, we first considered a Poisson regression as the base model. However, the Pearson goodness-of-fit chi-squared test turned out to be statistically significant ($\chi^2 = 16{,}262.94$, $p < 0.0000$), indicating that a Poisson regression model fits the data poorly because the variance is much greater than the mean. Therefore, we instead use negative binomial maximum-likelihood regression models with Huber–White robust standard errors clustered by country. Because negative binomial regression adds a dispersion parameter to model unobserved heterogeneity among observations, it corrects for the overdispersion endemic to Poisson regressions (Hilbe 2007). Employing negative binomial regression models prevents extreme variations in numbers of suicide attacks (e.g., 1,330 in Iraq[16] and 1 in Uganda) from skewing the results. As robustness checks, we also employ zero-inflated negative binomial regressions, rare-event logit estimators, and population-averaged negative binomial regressions.

Empirical Findings

Drawing on the combined data of Santifort-Jordan and Sandler and CPOST, we have compiled a descriptive table identifying the countries experiencing at least one suicide attack and no suicide attack. As shown in table 1, countries with the

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[14] Liminal Muslims are defined as sects that self-identify as Muslim but that have significant theological differences with mainstream Islam, to the point that their identity as "Muslim" is disputed by many mainstream Muslims. Liminal Muslims consist of Druzes, Ahmadiyya, Nation of Islam, and Javanism. The category is analogous to Islam as a composite category of Liminal Christians consisting of Mormons and Jehovah's Witnesses is to Christianity (Brown and James 2018).

[15] When the Civil War variable is set at *t*, its estimated coefficient still fails to achieve significance at the 0.05 level.

[16] After dropping Iraq from the dataset, we also ran a robustness test. As shown in online table A1, the results are virtually similar to our main ones reported in table 2 in the next section.

Table 2. Islam and suicide attacks: negative binomial regression

Variable	Santifort-Jordan and Sandler and CPOST			Acosta		
	1998–2010			1980–2010		
	Islam (1)	Islam branches (2)	Sunni branches (3)	Islam (4)	Islam branches (5)	Sunni branches (6)
Islam	0.021***			0.022***		
	(0.005)			(0.005)		
Islam branches						
Sunni		0.025***			0.024***	
		(0.005)			(0.006)	
Shia		0.011			0.010	
		(0.008)			(0.010)	
Khariji		−1.835			−0.218	
		(1.168)			(0.184)	
Liminal Muslim		−0.039			0.109	
		(0.076)			(0.113)	
Sunni branches						
Hanafi			0.026***			0.027***
			(0.006)			(0.006)
Maliki			0.015			0.020
			(0.012)			(0.010)
Shafii			0.021***			0.022***
			(0.006)			(0.006)
Hanbali			0.016			0.014*
			(0.008)			(0.007)
Human rights protection	−0.879***	−0.958***	−1.124***	−0.952***	−0.954***	−1.204***
	(0.194)	(0.205)	(0.212)	(0.241)	(0.232)	(0.225)
Democracy	−0.218	−0.354	−0.826***	−0.339	−0.481	−0.868**
	(0.274)	(0.293)	(0.232)	(0.337)	(0.339)	(0.324)
Foreign occupation	0.964*	1.185***	1.392**	Excluded	Excluded	Excluded
	(0.432)	(0.356)	(0.455)			
Armed groups	0.022	0.029	0.069	0.035	0.036	0.093
	(0.033)	(0.031)	(0.042)	(0.041)	(0.038)	(0.056)
Economic development	0.551***	0.639***	0.763***	0.547***	0.574***	0.768***
	(0.091)	(0.098)	(0.121)	(0.125)	(0.132)	(0.156)
Civil war	−2.085***	−2.139***	−2.419***	Excluded	Excluded	Excluded
	(0.405)	(0.412)	(0.375)			
Total terrorist attacks	0.720***	0.720***	0.625***	0.627***	0.646***	0.543***
	(0.123)	(0.114)	(0.121)	(0.124)	(0.118)	(0.129)
Constant	−8.077***	−8.768***	−9.129***	−8.550***	−8.792***	−9.801***
	(0.811)	(0.845)	(1.008)	(1.063)	(1.083)	(1.306)
Pseudo R^2	0.25	0.26	0.25	0.18	0.19	0.18
N	1,927	1,927	1,927	4,185	4,185	4,185

Note: Robust standard errors in parentheses.
***$p < 0.001$, **$p < 0.01$, *$p < 0.05$.

highest number of suicide attacks have predominantly Muslim populations. Of these countries, the Sunni Muslim populations are either predominantly Hanafi or Hanafi mixed with other schools in ten of them and Shafii to a lesser degree.

Table 2 presents two sets of estimated results of the suicide attack models detailed above.[17] Models 1–3 employ the dependent variable based on the combined data of suicide attacks from Santifort-Jordan and Sandler and CPOST for the years 1998–2010 and models 4–6 use the dependent variable from Acosta's data for 1980–2010.[18] We estimate these models using negative binomial regression. When we replace the

estimation method with ordinary least squares after taking a log transformation of the suicide attack variable, the results are virtually the same, as shown in online table A1.

Model 1 tests the overall effect of Islam, measured by the percentage of Muslim populations. We find that *ceteris paribus*, for every percentage of the country's population that is Muslim (any branch or sect), its risk of experiencing suicide attacks increases positively and significantly. We find the same result in model 4, which covers a greater time period and assuages concern over sample selection bias. We can infer from these results that Islam *matters*: Although suicide attacks are not confined to Muslims, countries with Muslim populations are more prone to suicide attacks than countries with populations of other religions.

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[17] We perform multiple rigorous diagnostic tests for multicollinearity: variance inflation factors (VIFs), R^2, eigenvalues, and condition index. None of these statistics indicated severe multicollinearity among the predictors.

[18] However, Stata's failure to achieve convergence when processing the original model required us to remove the foreign occupation and civil war controls

from models 4–6. The failure of the convergence is mainly due to little variation between those two variables and the dependent variable.

However, as noted above, we contend that not all branches of Islam are equally associated with suicide attacks. Different branches and sects may be prone to suicide attacks at different levels. Models 2 and 5 test that possibility by regressing on the four major branches of Islam: Sunni, Shia, Khariji (Ibadi), and the Liminal Muslim category described in the preceding text. Among them, Sunni emerges as the most significant predictor of suicide attacks, because it is the only branch with a positive (and significant) correlation in both models. In contrast, Shia Islam and the other branches do not achieve significance.

We can further test whether all Sunni Muslim populations are equally prone to suicide attacks. Because Sunni Islam is the only major branch discovered to have a significant, positive effect, models 3 and 6 focus on the four major legal schools within Sunni Islam. The results appear that Hanafi and Shafii are associated with suicide bombings, as their coefficients are all significant and positive.

Testing Islam in this manner appears to dilute several conventional predictors of suicide attacks. In models 1–3, democracy and competition among armed groups have no consistent effects on states' proneness to suicide attacks. Yet, human rights protection, foreign occupation, economic development, civil war, and total terrorist attacks all achieve significance. Note that economic prosperity does not help reduce the likelihood of suicide attacks and that rebel groups are unlikely to use suicide attacks while engaging in insurgency (as opposed to terrorism).[19]

Empirical findings may fall apart when just a few outliers are removed from the sample data. Put differently, when researchers neglect to examine abnormal observations, they may end up with erroneous inferences and conclusions because they may drastically change the magnitude of regression coefficients and even the direction of coefficient signs (Belsley, Kuh, and Welsch 1980; Gujarati 2003; Choi 2016). In our sample, Iraq may be an outlier since it experienced by far the most suicide attacks. Table A3, given online, displays the estimated results obtained after excluding Iraq from the sample. The results are similar to those reported in table 2.

As the sample size increases, statistical significance may not be meaningful in a practical sense. For further empirical verification, we examined substantive effects of variables. However, due to space limitations, we discuss only those of Sunni branches as shown in model 3. We plot the average substantive effects of the predictors in figure 1, based on the logs of predicted counts of the outcome variable from model 3 of table 2. The average marginal effects give us the average change in predicted counts when each of the four predictors increases by one unit. The figure illustrates that, on average, the Hanafi and Shafii schools are associated with increased suicide attacks. This substantive effect analysis is consistent with the significance test on the Sunni branch variables.

All empirical tests presented so far employ negative binomial regression models. In doing so, they assume that all countries have an equal chance to experience suicide attacks. However, it is highly probable that excessive non-events would occur in the distribution of the dependent variable because suicide attacks actually are comparatively rare. In such situations, both statistically and logically, a stan-
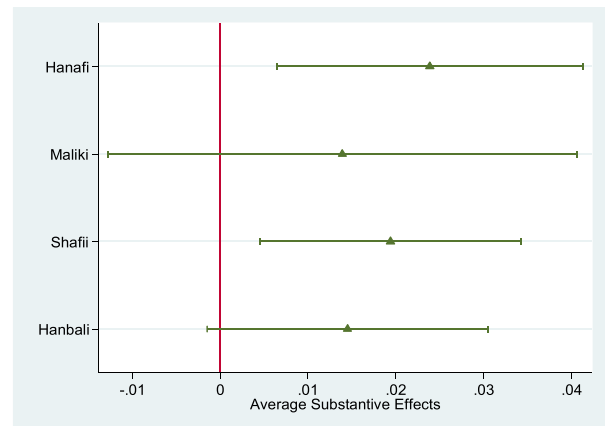

Figure 1. Average substantive effects (Model 3).

dard negative binomial regression estimation method loses some of its effectiveness since the prevalence of zero counts in the data can pose a statistical challenge if not estimated appropriately. Indeed, we found 1,765 zeros (92 percent) out of 1,927 observations in the combined dataset and 3,983 zeros (95 percent) out of 4,185 observations in the Acosta data. We address this problem in a series of robustness tests employing two other methods: zero-inflated negative binomial regression (for technical details, see Hilbe 2007; for an application, see Santifort-Jordan and Sandler 2014; Choi 2016) and rare-event logit with polynomials controlling for temporal dependence (for technical explanations, see King and Zeng 2001; Carter and Signorino 2010; for application, see Wade and Reiter 2007). In the logit models, the event count dependent variables (DVs) are truncated to make them dichotomous, coded 1 if any suicide attack occurs and 0 otherwise. In addition, there is a possibility of temporal dependence. To assuage this concern, we introduce population-averaged negative binomial models with the first-order autoregression (AR1).

In table 3, we report robustness tests on the four Sunni legal schools, since their effects on suicide attacks needed further verification. Models 7 and 8 display results obtained from zero-inflated negative binomial regression that produces coefficients and standard errors based on negative binomial regression (model 7) and logit (model 8). Model 9 reports results from rare-event logit and model 10 shows population-averaged results. Models 11–14 are constructed similarly (although with the same caveats as the other Acosta-data models). As shown in table 3, the relationships of the four Sunni legal schools to suicide attacks are somewhat dissimilar compared to the results of models 3 and 6. Of the four schools, Hanafi emerges as a consistently positive, significant predictor of suicide attacks in every model and Shafii as a slightly less consistent driver. This result is consistent with our third hypothesis, that states with Hanafi or Shafii populations are more prone to suicide attacks than with non-Hanafi or Shafii populations.

In table 3, we only test Sunni Islam in its different variations, rather than a combined model of Sunni and Shia disaggregated by the different legal traditions. In online table A4, however, we include the Twelver Jafari school, the most dominant Shia branch, along with the disaggregated Sunni schools, to observe what effect, if any, doing so has on the significance of Hanafi or Shafii Islam. As shown in online table A4, the impact of the Jafari branch of Shi'ism is trivial since it does not render Hanafi or Shafii insignificant in

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[19] Population is a relevant variable in considering militancy as terrorists likely seek out targets to gain maximum impact. More populated countries with large capital cities are likely to be greater targets, all else being equal. In table A2, we control for the magnitude of the targeted states' populations in light of their demographic distribution. As far as our main findings are concerned, the results do not deviate from those in table 2. Islam, Sunni, and Hanafi all achieve significance.

Table 3. Sunni branches and suicide attacks: robustness tests

	Santifort-Jordan and Sandler and CPOST				Acosta			
	1998–2010				1980–2010			
	Zero-inflated		Rare-event logit	Population-averaged NB	Zero-inflated		Rare event logit	Population-Averaged NB
	NB	Logit			NB	Logit		
Variable	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Sunni branches								
Hanafi	0.012*	−0.021***	0.022***	0.021***	0.017***	−0.019*	0.022***	0.026***
	(0.006)	(0.006)	(0.003)	(0.003)	(0.005)	(0.008)	(0.003)	(0.002)
Maliki	0.002	−0.001	−0.000	−0.000	0.020**	0.001	0.009*	0.008**
	(0.010)	(0.010)	(0.006)	(0.004)	(0.008)	(0.006)	(0.004)	(0.003)
Shafii	0.003	−0.020	0.021***	0.015**	0.020*	−0.007	0.023***	0.014***
	(0.007)	(0.010)	(0.004)	(0.005)	(0.010)	(0.011)	(0.004)	(0.004)
Hanbali	−0.031*	−0.465***	0.024**	0.014	−0.009	−0.054	0.027**	0.005
	(0.014)	(0.062)	(0.009)	(0.008)	(0.018)	(0.031)	(0.009)	(0.011)
Human rights protection	Excluded	Excluded	Excluded	Excluded	−1.681***	−0.746*	−0.647***	−1.111***
					(0.251)	(0.299)	(0.100)	(0.086)
Democracy	−1.548***	−0.287	−0.486*	−0.849***	−1.764***	−1.674	−0.226	−0.744***
	(0.350)	(0.460)	(0.245)	(0.193)	(0.429)	(1.381)	(0.208)	(0.156)
Foreign occupation	1.917***	0.957	0.938	Excluded	Excluded	Excluded	Excluded	excluded
	(0.372)	(1.393)	(0.728)					
Armed groups	0.062	−0.180	0.055	0.109***	0.072*	−0.148	0.066***	0.067***
	(0.033)	(0.119)	(0.037)	(0.016)	(0.031)	(0.086)	(0.018)	(0.013)
Economic development	0.527*	0.164	0.178**	0.326***	0.799***	0.017	0.417***	0.675***
	(0.205)	(0.231)	(0.065)	(0.059)	(0.144)	(0.211)	(0.080)	(0.065)
Civil war	−1.508*	0.027	−0.374	−1.245*	Excluded	Excluded	Excluded	excluded
	(0.592)	(0.968)	(0.551)	(0.577)				
Total terrorist attacks	0.610***	−0.517**	0.756***	0.807***	0.184**	−0.584**	0.358***	0.362***
	(0.127)	(0.176)	(0.075)	(0.050)	(0.071)	(0.206)	(0.057)	(0.039)
Constant	−4.848**	1.245	−5.210***	−5.665***	−7.912***	2.042	−7.561***	−8.527***
	(1.859)	(2.072)	(0.532)	(0.498)	(1.221)	(1.655)	(0.650)	(0.550)
N	1,927	1,927	1,927	1,902	4,185	4,185	4,185	4,134

Note: Robust standard errors in parentheses.
***$p < 0.001$, **$p < 0.01$, *$p < 0.05$.

most models.[20] Once again, these robustness tests verify that the presence of Hanafi and Shafii Sunnis is a significant and strong predictor of suicide attacks.

Conclusion

Our empirical study probes a salient controversial issue among scholars and policy-makers: Is Islam associated with militant terrorists perpetrating suicide attacks? We address this question to see whether Islam is epiphenomenal, correlated, or causal.[21] Our overall analysis suggests that Islam is more than epiphenomenal but less than causal. Especially since we draw our inferences and conclusion on the basis of empirical tests that are all about the *probability* of such violent events, we cannot claim that Islam is a direct *cause* of the deadliest political violence. However, our tests indicate a strong correlation between the two factors: countries with more Muslims are more vulnerable to suicide terrorism than countries with fewer Muslims.[22] Our tests further sug-

gest, however, that all different branches and sects of Islam are not equally prone, and only a few are highly associated with suicide attacks.

Our tests also indicate that the role of terrorist diffusion appears to be supported but not necessarily in an intuitive way. The demonstration effects of the 1983 Beirut attack diffused the tactic of suicide attacks among other Muslims but not among other Shi'ites; instead, it diffused among Sunnis and apparently most strongly among Hanafi Sunnis. Note that Hanafi dominance is a partial legacy of the Ottoman Rule and is, therefore, dominant in Middle Eastern countries, such as Iraq, Palestine, Jordan, Syria, Lebanon, and Egypt. Hanafi Islam is also dominant in Afghanistan, Pakistan, and Northern India (including Kashmir). These countries have been most prone to suicide terrorist attacks during the past thirty years. Thus, it is reasonable to expect that Hanafi Sunnis emerge empirically, for good or ill, as the main determinant of suicide attacks. In the early history of Islam, the Shafii school had many followers. However, the Ottoman Empire favored the Hanafi school when it became the dominant Sunni Muslim power. In the contemporary world, many Shafii also live in various Middle Eastern countries that are vulnerable to suicide attacks. Our overall results suggest that Islamic countries, especially Hanafi- or Shafii-dominant countries, are likely to be at the greatest risk of experiencing suicide terrorist attacks.

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[20] The *p*-value, 0.08, for Hanafi is a bit short of the conventional threshold, 0.05.

[21] Several studies debate about what role Islam plays in a larger context, especially civil wars. For example, concerning the rise of radical Islamist groups, Abrahms, Maynard, and Thaler (2018) make a compelling argument that ideological extremism does not help militant groups to advance their political agenda.

[22] This finding holds even when the Islam variable is tested in competition with other major world religions. The estimated results can be obtained from the authors upon request.

Since our main hypothesis is "states with greater Muslim populations are associated with more suicide attacks," we do not detail who perpetrates the attacks and who the targets are. However, these questions are important to further understanding suicide attacks, so we leave them for future research. It would also be interesting to examine how other religious groups (or irreligious groups) are associated with political violence in general and suicide terrorism in particular. In addition, future research should examine the distinction between insurgency and terrorism on the dependent variable. Although we rely on the most authoritative definitions and datasets of suicide terrorism, which encompass attacks against both civilians and soldiers, those attacks could be refined further and divided into insurgency and terrorism.[23] Since our theoretical arguments suggest that Salafi-Jihadists specifically target Hanafi Muslims for their relative tolerance, it may be useful to examine suicide attacks against civilian targets exclusively, even though security personnel are also symbols and elements of the state.

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[23] However, the refinement is a challenging task since insurgency and terrorism are closely related to each other (Findley and Young 2012b).

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