The Unified Strategy of Religious Extremists: Military Power and Ideological Appeals

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Abstract

Religious extremism is the dominant ideology among contemporary violent non-state actors. However, we know little about religious extremists' strategy in making ideological appeals. This paper studies jihadi groups' ideologies as reflected in propaganda and shows that these groups shift on a "religious vs. secular" spectrum according to the waxing and waning of their military power. Weaker groups must prioritize their core fanatic believers and foreground a more radical religious ideal, while stronger groups seek broader support from more moderate individuals and thus pitch themselves more secularly. I illustrate this dynamic with an original database of 84 magazines published regularly by 38 jihadi groups from 1984 to 2019. Further, I leverage approximately 6 million tweets from 21,000 ISIS-related accounts in 2015 to examine the jihadists' mobilization efforts regarding different audiences. Overall, in sharp contrast to the prevailing view that radical jihadi ideology and violence are bound together, I demonstrate that groups rhetorically emphasize religion when they carry out fewer attacks.

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Religious extremism is prevalent in contemporary civil conflict and has ignited the current wave of terrorism on a global scale, causing more deaths than their non-religious counterparts (Gaibulloev and Sandler 2019; Piazza 2009*a*; Toft 2007; Walter 2017*b*).[1] Radical Islamists, in particular, call for a transnational caliphate ruled by Shari'a law and have garnered the response of fanatical believers from around the world (Mitts 2019). This extreme religious outlook concerns many, to whom it is an ideological challenge to secular societies as well as a driver of violence (Gomaa 2013). These popular concerns highlight the importance of studying extremists' ideological promotion efforts. Correspondingly, scholarly knowledge regarding these religious sectarians has shifted from assuming they are single-minded believers who persistently advanced their religious agenda to regarding them as political entrepreneurs who strategically exploit their religious identity (Carvalho 2019; Walter 2017*a*). This shift, however, has left a more important question: given that religious extremists are notorious for their violent attacks, how does their ideological emphasis change in relation to their military fortunes?

This paper examines jihadi groups' ideological appeals in the form of propaganda and theorizes that weaker military power necessitates more religious messaging while stronger military power brings more tolerance of secularism.[2] Groups with limited resources or facing setbacks appear to be steadfast in their theological doctrines because they need to secure their core members by stoking their beliefs in, for example, "afterlife" and "immortality."[3] Conversely, groups of higher capacity resort to more secular narratives to appeal to a wider and more moderate audience. Therefore, jihadists promote their extreme religious doctrine in a somewhat counterintuitive manner: they display their religious brand as a "weapon of the weak" but move away from this ideological standpoint as they become stronger and more

[1]The current wave is considered the fourth. The first was anarchist (1878-1919), the second anti-colonial (1920 to 1960), the third Marxist or new left (1960-1979), and the fourth religious (1979-present) (Rapoport 2004).

[2]In this paper, the term "jihadi" exclusively refers to Sunni extremists. Shi'a extremists are termed as "muqawamist," and they generally have a less violent impact than Sunni extremists.

[3]While beliefs in afterlife and immortality are common among many religions, jihadi groups attach these beliefs to a set of tyrannical rules. The vast majority of Muslims reject the heterodox version of Islam they espouse.

visible.[4] In the spirit of Walter (2017*a*), I regard a group's adoption of a certain ideological position as a mix of strategic choice and sincere belief. I also go one step further and connect two essential parts of group strategy—violent attacks and ideological propaganda—within a unified framework, while existing literature mostly studies one of the two in isolation.

I illustrate the unified strategy of religious extremists using an original database of jihadist periodicals, which covers 84 regularly released magazines from 38 jihadi groups in 11 different languages, with dates of publication spanning 1984 to 2019 (mostly after 2010). To measure groups' ideological appeals, I develop a customized dictionary of religious and secular words and scale each magazine page on a "religiosity vs. secularism" spectrum. To measure groups' military power, I first integrate group-specific violent events from the Uppsala Conflict Data Program-Georeferenced Event Dataset (UCDP-GED) and the Global Terrorism Database (GTD) as suggested by Donnay and coauthors (2018) and then derive several indicators of group power—total violent events, state-based battles, and casualties caused by the group—each validated against territorial control data. I then tie the religious appeal measure calculated from propaganda to the measures of military power and show that group weakness subsequently leads to a higher proportion of radical religious rhetoric in groups' propaganda, and vice versa. This negative relationship between group strength and religious rhetoric holds cross-sectionally across groups as well as within specific groups over time. These findings do not hold, as expected, in the placebo tests where I use a group's *future* military power to predict its past ideological appeals. To further substantiate the argument that the change in groups' ideological appeals is their strategic move relative to their external audience, I leverage a collection of jihadist leaked internal documents to conduct an additional placebo test. These documents were circulated within the leadership communities of 10 jihadi groups from 1990 to 2011 but later captured by US forces and declassified by the Combating Terrorism Center at West Point. I match these internal documents with the magazines by group and time and show that groups change ideological positions only in

[4]The term "weapon of the weak" was originally introduced to conceptualize terrorism (e.g., Crenshaw 1981).

their public propaganda (i.e., magazines), not in their non-public documents (i.e., internal documents). Moreover, I supplement these results with a sentiment analysis. This analysis directly measures the attitude in the propaganda materials and shows that a jihadi group's secular narrative becomes more positive as it grows stronger, implying more tolerance of secularism.

While analyses of jihadist magazines show that groups emphasize their religious nature more when they are weaker, I further analyze the groups' social media to show how different group propaganda strategies connect to their core members or more moderate potential members. Specifically, I use a database containing more than 6 million Twitter posts in 2015 from over 21,000 unique accounts associated with the Islamic State of Iraq and Syria (ISIS), arguably the most influential extant jihadi group. Using the dictionary developed above, I again calculate a "religiosity score" for each tweet. Apart from illustrating that ISIS made different ideological appeals according to its military power, I further show that ISIS more actively reached out to people outside of its existing network (measured by "@", i.e., explicit mentions) when stronger. This effort of coordinating with more moderate potential members, then, associates with more secular rhetoric. Additionally, I confirm that those reading the tweets who are core members are much more likely to retweet messages with higher religiosity scores than those who are peripheral or non-members.

This paper makes several contributions to the large and long-standing literature on political violence and civil conflict, as well as the small but growing literature on jihadi propaganda. While scholars have started to analyze the rationale behind radical organizations embracing extreme ideologies (Berman 2011; Iannaccone 1992; Walter 2017*a*), I further theorize over these ideological decisions in relation to the battlefield realities. In sharp contrast to popular views that bind Islamism and violence together, I provide systematic, quantitative evidence that religion is most emphasized when radicals commit the least attacks. These analyses largely improve upon previous descriptive studies (e.g., Milton 2020). The findings then highlight an urgent need to shift scholarly and policy attention from a unique

focus on extremists' violent activities to a more balanced strategy that takes into account their ideological appeals, particularly through media. Although this paper focuses on radical Islamists, the theory that these groups shift rhetorical emphases on their ideological spectrum has profound implications for studies on other radical and violent movements, particularly those having a religious root, such as Aum Shinrikyo in Japan and the far-right white supremacists in the United States.

Islamism and Jihadist Movements

Jihadist movements demand a unified Islamic society where Shari'a is the constitutional foundation. This utopian outlook follows a long tradition of Islamic thinking stemming at least from the Ottoman Empire (Feldman 2012). In the Islamists' ideals religion rules almost every aspect of society, from building a global Islamic caliphate to praying for inner peace at home (Bonner 2008). While it seems a totalistic world order to many, this utopia is considered the solution to all existing societal problems by its advocates. Therefore, voices calling for a return to Islam have never stopped throughout the twentieth century (Feldman 2012, 20). Since 1979, with the Iranian Revolution, these calls have been increasingly answered with violence due to the intensified conflict between Islamism and Westernization and that between Shi'a and Sunni (Hegghammer 2010).[5] The religious principle of *takfir* (i.e., excommunication from Islam of one Muslim by another) became an authorization for some jihadists to kill dissenters of their movements (Stern and Berger 2016). These ideological impulses drove individuals to join a jihadist revolution, which quickly expanded to a global scale and characterized the fourth (i.e., the most recent) wave of terrorism (Rapoport 2004, 2006; Shughart 2006). Religiously oriented violent groups and, particularly, jihadi groups are not only the most common type to emerge after 2001 but also the most lethal (Berman 2011; Gaibulloev and Sandler 2019; Piazza 2009*a*; Toft 2007).

[5]Besides the Iranian Revolution, the new Islamic century and the Soviet invasion of Afghanistan are also catalysts for the bulk of religious violent movements.

At the core of jihadism is the tension between religiosity and secularism (Blaydes and Linzer 2012). In principle, jihadist movements place religiosity over secularism and even dichotomize the world into "one of faith [and] the other of unbelief" (Bin Laden 2005, 103). For that reason, jihadists explicitly fight against democracy because they believe the idea that people—rather than God—rule a nation fundamentally challenges Shari'a (Rapoport 2004). Jihadism as a radical religious ideology has become particularly inciting since the Islamic theorist Sayyid Qutb reframed *jihad* as an individual obligation (fard'ayn) (Musallam 2020). According to him, fighting against infidels is a permanent and personal duty and, subsequently, martyrdom (i.e., sacrifice for faith) will reward each fighter in their afterlife. Martyrdom further justifies a variety of violent tactics, including suicide attacks—none of which is in the Quran, yet they are all built-in components of jihadism. This approval and even encouragement of violence pushes the jihadi version of religiosity to the ideological extreme and fundamentally distinguishes jihadists from the larger Muslim community (Nielsen 2017). Jihadists fight proactively against other Muslims as well as members of other religions, condemning them as heretics and apostates (Gerges 2017).

In reality, jihadi movements always blend their stringent religious tenets with secular components because they also pursue worldly goals like any other political actors (Feldman 2012, 3). In doing so, these groups have reconstructed a set of concepts that were originally absent from the Islamic doctrine to accommodate their secular needs. For instance, a nation-state defined by territory is a secularized version of ummah (Roy 1994, 17) and jihadists have accepted the secular notion of state, switching from fighting for a utopia without territory to fighting for territory. Al Qaeda's claim that "America will not enjoy security until we live it in Palestine" is one example showing jihadists' territorial ambition (AQAP 2010). Likewise, the idea of an Islamic economy has also been constructed (Roy 1994, 133), because the economy is not regulated by Shari'a but is important for political power. Indeed, the fact that jihadi leaders and foot soldiers rarely literally adhere to their religious doctrines has been substantiated with many empirical observations (McCants 2015; Nasiri 2007).

A balanced public statement between religiosity and secularism serves as an ideological hook for jihadi organizations to mobilize, recruit, and exercise control over members. Achieving this balance is an important part of jihadi leaders' political agenda.[6] With this goal in mind, jihadi leaders act as strategic actors when portraying their groups in propaganda. In fact, strategically choosing an ideological position is not a unique practice of jihadists but common to almost all violent organizations (Carvalho 2019; Costalli and Ruggeri 2015; Tokdemir et al. 2021; Walter 2017*a*). As Camus (2012, 14) nicely argued: "Not every value entails rebellion, but every rebellion tacitly invokes a value." More importantly, violent groups' ideologies closely associate with their behaviors, including member selection and attack patterns (Piazza 2009*b*; Sanín and Wood 2014; Wood and Thomas 2017). While these prior studies mostly focus on the ideological differences between violent groups, scholars have recently started to pay attention to the shift in ideology reflected in the public statements of a given military organization (Tokdemir et al. 2021). Building upon this research, I theorize that jihadi groups' ideological appeals are strategic choices—particularly along the "religious vs. secular" spectrum—contingent on their military power.

A Unified Theory of Military Power and Ideological Appeals

This paper offers a theory that unifies jihadi groups' military and ideological strategies, examining their actions and words within the same framework. This unification is critical because violent organizations indeed think of their militant exercise and their propaganda together, which is evident in a letter from Osama bin Ladin to other al Qaeda leaders: "We are now in a new phase of assessing Jihad activities [...] in two areas, military activity and media releases" (Bin Laden 2005). I argue that weaker organizations are more likely to make religious appeals while stronger organizations adopt more secular rhetoric. In that

[6]The US Department of Defenses' Harmony Database (Harmony), AFGP-2002-600178.

sense, jihadists strategically play their religious identity, as explained by Carvalho (2019), and, more specifically, use their religious identity as a "weapon of the weak." I highlight a key mechanism that lies in the groups' needs to maintain different sizes of coalitions: While small groups prioritize securing the most committed believers, larger groups expand their appeal beyond this core group to a broader audience with more heterogeneous preferences.

While the theory described here concentrates on jihadi groups, it should be at least applicable to most organized religious extremists. Religious extremists overall are considered as extreme relative to the mainstream, often represented by the government. Jihadi groups are good examples to demonstrate the relative ideological position of an extreme to the mainstream, as many of these groups explicitly fight against a secular government. Compared with the latter, these groups are generally in disadvantaged positions and have more stringent religious preferences. Most jihad groups are not the only force in the region opposing a government and smaller jihadi groups commonly pledge allegiance to larger groups, as is the case of the Haqqani network and its umbrella organization, the Taliban. This paper treats a group as independent as long as it maintains a distinct command and control.[7] Therefore, importantly, these groups all define their own population and build their own coalitions. On this basis, I jointly study these groups' military power and ideological appeals to their target population with three premises: First, the waxing and waning of military power and the moderation and extremity of ideological appeals are defined relatively among jihadi groups. That means the strongest jihadi group might still be weaker than the government it confronts and, likewise, its most secular ideological stance could still be more religious than the government. Second, military power in this context is defined exclusively by "hard power," or battlefield visibility, and does not consider "soft power" such as social welfare, although the latter is important in non-conflict settings. Third, ideological appeals refer to the groups' announced positions, which are not necessarily their sincere preferences.

[7]For example, this paper treats Islamic State of Jammu and Kashmir as a distinct group from, not a branch of, ISIS. Therefore, editors of propaganda materials are mostly fully informed of their groups' military power as they do not have to keep track of battlefield events in other parts of the world. Treating these jihadi groups separately is common in existing databases.

A weak military organization's priority is to secure its base and survive. Due to the lack of material resources, providing spiritual services to a small group of core members becomes particularly important. These members are the core jihadists in the sense that they are often more committed to spiritual rewards while being less committed to worldly benefits, and thus, they are mostly isolated outliers of secular societies. These relatively fanatical believers would respond to a group's religious calls even if that group was unlikely to win in the short run (Tokdemir et al. 2021) because, for them, religion is an identity, not an optional facet of their life (Roy 2004, 35). From the group's perspective, signaling religious purity gives it legitimacy and credibility (Walter 2017*a*). This legitimacy, though not enough to convince a large population, could effectively prevent the group from perishing. As such, religiosity functions as a "weapon of the weak." A religious appeal emphasizing individual obligation also echoes the psychological needs of many lonely fighters who are physically separated from one another. Although marginalized by their nation-state, these jihadists are now connected to an imaginary ummah (i.e., a Muslim community) (Roy 2004, 42). Weak jihadi organizations are thus able to "buy" fanatic believers with a low "price" (Berman 2011; Sanín and Wood 2014; Weinstein 2005). Moreover, by moving further down to an extreme version of religiosity, groups more easily differentiate their brands from other competitors and more precisely target their unique constituents (Conrad and Greene 2015; Walter 2017*a*). The potential competition with other similar groups gives a jihadi group an additional incentive to emphasize religiosity while facing setbacks.

Weak groups focus on their core members not only because it is harder to target a larger audience but also because it is strategically optimal for them to confine the coalition to only the most committed and loyal members. Organizationally, managing a military organization is costly and thus screening fighters—admitting sincere believers and keeping out opportunists and free-riders—is particularly important for groups with limited administrative capacity (Bueno de Mesquita 2005; Weinstein 2005). Screening requires sacrifice. It is very common for small and strict religious groups (also known as "sects" in the literature)

to ask their followers to sacrifice—from giving up certain dietary options to giving up their lives (Berman 2000; Iannaccone 1992; Iannaccone and Berman 2006). Sacrifice is particularly meaningful in the context of violent organizations because their members need to be prepared to literally give up their lives. This requirement is even more relevant for weaker groups because their military actions often require higher individual commitments due to their less-developed weaponry. While the advantage of recruiting higher quality members is evident, keeping the organization at a controllable size could also be beneficial for groups that stay underground most of the time (Rapoport 2004). More specifically, a small organization with only committed members largely lowers its transaction costs and avoids potential principal-agent problems (Shapiro 2013).

Strong groups, on the other hand, appeal to broader audiences—a more heterogeneous pool that tolerates more secularism. These stronger groups carry out larger scale military activities and thus demand more troops and supplies, in which circumstances they have to be a more inclusive organization rather than an exclusive sect. This argument is in line with Polo and Gleditsch (2016)'s empirical finding that violent groups that are able to directly target government officials are more inclusive regarding member selection. Secular narratives are more effective in engaging with and retaining a more peripheral group of sympathizers because these sympathizers are less committed to the religious ideal and the emphasis on individual obligations is insufficient to convince them to pay the costs of collective action. Thus, jihadi leaders foreground more earthly goals and portray a magnificent outlook in achieving them in order to win potential supporters who demand more tangible benefits than a rewarding afterlife. These stronger organizations' advertising of material rewards is anything but cheap talk, because they can indeed afford to pay well. To maintain a large supporting bloc, stronger groups display higher tolerance of secularism and sometimes even acquiesce to behaviors that are considered sinful by their religion, including drinking and rape (Mashal 2020; Verini 2017). These unreligious behaviors occur when a group stresses religious regulations less. The upside of these behaviors, for a violent organization, is that

they boost morale, consolidate support, and attract more followers (Cohen 2013). Therefore, the group accommodates a larger group beyond its most hardcore supporters in a bid for more resources and members.

Targeting a wide audience does not necessarily imply that leaders of a large group are going to deploy all supporters for battles but rather signals that the non-state organization is resolved to be a government, representing a large constituency in the region. This is particularly the case when a group is large enough to hold territory, which means whoever is located within the realm of that group is ruled by it. In reality, most groups start out weak and as they grow they want a seat at the table. A recent example is the Taliban, which took over Afghanistan immediately after the withdrawal of US troops. Strategically, the Taliban would benefit from pitching itself at an ideological position closer to the median voter in the hope that more people would vote with their feet and support its new regime. This phenomenon indeed happened, as the Taliban publicly claimed, for example, that women are permitted to receive an education, which is considerably more moderate than the group's policies in the early 2000s (Osman and Gopal 2016).[8] From an international perspective, by taking a more moderate quasi-state position a group more easily conducts "rebel diplomacy" and wins the recognition of foreign governments (Huang 2016). For instance, the Syrian rebel group Ahrar al-Islam started as an extreme jihadist organization but rebranded itself as a more liberal and moderate group in 2015 after months of military advances, seizing the northwestern province of Idlib and pushing the front almost to the Mediterranean coast (Mroue 2015). Analysts believe that Ahrar al-Islam's reasoning behind this ideological shift was to prompt Turkey and the United States to see them as a legitimate option to replace al-Assad's government (Walter 2017*a*). For similar reasons, although generally opposing Western standards, many jihadi groups once they are stronger became cautious and demonstrate their compatibility with "universal values" such as human rights and religious freedom as long as these values

[8]Notably, the Taliban's moderate claim may still sound too extreme to most audiences in the secular world. More importantly, most activists and analysts suggest that the Taliban's ideological stance remains extreme but what has changed is the organization's strategy (BBC 2021).

help justify the groups' legitimacy (Roy 2004, 132).

Taken together, weaker groups have more incentives to emphasize their religious nature, while stronger groups show their secular side. This dynamic also applies to a single group that experiences changes in its military capacity across time: As a group gains or loses power, its communication strategy shifts accordingly. Therefore, the religious identity of jihadi groups, and likely other religious extremists, serves as a handy weapon for the weak. This paper is not the first to theorize about the strategic advantage of adopting an extreme ideology for religious organizations (Berman 2011; Carvalho 2019; Walter 2017*a*). It is, however, innovative in considering these groups' ideological strategies together with their varying military and political needs. Given that the bulk of literature on violent sub-state groups focuses exclusively on violence, this connection is particularly important. Groups' ideological strategies of moving along a "religious vs. secular" spectrum are reflected in their propaganda (i.e., public statements). To fully control their propaganda materials, jihadi leaders constantly update their media branches with the latest battlefield news and give them at least monthly instructions.[9] Timely coordination is particularly important in the internet age because the internet and instant communication allow an organization to quickly disseminate its public discourses through online magazines and social media (Piazza and Guler 2019; Walter 2017*b*). While both the military and propagandist tactics are integral parts of these groups' toolkit, military actions are more resource-demanding and more constrained by reality. For that reason, this paper focuses on how groups strategically use words to match guns. I empirically examine the relationship between groups' military power and ideological appeals:

Hypothesis 1: Military power is negatively associated with religious rhetoric.

I have emphasized that groups' ideological appeals are strategic. Thus, violent groups retain relatively stable preferences but work to manipulate their audience through public propaganda. An ideal counterfactual observation to propaganda would be similar ideolog-

[9]Harmony, NMEC-2007-637116.

ical materials produced by jihadi groups but not intended to target a public audience. To substantiate the assumption that these groups' changing propaganda does not necessarily reveal their sincere preferences, I will compare a few groups' propaganda with their leaked internal documents to assess the following theoretical implication:

> Corollary 1a: Hypothesis 1 holds in groups' public propaganda but not in their internal documents.

As a group grows stronger, it signals a more moderate position to the audience by displaying more tolerance of secularism compared with its weaker past or weaker counterparts. Conversely, as it loses power, it adopts the opposite strategy, rejecting secularism in its public statements. My theory implies that when groups shift ideological positions to the more secular side, they refer to more secular concepts in a positive way, not criticizing the secular world.[10] To provide further evidence on this point, I will examine groups' religious and secular words together with their attitude when using these words:

> Corollary 1b: When a group is militarily stronger, its secular rhetoric is associated with more positive expressions.

Jihadi groups' media rhetoric hinges on their military situation because these groups tailor their propaganda to maintain a coalition size that best serves their military actions. It is crucial for jihadi groups to keep in mind their target audience because the main purpose of their propaganda is to mobilize, recruit, and exercise control over members (Ugarriza and Craig 2013). As I explained above, weaker groups primarily speak to their core members while stronger groups try to appeal to potential supporters on a larger scale. Sometimes the latter even expand their reach beyond their controlled region to inspire an international audience, which is reflected in ISIS and al Qaeda's effort in publishing magazines in English

[10]In other words, when a group gains strength it does not just engage in more negative and critical rhetoric that focuses on secular concepts; rather, it engages in more tolerant and positive rhetoric over secular concepts.

and other Western languages. Therefore, I put forward the hypothesis regarding groups' needs to maintain different sizes of coalitions:

> Hypothesis 2: Military power is positively associated with outside coordination effort; outside coordination effort is negatively associated with religious rhetoric.

Groups use different types of rhetoric to coordinate different types of audiences because these audiences have different rhetorical preferences. This underlying assumption leads to another corollary:

> Corollary 2a: More moderate members are more likely to welcome secular rhetoric.

The dynamic that organizations become more ideologically extreme when they are weaker is a generalizable rule that has been discovered with other types of political actors.[11] By theorizing a similar strategy for violent organizations, this paper responds to the urgent need to bring ideology into conflict studies (Staniland 2015).

Military Power and Ideological Appeals of Jihadi Groups

I now illustrate religious extremists' unified strategy by empirically showing the relationship between 38 jihadi groups' military power and ideological appeals. I first introduce the measurements of the main dependent and explanatory variables and then provide several pieces of evidence for hypothesis 1, as well as its corollaries 1a and 1b.

Measuring Ideological Appeals from Jihadist Magazines

To begin investigations of jihadists' propaganda efforts, I built an original database of 84 magazines in 11 different languages published between 1984 and 2019 from 38 jihadi groups.[12] These periodicals were originally circulated in pdf format on communication platforms like

[11] See, for example, Groseclose (2001) for political candidates' position-taking strategy contingent on their valence in the American context.

[12] The Appendix provides a full list of the groups and magazines covered by this study.

`WhatsApp` and `Telegram` and were collected from all possible sources via the internet at the time of collection. I first collected these materials from three major online repositories of radical periodicals (i.e., the TRAC database, Jihadiligy.net, and Jihadi Document Repository) and then—in case of any censored or lost issues—supplemented the collection with a systematic search of individual blogs and web pages, tracking the historical posts using the `WayBackMachine` internet archive. I further conducted an extensive internet search and expert interviews and coded a series of covariates associated with each magazine issue including the specific group in charge, publishing language(s), publishing date, and gender of the target audience.[13] Importantly, I noted the self-claimed mission of each public periodical and excluded from this study any newsletters that only intend to report battlefield news because they are less ideological. The remaining 84 publications contain a wide range of content and reflect the highest quality of jihadi groups' statements. Figure 1 presents a few examples of the magazines (covers and inner pages) included in this study. The easy-to-circulate format makes them the most prevalent official propaganda materials. Compared with battles and other violent tactics, propaganda release as a non-violent tactic is less constrained by equipment and is conducted more regularly.

I digitized the entire magazine archive and documented each magazine issue at the page level using `tesseract`, an optical character recognition (OCR) engine. This machine learning program utilizes pre-trained neural networks to recognize characters in each language. It can almost always accurately identify words from printed materials, although it is not particularly good at grouping words into articles given the unconfined layouts of the magazines studied here. I thus primarily use a page as the unit of analysis, as was the choice in Karell and Freedman (2019). In most cases, one page corresponds with one article. The current setup yields more than 50,000 magazine pages from 1,072 issues (unique magazine and unique publishing time).[14] To assist further analyses, I translated all these documents into English

[13]Some magazines are specifically designed to address feminine issues. An example of such women's magazines is *Beituki (Your Home)* released by al Qaeda, which is still active at the time of writing this paper.

[14]Results presented below are robust with different units of analysis: paragraph, page, or issue.

Figure 1: Examples of Jihadist Magazines

(i) (ii) (iii) (iv)

Note: The *DABIQ* magazine (i and ii) published in English by Islamic State of Iraq and Syria (ISIS) and the *Ibnat al-Islam* magazine (iii and iv) published in Arabic by al Qaeda in the Arabian Peninsula.

using the *Google Cloud Translation* application programming interface (API), which practice is the present industrial standard. While machine translation might not be as sophisticated as human experts, this inaccuracy has only marginal effects on text analyses with the "bag-of-words" assumption. That is, even if the translation returns words in reverse order, it will not affect my keyword-based measurement presented below. This argument is explained in detail by Lucas and his colleagues (2015) and further validated by de Vries, Schoonvelde and Schumacher (2018).[15]

To measure jihadists' ideological appeals on a "religious vs. secular" dimension, I use a customized dictionary approach, which is a text-as-data method that scores documents using a dictionary (i.e., a collection of keywords) developed specifically for this study. This dictionary contains two key categories, "religiosity" and "secularism," defined based on three fundamental questions:[16] (1) What is the ideal social order? Religious rhetoric regards divine powers as the supreme law and advocates organizing the society based on religious order (i.e., frequent references to words such as "prophet," "ummah," and "sharia"), while secular

[15]For examples of translation for this project, see the Appendix.

[16]For a thorough discussion of the tension between Islamic religion and secularism, see Roy (2007), particularly p37-64.

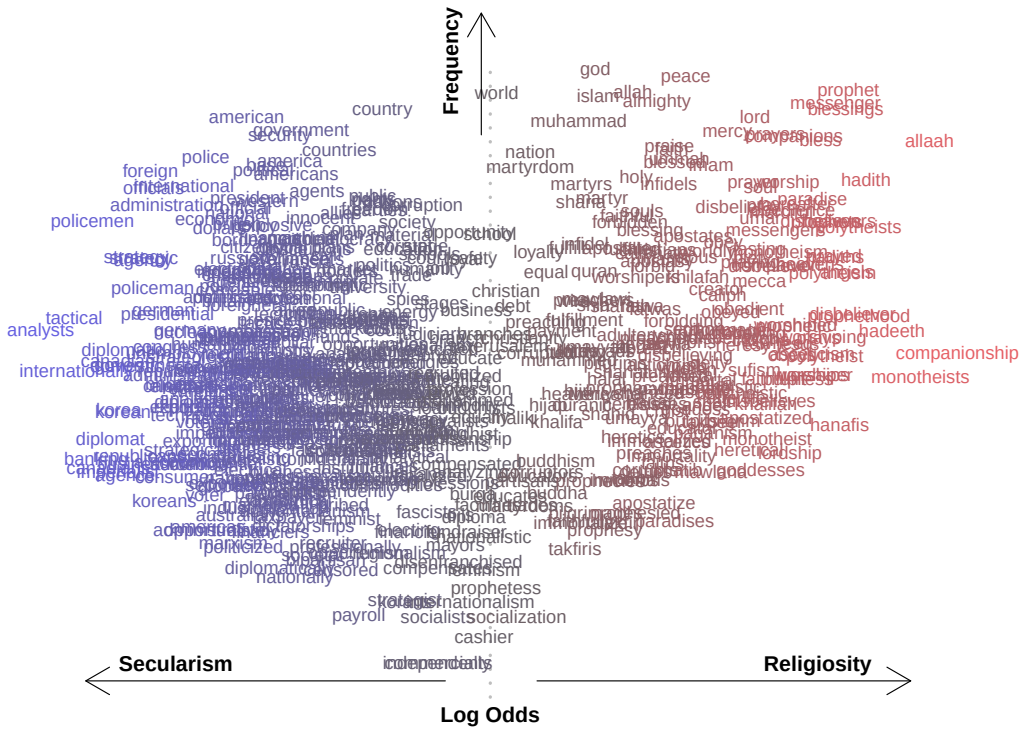
rhetoric emphasizes humanized power, modern nation-states, and political institutions (i.e., frequent references to words such as "citizenship," "democracy," and "government"); (2) How should individuals behave? Religious rhetoric emphasizes obedience to Allah (i.e., frequent references to words such as "loyalty," "pray," and "fasting"), while secular rhetoric values individual welfare (i.e., frequent references to words such as "vote," "rights," and "freedom"); and (3) Why should people participate in jihad? Religious rhetoric attributes the reasons to benefits in the afterlife and the evilness of nonbelievers (i.e., frequent references to words such as "paradise," "martyrdom," and "apostasy"), while secular rhetoric highlights material benefits and strategic needs (i.e., frequent references to words such as "compensation," "recruitment," and "strategy"). Expanding on these three questions, I developed an itemized codebook and compiled a customized dictionary by manually categorizing each word that appears more than 30 times in the text corpus.[17] Finally, I use this dictionary to calculate a *Religiosity Score* for each magazine page, which is the difference between the number of religious keywords and the number of secular words that page contains. Figure 2 shows a comparison of religious and secular keywords included in the dictionary. The nearer a word is positioned to one of the ends, the more it discriminates the document from one type of rhetoric to another. Overall, this measure captures the extent to which jihadists resort to their religion, but it is important to keep in mind that their interpretation of religion largely deviates from the main Islamic community's interpretation.

Measuring Military Power

Although military power is a frequently addressed concept in conflict studies, it is a non-trivial task to measure it at a fine-grained level. Because these extremists in large part stay underground, many of their organizational details like membership are not public information. So far, scholars' best attempt along this line is to classify group power into rough categorizations, which do not vary much over time (Cunningham, Gleditsch and Salehyan

[17]The codebook and extensive validation of this measure are available in the Appendix.

Figure 2: Comparison of Religious and Secular Keywords



Note: The x axis reflects the log odds of each word conveying religious meaning as opposed to secular meaning, or vice versa. The y axis reflects the frequency with which they appear in the corpus.

2013). For that reason, existing literature considering violent groups' military power relies heavily on their battlefield performance. The scholarly consensus is that stronger military groups are capable of carrying out more attacks and causing more casualties (Enders and Sandler 1993; Wood 2014), directly confronting states more (Byman 2005; Carter 2012), and controlling more territories (Sánchez-Cuenca and De la Calle 2009). These measures pretty well gauge the military power conceptualized by this paper, which primarily refers to groups' ability to carry out violent actions. Therefore, I now derive three time-varying indicators of military power for each group based on its battlefield performance and will also use a territorial control measure later in the paper.

I first collect jihadi groups' violent activities from two widely-used databases: Uppsala Conflict Data Program (UCDP-GED) and Global Terrorism Database (GTD). The former

source mainly counts violent events during large-scale civil conflicts resulting in at least 25 battle-related deaths while the latter source records a greater variety of terrorist attacks. To get more comprehensive information on each group's military activities and minimize the reporting bias in a single source, I merge the event data from both sources following Donnay and coauthors (2018). Specifically, I harmonize the event types across the two sources into three major categories: state-based event,[18] non-state event,[19] and one-sided event.[20] I then regard two records from different sources as the same event if they fell into the same major category, happened within a five-day window, and happened within a ten-kilometer window, where the flexible time/space windows accommodate inaccuracy in the raw data to avoid double-counting events. The resulting combined dataset contains 73,114 violent events involving jihadi groups concerned in this study, where GED contributes 48,874 unique events, GTD contributes 19,205 unique violent events, and the two sources overlap on 5,035 events. GED provides more events than GTD because the jihadi groups studied here mostly act within civil conflict zones, which is GED's focus. Next, I attribute the group-specific events to their propaganda by groups and dates. Specifically, for each unit of observation (i.e., magazine page), I construct three metrics for the group in charge of the magazine and 60 days prior to the publication of that specific magazine issue: *Total Violent Events*, *Total Deaths*, and *State-based Battles*, which generally imply groups' military strength. I choose a 60-day window between the military power measure and the ideological appeal measure because a group would take some time to design its propaganda materials while considering its military power.[21] Because this paper considers a jihadi organization with its distinct command as an independent group, the group leaders are well informed about their group's battlefield fortunes.

[18]GED coded as "type 1" violence; GTD coded as attacks on Government (General), Government (Diplomatic), Police, Military, Utilities, Maritime, Transportation, Telecommunication, or Airports & Aircraft.

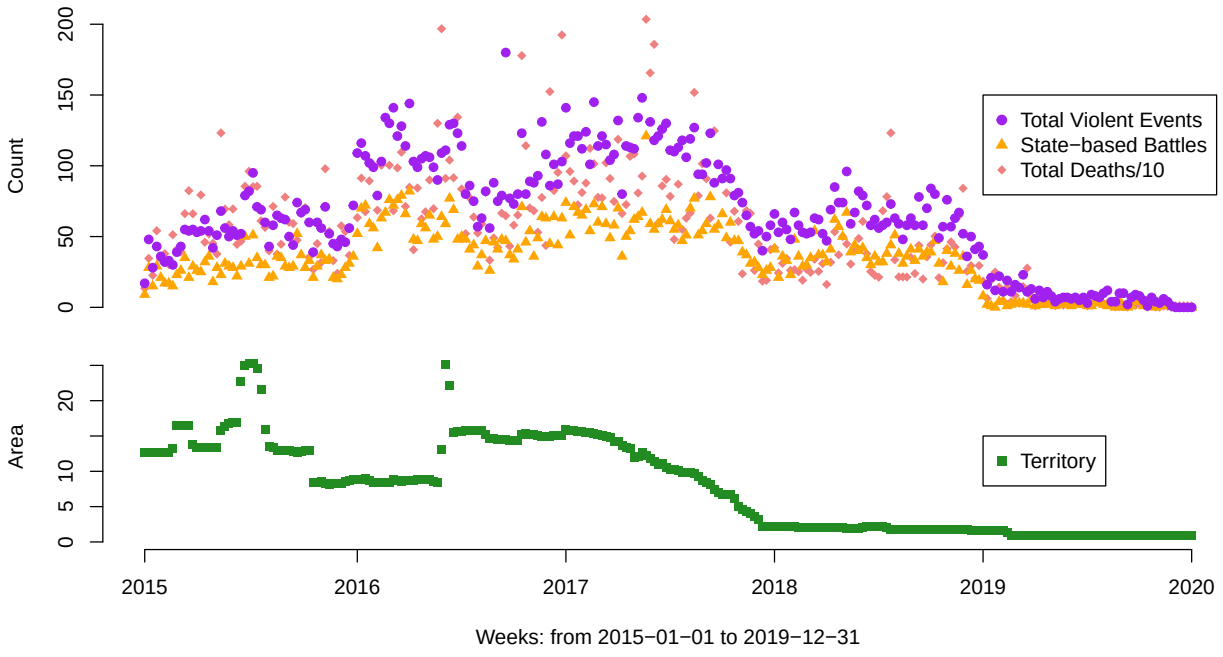
[19]GED coded as "type 2" violence; GTD coded as attacks on Terrorists/Non-State Militia or Violent Political Party.

[20]GED coded as "type 3" violence; GTD coded as attacks on Private Citizens & Property, Business, NGO, Journalists & Media, Transportation, Telecommunication, Religious Figures/Institutions, Educational Institution, Tourists, Food or Water Supply.

[21]Results are robust to alternative time windows of counting these events, as shown in the Appendix.

I further validate these measures by comparing them with another group power indicator, namely territorial control (Sánchez-Cuenca and De la Calle 2009), for ISIS, one of the largest groups in my dataset. This ISIS territorial control data is calculated on a daily basis using a geographical information system with the raw data reported by `liveuamap.com`. This crowdsourcing map contains the most disaggregated data, marking the specific locations where ISIS troops are present. Figure 3 shows the changes of these indicators over time. Territory control and battlefield activities roughly correspond with each other, and this pattern is particularly telling after 2016. Because the territorial control data is not available for most of the 38 groups covered here, I prioritize the battlefield performance measures in this section.

Figure 3: Comparing ISIS Battlefield Activities and Territorial Control



Note: All indicators are aggregated at the week level.

How Military Power Changes Ideological Appeals

I empirically examine jihadi groups' unified strategy using ordinary least squares (OLS) models, where *Religiosity Score* is the dependent variable and the three military power measures, *Total Violent Events*, *State-based Battles*, and *Total Deaths* are the explanatory variables. I include three page-level or issue-level covariates: *Front Page* indicates whether the magazine page is the cover or preface; *Total Issue* measures the longevity of the magazine; and *Target Women* indicates whether the magazine is designed for female readers.

More importantly, I leverage three-way fixed effects to help with identification: The *Language Fixed Effects* ensure that the comparisons are made only between magazines originally published in the same language. Controlling for languages accounts for the fact that, for example, English expressions might generally contain more secular words than Arabic expressions. Moreover, language in large part indicates who is the intended audience. Thus, these fixed effects also help to control for the type of reader. The *Year Fixed Effects* absorb any time trend over the 36 years examined in this study. Finally, I fit models both with and without *Group Fixed Effects*. Models with group fixed effects make comparisons only within groups and thus reveal how these groups change strategies over time as their strength waxes or wanes. Models without group fixed effects, on the other hand, make both across- and within-group comparisons, depicting also the cross-sectional relationship between military power and ideological appeals. Below I report the results where military power was measured within the 60-day window prior to the magazine releases. The Appendix shows that the results are robust to alternative models using different windows, as well as those using magazine issues as the unit of analysis.

Table 1 confirms the expected negative relationship between military power and religious appeals. Models (1), (3), and (5) do not contain group fixed effects and thus identify coefficients from the variance both across and within groups. The fact that the coefficients of *Total Violent Events (log)*, *State-based Battles (log)*, and *Total Deaths (log)* are all negative and

significant suggests that stronger groups such as Tehrik-i-Taliban Pakistan generally disseminate less religious narratives than smaller groups such as Hay'at Tahrir al-Sham. Group fixed effects are controlled for in models (2), (4), and (6), where the estimates are still negative and significant. That means, for an average fixed group, that it changes its rhetoric and talks more secularly when gaining military power and vice versa. In more intuitive terms, when a group becomes capable of directly confronting the government one more time, it switches one religious term to a secular term in every magazine page, which is suggested by the coefficient (nearly -1) in model (6). The group fixed effects help me to rule out the possibility that my results are completely driven by the difference between smaller and larger groups because, for example, some hardcore groups simply prefer small groups of known supporters, or that they are more heavily targeted by the state(s) and thus find it easier to survive as smaller units. Instead, what we learn from the empirical results is that these groups do not have a fixed preference for group size or a fixed style of communication but change according to the waxing and waning of their military power. Overall, weak military power pushes groups to more extreme religious positions, where they emphasize their religious brand to make up for their limited organizational capacity. Somewhat ironically, these groups portray a wonderful outlook under Shari'a law and encourage soldiers to sacrifice for the holy war when they are less active in fighting for these goals. Conversely, they talk more like a secular organization in correspondence with more violent actions. Recall that the data used in these regressions excludes newsletters with only battlefield reports. This pre-processing step makes the effects more telling because groups talk more secularly when they are more militarily active, *not* simply because they have more news to report on the ground. Rather, group members in charge of these media outlets intentionally adopt more moderate narratives on the "religiosity vs. secularism" spectrum to accommodate a more heterogeneous audience. Additionally, I left out ISIS in models (7) and (8) as robustness checks in case this prominent and radical group is driving the results.

The direction and significance of other covariates are consistent across models (1)-(8).

Front Page is negative and significant, meaning that magazine covers and prefaces are less likely to include lengthy religious preaching than subsequent pages. *Total Issue* is negative and significant, suggesting that periodicals that survive longer generally contain more secular rhetoric. Finally, *Target Women* is positive but not significant, indicating that masculine and feminine propaganda materials do not systematically differ with regard to the amount of religious component.

In the above regressions, religious appeals are measured after military actions to allow for the correct time sequencing because groups should design their rhetoric according to the revealed battlefield situations and not future ones. To substantiate this basic assumption, I design a placebo test where the model specifications are the same as above except that now a group's violent activities are calculated 60 days *after* it published its ideological position in a magazine. As shown in Table 2, the significance goes away in this "future predicting past" setup. Although not a definitive causal identification strategy, this additional analysis brings me more confidence in the proposed theory.

Table 1: Military Power and Religiosity Score in Magazines

	Religiosity Score							
	(1)	(2)	(3)	(4)	(5)	(6)	(7) No ISIS	(8) No ISIS
Total Violent Events (log)	−0.84* (0.15)	−0.96* (0.34)					−1.35* (0.14)	−1.04* (0.35)
Total Deaths (log)			−0.68* (0.11)	−0.93* (0.25)				
State-based Battles (log)					−0.92* (0.15)	−0.99* (0.34)		
Front Page	−2.06* (0.32)	−2.48* (0.32)	−2.06* (0.32)	−2.48* (0.32)	−2.06* (0.32)	−2.48* (0.32)	−1.61* (0.33)	−1.94* (0.33)
Total Issue	−0.03* (0.01)	−0.07* (0.03)	−0.03* (0.01)	−0.06* (0.03)	−0.03* (0.01)	−0.07* (0.03)	−0.01 (0.01)	−0.07* (0.03)
Target Women	1.28 (1.34)	1.58 (1.68)	1.24 (1.34)	1.68 (1.60)	1.46 (1.34)	1.68 (1.68)	2.84 (1.50)	1.49 (1.78)
Group Fixed Effects	No	Yes	No	Yes	No	Yes	No	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Language Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.09	0.12	0.09	0.12	0.09	0.12	0.09	0.11
Observations	56,430	56,430	56,430	56,430	56,430	56,430	52,551	52,551

Note: Robust standard errors clustered at the issue level. $^*p < 0.05$

Table 2: Placebo Test: Future Military Power and Past Religiosity Score in Magazines

	Religiosity Score		
	(1)	(2)	(3)
Total Violent Events (log) (Future)	−0.51		
	(0.30)		
Total Deaths (log) (Future)		−0.39	
		(0.20)	
State-based Battles (log) (Future)			−0.54
			(0.30)
Front Page	−2.52*	−2.52*	−2.52*
	(0.32)	(0.32)	(0.32)
Total Issue	−0.07*	−0.07*	−0.07*
	(0.03)	(0.03)	(0.03)
Target Women	1.38	1.35	1.45
	(1.77)	(1.76)	(1.78)
Group Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Language Fixed Effects	Yes	Yes	Yes
R^2	0.12	0.12	0.12
Observations	56,494	56,494	56,494

Note: Robust standard errors clustered at the issue level. $^*p < 0.05$

Leaked Internal Documents as Placebos

Are the changes in jihadi groups' religious appeals indeed their strategic moves? In order to demonstrate that these groups intentionally change their ideological positions while engaging with their audience, I compare their public statements, as reflected in magazines, with their non-public statements. If these groups strategically manipulate the content in their propaganda to control their rank and file members and appeal to prospective sympathizers, then we should not observe the same rhetorical pattern in their documents meant for more private use.

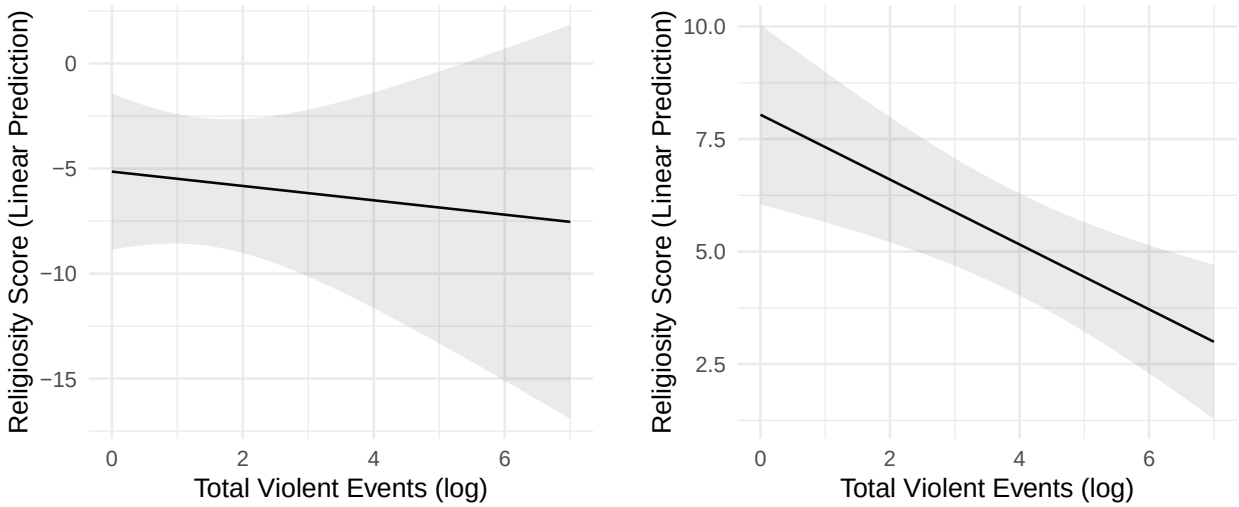
To gain knowledge of jihadists' non-public statements, I further collected the internal documents from 10 out of the 38 groups analyzed above from August 1990 to March 2011 as recorded in the Harmony Documents Archive launched by the Combating Terrorism Center at West Point.[22] Unlike the magazines, these internal documents were intended to circulate only among jihadi leaders but, unexpectedly, were captured by US intelligence agencies. Most of these documents are letters to group leaders, correspondence between organizational units, and administrative documents addressing a variety of organizational issues. They are comparable to the magazines in terms of the topics covered. Thus, these files serve as ideal placebos in examining jihadi groups' strategies of designing rhetoric for public consumption. To ensure the public and non-public samples are comparable, I matched internal documents and magazines by groups and dates. In this way, I am able to compare a certain group's public rhetoric at a given time to their non-public rhetoric around the same time. I use weighted least squares (WLS) models to account for the fact that these documents vary substantially in length and fit the regression Religiosity Score$_i$ = Total Violent Events$_i$ + ϵ for internal documents and magazines separately.

Figure 4 compares the marginal effects of *Total Violent Events (log)* on *Religiosity Score* in internal documents with those in public magazines. While the groups' predicted religios-

[22]These 10 groups are al Qaeda, al Qaeda in Iraq, Ansar al-Islam, Haqqani network, Islamic Army in Iraq, Islamic Emirate of Afghanistan, Islamic Movement of Uzbekistan, Islamic State of Iraq and Syria, Jaysh al-Islam, and Naqshbandi Army.

ity scores in magazines significantly decrease as their military power increases, as was also depicted in Table 1 above, their predicted religiosity scores in internal documents largely remain constant across various levels of military power. This contrast suggests that jihadi groups intentionally change positions while addressing the public and behave less strategically when talking privately. As discussed earlier in this paper, jihadists' public statements are audience-oriented and might not speak openly of their true preferences.

Figure 4: Contrasting the Effects Estimated from Leaked Internal Documents and Magazines



(A) Leaked Internal documents (B) Magazines

Note: The negative association between military power and religious rhetoric is significant in groups' public propaganda but not in their non-public documents.

More Evidence from Sentiment Analyses: Tolerance of Secularism

Because my measure of *Religiosity Score* is derived from a dictionary-based method and does not explicitly indicate the attitude of a magazine article, a skeptical reader might question whether stronger groups are more tolerant of secularism or if they simply criticize the secular world more. The latter scenario, if true, implies that these groups do not necessarily shift positions on a "religious vs. secular" spectrum but rather adopt a more negative campaign strategy when stronger. To rule out this possibility, I now turn to explicitly examine jihadi

groups' sentiments in their magazines to substantiate the idea that a stronger group welcomes more secularism. I measure the sentiment embedded in each magazine page using the Linguistic Inquiry and Word Count text analysis program. The *Sentiment* score is defined by the difference between positive and negative word counts and, thus, a higher score indicates a more positive attitude. I then fit another set of regression models using *Sentiment* as the dependent variable. The goal here is to examine how the relationship between secularism (as indicated by *Religiosity Score*) and attitude (as indicated by *Sentiment*) changes according to military power.

Model (1) from Table 3 depicts the baseline relationship between military power and attitude in propaganda and the insignificant coefficient of *Total Violent Events (log)* suggests that a group's overall sentiment does not change meaningfully as its military power changes. Model (2) adds *Religiosity Score* as a regressor and its significant positive coefficient suggests that overall, jihadists' tone is more positive in religious narratives than in secular narratives, which is not surprising considering the religious root of their movements. In model (3), I examine the relationship between religious/secular rhetoric and sentiment conditional on military power by interacting *Religiosity Score* and *Sentiment*. This interaction term appears to be negative and significant, meaning that the positive effect of religious rhetoric on tone diminishes when military power increases. Therefore, as a group grows in power, it becomes more tolerant of secular values in rhetoric. Conversely, once the group is thwarted militarily, its attitude is likely to be critical when referring to secular concepts. Taking al Qaeda's declining process as an example, at the beginning of 2014, the group was still technically combating the United States in Afghanistan and displayed high tolerance of non-Muslims by stating its aim as "forming a just Islamic society in which there is no oppression against anyone, including the disbelievers" (magazine: *Resurgence*). Later, ISIS completely seized leadership of the jihadist movement from al Qaeda and the latter almost disappeared from the public eye. This waning group, correspondingly, adopted a much harsher position and claimed in 2017 that "any group that fights under the banner of democracy and secularism

Table 3: Military Power and Tolerance of Secular Values

	Sentiment (Positive - Negative)		
	(1)	(2)	(3)
Religiosity Score			-0.17^{*}
× Total Violent Events (log)			(0.04)
Religiosity Score		4.15^{*}	4.60^{*}
		(0.12)	(0.17)
Total Violent Events (log)	-8.86	-4.88	-4.11
	(4.77)	(4.09)	(4.09)
Front Page	49.35^{*}	59.66^{*}	60.52^{*}
	(8.66)	(8.50)	(8.50)
Total Issue	-2.36^{*}	-2.08^{*}	-2.11^{*}
	(0.43)	(0.31)	(0.31)
Target Women	80.52^{*}	73.97^{*}	74.42^{*}
	(30.48)	(25.64)	(25.61)
Group Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Language Fixed Effects	Yes	Yes	Yes
R^2	0.21	0.27	0.27
Observations	56,430	56,430	56,430

Note: Robust standard errors clustered at the issue level. $^{*}p < 0.05$

has fallen into apostasy [...] Democracy is therefore a system of Tughyan (transgression); hence it is compulsory upon every Muslim to disbelieve in it and to reject it" (magazine: *Al Risalah*). While these quotes are just a glimpse of jihadists' propaganda, they depict a change in their ideological positions.

Mechanism: Evidence from ISIS Tweets

While the analyses of magazines depict the negative correlation between the military power and ideological positions of jihadi groups, they do not explicitly show the mechanism accounting for this association. In this section, I examine the proposed mechanism that weaker military power incentivizes a group to secure its base and stronger power motivates it to make broader appeals, providing evidence for hypothesis 2 and its corollary 2a. I use a large dataset of 6,630,731 original tweets from 21,278 unique accounts associated with ISIS—or 18,040,532 tweets and retweets from 21,959 accounts—in 2015 collected by Alfifi and coauthors (2018). This dataset identifies Twitter users as ISIS members or sympathizers if their accounts have been reported by crowdsourcing platforms and eventually suspended, which procedure is also adopted by other research of this kind (e.g., Mitts 2019).[23]For ISIS members or sympathizers defined this way, these authors put together all their tweets through private access to the Twitter firehose. ISIS is one of the most influential jihadi groups that is currently active, having taken the dominant place of al Qaeda around 2014. Focusing on ISIS has the additional advantage that the US intervention in 2015 exogenously brings large variance in ISIS military power.

In this analysis, I measure the religiosity score in each tweet using the same dictionary as was described for the analyses with magazines. Most tweets were originally posted in Arabic and then translated into English, and the measure is based on the English translations. I measure ISIS military power primarily using territorial control, quantifying the amount of *Territory* controlled by ISIS on a daily basis calculated with the maps from `liveuamap.com`. Alternative measures of military power using violent activities are reported as robustness checks in the Appendix. I calculated the covariates that could potentially confound the proposed relationship: *Followers Count* measures the number of followers a user has at the

[23]Alfifi and coauthors (2018) only retain eventually suspended accounts to exclude false reports from anonymous users. The remaining accounts cover about 88% of the original report list. Because the Twitter spam control team only suspends accounts retrospectively, many of these accounts remained active for a long time before being taken down, allowing me to examine their online activities.

time of tweeting, which is a proxy for the user's popularity; *Friends Count* measures the number of accounts that a user is following (i.e., their "followings"); *Favorites Count* is the number of tweets that a user has marked as favorite, which reflects how active the user is on the Twitter platform; *Statuses Count* is the number of tweets and retweets posted by the user, which also reflects the user's overall activity; and *Account Length* is the age of the account calculated since the creation of the account until the creation of each tweet. I also put together several other tweet-level variables: *Media* is a binary indicator of whether the tweet has a picture, audio, or video attached to it—the presence of these visual contents might correlate with the extremity of the corresponding narratives; similarly, *Urls* indicates whether the tweet has a url attached to it; *Hashtags* indicates whether the tweet contains a hashtag, which implies whether the post speaks to a large event or movement. Additionally, I calculated *Days to Islamic Holidays*[24] using each tweet's timestamp.

In order to track down ISIS's coordination efforts using its Twitter posts, I leverage the difference in engagement between ISIS members (i.e., users whose Twitter accounts were eventually suspended) and non-members (i.e., users whose Twitter accounts were not suspended but had interacted with ISIS members).[25] Among ISIS members, I further define core and peripheral members based on two distinct criteria: *popularity* (i.e., users whose numbers of followers are among the top 5% are core members and the remaining 95% of the users are peripheral members, as defined in Steinert-Threlkeld (2017)) and *geography* (i.e., users whose revealed time zones are in Iraq, Syria, and three other geographically proximate countries—Qatar, Saudi Arabia, and Turkey—are core members and users with revealed time zones in other places are peripheral members).[26] This former criterion defines core members as the more influential ones while the latter defines core members by their

[24]The Islamic holidays concerned in this paper are Mawlid 1436, Lailat al Miraj, Laylat al Bara'at, Beginning of Ramadan, Night of Destiny (Laylat al-Qadr), End of Ramadan (Eid ul-Fitr), Festival of Sacrifice (Eid al-Adha), Islamic New Year, Ashura, and Mawlid 1437.

[25]Non-members are usually those who were mentioned by or retweeted a tweet from ISIS members but are not themselves on the anonymous blacklist.

[26]Overall, about half of the total users revealed their time zones. The core time zones include "Asia/Baghdad," "Asia/Riyadh," "Baghdad," "EET," "Europe/Istanbul," "Istanbul," and "Riyadh."

geographic locations. These taxonomies can be written as:

$$\text{user} \in \begin{cases} \text{members}, & \text{if } S = 1 \begin{cases} \text{core}, & \text{if } PR(f) \geq 0.95 \\ \text{peripheral}, & \text{if } PR(f) < 0.95 \end{cases} \quad \text{(popularity)} \\ & \text{alternatively,} \\ & \text{if } S = 1 \begin{cases} \text{core}, & \text{if } \textit{time zone} \in \textit{core zones} \\ \text{peripheral}, & \text{if } \textit{time zone} \notin \textit{core zones} \end{cases} \quad \text{(geography)} \\ \text{non-members}, & \text{if } S = 0, \end{cases}$$

where S is an indicator of account suspension and PR is the percentile ranking of the tweet based on the number of followers.

From here, I code whether a tweet mentioned (@) non-members as a proxy for the user's effort to coordinate people outside of the ISIS network (as of December 31, 2015). I then restructure the data into a user-by-date panel. The Appendix shows analyses similar to those presented below but at the tweet level and the substantive results remain robust.

Power, Ideology, and Targeted Mobilization

I examine the logic chain "military power → mobilization effort → ideological appeals" using OLS models. The goal here is to show the relationship between military power and ideological appeals, the relationship between military power and mobilization effort, and the relationship between mobilization effort and ideological appeals, respectively, after controlling for confounders.

Table 4, model (1) shows the relationship between ISIS power and religiosity score, which analysis is analogous to those in Table 1 except that it uses the Twitter data. Importantly, the model includes a lagged dependent variable to deal with the potential time dependencies

because the dependent variable *Religiosity Score* is best predicted by the same user's rhetoric on the previous day. The coefficient of *Territory* is negative and significant, showing again that religious rhetoric is a weapon of the relatively weak. In model (2), the dependent variable becomes *Mention Non-member* and *Territory* yields positive effects on it, meaning that the larger the group's power, the more likely its members will reach out to someone not yet in the organization. In model (3), the outside mobilization indicator (i.e., *Mention Non-member*) is negatively correlated with *Religiosity Score*, meaning that ISIS tends to use more secular rhetoric when trying to coordinate with people outside. This effect is substantively large compared with other factors also affecting religious rhetoric. For example, tweets containing web links (i.e., *Urls*) often introduce news or others' opinions and thus are generally less religious. This *Urls* effect, however, is only about one-fourth of *Mention Non-member*'s effect. Another interesting finding is in the predictor *Days to Islamic Holidays*. While the proximity to religious events usually positively correlates with the amount of religious rhetoric in the text,[27] even this effect gets washed away due to the inclusion of the lagged dependent variable. Therefore, overall, the proposed mechanism regarding mobilization is indeed connecting group power to its public rhetoric.

[27]This is empirically true when looking at just the bivariate relationship between *Days to Islamic Holidays* and *Religiosity Score*. See the Appendix for more discussion.

Table 4: Group Power, Mobilization, and Religiosity Score

	Religiosity Score	Mention Non-member	Religiosity Score
	(1)	(2)	(3)
Mention Non-member			-0.513^{**}
			(0.017)
Territory	-0.459^{**}	0.166^{**}	-0.320^{**}
	(0.116)	(0.020)	(0.115)
Religiosity Score (lag)	0.348^{**}		0.337^{**}
	(0.008)		(0.008)
Mention Non-member (lag)		0.429^{**}	
		(0.013)	
Days to Islamic Holidays	-0.494	-0.285	-0.616
	(1.842)	(0.333)	(1.833)
Followers Count	-0.247	-0.005	-0.259
	(0.149)	(0.011)	(0.158)
Favorites Count	-0.596	0.051	-0.543
	(0.524)	(0.076)	(0.555)
Friends Count	-0.895	0.112	-0.761
	(0.762)	(0.105)	(0.772)
Statuses Count	-0.291	-0.044	-0.336
	(0.161)	(0.034)	(0.180)
Account Length	1.050^{**}	-0.235^{**}	0.872^{**}
	(0.226)	(0.034)	(0.225)
Media	-0.267^{**}	-0.034^{**}	-0.290^{**}
	(0.020)	(0.003)	(0.021)
Urls	-0.087^{**}	-0.058^{**}	-0.128^{**}
	(0.018)	(0.004)	(0.017)
Hashtags	-0.174^{**}	-0.065^{**}	-0.216^{**}
	(0.021)	(0.002)	(0.021)
Constant	0.761^{**}	0.100^{**}	0.847^{**}
	(0.024)	(0.004)	(0.026)
Observations	265,241	265,241	265,241
R^2	0.150	0.224	0.162
Residual Std. Error	0.977	0.203	0.970
	(df = 265229)	(df = 265229)	(df = 265228)

Note: Robust standard errors in parentheses clustered by users. $^{*}p < 0.05$; **p< 0.01

Observable Implication: Responses from Different Audiences

Finally, I approach this dynamic from the perspective of people reading these tweets. The goal here is to examine how religious and secular rhetoric affect the probability that a tweet gets retweeted among different types of audiences. Correspondingly, the dependent variable is *Member - Non-member* (i.e., differential retweet numbers between members and non-members) and *Core - Peripheral* (i.e., differential retweet numbers between core and peripheral members). *Religiosity Score* is now the main explanatory variable. Group power measured by *Territory* and the series of covariates introduced above are also included in the regressions as control variables.

Table 5 presents the results. *Religiosity Score* is positively associated with both *Member - Non-member* and *Core - Peripheral*. This pattern means that a tweet with a higher religiosity score is more likely to be retweeted by ISIS members than by non-members and more likely to be retweeted by core members than by peripheral members, regardless of whether "core vs. peripheral" members are defined by their popularity or geography. This finding thus confirms the expectation that more committed members favor more religious rhetoric. As a result, jihadi groups, when weak, incorporate more religious narratives to secure support from these fanatic believers.

Conclusion

This paper examines jihadi groups' ideological appeals in relation to their military power and presents a theory that unifies these propagandist and violent strategies: Weaker military power drives jihadists' public statements to a stricter religious position on a "religious vs. secular" spectrum and vice versa. That is, these groups use their religious doctrine as a "weapon of the weak." An original data collection of 84 jihadist magazines, together with some leaked internal documents, illustrates this theory. I analyze the reason underlying the groups' unified strategy: Small groups prioritize their core members, who are mostly

Table 5: Retweets by Different Types of Members

	Member - Non-member	Core - Peripheral	
		defined by *popularity*	defined by *geography*
	(1)	(2)	(3)
Religiosity Score	0.641*	0.038**	0.137**
	(0.325)	(0.010)	(0.038)
Territory	−39.134**	0.676**	3.283**
	(15.043)	(0.194)	(0.742)
Days to Islamic Holidays	242.544	−34.100**	−80.202**
	(292.870)	(7.488)	(25.028)
Followers Count	−370.754*	−2.784	−9.113
	(154.214)	(1.639)	(5.206)
Favorites Count	−14.751	1.918**	6.292**
	(36.084)	(0.681)	(1.954)
Friends Count	178.821	−6.850	−7.456
	(737.363)	(12.514)	(32.710)
Statuses Count	30.173	−0.137	0.259
	(35.896)	(0.396)	(1.132)
Account Length	0.292	3.096**	10.875**
	(14.670)	(0.376)	(1.300)
Media	−3.999	−0.540**	−2.037**
	(2.989)	(0.040)	(0.164)
Urls	0.333	0.258**	0.752**
	(1.023)	(0.032)	(0.124)
Hashtags	1.484	−0.271**	−0.947**
	(2.928)	(0.043)	(0.150)
Constant	5.488	−0.562**	−2.259**
	(3.719)	(0.085)	(0.249)
Observations	394,954	394,954	394,954
R^2	0.050	0.030	0.023
Residual Std. Error	157.112	2.476	9.547
	(df = 394942)	(df = 394942)	(df = 394942)

Note: Robust standard errors in parentheses clustered by users. *$p < 0.05$; **p< 0.01

fanatical believers, while larger groups need broader support from the more secularized world. Evidence drawn from ISIS tweets supports this mechanism.

These empirical analyses present a paradox about most jihadi movements: These movements' ultimate goal is to rule society religiously, but they move away from that goal as they advance militarily. The key reason accounting for this phenomenon is that the religion advocated by jihadi groups—and thus examined in this paper—is extreme, fundamentalist, and violent and is by no means accepted by the larger Muslim community. Therefore, any negative consequences caused by religious extremism should not be attributed to the religion of the larger population. In that sense, the current paper is in line with some recent work that debunks the relationship between violent movements and the Islamic religion more generally (Cottee 2017; Shapiro and Fair 2010).

Overall, this paper is part of our discipline's effort of bringing ideology back into conflict studies. Much of the existing quantitative literature on political violence and civil conflict treats ideology as fixed brands—Islamist, leftist, and separatist, among others, leaving out the nuances in groups' ideological appeals. Instead, I examine jihadi ideology by looking beyond the common brand and into each group's specific statements. These statements develop as the conflict process evolves. They thus provide a window into understanding the comprehensive strategies of militant organizations.

Finally, I center this study on what violent organizations say because words and rhetoric matter increasingly more in an information era: Hate speech against ethnic minorities results in violent crimes; misinformation on the pandemic leads to unnecessary deaths; and extremist propaganda radicalizes individuals. These examples all demonstrate the power of propagation for ideas. Regarding global violent movements in particular, ideas in propaganda are the key for conflict mobilization. Hence, understanding the roots of these ideas becomes the key for conflict prevention.

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Online Appendix

The Unified Strategy of Religious Extremists: Military Power and Ideological Appeals

This supplemental appendix contains additional discussions and results that are not included in the main manuscript for reasons of space and focus. Specifically, I include the following additional sections on descriptions of the original jihadi magazine database and other textual data, measurement and validation, robustness/sensitivity analyses, and alternative mechanisms.

Contents

A1 The Jihadi Periodical Database

To empirically study the propagandist efforts of jihadi groups, I build an original database of 84 jihadist magazines from 38 jihadi groups, with dates of publication spanning 1986 to 2019 and languages including Arabic, Bengali, English, French, German, Indonesian, Malay, Russian, Swahili, Turkish, Uighur, and Urdu. In addition to these magazines, many jihadi groups also regularly publish newsletters or newspapers.[1] These news-based periodicals intend to deliver battlefield reports and are less ideological. Therefore, I excluded newsletters and newspapers from all analyses in this paper.

A1.1 List of Groups and Magazines

Table A1 presents a list of magazines from each group included in this study. The publishing time span, language, the gender of the target audience are noted in parentheses following each magazine. Overall, the number of magazines—and the intensity of ideological appeals—varies across groups.

Table A1: Summary of Magazines by Groups

Group	Periodicals
al Qaeda	al-Haqiqah (2017-2018, en, m), al-Risalah (2017-2018, ar, m), Beituki (2017-2019, ar, w), Fadhakar (2016-2017, ar, m), Hitin (2007-2014, ur, m), One Ummah (2019-2019, en, m), Ummah-Wahidah (2019-2019, ar, m) [bulletin] Al-Nafir (2014-2019, ar, m)
al Qaeda in Iraq	Dhurwat al-Sanam (2005-2005, ar, m)
al Qaeda in Saudi Arabia	Mu'askar al-Battar (2003-2004, ar, m), Sawt al-Jihad (2003-2007, ar, m)
al Qaeda in the Arabian Peninsula	Al-Shamikha (2011-2013, ar, w), Al-Waqi' al-Jihadiyya (2010-2015, ar, m), Hidayyah (2016-2016, ar, m), Ibnat al-Islam (2017-2019, ar, m), Inspire (2010-2017, en, m), Sada al-Malahim (2008-2011, ar, m) [bulletin] Madad (2018-2018, ar, m)
al Qaeda in the Indian Subcontinent	Al-Balagh (2016-2019, bn, m), Hitin (2017-2017, ur, m), Nawai Afghan Jihad (2010-2019, ur, m), Resurgence (2014-2015, en, m) [bulletin] al-Nasr (2018-2018, en, m)
al Qaeda in the Islamic Maghreb	al-Huda (2016-2016, ar, m), al-Jama'a (2004-2006, ar, m), Sada al-Qital (2000-2003, ar, m)
al-Jama'a al-Islamiyya al-Musallaha	Al-Ansar (1993-1997, ar, m)
al-Muhajirun in East Africa	Al-Ghuraba (2015-2016, sw, m)
al-Shabaab	amka (2015-2015, en, m), Gaidi Mtaani (2012-2017, sw, m)

[1] Examples of jihadist newsletters include *Al-Masra* published by al Qaeda in the Arabian Peninsula and *Basha'ir* published by Iraq Resistance Movement.

	[bulletin] Al-Hijrah (2017-2017, en, m), (2019-2019, ar, m)
Ansar al-Islam	Al-Ansar (2010-2012, ar, m), Hasad al-Mujahidin (2005-2010, ar, m)
Ansar al-Sunna	Ansar al-Sunna (2003-2006, ar, m)
Ansar Ghazwat ul-Hind	The Indus (2018-2018, ur, m)
Chechen Jihadists	Sawt al-Qawqaz (2006-2006, ar, m)
Hamas of Iraq	Ruwwad al-Ma'ali (2007-2008, ar, m)
Haqqani network	Manba' al-Jihad (1990-1992, ar, m)
Harakat Ahrar al-Sham al-Islamiyyah	Rabi' al-Sham (2015-2016, ar, m)
Hayyat Tahrir al-Sham	Al-Balagh (2019-2019, ar, m), Sahevh aaba (2018-2018, ar, m)
Islamic Army in Iraq	Al-Fursan (2004-2012, ar, m)
Islamic Emirate of Afghanistan	Al-Somood (2006-2019, ar, m), Shari'at (2012-2018, ur, m)
Islamic Front for Iraqi Resistance	Jami' (2005-2010, ar, m)
Islamic Movement of Uzbekistan	Ghazwa-e-Hind (2011-2011, ur, m)
Islamic State of Iraq and Syria	Al-Malhamah (2017-2017, ar, m), Al Mustaqba (2013-2014, ms, m), al-Waqar (2016-2016, ar, m), Dabiq (2016-2016, de, m), Dabiq (2014-2016, en, m), Dar al-Islam (2015-2016, fr, m), al Fatihin/Fatihin (2016-2016, ms, m), Islamic State Report (2014-2014, en, m), Istok (2015-2016, ru, m), Konstaniniyye (2015-2016, tr, m), Mediaction (2018-2018, fr, m), Rumiyah (2016-2017, de/en/fr/id/ru/ug, m), Sawt al-Sham (2013-2013, ar, m), Uvewivai (2018-2018, ru, m)
Islamic State Indonesia	Baqiyyah (2017-2017, id, m), Generasi (2017-2017, id, m)
Islamic State of Jammu and Kashmir	Al Risalah (2019-2019, en, m), the Voice (2019-2019, en, m)
Islamic State-affiliated group	Hasad al-Jihad (2014-2014, ar, m)
Jabhat Fateh al-Sham	Al-Risalah (2015-2017, en, m), Iyyaha'at Jihadiyyah (2016-2016, ar, m)
Jamiat-e-Islami	Al-Mujahidun (1986-1992, ar, m)
Jaysh al-Islam	Nida al-Masra (2018-2019, ar, m)
Kata'ib Thawrat al-'Ashirin	al-Kata'ib (2005-2015, ar, m)
Lajnat al-Difa' 'an Aqidat Ahl al-Sunna in Palestine	Al-Haqiqa (2007-2016, ar, m)
Minbar Suriya al-Islami	Risalat al-Mujahidin (2005-2005, ar, m)
Naqsbandi Army	Al-Naqshbandiyya (2007-2015, ar, m)
Sipah-e-Sahaba Pakistan	al Rashideen (2013-2013, en, m)
Somali al-Qaeda-affiliate Harakat al-Shabab al-Mujahidin	Millat Ibrahim (2008-2008, ar, m)

Tanzim Huras al-Din	Al-Falah (2019-2019, ar, m)
Tehreek-e-Taliban Islami Pakistan	Azan (2013-2014, en, m), Ihya-e-Khilafat (2011-2017, ur, m), Ihyae Khilafat (2014-2014, en, m), In Fight (2010-2014, en, m), Sunnat-e-Khaula (2017-2017, en, w), Taliban (2016-2018, ur, m)
Tora Bora Front	Tora Bora (2004-2005, ar, m)
Turkistan Islamic Party	Turkistan al-Islamiyya (2008-2019, ar, m)

Note: Publishing time range, language, and the gender of the target audience are noted in the parentheses. ar=Arabic, bn=Bengali, en=English, fr=French, de=German, id=Indonesian, ms=Malay, ru=Russian, sw=Swahili, tr=Turkish, ug=Uighur, ur=Urdu; m=target men, w=target women.

To put all magazine content in a ready-to-analyze format, I use Optical Character Recognition (OCR), a machine learning program, to digitize the entire magazine archive. For each page like the one depicted in Figure A1, OCR identifies word chunks and recognizes each word using pre-trained neural networks. I specify the language, Arabic, for example, and then the machine recognizes the words, returning plain text. The resulting text is almost always identical to what is in the original documents. I have applied this technique for approximately 60,000 pages in total.

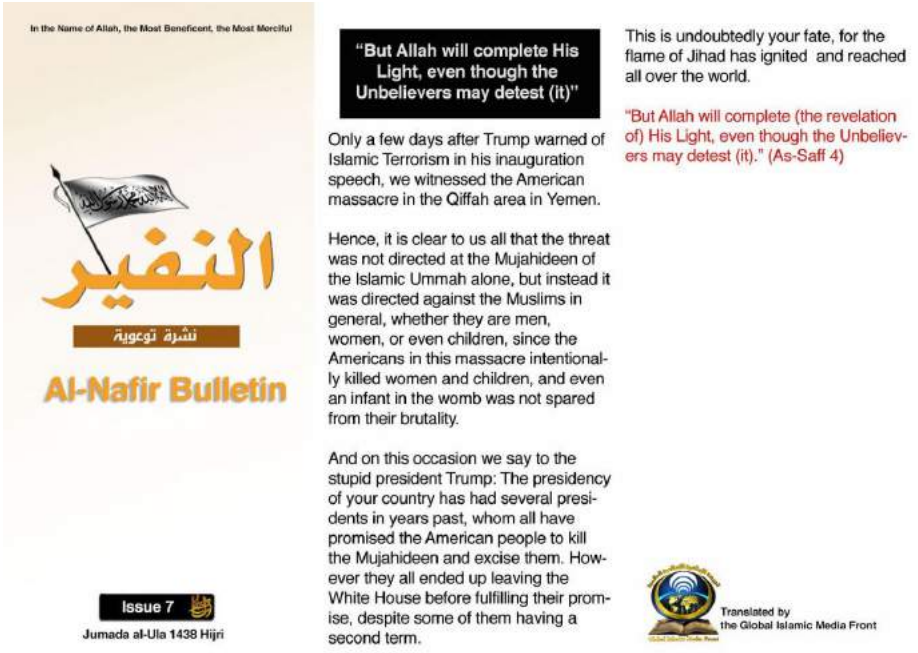
Figure A1: Workflow of Optical Character Recognition (OCR)

Next, I translated all the non-English pages into English using the *Google Cloud Translation* application programming interface (API). This translation approach has been the most prevalent in cross-country and/or multi-language studies (e.g. Lucas et al., 2015). Below I include an example of translated text for readers to qualitatively assess the performance of Google Translation. In February 2017, al Qaeda released the seventh issue of its bulletin,

Al-Nafir, in both Arabic and English. Figure A2 presents this bulletin in both languages, where the English version serves as an ideal translation of the Arabic version.

Figure A2: Bulletin Published in both Arabic and English

(a) Arabic Version

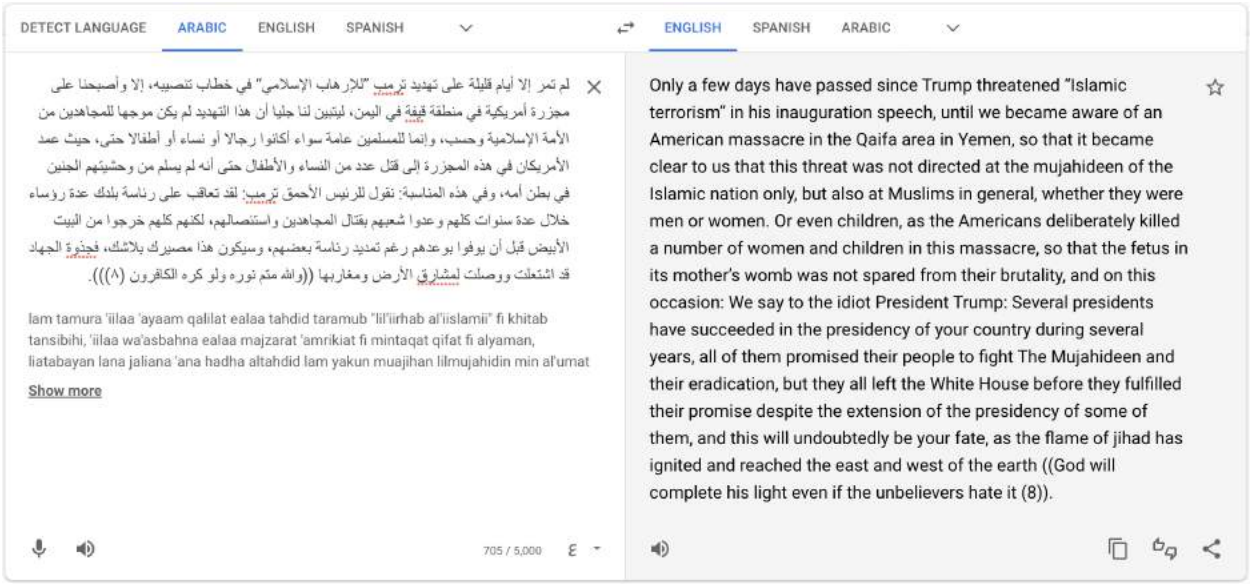


(b) English Version

Note: Al-Nafir issue 7 is published in both Arabic and English. Generally, it is uncommon for jihadi groups to release the same propaganda materials in different languages.

I directly paste the word chunk detected by OCR from Figure A2 (a) into Google Translation. As shown in Figure A3, Google translation largely preserves the meaning of the original text. The content in Figure A3 reads very similar to that in Figure A2 (b).

Figure A3: Example of Google Translation



Note: The English translation generated by Google reads very similar to the English bulletin released by al Qaeda (Figure A2 (b)).

A1.2 Descriptive Analysis

The jihadi periodical database is novel to academic studies. My extensive in-depth reading suggests that these magazines cover a wide range of topics. To quickly familiarize the readers with this textual corpus, I now conduct a descriptive analysis. I use a topic model—an unsupervised probabilistic machine learning method designed to explore a large textual corpus—to preliminarily explore and summarize all magazine pages. With all languages translated into English, I fit the entire textual corpus into a structural topic model (STM) (Roberts et al., 2014). One advantage of STM over other topic modeling strategies, such as Latent Dirichlet allocation (LDA), is that it is able to account for the covariates while discovering the topics. In my case, I estimate a model with 70 topics ($k = 70$), specifying the magazine name as the prevalence covariate (i.e., different magazines may favor different topics disproportionally) and the language as the content covariate (i.e., the word choices for a given topic may be different in different original languages). The number of topics, 70, was selected based on held-out likelihood. I fit several STMs with the number of topics being 50, 55, 60, 65, ..., 105, 110, 115, 120. Each time, I randomly held out 50% of the tokens (or words) from 10% of the documents and then use the estimated result to make predictions for these held-out documents as a way to assess the quality of the topic model. The choice of $k = 70$ yields the most accurate out-of-sample prediction, and thus this result is presented

here.

I manually labeled all 70 topics by carefully reading the top 20 high probability words associated with each topic, the top 20 frequent and exclusive words, and the top 50 representative magazine pages. Figure A4 shows the 20 most prevalent topics in these magazines.[2] The most common topic is worship and religious obligations, which is not surprising given the religious nature of jihadi groups. Apart from directly talking about religion, these groups incorporate a wide range of topics in their propaganda: political outlook, eloquent stories, psychological care, etc.

It is worth noting that topics and rhetoric are two distinct ways of conceptualizing these magazines' content. Theoretically, the same topic can be discussed either in more religious rhetoric or in more secular rhetoric. In Figure A4, I highlight in different colors the most common rhetoric used for each topic based on my own qualitative reading. Most of these topics are a mixture of religious and secular rhetoric. In most cases, it is impossible to infer the rhetoric in a magazine page only based on its topic composition. Because, in this study, I am most interested in the "religious vs. secular" rhetoric of jihadists' propaganda materials, I primarily choose a dictionary method to measure rhetoric. I detail this method in the next section.

A2 Measuring Ideological Appeals and Validation

A2.1 Measuring Ideological Appeals with Customized Dictionary

A primary task of this study is to measure jihadi groups' ideological appeals on a "religious vs. secular" spectrum. As explained in the main manuscript, I developed a customized dictionary around three fundamental questions delineating the boundaries between "religiosity" and "secularism": (1) What is the ideal social order?; (2) How should individuals behave?; and (3) Why should people participate in jihad? In Table A2, I detail several dimensions of each of these three umbrella questions and present example words in parentheses.

Table A2: Codebook

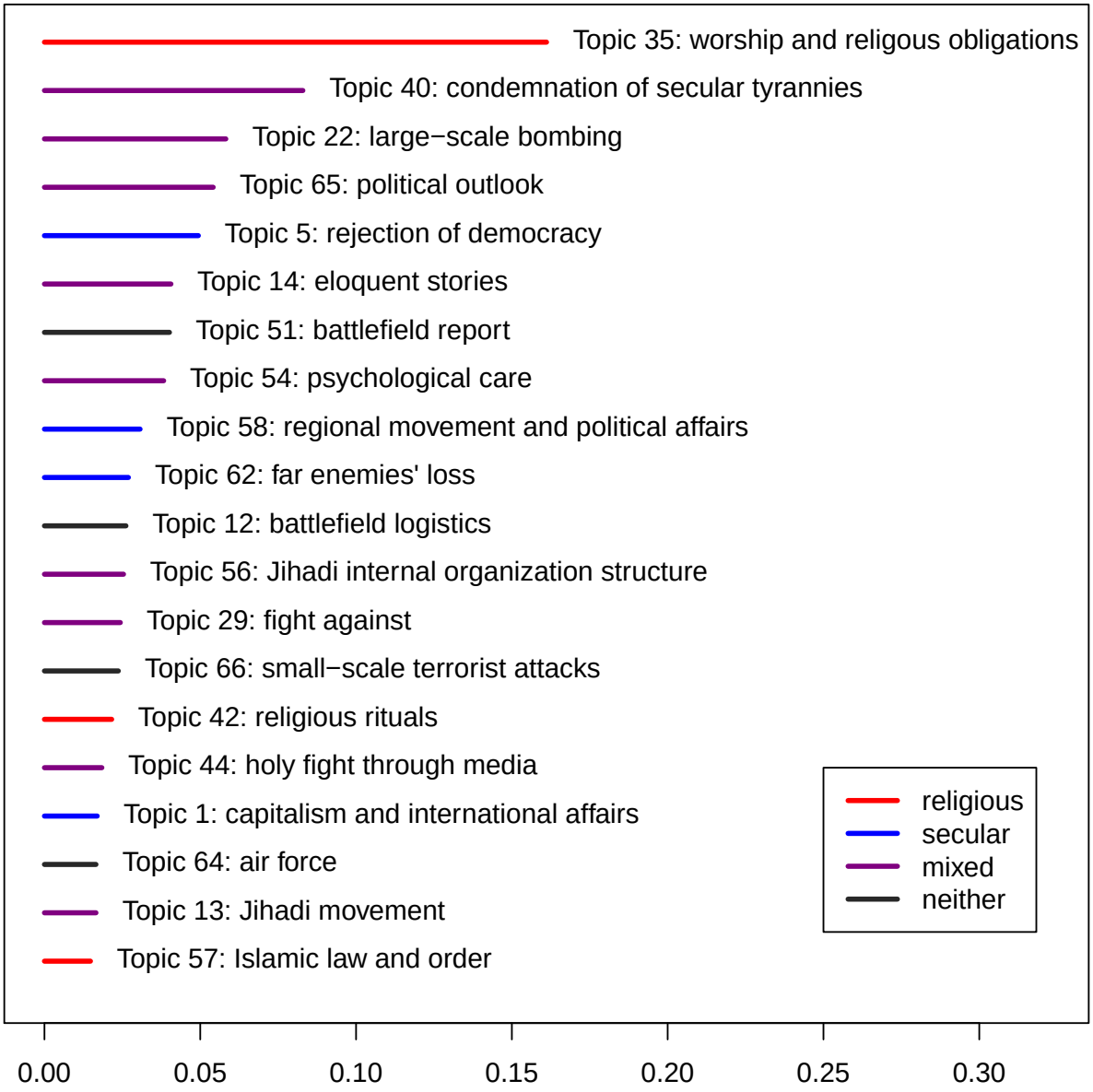
Religiosity	**Secularism**
(1) What is the ideal social order?	
divine power (god, prophet, companions, etc.)	humanized political power (congress, court, judiciary, etc.)
religious leaders and their titles (imam, khatib, mawlawi, etc.)	secular leadership positions (president, mayor, administrations, etc.)
in-groups or out-groups defined by religious beliefs (christian, infidel, heresy, etc.)	in-groups or out-groups defined by secular identities (foreigners, allies, diplomats, etc.)
the transnational Islamic caliphate and its constitutional base (caliphate, umayyad, sharia, etc.)	any secular political institutions (government, democracy, dictatorship, etc.)

[2]Topics where the top words are not semantically coherent have been excluded.

the Muslim community not defined by territory (ummah)	territory or territorial ambition (territory, borders, autonomy, etc.)
ideology or philosophy defined by religion (monotheism, paganism, polytheism, etc.)	ideology or philosophy not defined by religion (imperialism, globalism, marxism, etc.)
different sectors of Islam (shafi, hanafi, maliki, hanbali, shia, etc.)	different components of secular nation-states, particularly Western nation-states (citizenship, election, referendum, etc.)
	icons of capitalism (bankruptcy, commercial, industry, marketing, etc.)
religious classics (quran, hadith, fatwa, etc.)	modern education (college, university, faculty, etc.)
religious taboos and punishment (apostasy, taghut, takfir, etc.)	social regulations and control over individuals (tax, censorship, surveillance, etc.)
(2) How should individuals behave?	
religious practices (asceticism, pray, fasting, etc.)	political obligations and rights of the public (vote, ballot, disenfranchised, etc.)
Islamic conventions and cultural rituals (halal, hijri, fasting, etc.)	secular activities (funding, payments, experiment, etc.)
objects conveying a strong religious meaning (taj, hijab, burqa, etc.)	objects exclusively in secular life, particularly those associated with modern technology (technology, internet, bitcoin, etc.)
fundamentalist requirements for women and regulations on family life (chastity, womb, talaq, etc.)	reference to human rights, particularly women rights (feminist, rights, humanitarian)
values showing respect to god (loyalty, obedience, taqwa, takbir, etc.)	values attached to human welfare and individual happiness (equality, freedom, liberal, independence, etc.)
(3) Why should people participate in jihad?	
benefits in the afterlife (paradise, immortal, shaheed, martyrdom, etc.)	benefits in the current life (salary, compensation, oil, cash, etc.)
individuals' spiritual pursuits (soul, blessings, fulfillment, etc.)	groups' organizational needs (mobilization, recruitment, budget, etc.)
existing violation of religious rules (adultery, forbidden, etc.)	social problems in secular societies (bribe, crisis, racism, etc.)
names of major religious sites (jerusalem, mecca, etc.)	names of major secular countries (america, britain, etc.)
ultimate religious goals (pilgrimage, caliphate, etc.)	strategic statements and reasonings (analyze, plan, spy, strategy, etc.)

Note: Different forms and alternative spellings have been taken into consideration. I manually went through each word that appears more than 30 times in the entire textual corpus and decided whether it can be used to distinguish rhetoric.

Figure A4: Top 20 Topics Estimated from a Structural Topic Model

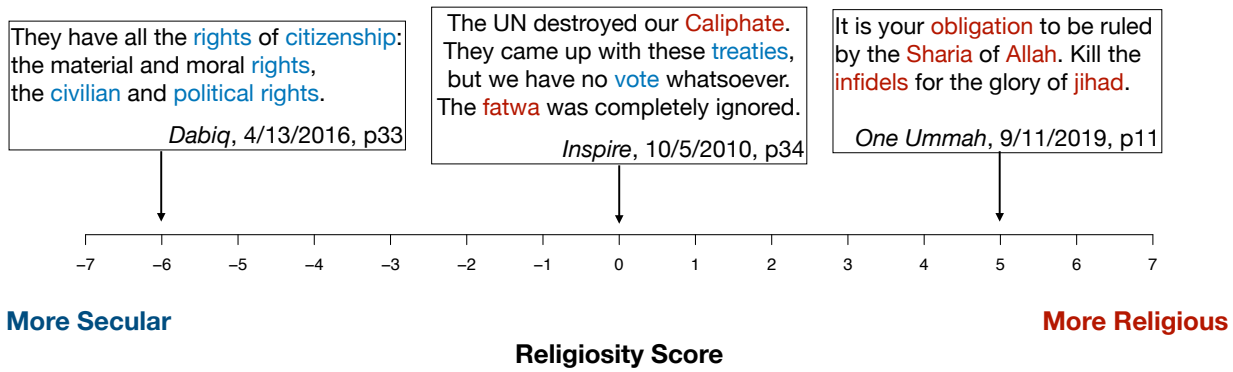


Note: Religious rhetoric does not necessarily cluster into the same topics, neither does secular rhetoric. Most topics are a mixture of both.

With this codebook, I manually went through each word that appears more than 30 times[3] in the entire textual corpus and categorized each word as "religious", "secular," or "neither"—with the last one being the modal category. For example, while talking about women issues, both religious rhetoric and secular rhetoric could refer to the words like "childbirth" and "breastfeeding," and thus neither word is included in the dictionary. The items (in correspondence with the rows) in the codebook are not mutually exclusive. For example, the word "paradise" could partly define the "ultimate religious goals" and simultaneously describe "benefits in the afterlife." While categorizing keywords, I take into account different forms and alternative spellings (e.g., "political" and "politics" are both used as secular keywords; "hadith" and "hadeeth" are both used as religious keywords.) There are exceptions where I define certain forms of words as part of the dictionary but not other forms. For example, "fasting" (i.e., abstaining from food and drink from dawn to dusk during the holy month of Ramadan) is coded as a religious keyword but its verb form, "fast," is not because the latter is more often used as an adjective to describe the speed. More importantly, I intentionally exclude violence/conflicted-related keywords, such as "battles," "blood," "bombing," "causalities," and "ceasefire," from either category to avoid bias in results because the main explanatory variable, military power, is measured by violent attacks.

Using all the identified keywords, I place each document along a "religious vs. secular" spectrum by counting the number of keywords each document contains. Although the unit of analysis in the paper is a magazine page, I only present some example sentences in Figure A5 for illustration purposes due to the limited space. Figure A6 conceptually shows how I arranged the magazine pages based on their religiosity score, and the full content of these materials will be included in the replication materials.

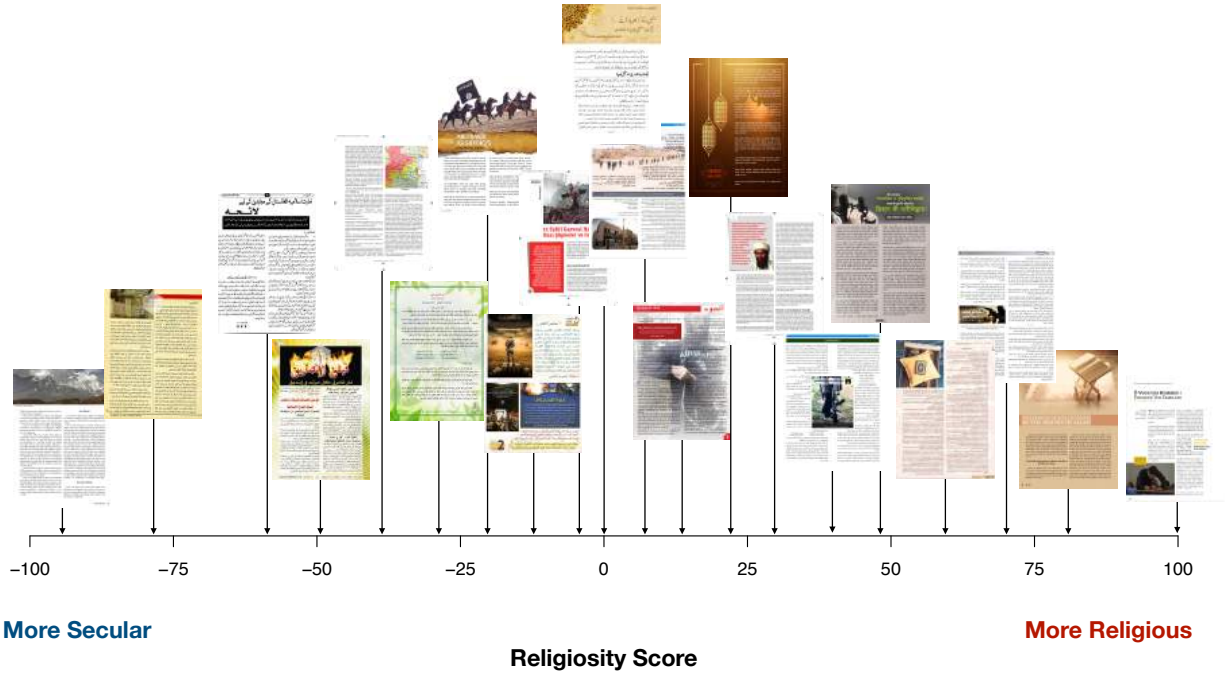
Figure A5: Placing Example Documents along a "Religious vs. Secular" Spectrum



Note: The magazine pages examined in the paper are longer than these examples and will be submitted with the replication materials.

[3]This threshold results in approximately 26,000 words. Words with a frequency lower than 30 are too rare to be considered as part of the dictionary.

Figure A6: Placing Magazine Pages along a "Religious vs. Secular" Spectrum



Note: Magazine page is the main unit of analysis in this paper.

A2.2 Validation

Using the above customized dictionary, I calculate a *Religiosity Score* for each magazine page, which is simply the difference between the number of religious keywords and the number of secular words that page contains. It is important to ensure that this measure captures jihadi groups' ideological strategy as reflected in their magazine pages. I validate this measure using different approaches that complement one another.

Face Validation: As a face validation, I first compare religiosity scores across Western (English, French, German, Russian) and non-Western languages (Arabic, Bengali, Indonesian, Malay, Swahili, Turkish, Uighur, Urdu). On average, non-Western languages more frequently refer to the divine power than Western languages. Therefore, I expect a higher average religiosity score in the former than in the latter, which is confirmed by Table A3.

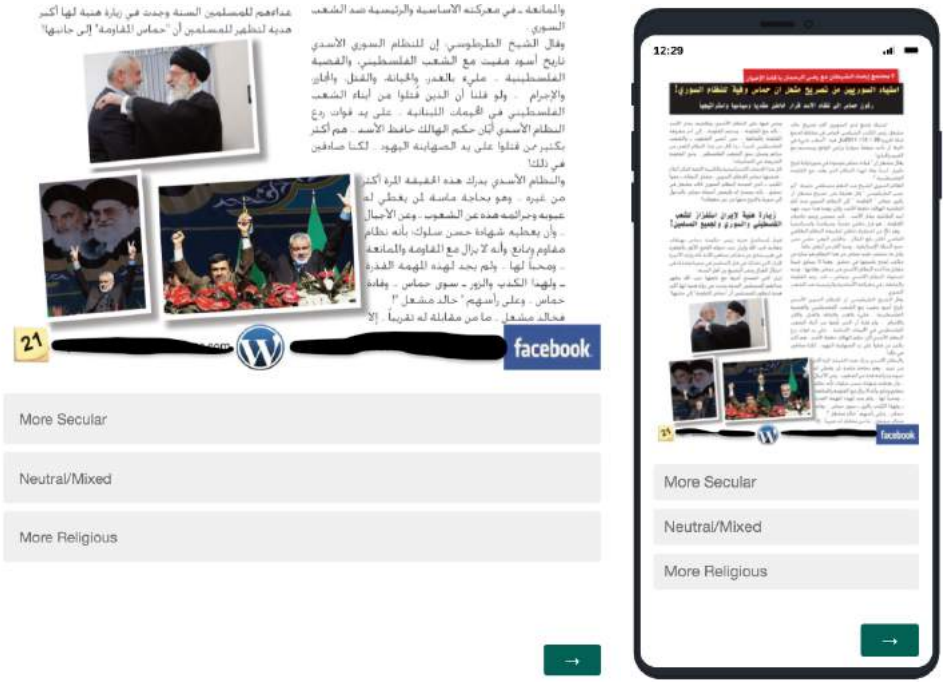
Table A3: Religiosity Score in Western and Non-Western Languages

Non-Western Languages	Western Languages
5.328356	-1.192976

Human Expert Coding: To further validate the measure and ensure that the meaning of the text is retained after the ORC and translation processes, I compare the machine-generated results with human judgments as they read the *original* magazine pages. First of all, I converted the continuous indicator, *Religiosity Score*, into three rough categories: more religious (score ≥ 10); more secular (score ≤ -10); and neutral/mixed ($-10 <$ score < 10). I then built a validation system through Qualtrics, an online survey platform, where I showed a research assistant randomly selected magazine pages—one page at a time—and asked her to categorize this page as more religious, more secular, or neutral/mixed. The research assistant is a graduate student from a US academic institution and is fluent in both English and Arabic. Figure A7 shows screenshots of this validation system.

In total, the research assistant manually categorized a random sample of 250 magazine pages. The machine-classified categories align with the human judgments 92.8% (232 out of 250) of the time, which is considerably high. Importantly, inconsistency almost only occurs when a neutral/mixed category is involved. That is, the human coder might code a magazine page scored -9 as more secular, whereas the machine-generated category is neutral/mixed due to the arbitrary cutoff. In cases like this, the human and machine codings are very close. This result thus gives me more confidence in my measure.

Figure A7: System to Validate the Ideological Measure with Human Experts



(i) Webpage View (ii) Mobile View

Note: The research assistant can scroll up and down with the webpage view. The contact information of the jihadi group in this example has been masked.

Semi-supervised Machine Learning: While human judgments are always the guidelines for machines, human coders are only able to categorize but not scale documents. The *Religiosity Score* measure used in this study, however, is continuous and more fine-grained

than the three categories. This gap leaves more questions: Are the selected keywords reasonable? What if I incidentally specified some keywords in the dictionary that do not convey religious or secular connotations? To address these concerns, I further validate the measure using a semi-supervised machine learning algorithm. The primary goal here is to confirm that the religious keywords specified in my documents are indeed religious because they often co-occur with other religious keywords, and the same is true for secular keywords.

Specifically, I adapted a semi-supervised keyword-based algorithm from King, Lam and Roberts (2017) to discover keywords from the corpus based on only a few pre-specified seed words. These seed words are relatively unambiguous.[4] The algorithm then discovers more words associated with these keywords in an iterative manner. This process is summarized below in seven steps. Colored text indicates modifications made to King, Lam and Roberts (2017).

1. Define initial religious keywords K_R and Secular keywords K_S. Calculate a religiosity score for each document i: $\text{score}_i = (|n_i \in K_R| - |n_i \in K_S|)/n_i$.

2. Define a religious set R, a secular set S, and a middle ground M, where $i \in R$ if $\text{score}_i < 0$, $i \in S$ if $\text{score}_i > 0$, and $i \in M$ if $\text{score}_i = 0$.

3. Train several classifiers (Naive Bayes, Nearest Neighbor, Logit, SVM, and LDA) using the religious set R ($i \in R$ if $\text{score}_i < 0$) and the secular set S ($i \in S$ if $\text{score}_i > 0$) where the outcome y_i is set membership.

4. Use parameters from these classifiers to partition the middle ground M ($i \in M$ if $\text{score}_i = 0$) into R' and S'.

5. Rank keywords in $R \cup R'$ by a statistical likelihood score:

$$p(y_1, ..., y_n|k) \propto \frac{\Gamma(n_{k,R\cup R'} + 1)\Gamma(n_{k,S\cup S'} + 1)}{\Gamma(n_{k,R\cup R'} + n_{k,S\cup S'} + 2)} \times \frac{\Gamma(N_{R\cup R'} - n_{k,R\cup R'} + 1)\Gamma(N_{S\cup S'} - n_{k,S\cup S'} + 1)}{\Gamma(N_{R\cup R'} - n_{k,R\cup R'} + N_{S\cup S'} - n_{k,S\cup S'} + 2)},$$

   Do the same for $S \cup S'$. which measures how well the keywords discriminates $S \cup S'$ from $R \cup R'$.

6. Present the two ordered lists, $K_{R\cup R'}$ and $K_{S\cup S'}$, to human readers, whose job is to keep the relative keywords.

7. Update K_R and K_S. Repeat 2-6.

[4]The religious seed words are "afterlife," "shariah," "messenger," "messengers," "fatwas," "prophet," "praise," "prayers," "prayer," "quran," "jihad," "lord," "allah," "almighty," "muhammad," "peace," "islam," "blessed," "blessing," "blessings," "religion," and "riddah," The secular seed words are "strategy," "government," "politician," "politicians," "economy," "finance," "financial," "humanity," "humanitarian," "rights," "citizenship," "education," "policy," "democracy," "democratic," "democratically."

As suggested in King, Lam and Roberts (2017), a researcher would repeat steps 2-6 until satisfied. In my study, I am able to recover around 90% of the keywords in my dictionary within only 8 iterations. In other words, the algorithm soon yields a dictionary that is very similar to my completely theory-driven dictionary. This means that the religious keywords in my dictionary are semantically coherent with one another, and the secular keywords as well. I am thus confident that the *Religiosity Score* used in this project is a valid measure.

A3 More on Internal Documents

In the main manuscript, I collected jihadi groups' internal documents as counterfactuals to their public propaganda. This data comes from the Harmony project (`https://ctc.usma.edu/harmony-program/`). As Figure A8 depicts, these documents are *plain* text without any layout designs because they are not intended for public audiences. Regarding the content, most of these documents are letters to group leaders, correspondence between organizational units, and administrative documents addressing a variety of organizational issues. These topics are comparable to those in the magazines. The analyses in this paper are based on the English versions of these documents translated by the Harmony project. I also hand-coded the covariates, such as the responsible group and the publication date based on Harmony's descriptions.

Figure A8: Examples of Internal Documents

بسم الله الرحمن الرحيم

إلى الأخ العزيز والصديق الحبيب والسيد الشهم النبيل أبي مصعب حفظه الله ورعاه وسدد خطاه، ورفع في الدارين درجته وأكرم مثواه، من أخيه المحب عطية عفا الله عنه.

الحمد لله حق حمده، والصلاة والسلام على محمد عبده ورسوله وعلى آله وصحبه وجنده.

وبعد: السلام عليكم ورحمة الله وبركاته

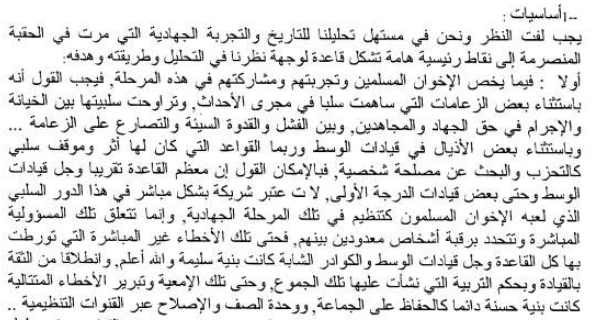
نسأل الله أن تكونوا بخير وعافية ممتعين بالقوة ممدودين بالتوفيق من المولى القدير عز وجل.

ونسأله تعالى لكم النصر على الأعداء وأن يربط على قلوبكم ويثبت أقدامكم ويمدكم بمدد من عنده وينزل عليكم وعلى سائر إخوانكم ممن قبلكم السكينة ويغشيكم الرحمة ويكون لكم عونا ونصيرا، إنه نعم المولى ونعم الوكيل.

أخي العزيز// سأختصر الكلام اختصار وأتوكل على الله تعالى ثم أثق في سعة صدرك وعلوّ كعب أخلاقك، وصدق محبتك لي وحسن ظنك فيّ، وثقتي أنك تسدّ الخلل وتستر العيب والزلل، وتغضي إن بدر من أخيك ما لا يليق، وأشرع في المقصود متجاوزا العمومات والإجمالات إلى التفاصيل والجزئيات، وعلى الله قصد السبيل، ومنه أستمد العون والتسديد، وما توفيقي إلا بالله عليه توكلت وإليه أنيب.

أخي الحبيب السعيد إن شاء الله أبا مصعب الخير وفقه الله// يعلم الله كم نظن فيك الخير وكم نحن واثقون فيك وفي دينك وإخلاصك نحسبك كذلك والله حسيبك، وأنت خيرٌ منه، سبقت ووقيت وما ترددتَ ولا توانيتَ ولا ألقيت السلاح، بل واصلت في الله الجهاد والكفاح، حباك الله بصفات طيبة وأنعم عليك بخلال كريمة: من صدق التوجّه والحرقة على الدين والتأثر بمصاب أهله والنجدة لهم، والهمة العالية في القيام بما تراه الحق والصواب وإن خالفتك الدنيا كلها، قوة إرادة وعزيمة يفتقدها الكثير من الخلق حتى من أهل الصلاح والعلم منهم، وشجاعة وصدق نحسبك كذلك، وغير ذلك من محاسن الأخلاق والشيم، مع حسن الديانة، نحسبك كذلك، فهذا ظني فيك ما تبدّل وما تغيرّ، ولقد عرفتُ الناس وبلوتهم، فلا يكاد يخفى عليّ الناجحة المستأجرة من الثكلى إلا ما شاء الله، ولستُ هنا أزكيك فأنت أدرى بنفسك وبعيوبك ونفسك أيها العبد أكثر من أي أحد، ولكني أذكرك بنعم الله عليك وما رهبك مما عرفناه نحن، وأحمل ذلك توطئة لما سأقوله لك من الرأي والنصيحة والتوجيه، فإن حديثي سيكون في غالبه عن السلبيات والتحذير من المهلكات المفسدات، ولن أتعرّض للإيجابيات والحسنات فهي الأصل ولله الحمد والمنة وهي الأكثر الغالب بفضل الله، فلا تجدن في نفسك من ذلك، فإن المقام مقام تصحيح وتوجيه ونقد، لا مقام تقييم ولا مدح وترجمة، ولو شاء الله

(i) 'Atiyah's Letter to Zarqawi



--أساسيات:

يجب لفت النظر ونحن في مستهل تحليلنا للتاريخ والتجربة الجهادية التي مرت في الحقبة المنصرمة إلى نقاط رئيسية هامة تشكل قاعدة لوجهة نظرنا في التحليل وطريقته وهدفه:

أولا : فيما يخص الإخوان المسلمين وتجربتهم ومشاركتهم في هذه المرحلة, فيجب القول أنه باستثناء بعض الزعامات التي ساهمت سلبا في مجرى الأحداث, وتراوحت سلبيتها بين الخيانة والإجرام في حق الجهاد والمجاهدين, وبين الفشل والقدوة السيئة والتصارع على الزعامة ... وباستثناء بعض الأذيال في قيادات الوسط وربما القواعد التي كان لها أثر وموقف سلبي كالتحزب والبحث عن مصلحة شخصية, فبالإمكان القول إن معظم القاعدة تقريبا وجل قيادات الوسط وحتى بعض قيادات الدرجة الأولى, لا ت عتبر شريكة بشكل مباشر في هذا الدور السلبي الذي لعبه الإخوان المسلمون كتنظيم في تلك المرحلة الجهادية, وإنما تتعلق تلك المسؤولية المباشرة وتتحدد برقبة أشخاص معدودين بينهم, فحتى تلك الأخطاء غير المباشرة التي تورطت بها كل القاعدة وجل قيادات الوسط والكوادر الشابة كانت بنية سليمة والله أعلم, وانطلاقا من الثقة بالقيادة وبحكم التربية التي نشأت عليها تلك الجموع, وحتى تلك الإمعية وتبرير الأخطاء المتتالية كانت بنية حسنة دائما كالحفاظ على الجماعة, ووحدة الصف والإصلاح عبر القنوات التنظيمية ..

ولقد كانت معظم القواعد وكثير من قيادات الوسط لا تدري ما يدور في القيادة وما يخطط, وكانت جاهلة بكثير من الأمور وعدت في آخر من يعلم حتى جاءت مأساة حماة, فكشفت التعفنات كلها دفعة واحدة وحصل الانفجار ... ولهذا لا بد من الإشارة إلى براءة إخواننا أولئك في قواعد الإخوان إجمالا وبعض قياداتهم الوسط وربما بعض رجال الطبقة الأولى من الطيبين, لاسيما في مواقع الرباط (العراق- الأردن). بل ولا بد من الإشارة إلى أن قواعد الإخوان وقيادات الوسط والكوادر الشابة أفرزت قيادات ميدانية وكوادر مدربة شاركت في العمل الجهادي بكل أبعاده مشاركة فعالة, وتركت لنا تراثا من التجارب في الإعداد والبرامج والعمل العسكري لا يقل

(ii) Lessons Learned from the Jihad Ordeal in Syria

Note: Excerpts from two internal documents. These documents are plain text without any layout designs.

In Figure 4 in the main text, we show that the negative association between military power and religious rhetoric is significant in groups' public propaganda but not in their non-public documents. Table A4 here provides the table upon which Figure 4 is based.

Table A4: Contrasting the Effects Estimated from Leaked Internal Documents and Magazines

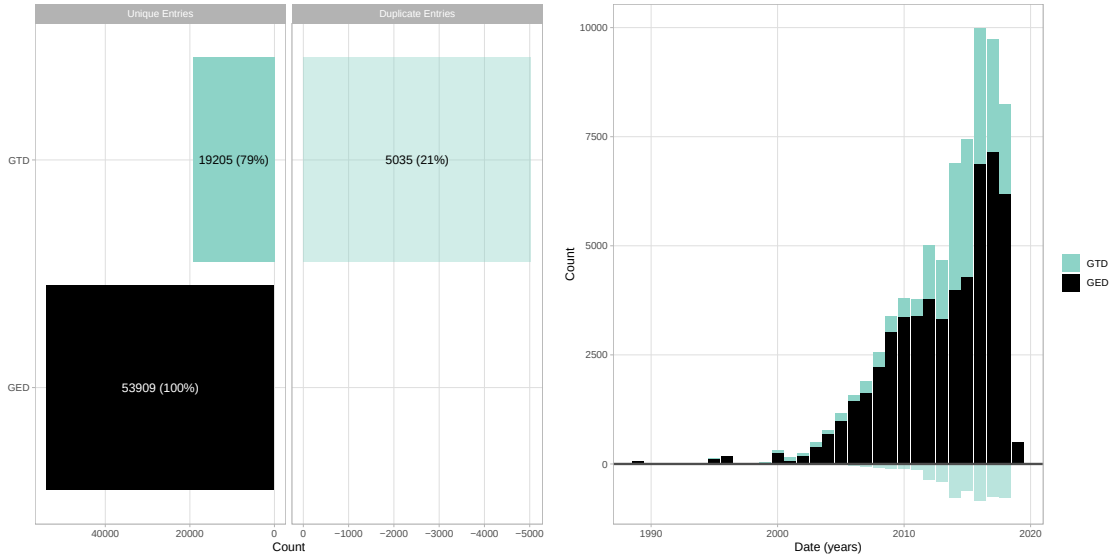
	Dependent variable:	
	Religiosity Score in	
	Leaked Internal Documents	Magazines
	(1)	(2)
Total Violent Events (log)	−0.342	−0.721**
	(0.633)	(0.226)
Constant	−5.146**	8.041**
	(1.248)	(1.201)
Observations	151	492
R^2	0.002	0.020
Residual Std. Error	918.587 (df = 149)	2,173.210 (df = 490)
F Statistic	0.291 (df = 1; 149)	10.128*** (df = 1; 490)
Note:		*p<0.05; **p<0.01

A4 Measuring Military Power

In this project, military power is measured by both jihadi groups' battlefield performance and their territorial control. To gain more comprehensive information on each group's military activities, I use the algorithm and the corresponding software (i.e., the R package, `MELTT`) provided by Donnay et al. (2018) to combine violent records from different data sources. Figure A9 shows the descriptive statistics of the merged violent records. We see that GED and GTD each contribute a unique set of events. The area on the right in subfigure (i) and the bars below the x-axis in subfigure (ii) indicate duplicated events. There aren't many duplicated events, which is expected because different databases emphasize different military activities. For example, GED only counts violent events during large-scale civil conflicts with more than 25 battle deaths, while GTD focuses on a greater variety of terrorist attacks. Noticeably, more events come from GED than GTD because most jihadi groups concerned in this paper come from the "civil war" zones. Based on these merged records, I further construct three metrics for each group within each specified time window (e.g., 60 days): *Total Violent Events*, *Total Deaths*, and *State-based Battles*. These variables capture the military power of each group.

For ISIS, I further collect its territorial control data from `liveuamap.com` apart from its battlefield performance. This website is a crowdsourcing platform with the most disaggregated records of violent groups' territorial control. As depicted in Figure A10, the ISIS territorial sizes vary over time. Using Geographic Information System (GIS), I quantify the area controlled by ISIS on a daily basis.

Figure A9: Violent Records from Different Sources

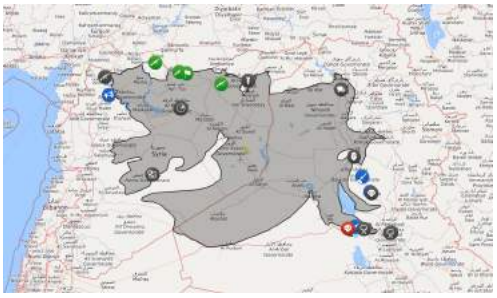


(i) (ii)

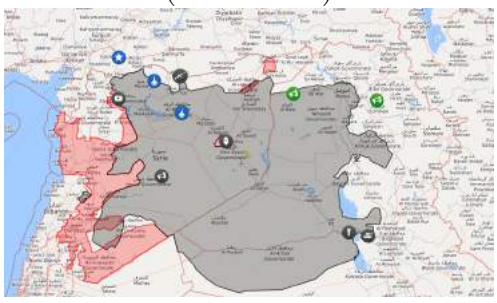
Note: Combining violent records from GED and GTD.

Figure A10: Online Map of ISIS Territorial Control

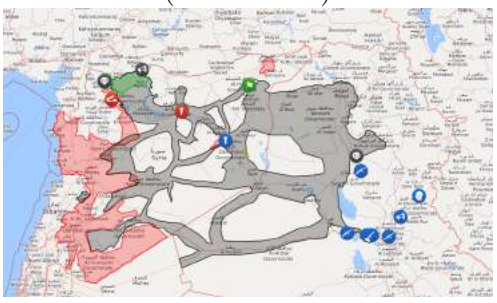
(2015-05-01)



(2015-06-01)



(2015-07-01)



(2015-08-01)

Note: The ISIS territorial sizes vary over time.

A5 Sensitivity Analyses and Robustness Checks (Magazines)

In this section, I conduct a series of sensitivity analyses and robustness checks for the studies of jihadi magazines in the main manuscript. First of all, Table A5 replicates the analyses in Table 1 in the main manuscript but extends the window of battlefield events from 60 days to 90 days. The direction and significance of all coefficients in this table are the same as what is in the main manuscript. This pattern indicates that my results are not driven by the arbitrary decision of choosing time windows when counting battlefield events.

Table A5: Military Power and Religiosity Score in Magazines (90-day window)

	Religiosity Score					
	(1)	(2)	(3)	(4)	(5)	(6)
Total Violent Events (log)	−0.78*	−0.64*				
	(0.14)	(0.31)				
Total Deaths (log)			−0.61*	−0.56*		
			(0.11)	(0.22)		
State-based Battles (log)					−0.86*	−0.67*
					(0.14)	(0.32)
Front Page	−1.95*	−2.31*	−1.96*	−2.31*	−1.95*	−2.31*
	(0.32)	(0.32)	(0.32)	(0.32)	(0.32)	(0.32)
Total Issue	−0.03*	−0.03	−0.03*	−0.03	−0.03*	−0.03
	(0.01)	(0.03)	(0.01)	(0.03)	(0.01)	(0.03)
Target Women	0.94	1.23	0.93	1.30	1.12	1.35
	(1.36)	(1.99)	(1.37)	(1.95)	(1.35)	(1.99)
Group Fixed Effects	No	Yes	No	Yes	No	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Language Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.09	0.13	0.09	0.13	0.09	0.13
Observations	55477	55477	55477	55477	55477	55477

Robust standard errors clustered at the issue level. $^{*}p < 0.05$

Next, I aggregate the magazine page level data up to the magazine issue level. The *Religiosity Score* variable is now the average religiosity score across all pages in a given magazine issue. Table A6 shows that the results are again robust.

Table A6: Military Power and Religiosity Score in Magazines (Aggregated at the Issue Level)

	Religiosity Score					
	(1)	(2)	(3)	(4)	(5)	(6)
Total Violent Events (log)	−0.70*	−0.64*				
	(0.13)	(0.28)				
Total Deaths (log)			−0.53*	−0.59*		
			(0.10)	(0.20)		
State-based Battles (log)					−0.77*	−0.59*
					(0.13)	(0.29)
Total Issue	−0.04*	−0.05	−0.04*	−0.05	−0.04*	−0.05
	(0.01)	(0.03)	(0.01)	(0.02)	(0.01)	(0.03)
Target Women	0.40	1.30	0.39	1.39	0.56	1.28
	(1.29)	(1.50)	(1.29)	(1.46)	(1.30)	(1.51)
Group Fixed Effects	No	Yes	No	Yes	No	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Language Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.37	0.59	0.37	0.59	0.37	0.59
Observations	1072	1072	1072	1072	1072	1072

Robust standard errors clustered at the issue level. $^{*}p < 0.05$

I also replicate the main analyses using magazines published only in non-Western languages (i.e., Arabic, Bengali, Indonesian, Malay, Swahili, Turkish, Uighur, and Urdu). The goal of this analysis is to address the potential concern that magazines published in Western (i.e., English, French, German, and Russian) languages might be driving the results. Table A7 shows that it is not the case and the results are robust when only using languages from the non-Western world.

Table A7: Military Power and Religiosity Score in Magazines (Only Languages from the Non-Western World)

	Religiosity Score					
	(1)	(2)	(3)	(4)	(5)	(6)
Total Violent Events (log)	−1.29*	−1.25*				
	(0.15)	(0.41)				
Total Deaths (log)			−0.98*	−1.11*		
			(0.12)	(0.29)		
State-based Battles (log)					−1.35*	−1.32*
					(0.15)	(0.42)
Front Page	−2.30*	−2.61*	−2.29*	−2.60*	−2.30*	−2.60*
	(0.34)	(0.34)	(0.34)	(0.34)	(0.34)	(0.34)
Total Issue	−0.01	−0.07	−0.01	−0.07	−0.00	−0.07
	(0.01)	(0.05)	(0.01)	(0.05)	(0.01)	(0.05)
Target Women	1.23	0.20	1.14	0.43	1.46	0.38
	(1.48)	(2.00)	(1.49)	(1.92)	(1.48)	(2.02)
Group Fixed Effects	No	Yes	No	Yes	No	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Language Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.06	0.09	0.06	0.09	0.06	0.09
Observations	42731	42731	42731	42731	42731	42731

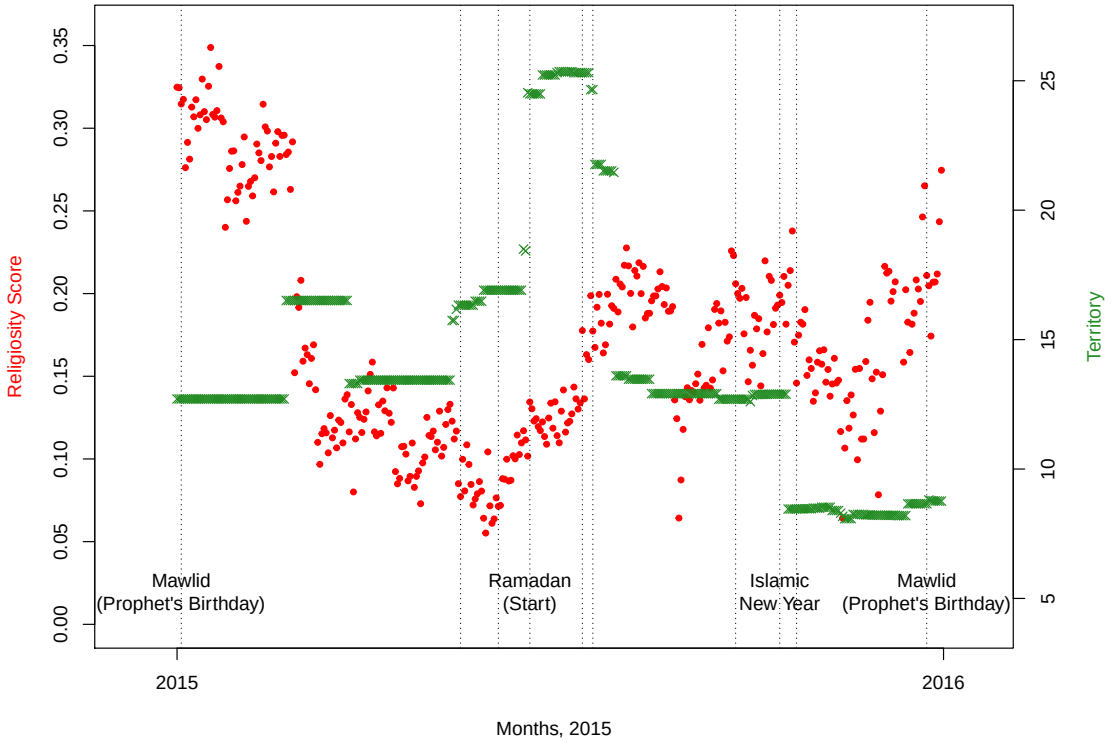
Note: Robust standard errors clustered at the issue level. $^*p < 0.05$

A6 More on the ISIS Twitter Data

Figure A11 shows (in red) the average religiosity scores of the tweets by date throughout 2015. Overall, these scores present a substantial variance across time. I also plot the change of territorial control in the same figure. Just by telling from the raw data, we can see that territorial control indicating military power is negatively correlated with religiosity score indicating ideological appeals.

Major Islamic holidays are marked with vertical dotted lines. We can see small spikes around each of these holidays. This pattern provides a face validation of the measure as we would expect that people refer to the god, prophet, and religious leaders more often around these religious events.

Figure A11: Religiosity Scores on Twitter and Group Power Indicated by Territory Control



Note: Both religiosity score and territorial control are displayed on a daily basis. Islamic holidays are marked with dotted lines and the three major ones are noted in text.

A7 Sensitivity Analyses and Robustness Checks (Twitter)

In the main manuscript, ISIS's military power is primarily measured by its territorial control. Here I present an alternative measure using its battlefield performance as was used in the analyses with jihadi magazines. As shown in Table A8, results are robust to this alternative measure.

Table A8: Group Power (Alternative Measure), Mobilization, and Religiosity Score

	Dependent variable:		
	Religiosity Score	Mention Non-member	Religiosity Score
	(1)	(2)	(3)
Mention Non-member			−0.515**
			(0.017)
Total Violent Events	−0.001**	0.0001**	−0.001**
	(0.0003)	(0.00005)	(0.0003)
Religiosity Score (lag)	0.347**		0.337**
	(0.008)		(0.008)
Mention Non-member (lag)		0.430**	
		(0.013)	
Days to Islamic Holidays	−0.574	−0.487	−0.893
	(1.831)	(0.338)	(1.826)
Followers Count	−0.249	−0.004	−0.261
	(0.149)	(0.011)	(0.158)
Favorites Count	−0.606	0.053	−0.551
	(0.523)	(0.078)	(0.554)
Friends Count	−0.901	0.113	−0.765
	(0.764)	(0.106)	(0.773)
Statuses Count	−0.288	−0.045	−0.335
	(0.160)	(0.034)	(0.180)
Account Length	1.050**	−0.240**	0.866**
	(0.227)	(0.034)	(0.226)
Media	−0.267**	−0.033**	−0.289**
	(0.020)	(0.003)	(0.021)
Urls	−0.087**	−0.059**	−0.128**
	(0.018)	(0.004)	(0.017)
Hashtags	−0.174**	−0.065**	−0.215**
	(0.021)	(0.002)	(0.021)
Constant	0.723**	0.123**	0.830**
	(0.019)	(0.004)	(0.020)
Observations	265,241	265,241	265,241
R^2	0.150	0.223	0.162
Residual Std. Error	0.977	0.203	0.970
	(df = 265229)	(df = 265229)	(df = 265228)

Note: Robust standard errors in parentheses clustered by users. *$p < 0.05$; **p< 0.01

Tables A9 and A10 replicate the results from Table 4 in the main manuscript at the tweet level as opposed to using the panel data. Results, again, are robust.

Table A9: Tweet Level Analyses (Military Power Measured by Territory)

	Religiosity Score	Mention Non-member	Religiosity Score
	(1)	(2)	(3)
Mention Non-member			-0.657^{**}
			(0.021)
Territory	-2.085^{**}	0.321^{**}	-1.874^{**}
	(0.266)	(0.050)	(0.259)
Days to Islamic Holidays	1.088	-0.643	0.666
	(3.546)	(0.706)	(3.496)
Followers Count	-0.458	-0.005	-0.461
	(0.316)	(0.012)	(0.319)
Favorites Count	-2.652^{**}	-0.048	-2.683^{**}
	(0.873)	(0.163)	(0.926)
Friends Count	-1.655	0.618^{*}	-1.249
	(1.586)	(0.283)	(1.587)
Statuses Count	-0.025	-0.056	-0.062
	(0.235)	(0.075)	(0.243)
Account Length	2.729^{**}	-0.428^{**}	2.448^{**}
	(0.409)	(0.046)	(0.400)
Media	-0.285^{**}	-0.039^{**}	-0.311^{**}
	(0.021)	(0.005)	(0.021)
Urls	-0.103^{**}	-0.099^{**}	-0.168^{**}
	(0.023)	(0.004)	(0.024)
Hashtags	-0.243^{**}	-0.065^{**}	-0.286^{**}
	(0.024)	(0.003)	(0.024)
Constant	1.345^{**}	0.134^{**}	1.433^{**}
	(0.055)	(0.009)	(0.056)
Observations	4,259,737	4,259,737	4,259,737
R^2	0.025	0.053	0.036
Residual Std. Error	1.557	0.260	1.548
	(df = 4259726)	(df = 4259726)	(df = 4259725)

Note: Robust standard errors in parentheses clustered by users. $^{*}p < 0.05$; **p< 0.01

Table A10: Tweet Level Analyses (Military Power Measured by Military Activities)

	Dependent variable:		
	Religiosity Score	Mention Non-member	Religiosity Score
	(1)	(2)	(3)
Mention Non-member			-0.663^{**}
			(0.022)
Total Violent Events	-0.006^{**}	0.0003^{**}	-0.006^{**}
	(0.0005)	(0.0001)	(0.0005)
Days to Islamic Holidays	-1.498	-0.646	-1.926
	(3.566)	(0.711)	(3.518)
Followers Count	-0.472	-0.002	-0.474
	(0.321)	(0.011)	(0.324)
Favorites Count	-2.672^{**}	-0.047	-2.703^{**}
	(0.836)	(0.171)	(0.891)
Friends Count	-1.687	0.627^{*}	-1.271
	(1.590)	(0.286)	(1.589)
Statuses Count	-0.005	-0.060	-0.045
	(0.239)	(0.077)	(0.245)
Account Length	2.719^{**}	-0.436^{**}	2.430^{**}
	(0.413)	(0.047)	(0.403)
Media	-0.284^{**}	-0.038^{**}	-0.310^{**}
	(0.021)	(0.005)	(0.021)
Urls	-0.101^{**}	-0.100^{**}	-0.167^{**}
	(0.023)	(0.004)	(0.024)
Hashtags	-0.240^{**}	-0.065^{**}	-0.283^{**}
	(0.024)	(0.003)	(0.024)
Constant	1.165^{**}	0.176^{**}	1.282^{**}
	(0.035)	(0.006)	(0.037)
Observations	4,259,737	4,259,737	4,259,737
R^2	0.024	0.051	0.036
Residual Std. Error	1.557	0.260	1.548
	(df = 4259726)	(df = 4259726)	(df = 4259725)

Note: Robust standard errors in parentheses clustered by users. $^{*}p < 0.05$; **p< 0.01

A8 Exploring Alternative Mechanisms

Jihadi groups' ideological positions change on the "religious vs. secular" spectrum according to its power fluctuations because they need to target different audiences. In this section, I further test an alternative explanation: as more peripheral members joined ISIS, the organization changed intrinsically and thus shifted toward more secular rhetoric. Empirically, I look at the entire ISIS network and measure the change in group organization on a daily basis. Two more variables are thus measured at the date level: *Active Members* is the total number of users identified as ISIS members who posted each day; *Geographic Concentration* is measured by the Herfindahl index of users' time zones and thus a larger index indicates a more geographically concentrated ISIS network.

In Table A11 model (1), we see a strong positive effect of *Territory* on the number of *Active Members*. It is unsurprising that stronger group power on the ground has translated into more voice online. This larger voice, however, as suggested by model (2), has not translated into a lower religiosity score. On the other hand, model (3) shows that expanded *Territory* did not lead to more heterogenous supporters on a global basis and, if anything, the supporters are more geographically concentrated in the base. Model (4) further shows that such geographic concentration leads to less religious rhetoric, not more. Overall, Table A11 does not find evidence supporting the alternative mechanism regarding the intrinsic change in group organization.

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Table A11: Change of Group Organization Does not Account for the Change in Ideological Positions

	Core Member Proportion	Religiosity Score	Geographic Concentration	Religiosity Score
	(1)	(2)	(3)	(4)
Core Member Proportion		−9.401**		
		(0.833)		
Geographic Concentration				−3.316**
				(0.354)
Territory	−0.020	−1.547**	0.102**	−1.022**
	(0.015)	(0.242)	(0.037)	(0.254)
Days to Islamic Holidays	−4.658**	−30.510**	−5.902**	−6.294
	(0.395)	(7.337)	(0.968)	(6.828)
Constant	0.093**	2.024**	0.122**	1.555**
	(0.002)	(0.087)	(0.006)	(0.059)
Observations	362	362	362	362
R^2	0.280	0.317	0.118	0.256
Residual Std. Error	0.013	0.207	0.032	0.216
	(df = 359)	(df = 358)	(df = 359)	(df = 358)
F Statistic	69.737**	55.350**	23.918**	41.019**
	(df = 2; 359)	(df = 3; 358)	(df = 2; 359)	(df = 3; 358)

Note: Robust Standard Errors in parentheses. *p<0.05; **p<0.01