Subsidizing Moderation? Terrorism, Signaling, and Principal-Agent Problems

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Abstract

I develop a model in which a terrorist organization delegates tasks to recruits. The organization faces a classic principal-agent problem: it wants to assign sensitive tasks exclusively to the most extreme (and therefore reliable) recruits but cannot perfectly screen for commitment to the cause. In equilibrium, the organization interprets the desirability of a recruit’s opportunities in the civilian sector as a signal. When the recruit has attractive opportunities available, the organization infers his commitment and gives him a sensitive task; when it is low, the organization conservatively assigns him a non-sensitive task. I then extend the model to allow for an external actor to endogenously improve economic conditions among the civilian population. Despite raising the opportunity cost of terrorism, such subsidies can increase the intensity of violence because they help the organization screen out uncommitted types.

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1 Introduction

By the nature of their work, terrorists must live highly regulated and secretive lives. For individuals selected to commit attacks, frequent communication with other agents risks exposing the operation or the entire network. Thus, compared to other types of political violence producers, terrorists have considerable autonomy over day-to-day management of their assignments (Shapiro and Siegel 2007; Shapiro 2013). Although operatives may receive orders from their commanders, they nevertheless have substantial control over whether and how to carry out those tasks.

Unsurprisingly, the disparity between individual and organizational incentives has led to intraorganizational conflict in the past. For example, the Associated Press discovered a ten-page rebuke of Moktar Belmoktar from his superiors in Al Qaeda’s North African branch in 2013. Belmoktar had received a substantial sum of money to commit attacks (Callimachi 2013). None followed. Al Qaeda thus issued the report, chastising him for preferring to fulfill his own goals and rather than carry out the will of the organization.

Operative self-interest is not the only concern. Outright laziness might be more dangerous. After all, operatives directly pay the costs to keep their missions secret. Shirking effort therefore appears attractive to the individual but has substantial negative consequences to the organization as a whole. To wit, consider the case of Said Ali al-Shihri, a deputy leader of Al Qaeda in the Arabian Peninsula (AQAP). In 2013, Al-Shihri stopped using standard security measures when making phone calls, allowing American intelligence to track him down. A drone strike killed him later that year, creating further vulnerability in the bureaucratic structure of AQAP.¹

Above all, terrorist organizations must fear defection. Whereas groups can persist after losing a few comrades, a single defector can force the entire organization to restructure, change drop points, alter existing attack plans, and remain in stasis until the leaked information ceases to be useful. Indeed, Berman (2009, 14) argues that the devastating consequences of defection restrict the number of functioning terrorist groups to around 40 despite the relatively low economic barriers of entry. Consequently, in searching for the ideal recruit, organizations need to find individuals who will not jump

¹These organizational hazards help explain why so few terrorist attacks occur despite copious willing volunteers and low operational costs (Hassan 2001).
ship for the first bribe a target entity offers them.

Generalizing, terrorist organizations must separate reliable recruits from the security risks. Put differently, they face a classic principal-agent problem. While extreme ideology might indicate reliability, organizations still face a challenge in screening an inherently internal attribute. In this paper, I argue that forgone economic opportunities might provide an effective signal. Only highly extreme individuals would give up a wealthy lifestyle to join a terrorist cause. In contrast, giving up a life of poverty sends little useful information to the organization.

While scholars have noted the existence of a principal-agent problem (Shapiro and Siegel 2007; Shapiro 2013; Abrahms and Potter 2015), the literature has yet to fully address the ramifications of such a signaling mechanism. To investigate how economic opportunities may determine terrorist assignment, I develop a model in which organizations must delegate sensitive and non-sensitive tasks to recruits, while a third-party attempts to pacify citizens with economic aid. If individuals join the organization, they generally prefer sensitive tasks to non-sensitive ones. In contrast, while the organization believes that commitment to the cause is relatively unimportant for non-sensitive tasks, it will suffer greatly if a recruit assigned a sensitive task exerts lackluster effort. Thus, the game contains a principal-agent problem; the organization must screen out moderate recruits who might shirk.

The model generates five key results. First, as anticipated above, terrorist organizations can use an recruit’s “wealth”—education, job prospects, social capital, and donations to the organization—as a screening mechanism. The organization prefers assigning ideologically extreme recruits to sensitive tasks, and those recruits enjoy performing those sensitive tasks more than comparatively moderate members. As such, when the organization observes that a recruit has sacrificed a generous lifestyle, it can be sure that the individual is an extremist. In contrast, poorer recruits may only join the organization for a lack of better alternatives. Consequently, wealthier recruits are more likely to receive sensitive tasks even if they are no more extreme than the population as a whole.

Second, the model indicates that wealthier attackers will be more effective agents on average than their poorer compatriots, even though all recruits are equally skilled in the model I analyze. This follows from the first result. Because wealthier recruits tend to be more extreme, they endogenously exert more effort. Thus, while empirical
evidence supports the notion that terrorists from more affluent backgrounds are deadlier, it is unclear what portion of this is attributable to latent skill and what portion is attributable to a selection effect.

Third, the model shows that we cannot make inferences about terrorist organizations’ memberships based on the characteristics of attackers. With reliable data on terrorist organization membership at a minimum due to their inherently secretive nature, researchers have focused on those who commit attacks (Russell and Miller 1977; Krueger and Maleckova 2003; Berrebi 2007). While these datasets help answer questions about variation given an attack, the model indicates that terrorist organizations strategically select their attackers. As a result, although most attackers come from wealthy backgrounds, the average member may nevertheless slant poor.

Fourth, income inequality may or may not increase the frequency of attacks. The fact that increasing inequality could lead to more attacks might not seem controversial. Yet the influx of attacks does not come from the poorer segments of the population. Indeed, because the terrorist organization worries that poor recruits are not particularly motivated, it delegates non-sensitive tasks to those individuals. Instead, the additional attackers come from the wealthier segment of the population, since the organization can safely give those recruits sensitive tasks. Nevertheless, extreme inequality can reduce attacks because sufficiently wealthy individuals choose to remain civilians. This helps explain why large-scale empirical investigations cannot find a relationship between inequality and terrorism (Gassebner and Luechinger 2011).

Finally, economic aid can increase the frequency of attacks as well. Although increasing the attractiveness of civilian life would seem to raise the opportunity cost of joining a terrorist organization (Blomberg, Hess, and Weerapana 2004; Baker and Hamilton 2006; Berman and Laitin 2008, 1964; Rosendorff and Sandler 2010), the delegation problem convolutes the overall effect: recruitment decreases monotonically with aid, but the number of attacks may go up or down depending on the effectiveness of screening in the absence of aid.² While sufficiently great aid will assuredly crowd out all potential recruits and decrease the number of attacks, the United States and other donor countries should not treat aid as a cure-all panacea. More may not always be

²This result also matches non-monotonic results on GDP in general (Lai 2007; Freytag, Kruger, Meierrieks, and Schneider 2011). Lee (2011) develops a similar nonmonotonic hypothesis on membership.
better. Further, empirical results showing that aid correlates with fewer attacks does not imply that donors should be more liberal with their subsidies. Rather, strategic donors endogenously select aid targets where the subsidy yields fruitful results and avoids the counterproductive circumstances. Despite empirical observations seemingly to the contrary (Burgoon 2006; Azam and Thelen 2008; Azam and Thelen 2010), more aid might only exacerbate existing problems.

From a theoretical perspective, my work is most similar to Shapiro and Siegel (2007) and Bueno de Mesquita (2005). Shapiro and Siegel also develop a model with principal-agent problems. Whereas their research addresses how terrorists prevent organizational wage theft, my work focuses on a screening mechanism. We both investigate how third-party manipulation can alter the principal-agent problem, though. Bueno de Mesquita develops a model of economic opportunity and terrorist activity. He finds that organizations seek wealthier recruits who have better access to vulnerable targets. A large literature provides empirical confirmation that wealthier terrorists are deadlier. However, Bueno de Mesquita’s mechanism is purely one of access and skill. In contrast, my model demonstrates that the principal-agent problem and endogenous effort decisions produce the identical empirical implication even if skill is equal across wealth levels.

To be clear, I do not dispute Bueno de Mesquita’s assumptions about skill. Rather, my work is complementary in nature and shows that costly signaling also leads the average terrorist to slant disproportionately wealthy. While this may seem to be only of academic interest, my model indicates a couple of policy recommendations that the quality mechanism does not recover. As discussed above, economic subsidies to regions plagued by terrorism may not be an effective deterrent. Under the quality mechanism, subsidies increase the opportunity cost while not necessarily increasing skill, since skill comes from greater education and access to vulnerable targets. Under the signaling mechanism, subsidies can facilitate a recruit’s costly signal. Further, the comparative statics from my model also match empirical trends in how overall economic welfare and inequality correlate with terrorism; whereas the skill mechanism is neutral here, the signaling mechanism correctly anticipates a nonmonotonic relationship for both.

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2 Modeling Terrorist Recruitment and Delegation

The game involves three groups: an external actor E, a terrorist organization T, and a mass of citizens. I conceptualize E as a potential target or an actor that simply wishes to promote stability and non-violence. E can manipulate citizens incentives by providing economic subsidies to the country in question. Citizens must decide whether to pursue peaceful civilian self-enrichment or join the organization. The organization takes its recruits and delegates them to sensitive operations that cause pain to the external actor or to non-sensitive operations. Lastly, recruits must decide how much effort to exert in an attacking role.

Play begins with Nature assigning a level of ideology $i$ to any given citizen from the probability distribution function $f(i)$, which has support exclusively on the interval $[0, 1]$, is differentiable everywhere on its support, and has cumulative distribution function $F(i)$. The draw value $i$ represents how much a citizen values terrorist activities. Each citizen’s draw is independent and identically distributed. Moreover, consistent with the notion that ideology is an internal trait, citizens observe their draws but E and T do not.

E makes the first strategic move by selecting a subsidy $s \geq 0$. This subsidy improves economic opportunities in the civilian sector.\footnote{An alternative interpretation is that the subsidy generally makes it costlier for a citizen to join the terrorist organization, perhaps due to military aid to the home state (Bandyopadhyay et al 2011; Azam and Thelen 2010; Bapat 2011).} Nature then draws a citizen’s wealth value $w$ from probability distribution function $g(w)$, which has support exclusively on the positive reals, is differentiable everywhere on its support, and has cumulative distribution function $G(i)$.\footnote{Note that the external actor cannot condition its subsidy on the citizen’s level of wealth because Nature draws the wealth value after the external actor has locked in the subsidy. Intuitively, this means that the external actor is either uncertain of any particular individual’s wealth or can only manipulate the domestic country’s economic conditions as a whole. Later, I discuss where the external actor would aim its subsidy if it could target particular economic classes.} After, citizens individually choose whether to join the terrorist organization. Not joining gives the citizen $w + s$, which is his private wealth plus the subsidy. Unlike the ideology draw, the organization sees $w$ because wealth opportunities like education, current employment, familial ties, and money donated upon entering the organization are publicly observable.

If a citizen joins, the terrorist organization assigns him as an attacker or a bureau-
I conceptualize attackers as receiving sensitive assignments or violent actions that require great preparation and focus to accomplish successfully. Bureaucratic tasks are non-sensitive in nature or have more rigorous direct oversight such as foot soldier duties, logistical roles like accounting (Shapiro 2013, 34-44), religious devotion, or charitable work like that of Hamas, Hezbollah, and the Mahdi Army. These yield comparatively fewer gains but do not require high effort to be worthwhile. Citizens assigned to non-sensitive tasks receive $i$, reflecting the fulfillment of their ideological obligations. The terrorist organization earns 1 for each citizen undertaking a non-sensitive task, a meager amount but more than the 0 the organization would earn if that citizen had stayed a civilian.\footnote{In this manner, the organization does not have a cap on the number of attacks it would want to commit. Relaxing this would only strengthen the results—the organization would select the wealthiest individuals because most extreme in expectation and leave the rest to bureaucratic roles.}

In the final move, citizens assigned as attackers choose an effort level $e \geq 0$ to exert. The citizen earns a payoff $r_i(e_i)$, where $r_i$ is type $i$’s strictly concave function reflecting ideological fulfillment from the task and the costs associated with the operation. Strict concavity implies that each $r_i(e_i)$ has a unique maximizer, which I call $e_i^*$. I make four assumptions about $r_i(e_i)$. First, for all $i$, there exists a value $r_i(e_i) > i$. In words, a citizen can always exert enough effort in the sensitive task that his payoff is greater than if the terrorist group assigned him a non-sensitive task. Substantively, I make this assumption because militants tend to find violent tasks as the most appealing (Hassan 2001).\footnote{Relaxing this assumption would not significantly change the main results.} Second, for all $i' > i$, $e_i^{*'} > e_i^*$; in words, the optimal effort for a more extreme individual is greater than the optimal effort for a less extreme individual. Substantively, I make this assumption because more ideologically extreme individuals have a greater natural affinity for their work and are thus willing to expend more effort in pursuit of the organization’s goals. Third, let $r_{i'}(e_{i'}^*) - i' > r_i(e_i^*) - i$ for all $i' > i$; in words, the gain a more ideologically extreme individual receives from an attacking role over a bureaucratic role is greater than the gain of more moderate individual. Thus, more extreme individuals are willing to make greater sacrifices to become attackers than less extreme individuals. Lastly, I assume $r_i(e_i)$ is differentiable everywhere on the $[0, 1]$ interval.

Meanwhile, the terrorist organization receives $v(e_i)$ if it assigns the recruit to a sensitive task, with the function representing the value the organization internalizes for...
quantity of effort. I only assume that \( v(e_i) \) is strictly increasing in \( e_i \) and convex. Put differently, the terrorist organization always prefers more effort to less. This reflects the fact that operative and organizational incentives are rarely aligned (Shapiro 2013, 26). Note critically that the functional form allows \( v(e_i) \) to be less than 1 for low effort levels. Intuitively, low effort risks an operative getting caught and yielding information to the target’s intelligence agencies, may result in organization embarrassment and thus loss of market share (Bloom 2004; Conrad and Greene 2014), reduces the organization’s power and thus hinders it in coercive bargaining (Bapat 2006; Bapat 2014), and wastes valuable resources in the process (Shapiro and Siegel 2007). In turn, the terrorist organization may prefer giving the recruit a non-sensitive assignment if it suspects that he will only commit low effort. The fact that the recruit internalizes the cost of effort (or opportunity cost of not taking a bribe to defect) but the organization does not drives the principal-agent problem.

In addition, note that effort level singularly determines the value of \( v(e_i) \). Breaking from previous models, it is not a function of wealth. Consequently, wealth has no direct bearing on the effectiveness of a terrorist’s actions. In contrast, others assume that terrorists with better outside options are more competent (and therefore deadly) field agents. Ample empirical evidence demonstrates that this is the case in practice. However, as I will later show, this is not entirely due to some latent skill factor. Rather, a selection process ensures that wealthier recruits have more extreme ideologies, and these more extreme ideologies lead those recruits to endogenously work harder than their less wealthy compatriots.

Finally, the external actor’s payoff function has two parts. First, it suffers the value of the successful attack. This means that attacks are zero-sum for the external actor and the organization. Second, the external actor pays a cost given by the strictly convex function \( c(s) \). To make costs costly, I assume that \( c(s') > c(s) \) for \( s' > s \). Note that this function implicitly accounts for how much the external actor values money over eliminating terrorist attacks. Overall, the payoff is \(-v(e_i) - c(s)\).

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\(^8\)For example, such interrogations led to the assassination of Abu Muasb al-Zarqawi in 2006 (Berman and Laitin 2008, 1964-1965). Berman (2009) further argues that minimizing the potential for defection is a top priority for terrorist organizations.

\(^9\)Similar results would hold if the external actor also cared about overall terrorist organization membership instead of just attacks.
Figure 1: The extensive form of the two player game.
3 Dealing with the Principal-Agent Problem

Although the game involves a third-party, the principal-agent problem between the terrorist organization and potential recruit generates a few key results and is interesting in its own right. Because this forms the subgame that the third-party will eventually manipulate anyway, I begin with partial equilibrium analysis, focusing on the two-player interaction.

To build a baseline understanding of the strategic incentives, consider how the game would play out with complete information. Since all actions are publicly observable, straightforward backward induction yields the solution. At the end of the interaction, the recruit has a simple optimization problem and picks effort level $e^*_i$, generating a payoff of $r_i(e^*_i)$ for himself and $v(e^*_i)$ for the terrorist organization. Moving up, the organization secures 1 if it assigns the recruit to a non-sensitive task and $v(e^*_i)$ to a sensitive task. Consequently, the recruit receives the sensitive task if $v(e^*_i) > 1$ and the non-sensitive task if $v(e^*_i) < 1$. In the first case, at the initial node, the recruit joins the organization if $r_i(e^*_i) > w$ and remains a civilian if $r_i(e^*_i) < w$; in the second case, the recruit joins the organization if $i > w$ and remains a civilian if $i < w$. Figure 2 plots each type’s equilibrium role with complete information given those parameters.\(^\text{10}\)

Throughout, I only make the assumptions that that $\int_0^1 v(e^*_i)f(i)di < 1$ and $v(e^*_1) > 1$. I do this because the other cases are theoretically uninteresting while this case is substantively compelling. The first condition says if all types of citizens join the terrorist organization, the organization expects to be worse off assigning him as an attacker than placing him in the bureaucracy. In essence, the condition assures that the organization faces a compliance problem from potential attackers and worries about failed operations. Thus, if the civilian would assuredly become a recruit regardless of type, the organization would refuse to give him an attacking operation out of fear that the individual might put in insufficient effort, blow the operation, get caught, and give up vital information about the organization while under arrest. This matches the empirical observation more individuals are willing to volunteer for attacks than an organization is willing to hire (Hassan 2001). The second condition says that the

\(^\text{10}\)For ease of visual representation, I generate all graphs using a uniform distribution of ideologies uncorrelated with wealth, which Krueger and Maleckova (2002) argue is empirically accurate. Note, though, that the equilibrium results do depend on the distribution function or correlation, which may arise empirically (Lee 2011).
Figure 2: The outcome for each citizen as a function of his level of wealth \((w)\) and ideology \((i)\) with complete information. Individuals with low ideology and even lower wealth join the organization but receive bureaucratic tasks. Those with higher levels of ideology join the organization provided that their wealth is not sufficiently great. The rest remain civilians.

organization prefers designating the most extreme type as an attacker. If this were not the case, then the organization would never assign a recruit an attacking role and thus make the remainder of the interaction trivial.

Regardless of those conditions, with complete information, the terrorist organization can cleanly sort the ideology of the recruit. Those most extreme receive sensitive assignments. The least extreme stay home. Those in the middle join and receive non-sensitive assignments. In contrast, the organization faces a challenge when it cannot observe the recruit’s ideology. Here, whenever the organization recruits a member, it must weigh the relative risks and rewards. The following propositions explain how the organization resolves its problem as a function of the citizen’s commonly known wealth value \(w\). Since this is a sequential game of incomplete information, perfect Bayesian equilibrium (PBE) is the appropriate solution concept. For clarity, I limit the equilibrium discussion below to those that satisfy the D1 refinement. Here, D1 implies that the organization believes the recruit has the most extreme ideology if it must choose how to assign a recruit off the equilibrium path. The D1 refinement does not substantially alter the empirical implications of the model, and I give a complete
description of all PBE in the appendix.

To begin, consider situations in which the citizen’s wealth is great:

**Proposition 1.** If a citizen’s wealth is sufficiently large (i.e., \( w > r_1(e^*_1) \)), he remains a civilian regardless of his ideology.

**Proof:** Recall that \( r_1(e^*_1) \) is the payoff the most ideologically extreme individual receives for putting his optimal effort into committing an attack, which is also more than he receives as a bureaucrat. If \( w > r_1(e^*_1) \), then the wealth of a citizen is so great that he cannot earn more as a terrorist regardless of which task the organization assigns him to even if he had the most extreme ideology possible. Thus, by strict dominance, the citizen remains a civilian in every PBE.\(^{11}\)

Here, the terrorist organization never encounters a principal-agent problem because it never receives such a wealthy recruit—the opportunity cost of sacrificing so much wealth is not worth it to such a rich citizen. One might imagine that the ideologically extreme individuals at these high levels of wealth instead become non-violent political activists, as was the case in early 20th Century Bengal (Lee 2011). In contrast, the principal-agent problem is most acute when wealth is low. Specifically, the next proposition details the outcome of the game when wealth is below \( i^* \), where \( i^* \) is the lowest level of ideology such that the organization is willing to assign all individuals with ideology at least \( i^* \) as attackers:\(^{12}\)

**Proposition 2.** If a citizen’s wealth is sufficiently low (i.e., \( w < i^* \)), citizens with levels of ideology greater than their wealth join the organization. The organization assigns these individuals to be bureaucrats with certainty.

The appendix contains a complete proof. Intuitively, any citizen with ideology greater than wealth (i.e., \( i > w \)) has a strictly dominant strategy to join. This is because joining gives the citizen at least \( i \) (and potentially \( r_1(e^*_i) \) if the organization assigns him as an attacker), whereas the civilian life only generates \( w \). Consequently, recruits with low levels of \( w \) come disproportionately from the less ideologically extreme

\(^{11}\)Multiple PBE exist here because the organization never reaches its information set. Consequently, it can have any posterior belief about the citizen and take the corresponding optimal off-the-path action.

\(^{12}\)Formally, \( i^* \) is the unique solution to \( \frac{1}{1-F(v^*)} \int_{i^*}^1 v(e^*_i) f(i) di = 1 \). See the appendix a more detailed explanation of this value.
segments of society. The expected payoff for giving such an individual an attacking role is therefore low for the organization. As such, the citizen receives a bureaucratic task. Citizens with slightly lower values of ideology are thus dissuaded from joining the organization because they know they will not become attackers.

For the terrorist organization, low values of wealth are potentially disastrous. Ideologically extreme individuals cannot send the appropriate costly signal, meaning the principal-agent problem results in an inefficient allocation of terrorist resources. As the full three player game will later show, this proves to be a good outcome for the external actor. However, because this cutpoint requires low levels of wealth, it disincentivizes providing a subsidy.

Moderate levels of wealth provide the most strategically rich play:

**Proposition 3.** If wealth falls in a high-middle range (i.e., \( r_i^*(e_i^*) < w < r_1(e_i^*) \)), sufficiently extreme individuals (i.e., individuals for which \( r_i^*(e_i^*) > w \)) join the organization. The organization assigns them as attackers.

Again, see the appendix for a complete proof, including a formal derivation of the cutpoint that defines “high-middle range.” This is the best parameter space for the terrorist organization. Wealth levels remain relatively high, allowing the ideologically inclined recruits to signal their extreme beliefs. For the most part, the organization knows that it can rely on such recruits to commit worthwhile strikes, so it assigns them as attackers. In turn, the individuals are willing to join the organization because their value for attacking \( r_i^*(e_i^*) \) is greater than their wealth value \( w \). The principal-agent problem is not as much of an issue as when wealth levels low.

However, as a citizen’s wealth declines in this range, recruits become increasingly unreliable. Eventually, some segment of them will shirk enough that the organization would prefer keeping them as bureaucrats. Yet, because of the information problem, the organization cannot do that without doing the same for all recruits with that ideological level. As such, the organization is willing to accept some chance of failure because the expected payoff remains greater than sending them to the bureaucracy.

Further decreasing wealth makes this tradeoff more difficult, though:

**Proposition 4.** If wealth falls in a low-middle range (i.e., \( i^* < w < r_i^*(e_i^*) \)), sufficiently extreme individuals (i.e., individuals for which \( i > i^* \)) join the organization.
The organization assigns those individuals as attackers with probability $\frac{w-i^*}{r^*(e^*_i)-i^*}$ and as bureaucrats with complementary probability.

One last time, see the appendix for proof. The intuition comes from the above logic. As wealth declines, an increasingly great portion of unreliable citizens join the organization. Further, the most unreliable of this subset joins because it expects to receive an attacking role—they would be unwilling to join if they knew they would become bureaucrats, as this provides them a lower payoff. Thus, if the organization assigns all recruits as attackers, it is ultimately worse off than had it placed them all in the bureaucracy.

To resolve the tradeoff, the organization mixes between assignment to the different roles. Because the recruit cannot expect to receive the more desirable attacking role with certainty, the least ideologically inclined individuals (those with levels below $i^*$) remain civilians. While this deterrence benefits the terrorist organization, the principal-agent problem still causes the organization to inefficiently allocate its resources—ideologically extreme recruits often get stuck in the bureaucracy. This again benefits the third-party, which will later disincetivize offering a subsidy.

To recap, when ideology is private information to the recruit, the terrorist organization struggles to find the right agent. Further, since sensitive tasks are also the most desirable, they cannot simply ask the recruits for their true ideological commitment and expect a revelatory response. Thus, as Figure 3 illustrates, the organization falls back on the recruit’s level of wealth to assign the appropriate task. If a wealthy recruit has joined, the organization can safely interpret the forgone benefits as a credible signal of the recruit’s extreme ideology.13 After all, a less-polarized individual finds fewer benefits to becoming a terrorist. He consequently stays in the civilian sector, allowing the organization to update its belief about a recruit who does join. This explains why citizens with sufficiently large values of $w$ avoid the organization, per Proposition 1.

On the other end of the spectrum, the organization must be cautious. Per Proposition 2, low wealth levels yield unreliable recruits, forcing the organization to put all such individuals—even the most ideologically extreme—in the bureaucracy. However, increasing wealth gradually encourages the organization to permit attacks, first randomizing to deter the least extreme of individuals to join (Proposition 4) before allowing all recruits to become attackers (Proposition 3).

Figure 3: Proportion of citizens who become attackers, become bureaucrats, and remain civilians for any given wealth value $w$. Hashmarks indicate the cutpoints to the corresponding propositions. The poorest are most likely to join the terrorist organization but are untrustworthy and therefore receive mundane tasks. Wealthier individuals join less frequently, but those who do receive attacking assignments more often.
4 Terrorist Background and Effectiveness of Attacks

Empirical findings indicate a relationship between a terrorist’s economic background and the effectiveness of his or her attacks. Building on this, Bueno de Mesquita (2005, 518) assumes in his model that “an individual’s type is positively correlated both with economic opportunity and with the ability to carry out the difficult and often complicated tasks associated with being a terrorist.” He later considers the plausibility of the connection. While I do not wish to challenge that assumption, the model presented here provides an alternative mechanism for the empirical observation: levels of endogenous effort are higher among wealthier individuals, leading them to be more effective terrorists despite having no innate superiority.

To see how economic advantages correlate with higher quality terrorism but do not cause it in this model, note that the function $v(e_i)$ measures the benefit of an attack to the organization. One obvious interpretation of this is the number of casualties attributable to an individual. Even so, we do not observe that number among all who wish to become terrorists. Rather, we only observe terrorist effectiveness among those who pass the organization’s screening phase.

With that in mind, consider how terrorist quality varies by wealth level, as illustrated in Figure 3. Only individuals with wealth levels in the middle generate data on terrorist effectiveness. In the poorer portion of this middle range, the organization randomizes its assignment decision. Consequently, a large portion of ideologically moderate individuals commit attacks in this range. Since $e_i^*$ is increasing in $i$, terrorist attackers in this region on average exert less effort and therefore produce middling results. However, as wealth increases, fewer of these less extreme individuals join, driving up the expected level of ideology and thus the quality of the attacks. Increasing wealth further ensures that only trusted extremists join the interaction, leading to yet more effective terrorism. None of this here is because these wealthier individuals are smarter. Instead, wealthier terrorists are more extreme on average and simply work harder as a result.

This selection effect indicates a second issue with making inferences about terrorist organization composition based on those who commit deadly acts of terror. For obvious reasons, political scientists want to know the background of the average terrorist. However, our discipline faces an enormous challenge: terrorist organizations value their secrecy, so taking a census on any particular organization is impossible. The fall-back
option has been to analyze leadership and those who commit attacks (Russell and Miller 1977; Krueger and Malechova 2003; Berrebi 2007), which are readily available due to the saliency of such individuals.

Nevertheless, the claims we can make about such data prove inherently limited. The model demonstrates that using wealth as a screening mechanism leads to two different types of terrorists: those who eventually reach the public eye (attackers) and those who do not (bureaucracy). Those who are wealthy are disproportionately likely to become well-known, while the poorest of recruits inevitably remain obscure. As such, empirical observations that the average terrorist attacker comes from an economically privileged background does not say much about the characteristics of the average member of the terrorist organization as a whole.

Those caveats aside, the Sinjar records conform to the empirical implications of the model. Discovered by coalition forces in Northern Iraq in 2007, the Sinjar records are Al Qaeda’s own detailed descriptions of 563 foreign fighters. Most importantly, they contain the amount of money that the individual donated upon his arrival and the task he ultimately received. Those who became suicide bombers donated 56% more on average than those who were assigned to other roles.

5 Manipulating Wealth and the Frequency of Terror

The above analysis took the quality of a citizen’s economic opportunity as given. However, the United States often gives conflict-prone regions large quantities of economic aid (Fleck and Kilby 2010). This aid theoretically improves the quality of life across the country. Potential terrorist recruits therefore face a greater opportunity cost for joining the organization, which ought to decrease membership on the whole. Indeed, in a speech at a 2002 United Nations conference on development, President George W. Bush argued that the United States “fight[s] poverty because hope is an answer to terror.” Nine years later, Russian President Dmitry Medvedev echoed Bush, saying that Russia “must do everything possible to influence...the socioeconomic roots on terrorism: poverty, unemployment, illiteracy, and orphanhood” following the suicide bombing of
a Moscow airport.\textsuperscript{14}

These examples support the notion that an external actor often manipulates the financial incentives in terrorist recruiting. Consequently, I turn to the full model. Since Nature draws the wealth of the individual after the external actor has set the subsidy, this is not a model of an external actor subsidizing any particular individual. Instead, the better interpretation is that the external actor knows a unit mass of citizens from the distribution $f(i)$ exists and that it can manipulate each of their membership decisions through the subsidy.

This generality comes at a cost, though. The external actor’s optimization problem requires an expectation over both $i$ and $w$. As a result, the optimality of any subsidy depends heavily on the shape of the distribution function $g(w)$. Rather than develop any one individual solution in great depth, I choose to discuss some of the interesting properties of the external actor’s optimization problem below.

\section{Subsidies and the Prevalence of Terrorism}

To begin, the intuition about increasing an individual’s opportunity cost and overall terrorist membership holds true:

\textbf{Remark 1.} Increasing the subsidy weakly decreases overall terrorist membership.

To see why this is the case, refer back to Figure 3. As wealth increases, the proportion of individuals who remain civilians decreases; both attacking and becoming a member of the bureaucracy look less exciting when the civilian life promises greater riches. Thus, holding $g(w)$ constant, shifting wealth levels by $s$ will decrease each individual’s probability of joining the organization, implying that organizational membership declines as a whole. Further, the civilian population grows as $s$ increases, though further subsidies eventually yield no improvement once all citizens assuredly choose to remain civilians.

From this, one might extrapolate that the $-v(e(i))$ portion of the external actor’s utility is strictly increasing in $s$, which would support the argument that increasing economic capacity reduces the quality of terrorism (Benmelech, Berrebi, and Klor 2012). The next two remarks indicate that such intuition is only assuredly correct with complete information:

\textsuperscript{14}See Bush 2002 and Medvedev 2011.
Remark 2. With complete information, increasing the subsidy weakly decreases the frequency and severity of attacks.

To understand why the intuitive relationship holds in the complete information case, refer back to Figure 2. Increasing $s$ improves the citizen’s economic opportunities. Without any screening to factor in, raising $s$ simply shifts an individual toward the right on the figure. As such, recruits previously assigned to the bureaucracy or as attackers prefer instead to remain civilians. Thus, the subsidy can only improve the third party’s payoff in the principal-agent subgame.\(^{15}\)

Perhaps surprisingly, this clean result does not carry over to the incomplete information case:

Remark 3. With incomplete information, terrorist attacks have a non-monotonic relationship with the external actor’s subsidy. When the population of citizens is sufficiently concentrated in poverty, initial increases to the subsidy increase the frequency of attacks and the severity of those attacks. The marginal value of the external actor’s subsidy is therefore negative under these conditions. However, sufficiently large subsidies will always decrease the quantity of attackers.

Figure 4 illustrates the problem the external actor faces using the same utility function as Figure 3. Suppose that $w$ is distributed uniformly on the shaded interval in the top-third of the figure. Without any subsidies, the vast majority of individuals remain civilians or become members of the bureaucracy. Most are too poor for the terrorist organization to trust with an attacking role.

Now imagine that the external actor provides a small subsidy. This has the effect of moving the population of individuals to the right of Figure 3 by $s$ units. The result is the middle third of Figure 4. Note that much of the population overlaps between this case and the previous. The only difference is that the subsidy has cut the first $s$ portion of individuals by shifting them over. While that extra wealth convinces a percentage of the previously poor citizens to not join the organization, those individuals would have only received bureaucratic positions. The organization ultimately covers its

\(^{15}\)The third party still might not want to pay the subsidy if the marginal cost is not worth the marginal gain. This is especially likely to be the case when a large portion of citizens prefer remaining civilians in the absence of a subsidy; the third party pays the subsidy to them but does not alter the rate of attacks.
Figure 4: The distribution of attackers, bureaucrats, and civilians with (i) no subsidy, (ii) a small subsidy, and (iii) a large subsidy. When the distribution of citizens is sufficiently poor, small subsidies decrease the number of terrorist volunteers but increase the organization’s trust of their recruits. This results in a net increase in the frequency of attacks. Sufficiently large subsidies resolve the problem; although the additional wealth further increases the organization’s trust of their recruits, very few citizens leave the civilian population.
loss, though, by using the higher levels of wealth to screen out less committed types, allowing the organization to conduct more attacks. Further, because the organization can better screen under these conditions, the average ideology of the attackers is greater and therefore the average damage of an attack increases as well. The external party would therefore never pick such a small subsidy, as it needlessly wastes the cost and is ultimately counterproductive.

Fortunately for the external actor, sufficiently large subsidies fix these problems. The bottom third of Figure 4 is an example of such a subsidy. The large amount of wealth convinces all but most ideologically extreme of the least well-off segment of society join. Although the terrorist organization knows to assign them as attackers, the external actor’s ploy has worked—very few citizens join at all.

Thus, external actors need to employ a “go big or go home” strategy here. Small subsidies only assist the terrorist organization in screening out less reliable recruits. Large subsides still aid the screening mechanism but diminish the supply of terrorism in satisfactory quantities. In turn, the external actor must weigh the costs of providing the larger subsidy to maintaining the status quo. If wealth improvement is relatively cheap, then the external actor should provide the subsidy. Otherwise, no subsidy at all is better than a small one. This also indicates that the external actors willing to provide subsidies will tend to be the targets of the attacks. Although the external actor could be any domestic or international organization that abhors terrorist violence, it seems that only the victim of the attacks would have a function $c(s)$ that weighs a subsidy’s cost small enough to justify providing sufficient aid to exceed the negative marginal returns.

These results suggest caution in interpreting empirical effects of aid on terrorist activity. Many studies find that aid leads to a positive effect (Burgoon 2006; Azam and Thelen 2008; Azam and Thelen 2010), though Gassebner and Luechinger (2011) recover only tempered effects in a meta-analysis. Nevertheless, Azam and Thelen conclude that “Western democracies, which are the main targets of terrorist attacks, should invest more funds in foreign aid” (2008, 375; 2010, 237). Unfortunately, this policy recommendation fails to hold if the data generating process matches the above model. Under equilibrium play, external actors ought to only give aid to the places where it will be effective and not to the places where it will lead to an increase in terrorist attacks. This would allow Azam and Thelen to uncover the relationship they find.
However, providing aid to areas not receiving it could increase the prevalence of attacks and decrease the apparent effectiveness of aid, precisely because the external actor is already providing aid where it will be effective.

Meanwhile, the theoretical mechanism also has empirical implications regarding general economic well-being and the prevalence of terror. The same non-monotonic relationship would hold for measures like gross domestic product rather than an external subsidy. Indeed, a couple empirical studies recover this effect, with terrorism maximizing at a middle range of state GDP (Lai 2007; Freytag et al 2011). Freytag et al suggest that terrorism shrinks at high levels of GDP due to superior state capacity (Fearon and Laitin 2003). The opportunity cost argument here indicates that disaffected populations could simply prefer their economic options to terrorism when aggregate wealth is high.

5.2 Inequality and the Prevalence of Terrorism

Although the above interaction assumed that the external actor could only improve wealth across socio-economic boundaries, particular forms of aid may disproportionately benefit one group. For example, the poorest of citizens would benefit heavily from access to clean water, food subsidies, and immunizations; the middle class may prefer job-creating investment. With that in mind, the following remark indicates the type of targeted aid that the external actor should avoid:

Remark 4. If the external actor wishes to reduce the quantity and severity of terrorist attacks and can target its subsidy, it should increase its aid exclusively to the middle class (i.e., individuals with wealth \( i^* < w < r_1(e^*_1) \)).

To understand why, again refer back to Figure 3. On one extreme, sufficiently wealthy citizens never commit attacks. Aid for that group is therefore pointless. At the other extreme, notice that the poorest of individuals never receive attacking assignments. Rather, an individual must achieve a minimum amount of wealth (specifically, \( i^* \)) before the organization allows the recruit outside of the bureaucracy. As such, targeting aid to this poorest segment of the population can only increase the frequency of attacks.\(^{17}\)

\(^{16}\) Huntington (1968) makes a similar argument about political violence in general.

\(^{17}\) It will, however, decrease the overall membership. That said, even if the external actor places
This leaves the middle class. The external actor must still be careful here. Increasing aid by small amounts to the lower middle class leads to more frequent attacks from more motivated (and therefore deadly) individuals. A large subsidy is therefore necessary to achieve a net improvement. Meanwhile, the upper middle class sees a decrease in attack prevalence, so any aid leads to improvement on that end.

The normative implications are unfortunate here. From a humanitarian standpoint, states ought to target aid at to the lowest economic classes of society. After all, in developing countries, these are the individuals most likely to suffer from disease, malnutrition, and so forth. Further, their marginal gain in quality of life per dollar of aid is greatest. Yet these individuals rarely participate in terrorist attacks. Moreover, increasing their economic outlook allows them to send a costly signal to the organization, which gives the organization the confidence to steer such a recruit away from the bureaucracy. Reducing attacks and promoting humanitarian intervention appear to be inconsistent with each other in this manner.

It is worth emphasizing that the modeling assumptions represent a worst-case scenario, which tempers the policy implications here. If the external actor is the target of the attacks, giving large amounts of aid might also alter the distribution of citizen ideology. In turn, while a subsidy may permit a costly signal, the moderation of citizen ideology may more than make up for the difference. Still, there are two clear situations where such a countervailing effect will not predominate. First, if citizen radicalization is not the result of economic discrepancies but rather cultural or geopolitical disagreement, aid will not mitigate ideology. Second, if the external actor is not the target of the attacks but rather an international organization that wants to improve quality of life and decrease terrorism worldwide, ideology ought to remain unchanged since the aid does not alter beliefs about the target of the attacks.

As Remark 5 summarizes, these results also indicate caution in interpreting terrorism’s relationship with inequality:

**Remark 5.** The effect of inequality on terrorist attacks depends on the precise distribution of wealth.

The intuition is an accumulation of the discussion above, so I focus on Figure 5 as an illustration of the problem. Suppose the wealth distribution of the population is some value on reducing membership, the increase in attacks significantly devalues dollars spent on the society’s poorest citizens.
Figure 5: The distribution of attackers, bureaucrats, and civilians under increasing inequality. For the parameters illustrated, increasing inequality from (i) to (ii) increases the poorer population, which yields more individuals willing to join the terrorist group. Further, these new recruits remain wealthy enough to be trusted with attacking roles. Increasing inequality from (ii) to (iii) prevents ideologically extreme recruits from effectively signaling their type. The number of attackers consequently drops, and those who do attack are less extreme on average and therefore less destructive.
uniformly distributed as in the top portion of the graph. Note that like Figure 4, this is a subset of Figure 3. A small number of terrorist attacks occur here. Now suppose the poorer majority was even poorer. The resulting society, showcased in the middle of the graph, is unequivocally more unequal that the original. Perhaps unsurprisingly, terrorist attacks increase in frequency and intensity; fewer extremely wealthy individuals mean that a larger portion of the population is willing to forgo its economic opportunities and join the organization.

However, suppose society becomes even more unequal by further decreasing the wealth of the poorest majority. The extremely wealthy continue not to attack. Meanwhile, a large percentage of the poorest segment is willing to join the organization due to their abysmal outside options. However, this creates the familiar screening problem for the organization. It consequently assigns most of its recruits to non-sensitive bureaucratic roles. Now those who receive attacking assignments are less ideologically extreme in expectation. In turn, the average quality of attacks diminishes. As a result, increasing inequality has decreased the prevalence of terror.

All told, Figure 5 shows that inequality does not inherently lead to terrorism. Rather, the type of inequality matters. The society needs some form of a middle class to produce terrorist attackers. That is, it needs individuals who are wealthy enough to provide an effective signal yet poor enough to find terrorism more attractive than their civilian lifestyle. Even extreme inequality will not lead to substantial attacks as long as the poorer segments of the population maintain sufficiently strong outside options.

This helps explain the lack of consistent findings regarding inequality and prevalence of terrorism (Abadie 2006; Piazza 2006; Gassebner and Luechinger 2011). Inequality may matter, but how it matters varies sufficiently state-by-state that the exact result changes according to the research design. Operationalizing inequality using the standard measures—in particular, the Gini coefficient—fails to capture the underlying theoretical relationship between willingness to attack and willingness of an organization to assign a particular individual to attack. These results indicate that scholars of terrorism need to consider the precise economic issues a country faces to recover the underlying empirical relationship.


6 Conclusion

This paper investigated how a terrorist organization delegates tasks to its recruits. Without careful planning, the organization may assign uncommitted individuals as attackers, which risks compromising organizational integrity. As a result, the terrorist group uses a recruit’s forgone economic opportunities as a costly signal of commitment. In turn, wealthier recruits are more likely to become attackers, whereas poorer recruits receive less sensitive tasks.

These results provide an alternative mechanism to explain why terrorists often come from above-average economic backgrounds and why wealthier attackers tend to be more deadly. The standard explanation is that organizations prefer wealthier recruits because they have more skill or better access to sensitive targets. I show that similar empirical implications arise endogenously without assuming that wealthier terrorists are inherently superior. Instead, a selection affect means that recruits with better economic opportunities tend to be more ideologically extreme. These extreme beliefs compel them to work harder on average than poorer recruits, which leads to greater casualty counts.

Focusing on the selection mechanism leads to important policy implications that differ from the quality mechanism. Subsidies from foreign powers seemingly ought to increase the opportunity cost of joining a terrorist organization. While this is true some of the time, the subsidies can also allow otherwise poor ideological extremists to send the proper costly signal, which leads to more effective terrorist attacks. As such, a foreign subsidy provider only interested in reducing terrorist attacks would be best off targeting its economic assistance toward the middle class. Unfortunately, this also indicates that increasing inequality can reduce terrorism, which helps explain inconsistent empirical results on the subject.

7 Appendix

7.1 Proof of Proposition 2

To begin, recall that the reward for a recruit who commits a terrorist attack using optimal effort is greater than his payoff for joining the bureaucracy. That is, \( r_i^*(e_i^*) > i \)
for all \(i\). Thus, joining strictly dominates not joining for citizens for which their wealth level is less than their ideology, or \(w < i\).

Now recall that the organization receives a value of 1 for assigning a recruit to the bureaucracy regardless of the exact level of ideology. The function \(\frac{1}{1-F(i')} \int_{i'}^{1} v(e^*_i)f(i)di\) denotes the organization’s expected utility for assigning a recruit as an attacker if all citizens with ideology greater than \(i'\) volunteer and all citizens with ideology less than \(i'\) remain civilians. Note that this function is strictly increasing in \(i'\), as \(e^*_i\) is increasing in \(i'\). Put differently, higher minimum ideologies imply greater average effort, which generates a greater payoff for the organization.

Let \(i^*\) be the unique solution to \(\frac{1}{1-F(i')} \int_{i'}^{1} v(e^*_i)f(i)di = 1.\) \(^{18}\) Suppose that \(w < i^*\). Then, through iterated elimination of strictly dominated strategies, assigning the citizen to the bureaucracy strictly dominates assigning him to attack. (Although we do not yet know what individuals for which \(i < w\) will do, any additional citizens who join will only reduce the value of attacking, which is already below 1.) Through another round of iterated elimination of strictly dominated strategies, all citizens for which \(i < w\) remain civilians because they know they will receive \(i\) if they join and obtain \(w\) if they stay out. The terrorist organization therefore assigns all recruits as members of the bureaucracy.

\[\square\]

### 7.2 Proof of Propositions 3 and 4

The above leaves situations in which \(w \in (i^*, r_1(e^*_1))\). If \(w < r^*_1(e^*_1)\), the terrorist organization cannot assign recruits to be terrorists as a pure strategy. If it did, all citizens for which \(r_1(e^*_1) > 1\) would join. But because \(\frac{1}{1-F(i')} \int_{i'}^{1} v(e^*_i)f(i)di\) is strictly increasing in \(i'\) and \(\frac{1}{1-F(w)} \int_{w}^{1} v(e^*_w)f(i)di = 1\), the organization’s expected payoff is less than 1. As such, the organization could profitably deviate to assigning the citizen to the bureaucracy and receive a flat 1 instead. But the organization cannot assign recruits to the bureaucracy as a pure strategy either. If it did, only citizens with \(i > w\) would join. Yet because \(w > i^*\), \(\frac{1}{1-F(w)} \int_{w}^{1} v(e_w)f(i)di > 1\). In turn, the organization could profitably deviate to assigning the citizen as a terrorist.

Consequently, the solution must be in mixed strategies. For the organization to be willing to mix, it must be that all citizens with \(i > i^*\) join and all citizens with

\(^{18}\)Such a solution exists because \(\frac{1}{1-F(i')} \int_{i'}^{1} v(e^*_i)f(i)di < 1\) and \(v(e^*_i) > 1\).
$i < i^*$ do not join. Such a division implies that assigning the recruit as a terrorist yields

$$\frac{1}{1-F(i^*)} \int_{i^*}^1 v(e^*_{i^*}) f(i) \, di = 1,$$

which is identical to the payoff that the organization would receive if it assigned the recruit to the bureaucracy.

To maintain that division of civilians to recruits, the organization must assign the recruit as a terrorist at a frequency that would leave type $i^*$ indifferent between joining and not joining; this ensures that citizens with $i > i^*$ are strictly better off joining and all citizens with $i < i^*$ are strictly better not joining. Let $\sigma_A$ be the organization’s probability of choosing an attacking assignment. Then this indifference condition is:

$$\sigma_A r_{i^*}(e^*_{i^*}) + (1 - \sigma_A)(i^*) = w$$

$$\sigma_A = \frac{w - i^*}{r_{i^*}(e^*_{i^*}) - i^*}$$

This completes the proof for $w < r_{i^*}(e^*_{i^*})$.

If $w \in (r_{i^*}(e^*_{i^*}), 1)$, the above shows that the the indifference conditions for the organization cannot be met in equilibrium. This leaves only pure strategies as equilibrium possibilities. Assigning bureaucratic tasks as a pure strategy cannot be an equilibrium. Doing so would prompt only those with $i > w$ to join. But because $w > r_{i^*}(e^*_{i^*}) > i^*$, the organization could assign them attacking roles and earn

$$\frac{1}{1-F(w)} \int_{w}^1 v(e^*_{i^*}) f(i) \, di > 1$$

instead, a profitable deviation.

However, if the organization assigns attacking roles as a pure strategy, all individuals for which $r_{i^*}(e^*_{i^*}) > w$ would join. Since $w > r_{i^*}(e^*_{i^*})$, this set of citizens is bounded strictly above $i^*$. And because

$$\frac{1}{1-F(i^*)} \int_{i^*}^1 v(e^*_{i}) f(i) \, di = 1,$$

the organization’s payoff for selecting those citizens to attack is strictly greater than 1. As such, all citizens who join receive their best possible payoffs, while all citizens who do not join also receive their best possible payoff. The organization is optimizing given that, and therefore there is no profitable deviation.

Finally, if $w \in (1, r_1(e^*_1))$, multiple PBE exist. First, I analyze those that satisfy the D1 refinement. Loosely, the D1 refinement restricts a receiver’s off the equilibrium path beliefs to the type willing to make that signal under the widest range of responses from the receiver. For this game, the organization must believe that the recruit is the type for which

$$\sigma_A r_i(e^*_{i}) + (1 - \sigma_A)i \geq w$$

holds for the widest range of $\sigma_A$ values. Solving for $\sigma_A$, type $i$ is willing to join the organization if

$$\sigma_A \geq \frac{w-i}{r_i(e^*_{i})-i}.$$
\[ \frac{w - i'}{r_i'(e_i^*) - i'} < \frac{w - i}{r_i(e_i^*) - i} \]

\[ [r_i'(e_i^*) - i'](w - i) > [r_i(e_i^*) - i](w - i') \]

Recall that \( r_i'(e_i^*) - i' > r_i(e_i^*) - i \) (that is, more ideologically extreme individuals have greater gains for committing attacks) and note that \( w - i > w - i' \). As such, the left side of the inequality consists of two strictly positive numbers multiplied together that are individually greater than their respective counterparts on the right side of the inequality. In turn, the product of the left side is greater than the right side. Because this holds for all \( i' \) and \( i \), the type that is willing to join under the widest range of circumstances is the type for which \( i \) is the greatest, or \( i = 1 \). Using this off the path belief, the remainder of the proof is identical to the case in which \( w \in (r_i'(e_i^*), 1) \).

Other PBE exist in which the organization adopts an off the path belief that the recruit’s expected ideology is sufficiently low that it should assign him to the bureaucracy. Recruits, in turn, must decide whether to join and earn \( i \) or remain civilians and earn \( w \). Because \( w > 1 \), all types’ best response regardless of exact ideology is to remain civilians.

It is worth noting that these other PBE do not substantially impact the remarks presented in the body of the paper. Indeed, the skeptical off the path beliefs only decrease the cutoff point at which all terrorist attacks cease. The bulge in Figure 3 around \( r_i'(e_i^*) \) that drives the key non-monotonicity claims remains.

8 Works Cited


