

INTEGRATED ASYMMETRIC DETERRENCE AND CUMULATIVE STRATEGIC PRESSURE: IRAN'S STRATEGY AGAINST U.S. MILITARY SUPERIORITY, 2019–2024

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Informasi Artikel	ABSTRAK
Kata Kunci: Pencegahan asimetris Tekanan strategis kumulatif Timur Tengah Hubungan Iran–Amerika Serikat	Penelitian ini mengkaji ketimpangan kekuatan militer antara Iran dan Amerika Serikat yang tidak secara otomatis menghasilkan dominasi strategis bagi aktor yang lebih kuat. Berfokus pada kawasan Timur Tengah—Irak, Suriah, Teluk Persia, dan Selat Hormuz pada periode 2019–2024—penelitian ini menganalisis strategi pencegahan asimetris Iran melalui pendekatan kualitatif dengan desain studi kasus komparatif. Pengumpulan data dilakukan melalui analisis dokumen kualitatif terhadap artikel ilmiah, buku akademik, dokumen resmi pemerintah, laporan organisasi internasional, lembaga think tank, serta berbagai sumber sekunder kredibel lainnya yang divalidasi melalui triangulasi sumber. Analisis berfokus pada interaksi tiga instrumen asimetris utama, yaitu rudal balistik dan drone, jaringan proksi, serta operasi di wilayah abu-abu (<i>gray zone</i>), guna menciptakan tekanan strategis terhadap Amerika Serikat. Hasil penelitian menunjukkan bahwa efektivitas pencegahan Iran tidak terletak pada satu kapabilitas tertentu, melainkan pada integrasi lintas domain yang menghasilkan tekanan strategis kumulatif. Mekanisme ini terutama beroperasi melalui <i>deterrence by punishment</i>, dengan Iran secara sistematis menerapkan strategi pembebanan biaya (<i>cost imposition</i>) yang menghasilkan beban militer, ekonomi, dan operasional secara berulang dan tersebar bagi lawan, sehingga mampu mempertahankan efek pencegahan meskipun terdapat kesenjangan kapabilitas konvensional yang signifikan. Temuan ini berkontribusi pada literatur pencegahan dengan menunjukkan bahwa dalam kondisi ketimpangan kekuatan, efektivitas <i>deterrence</i> tidak semata ditentukan oleh superioritas militer konvensional, tetapi oleh kemampuan mengorkestrasi berbagai instrumen asimetris secara simultan dan saling memperkuat.
ABSTRACT	

Keywords:

*Asymmetric deterrence
Cumulative strategic pressure
Middle East
Iran–United States relations*

This study examines how military power asymmetry between Iran and the United States does not automatically translate into strategic dominance for the stronger actor. Focusing on the Middle East—Iraq, Syria, the Persian Gulf, and the Strait of Hormuz during the 2019–2024 period—the study analyzes Iran’s asymmetric deterrence strategy using a qualitative approach and a comparative case study design. Data were collected through qualitative document analysis of peer-reviewed literature, official government documents, reports from international organizations and think tanks, and other credible secondary sources, with source triangulation used to enhance the validity of the findings. The analysis centers on the interaction of three core asymmetric instruments: ballistic missiles and drones, proxy networks, and gray-zone operations, for generating strategic pressure against the United States. The findings show that the effectiveness of Iran’s deterrence lies not in any single capability, but in cross-domain integration that produces cumulative strategic pressure. This mechanism operates primarily through deterrence by punishment, in which Iran systematically engages in cost-imposition strategies that generate recurring and distributed military, economic, and operational burdens on its adversary, thereby sustaining deterrent effects despite significant conventional capability gaps. These findings contribute to the deterrence literature by demonstrating that, under conditions of power asymmetry, deterrence effectiveness depends less on conventional military superiority and more on the capacity to orchestrate asymmetric instruments in a mutually reinforcing manner.

Introduction

Military capability remains a central element in shaping interstate strategic competition and deterrence dynamics, particularly in regions characterized by prolonged geopolitical rivalry. The United States (U.S.) is widely recognized as the world’s preeminent military power, characterized by superiority in weapons technology, global power projection capabilities, and an extensive network of military alliances (Cordesman, 2020). This dominance is particularly evident in the Middle East, where the U.S. maintains a substantial military presence through bases, naval deployments, and security cooperation agreements with various regional allies (Wehrey et al., 2009). Theoretically, such power asymmetry should place weaker states in a vulnerable position vis-à-vis strategic pressure exerted by great powers (Walt, 1987; Mearsheimer, 2001).

However, the security political reality in the Middle East reveals a phenomenon that does not fully conform to conventional expectations regarding deterrence and strategic dominance. Iran, despite possessing significantly more limited conventional military capabilities than the United States, has nonetheless maintained its strategic position and, at times, directly challenged U.S. interests in the region (Byman, 2018; Cordesman, 2020). The military imbalance between the two countries is evident across several key indicators. The U.S. allocates approximately USD 800–900 billion annually to defense, compared with Iran’s USD 20–30 billion, while maintaining more than 13,000 military aircraft, hundreds of overseas military bases, and global power projection capabilities. By contrast, Iran possesses only around 300–400 military aircraft and lacks comparable expeditionary capabilities, focusing instead on regional defense. Collectively, these indicators reflect a profound asymmetry in conventional military capabilities, positioning the U.S. as the materially dominant actor (International Institute for Strategic Studies, 2023; Stockholm International Peace Research Institute, 2024). Yet, despite this structural imbalance, Iran has continued to resist U.S. strategic pressure, presenting an empirical puzzle that conventional military superiority alone cannot adequately explain.

From the perspective of conventional deterrence theory, such overwhelming material superiority should enhance the credibility of deterrent threats and provide the stronger state with greater capacity to influence or constrain the behavior of a weaker adversary through both deterrence by punishment and deterrence by denial (Schelling, 1966; Freedman, 2004). Accordingly, the quantitative disparity presented above is not merely descriptive but theoretically significant, because these indicators serve as empirical proxies for conventional military capability—the principal source of deterrent credibility and coercive leverage in conventional deterrence theory. They therefore establish the structural conditions under which conventional deterrence would predict U.S. strategic dominance over Iran. However, empirical developments since 2019 reveal a persistent divergence between theoretical expectations and strategic reality. Despite its material inferiority, Iran has continued to shape U.S. strategic calculations through a diverse range of asymmetric instruments – proxy networks, ballistic missiles, drone capabilities, gray-zone operations – suggesting that conventional military superiority alone cannot fully explain deterrence outcomes under conditions of extreme power asymmetry.

Despite overwhelming conventional military superiority, the U.S. has been unable to translate its material advantages into uncontested strategic dominance over Iran (Walt, 1987; Mearsheimer, 2001). Rather than yielding to superior military pressure, Iran has continued to maintain a credible deterrent posture that complicates U.S. military and political decision-making in the region (Wehrey et al., 2009). This condition presents an important analytical puzzle: how can a materially weaker state sustain deterrence against a conventionally superior military power? Addressing this question requires moving beyond explanations based solely on material capabilities toward an examination of how weaker states strategically employ asymmetric instruments to influence the calculations of stronger adversaries.

One of the key explanations for this phenomenon is Iran's use of asymmetric deterrence strategies. Unlike conventional deterrence, which relies primarily on superior military capabilities, asymmetric deterrence suggests that materially weaker states can influence stronger adversaries by exploiting strategic vulnerabilities through non-conventional means (Schelling, 1966; George & Smoke, 1974; Freedman, 2004). Rather than seeking military parity, weaker states compensate for conventional inferiority by employing capabilities such as proxy warfare, ballistic missiles, drones, cyber operations, and other gray zone activities to increase the anticipated costs, risks, and uncertainty associated with military intervention (Byman, 2018; Cordesman, 2020). Consequently, deterrence is achieved not through matching an adversary's military strength but through shaping its strategic calculations regarding the costs and consequences of escalation.

Since the end of the Iran–Iraq War in the late 1980s, Iran has gradually developed a security doctrine centered on asymmetric approaches in response to its limitations in conventional military capabilities and sustained external pressures, including international sanctions (Wehrey et al., 2009). The protracted experience of war, constrained conventional military resources, and economic pressure from sanctions have pushed Iranian policymakers to develop strategies capable of offsetting U.S. military superiority without engaging in direct military confrontation (Cordesman, 2020). This strategy has been operationalized through the development of various capabilities, including networks of proxy groups across the Middle East, the strengthening of ballistic missile capabilities, the advancement of drone technology, and asymmetric naval tactics in the Persian Gulf and the Strait of Hormuz (Wehrey et al., 2009; Cordesman, 2020). Through this combination of instruments, Iran has not only enhanced its

defensive capacity but also established deterrence mechanisms capable of influencing the strategic calculations of its adversaries.

The presence of non-state actor networks affiliated with Iran constitutes one of the most important components of this strategy. Through relationships with groups such as Hezbollah in Lebanon, militias in Iraq, as well as actors in Syria and Yemen, Iran has been able to extend its strategic reach while simultaneously creating an indirect layer of deterrence against the U.S. and its allies (Byman, 2018). This strategy increases the complexity of an adversary's strategic calculations, as threats do not originate solely from Iran directly, but also from a dispersed network of actors operating across multiple conflict arenas (Wehrey et al., 2009). Within the deterrence literature, this approach reflects the logic of deterrence by punishment, whereby the prospect of retaliation through dispersed proxy actors increases the anticipated costs and escalation risks of military action by a stronger adversary (Schelling, 1966; Freedman, 2004). Consequently, Iran's proxy network contributes to deterrence not simply by projecting influence, but by complicating U.S. strategic calculations and raising the potential costs of direct military confrontation.

Existing scholarship on asymmetric deterrence provides an important foundation for understanding how materially weaker states compensate for conventional military inferiority. Within this growing body of literature, Iran has emerged as one of the most extensively studied empirical cases of asymmetric deterrence. Previous studies have examined various components of Iran's strategy, including proxy networks, ballistic missile capabilities, unmanned aerial systems, maritime coercion, gray-zone operations, and other non-conventional instruments as key mechanisms of regional deterrence strategy (Wehrey et al., 2009; Cordesman, 2020). Collectively, these studies provide valuable insights into the deterrent functions of individual asymmetric capabilities, thereby substantially advancing our understanding of Iran's strategic behavior.

Although the literature on asymmetric deterrence has expanded considerably, existing studies remain fragmented in explaining how weaker states generate deterrence against materially superior adversaries. Current scholarship has primarily examined individual components of Iran's strategy, including ballistic missile capabilities, proxy warfare, gray-zone operations, and maritime coercion, as separate analytical domains (Byman, 2018; Cordesman, 2020). While these studies provide important insights into specific instruments of Iranian power projection, they pay considerably less attention to the interaction among these

instruments as an integrated deterrence system. Consequently, the existing literature remains limited in explaining how multiple asymmetric capabilities operate simultaneously to influence an adversary's strategic calculations over time.

This limitation reflects a broader theoretical challenge within the deterrence literature. Classical deterrence theory explains deterrence primarily in terms of overwhelming military capability and credible retaliation (Schelling, 1966; Walt, 1987). Subsequent scholarship on asymmetric deterrence recognizes that materially weaker states can offset conventional inferiority through indirect, non-linear, and cost-imposing strategies (Byman, 2018). Nevertheless, both perspectives remain largely capability-centered, emphasizing the deterrent value of individual instruments while paying less attention to how diverse asymmetric capabilities are strategically integrated to generate sustained deterrent effects. Likewise, the U.S. concept of integrated deterrence highlights cross-domain coordination among military, diplomatic, economic, technological, and allied capabilities, but it is primarily designed for conventionally superior great powers rather than materially weaker states. Building upon the logic of asymmetric deterrence while extending it beyond capability-centered explanations, this study argues that deterrence under conditions of extreme military asymmetry is better understood as an integrated strategic process in which multiple asymmetric instruments interact to shape an adversary's cost, risk, and escalation calculations over time. This theoretical position provides the foundation for the concept of integrated asymmetric deterrence developed in this study.

To address this theoretical gap, this study advances the concept of integrated asymmetric deterrence, defined as the strategic integration of multiple asymmetric instruments that operate in a mutually reinforcing manner to shape an adversary's perception of cost, risk, and escalation. Unlike classical deterrence, which relies primarily on the threat of overwhelming retaliation, and unlike conventional asymmetric deterrence, which typically examines individual capabilities in isolation, integrated asymmetric deterrence conceptualizes deterrence as an integrated cross-domain system in which multiple asymmetric instruments operate simultaneously to generate mutually reinforcing strategic effects. Consequently, deterrence effectiveness is understood not as the product of any single capability, but as the cumulative outcome of coordinated interactions among diverse military and non-military instruments across multiple operational domains. Accordingly, the analytical focus shifts from evaluating the deterrent value of individual capabilities to explaining how Iran strategically

orchestrates multiple asymmetric instruments to collectively constrain the decision-making calculus of a conventionally superior adversary.

Building upon the concept of integrated asymmetric deterrence, the study further introduces the notion of cumulative strategic pressure, as the causal mechanism through which integrated asymmetric capabilities generate deterrent effects. Cumulative strategic pressure refers to the gradual accumulation of military, political, economic, and psychological pressures produced through repeated and coordinated asymmetric actions over time. Rather than producing immediate coercive effects, cumulative strategic pressure progressively increases the strategic costs, operational uncertainty, and escalation risks confronting a stronger adversary, thereby constraining its freedom of strategic decision-making despite its overwhelming conventional military superiority. This concept therefore shifts the analytical focus from the effectiveness of individual capabilities toward the cumulative strategic effects generated by their continuous interaction.

The novelty of this study lies not in identifying new asymmetric capabilities, but in reconceptualizing how deterrence is generated under conditions of extreme military asymmetry. Rather than viewing proxy networks, missiles, drones, and other asymmetric instruments as independent sources of deterrence, this study argues that their strategic integration produces cumulative strategic pressure that progressively shapes the decision-making of a conventionally superior adversary.

Building upon this analytical perspective, the study contributes to the literature in three important respects. First, it develops the concept of **integrated asymmetric deterrence** as a framework for explaining how multiple asymmetric capabilities operate as a coherent deterrence system. Second, it introduces **cumulative strategic pressure** as the causal mechanism through which strategically integrated asymmetric capabilities influence an adversary's perceptions of cost, risk, and escalation over time. Third, by examining Iran's strategy against the U.S. between 2019 and 2024, the study extends existing deterrence scholarship beyond capability-centered explanations toward a process-oriented understanding of deterrence under conditions of extreme military asymmetry. In doing so, this study offers a theoretically grounded framework for explaining how materially weaker states can sustain deterrence against conventionally superior military powers through the strategic integration of diverse asymmetric capabilities.

Methodology

This study employs a qualitative approach with a comparative case study design to analyze Iran's asymmetric deterrence strategy against the United States. The qualitative approach is selected because it enables an in-depth exploration of state strategic behavior, operational mechanisms, and the multidimensional dynamics of deterrence (Creswell & Poth, 2018; Yin, 2018). In addition, this approach allows for the examination of complex causal relationships within the dynamic context of international relations (George & Bennett, 2005). Accordingly, this research is not merely descriptive in nature, but also aims to explain how Iran's asymmetric deterrence strategy operates in response to U.S. military superiority.

A comparative case study design is employed to enable the analysis of variations in the implementation of strategy across different operational contexts. This approach is particularly suitable for research focusing on complex and context-dependent phenomena involving interdependent variables that cannot be easily isolated (George & Bennett, 2005; Yin, 2018). Rather than comparing different countries, this study compares multiple conflict episodes involving different combinations of asymmetric instruments to identify recurring patterns and causal variation in Iran's deterrence strategy across operational contexts. Case selection is conducted purposively based on three main criteria: Iran's direct or indirect involvement, relevance to U.S. strategic interests, and representation of variation in asymmetric deterrence instruments.

Based on these criteria, this study focuses on the Persian Gulf region—particularly maritime security dynamics and the Strait of Hormuz—as well as Iraq, which has served as a key theater for both direct and indirect interactions between Iran and the United States. In addition, the analysis incorporates conflict episodes in Syria and Yemen involving Iranian-affiliated proxy actors (Byman, 2013; Wehrey et al., 2009), which are widely regarded in the literature as integral components of Iran's power projection strategy. Together, these cases capture the principal operational arenas in which Iran employed different combinations of asymmetric instruments that directly affected U.S. strategic interests during the period under investigation.

Temporally, the study covers the period from 2019 to 2024. Although the U.S. formally withdrew from the Joint Comprehensive Plan of Action (JCPOA) in May 2018, the subsequent year marked the beginning of sustained strategic confrontation characterized by the implementation of the U.S. "maximum pressure" campaign and Iran's increasingly coordinated

use of asymmetric instruments. The selected period therefore captures the emergence and evolution of Iran's integrated asymmetric deterrence strategy, including intensified proxy warfare, expanded drone and ballistic missile operations, maritime coercion in the Persian Gulf and the Strait of Hormuz, and several major developments such as the Abqaiq–Khurais attacks. Examining this period enables the study to analyze how these diverse asymmetric instruments became increasingly synchronized to generate cumulative strategic pressure against the U.S. across multiple operational domains.

The unit of analysis is conflict episodes, defined as discrete sequences of strategic interaction between Iran and the U.S. in which one or more asymmetric instruments are deliberately employed to influence the strategic calculations of the opposing actor (George & Bennett, 2005). A conflict episode must satisfy three analytical criteria: (1) the deployment of identifiable asymmetric instruments by Iran or its affiliated actors; (2) an observable response from the U.S. or its regional partners; and (3) strategic consequences affecting deterrence dynamics, escalation management, or operational decision-making. Defining conflict episodes in this manner enables systematic comparison across empirical observations while maintaining analytical consistency (George & Bennett, 2005). To enhance analytical transparency, the study operationalizes its two principal concepts into observable empirical indicators. Integrated asymmetric deterrence is operationalized as the observable coordination of multiple asymmetric instruments—including proxy warfare, ballistic missiles, unmanned aerial systems, maritime coercion, cyber activities, and gray-zone operations—whose interaction generates mutually reinforcing strategic effects. Meanwhile, Cumulative Strategic Pressure is operationalized through observable increases in military, political, and operational costs imposed on the United States, heightened escalation risks, greater operational uncertainty, and subsequent adjustments in U.S. strategic behavior, such as restrained military responses, modified force deployments, or changes in operational planning.

Data collection is conducted through qualitative document analysis using multiple categories of secondary sources, including peer-reviewed journal articles, scholarly books, reports published by international organizations such as the International Institute for Strategic Studies (IISS) and the Stockholm International Peace Research Institute (SIPRI), reports from international think tanks including CSIS and RAND, official government documents from both the U.S. and Iran where available, U.S. publications, and reports from reputable international and regional media outlets. Employing diverse categories of evidence reduces dependence on

any single institutional perspective and strengthens analytical balance. Where available, official Iranian government documents and regionally produced sources are incorporated alongside Western academic and policy publications to reduce potential institutional bias and improve source balance. To enhance the validity and reliability of the findings, source triangulation is conducted by cross-verifying factual information across different categories of evidence whenever possible. When discrepancies arise, priority is given to information that can be independently corroborated across multiple categories of sources rather than relying on a single institutional perspective. Information concerning military operations, force capabilities, proxy activities, missile and drone deployment, and maritime incidents is verified using multiple independent sources to minimize institutional bias and improve the credibility of the empirical analysis (Yin, 2018).

In the analytical process, this study employs a combination of pattern matching and process tracing techniques, which are commonly used in qualitative case study research to identify and explain causal mechanisms (George & Bennett, 2005). Pattern matching is used to compare theoretical expectations derived from the concept of Integrated Asymmetric Deterrence with empirical observations across individual conflict episodes. The expected analytical pattern is that increasingly coordinated combinations of asymmetric instruments generate higher levels of cumulative strategic pressure, which are reflected in observable adjustments in U.S. strategic behavior, including strategic restraint, force repositioning, or changes in operational planning. Specifically, the analysis assesses whether different combinations of proxy operations, missile strikes, drone attacks, maritime coercion, cyber activities, and gray-zone operations consistently generate cumulative strategic pressure capable of influencing U.S. strategic behavior. Meanwhile, process tracing is subsequently employed to reconstruct the hypothesized causal mechanism linking the coordinated deployment of asymmetric instruments to deterrence outcomes. The hypothesized causal sequence proceeds from the coordinated deployment of asymmetric capabilities, to the generation of cumulative strategic pressure, to changes in U.S. strategic calculations, and ultimately to deterrence outcomes. The analysis traces the sequential process through which the integration of multiple asymmetric capabilities increases operational uncertainty, anticipated military costs, and escalation risks for the United States, thereby shaping U.S. strategic calculations and encouraging strategic restraint or adjustments in operational behavior. By integrating pattern matching and process tracing, this study seeks not only to identify recurring empirical patterns

but also to explain how and why Iran's integrated asymmetric deterrence strategy generates cumulative strategic pressure capable of constraining the decision-making of a conventionally superior military power.

The analytical framework of this study is grounded in the concept of integrated asymmetric deterrence, which emphasizes the importance of interaction among instruments in producing effective deterrence outcomes. In this regard, the analysis is not limited to examining each instrument in isolation, but also focuses on how the combination of low-cost military capabilities, proxy actor operations, and gray zone activities generates cumulative strategic pressure on the adversary. This approach is consistent with arguments in the literature that deterrence effectiveness is not solely determined by material capabilities, but also by the ability to shape perceptions of risk and cost in an opponent's decision-making process (Byman, 2018).

Result and Discussion

The findings indicate that Iran's asymmetric deterrence strategy cannot be understood in a piecemeal manner through its individual instruments, but must instead be analyzed as an integrated system (Byman, 2018; Cordesman, 2020; Wehrey et al., 2009). Through pattern matching, the study finds that Iran consistently combines missile and drone capabilities, proxy networks, and gray zone activities to generate cumulative strategic pressure (Byman, 2018; Cordesman, 2020). Meanwhile, process tracing demonstrates that the interaction among these instruments gradually reshaped U.S. strategic calculations by increasing anticipated military costs, escalation risks, and operational uncertainty, thereby encouraging more restrained responses in situations where direct military escalation remained a viable option (Gause, 2010). Taken together, these findings reinforce the argument that Iran's deterrence strategy is best conceptualized as integrated asymmetric deterrence, in which deterrence effects are not produced by a single dominant instrument, but rather through the orchestration of multiple instruments operating simultaneously and in a layered manner (Byman, 2018; Cordesman, 2020). Accordingly, the findings suggest that deterrence effectiveness is better understood not simply as the imposition of recurring military or operational costs, but as the capacity of cumulative strategic pressure to alter an adversary's strategic decision-making and reduce its willingness to pursue further escalation.

Ballistic Missiles and Drones as Instruments of Cost Imposition

Ballistic missile systems and drone technology constitute key instruments in Iran's ability to generate asymmetric cost imposition against the U.S. and its regional security partners (Cordesman, 2020; Byman, 2018). The 2019 attacks on the Abqaiq oil processing facility and the Khurais oil field—during which approximately ten drones and several cruise missiles penetrated Saudi Arabia's air defense systems (BBC News, 2019; IISS, 2020; U.S. Department of State, 2019)—temporarily disrupted around 5.7 million barrels per day of oil production, representing roughly 5% of global oil supply and directly destabilizing international energy markets. This incident demonstrated that even advanced air defense systems such as the U.S.-made MIM-104 Patriot are not fully capable of preventing low-cost, precision drone and missile attacks, thereby highlighting the gap between asymmetric threats and conventional defense architectures. It reinforces the perception that the U.S. is unable to fully protect critical energy infrastructure within its alliance network, thereby increasing pressure on U.S. regional security credibility and expanding the need for sustained military and diplomatic engagement to maintain global energy market stability (Byman, 2018; Gause, 2010). Moreover, the relatively limited initial U.S. response—primarily emphasizing economic sanctions, diplomatic measures, and defensive reinforcement rather than immediate offensive military action—contributed to growing concerns among Gulf allies (including Saudi Arabia, the United Arab Emirates, Bahrain, and Kuwait) regarding the reliability of Washington's security guarantees. This, in turn, has encouraged several regional actors to consider diversifying their strategic partnerships and enhancing domestic defense capabilities (Gause, 2010; Byman, 2018; Cordesman, 2020; Juneau, 2020).

In another case, Iran's missile strike on the Ain al-Asad airbase in Iraq in January 2020 demonstrated Iran's ability to influence U.S. military risk assessments and force protection requirements (U.S. Department of Defense, 2020). Although the attack did not result in a large number of immediate fatalities, the Pentagon confirmed that dozens of personnel suffered traumatic brain injuries caused by blast effects (U.S. Department of Defense, 2020; BBC News, 2020). Following the incident, the U.S. significantly strengthened its force protection posture across military facilities in Iraq, Syria, Bahrain, Kuwait, and Qatar, including the enhancement of air defense systems and base security protocols (CSIS, 2020; IISS, 2020). In addition, adjustments were made in the distribution of military assets, alongside a tendency to avoid direct escalation, indicating that the primary effects of the strike were not only physical but also psychological and strategic in shaping U.S. risk calculations (Byman, 2018).

More broadly, this pattern indicates that Iran's missile and drone capabilities operate as part of a mechanism of asymmetric cost imposition that is recurrent and adaptive, in which strategic effects are not episodic but structural in nature (Byman, 2018; Cordesman, 2020). However, the existence of sustained cost imposition should not be automatically interpreted as evidence of deterrence success. Rather, these capabilities demonstrate Iran's ability to impose risks and compel the U.S. to allocate additional resources toward force protection, regional defense, and escalation management. In this context, deterrence effects are better understood through observable changes in U.S. strategic behavior, including adjustments in military deployments, defensive investments, and operational planning, while recognizing that such adaptations may also reflect broader geopolitical considerations beyond Iranian deterrent pressure alone (Schelling, 1966; Jervis, 1979). Empirically, such adjustments are evident in the increased U.S. military presence in Saudi Arabia following the 2019 Abqaiq–Khurais attacks, including the deployment of Patriot and THAAD air defense systems to strengthen the protection of critical energy infrastructure belonging to key U.S. allies in the Persian Gulf (U.S. Department of Defense, 2019; CSIS, 2020; IISS, 2020). This development reflects Washington's effort to reinforce its deterrence posture and reduce vulnerability to long-range precision strikes conducted by Iran and its regional proxies (Cordesman, 2020; Gause, 2010). While these adjustments indicate that Iranian capabilities generated significant security concerns requiring additional U.S. commitments, they do not by themselves demonstrate that Iran achieved its intended deterrence objectives, as U.S. responses were also shaped by broader commitments to alliance reassurance, regional stability, and energy security. These findings indicate that ballistic missiles and drones should not be interpreted as independent sources of deterrence, but rather as one component of a broader integrated asymmetric deterrence system whose effectiveness depends on its interaction with other asymmetric instruments examined in the subsequent sections.

In addition, the U.S. has expanded its resource allocation through the establishment and strengthening of maritime security operations such as Operation Sentinel and the International Maritime Security Construct (IMSC) in the Strait of Hormuz. Since 2019, these initiatives have institutionalized multinational maritime patrol efforts that were previously fragmented and primarily conducted on a bilateral or unilateral basis by the U.S. and its allies. The framework involves at least eight participating countries, including the United States, the United Kingdom, Australia, Bahrain, Saudi Arabia, the United Arab Emirates, Albania, and Lithuania, in the

escort and patrol of commercial shipping in the Persian Gulf (U.S. Department of Defense, 2019; International Institute for Strategic Studies [IISS], 2020). These operations represent a direct response to increasing threats to maritime security in the Persian Gulf, which, according to various international security assessments, are associated with rising tensions between the U.S. and Iran (Cordesman, 2020; Gause, 2010). This includes incidents involving the tankers *Front Altair* and *Kokuka Courageous*, as reported by the International Maritime Organization, although the attribution of responsibility for these incidents remains contested among different parties (International Maritime Organization, 2020). The establishment of these maritime security arrangements illustrates how Iranian coercive capabilities contributed to increased U.S. and allied security commitments in the Persian Gulf. Nevertheless, the expansion of maritime patrol operations should be interpreted primarily as an adaptive response to perceived threats rather than definitive evidence of deterrence success. The available evidence demonstrates that Iran increased the costs of maintaining regional security, but it remains difficult to determine whether these costs produced sustained changes in U.S. strategic objectives or constrained Washington's willingness to operate in the region.

At the same time, there has been an increased utilization of intelligence, surveillance, and reconnaissance (ISR) assets within the U.S. Central Command (CENTCOM) area of responsibility, marked by a shift from episodic ISR operations toward a persistent ISR posture. This refers to a continuous surveillance pattern that maintains rotational deployment of air and maritime platforms across Iraq, Syria, and surrounding regions (U.S. Central Command, 2020; International Institute for Strategic Studies [IISS], 2020). In the post-2019 period, U.S. Air Forces Central (AFCENT) explicitly emphasized heightened ISR requirements to support counter-rocket, drone, and militia network monitoring operations, indicating an increased demand for surveillance capacity compared to earlier periods, although no publicly available percentage increase has been disclosed (U.S. Central Command, 2020). This development reflects U.S. efforts to strengthen situational awareness in response to dispersed and non-centralized asymmetric threats (Byman, 2018). Although this adaptation indicates that Iranian asymmetric capabilities influenced U.S. operational requirements, it should be understood as evidence of threat perception and military adjustment rather than direct confirmation of deterrence success.

The U.S. has also experienced increased operational burdens through the expansion of rotational deployments and long-term positioning of aircraft carriers and naval task forces in

the Persian Gulf. This is reflected in the growing frequency of carrier strike group deployments to the region, as well as repeated forward deployment of vessels such as USS *Abraham Lincoln* (CVN-72) and USS *Dwight D. Eisenhower* (CVN-69) during the 2019–2020 period in response to escalating security tensions. These deployments extend the duration of maritime operations and increase logistics sustainment requirements, including refueling, maintenance, and supply chain support, thereby significantly raising operational costs compared to peacetime baseline operations (U.S. Department of Defense, 2020; CSIS, 2020). According to several U.S. defense assessments, a full aircraft carrier deployment may incur operational costs exceeding USD 6–8 million per day, excluding additional expenses for escort destroyers, combat aircraft, and logistical support (CSIS, 2020). This condition illustrates that Iran’s asymmetric capabilities generate cost-imposition effects not only at the level of security risks, but also through increased demands on U.S. military operational expenditures (Cordesman, 2020; Byman, 2018).

Taken together, these empirical observations demonstrate that the strategic significance of Iran’s missile and drone capabilities lies not solely in their ability to impose recurring military and financial costs, but in their contribution to a broader process of cumulative strategic pressure. Through their repeated and coordinated employment across multiple conflict episodes, these capabilities progressively increased operational uncertainty, reinforced escalation risks, and compelled continuous adjustments in U.S. force posture and regional defense planning. Importantly, these findings suggest that the deterrent value of missiles and drones does not derive from individual strikes alone, but from their cumulative interaction with other asymmetric instruments that together constitute Iran’s integrated asymmetric deterrence strategy.

This process indicates that Iranian missile and drone capabilities have contributed to structural adjustments in U.S. military planning and resource allocation, particularly in relation to force protection, regional defense, and escalation management (U.S. Department of Defense, 2020; CSIS, 2020; IISS, 2020). Nevertheless, these developments should be interpreted as evidence of Iran’s capacity to impose recurring operational and financial burdens rather than conclusive proof of deterrence success. The available evidence demonstrates that Iran has influenced the strategic environment by increasing the risks and costs associated with U.S. regional engagement; however, whether these pressures have produced genuine deterrence outcomes depends on whether they have altered U.S. strategic objectives, operational

commitments, or willingness to pursue specific policies. Therefore, Iran's asymmetric strategy is more accurately characterized as a mechanism of strategic pressure and cost imposition that influences adversary calculations and imposes constraints on operational decision-making, rather than as an unequivocal case of successful deterrence (Byman, 2018; Cordesman, 2020).

Proxy Operations as Layered Deterrence

Iran's network of proxy actors functions as a layered deterrence mechanism that generates sustained military pressure against the U.S. across multiple geographic fronts. In this study, layered deterrence refers to the use of geographically dispersed proxy actors that create multiple, simultaneous points of military pressure, thereby complicating an adversary's operational planning and increasing the costs of escalation. Rather than operating independently, proxy networks complement missile, drone, and gray zone capabilities by extending the spatial reach and persistence of cumulative strategic pressure. Regional security reports indicate that between 2019 and 2024, more than 150 attacks targeting U.S. interests in Iraq and Syria have been attributed to groups affiliated with Iran, including Kataib Hezbollah, Harakat al-Nujaba, and other militias within the Popular Mobilization Forces (CSIS, 2023; Iran Watch, 2021). These attacks have included the use of Katyusha rockets, loitering drones, and mortar strikes against U.S. bases such as Ain al-Asad, Al-Tanf, and the Erbil airbase. Although most of these incidents have not produced large-scale strategic damage, their cumulative impact on the U.S. has been significant across several dimensions (U.S. Department of Defense, 2024; CSIS, 2023). In terms of personnel, repeated attacks have increased the risk of non-combatant casualties and traumatic injuries, including traumatic brain injuries resulting from blast shockwaves. This has led to greater medical evacuation requirements and accelerated troop rotation beyond initial operational planning assumptions (U.S. Department of Defense, 2024).

From an operational perspective, the sustained nature of these attacks has compelled the U.S. to maintain a high-alert posture across its military installations in Iraq and Syria. This is reflected in the increased deployment of active defense systems such as Counter-Rocket, Artillery, and Mortar (C-RAM) systems, as well as anti-drone technologies at multiple bases since 2021. Security data indicates that U.S. forces are required to respond within seconds to recurring rocket and drone attacks, particularly around facilities such as Ain al-Asad Air Base and operational areas in eastern Syria. This condition has contributed to increased operational

fatigue among personnel due to the high intensity of force protection duties, as well as restrictions on non-essential activities such as routine training and joint patrols with Iraqi Security Forces. In addition, defense reports highlight increased logistical resource consumption for base defense maintenance, including base hardening measures, installation of physical barriers, and upgrades to infrastructure designed to mitigate drone and rocket threats (Congressional Research Service, 2023; National Defense University Press, 2021). Overall, this pattern demonstrates that repeated asymmetric threats do not only affect immediate security conditions, but also generate sustained operational burdens that reduce the United States' military flexibility in the region.

From a financial perspective, the persistence of these threats generates additional non-trivial operational costs. In the context of U.S. military operations under U.S. Central Command (CENTCOM), the heightened threat environment driven by Iranian proxy activity contributes to increased long-term deployment costs, which are conservatively estimated to reach tens of millions of dollars per day in expanded regional operations (Congressional Research Service, 2023). In addition, the sustained deployment of strategic assets such as carrier strike groups in the Persian Gulf incurs additional operational costs of approximately USD 6–8 million per day per carrier group. In aggregate, these expenditures significantly increase the fiscal burden associated with maintaining a continuous U.S. military presence in the region (Congressional Research Service, 2023). However, the existence of increased operational expenditures should not be interpreted as evidence of deterrence in itself. Consistent with deterrence theory, cost imposition becomes strategically relevant only when these recurring burdens influence an adversary's assessment of the costs, risks, and benefits associated with continued military engagement (Schelling, 1966; Morgan, 2003). In this context, Iran's proxy strategy contributes to cumulative strategic pressure not simply by imposing financial costs, but by transforming these recurring expenditures into broader operational and strategic constraints that require sustained U.S. resource allocation, force protection measures, and escalation management across multiple theaters.

At the infrastructural level, the need to sustain forward-deployed forces in high-risk environments has driven increased investment in base defense systems such as Patriot and THAAD, as well as counter-rocket, artillery, and mortar (C-RAM) systems. Collectively, these expenditures generate additional annual costs amounting to hundreds of millions of dollars in procurement, maintenance, and operational readiness (U.S. Department of Defense, 2024).

Meanwhile, U.S. involvement in maritime security operations such as Operation Sentinel has further increased multilateral cost burdens, with cumulative estimates reaching billions of dollars since its implementation. A significant portion of these expenditures is associated with securing critical sea lines of communication in the Persian Gulf and the Strait of Hormuz (CSIS, 2023). These recurring financial and infrastructural commitments are therefore analytically significant not because they demonstrate deterrence success, but because they contribute to the broader process of cumulative strategic pressure that progressively shapes U.S. strategic calculations.

From a strategic perspective, the existence of proxy warfare also constrains the United States' ability to reduce its military footprint in the region, as any reduction in deployment risks increasing the likelihood of local escalation and creating a power vacuum that could be exploited by proxy actors (National Defense University Press, 2021). Accordingly, the costs generated are not only financial in nature but also structural. These costs involve the long-term entanglement of the U.S. in sustaining a forward military presence in a high-risk regional environment. Such structural burdens become relevant to deterrence only insofar as they increase the anticipated costs and operational risks associated with future military options, thereby contributing to cumulative strategic pressure rather than constituting deterrence outcomes in themselves.

In terms of response, the U.S. conducted more than ten limited retaliatory strikes against pro-Iran militia facilities in Iraq and Syria during this period. However, the degree of command and control remains partial and varies across operational contexts, creating both strategic leverage and escalation risks for Iran (CSIS, 2023). This pattern indicates the presence of asymmetric escalation management, in which conflict persists in the form of low-intensity but continuous engagement (Iran Watch, 2021; National Defense University Press, 2021). Importantly, the continuation of low-intensity conflict indicates that the persistence of proxy operations did not automatically produce successful deterrence. Rather, these recurring military, financial, and operational burdens contributed to cumulative strategic pressure that complicated U.S. decision-making by increasing the costs, risks, and uncertainties associated with sustained regional engagement. In this context, proxy warfare does not merely generate limited material losses, but instead produces cumulative operational strain that compels the U.S. to maintain long-term military deployment, increase layered defense expenditures, and

absorb a strategic burden in the form of entrapment in a conflict without a clear military resolution.

Gray Zone and Strategic Ambiguity

Iran's activities in the gray zone reinforce its deterrence strategy through the production of structured strategic uncertainty. In this study, structured strategic uncertainty refers to a deliberately constructed condition in which an adversary faces persistent uncertainty regarding the origin, scale, timing, and potential escalation of hostile actions, while recurring patterns of behavior provide sufficient signals of strategic intent. Unlike uncertainty caused merely by incomplete information, structured strategic uncertainty is produced through the systematic combination of ambiguity, indirect coercion, and calibrated actions below the threshold of open conflict (Schelling, 1966; Mazarr, 2015; Morgan, 2003). In contrast to conventional military force, which is explicit in nature, gray-zone operations function below the threshold of open conflict, thereby complicating direct attribution and constraining the adversary's response options (National Defense University Press, 2021; Center for Strategic and International Studies [CSIS], 2020). In this context, the gray zone does not merely operate as an operational instrument, but also as a mechanism for shaping a strategically ambiguous environment characterized by heightened calculative risk for the opposing actor.

One of the clearest manifestations of this strategy is the series of incidents targeting commercial tankers in the Strait of Hormuz during the 2019–2021 period, including the attacks on the *Front Altair* and *Kokuka Courageous*, as well as the seizure of foreign-flagged vessels by the IRGC Navy (International Maritime Organization, 2020; U.S. Energy Information Administration, 2021). A defining characteristic of these incidents is attributional ambiguity (plausible deniability), whereby Iran's involvement is often not explicitly acknowledged, yet remains sufficiently credible to shape international threat perceptions (CSIS, 2020). This credibility of attribution arises from recurring patterns of attacks carried out by non-state armed groups affiliated with Iran across multiple conflict theaters, particularly militias operating in Iraq and Syria such as Kataib Hezbollah, Harakat al-Nujaba, and elements within the Popular Mobilization Forces (PMF). These patterns indicate the presence of sustained structural linkages, reflected in the ability of these groups to consistently conduct attacks using rockets, drones, and mortars against strategic targets. In this context, Iran's support can be understood to include both material assistance—such as the provision of weapons and logistical

resources—and operational support in the form of training, planning, and indirect coordination, as evidenced by the consistency of attack patterns and target selection across different locations. Although the degree of control remains partial and not always direct, the combination of repeated attacks, convergence in capabilities, and actor linkages reinforces the interpretation that these incidents form part of a broader proxy warfare strategy, despite the absence of explicit claims of responsibility (Cordesman, 2020; O’Hanlon, 2021).

Structurally, the Strait of Hormuz constitutes a critical strategic chokepoint through which approximately 20% of global oil trade flows (U.S. Energy Information Administration, 2021). Consequently, even limited disruptions in this area can produce disproportionately large effects on global energy market stability. Within this context, Iran’s gray-zone operations generate deterrence effects that do not depend on the scale of destruction, but rather on the sensitivity of global systems to limited disruptions, i.e., the exploitation of systemic vulnerabilities (National Defense University Press, 2021).

From a response perspective, these incidents have led to a significant increase in the military presence of the U.S. and its allies. First, the Operation Sentinel initiative, launched in 2019, aimed to enhance the security of maritime shipping lanes in the Persian Gulf and the Strait of Hormuz through coordinated multinational patrols (U.S. Department of Defense, 2020; CSIS, 2020). Second, the U.S. also strengthened its naval presence through the establishment of the IMSC, which brings together several allied states to conduct monitoring and escort operations for commercial vessels in the region (U.S. Department of Defense, 2020). Intensified maritime surveillance is also reflected in increased rotational deployments of U.S. naval assets under CENTCOM command, including periodic positioning of destroyers and aircraft carriers in the Persian Gulf to maintain the stability of global energy routes (U.S. Department of Defense, 2020). However, these responses remain predominantly defensive, focusing on protective and preventive measures rather than offensive retaliation, and are limited in both scale and operational scope. This reflects a strategic dilemma produced by conditions of ambiguity: overt military escalation risks broadening regional conflict, while non-response risks undermining deterrence credibility and the security of global oil trade routes passing through the Strait of Hormuz (CSIS, 2020).

Beyond the military dimension, this gray zone strategy also generates concrete indirect economic effects on U.S. interests. The increased security risk in the Strait of Hormuz has contributed to a significant rise in maritime insurance costs. Industry reports, including those

from the Lloyd's Market Association, indicate that war risk insurance premiums for tankers transiting the Persian Gulf increased several-fold during periods of heightened tension in 2019–2020, with additional daily costs reaching tens to hundreds of thousands of dollars per vessel (Lloyd's Market Association, 2020; International Chamber of Shipping, 2020). This escalation in insurance costs increases the overall cost of global energy distribution and ultimately affects global oil price stability, which remains a core strategic interest of the U.S. as a major actor in the international energy system. In some cases, insurance premiums for transits in the region reportedly increased by more than 100 percent compared to normal conditions, prompting shipping companies to reroute vessels or delay deliveries (International Chamber of Shipping, 2020). Accordingly, Iran's strategy does not only generate military pressure but also produces transnational economic cost imposition, which indirectly affects U.S. economic interests through increased energy price volatility and disruptions in global supply chains (U.S. Energy Information Administration, 2021).

Within the theoretical framework of deterrence, this condition produces structured strategic uncertainty that functions as a deterrence multiplier (National Defense University Press, 2021). Rather than simply generating confusion, this form of uncertainty creates a patterned strategic dilemma in which the U.S. must continuously evaluate incomplete but recurring signals regarding Iranian intentions, capabilities, and escalation thresholds. Ambiguity not only constrains attribution capabilities, but also complicates the adversary's decision-making process by increasing uncertainty regarding Iran's intentions, capabilities, and escalation thresholds (CSIS, 2020). As a result, the U.S. is confronted with a spectrum of response options, all of which entail high costs—whether in terms of escalation risk, operational burden, or reputational consequences.

Furthermore, the interaction between gray-zone operations and other instruments such as proxy warfare and missile capabilities reinforces the cumulative effects of deterrence. Through structured strategic uncertainty, gray zone activities create a connective mechanism that links multiple asymmetric instruments by increasing uncertainty across different domains of confrontation. Ambiguity in the maritime domain, for instance, increases uncertainty regarding the potential for simultaneous escalation in other domains, including proxy attacks in Iraq or drone strikes against energy infrastructure (National Defense University Press, 2021). Accordingly, the gray zone does not operate as a standalone instrument, but rather functions as a linkage mechanism that integrates multiple tools within a single spectrum of strategic

pressure. Thus, it can be concluded that Iran's gray zone strategy is not merely a tactic for avoiding open conflict, but rather a central component of an integrated asymmetric deterrence architecture. Through the systematic production of ambiguity, Iran is able to shift the deterrence landscape away from the conventional domain toward a domain of uncertainty, in which superior military capability cannot automatically be translated into effective strategic advantage.

Although each empirical case has been examined separately, the findings indicate that the strategic significance of Iran's asymmetric deterrence strategy lies not in the independent effectiveness of individual instruments, but in the distinct yet complementary forms of pressure they generate. Missiles and drones primarily impose direct military risks, proxy networks sustain dispersed operational burdens across multiple theaters, and gray zone activities maintain strategic ambiguity below the threshold of conventional conflict. To clarify how these empirical cases collectively contribute to Iran's broader deterrence strategy, Table X summarizes the relationship between each case, its corresponding asymmetric instrument, the observed strategic effects, and its implications for deterrence.

Integrated Asymmetric Deterrence and Cumulative Strategic Pressure

This study argues that Iran's asymmetric strategy cannot be fully understood through the examination of individual instruments in isolation. Rather, its strategic effects emerge from the way missiles and drones, proxy networks, and gray-zone operations complement one another by generating different but interconnected forms of pressure against U.S. interests and regional partners. In this study, cumulative strategic pressure refers not to the simple accumulation of separate coercive actions, but to the synergistic interaction among asymmetric instruments in which each capability generates a distinct form of pressure while simultaneously reinforcing the strategic effects of the others. The cumulative effect of these instruments derives from their functional differentiation rather than simple numerical accumulation. Missile and drone capabilities provide Iran with the ability to impose direct military risks against critical infrastructure and forward-deployed forces. Proxy networks expand this pressure by extending Iran's operational reach and creating multiple potential escalation points without requiring direct Iranian involvement. Meanwhile, gray-zone operations maintain persistent uncertainty and impose economic and political costs through activities below the threshold of conventional conflict. When combined, these instruments create a layered pressure

mechanism in which the U.S. must simultaneously address immediate security threats, indirect escalation risks, and persistent strategic uncertainty (National Defense University Press, 2021; CSIS, 2023).

To facilitate cross-case comparison and clarify the relationships among the empirical findings discussed in the preceding sections, Table 1 summarizes how each case contributes to Iran's broader architecture of integrated asymmetric deterrence. Rather than representing isolated episodes, the cases reveal complementary mechanisms through which missiles and drones, proxy networks, and gray-zone operations collectively generate cumulative strategic pressure against the U.S. and its regional partners.

Table 1. Summary of Empirical Findings on Iran's Integrated Asymmetric Deterrence Strategy

Empirical Case	Primary Asymmetric Instrument	Observed Strategic Effect	U.S. Response / Behavioral Adjustment	Deterrence Implication
Abqaiq–Khurais attacks (2019)	Missiles and drones	Disruption of Saudi oil production, exposure of vulnerabilities in advanced air defense systems, increased perceived risks to critical infrastructure	Reinforcement of Patriot and THAAD deployments, enhanced protection of Gulf energy infrastructure, strengthened regional defense commitments	Demonstrated Iran's capacity for cost imposition, increasing escalation risks and influencing U.S. military planning rather than producing conclusive deterrence.
Ain al-Asad missile strike (2020)	Ballistic missiles	Increased operational risks to U.S. forward-deployed forces and psychological effects on force protection	Strengthened base security, enhanced air defense, redistribution of military assets, greater emphasis on force protection	Increased U.S. operational costs and risk calculations, contributing to constraint-based deterrence through heightened military caution.
Proxy attacks in Iraq and Syria (2019–2024)	Proxy networks	Sustained low-intensity military pressure across multiple theaters, increased operational and logistical burdens	Expansion of C-RAM systems, troop rotations, retaliatory strikes, continued forward deployments	Generated persistent operational, financial, and strategic burdens that constrained U.S. military flexibility while maintaining escalation below the threshold of major war.
Strait of Hormuz	Gray-zone operations	Strategic ambiguity,	Operation Sentinel, International	Increased decision uncertainty and

Empirical Case	Primary Asymmetric Instrument	Observed Strategic Effect	U.S. Response / Behavioral Adjustment	Deterrence Implication
gray zone incidents (2019–2021)		disruption of maritime security, increased uncertainty in global energy markets	Maritime Security Construct (IMSC), expanded naval patrols and maritime surveillance	economic costs while complicating escalation choices through plausible deniability and ambiguity.
Cross-case synthesis	Integrated asymmetric deterrence	Layered interaction among missiles and drones, proxy warfare, and gray-zone operations generates cumulative military, political, and economic pressure	Sustained adaptation of U.S. force posture, resource allocation, maritime security commitments, and regional military presence	Deterrence emerges through the cumulative interaction of complementary asymmetric instruments that constrain U.S. strategic choices rather than preventing U.S. action outright.

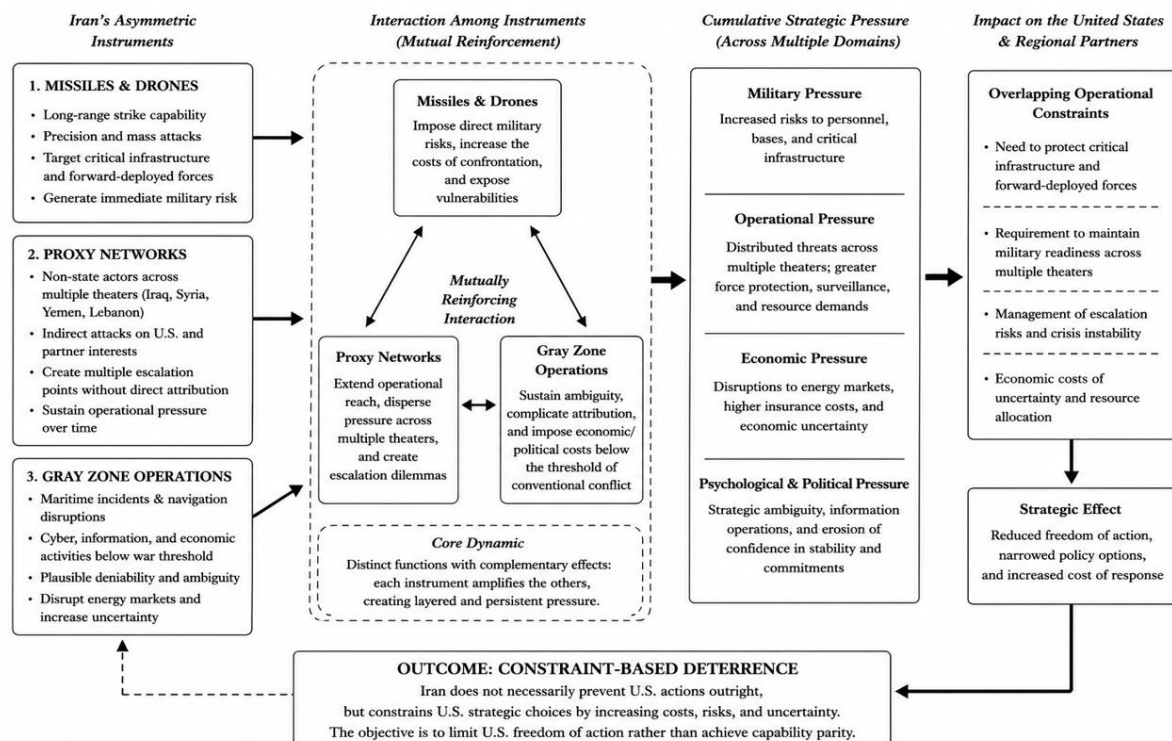
As shown in Table 1, each empirical case contributes a distinct form of strategic pressure rather than independently producing deterrence. Deterrence, therefore, emerges from the interaction among these instruments rather than from the effectiveness of any single capability. Missile and drone capabilities primarily generate direct military risks, proxy networks expand operational burdens across multiple theaters, and gray-zone operations sustain strategic ambiguity below the threshold of conventional conflict. The cumulative interaction of these instruments, rather than the effectiveness of any single capability, forms the empirical basis for understanding Iran's integrated asymmetric deterrence strategy.

Taken together, the empirical evidence demonstrates that the strategic effects of these asymmetric instruments are complementary rather than additive. Missile and drone capabilities impose immediate military risks that increase the costs of direct confrontation and expose vulnerabilities in critical infrastructure. Proxy networks extend these pressures geographically by dispersing operational burdens across multiple theaters, compelling the U.S. to maintain force protection, logistical support, and military readiness simultaneously in Iraq, Syria, and other regional flashpoints. Gray-zone operations further reinforce these pressures by sustaining strategic ambiguity and imposing indirect economic and political costs without crossing the threshold of conventional warfare. Through maritime disruptions, plausible deniability, and

uncertainty surrounding escalation pathways, gray zone activities prolong security commitments while complicating U.S. strategic calculations. Consequently, each instrument performs a distinct strategic function while simultaneously reinforcing the effectiveness of the others, producing cumulative strategic pressure that exceeds the effects of any single instrument operating independently.

Rather than functioning as separate components, these three instruments interact to create an integrated deterrence architecture. The defining feature of this architecture is not the simultaneous presence of multiple capabilities, but the way each instrument compensates for the limitations of the others. Missile and drone capabilities generate direct military pressure, proxy networks multiply the number of potential confrontation points and expand operational burdens, whereas gray zone activities preserve strategic ambiguity that limits the adversary's ability to formulate decisive responses. The interaction among these instruments therefore increases escalation risks, extends operational commitments, and amplifies uncertainty across military, political, and economic domains. Collectively, these dynamics constrain U.S. strategic flexibility by forcing policymakers to manage multiple and overlapping forms of pressure simultaneously rather than responding to a single identifiable threat. Figure 1 illustrates this integrated asymmetric pressure mechanism and demonstrates how the interaction among missiles and drones, proxy networks, and gray-zone operations generates cumulative strategic pressure that shapes U.S. operational constraints.

Figure 1. Integrated Asymmetric Pressure Mechanism of Iran



As illustrated in Figure 1, the effectiveness of Iran's asymmetric deterrence strategy lies not in the independent performance of any single instrument, but in the mutually reinforcing interaction among them. This interaction produces a cross-domain deterrence mechanism in which military, operational, political, and economic pressures accumulate over time and constrain the strategic freedom of action available to the United States. Direct military threats generated by missiles and drones increase the immediate costs of confrontation, proxy warfare expands the geographical scope and persistence of operational pressure, while gray zone activities maintain ambiguity that complicates attribution and escalation management. Together, these instruments create overlapping military, operational, economic, and political pressures that reinforce one another over time, producing a cumulative deterrent effect disproportionate to Iran's conventional military capabilities.

When these three instruments operate simultaneously, the U.S. faces a strategic environment characterized by overlapping operational constraints rather than a traditional balance-of-power confrontation (National Defense University Press, 2021). These constraints emerge from the need to manage escalation risks, protect critical infrastructure, and maintain military readiness across multiple theaters of operation, including Iraq, Syria, the Persian Gulf, and critical maritime chokepoints. Consequently, every available military option involves significant trade-offs, whether through escalation risks associated with proxy actors, economic consequences resulting from disruptions to global energy markets, or structural burdens associated with sustaining forward military deployments across multiple regions (CSIS, 2023; Congressional Research Service, 2023).

Within this framework, deterrence effects are understood not as the absolute ability to prevent an adversary's actions, but as the capacity to constrain the adversary's strategic flexibility by raising the military, political, and economic costs associated with intervention. This suggests that Iran's strategy is more accurately conceptualized as a form of constraint-oriented deterrence, in which the primary objective is not to eliminate the United States' freedom of action entirely, but to reduce its operational effectiveness by creating persistent strategic trade-offs across multiple domains (Byman, 2018). These findings contribute to ongoing debates in deterrence studies by demonstrating that under conditions of extreme power asymmetry, strategic pressure emerges not solely from individual military capabilities but from the coordinated integration of multiple asymmetric instruments that collectively shape the adversary's strategic calculations.

Strategic Outcomes of Iran's Asymmetric Cost-Imposition Strategy

Overall, the findings indicate that Iran's asymmetric strategy has demonstrated the capacity to generate increased costs, risks, and operational complexity for the United States. However, these outcomes should not be interpreted automatically as evidence of deterrence success, as deterrence effectiveness requires observable changes in adversary behavior, particularly the modification or abandonment of strategic objectives.

These effects are reflected in changes to U.S. military posture in the region, including higher force protection levels, strengthened base defense systems such as Patriot and C-RAM in Iraq and Gulf states, and adjustments in force distribution through rotational deployments and additional positioning of naval assets and air defense systems (U.S. Department of Defense, 2024; Congressional Research Service, 2023). Nevertheless, these developments are better understood as evidence of adaptation and threat response rather than definitive indicators of successful deterrence. In addition, the U.S. has expanded its engagement in regional security operations through maritime initiatives such as Operation Sentinel and the IMSC. These developments illustrate a pattern of escalation management characterized by sustained increases in military presence and surveillance in response to ongoing asymmetric pressure (CSIS, 2020; U.S. Department of Defense, 2020).

Furthermore, this strategy demonstrates Iran's ability to sustain strategic pressure over time through a combination of military and non-military instruments, compelling the U.S. to continuously adjust its posture and military resource allocation across multiple operational theaters. Rather than constituting conclusive evidence of successful deterrence, these sustained adjustments indicate Iran's capacity to persistently impose strategic costs that require continuous U.S. adaptation. Accordingly, successive episodes of regional escalation have been accompanied by corresponding enhancements in U.S. military presence and readiness (Byman, 2018). This persistent pattern of adaptation is further reflected in the consistent strengthening of force protection measures and layered defense systems across the CENTCOM area of responsibility (U.S. Department of Defense, 2024; RAND Corporation, 2022). These developments do not suggest that Iran has prevented U.S. military operations altogether. Instead, they indicate that the U.S. has been compelled to sustain substantial military resources and long-term operational commitments in order to preserve regional stability and maintain strategic flexibility.

Thus, Iran's asymmetric deterrence strategy can be understood as an effective mechanism for shaping a strategic environment that requires sustained responses from the United States. Such responses include increased military presence, strengthened defense systems, and expanded maritime security operations. These findings suggest that, under conditions of pronounced power asymmetry, deterrence is achieved not through capability parity but through the sustained capacity to shape the adversary's strategic calculations by continuously increasing the military, political, and operational costs associated with intervention (National Defense University Press, 2021; Congressional Research Service, 2023). Accordingly, the empirical findings support the central argument of this study that Iran's integrated asymmetric deterrence strategy derives its effectiveness not from matching U.S. conventional military superiority, but from generating cumulative strategic pressure that persistently constrains U.S. operational flexibility and increases the costs of sustained regional engagement.

Conclusion

This study argues that Iran has developed and employed an integrated asymmetric deterrence strategy capable of generating significant strategic pressure against the U.S. despite its substantially more limited conventional capabilities. Rather than relying on a single asymmetric instrument, this strategy operates through the coordinated interaction of three core components: ballistic missiles and drones, proxy actor networks, and gray-zone operations. Together, these instruments generate cumulative military, operational, economic, and political pressures that increase the costs and risks of U.S. military engagement while complicating strategic decision-making without requiring direct conventional confrontation. The findings demonstrate that Iran's deterrence strategy functions primarily through the coordinated imposition of cumulative military, operational, economic, and political pressures that constrain U.S. strategic flexibility by increasing the costs, risks, and complexity of military intervention. However, these findings should not be interpreted as conclusive evidence of successful deterrence, as the available evidence demonstrates persistent U.S. strategic adaptation rather than fundamental changes in its broader strategic objectives.

Theoretically, this study contributes to the literature on deterrence and asymmetric conflict by demonstrating that deterrence under conditions of pronounced power asymmetry does not necessarily depend on conventional military parity. Instead, deterrence effects may emerge through the integration of multiple asymmetric instruments that operate across different

domains and collectively shape an adversary's strategic calculations. By conceptualizing Iran's strategy as an integrated asymmetric deterrence architecture, this study demonstrates that the effectiveness of asymmetric deterrence lies not in the independent performance of individual capabilities, but in the mutually reinforcing interaction among multiple asymmetric instruments. This interaction produces cumulative strategic pressure that constrains an adversary's strategic flexibility by increasing the military, operational, economic, and political costs associated with intervention. In this regard, the study highlights the analytical value of examining cross-domain interactions among asymmetric instruments rather than assessing each capability in isolation. Accordingly, this study conceptualizes Iran's deterrence strategy as a form of constraint-oriented deterrence, whereby the primary objective is not to prevent an adversary's actions outright but to reduce the effectiveness of its strategic options through sustained increases in cost, risk, and operational complexity.

This study nevertheless has several limitations. The analysis relies primarily on secondary sources and publicly available strategic and security reports, which limit direct observation of decision-making processes and operational coordination among Iran's asymmetric instruments. Future research could further evaluate the integrated asymmetric deterrence framework through the use of primary data, including interviews with policymakers, military practitioners, and regional security experts. Comparative studies involving other asymmetric powers—such as Russia, North Korea, or China—would also provide valuable opportunities to examine whether similar mechanisms of cumulative strategic pressure and constraint-oriented deterrence operate across different geopolitical contexts, thereby refining the broader applicability of the analytical framework proposed in this study. Accordingly, the concept of integrated asymmetric deterrence provides a useful analytical framework for understanding how materially weaker states can systematically constrain conventionally superior adversaries through the coordinated application of multiple asymmetric instruments.

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