Military Power and Conventional Deterrence: A Literature Review*

Augusto C. Dall'Agnol[a] ■ Érico E. Duarte[b]

Abstract: This literature review explains how strategies of deterrence and compellence relate to military power. Such an inquiry is relevant as much of the literature on military power diffusion focuses exclusively on military platforms and weapons systems. Hence, we advance a more political and strategic approach rather than a more technological approach while assessing military power. The article uses "costs" and "probability of success" to assess conventional deterrence. Although both compellence and deterrence are coercive strategies, they have different implications for the diffusion of military power, especially because of the costs associated with each one. We argue that countries should not replicate or pursue a carbon copy of all the top platforms and advanced weapons systems of a leading state to catch up or to deny the advantages of technological innovation. Hence, denial strategies are much cheaper than control strategies. Finally, denial strategies often result in a decrease in the probability of success in the battlefield of an expeditionary force offensive. The review concludes that military power should relate much more to deterrence than compellence, countering the conventional Dahl's notion that power is the ability of "A" to cause "B" to do something that "B" otherwise would not do. In other words, military power must be seen as "A" convincing "B" not to initiate a specific action because the perceived benefits to "B" do not justify the potential costs and risks.

a Ph.D. candidate in Strategic Studies at the Federal University of Rio Grande do Sul. President of the South American Institute for Politics and Strategy. Porto Alegre, Brazil.
  Email: augusto.dallagnol@ufrgs.br   ORCID: http:// https://orcid.org/0000-0002-6658-4470

b Ph.D. in Strategic Studies at the Federal University of Rio de Janeiro. Adjunct professor at the Federal University of Rio Grande do Sul. Porto Alegre, Brazil.
  Email: erico.duarte@ufrgs.br   ORCID: http://orcid.org/0000-0001-8261-6367

Poder militar y disuasión convencional: revisión de la literatura

Resumen: esta revisión de la literatura explica la forma en que las estrategias de disuasión y coacción (*compellence*) se relacionan con el poder militar. Tal investigación es pertinente, puesto que gran parte de la literatura sobre la difusión del poder militar se centra exclusivamente en las plataformas militares y en los sistemas de armas. Por lo tanto, se promueve un enfoque más político y estratégico en lugar de un enfoque más tecnológico al evaluar el poder militar. En el artículo, se utiliza "costos" y "probabilidad de éxito" para evaluar la disuasión convencional. Aunque tanto la coacción como la disuasión son estrategias coercitivas, tienen diferentes implicaciones para la difusión del poder militar, en especial por los costos asociados a cada una. También se argumenta que los países no deberían replicar o copiar todas las plataformas principales y sistemas de armas avanzados de un estado líder para actualizarse o negar las ventajas de la innovación tecnológica. En consecuencia, las estrategias de negación son mucho más económicas que las estrategias de control. Por último, las estrategias de negación a menudo disminuyen la probabilidad de éxito en el campo de batalla de una ofensiva de la fuerza expedicionaria. Se concluye que el poder militar debe relacionarse mucho más con la disuasión que con la coacción para contrarrestar la noción convencional de Dahl de que el poder es la capacidad de "A" para hacer que "B" haga algo que "B" de otro modo no haría. En otras palabras, el poder militar debe verse como "A" convenciendo a "B" de no iniciar una acción específica porque los beneficios percibidos para "B" no justifican los costos y riesgos potenciales.

Palabras clave: poder militar; coerción; disuasión convencional; coacción; Sudamérica

Poder militar e dissuasão convencional: uma revisão da literatura

resumo: Esta revisão de literatura explica como as estratégias de dissuasão e compulsão se relacionam com o poder militar. Tal investigação é relevante, pois grande parte da literatura sobre difusão de poder militar se concentra exclusivamente em plataformas militares e sistemas de armas. Assim, avançamos uma abordagem mais política e estratégica em vez de uma abordagem mais tecnológica ao avaliar o poder militar. O artigo usa "custos" e "probabilidade de sucesso" para avaliar a dissuasão convencional. Embora tanto a compulsão quanto a dissuasão sejam estratégias coercitivas, elas têm implicações diferentes para a difusão do poder militar, especialmente pelos custos associados a cada uma delas. Argumentamos que os países não devem replicar ou buscar uma cópia carbono de todas as principais plataformas e sistemas avançados de armas de um estado líder para recuperar o atraso ou negar as vantagens da inovação tecnológica. Assim, as estratégias de negação são muito mais baratas do que as estratégias de controle. Finalmente, as estratégias de negação muitas vezes resultam em uma diminuição na probabilidade de sucesso no campo de batalha de uma ofensiva de força expedicionária. A revisão conclui que o poder militar deve se relacionar muito mais à dissuasão do que à compulsão, contrariando a noção convencional de Dahl de que poder é a capacidade de "A" de fazer "B" fazer algo que "B" de outra forma não faria. Em outras palavras, o poder militar deve ser visto como "A" convencendo "B" a não iniciar uma ação específica porque os benefícios percebidos para "B" não justificam os custos e riscos potenciais.

Palavras-chave: poder militar; coerção; dissuasão convencional; competência; América do Sul

Introduction

While "the concept of deterrence has been somewhat neglected in the nearly two decades since the end of the Cold War, particularly after the attacks of September 11, 2001" (Long, 2008, p. iii), United States and European pundits and governmental officers now consider conventional deterrence as one of the main features of the 21st century's international security landscape (Wilner & Wenger, 2021; Paul 2009; Wilkinson, 2020; Tripp, 2020). Actually, they were shaken by Russia's successful military operations in Georgia, Crimea, and Ukraine, as well as the perception that Iran and China could also accomplish successful lightning acts of aggression (Gallagher, 2019; Gordon *et al.* 2020; Freedman, 2014; Aust, 2018). Grudgingly, they acknowledge that the technological superiority of Western armed forces are not enough to provide a credible and committed deterrent capacity because that advantage is shrinking and their rivals never deviated from their mission of improving the employment of their conventional forces as the "lender of last resource" of coercion (Gormley, 2008; Ochmanek, 2014; Ajili & Rouhi, 2019; Rogovoy & Giles, 2015). Therefore, the Western defense and strategy community has once again been "enlightened" by the fact that prone military capabilities alone cannot provide deterrence by default (Gray, 2011).

This article reviews the most recent studies on conventional deterrence and details how its diffusion as a practice shapes international and regional securities. This is an especially welcome review in a moment of power transition in the international system with unclear impacts on South America (Schenoni, 2019). The decision-makers of this region must pay closer attention to new and old but updated deterrence strategies being designed by the current great- and middle-powers as part of the reshaping processes of regional systems. The consequent inter-regional confluences of these strategies and processes are much more complex today than during the Cold War era because the plethora of new long-range weapons systems is much cheaper, more flexible, and more extensively proliferated than nuclear weapons (Mishra, 2011,

chap. 5; Gruselle, 2006; Biddle & Oelrich, 2016; Hughes & Girrier, 2018, chap. 7). Therefore, deterrence and extended deterrence as defensive and offensive modalities are becoming pervasive in the contemporary security arena.

We explain how strategies of deterrence and compellence relate to military power. Such an inquisition is relevant as long as much of the literature on military power diffusion focuses exclusively on military platforms and weapons systems (Chin, 2019; Schmid, 2018; Galbreath, 2014; Goldman & Eliason, 2003; Gilli & Gilli, 2016; Horowitz, 2010) to the detriment of a more political and strategic approach. Deterrence is both a systemic and relational variable (Gray, 1990) when studying the causes of the diffusion of military power and the consequences of this process, as the diffusion of certain military capabilities may enhance the capacity of one state to deter another. Now, it is of the utmost importance not to take apart the process of military adoption and the broader political and strategic decisions, as technologies and weapons systems by themselves do not guarantee deterrence.

Some conceptual notes are required before proceeding to the next sections. First, diffusion is the process by which "an innovation is communicated through certain channels over time among the members of a social system" (Rogers, 1983, p. 5), while military power is "the way that states generate organized violence for use either on the battlefield or as part of coercive strategies. It represents the combination of the technology or hardware […] and the organizational processes, or software" (Horowitz, 2010, p. 5).

Schelling (2008) highlights that coercion includes intentions to deter and compel. Hence, deterrence is about inducing inaction, obliging the opponent, against its will, not to do something it wants to do. In other words, deterrence is "a form of preventive influence that rests primarily on negative incentives" (Knopf, 2009, p. 37). For Mearsheimer (1981, p. 3), deterrence "means convincing an opponent not to initiate a specific action because the perceived benefits do not justify the potential costs and risks." Alternatively, compellence involves "making someone perform, that is,

doing—or undoing—something against his will" (Freedman, 2004, p. 110). In other words, compellence closely resembles Dahl's (1957) notion of "A" causing or having the ability to cause "B" to do something that "B" otherwise would not do.

This article is organized into three sections. First, we address the concepts of deterrence and compellence as coercive strategies, focusing on Mearsheimer's (1981) theory of conventional deterrence and assessing the current struggle between NATO and Russia in Europe. Second, we cover the differences between the command of commons and contested zones (Posen, 2003). It also discusses strategies in the United States and China, with a special focus on China's Active Defense strategy (Fravel, 2019) and the role played by the diffusion of cruise missiles (Gruselle, 2006; Mishra, 2011) on such competition. The article uses "costs" and "probability of success" to assess conventional deterrence. Although both compellence and deterrence are coercive strategies, they have different implications for the diffusion of military power, especially because of the costs associated with each one.

Finally, we reinforce the current "high-tech determinism" (Kuo, 2020) critics towards the literature of military diffusion. Hence, we favor an analysis that emphasizes how different states, including the South American states, may pursue different coercive strategies with different military platforms, weapons systems, and force postures. As a strategy, conventional deterrence ought to correspond to an ad hoc balance between the ends, ways, and means of each country or coalition, where each threat or contender requires a personalized deterrence strategy without neglecting geographic, institutional, and political contexts. Conversely, countries must not possess a carbon copy of all the top platforms and advanced weapons systems of a leading state to catch up or to deny the advantages of technological innovation. Moreover, South American countries should acknowledge that denial strategies are much cheaper and prone to preserve regional stability than control strategies, which, in general, are related to power projection agendas.

Conventional Deterrence: Costs and Probability of Success

As stated in the previous section, there is a commonly accepted overemphasis of deterrence by punishment over deterrence by denial in the literature.[1] While the first "involves threatening destruction of large portions of an opponent's civilian population and industry," the latter involves "denying an opponent victory on the battlefield" (Mearsheimer, 1981, p. 4). Mearsheimer's "conventional deterrence" focuses on battlefield denial, or "the capability to deny an opponent his objectives on the battlefield through purely conventional means" (1981, p. 5). Deterrence by denial is deterrence through the fear of failure and concentrates on territorial defense and threats to defeat an invader's force on the battlefield (Harvey, 1997; Mueller, 1991). Simply put, deterrence occurs "when a potential aggressor realizes that his military forces are not capable of achieving their battlefield objectives" (Mearsheimer, 1981, p. 5). Hence, conventional deterrence "is concerned with discouraging an opponent from initiating military action by threatening to deny him success on the battlefield" (Mearsheimer, 1981, p. 18; see also Wilner & Wenger, 2021, p. 10).

An important contribution of Mearsheimer's (1981) seminal doctoral thesis is the idea that an analysis must include what determines success in the modern battlefield if the researcher wants to understand why decision-makers are either deterred or not deterred from launching a war.[2] In this sense, Mearsheimer (1981) uses two main variables to assess conventional deterrence: costs and the probability of success. There is a difference

---

1 The first theoretical development on this point was Snyder's (1961). According to the author, "Deterrence by denial uses the capability of denying territorial acquisition attempted by an enemy while deterrence by punishment uses threats and capabilities of punishment by nuclear weapons" (Snyder, 1961, p. 14).

2 Similar to Biddle's (2006) emphasis on mid-to-high-intensity conventional warfare, Mearsheimer's (1981) theory is not applicable to low-level conflicts.

in terms of costs and probability of success inherent to a strategy of compellence—making an adversary do something—and one of deterrence—a threat to use of force to convince an adversary not to do something (Harvey, 1997; Schelling, 2008). In addition, Snyder (1970, p. 112) points out that "a denial threat is much more calculable for the aggressor than a reprisal threat—assuming that a comparison of military capabilities [denial] is easier than mind reading [punishment]."

The main argument we advance here is that it is easier for a state to deter than to compel another state when taking into account Mearsheimer's (1981) two variables of relative costs and probability of success. The author argues that "the attacker's aim at the conventional level is not merely success, but instead, a quick or rapid success" (Mearsheimer, 1981, p. 30). Hence, in the modern battlefield, the Blitzkrieg Strategy is the ideal way of "achieving a quick victory at a low cost. Therefore, deterrence is a fragile strategy when a potential attacker thinks he can launch a successful Blitzkrieg" (Mearsheimer, 1981, p. 50). Simply put, deterrence "is most likely to fail when a potential attacker believes that the probability of a quick success is great" (Mearsheimer, 1981, p. 136). On the other hand, an Attrition Strategy "is a high-cost strategy" and then "deterrence is very likely to succeed when an attacker has this strategy as his only option" (Mearsheimer, 1981, pp. 62–63).[3]

During a crisis, if one side has the capability to achieve a quick victory at a low cost, deterrence is likely to fail.[4] In contrast, deterrence by denial aims to deter aggression by "convincing an adversary that aggression would fail, prospects for a quick battlefield success are low, or that the losses associated with a victory are not worth the prospective gains" (Harvey, 1997, p. 6). Therefore, dissuasion by denial is deterring an action by "having

the adversary see a credible capability to prevent him from achieving potential gains adequate to motivate the action" (Davis, 2014, p. 2).

As Mueller (1991, p. 8) notes, deterrence "should become the dominant component of grand strategy for a state that cannot comfortably rely upon the slight chance of autonomously defeating such aggression should deterrence fail." As such, "punitive deterrence" would seek to reduce the value of aggression to the adversary by "increasing the likely costliness of aggression." Deterrence by denial seeks to reduce the value of aggression to the adversary by decreasing the apparent probability that aggression will produce a preferred result, such as victory. It might increase the apparent chance that an aggression will lead to a relatively unattractive result, such as an immediate defeat, or an initial but temporary victory by the aggressor, after which an occupation would be unsustainable (Mueller, 1991, pp. 15, 35; Morgan, 2021, pp. 17–18).

NATO and Russia: Avoiding a Fait Accompli in Europe

The contemporary scholarship on conventional deterrence emerged to orientate NATO's policy during the Cold War. NATO's modern deterrence is still *de facto* mostly about Russia (Kulesa & Frear, 2017, p. 3). The Alliance took nearly 15 years to readdress its deterrence policy properly, while at the same time, Russia has maintained a more incremental strategic posture as a deterrer. Amongst Western armies, transformation and counterinsurgency shuffled their notions about war and missions; however, for Russia, transformation never meant a new style of warfare, but an improvement of the same missions its conventional forces have used since World War II: i) to conduct high-intensity conventional operations, and ii) to support land operations (Rogovoy & Giles, 2015, pp. 4–5).

Until 2014, the lack of a clear Russian threat caused NATO to move extended deterrence to the Middle East and the Persian Gulf and modify relations with Russia(Anthony, 2009). Consequently, differences in perspectives and interests between the United States and European members left NATO's deterrence approaches unfocused and

---

3   We argue this formulation is superior to recent ones (for instance, Morgan, 2021, p. 19), whose list of situations when deterrence by punishment is inadvisable is as extensive as it is superficially qualified.

4   According to Caverley and Dombrowski (2020, p. 673), a crisis stability occurs "when both sides' deterrent forces provoke fear and incentivize a first strike."

unreliable. Note, for instance, the NATO Lisbon Summit's orientation, which proposed "a review of NATO's overall posture in deterring and defending against the full range of threats to the Alliance, taking into account the changes in the evolving international security environment" (NATO, 2012). Only when NATO's perception of Russia moved from a strategic partner to a strategic competitor, did NATO start to elaborate a new deterrence posture for the 21st century (Aust, 2018, pp. 1, 5, 7). However, the deterrence gap is not just temporal as it is also about the expertise, experience, and knowledge of a generation of military and policy-makers who "have built their careers in expeditionary warfare and counterinsurgency, added to the paucity of education in national staff colleges regarding deterrence and national security, poses a real challenge" (Kulesa & Frear, 2017, p. 4).

Colby and Solomon (2015, p. 30) have argued that NATO should adopt a strategy that would prevent Moscow from "being able to seize significant NATO territory and thereby create *faits accomplis*—or at least to greatly raise the costs and risks to Russia of attempting to do so." Such a strategy would "put the burden of escalation on Moscow, by forcing Russia to brazenly and unabashedly assault the Alliance to gain substantial territory" (Colby & Soloman, 2015, p. 30). The corollaries of this strategy are the need for the Alliance to place forward deployed battlegroups as tripwires and sustain them for a long haul vigilance (Lanoszka & Hunzeker, 2019, pp. 105, 109–12; Kulesa & Frear, 2017, p. 8).

Their analysis builds on a conventional deterrence theory, which holds that a defender is most likely to deter successfully "if he possesses forces with the requisite capabilities, quantities, posture, and positioning to survive a conventional first strike and then rally to bog down an offensive thrust and enable effective reinforcements or counteraction." Such an approach also builds on convincing the potential aggressor that any attempt at conventional aggression would assuredly result in a costly, risky, and protracted conflict, and that a *fait accompli* could not be gained cheaply (Altman, 2017, pp. 882–83).

The overlying concern of the authors is that Russia is increasingly able to create positions of local military advantage in its immediate vicinity. Such advantages would comprise "the ability to seize and hold territory, and then to be able to deploy higher order capabilities […] to block, deter, negate or frighten NATO in its attempts to push these forces back" (Colby & Solomon, 2015, p. 22). In other words, in the event of Russia wanting to escalate or go to war, it "could seek to use its local military advantage in its near abroad to seize territory and achieve a position of local advantage, which it could defend with its strike and A2/AD (anti-access and area denial) forces and ultimately with its nuclear arsenal" (Colby & Soloman, 2015, p. 24).

As Colby and Soloman (2015) emphasize, these forces can be used to make rapid territorial and military gains over local forces, and grant significant coercive leverage by providing the ability to establish *faits accomplis* and seize territory that can then, bearing in mind that defense is generally easier than offence in conventional warfare, be defended.[5] Hence, Russia "could shift the onus of escalation onto NATO, forcing it to mount a major counter-intervention to dislodge Russian forces" (Colby & Soloman, 2015, p. 24). This strategy closely resembles Mearsheimer's (1981, p. 50) Limited Aims Strategy in which the attacker relies on surprise to accomplish their goal before the victim can mobilize its defenses, placing a high premium on avoiding contact with the defense.[6]

Nevertheless, three points are worth mentioning. First, as Adamsky (2021, p. 19) notes, "contrary to the assertion by many Western analysts that a *fait accompli* strategy is driving Russian operations, there is apparently little space for the

---

5   Caverley and Dombrowski (2020, p. 686) also suggest that China may use the PLAN in combination with its coast guard and maritime militia to gradually coerce its neighbors and, ultimately, the United States using salami-slicing tactics to achieve its territorial aims and assert ever greater maritime claims.

6   For a detailed view of a Russian A2AD campaign plan, see Gordon *et al*. (2020, pp. 15–19).

political-military leadership to consider this option." The author argues that the reason for this is not "the lack of strategic intentions, which are indeed apparently absent; rather, it is insufficient capabilities" (Adamsky, 2021, p. 19).

Second, these salami-slicing tactics cannot seize large swathes of territory on their own in the face of a defender's strong resistance. Hence, as stated before, "major conventional operations such as overland offensives (or at least supporting fire for irregular forces) become necessary to prevail in such cases" (Colby & Soloman, 2015, p. 23). This is the case for any Russian offensive over the Baltics, which would have to engage and possibly occupy large portions of the three countries to seize the Suwalki corridor (Kofman, 2020).

Finally, logistical challenges, such as Russia's deficiencies in transportation infrastructure and inability to produce certain key component technologies, would likely hamstring its ability to wage an effective and protracted conventional war against the West if NATO mobilizes for victory and sustains the will to fight (Bredsen & Friis, 2020, p. 70; Colby & Soloman, 2015, p. 27). Moreover, Russia is only able to achieve local escalation dominance without global dominance, which means that Russia cannot easily target or threaten its rivals' possessions and interests elsewhere because, despite massive investments, its navy still does not have the skills to damage the critical infrastructure of the United States and Europe (Lanoszka & Hunzeker, 2019, p. 26; Petersen, 2020, p. 30).

Sea Denial and Coastal Warfare: Creating Contested Zones

It is also worth mentioning Posen's (2003) notion of the "command of the commons"—the ability to project power globally at sea, in the air, and in space, and to prevent other states from doing the same. Nevertheless, its influence is limited in littoral and terrestrial contested zones where resolved challengers can impose costs on the United States military since naval power projection can be very risky indeed if countered by littoral defenses or

an enemy fleet[7] (Gartzke & Lindsay, 2020, p. 606, 610). Similarly, one of Bowen's (2020) spacepower theory analogies is that continental sea powers could achieve several degrees of sea command in coastal regions without using large ocean-going fleets. Alternatively, as Dunnigan (2003, p. 138) notes, "since no one can challenge the American fleet on the high seas, any fighting is likely to take place close to shore." Therefore, it is worth challenging the long-lived balance of power notions in which third countries must possess a carbon copy of all the top platforms and advanced weapons systems of a leading state to catch up with it.

Therefore, the ability to utilize maritime regions is "the most significant advantage that an interregional attacking force can possess, and conversely, the ability to deny an attacker's use of maritime regions is a dominant factor in the success of any anti-access campaign (Tangredi, 2013, p. 18). Tangredi (2013, p. 2) has noted that "the objective of an anti-access or area-denial strategy is to prevent the attacker from bringing its operationally superior force into the contested region or to prevent the attacker from freely operating within the region and maximizing its combat power." Hence, "without striking the center of gravity the attacker can never achieve victory" and, for the defender, "the desired result is not just a stalemate, but also attrition of the attacker's forces such that the attacker loses over time the ability to make any decisive strike at the center" (Tangredi, 2013, p. 2).

With regard to space operations, Klein (2004, p. 68) advances a similar idea stating that, although a less capable space force is unlikely to win a decisive space engagement, "it can still contest the command of space,[8] thereby achieving limited

---

7   Posen (2003, p. 22) defines contested zones as "arenas of conventional combat where weak adversaries have a good chance of doing real damage to United States forces."

8   It is important to note that the command of space "does not mean that one's adversary cannot act, only that he cannot seriously interfere in one's actions" (Klein 2004, p. 67). Yoshihara and Holmes (2018, p. 100) similarly put forward that "sea denial thus constitutes a strategically defensive strategy that inferior powers prosecute through

political objectives." The author goes on: "to this end the weaker force may seize local or temporary command in areas where the stronger force is not present" (Klein, 2004, p. 68). In this sense, an opponent of the United States should thus seek to acquire "the capabilities necessary to disrupt or delay the United States' deployment activities or to deny it the use of regional bases in the hope that, by successfully doing so, or threatening to do so, it will prevent or deter the United States from acting" (Tangredi, 2013, p. 31).

While "control" implies the ability to dominate a combat space and utilize it for one's own operations, "denial" is meant to indicate that the use of the combat space is denied to the opponent but cannot necessarily be utilized by oneself (Tangredi, 2013, p. 23). Effective anti-access or area-denial threatens the operation of an opposing naval force in a given swathe of ocean using relatively safer and cheaper land-based aircraft and missile batteries (Caverley & Dombrowski, 2020, p. 676). Caverley and Dombrowski (2020, p. 676) go further and affirm that "emerging technologies such as long-range ballistic missiles, swarms of multiple drones and cruise missiles, and eventually hypersonic weapons, all seem to further favor the shore and the missile over the ship."[9]

Hence, taking into account Mearsheimer's (1981) two variables—costs and probability of success—one must note that "power projection into the Chinese mainland is costly, but also it makes sea control within the range of this land-based firepower prohibitively expensive" (Caverley & Dombrowski, 2020, p. 676). Similarly, Hughes and Girrier (2018, p. 170) argue that "a coastal navy does not have to be a sea power to be competent and tough within its domain." Moreover, the navies of continental powers will "treat their inshore waters as their ocean of interest, where they protect their coastal activities and deny them to an enemy. Usually, the foremost consideration in their naval strategies is to deny delivery by an enemy of the means of war, either by invasion or by strikes with missiles or aircraft' (Hughes & Girrier, 2018, p. 206).

A coastal state, according to Borresen (1994, p. 148) is a state that "does not have the resources, or has chosen not to use resources, to maintain a blue-water navy with a capacity to establish sea control on the open ocean, beyond the reach of its own shore-based aviation or surface-to-surface missile-systems." The author emphasizes that "the presence of shore batteries and of shorebased fighter aircraft changes the relationship between attack and defense that applied to naval battles on the open ocean. In coastal waters, defense is a relatively stronger form of combat than it is on the open ocean (Borresen, 1994, p. 150).

Borresen's (1994, p. 174) central contribution is that coastal navies "should not be modelled on the navies of the naval powers. Instead, they should be tailor-made to fit the local environment. This is because their tasks are different from those of the blue-water navies, their operating conditions are different, and their force structures are different." First, "it will not take a high-technology coastal defense to inflict pain and suffering on a high technology, blue-water navy." Second, coastal navies "use land installations to scout and attack from as safer, cheaper, and more resilient [bases] than large warships." Third, for littoral operations, "it is no longer possible to define a fleet merely as a set of warships, because land-based systems play a prominent part. Off board, land-based sensors contribute to detection, tracking, and targeting" (Hughes & Girrier, 2018, pp. 206, 208). In the case of confined operational areas, such as in the Baltic,

---

offensive tactical and operational methods." Bowen (2020, p. 59) also argues that since the command of space refers to those who can control or deny space infrastructure in a time of war to varying degrees, "a country only able to deny celestial lines of communication and elaborate space infrastructures "still possesses a degree of the command of space."

9   Mishra (2013, pp. 96, 98, 136) argues that "cruise missiles have become affordable and cost effective in comparison to aircraft and ballistic missiles, precisely because of the reductions in their unit costs." Moreover, "the four major sub-systems of a cruise missile (airframe, propulsion, guidance, control and navigation, and weapons integration) are now inexpensive and a steady supply of each is available." Cruise missiles also "require less maintenance, training, and logistical support than either manned combat aircraft or ballistic missiles."

sea power "can not only be defined by ships in the water, but the totality of assets that can apply power into the sea and the surrounding littorals. This includes shore-based air and missile capabilities" (Bowers & Kirchberger, 2020, pp. 14–15).

Another point worth mentioning is that "the engagements that have been fought for the control of coastal regions have been most effective when land, sea, and air forces have acted in concert, using missiles as the principal weapons." In other words, "fleet actions in the missile age have been fought in coastal waters" and "tactics were dominated by the use of missiles" (Hughes & Girrier, 2018, pp. 28, 208). Since "an anticipated attack from a developed country like the United States would be through the air medium," developing countries "now look for missiles, especially cruise missiles, as deterrent systems" (Mishra, 2011, p. 137). Mearsheimer (1986, p. 36) points out that even though a striking force may employ carrier-based aircraft, the defending land power "could always deploy many more aircraft than could a handful of carriers. The same argument applies to cruise missiles."

Finally, the Brazilian case is telling. Herz, Dawood, and Lage (2017) have analyzed the country's nuclear propelled submarine project through the concept of deterrence by denial. If the main point is to avoid a strategy of sea control and power projection, as the authors correctly note, then a strategy built around cruise missiles would probably better fit Brazilian interests in the South Atlantic (Duarte, 2015). Hence, while the Brazilian nuclear submarine has received a great deal of attention in the national strategic debate, less has been said about the Brazilian cruise missile project—the ASTROS 2020—and other coastal defense capabilities (Duarte, 2012).

In sum, we argue that Brazil should not try to emulate great powers' top platforms and advanced weapons systems due to the prohibitive costs they would pose. Cepik and Bertol (2016) make a similar point, arguing that Brazil should consider prioritizing anti-access and area-denial strategies with asymmetric capabilities. Moreover, it remains uncertain how much relative gain nuclear submarines would add to a deterrence by denial strategy in the South Atlantic, since cruise missiles

have been presenting satisfactory—and cheaper—deterrent results across other regions (*i.e.*, Iran, Turkey, China, India, and Russia) (Ajili & Rouhi, 2019; Bowers & Kirchberger, 2020).

US and China: Cruise Missiles and Active Defense

Gruselle (2006, p. 5) notes that some regional powers have committed themselves to acquiring cruise missiles following an anti-access logic in order to, first, slow or even prevent the deployment of United States forces and means close to the operations theater; second, weaken the will and/or the capability of future countries to host United States forces; and third, slow the rhythm of military operations carried out by the United States and their allies. Mishra (2011, p. 137) also argues that cruise missiles are considered a cost-effective way to level the playing field to reduce the effects of a technology gap between developed and developing countries. A couple of cruise missiles from an Asian country can deter a developed country from intervening with absolute dominance. In other words, "with a handful of cruise missiles, a state could mount a strategic bombing campaign, and thus, avoid the need to achieve real air superiority" (Mishra, 2011, p. 156). According to Bowers and Kirchberger (2020, p. 17), "when operating in conjunction with an actual aircraft carrier in the vicinity or with other naval vessels and naval and land-based aircraft, this distributed network of outposts can enable China to gain air superiority in the early stages of a conflict."

For Nicholls (2000, p. 12), cruise missiles are inexpensive and expendable; a state could mount a strategic bombing campaign with cruise missiles and thus avoid the need to achieve air superiority. A state could use surface-to-air missiles to deny local air superiority to the United States without having to gain it with aircraft. Therefore, the deterrent effect would depend "on the ability of conventional cruise missiles to delay the deployment of United States forces, cause unacceptable casualties, or allow that state to achieve a tactical victory" (Nicholls, 2000, p. 14).

The United States–China strategic struggle is telling. Yoshihara and Holmes (2018, p. 105) argue that "China's contested zone in littoral sea areas will comprise some composite of land and sea defenses." In addition, the fleet operates within range of shore-based fire support that augments the fleet's firepower with missiles and aircraft dispatched from Fortress China itself. Shore fire support constitutes the People's Liberation Army Navy's (plan) great equalizer" (Yoshihara & Holmes, 2018). For example, anti-ship missiles (cruise and ballistic) "have been conceptualized by Chinese strategists as part of Beijing's broader strategic goal to develop an effective conventional deterrence capacity designed to keep the United States out of the Taiwan Straits, and to simultaneously manage the threat perceptions of Washington's regional allies and partners"[10] (Johnson, 2017, p. 321). Hence, such an effort by China to track and target United States surface fleets combined with anti-ship missiles will have important implications for future military escalation and deterrence in the region (Johnson, 2017; Shugart & Gonzalez, 2017; Zhao, 2020).

China's emphasis on the development of a range of asymmetric strike capabilities is designed to counter the United States' military strength, especially its carrier strike groups and bases at Guam, to deny, deter, and overwhelm United States military interventions in future regional contingencies (Johnson, 2017). Such asymmetric capability affords China "an attractive option for expanding the plan's power projection and enhancing China's strategic deterrence, without the political risks associated with large troop deployments or the enormous costs associated with the possession of multiple aircraft carriers" (Johnson, 2017, p. 321).

Gilli and Gilli (2019, p. 145) point out that when a country develops a new military technology, "its competitors will devise countermeasures and counter-innovations to limit, and possibly

eliminate, the advantage their enemy derives from its innovation. Counter-innovations such as anti-air defense systems force innovators to further improve the performance of their technology. The history of military innovation is, in the end, the history of innovation, counter-innovation, and further innovation." Hence, "although some of these [Chinese] systems are comparatively cheap and unsophisticated (*e.g.*, missiles), key platforms such as submarines and jet fighters are extremely complex, while other emerging technologies such as remotely piloted and autonomous vehicles are becoming increasingly sophisticated and costly, and are expected "to converge rapidly with those of manned aircraft" (Gilli & Gilli, 2019, p. 189).

Nevertheless, notwithstanding the operational effectiveness of the United States' countermeasures, if anti-ship missiles (cruise and ballistic) were employed by Beijing as part of integrated multi-axis a2/ad campaigns in the Western Pacific, the risks posed to the United States' surface fleets would increase substantially—especially during the early stages of a regional conflict. It would also diminish the ability of the United States to project power in the Asia–Pacific region (Johnson, 2017, pp. 319, 323). Hence, "the characteristics of cruise missiles appear to be particularly attractive for countries that […] in the context of military inferiority with regard to Western countries, would like to hinder the capacity of these Western countries to deploy their forces, organize their logistics, and finally to move about unfettered in the operation theater" (Gruselle, 2006, p. 4). Moreover, "because of their range, cruise missiles do not require air or sea supremacy for use and can be used on a wide range of platforms (aircraft, surface ships, submarines, and ground launchers)" (Gruselle, 2006, p. 4).

Would-be great powers have "strong incentives to adopt an anti-access or area-denial strategy that could exploit the limitations of expeditionary warfare, negate many of the advantages enjoyed by networked forces, and ultimately raise the costs of conflict" (Montgomery, 2014, p. 129). Although technological superiority is generally a component of strategic superiority, it does not necessarily mean strategic superiority (Tangredi, 2013, p. 14). Many scholars in the United States, Montgomery

---

10 Much in line with what we argue here, Mishra (2011, p. 97) puts out that "most of the developing or underdeveloped countries know that one accurately placed anti-ship cruise missile can achieve strategic results even against a major industrial power."

(2014, p. 148) notes, "have conflated military reach [power projection] with military effectiveness."

For example, Johnson (2017) argues that the key strategic drivers underlying China's pursuit of anti-ship missiles are broadly consistent with its core "active defense" strategic principle (*i.e.*, the use of offensive military force in order to achieve defensive strategic goals)[11]. As a strategic concept, active defense "provides guidance for how to conduct operations when facing a superior enemy, numerically or technologically, and when on the strategic defensive. The main challenge under these conditions is how to preserve one's forces and then how to gradually gain the initiative" (Fravel, 2019, p. 91).

It is worth noting that China has structured its forces around the active defense strategic principle (Yoshihara & Holmes, 2018). Although the strategy assumes that an invasion cannot be prevented and that the United States will seize some territory along the coast, it seeks to deny a quick victory to the United States and force it to wage a protracted war (Fravel, 2019, p. 130). Overall, active defense "yokes offensive tactical means to defensive strategic ends" (Yoshihara & Holmes, 2018, p. 100).

Coercive Strategies and Force Postures: Avoiding High-Tech Determinism

Hence, discussing deterrence and "weaponry abstracted from considerations of policy and strategy amounts to a crude reductionism" (Gray, 1990, p. 12). For example, to build "a fleet is a deeply domestic political act" (Caverley & Dombrowski, 2020, p. 679). Therefore, while "the technical aspect of fleet design is largely the province of senior naval leaders—both civilian and uniformed—the large political, bureaucratic, financial, and strategic implications of fleet design involve leaders from across government. Given that large fleets are inherently capital intensive, fleet design choices

affect taxation and national debt" (Caverley and Dombrowski, 2020, p. 679).

In a similar way, choosing between deterrence strategies "based on denial and punishment depends on whether defense is technically feasible, the relative strengths of the aggressor and deterrer, and the interests involved" (Harvey, 1997, p. 15). Tangredi (2013, pp. 36–37) points out that "the Soviet navy was developed as a sea-denial force—one that would attempt to destroy enemy ships and aircraft but did not intend to control sea regions far beyond its immediate sea frontiers […]. Instead of (initially) building aircraft carriers or large surface combatants, the Soviet navy invested in a portfolio of what even today would be considered the tools of anti-access." Similarly, Horowitz (2010) affirms that the Soviet focus on submarines and anti-ship missiles instead of aircraft carriers shows that sometimes even the wealthiest nations will eschew adopting an innovation in favor of an alternative strategy, like countering the innovation.

Kuo (2020) makes a significant contribution while analyzing British carrier warfare. The author shows how technologically deterministic readings of military history create the misleading impression that the United States Navy was effective and innovative, and the Royal Navy was ineffective and stagnant. Kuo (2020, p. 2) argues that "scholars should therefore evaluate the use of military technology based on its degree of fitness with strategic goals and missions, rather than just maximizing some dimension of the technology's combat potential." In other words, the literature takes it for granted that the Royal Navy should have imitated its United States counterpart. Hence, one of his recommendations is that "analysts should assess the effectiveness of new ways of warfare in the context of the geographic environment in which it is employed and the military strategy that it supports" (Kuo, 2020, p. 3).

Kuo's (2020) recommendation goes side by side with Harvey's (1997) observation that different deterrence strategies require different force structures. For example, the United States Navy "optimized designs and doctrine to prioritize offensive capabilities, which involved maximizing the number of carrier-borne aircraft and designing

---

11 For a similar argument that Russia has also been framing its strategy as one of "active defense", see Bredesen and Friis (2020).

single- and high-performance airplanes. The Royal Navy innovated in a different direction toward defensive carrier designs and doctrine and durable, multipurpose aircraft. Both ways of carrier warfare can be effective at the same time if they are well integrated with their respective naval strategies and geographic environments' (Kuo, 2020, p. 4). In brief, the United States Navy prioritized the offensive dimensions of carrier aviation, while the Royal Navy developed a defensive form of carrier warfare.

Likewise, as Mishra (2011, p. 122) advances, "a close look at the cruise missile capable countries would show that they are not as poor as is assumed. Most of them are developing economies and can also afford other weapon systems if they so desire." Then, "the preference of any weapon system by a state is symptomatic of a conflict scenario wherein it seeks an effective and affordable system suiting its requirements. Therefore, imperatives for, and attempts of, states for particular types of weapon systems entail many underlying national security dispositions" (Mishra, 2011, p. 123). In the case of the United States, Caverley and Dombrowski (2020, p. 688) argue that its maritime doctrine "remains wrapped up in unipolar-era conceptions about projecting power ashore wherever it chooses, even as it trumpets the return to great-power competition and the strategic shift to Asia." In fact, theUnited States Navy "has focused on offensive sea control and power projection since at least World War II and arguably since the origins of the modern Navy in the 1880s" (Caverley & Dombrowski, 2020, p. 691). Similarly, Bowen (2020, p. 17) states that "space power must be tailored to the needs of its users, and not necessarily always imitated in the image of other, perhaps more established space powers."

Gilli and Gilli (2019, p. 146) argue that "although countermeasures and counter-innovations can be very effective, they permit countries only to negate the benefits an enemy gains from its innovations." Therefore, "when countries seek to remain or become regional or global powers, or when they aim to deploy certain capabilities, however, they have to acquire specific military platforms, such as aircraft carriers for long-range power projection, jet fighters for air superiority, or submarines for sea denial" (Gilli & Gilli, 2019, p. 146). Such an understanding of military power underestimates the benefits of denial strategies, especially in the context of Mearsheimer's (1981) variables of costs and probability of success for states other than the United States.

Military Power and the Modern System: Avoiding a Quick Defeat

In this sense, it is important to highlight that technological advantages "have appeared on both sides—attacker and defender—and the diffusion of technology has often meant that any specific advantage has not lasted for long. The strategically inferior force has often attempted to neutralize the technological advantages of the strategically superior force by stratagems, tactical innovations, or unexpected uses of current technologies" (Tangredi, 2013, p. 15). Likewise, it is not just the overall military balance, "but the specific qualities of force structure and posture that affect whether any given bargain is achieved efficiently or through costly conflict" (Gartzke & Lindsay, 2020, p. 609). Even when assessing overall military balance, Caverley and Dombrowski (2020, p. 683) point out that, on the high seas, "it is large numbers (of ships and munitions) that determine outcome rather than technology." As Biddle (2006, p. 66) notes, "the actual asymmetry in fielded technology is rarely decisive."

Biddle's (2006) contribution on this matter is telling. The author argues that "the modern system can compensate for substantial technical inferiority. Suppression, for example, can reduce hostile firing rates by a factor of seven or more; cover and concealment can reduce the enemy's effective range by multiple kilometers. This is equivalent to at least ten to twenty years of technological progress, or as much as twice the greatest actual asymmetry on record" (Biddle, 2006, p. 67). Hence, "two-sided modern-system warfare displays a powerful tendency toward contained offensives with modest territorial gains that grow linearly with casualties and duration. To overcome this tendency and induce either breakthrough or zero ground gain would require extraordinary weapons effects;

the inability to exploit a technology's full potential against such opposition makes this unlikely (Biddle, 2006, p. 67).

Gilli and Gilli's (2019) observation that China could not make a carbon copy of the United States F-22 fighter closely reminds one of Kuo's (2020) criticism of the main literature that states that the British did not emulate the United States successfully with regards to aircraft carriers, or what Green and Long (2020) call "high-tech determinism." Hence, Biddle (2006, p. 68) affirms that, "against modern-system defenses, however, even twenty-first-century air power cannot bring victory quickly. This makes it impossible for combatants with air supremacy to escape the tradeoff between time and territorial gain or casualties." Since natural cover and technical countermeasures interact, "modern-system armies able to exploit the former make it much easier for the latter to thwart new surveillance and precision strike technologies" (Biddle, 2006, p. 55). For example, as Mahken (2011, p. 52) notes, "the emergence of precision strike systems is already leading adversaries to try to protect targets by making them mobile, as well as hardening, burying, defending, camouflaging, or concealing them."

In addition, Green and Long (2020, p. 60) point out that the speed with which countermeasures can be implemented "will affect the period of time during which military advantage might carry political weight. The expense required to undertake countermeasures might affect the degree to which they can be implemented across an entire force, or whether they can be implemented at all." Taking into account the Third Offset Strategy developed by the United States in order to overcome the challenges imposed by anti-access and area-denial strategies, Kashin and Raska (2017, p. 4) observe that its strategic effectiveness "will not only depend on the institutional agility and adoption capacity [...] but will also depend on the responses, resources, and counter-innovations by peer competitors."

It is also important to emphasize that "the weaponry of the close fight—on land, in the air at low altitudes, and at sea in the so-called littorals—is much less expensive than that required

for combat in the commons" (Posen, 2003, p. 23). Since "the United States Navy remains a fleet designed for an offensive approach of power projection and sea control (Caverley & Dombrowski, 2020, p. 671), regional strategic competitions—especially in Eastern Europe and East Asia—"will likely reflect asymmetric negation, strategic ambiguity, denial and deception" (Kashin & Raska, 2017, p. 20).

Finally, cruise missiles and precision guided munitions "enable even relatively weak countries to sink surface ships and shoot down aircraft near their homelands" (Beckley, 2017, p. 109). Faced with this, air–sea battle is a United States response to the vulnerability of its forward forces, such as carriers and air bases (Kelly et al., 2016). In brief, air–sea battle seeks "to preserve United States access to the Western Pacific by combining passive defenses against Chinese missile attack with an emphasis on offensive action to destroy or disable the forces that China would use to establish A2/AD. This offensive action aims to physically destroy the Chinese weapons and infrastructure that underpin its anti-access and area-denial strategy" (Biddle & Oelrich, 2016, p. 8).

Nevertheless, the United States "will have trouble overcoming these local A2/AD forces, because power projection is fundamentally platform-centric, and therefore extremely expensive, whereas A2/AD is munitions-centric and thus comparatively cheap" (Beckley, 2017, p. 109). Taking into account political and economic costs, one must note that such a strategy, which still involves a great need for power projection forces, is more expensive than an anti-access and area-denial strategy (Beckley, 2017). Beckley (2017, p. 110) points out, for example, that "the average cost of an A2/AD capability is about one-fiftieth of the cost of the power projection capability that it could neutralize in war." In terms of political costs, a fundamental problem of an air–sea battle strategy is that it "relies heavily on attacks on enemy territory—especially assets that an enemy views as vital to its defense." Hence, "should the enemy choose to escalate rather than concede, the United States would be forced to escalate in turn or lose credibility" (Kelly et al., 2016, p. 9).

Conclusion

Our main argument advanced in this review is that anti-access and area-denial strategies, favored by the diffusion of cheap and affordable military technologies, elevates the political and economic costs of the United States' actions, and diminishes the probability of an offensive success in the battlefield. Hence, deterrence by denial is a much cheaper strategy for United States adversaries to carry than a strategy of compellence—the one that the United States has tried to implement since the end of the Cold War.[12]

First, deterrence by denial stands as a strategy that favors the maintenance of the status quo (Schelling, 2008). Hence, deterrence by denial is a positionalist strategy from a political perspective. On the other hand, since the dismissal of the Soviet Union, the United States has disregarded the strategic value of deterrence—both by denial and retaliation—and has focused on a broad compellence strategy that aims to deter through power asymmetry and preemption. This strategy seeks to deepen the United States' unipolar position through the idea of a revolution in military affairs—and, thereafter, *Transformation*. Furthermore, even since the Cold War, the United States has developed a mentality and apparatus to avoid a new Vietnam and a war of attrition.

Such choices, nevertheless, have broad implications for United States military power. The choice to face Russian and Chinese anti-access and area-denial strategies with a strategy of air–sea battle shows an obsession and an insistence to achieve a quick and decisive victory—much like a Blitzkrieg Strategy. The most direct implication of such a decision is that it deteriorates important logistical requirements to conduct a war of attrition with other great powers. For example, as Michaels (2020, p. 12) points out, during the Cold War—and even since the Crimean crisis—the United States' "strategy debates focused on the opening moves in a future war with little emphasis on denying the Warsaw Pact 'final victory' in a long war," disregarding "a

war potentially lasting years in which NATO territory was occupied and would later be recaptured" (Michaels, 2020, p. 21).

Hence, a strategy of air–sea battle, a strictly offensive strategy, has high political and economic costs since anti-access and area-denial strategies aim to deny the United States a quick victory through a protracted conventional war. It is worth noting that not all countries may adequately adopt strategies of deterrence, since they demand significant geographical dimensions, or strategic depth, in order to be able to absorb an attack and thereafter fight a strategic defense. For example, in the case of Venezuela, Teixeira *et al.* (2020) conclude that the country does not have anti-access and area denial capabilities to face a conventional war against the United States. Nevertheless, the authors argue that the Venezuelan system is considered robust enough to neutralize any air and naval offensive actions emanating from the region.

Finally, we argue that different states seeking different ends may use different methods and means. In other words, completely different force postures are required for a navy to defend its coast or to compel other navies. Very different platforms, weapons systems, and force postures are needed in order to control or deny an adversary the battle space. The discussion here sheds light on the differences between the costs and probability of success of different coercive strategies. In a few words, in order to maintain the command of the commons and to achieve success compelling other states to do something that otherwise they would not, a state must employ an offensive strategy and focus on power projection. In contrast, a state pursuing a deterrence by denial only needs to deny an adversary a quick victory in the battlefield. As noted before, the latter strategy is much easier and cheaper than the former. These statements are particularly valuable to South American armed forces and defense policy-makers, whose understanding of conventional deterrence is mainly grounded in Cold War concepts or in pursuing the United States model of force projection (*e.g.*, Covarrubias, 2004). The notion that conventional deterrence can be cheaper, but dependent on more consistent defense policies and institutions—able

---

12 Snyder (1970) also makes the point that denial strategies are less costly than punishment ones.

to design credible forces through long political relationships and constant upgrades of capabilities, operational concepts, and threats perceptions—is still new and limitedly assimilated (Bowers, 2018, pp. 2–3).

References

Adamsky, D. (2021). *Moscow's Aerospace Theory of Victory: Western Assumptions and Russian Reality*. CNA.

Ajili, H. & and Rouhi, M. (2019). Iran's Military Strategy. *Survival* 61 (6): 139-52. https://doi.org/10.1080/00396338.2019.1688575

Altman, D. (2017). By Fait Accompli, Not Coercion: How States Wrest Territory from Their Adversaries. *International Studies Quarterly*, *61* (4): 881–891. https://doi.org/10.1093/isq/sqx049

Anthony, I. (2009). *The role of deterrence in future NATO strategy*. Stockholm International Peace Research Institute.

Aust, T. (2018). *Modernized Deterrence and Revitalized Dialogue: Adapting the Harmel Report to Post-2014 Europe*. Research Paper 146. NATO Defense College. https://www.ndc.nato.int/news/news.php?icode=1182.

Beckley, M. (2017). The Emerging Military Balance in East Asia: How China's Neighbors Can Check Chinese Naval Expansion. *International Security*, 42(2), 78-119. https://doi.org/10.1162/ISEC_a_00294

Biddle, S. & Oelrich, I. (2016). Future Warfare in the Western Pacific: Chinese A2/AD, U.S. ASB, and Command of the Commons in East Asia. *International Security*, 41(1), 7-48. https://doi.org/10.1162/ISEC_a_00249

Biddle, S. (2006). *Military Power*: *Explaining Victory and Defeat in Modern Battle*. Princeton University Press.

Borresen, J. (1994). The seapower of the coastal state. *Journal of Strategic Studies*, 17(1), 148-175. https://doi.org/10.1080/01402399408437544

Bowen, B. (2020). *War in Space: Strategy, Spacepower, Geopolitics*. Edinburgh University Press. https://doi.org/10.1515/9781474450508

Bowers, I. & Kirchberger, S. (2020). Not so disruptive after all: The 4IR, navies and the search for sea control, *Journal of Strategic Studies.* https://doi.org/10.1080/01402390.2020.1848819

Bowers, I. (2018). *Small State Deterrence in the Contemporary World*. Norwegian Institute for Defence Studies.

Bredesen, M. G. & Friis, K. (2020). Missiles, Vessels and Active Defence. *The RUSI Journal*, 165(5-6), 68-78. https://doi.org/10.1080/03071847.2020.1829991

Caverley, J. D. & Dombrowski, P. (2020). Cruising for a Bruising: Maritime Competition in an Anti-Access Age, Security Studies, 29(4), 671-700. https://doi.org/10.1080/09636412.2020.1811460

Cepik, M., & Bertol, F. L. (2016). Defense policy in Brazil: Bridging the gap between ends and means? *Defense Studies*, 16(3), 229-247. https://doi.org/10.1080/14702436.2016.1180959

Chin, W. (2019). Technology, War and the State: Past, Present and Future. *International Affairs* 95 (4): 765-83. https://doi.org/10.1093/ia/iiz106

Colby, E. & Solomon, J. (2015). Facing Russia: Conventional Defence and Deterrence in Europe. *Survival*, 57(6), 21-50. https://doi.org/10.1080/00396338.2015.1116146

Covarrubias, J. G. (2004). The Significance of Conventional Deterrence in Latin America. *Military Review*, March-April, 36-39.

Dahl, R. (1957). The Concept of Power. *Behavioral Science*, 2(3), 201-15. https://doi.org/10.1002/bs.3830020303

Davis, P. (2014). *Toward Theory for Dissuasion (or Deterrence) by Denial: Using Simple Cognitive Models of the Adversary to Inform Strategy*, RAND Corporation, January: 121.

Duarte, É. (2012). A Conduta da Guerra na Era Digital e suas Implicações para o Brasil: Uma Análise de Conceitos, Políticas e Práticas de Defesa. *Texto Para Discussão (IPEA),* Junho. http://www.ipea.gov.br/portal/index.php?option=com_content&view=article&id=15290

Duarte, É. (2015). Securing the South Atlantic: In Favour of a Revised Brazilian Maritime Strategy. In B. Smith-Windsor (Ed.), *Enduring NATO, Rising Brazil*. Rome: NATO Defence College.

Dunnigan, J. (2003). *How to Make War: A Comprehensive Guide To Modern Warfare In The Twenty-First Century*. HarperCollins.

Fravel, T. (2019). *Active Defense: China's Military Strategy since 1949*. Princeton University Press. https://doi.org/10.1515/9780691185590

Freedman, L. (2004). *Deterrence*. Polity Press.

Freedman, L. (2014). Ukraine and the Art of Limited War. *Survival* 56 (6): 7–38. https://doi.org/10.1080/00396338.2014.985432

Galbreath, D. J. (2014). Western European Armed Forces and the Modernisation Agenda: Following or Falling Behind? *Defence Studies* 14 (4): 394–413. https://doi.org/10.1080/14702436.2014.961356

Gallagher, M. (2019). State of (Deterrence by) Denial. *The Washington Quarterly*, 42(2), 31-45. https://doi.org/10.1080/0163660X.2019.1626687

Gartzke, E. & Lindsay J. (2020). The Influence of Sea Power on Politics: Domain- and Platform-Specific Attributes of Material Capabilities. *Security Studies*, 29(4), 601-636. https://doi.org/10.1080/09636412.2020.1811450

Gilli, A. & Gilli, M. (2016). The Diffusion of Drone Warfare? Industrial, Organizational, and Infrastructural Constraints. *Security Studies* 25 (1): 50–84. https://doi.org/10.1080/09636412.2016.1134189

Gilli, A. & Gilli, M. (2019). Why China Has Not Caught Up Yet: Military-Technological Superiority and the Limits of Imitation, Reverse Engineering, and Cyber Espionage. *International Security*, 43(3), 141-189. https://doi.org/10.1162/isec_a_00337

Goldman, E.O. & Eliason, L.C. (2003). *The Diffusion of Military Technology and Ideas*. Stanford University Press.

Gordon, J., *et al.* (2020). *Army Fires Capabilities for 2025 and Beyond*. RAND Corporation. https://doi.org/10.7249/RR2124

Gormley, D. M. (2008). Missile Contagion. *Survival* 50 (4): 137–54. https://doi.org/10.1080/00396330802329006

Gray, C. S. (1990). The Definitions and Assumptions of Deterrence: Questions of Theory and Practice. *Journal of Strategic Studies*, 13(4), 1-18. https://doi.org/10.1080/01402399008437428

Gray, C. S. (2011). *Hard Power and Soft Power: The Utility of Military Force as an Instrument of Policy in the 21st Century*. US Army War College. https://doi.org/10.21236/ADA542526

Green, B. R. & Long, A. (2020). Conceal or Reveal? Managing Clandestine Military Capabilities in Peacetime Competition. *International Security*, 44 (3), 48-83. https://doi.org/10.1162/isec_a_00367

Gruselle, B. (2006). *Cruise Missiles & Anti-Access Strategies*. Fondation pour la Recherche Stratégique.

Harvey, J. (1997). *Conventional Deterrence and National Security*. Edited by Air Power Studies Centre. Commonwealth of Australia.

Herz, M., Dawood, L., & Lage V. C. (2017). A Nuclear Submarine in the South Atlantic: The Framing of Threats and Deterrence. *Contexto Internacional*, 39(2), 329-350. https://doi.org/10.1590/s0102-8529.2017390200007

Horowitz, M. (2010). *The Diffusion of Military Power: Causes and Consequences for International Politics*. Princeton: Princeton University Press. https://doi.org/10.1515/9781400835102

Hughes, W. & Girrier, R. (2018). *Fleet Tactics and Naval Operations* (3rd ed.). Naval Institute Press.

Johnson, J. (2017). China's "Guam Express" and "Carrier Killers": The anti-ship asymmetric challenge to the U.S. in the Western Pacific. *Comparative Strategy*, 36(4), 319-332. https://doi.org/10.1080/01495933.2017.1361204

Kashin, V. & Raska, M. (2017). *Countering the U.S. Third Offset Strategy: Russian Perspectives, Responses and Challenges*. RSIS Policy Papers. (Policy Report, January).

Kelly, T. Gompert, D., & Long D. (2016). *Smart Power, Stronger Partners: Exploiting U.S. Advantages to Prevent Aggression*. RAND Corporation. https://doi.org/10.7249/RR1359

Klein, J. (2004) Corbett in Orbit. *Naval War College Review*, 57(1), 59-74.

Knopf, J. (2009). Three Items in One: Deterrence as Concept, Research Program, and Political Issue. In Paul, T. V., Morgan, P. & Wirtz, J. (Eds.), *Complex Deterrence: Strategy in the Global Age* (pp. 31-57). The University of Chicago Press.

Kofman, M. (2020). Getting the Fait Accompli Problem Right in U.S. Strategy. *War on The Rocks*. https://warontherocks.com/2020/11/getting-the-fait-accompli-problem-right-in-u-s-strategy

Kulesa, Ł. & Frear, T. (2017). NATO's *Evolving Modern Deterrence Posture: Challenges and Risks* (Deterrence) [ELN Issue Brief]. European Leadership Network.

Kuo, K. (2020). Military Innovation and Technological Determinism: British and US Ways of Carrier Warfare, 1919–1945. *Journal of Global Security Studies*, 1-19. https://doi.org/10.1093/jogss/ogaa046

Lanoszka, A. & Hunzeker, M. (2019). *Conventional Deterrence and Landpower in Northeastern Europe*. Strategic Studies Institute.

Long, A. (2008). *Deterrence From Cold War to Long War: Lessons from Six Decades of RAND Research*. Rand Publishing.

Mahken, T. G. (2011) Weapons: The Growth & Spread of the Precision-Strike Regime. *Dædalus*, 140(3), 45-57. https://doi.org/10.1162/DAED_a_00097

Mearsheimer, J. J. (1981). *The Theory and Practice of Conventional Deterrence*. Cornell University, Ithaca.

Mearsheimer, J. J. (1986) A Strategic Misstep: The Maritime Strategy and Deterrence in Europe. *International Security*, 11(2), 3-57. https://doi.org/10.2307/2538957

Michaels, J. H. (2020). Visions of the next war or reliving the last one? Early alliance views of war with the Soviet Bloc. *Journal of Strategic Studies*, 43(6-7), 990-1013. https://doi.org/10.1080/01402390.2020.1759554

Mishra, S. (2011). *Cruise missiles : evolution, proliferation, and future*. Centre for Air Power Studies.

Montgomery, E. (2014). Contested Primacy in the Western Pacific China's Rise and the Future of U.S. Power Pro-

jection. *International Security*, 38(4), 115-149. https://doi.org/10.1162/ISEC_a_00160

Morgan, P. (2021). Deterrence by Denial from the Cold War to the 21st Century." In Wilner, A.S & Wegner, A. (eds). *Deterrence by Denial: Theory and Practice.* Amherst: Cambria Press.

Mueller, K. (1991). Strategy, *Asymmetric Deterrence, and Accommodation: Middle Powers and Security in Modern Europe.* Princeton University.

Nicholls, D. (2000). *Cruise Missiles and Modern War: Strategic and Technological Implications.* Center for Strategy and Technology.

Ochmanek, D. (2014). *The Role of Maritime and Air Power in DoD's Third Offset Strategy.* us House of Representatives: RAND Corporation. https://www.rand.org/pubs/testimonies/CT420.html.

Paul, TV. 2009. Complex Deterrence: An Introduction. In Paul, T.V, Morgan, P. & Wirtz, J. (eds.) *Complex Deterrence: Strategy in the Global Age.* University of Chicago Press. https://doi.org/10.7208/chicago/9780226650043.001.0001

Posen, B. (2003). Command of the Commons: the Military Foundation of u.s. Hegemony. *International Security*, 28(1), 5-46. https://doi.org/10.1162/016228803322427965

Petersen, M. B. (2020). *Strategic Deterrence, Critical Infrastructure, and the Aspiration-Modernization Gap in the Russian Navy.* Center for Strategic and International Studies

Rogers, E. (1983). *Diffusion of Innovations.* The Free Press.

Rogovoy, A. V. & Giles, K. (2015). *A Russian View On Landpower.* us Army War College.

Schelling, T. (2008). *Arms and Influence.* Yale University Press.

Schenoni, L. L. (2019). *Bipolarity or Hegemony? Latin America's Dilemma for the 21st Century.* E-IR. https://www.e-ir.info/2019/02/24/bipolarity-or-hegemony-latin-americas-dilemma-for-the-21st-century/

Schmid, J. (2018). The Diffusion of Military Technology. *Defence & Peace Economics* 29 (6): 595–613. https://doi.org/10.1080/10242694.2017.1292203

Shugart, T. & Gonzalez, J. (2017). *First Strike: China's Missile Threat to U.S. Bases in Asia.* Center for New American Century.

Snyder, G. H. (1961). *Deterrence and Defense.* Princeton University Press. https://doi.org/10.1515/9781400877164

Snyder, G. H. (1970). Deterrence: A Theoretical Introduction. In Garnett, J. (Eds.), *Theories of Peace and Security* (pp. 106-112). Macmillan. https://doi.org/10.1007/978-1-349-15376-3_6

Tangredi, S. (2013). *Anti-Access Warfare Countering A2/AD Strategies.* Naval Institute Press.

Teixeira, A., *et al.* (2020). Existe um sistema A2/AD na Venezuela? *Revista de Geopolítica*, 11(3), 28-42.

Tripp, B. (2020). Deterrence and Drones: Are Militaries Becoming Addicted and What Is the Prognosis? In Filippidou, A. (eds). *Deterrence: Concepts And Approaches For Current And Emerging Threats.* Springer. https://doi.org/10.1007/978-3-030-29367-3_7

Wilkinson, E. (2020). Resilience and Deterrence: Exploring Correspondence Between the Concepts. In Filippidou, A. (eds). *Deterrence: Concepts And Approaches For Current And Emerging Threats.* Sportverlag. https://doi.org/10.1007/978-3-030-29367-3_2

Wilner, A. S. & Wenger, A. (2021). Introduction. In Wilner, A. S & Wegner, A. (eds). *Deterrence by Denial: Theory and Practice.* Cambria Press.

Yoshihara, T., & Holmes, J. (2018). *Red Star over Pacific: China's Rise and the Challenge to US Maritime Strategy* (2nd ed.). Naval Institute Press.

Zhao, T. (2020). Conventional long-range strike weapons of us allies and China's concerns of strategic instability, *The Nonproliferation Review.* https://doi.org/10.1080/10736700.2020.1795368