



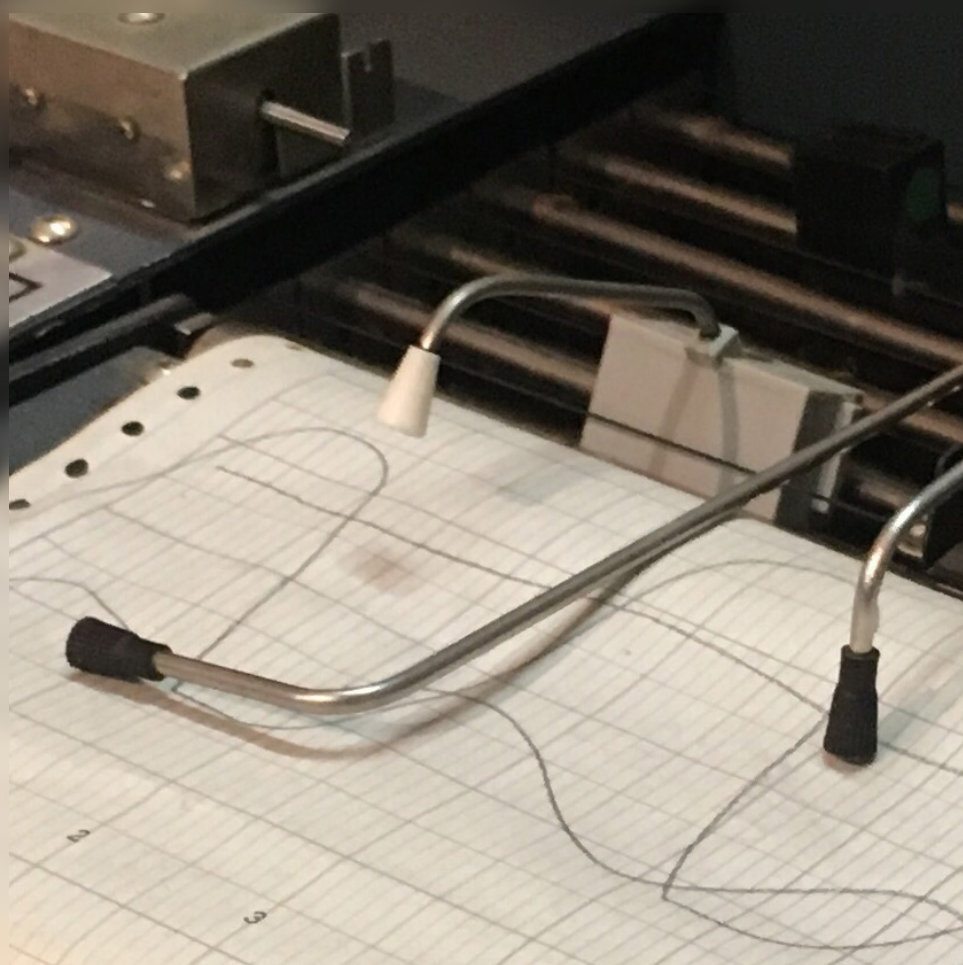
The Hague Centre
for Strategic Studies

Dancing in the Dark

The Seven Sins of Deterrence Assessment

Tim Sweijs and Mattia Bertolini

March 2023





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Executive Summary

The Challenge: Dancing in the Dark

Although the logic of deterrence and its real-world applications may appear intuitively simple and elegant, measuring its effectiveness is much more challenging. When it comes to deterrence, deterrence policymakers can in fact be likened to dancers in the dark: they may know their own deterrence moves, but they can only surmise what the intentions of their counterparts are, and how their deterrence measures shape adversarial behaviour. For analysts of deterrence, this leads to a host of empirical, theoretical, and methodological challenges inherent to the study of the effectiveness of deterrence, including the absence of data to support key claims, the lack of insight into cause and effect, and the reliance on game theoretic models that fail to capture important aspects of real-world decision-making.

Despite the fact that these shortcomings are widely acknowledged in the literature, suggestions for alternative ways to assess the effectiveness of deterrence have been few and far between since this was debated by scholars in the 1980s and 1990s. This is not just a scholarly omission, but also inhibits policymakers to measure, evaluate, and improve their deterrence policies based on sound theory and analysis. Following Russia's invasion of Ukraine, first in 2014 and then in 2022, deterrence features are once again dominating Western strategic discourse and Western policymakers are relearning the fundamental tenets of nuclear deterrence confronted by Russia's repeated sabre rattling. At the same time, scholars and strategists are contemplating whether and how basic deterrence concepts are holding up when applied to so-called hybrid threats. Therefore, there is a pressing demand to design effective deterrence policies and to improve them. Sound deterrence assessments and evaluations are key to this effort.

Deterrence policymakers can in fact be likened to dancers in the dark: they may know their own deterrence moves, but they can only surmise what the intentions of their counterparts are, and how their deterrence measures shape adversarial behaviour.

The Problem:

The Seven Sins of Deterrence Assessment

This report identifies seven sins of deterrence assessment and makes suggestions on how to address them. This will allow deterrence analysts to increase the validity of their deterrence assessments, and provide policymakers with a toolkit to measure, evaluate, and improve their deterrence strategies based on sound analysis. A more extensive and detailed discussion of the sins can be found in Section 2.

1. Failure to define the behaviour to be deterred

Deterrence analysis fails to clearly define and demarcate the object of analysis, namely the behaviour to be deterred, which leads to contradictory and conflicting assessments of deterrence encounters.

2. Inadequate use of indicators

Deterrence assessment often uses invalid indicators, which do not accurately measure what they are supposed to measure, leading to flawed analysis.

3. Confounding defender and challenger

Analyses of deterrence are prone to bias in the designation of defender and challenger in a deterrence encounter: who is deterring whom is in the eye of the beholder. This leads to a fundamental problem: one's own deterrence policies can be seen as aggressive, calling for countermeasures by an opponent, and, thus, defeating the initial purpose of deterrence.

4. Misbelief in a single standard of evaluation

Deterrence analysts wrongfully use a single standard to evaluate deterrence encounters, whilst deterrence strategies are multi-layered and multi-faceted. Deterrence strategies can encompass both general and immediate deterrence at once, and can be executed in tandem with compellence strategies, making evaluation through a single standard inadequate.

5. The problem of the dog that didn't bark

Deterrence assessment is subject to Sherlock Holmes' dog that didn't bark in the night problem, where a dog that did not bark was crucial to solving a murder case. However, it is not always easy to establish why the dog did not bark. Similarly, when measuring a deterrence success it is difficult to determine why an adversary abstained from an attack. How can one differentiate between cases where possible attacks are truly deterred, and cases in which the adversary in fact had no intention of attacking in the first place, did not have the capabilities or resolve to do so, or refrained from attacking for entirely different reasons other than deterrence?

6. Failure to address method shortcomings

Deterrence assessments fail to account for shortcomings of methods leading to unwarranted conclusions. Large-N quantitative regression based analysis cannot escape selection bias, makes undue generalisations, assumes single chains of causation, and ignores the importance of catalysts. Small-N qualitative methods cannot generalise from individual encounters and reach conclusions that can apply to a broader population of deterrence encounters. Thus, both quantitative and qualitative methods of deterrence research have limitations.

7. Ignoring the microfoundations of decision-making

Deterrence assessment has a tendency to either ignore or use the wrong microfoundations of decision-making. Deterrence research often refrains from specifying these microfoundations that can be traced back to the decision-maker, which is central to deterrence theory. How exactly is the decisionmaker dissuaded (or not) from engaging in an attack? What exactly is the decision-making calculus of the attacker? And at what point and how do deterrence measures enter the decision-making calculus of an attacker?

The Solution: Seven Maxims for Deterrence Assessment

The preceding review of the seven sins in the study of deterrence bear lessons to overcome challenges when measuring and evaluating deterrence going forward. Using solutions available in the social sciences, the validity of deterrence assessments can be increased, which in turn provides analysts and policymakers with a toolkit to measure, evaluate, and improve their deterrence strategies based on sound theory and analysis. Deterrence assessments will benefit from heeding the following maxims:

1. Be specific about the behaviour to be deterred

When analysing and evaluating deterrence policies, be specific about the behaviour to be deterred. This will avoid misidentifying deterrence encounters and competing assessments of deterrence policies.

1.1 Clearly stipulate the specific acts by a challenger the deterrence strategy under investigation is attempting to deter. The deterrence policy can, subsequently, adequately and unambiguously be evaluated by measuring the extent to which the target behaviour has been deterred.

1.2 If deterrence strategies target different sets of behaviour or are executed in combination with strategies of compellence, demarcate each objective separately and evaluate each component accordingly. This allows for an unambiguous assessment of different elements of a deterrence encounter.

2. Use adequate indicators in deterrence analysis

Make use of adequate indicators when measuring latent components of deterrence encounters. This allows for more accurate measurements and increase the validity of deterrence assessments.

2.1 When possible, select direct indicators that stay close to the core characteristics of the latent variable they are intended to measure. To strengthen their assessment, analysts should specify the exact relationship between the indicator chosen and the original variable under investigation.

2.2 If direct indicators are not present and indirect indicators are used, make the correlation between indicator and the original variable under investigation explicit. This will make one's argument more transparent and solidify the deterrence assessment.

2.3 Specific indicators are preferred over general ones. Add detail and nuance to indicators and open the black box of decision-making to identify the specific drivers of decisionmakers. For example, instead of using general troop movements as an indicator for intent to attack, specify which kind of troop movements indicate such intent by distinguishing between different types of movements including the platforms used, the timing, and the domain.

2.4 Use multiple indicators, both direct and indirect ones, to corroborate the measurement of latent variables of a deterrence encounter. Confirming and verifying one's measurement by using both direct and indirect evidence simultaneously will increase the validity of the measurement and strengthen the assessment.

3. Consider deterrence as an interactive and dynamic game

Consider deterrence as an interactive and dynamic game, one where defender and challenger continuously change roles as they threaten one another. For policymakers, this is not with an eye to appeasement but helps develop a shared deterrence grammar, which avoids any inherent biases in one's analysis, and acknowledges that deterrence policies can be perceived as offensive in nature by an adversary and potentially trigger unintended escalation.

3.1 Be aware of potential bias in deterrence assessments and be cognisant of the perceptions of the adversary. Deterrence policies can be interpreted as offensive, prompting aggressive behaviour by the opponents, the exact opposite of what deterrence strategies aim to achieve in the first place.

3.2 Considering deterrence as an interactive and dynamic game, where both defender and challenger continuously change roles as they threaten one another. This will avoid any inherent biases in one's analysis and better inform future deterrence policies.

4. Evaluate the different dimensions of a deterrence strategy separately

Dissect and demarcate the different components and targets of a deterrence policy to assess their outcome separately. Through this, the assessment of deterrence outcomes are more detailed and nuanced.

4.1 List each dimension of a deterrence strategy separately, and segregate deterrence from other strategies, such as compellence strategies, that are conducted in tandem.

4.2 For each component of the deterrence encounter under investigation, explicitly state under what conditions it is a deterrence success and under what circumstances it is a deterrence failure.

4.3 Evaluate each component separately, and according to the characteristics of failure and success stated before.

5. Substantiate why deterrence causes the absence of attack

When determining a deterrence success, assess whether deterrence truly is the most plausible and probable cause for the absence of an attack. This will avoid attributing deterrence as the main cause for the absence of an opponent's attack when in reality other factors are key.

5.1 Establish that a challenger has plausible motivation, means and opportunity to stage an attack but refrains from doing so following a deterrence campaign. Assess the extent to which generally acknowledged favouring conditions for deterrence are present in the specific context.

5.2 Examine the inverse argument, and seek plausible explanations why an attack would have occurred in the absence of a deterrence effort (i.e., a counterfactual analysis). 'Plausible' world counterfactuals should be used over 'miracle' world ones and, in line with Richard Ned Lebow's work, follow eight characteristics: (1) clarity, (2) logical constancy or cotenability, (3) enabling counterfactuals should not undercut the antecedent, (4) historical consistency, (5) theoretical consistency, (6) avoid the conjunction fallacy, (7) recognise the interconnectedness of causes and outcomes, and (8) consider second-order counterfactuals.¹

5.3 To substantiate both the factual explanation (5.1) and the counterfactual explanation (5.2) as to why deterrence caused the absence of attack, employ both qualitative and quantitative research methods linking inputs to outputs. This will solidify the established causal chain between deterrence and the absence of attack.

5.3.1 Large-N cross-case comparisons, which seek out general patterns and probabilistic relations between favouring conditions and outcomes, can aid in establishing the role of deterrence policies in producing an outcome.

5.3.2 Qualitative analytical techniques can be used to further investigate and deepen analysis of the relationship between deterrence and an adversary's inaction. To this end, both within-case analysis, such as process tracing, or cross-case analysis, such as a comparative assessment with other similar cases, can be used.

¹ Richard Ned Lebow, 'What's So Different about a Counterfactual' 52, no. 4 (July 2000): 581–85.

6. Employ a mixed-methods approach to evaluate deterrence

Use a mixed-methods approach to evaluate deterrence encounters. This strengthens the empirical analysis of deterrence as the relative advantages of both quantitative and qualitative approaches are used, whilst taking into account their shortcomings.

6.1 Combine quantitative regression analyses with qualitative methods, including both within-case assessments and cross-case comparisons to deepen the assessment of the causal chains under investigation and strengthen one's conclusions.

6.2 Account for the individual variations, as well as the multiple causal pathways, interaction between factors, and dynamic effects of deterrence encounters by use of qualitative small-N analytical techniques. Simultaneously, employ large-N quantitative research methods to allow for generalisations to be made.

6.3 Pursue bounded rather than unconditional generalisations and acknowledge the limitations of the research methods used.

7. Open the black box of deterrence decision-making

Open the black box of decision-making to gain a better understanding of what guides a decisionmaker's behaviour. This will strengthen the theoretical and empirical foundations of deterrence analysis, as well as improve the validity of its findings.

7.1 Parse the available theories of decision-making, such as bureaucratic, psychological, and emotional models of decision-making to gain a better understanding of an adversary's decision-making calculus.

7.2 Use a wide variety of models, such as prospect theory, poliheuristic theory, and theories of crisis decision-making, to corroborate the deterrence logic and ground it in empirical evidence.

Table 1 provides a summary of the sins and solutions.

In Lieu of Conclusions

Robust assessment and evaluation of deterrence policies are of paramount importance to improve the effectiveness of such policies going forward. Addressing the seven sins of deterrence analysis by heeding the maxims listed will increase the validity of deterrence assessments and provide analysts and policymakers with a toolkit to improve their evaluation of deterrence strategies.

Table 1. Solutions to the seven sins of deterrence assessment

	Sin	Solution
1	Failure to define the behaviour to be deterred	Be specific about the behaviour to be deterred
2	Inadequate use of indicators	Use adequate indicators in deterrence analysis
3	Confounding defender and challenger	Consider deterrence as an interactive and dynamic game
4	Misbelief in a single standard of evaluation	Evaluate the different dimensions of a deterrence strategy separately
5	The problem of the dog that didn't bark	Substantiate why deterrence causes the absence of attack
6	Failure to address method shortcomings	Employ a mixed-methods approach to evaluate deterrence
7	Ignoring the microfoundations of decision-making	Open the black box of deterrence decision-making

1. Introduction

Deterrence policymakers can be compared to dancers in the dark: they may know their own deterrence moves but can only surmise the intentions of their counterparts.

Deterrence, or “dissuasion by means of threat”,² has been central to Western security strategy and scholarly research since the end of the Second World War. Although the logic of deterrence and its real-world applications may appear intuitively simple and elegant, measuring its effectiveness is much more challenging. In the analysis of deterrence encounters it is impossible to access the decision-making process of adversaries to assess whether deterrence policies in fact dissuaded them from engaging in an attack. We do not know whether the opponent had an intention to attack in the first place; we do not know whether it was truly the deterrence threat that dissuaded an opponent; nor do we know how exactly deterrence policies may or may not have deterred an opponent.

When deterrence theory emerged in the early years of the nuclear era, scholars made use of deductive reasoning and formal game theory to put forth different arguments about how deterrence worked, but without rigorously testing the validity of those claims. It led Robert Jervis to observe that “perhaps the most startling fact about the development of [deterrence theory] is the lack of search for supporting evidence,”³ with historical cases serving as ‘ornamental’ illustrations of strategic theorems instead of evidence to corroborate or refute the theory.⁴ From the 1970s onwards, a growing number of scholars started to systematically analyse deterrence cases in the real world to try and identify general patterns employing a mixture of quantitative and qualitative methods.⁵ However, these efforts soon ran into a host of theoretical, methodological, and empirical challenges inherent to the study of deterrence.⁶ Challenges include absence of data to support key claims, failure to identify causal mechanisms, and use of game theoretic models that fail to capture important aspects of real world decision-making, as pointed out in pioneering work by amongst others Richard Ned Lebow and Janice Stein.⁷

Surprisingly, despite the fact that these shortcomings are generally acknowledged in the literature, suggestions for alternative ways to assess the effectiveness of deterrence have been few and far between since this was debated by scholars in the 1980s and 1990s.⁸

- 2 Paul Huth and Bruce Russett, ‘Deterrence Failure and Crisis Escalation’, *International Studies Quarterly* 32, no. 1 (March 1988): 30, <https://doi.org/10.2307/2600411>.
- 3 Robert Jervis, ‘Deterrence Theory Revisited’, *World Politics* 31, no. 2 (1979): 301, <https://doi.org/10.2307/2009945>.
- 4 Marc Trachtenberg, *The Craft of International History: A Guide to Method* (Princeton University Press, 2009), 49.
- 5 See, for example: Paul Huth and Bruce Russett, ‘What Makes Deterrence Work? Cases from 1900 to 1980’, *World Politics* 36, no. 4 (July 1984): 496–526, <https://doi.org/10.2307/2010184>; Huth and Russett, ‘Deterrence Failure and Crisis Escalation’; Patrick M. Morgan, *Deterrence: A Conceptual Analysis* (Beverly Hills, CA: Sage Library of Social Sciences, 1977).
- 6 See, for example: Jervis, ‘Deterrence Theory Revisited’; Richard Ned Lebow and Janice Gross Stein, ‘Deterrence: The Elusive Dependent Variable’, *World Politics* 42, no. 3 (April 1990): 336–69, <https://doi.org/10.2307/2010415>; Richard Ned Lebow and Janice Gross Stein, ‘When Does Deterrence Succeed and How Do We Know?’ (Canadian Institute for International Peace and Security, 1990); Richard Ned Lebow, ‘What’s So Different about a Counterfactual’; Richard Ned Lebow and Janice Gross Stein, ‘Rational Deterrence Theory: I Think, Therefore I Deter’, *World Politics* 41, no. 2 (January 1989): 208–24; Richard Ned Lebow, ‘A Data Set Named Desire: A Reply to William R. Thompson’, *International Studies Quarterly* 47, no. 3 (September 2003): 475–78; Patrick M. Morgan, *Deterrence Now*, Cambridge Studies in International Relations (Cambridge: Cambridge University Press, 2003), <https://doi.org/10.1017/CBO9780511491573>.
- 7 Lebow and Stein, ‘Deterrence’.
- 8 Our judgment is shared by Michael Mazarr and his colleagues at RAND. See Michael J. Mazarr, *What Deters and Why: Exploring Requirements and Effective Deterrence of Interstate Aggression* (Santa Monica, Calif: RAND Corporation, 2018), 16–17. Whereas they seek to develop a general framework to assess the effectiveness of deterrence policies by identifying “factors that appear, in both case-based and quantitative terms, to be regularly associated with success or failure in efforts to prevent aggression,” (17), the objective of our paper is to suggest ways to overcome existing problems related to measurement.

Recent literature addressing the deficiencies of deterrence assessment, which provides tangible solutions, are scarce.⁹ However, despite these limited efforts, the shortcomings of deterrence assessment largely remain unaddressed. This is a cause of concern because when it comes to deterrence, deterrence policymakers and analysts alike can be compared to dancers in the dark: they may know their own deterrence moves, but they can only surmise what the intentions of their counterparts are, and how their deterrence measures shape adversarial behaviour.

The question whether deterrence policies are effective, and when not, is relevant not just for academic purposes. Following Russia's invasion of Ukraine, deterrence features are once again dominating Western strategic discourse. NATO's new strategic concept runs only for eleven pages but mentions deter and deterrence 33 times,¹⁰ and NATO allies are strengthening their armed forces in support of conventional deterrence by denial. French President Macron stated he is "firmly convinced that [French] deterrence strategy maintains all of its stabilising virtues, a particularly valuable asset in the world which we see before us, one of competitions between powers, disinhibited behaviours and the erosion of norms".¹¹ South Korean President Yoon Suk-yeol, US President Joe Biden, and Japanese Prime Minister Fumio Kishida recently agreed to strengthen their nuclear deterrence against North Korea.¹² In this context, Western policymakers are relearning the fundamental tenets of nuclear deterrence confronted by Russia's repeated sabre rattling. At the same time, scholars and strategists are contemplating whether and how basic deterrence concepts are holding up when applied to so-called hybrid threats.¹³ Minister of Foreign Affairs of the Netherlands, Wopke Hoekstra, highlighted the importance of deterrence to address hybrid threats: "[w]e need the deterrence of NATO's military power. [...] So that we can meet common challenges: hybrid threats, cyberattacks, disruptive technologies and climate change."¹⁴ Therefore, there is a pressing demand to design effective deterrence policies and to improve them. Sound deterrence assessments and evaluations are key to this effort.

This is where this report comes in. It identifies the *seven sins* inherent to the measurement of the effectiveness of deterrence policies and makes suggestions on how to address them.¹⁵ This not only will allow deterrence analysts to increase the validity of their deterrence assessments, but also provide policymakers with a toolkit to measure, evaluate, and improve their deterrence strategies based on sound theory and analysis. The report first identifies each sin, lays out its key characteristics, and sets forth solutions available in the social sciences to address them. This is followed by seven maxims that analysts of deterrence should heed in their assessment and evaluation of deterrence strategies.

9 In addition to the work cited in fn. 11, Debra K. Rose proposes a set of intelligence indicators to better understand an adversary's thought process and strengthen the measurement of deterrence effectiveness. Debra K. Rose, 'Only in the Mind of the Enemy: Can Deterrence Effectiveness Be Measured?' (Defense Technical Information Center, 2011).

10 NATO, 'NATO 2022 Strategic Concept' (NATO, 29 June 2022).

11 Emmanuel Macron, 'Speech of the President of the Republic Emmanuel Macron on the Defense and Deterrence Strategy', Ministry for Europe and Foreign Affairs, 7 February 2020, <https://www.diplomatie.gouv.fr/en/french-foreign-policy/security-disarmament-and-non-proliferation/news/2020/article/speech-of-the-president-of-the-republic-emmanuel-macron-on-the-defense-and>.

12 Nam Hyun-woo, 'Yoon, Biden, Kishida Agree to Strengthen Extended Deterrence against North Korea', The Korea Times, 13 November 2022, https://www.koreatimes.co.kr/www/nation/2022/11/113_339749.html.

13 For an overview, see: Tim Sweijts and Samo Zilincik, 'Cross Domain Deterrence and Hybrid Conflict' (The Hague Centre for Strategic Studies, December 2019).

14 Wopke Hoekstra, 'Speech by Minister Wopke Hoekstra at the Center for Strategic and International Studies', Government of the Netherlands, 14 April 2022.

15 Note the reference in the title of this report to: Philip A Schrod, 'Seven Deadly Sins of Contemporary Quantitative Political Analysis', *Journal of Peace Research* 51, no. 2 (March 2014): 287–300, <https://doi.org/10.1177/0022343313499597>.

This will provide policymakers with a toolkit to measure, evaluate, and improve their deterrence strategies based on sound theory and analysis.

2. The Seven Sins of Deterrence Assessment

2.1. Failure to define the behaviour to be deterred

The first sin is the failure to clearly define and demarcate the object of analysis, namely the behaviour to be deterred. The attractively simple definition of deterrence as preventing someone “from taking some action they might want to take”,¹⁶ causes many deterrence scholars to not specify, underspecify, or incorrectly identify the behaviour of an opponent that is to be deterred. This leads to contradictory and conflicting assessments of deterrence encounters.

Failure to specify the actors and actions to be deterred leads to misinterpretation and conflicting analyses of deterrence encounters. The Russia-Ukraine war in 2022 serves as a prime example how a failure to clearly define and demarcate the behaviour to be deterred can lead to opposing assessments of the effectiveness of NATO's deterrence posture. On the one hand, it is argued that Russia's invasion of Ukraine was a deterrence failure for NATO, since the Alliance failed to dissuade Russia from using force to settle territorial disputes.¹⁷ On the other hand, NATO's deterrence posture in the invasion of Ukraine is interpreted as a deterrence success because it has, so far, prevented further escalation beyond Ukraine's border. Moreover, in a similar vein, it is argued that repeated statements of senior NATO leaders that any use of nuclear weapons would have “catastrophic consequences” for Russia, has dissuaded the Kremlin from using such weapons of mass destruction.¹⁸ Yet, one can also argue that the invasion of Ukraine does not constitute a deterrence encounter between NATO and Russia at all since Ukraine is not part of NATO, and does not fall under NATO's deterrence posture as ultimately encapsulated in Article 5. Such contradictory assessments of deterrence encounters can arise when the actions to be deterred remain ambiguous.

The Russia-Ukraine war shows how a failure to clearly define the behaviour to be deterred can lead to opposing assessments of the effectiveness of NATO's deterrence.

¹⁶ Mazarr, *What Deters and Why*, 2.

¹⁷ See for example: Daniel W. Drezner, ‘Why Did Deterrence Fail in Ukraine?’, *Washington Post*, 27 March 2022, <https://www.washingtonpost.com/outlook/2022/03/27/why-did-deterrence-fail-ukraine/>; Benjamin Jensen, ‘The Two Sides of Deterrence in Ukraine’, Center for Strategic and International Studies, 30 March 2022, <https://www.csis.org/analysis/two-sides-deterrence-ukraine>.

¹⁸ ‘Biden Aide Says US Has Warned Kremlin Against Using Nuclear Arms’, *Bloomberg.Com*, 25 September 2022, <https://www.bloomberg.com/news/articles/2022-09-25/biden-aide-says-us-has-warned-kremlin-against-using-nuclear-arms>.

Ambiguity leading to incorrect attributions of deterrence failure and success has been pointed out by deterrence scholars in the past,¹⁹ but overcoming this challenge remains difficult. Not least because clearly identifying the behaviour to be deterred in a deterrence encounter is a complex task since deterrence strategies can serve multiple purposes at once. Deterrence can both serve to deter unwanted actions over the long term (i.e., general deterrence), as well as prevent a specific, imminent attack (i.e., immediate deterrence).²⁰ Both objectives can be pursued at the same time in a deterrence campaign. For example, NATO's deterrence posture serves to deter Russia over the long term, whilst simultaneously dissuading Russia from staging a specific attack on the territorial integrity of the Alliance. This multiplicity complicates distinguishing specific actions that a deterrence strategy is meant to deter.

This is furthermore compounded by the fact that an encounter between two opponents can be classified as both deterrence and compellence depending on one's interpretation and the empirical evidence used. It is questionable whether compellence and deterrence can even be distinguished at all. Compelling a halt to a certain action can also be described as deterring to advance further.²¹ For example, US policy on Taiwan can be seen as compelling China to cease aggressive military actions against the island, such as live-fire drills, but can also be interpreted as deterring China from engaging in further military aggression against Taiwan. Oftentimes deterrence and compellence strategies are used simultaneously, effectively eliminating any meaningful distinction between them.²² For example, Peter Viggo Jakobsen points out that in peace operations attempts at deterrence and compellence are used in tandem.²³ Similarly, Daniel L. Byman and Matthew C. Waxman suggest that NATO's goals during the Kosovo war involved both efforts to deter and to compel.²⁴ The multidimensionality of deterrence strategies and their concurrent use with compellence strategies thus complicate the identification of the exact behaviour that is to be deterred.

Yet, there are solutions to these problems. To avoid misidentifying deterrence encounters and to bring clarity to competing assessments of the effectiveness of deterrence policy it is first and foremost necessary to be specific about the behaviour to be deterred. Clarity rather than ambiguity is needed to classify the object of deterrence policies, and facilitate the evaluation of their effectiveness. If deterrence strategies target different actions or behaviours that they seek to deter or also include elements of compellence, each should be stated clearly, and separately classified, allowing for the unambiguous assessment of different components of deterrence.

19 Most notably Richard Ned Lebow and Janice Gross Stein in their criticism of the widely referenced dataset on deterrence compiled by Paul Huth and Bruce Russett, see: Lebow and Stein, 'Deterrence', 336–37.

20 Huth and Russett, 'Deterrence Failure and Crisis Escalation', 30; Lebow and Stein, 'Deterrence', 336, 342.

21 Frans Osinga and Tim Sweijts, eds., *Deterrence in the 21st Century - Insights from Theory and Practice*, NL ARMS: Netherlands Annual Review of Military Studies (The Hague: T.M.C. Asser Press, 2021), 525.

22 Lebow and Stein, 'Deterrence', 352.

23 Peter Viggo Jakobsen, 'Deterrence in Peace Operations: Look beyond the Battlefield and Expand the Number of Targets and Influence Mechanisms', in *Deterrence in the 21st Century - Insights from Theory and Practice* (The Hague: T.M.C. Asser Press, 2021), 327–45.

24 Daniel L. Byman and Matthew C. Waxman, 'Kosovo and the Great Air Power Debate', *International Security* 24, no. 4 (2000): 5–38.

Clarity rather than ambiguity is needed to classify the object of deterrence policies and facilitate the evaluation of their effectiveness.

2.2. Inadequate use of indicators

The second sin prevalent in deterrence assessment is the use of invalid indicators, which do not accurately measure what they are supposed to measure, to assess the effectiveness of deterrence policies. Because analysts cannot access key aspects of the decision-making calculus of targets of deterrence encounters, deterrence analysts are prone to what economists refer to as *the streetlight effect*. This form of cognitive bias refers to an old tale about a drunkard searching for her car keys in an otherwise dark street under a street lamp, because the light there is better than where she originally lost her keys. Similarly, deterrence analysts look for indicators that they can readily access instead of indicators that truly capture the phenomenon that they seek to describe.

This is not without reason: key variables in a deterrence encounter are hard to pinpoint. In contemporary cases, analysts simply do not have direct access to the motivations involved in deterrence decision making, because decisionmakers keep them secret for obvious reasons. In the analysis of historical cases too, evidence is often absent, simply because vital components of decision making processes have not been documented, or misleading, as political leaders and their advisors seek to push a particular narrative to shape historical narratives. Deterrence assessments must resort to make use of measurable albeit indirect indicators. This leads deterrence analysts to either assume such intent without grounding it in measurable indicators – as is common place in many contemporary discussions regarding the intentions of Russia and China²⁵ – or reach for indicators that might be deceptively easy to measure but are inaccurate – as was prevalent in Cold War period accounts. For example, Paul Huth and Bruce Russett rely on the overt movement of military forces as a key indicator of the intention to attack by a challenger.²⁶ Initially, this seems to be an obvious, easily observable, and measurable indicator. However, other scholars rightly point out that the (re)deployment of troops can also be motivated by different reasons, such as for defensive purposes.²⁷ Another indicator often used to measure intent of attack is military threats issued in public statements by decisionmakers. However, a threat to attack does not unequivocally mean an intention to attack.²⁸ Leaders might be bluffing where they do not have the intention nor the capabilities to follow through on their threats.²⁹ Moreover, decisionmakers might themselves not even be sure what they intend to do right until the very last moment for reasons unrelated to deterrence.³⁰ For example, Chinese leaders have repeatedly threatened the use of force to achieve reunification of Taiwan with Mainland China,³¹ but whether this constitutes actual intent of attack or serves as mere bluffing remains an open question.

Finding adequate indicators that can represent unmeasured variables can, therefore, be a challenging task. The transition from concept to concrete measurable data inevitably leads to significant simplification. Some social science researchers believe that indicators fail to

25 See, for example: Julian Spencer-Churchill, 'China's Closing Window of Opportunity on Taiwan', Text, The National Interest (The Center for the National Interest, 25 September 2022), <https://nationalinterest.org/feature/china%E2%80%99s-closing-window-opportunity-taiwan-204972>; Carter Malkasian, 'Master of Deterrence', *Foreign Affairs*, 2 September 2022, <https://www.foreignaffairs.com/articles/world/2022-01-31/master-deterrence>.

26 Huth and Russett, 'Deterrence Failure and Crisis Escalation', 30.

27 Lebow and Stein, 'Deterrence', 342–43.

28 Tim Sweijs, *The Use and Utility of Ultimatima in Coercive Diplomacy*, (Twenty-first Century Perspectives on War, Peace, and Human Conflict), Palgrave Macmillan; 1st ed. 2023 (May 13, 2023).

29 Lebow and Stein, 'Deterrence', 343.

30 Morgan, *Deterrence Now*, 121.

31 'Xi Says "China Must Be, Will Be Reunified" as Key Anniversary Marked | English.Scio.Gov.Cn', The State Council Information Office of the People's Republic of China, 3 January 2019, http://english.scio.gov.cn/topnews/2019-01/03/content_74336191.htm.

Analysts need to open up the black box of decision-making and identify specific elements of behaviour.

capture every defining aspect of a concept. They resist the use of indicators as the “definition of a concept should not be driven by the data that are available to measure that concept”.³² Yet, evaluating the effectiveness of deterrence requires looking at measurable indicators one way or another, even if these are indirect rather than direct measurements. Here too, there are various strategies in the social science toolkit that deterrence analysts can make use of. First, as a general rule, whenever possible, indicators should be selected that directly capture the core attributes of the concept they are intended to measure, and analysts should make explicit the precise relationship between the indicator and the concept. Second, when this is not possible, and analysts use indirect indicators, they must specify the correlation between the indicator and a defining aspect of deterrence. Third, specific indicators are better than generic ones so deterrence analysts need to open up the black box of decision-making and identify specific elements of behaviour. Instead of using generic troop movements as indicators, a more differentiated typology should be used that distinguishes between different types of movements including the types of platforms used, timing, and domain, to determine their signalling purposes and track an adversary’s behaviour in the context of the deterrence relationship.³³ Fourth, triangulation strategies that combine different pieces of direct and indirect evidence are instrumental in corroborating assessments of effectiveness. For example, Russian troop movements along the border with Ukraine in late 2021 and early 2022 were correctly identified as an intent to attack by US intelligence operators as logistic support functions, such as medical equipment, were deployed alongside offensive forces.³⁴ This shows how a more complex understanding of an opponent’s troop movements can be a more robust indicator for intent to attack. Deterrence analysts can leverage these strategies conjointly to measure often times latent components of deterrence encounters and thereby enhance the validity of their findings.

Who is deterring
whom is in the eye
of the beholder.

2.3. Confounding defender and challenger

The third sin involves the inherent bias in the designation of defender and challenger in a deterrence encounter: who is deterring whom is in the eye of the beholder. Even though the defender and challenger are conceptually different, it is sometimes hard to distinguish them in reality. The interchangeability of defender and challenger leads to a fundamental problem: one’s own deterrence policies can be seen as aggressive, calling for countermeasures by an opponent, and, thus, defeating the initial purpose of deterrence.

Whilst defender and challenger are easy to distinguish theoretically, it is not always easy to differentiate a defender and challenger from an empirical perspective. Both actors want to deter the other, both through threats and actions. The party that “started it first” can arguably be identified as the challenger, since it is challenging the status-quo. However, “who started it first” is always in the eye of the beholder as the status-quo is a subjective one. For example, many analyses of deterrence encounters during the Cold War designate China and the Soviet Union as the challengers. However, this disregards the possibility that from their

32 Gary Goertz and James Mahoney, *A Tale of Two Cultures: Qualitative and Quantitative Research in the Social Sciences* (Princeton, N.J.: Princeton University Press, 2012), 129–30.

33 Samuel Charap et al., *Understanding Russian Coercive Signaling* (Santa Monica: RAND, 2022).

34 Phil Stewart, ‘Russia Moves Blood Supplies near Ukraine, Adding to U.S. Concern, Officials Say’, Reuters, 29 January 2022, <https://www.reuters.com/world/europe/exclusive-russia-moves-blood-supplies-near-ukraine-adding-us-concern-officials-2022-01-28/>.

side the Chinese and Soviets might have been motivated by defensive considerations. Such judgments are politically sensitive and even deterrence analysts whose goal is to offer dispassionate, fact based descriptions of deterrence encounters, tread carefully over what are hotly contested issues.³⁵ More recently, Sino-US competition in the Taiwan Strait sees both sides accusing one another of challenging the status-quo and being the aggressor that has to be deterred.³⁶

The difficulty to distinguish defender and challenger is not just a potential complication for the measurement of deterrence itself but poses a fundamental strategic problem because it may lead to misguided deterrence policies. These, rather than being defensive in nature aimed at deterring an attack from an opponent, can be interpreted as offensive in nature and trigger unintended escalation in deterrence encounters as both parties regard the other as the challenger. Prudent decisionmakers must therefore be first and foremost conscientious of their own inherent bias in the development of deterrence policies and be cognisant of their adversary's perceptions – not with an eye to appeasement but to develop a shared deterrence grammar. Where it concerns assessing the effectiveness of deterrence, in the evaluation of strategies, deterrence must be viewed as an interactive and dynamic game, one where defender and challenger continuously change roles as they threaten one another. This would avoid any inherent biases in one's analysis and better inform future deterrence strategies.

Decisionmakers must therefore be first and foremost conscientious of their own inherent bias in the development of deterrence policies and be cognisant of their adversary's perceptions.

2.4. Misbelief in a single standard of evaluation

A fourth sin encountered in the assessment of the effectiveness of deterrence is the wrongful use of a single standard to evaluate deterrence encounters, whilst deterrence strategies are multi-layered and multi-faceted. This sin is related to the first sin of deterrence, namely failure to specify the behaviour to be deterred. Deterrence strategies can encompass both general and immediate deterrence at once, and can be executed in tandem with compellence strategies, making evaluation through a single standard inadequate.

At first glance, distinguishing a deterrence success from a deterrence failure seems intuitively simple: did the potential challenger attack or not? However, analyses employing such single standard to evaluate the effectiveness of deterrence encounters fail to acknowledge that deterrence strategies can successfully deter an opponent in certain respects, whilst failing to deter in others. For example, whilst Western deterrence efforts may have failed to dissuade Russia from invading Ukraine in February 2022, it can be argued that they, so far, have dissuaded Russia from escalating the war further, including beyond Ukraine's borders and using weapons of mass destruction. Indeed, both judgments are not mutually exclusive. In other words, deterrence strategies often are multi-faceted and multi-dimensional. Therefore, the use of a single standard of evaluation is inadequate.

35 Charap et al., *Understanding Russian Coercive Signaling*. The authors frame their key findings carefully: "Moscow appears to be using coercive signals to send targeted messages regarding activities that it finds problematic. It should be emphasized that this is an empirical research finding; it is neither a normative assessment nor a policy prescription." See: Charap et al., 109..

36 'Statement by the Ministry of Foreign Affairs of the People's Republic of China', 2 August 2022, https://www.fmprc.gov.cn/eng/zxxx_662805/202208/t20220802_10732293.html; Reuters, 'Biden Says He Is Concerned about China's Moves around Taiwan', *Reuters*, 8 August 2022, sec. Asia Pacific, <https://www.reuters.com/world/asia-pacific/biden-says-he-is-concerned-about-chinas-moves-around-taiwan-2022-08-08/>.

Other scholars have in fact noted that deterrence policies can target both general and immediate deterrence, and can fail at one whilst succeeding at the other. Michael J. Mazarr argues that a defender can fail in general deterrence, leaving an opponent constantly vying for opportunities to attack. However, the defender can simultaneously succeed in immediate deterrence by depriving a potential aggressor from the opportunity to launch an immediate attack.³⁷ Moreover, as noted in the first sin, deterrence strategies can also often be conducted in tandem with compellence strategies.³⁸ Current fifth wave deterrence scholarship even goes as far as to expand the concept of deterrence to include compellence and suasion.³⁹ Such expansion of deterrence expands the different facets of a deterrence strategy and, thus, further complicates its evaluation.

Here too analysts have strategies at their disposal to overcome measurement problems. In line with the recommendations to overcome the first sin, analysts are first and foremost advised to demarcate deterrence strategies from other strategies that are conducted in tandem. Second, within each dimension of a deterrence strategy it must be determined what a deterrence success and deterrence failure implies. This will help to reduce ambiguity in the evaluation of each aspect of a deterrence policy.

2.5. The problem of the dog that didn't bark

The fifth sin of deterrence assessment relates to Sherlock Holmes' *dog that didn't bark in the night* problem, where the detective was able to solve a murder mystery based on the fact that a dog, present at the night of the murder, did not bark. This shows how something that did not happen (i.e., the dog barking) can be of fundamental importance when reconstructing the course of events. However, it is not always easy to establish *why* the dog did not bark. Was it because there was no intruder, or because the dog was fast asleep, or perhaps because it was chewing on a juicy bone? Similarly, measuring a deterrence success involves a non-occurrence (i.e., the absence of attack), which makes it difficult to identify its cause. How can one differentiate between cases where possible attacks are truly deterred, and cases in which the adversary in fact had no intention of attacking in the first place, did not have the capabilities or resolve to do so, or refrained from attacking for entirely different reasons other than deterrence?

Proving that a deterrence strategy caused an opponent to refrain from attacking is a difficult endeavour. There are a multitude of possible reasons why 'the dog did not bark' other than deterrence, which are hard to exclude without access to an adversary's considerations. For example, the United States under the Biden Administration is becoming increasingly unambiguous about its support for Taiwan in case of a military invasion by the China.⁴⁰ This

³⁷ Mazarr, *What Deters and Why*, 17.

³⁸ Peter Viggo Jakobsen, 'Deterrence in Peace Operations: Look beyond the Battlefield and Expand the Number of Targets and Influence Mechanisms'; Daniel L. Byman and Matthew C. Waxman, 'Kosovo and the Great Air Power Debate'.

³⁹ See observations by Frans Osinga and Tim Sweijts, 'Conclusion: Insights from Theory and Practice', in *Deterrence in the 21st Century—Insights from Theory and Practice*, ed. Frans Osinga and Tim Sweijts (The Hague: T.M.C. Asser Press, 2021), 527, https://doi.org/10.1007/978-94-6265-419-8_2.

⁴⁰ Vincent Ni, 'Joe Biden Again Says US Forces Would Defend Taiwan from Chinese Attack', *The Guardian*, 19 September 2022, sec. World news, <https://www.theguardian.com/world/2022/sep/19/joe-biden-repeats-claim-that-us-forces-would-defend-taiwan-if-china-attacked>.

Deterrence encounters fail to acknowledge that deterrence strategies can successfully deter an opponent in certain respects, whilst failing to deter in others.

could be seen as a broader deterrence strategy by the United States to dissuade the PRC from engaging in military aggression against the island. To date, the PRC has not yet invaded the island of Taiwan. Can we, thus, conclude that the US deterrence strategy is successful? Perhaps US deterrence efforts are indeed successfully influencing the decision-making process of leaders in Beijing. However, opinions differ on whether China currently has the motivation to stage a military invasion of Taiwan.⁴¹ Moreover, some argue that China simply cannot afford to mount such a complex and costly invasion as of yet.⁴² Perhaps China is dissuaded from invading the island simply because it does not have the means to do so, rather than due to US deterrence efforts. Maybe both the motivation and means are there but the right opportunity has simply not presented itself as Chinese leadership is currently preoccupied with various domestic challenges. This illustrates the difficulty of establishing whether a deterrence strategy is the true reason why 'the dog didn't bark'.

Since it is nearly impossible to eliminate all other possible reasons why 'the dog didn't bark', deterrence scholars often turn to the use of counterfactuals to construct causality.⁴³ If one can prove that in the absence of deterrence (i.e., the counterfactual) an attack would have occurred, one can assert that deterrence is the key variable that dissuaded a challenger from attacking. David Hume was the first to explicitly define causality in terms of counterfactuals when suggesting cause can be established when "if the first object had not been, the second never would have existed".⁴⁴ However, causal inferencing through counterfactuals leads to a fundamental problem. For any particular case, one can never rerun history to assess whether different circumstances would have led to different outcomes. The conjectural nature of counterfactuals, therefore, makes many social scientists wary of them.⁴⁵ Deterrence scholars, thus, often have to settle for a 'plausible' or 'probable' explanation.⁴⁶

How can one then best establish a deterrence strategy to be the most plausible or probable explanation for the absence of an attack? First, research strategies must be employed that can demonstrate that a challenger had plausible motivation, means, and opportunity to stage an attack but refrained from doing so following a deterrence effort. Such an analysis starts with a baseline understanding of 'what deters and why' and evaluates the extent to which generally acknowledged favouring conditions are in place and apply to the specific context.⁴⁷ Second, research strategies must seek plausible explanations why the challenger would have attacked in the absence of deterrence (i.e., a counterfactual analysis). Here, only 'good' counterfactuals must be used. Good counterfactuals distinguish 'plausible' world counterfactuals from 'miracle' world ones and, following Lebow, can be characterised by the following eight characteristics: (1) clarity, (2) logical constancy or cotenability, (3) enabling counterfactuals should not undercut the antecedent, (4) historical consistency, (5) theoretical consistency, (6) avoid the conjunction fallacy, (7) recognise the interconnectedness of causes and outcomes, and (8) consider second-order counterfactuals.⁴⁸ Third, to substantiate both the factual and counterfactual strategies listed above, both quantitative and qualitative research methods should be employed to creating mechanisms linking inputs to outputs. Large-N cross-case

41 Xiaoxue Martin, 'Three misunderstandings about China's policy on Taiwan', *Clingendael Spectator*, 16 February 2022, <https://spectator.clingendael.org/nl/publicatie/three-misunderstandings-about-chinas-policy-taiwan>.

42 Andrew J. Nathan, 'Beijing Is Still Playing the Long Game on Taiwan', *Foreign Affairs*, 14 September 2022, <https://www.foreignaffairs.com/articles/china/2022-06-23/beijing-still-playing-long-game-taiwan>.

43 Morgan, *Deterrence Now*, 123.

44 David Hume, *Enquiries Concerning Human Understanding, and Concerning the Principles of Morals* (Oxford: Oxford University Press, 1975 (1777)).

45 Richard Ned Lebow, 'What's So Different about a Counterfactual', 551.

46 Morgan, *Deterrence Now*, 123.

47 Mazarr, *What Deters and Why*.

48 Richard Ned Lebow, 'What's So Different about a Counterfactual', 581–85.

One can never rerun history to assess whether different circumstances would have led to different outcomes.

comparisons can help corroborate general patterns and probabilistic relations between these favouring conditions and the outcomes in social science terms, independent and dependent variables.⁴⁹ These factors can, subsequently, be used to conduct a counterfactual analysis to establish their role in producing the outcome of the deterrence encounter. Various qualitative analytical techniques can be used including process tracing, to corroborate the relationship between deterrence policies and outcomes on the basis of consultation of primary and secondary sources and stakeholder interviews;⁵⁰ or cross-case analysis, where comparative assessments with other cases similar to the counterfactual can help establish both intent of and dissuasion from an attack due to deterrence policies.⁵¹ The combination of these research methods can inform the evaluation of the effectiveness of deterrence policies.

2.6. Failure to address method shortcomings

The sixth sin when measuring deterrence is the failure to account for shortcomings of methods leading to unwarranted conclusions. Criticism of large-N quantitative regression based analysis argues that it cannot escape selection bias, makes undue generalisations, assumes single chains of causation, and ignores the importance of catalysts. Criticism of small-N qualitative methods focuses on the fact that because it is based on a small number of context-specific cases it cannot generalise from individual encounters and reach conclusions that apply to a broader population of deterrence encounters. Thus, both quantitative and qualitative methods of deterrence research have limitations.

Large-N quantitative datasets of deterrence are prevalent in deterrence research, but, according to Lebow and Stein, are plagued by a host of problems.⁵² First, it is methodologically challenging to find a reliable and unbiased sample of deterrence encounters. While deterrence failures can be identified more easily, given the traceability of the employment of violence by at least one of the parties, deterrence success is harder to distinguish as it involves the absence of empirically observable behaviour. This leads to an undue selection bias in favour of deterrence encounters that failed given that successes are harder to identify.⁵³ Moreover, as the total population of deterrence cases is indiscernible, reliably demarcating a representative sample is practically impossible. Second, individual cases can vary significantly, making any cross-case comparison and generalisation challenging.⁵⁴ Cases can differ considerably over time and the complexity of causes innate to each particular deterrence encounter make it harder to draw generalised conclusions.⁵⁵ Third, large-N quantitative approaches assume single chains of causation. However, deterrence interactions can be the product of multiple independent chains of causation, characterised by “multiple causation, confluence, and nonlinear effects”,⁵⁶ and subject to the unique conditions in which an

While deterrence failures can be identified more easily, deterrence success is harder to distinguish as it involves the absence of empirically observable behaviour.

49 Goertz and Mahoney, *A Tale of Two Cultures*, 117.

50 Goertz and Mahoney, 117; Alexander L. George and Andrew Bennett, *Case Studies and Theory Development in the Social Sciences*, BCSIA Studies in International Security (Cambridge, Mass: MIT Press, 2005).

51 Goertz and Mahoney, *A Tale of Two Cultures*, 121.

52 Lebow and Stein, 'Deterrence'.

53 Lebow and Stein, 347.

54 Mazarr, *What Deters and Why*, 17.

55 Richard Ned Lebow, 'A Data Set Named Desire: A Reply to William R. Thompson', 477.

56 Richard Ned Lebow, 475.

encounter takes place.⁵⁷ Last, quantitative approaches ignore the importance of catalysts, which set a causal chain in motion. While all the underlying causes may be there, an attack can still not occur in the absence of an appropriate catalyst.⁵⁸ For example, China might have both the motivation and means to stage an attack against Taiwan, but is simply waiting for the right opportunity or catalyst to set things in motion. In this case, US deterrence strategy in the Taiwan Strait would wrongly be interpreted as successful.

Qualitative small-N analyses of deterrence, on the other hand, draw conclusions based on either specific within-case observations or cross-case comparisons. This can lead to persuasive causal inferencing despite the small number of cases analysed. For example, in Tannenwald's argument that the existence of a 'nuclear taboo' dissuaded decisionmakers in the United States from using nuclear weapons since World War II, she made use of only four historical episodes.⁵⁹ What made her argument persuasive is the extensive within-case evidence of decisionmakers being normatively constrained to the non-use of nuclear weapons.⁶⁰ However, given that the analysis draws from a small number of context-specific cases, deducing broader insights for the evaluation of deterrence strategies remains limited and runs counter to the basic tenets of qualitative research.

A mixed-methods approach to the study of deterrence encounters could strengthen empirical analysis as the relative advantages of both quantitative and qualitative approaches are used whilst accounting for their shortcomings.⁶¹ Quantitative regression analyses could be combined with within-case and cross-case analyses, process tracing, as well as structured focused comparisons to further examine the various causal chains under observation.⁶² This way one can account for the individual variations of deterrence encounters, as well as the "multiple causation, confluence, and nonlinear effects",⁶³ whilst allowing for certain generalisations to be made. It is important to note that one should pursue bounded rather than unconditional generalisations while acknowledging limitations.⁶⁴ This will greatly improve the validity of the findings reached by deterrence assessments.

A mixed-methods approach to the study of deterrence encounters could strengthen empirical analysis.

2.7. Ignoring the microfoundations of decision-making

The seventh and last sin of deterrence scholarship is the tendency to either ignore or use the wrong microfoundations of decision-making. At the very core of the deterrence logic lies the decision-making calculus of the aggressor that, if deterrence policies are successful, is dissuaded from attacking on the basis that "the costs and/or risks of that action [...] outweigh

⁵⁷ Mazarr, *What Deters and Why*, 17.

⁵⁸ Richard Ned Lebow, 'A Data Set Named Desire: A Reply to William R. Thompson', 475.

⁵⁹ Nina Tannenwald, 'The Nuclear Taboo: The United States and the Normative Basis of Nuclear Non-Use', *International Organization* 53, no. 3 (1999): 433–68.

⁶⁰ Goertz and Mahoney, *A Tale of Two Cultures*, 91.

⁶¹ Martino Maggetti, 'Mixed-Methods Designs', in *Handbuch Organisationssoziologie*, ed. Maja Apelt et al., Springer Reference Sozialwissenschaften (Wiesbaden: Springer Fachmedien Wiesbaden, 2018), 1–18, https://doi.org/10.1007/978-3-658-16937-4_12-1.

⁶² Goertz and Mahoney, *A Tale of Two Cultures*, 110.

⁶³ Richard Ned Lebow, 'A Data Set Named Desire: A Reply to William R. Thompson', *International Studies Quarterly* 47, no. 3 (September 2003): 475–78, p. 475.

⁶⁴ Jervis, 'Deterrence Theory Revisited'; Alexander L. George and Richard Smoke, 'Deterrence and Foreign Policy', *World Politics* 41, no. 2 (January 1989): 170–82.

its benefits".⁶⁵ Yet, deterrence research often refrains from specifying these causal mechanisms that are traced back to the decisionmaker, which is central to deterrence theory. How exactly is the decisionmaker dissuaded (or not) from engaging in an attack? What exactly is the decision-making calculus of the attacker? And at what point and how do deterrence measures enter the decision-making calculus of an attacker?

Deterrence analysis tends to ignore these foundational questions of the deterrence logic and fail to address the decision-making calculus, which is at the very core of deterrence theory. It sticks to the system level of analysis and treats the various states involved as unitary actors, ignoring the decision-making processes within these states by key individuals. For example, recent commentary on whether or not Western deterrence posture has failed in Ukraine, fails to address how Western deterrence strategies have affected the decision-making process of Russian leaders.⁶⁶

Not only do deterrence scholars ignore the decision-making calculus, oftentimes wrong microfoundations are used to make sense of decision-makers' actions, most notably through the use of rational models of decision-making. Jervis, Lebow, and Stein put it well: "deterrence posits a psychological relationship, so it is strange that most analyses of it have ignored decision makers' emotions, perceptions, and calculations and have instead relied on deductive logic based on the premise that people are highly rational."⁶⁷ Rational models of deterrence hypothesise that a challenger is more likely to initiate an attack when the expected costs of armed conflict are lower.⁶⁸ This is, admittedly, an attractive explanation of leaders' decision-making given its rigour and parsimony. However, the behaviour of decisionmakers often deviates from the core tenets of rational deterrence theories. Jervis states that deterrence theory "overestimates the rationality of decisionmakers, especially under high stress."⁶⁹ Instead, their decision-making calculus is prone to misperceptions and miscalculations. The assumption of rationality fails to take note of these deviations that shape leaders' judgement and choices. Moreover, when assessing deterrence, one asks whether the threat persuades and whether it is deemed credible by the adversary. This line of questioning already departs from the assumption of rationality.⁷⁰ Whilst rational deterrence theory may be simple and elegant, its empirical relevance is questionable.

Deterrence scholarship should seek to open the black box of decision-making to shed light on the microfoundations of the theory. Scholars should look to other theories of decision-making in their analysis of deterrence encounters, including bureaucratic, psychological, and emotional models of decision-making. Various scholars, most notably Jervis, Lebow, and Stein, have explored the psychological foundations that persuade or dissuade a challenger from attacking.⁷¹ More recently, emotion-centric models of deterrence and decision-making are making an appearance.⁷² Fortunately, deterrence analysts can employ a broad range of

65 Alexander L. George and Richard Smoke, *Deterrence in American Foreign Policy: Theory and Practice* (New York: Columbia Univ. Press, 1974), 11.

66 See, for example: Daniel W. Drezner, 'Why Did Deterrence Fail in Ukraine?'; Benjamin Jensen, 'The Two Sides of Deterrence in Ukraine'.

67 Robert Jervis et al., *Psychology and Deterrence, Perspectives on Security* (Baltimore (Ma.) London: The John Hopkins university press, 1989), 1.

68 Paul Huth and Bruce Russett, 'General Deterrence Between Enduring Rivals: Testing Three Competing Models', *The American Political Science Review* 87, no. 1 (1993): 61–73, <https://doi.org/10.2307/2938956>.

69 Jervis, 'Deterrence Theory Revisited', 299.

70 Morgan, *Deterrence Now*, 119–20.

71 Richard Ned Lebow and Janice Gross Stein, 'Rational Deterrence Theory: I Think, Therefore I Deter'; Jervis et al., *Psychology and Deterrence*.

72 Robin Markwica, *Emotional Choices: How the Logic of Affect Shapes Coercive Diplomacy*, First edition (Oxford, United Kingdom: Oxford University Press, 2018).

Their decision-making calculus is prone to misperceptions and miscalculations. The assumption of rationality fails to take note of these deviations that shape leaders' judgement and choices.

decision-making models, which are founded on empirical evidence, including psychological models of decision-making, prospect theory, poliheuristic theory, and theories of crisis decision-making.⁷³ A thorough investigation of the microfoundations inherent to the decision-making calculus of leaders and employing the models above will strengthen the theoretical and empirical foundations of deterrence analysis, as well as improve the validity of its findings.

More recently, emotion-centric models of deterrence and decision-making are making an appearance

⁷³ See Jack and William Thompson for a comprehensive overview of models of decision-making in political science: Jack S. Levy and William R. Thompson, *Causes of War* (Chichester, West Sussex, U.K. ; Malden, MA: Wiley-Blackwell, 2010), 128–61.

3. Seven Maxims for Deterrence Assessment

The preceding review of the seven sins in the study of deterrence bear lessons to overcome challenges when measuring and evaluating deterrence going forward. Using solutions available in the social sciences, the validity of deterrence assessments can be increased, which in turn provides policymakers alike with a toolkit to measure, evaluate, and improve their deterrence strategies based on sound theory and analysis. Policymakers and analysts of deterrence will benefit from heeding the following maxims:

3.1. Be specific about the behaviour to be deterred

When analysing and evaluating deterrence policies, be specific about the behaviour to be deterred. This will avoid misidentifying deterrence encounters and competing assessments of deterrence policies.

1.1 Clearly stipulate the specific acts by a challenger the deterrence strategy under investigation is attempting to deter. The deterrence policy can, subsequently, adequately and unambiguously be evaluated by measuring the extent to which the target behaviour has been deterred.

1.2 If deterrence strategies target different sets of behaviour or are executed in combination with strategies of compellence, demarcated each objective separately and evaluate each component accordingly. This allows for an unambiguous assessment of different elements of a deterrence encounter.

3.2. Use adequate indicators in deterrence analysis

Make use of adequate indicators when measuring latent components of deterrence encounters. This allows for more accurate measurements and increase the validity of deterrence assessments.

2.1 When possible, select *direct* indicators that stay close to the core characteristics of the latent variable they are intended to measure. To strengthen their assessment, analysts

should specify the exact relationship between the indicator chosen and the original variable under investigation.

2.2 If direct indicators are not present and *indirect* indicators are used, make the correlation between indicator and the original variable under investigation explicit. This will make one's argument more transparent and solidify the deterrence assessment.

2.3 Specific indicators are preferred over general ones. Add detail and nuance to indicators and open the black box of decision-making to identify the specific drivers of decision-makers. For example, instead of using general troop movements as an indicator for intent to attack, specify which kind of troop movements indicate such intent by distinguishing between different types of movements including the platforms used, the timing, and the domain.

2.4 Use multiple indicators, both direct and indirect ones, to corroborate the measurement of latent variables of a deterrence encounter. Confirming and verifying one's measurement by using both direct and indirect evidence simultaneously will increase the validity of the measurement and strengthen the assessment.

3.3. Consider deterrence as an interactive and dynamic game

Consider deterrence as an interactive and dynamic game, one where defender and challenger continuously change roles as they threaten one another. For policymakers, this is not with an eye to appeasement but serves to develop a shared deterrence grammar, which avoids any inherent biases in one's analysis, and acknowledges that deterrence policies can be perceived as offensive in nature by an adversary and potentially trigger unintended escalation.

3.1 Be aware of potential bias in deterrence assessments and be cognisant of the perceptions of the adversary. Deterrence policies can be interpreted as offensive, prompting aggressive behaviour by the opponents, the exact opposite of what deterrence strategies aim to achieve in the first place.

3.2 Develop a shared deterrence grammar by considering deterrence as an interactive and dynamic game, where both defender and challenger continuously change roles as they threaten one another. This will avoid any inherent biases in one's analysis and better inform future deterrence policies.

3.4. Evaluate the different dimensions of a deterrence strategy separately

Dissect and demarcate the different components and targets of a deterrence policy to assess their outcome separately. Through this, the assessment of deterrence outcomes are more detailed and nuanced.

4.1 List each dimension of a deterrence strategy separately, and segregate deterrence from other strategies, such as compellence strategies, that are conducted in tandem.

4.2 For each component of the deterrence encounter under investigation, explicitly state under what conditions it is a deterrence success and under what circumstances it is a deterrence failure.

4.3 Evaluate each component separately, and according to the characteristics of failure and success stated before.

3.5. Substantiate why deterrence causes the absence of attack

When determining a deterrence success, assess whether deterrence truly is the most plausible and probable cause for the absence of an attack. This will avoid attributing deterrence as the main cause for the absence of an opponent's attack when in reality other factors are key.

5.1 Establish that a challenger has plausible motivation, means and opportunity to stage an attack but refrains from doing so following a deterrence campaign. Assess the extent to which generally acknowledged favouring conditions for deterrence are present in the specific context.⁷⁴

5.2 Examine the inverse argument, and seek plausible explanations why an attack *would* have occurred in the absence of a deterrence effort (i.e., a counterfactual analysis). 'Plausible' world counterfactuals should be used over 'miracle' world ones and, in line with Lebow, follow eight characteristics: (1) clarity, (2) logical constancy or cotenability, (3) enabling counterfactuals should not undercut the antecedent, (4) historical consistency, (5) theoretical consistency, (6) avoid the conjunction fallacy, (7) recognise the interconnectedness of causes and outcomes, and (8) consider second-order counterfactuals.⁷⁵

5.3 To substantiate both the factual explanation (5.1) and the counterfactual explanation (5.2) as to why deterrence caused the absence of attack, employ both qualitative and quantitative research methods linking inputs to outputs. This will solidify the established causal chain between deterrence and the absence of attack.

5.3.1 Large-N cross-case comparisons, which seek out general patterns and probabilistic relations between favouring conditions and outcomes, can aid in establishing the role of deterrence policies in producing an outcome.

5.3.2 Qualitative analytical techniques can be used to further investigate and deepen analysis of the relationship between deterrence and an adversary's inaction. To this end, both within-case analysis, such as process tracing, or cross-case analysis, such as a comparative assessment with other similar cases, can be used.

⁷⁴ Mazarr, *What Deters and Why*.

⁷⁵ Richard Ned Lebow, 'What's So Different about a Counterfactual', 581–85.

3.6. Employ a mixed-methods approach to evaluate deterrence

Use a mixed-methods approach to evaluate deterrence encounters. This strengthens the empirical analysis of deterrence as the relative advantages of both quantitative and qualitative approaches are used, whilst taking into account their shortcomings.

6.1 Combine quantitative regression analyses with qualitative methods, including both within-case assessments and cross-case comparisons to deepen the assessment of the causal chains under investigation and strengthen one's conclusions.

6.2 Account for the individual variations, as well as the multiple causal pathways, interaction between factors, and dynamic effects,⁷⁶ of deterrence encounters by use of qualitative small-N analytical techniques. Simultaneously, employ large-N quantitative research methods to allow for generalisations to be made.

6.3 Pursue bounded rather than unconditional generalisations and acknowledge the limitations of the research methods used.

3.7. Open the black box of deterrence decision-making

Open the black box of decision-making to gain a better understanding of what guides a decisionmaker's behaviour. This will strengthen the theoretical and empirical foundations of deterrence analysis, as well as improve the validity of its findings.

7.1 Parse the available theories of decision-making, such as bureaucratic, psychological, and emotional models of decision-making to gain a better understanding of an adversary's decision-making calculus.

7.2 Use a wide variety of models, such as prospect theory, poliheuristic theory, and theories of crisis decision-making, to corroborate the deterrence logic and ground it in empirical evidence.

Table 2 below provides a summary of the sins and solutions.

⁷⁶ Richard Ned Lebow, 'A Data Set Named Desire: A Reply to William R. Thompson', *International Studies Quarterly* 47, no. 3 (September 2003): 475–78, p. 475.

Table 2. Solutions to the seven sins of deterrence assessment

	Sin	Solution
1	Failure to define the behaviour to be deterred	Be specific about the behaviour to be deterred
2	Inadequate use of indicators	Use adequate indicators in deterrence analysis
3	Confounding defender and challenger	Consider deterrence as an interactive and dynamic game
4	Misbelief in a single standard of evaluation	Evaluate the different dimensions of a deterrence strategy separately
5	The problem of the dog that didn't bark	Substantiate why deterrence causes the absence of attack
6	Failure to address method shortcomings	Employ a mixed-methods approach to evaluate deterrence
7	Ignoring the microfoundations of decision-making	Open the black box of deterrence decision-making

4. In Lieu of Conclusions

Deterrence policies have gained renewed interest amongst policymakers and military strategists alike, following Russia's invasion of Ukraine and increased global geopolitical competition. As geopolitical competition heats up states make increasing use of hybrid tactics to exploit vulnerabilities of opponents, which calls for the employment of deterrence strategies in the hybrid domain. Developing sound and unambiguous deterrence assessments is especially important in the grey zone, as a multiplicity of actors and domains, and concealed operations, can exacerbate the seven sins discussed in this report, making it even harder to identify deterrence successes and failures and substantiate one's analysis. Robust assessments and evaluation of such deterrence policies are of paramount importance to improve the effectiveness of such policies going forward. Addressing the seven sins of deterrence analysis by heeding the maxims listed in this report will increase the validity of deterrence assessments and provide policymakers with a toolkit to improve their evaluation of deterrence strategies.

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