



ANALYSIS

DETERRENCE IS NOT ROCKET SCIENCE: IT IS MORE DIFFICULT*

By Keith B. Payne

In a recent published article, two physicists offered remarks that illustrate a fundamental basis for the stark differences reflected in the public debate about deterrence.¹ A “fundamental issue” raised by the authors is, “Who is qualified to participate in the debate over US nuclear weapons policy?” Their expressed concern is that “discussion of these policies” is held “within silos,” and that “one such silo is the US defense establishment,” which, they suggest, is that side of the nuclear policy debate that does not “promote arms control or disarmament.” The authors emphasize that all who engage in this discussion are “arm-chair generals” because no one has experience in nuclear warfare, and that “no political actors can know all the possible pathways of escalation from conventional to nuclear war.” Their fundamental point in this regard appears to be that the “defense establishment” has no great advantage in this discussion because, “deterrence theory is not rocket science. Except for aspects of mathematical logic or game theory applied to deterrence, this ‘theory’ is essentially a collection of suspect assumptions and speculations on how one state would respond to the actions of an adversary. We can all partake in those speculations.”²

There are points of truth in these various observations. All the possible pathways to nuclear escalation surely are *not* known, thankfully. In some important aspects of this subject—we all *are* amateurs. And, deterrence theory *is* speculative. The prediction of foreign leadership decision making in unprecedented and stressful future circumstances is particularly speculative. This much has been recognized by some for generations. More than six decades ago, Herman Kahn emphasized the speculative character of deterrence theory and questioned the prevalent expectation that the reliable functioning of deterrence can be orchestrated: “In spite of our reliance on the idea that deterrence will work, we usually do not analyze carefully the basic concepts behind such a policy....This somewhat lackadaisical interest in bedrock concepts is probably related to a subconscious fear that our foundations cannot stand close examination.”³

But the authors of the recent article appear to make these points to advance a broader conclusion that is both a *non sequitur* and mistaken, i.e., that there is not specialized knowledge and experience within the “defense establishment” regarding deterrence that enables some speculation about the functioning of deterrence to be more credible than other

* This article is adapted from Keith B. Payne, “Deterrence is Not Rocket Science: It is More Difficult,” *Information Series* No. 527, July 7, 2022, available at https://nipp.org/information_series/keith-b-payne-deterrence-is-not-rocket-science-it-is-more-difficult-no-527-july-6-2022/.

¹ Stewart Prager and Alan Kaptanoglu, “Rebuttal: Current nuclear weapons policy not safe or sane,” *Bulletin of the Atomic Scientists*, May 24, 2022, available at <https://thebulletin.org/2022/05/rebuttal-current-nuclear-weapons-policy-not-safe-or-sane/>.

² *Ibid.*

³ Herman Kahn, *On Thermonuclear War* (Princeton, NJ: Princeton University Press, 1960), p. 556.



speculation. The interested commentator supposedly is as competent speculating about deterrence as those who spend their professional careers working on U.S. deterrence policy.

SPECULATION AND PREDICTION

The basic principle of deterrence as applied to international relations in general is *not* complicated: a latent threat is posed with the expectation that an opponent may decide, via its calculation of cost, benefit, and risk, not to take an action for fear of that latent threat. “Redlines” are drawn in the hope that opponents will not cross them given this deterrent effect. This basic character of deterrence has endured for millennia as has its incomparable value for preventing war.

The principles of deterrence are simple and virtually anyone can become familiar with them and engage in speculation. Indeed, commentary by instant experts flourishes during times of international conflict and crisis. But the *application* of deterrence theory to actual deterrence strategies that can make the difference between war and peace is an extremely complex art demanding a broad range of specialized expertise to inform the speculation. Much of that expertise surely is not found *only* within the defense community responsible for deterrence policy, but it *does* have unique access to some of the information that is important, and it has the advantage of being able to assemble those with needed specialized expertise and a lifetime of invested work on the issue. On occasion, Democratic and Republican administrations have done just that.

APPLYING DETERRENCE: A COMPLEX ANALYTICAL CHALLENGE

Deterrence is a function of leadership decision making, which can be affected by many different factors. Consequently, the application of deterrence is an enormous and unavoidably difficult ongoing undertaking. Done properly, it requires understanding, to the extent feasible, the opponent to be deterred in the context of the engagement, including the opponent’s foreign and domestic goals (how those goals are prioritized and the opponent’s determination to achieve those goals), modes of decision making, willingness to accept risk, willingness to absorb and inflict hurt, cultural norms and values, perceptions of the deterrer, and even the health of key leaders, among many other factors potentially pertinent to decision making. There are few, if any, universal constants in this regard; instead there is a wide variety of operating factors, some seen, others unseen, that can vary greatly across time, place and opponent, and may be decisive in determining if and how deterrence will function.

In short, rational leadership decision making can vary greatly because unique decision-making factors can drive leaders’ perceptions and calculations of value, cost and risk in surprising, unpredictable directions. Consequently, the functioning of deterrence “is heavily

context dependent.”⁴ As a prominent historian working with a prominent political scientist observed: “Not all actors in international politics calculate utility in making decisions in the same way. Differences in values, culture, attitudes toward risk-taking, and so on vary greatly. There is no substitute for knowledge of the adversary’s mind-set and behavioral style, and this is often difficult to obtain or to apply correctly in assessing intentions or predicting responses.”⁵ Misunderstanding the opponent, however, “can result in the disintegration of even the best deterrence strategy.”⁶

For the application of deterrence, generalizations are less helpful than an understanding of the opponent’s worldview, priorities, calculations and definition of reasonable behavior. As Kurt Guthe has observed, “In matters related to deterrence, generalizations can be useful, but specifics are essential. The questions that must always be kept in mind are: Who is being deterred? From what action? By whom? For what reason? By what threats? And in what circumstances?”⁷ Applying deterrence must be based on expectations about the future decision making of foreign leaders. Doing so in an informed fashion is extremely demanding because, simply put, that future is not obvious.⁸

Who may contribute to the specialized expertise needed to help orchestrate the informed practice of deterrence? The list is very broad; it includes historians, psychologists, diplomats, anthropologists, economists, linguists, military experts, regional area experts, religious experts, physicians, and physicists, *inter alia*. Political science, which includes the study of international power relations, can be particularly helpful. But no single area of expertise or discipline is adequate.

For example, it is not a small point to note that while expertise in physics and other natural sciences led to the production nuclear weapons, it alone does not provide a basis for informed speculation about how deterrence is more or less likely to function in any real-world application. The atomic bomb helped end World War II, but it was the work of anthropologists focusing on Japan at the time that led the U.S. leadership to understand that respect for the position of the Emperor would be key to securing the surrender of Japanese armies. This lesson should not be lost on those who choose to comment on the functioning of deterrence. To use a sports analogy, knowing how to make a baseball conveys no special expertise for pitching a baseball or tailoring pitches to particular batters.

As noted, however, a broad interdisciplinary effort can help provide a measure of the informed understanding needed to best put deterrence into practice, i.e., *informed* speculation. This understanding can never be sufficient for fully confident prediction because the subject includes the inherent uncertainties of how a select leadership will make decisions in extraordinary conditions. There is incomplete data, ambiguous data, and

⁴ Gordon A. Craig, Alexander L. George, *Force and Statecraft: Diplomatic Problems of Our Time*, Third Edition (New York: Oxford University Press, 1995), p. 192.

⁵ *Ibid.*, p. 188.

⁶ *Ibid.*, p. 189.

⁷ See, Kurt Guthe, “Nuclear Weapons Acquisition and Deterrence,” in *Understanding Deterrence*, Keith Payne, ed., (New York: Routledge, 2013), p. 12. See also, Herman Kahn, *On Escalation: Metaphors and Scenarios* (New York: Praeger, 1965), p. 23.

⁸ Colin S. Gray, “The 21st Century Security Environment and the Future of War,” *Parameters* (Winter 2008-2009), p. 15.

conflicting data. But it is possible, via broad interdisciplinary study over time, to reduce ignorance and thereby avoid some potential deterrence mistakes. Of particular importance in this regard is to understand an opponent's political goals, cultural norms, communication channels, and perceptions of power relations (regardless of how Washington may judge those relations). In short, a critical need is to understand the political, historical, and cultural background of any deterrence engagement. Doing so properly is a complex, interdisciplinary undertaking.

The defense establishment does not have a monopoly in the pursuit of that needed understanding, but it has some significant advantages and often makes a concerted effort to reach out beyond its "silo" for assistance.⁹ As such, it has advantages over many others who "partake" in relatively uninformed speculation. The latter typically appear to have limited or no access to at least some of the important information needed and no recognition of its value.

The framework below is a simplified presentation of the process involved and the information sought.¹⁰

A DETERRENCE FRAMEWORK

Step 1. Identify antagonists, issue, objectives, and actions.

- 1.1 Antagonists
- 1.2 Issue
- 1.3 Adversary's objectives
- 1.4 Actions to be deterred
- 1.5 U.S. objectives

Step 2. Identify and describe those factors likely to affect the adversary's decision making in the context of this specific flashpoint and U.S. deterrent threats.

- 2.1 Degree of rationality and predictability as indicated by past behavior
- 2.2 Leadership characteristics
 - 2.2.1 Individuals with responsibilities for the issue at hand
 - 2.2.2 Leadership motivations
 - 2.2.3 Leadership determination
 - 2.2.4 Operational code (worldview and strategic style)
 - 2.2.5 Political-psychological profiles of key decision makers
 - 2.2.6 Adversary's understanding of and attention to the U.S.
 - 2.2.6.1 Previous interactions with the U.S.
 - 2.2.6.2 Attention to U.S. declaratory policy

⁹ There are numerous efforts in this regard. See, for example, Admiral Charles Richard, *Commander's Vision & Intent*, U.S. Strategic Command, May 2020, p. 3, available at https://www.stratcom.mil/Portals/8/Documents/Commanders_Vision_and_Intent_May2020.pdf?ver=2020-05-19-145747-990.

¹⁰ From, Keith B. Payne, *The Fallacies of Cold War Deterrence and a New Direction* (Lexington, KY: University Press of Kentucky, 2001) pp. 112-114.

- 2.2.6.3 Likelihood the adversary will (mis)comprehend U.S. demands and threats
- 2.3 Value and cost/risk structure
 - 2.3.1 Location of the issue in the value hierarchy of the adversary's leadership
 - 2.3.2 Other relevant values of the adversary's leadership
 - 2.3.3 Cost/risk tolerance of the adversary's leadership with regard to this issue
- 2.4 Options
 - 2.4.1 Military options available to the adversary
 - 2.4.2 Adversary's freedom to conciliate or provoke
- 2.5 Adversary's belief about the costs the U.S. will incur if its deterrent threat is executed
 - 2.5.1 Costs from the adversary's retaliation
 - 2.5.2 Political costs at home and abroad
- 2.6 Communications
 - 2.6.1 Optimal method for communicating with the adversary
 - 2.6.2 Possibilities for misperception
- 2.7 Credibility of U.S. threats
 - 2.7.1 Past pledges or actions demonstrating U.S. commitments
 - 2.7.2 Other special circumstances
- Step 3. Construct a strategic profile of the adversary with regard to the crisis in question.
 - 3.1 Predictability of the adversary's behavior
 - 3.2 Cost/risk tolerance
 - 3.3 Influence of considerations beyond immediate issue
 - 3.4 Will, determination, and freedom to conciliate or provoke
 - 3.5 Cognizance of U.S. demands and threats
 - 3.6 Credibility of U.S. deterrent threats
 - 3.7 Susceptibility to U.S. deterrent threats
- Step 4. Assess whether the challenger is likely to be susceptible to deterrence policies in this particular case, and, if so, the nature of those policies.
- Step 5. Identify available U.S. deterrence policy options.
 - 5.1 U.S. policy
 - 5.2 Punitive or denial threats
 - 5.3 Military actions
 - 5.4 Related diplomatic steps
 - 5.5 Means for communicating threats
 - 5.6 Likely adversary reactions and implications for options
 - 5.7 Indicators for determining option effectiveness
 - 5.8 Opportunities for learning
 - 5.9 Possible real-time modifications to improve option effectiveness

5.10 Domestic and allied constraints on U.S. actions

5.11 Expected results

Step 6. Identify the gap between the likely requirements for deterrence and available U.S. deterrence policy options. Describe different, new, or additional military capabilities and policies that may be needed or force reductions that could be undertaken.

6.1 Key military capabilities for supporting the deterrent options most suited to the challenger in this case

6.2 Related declaratory policy and diplomatic measures

POLITICS: “MORE DIFFICULT THAN PHYSICS”

According to some knowledgeable observers, the requirement for deterrence policy to be so informed about the political background of a deterrence engagement is more difficult than rocket science. Who thinks understanding politics is more difficult than the study of energy and matter? In 1947, Albert Einstein was asked, “Why is it that when the mind of man has stretched so far as to discover the structure of the atom, we have been unable to devise the political means to keep the atom from destroying us?” Einstein reportedly replied, “That is simple, my friend. It is because politics is more difficult than physics.”¹¹

Emanuel Derman, a trained physicist turned financial “quant” explains, in part, why this is true. Deterrence—as in finance—must confront considerable uncertainties beyond even those encountered in the physical sciences. “In physics you’re playing against God, and He doesn’t change His laws very often. In finance, you’re playing against God’s creatures, agents who value assets based on their ephemeral opinions.” And, “financial value...is therefore less inclined to yield to mathematics or science: there are no isolated social systems on which to carry out the repeated experiments the scientific method requires, and so it is hard to study the regularities that might reveal the putative laws that govern them.”¹²

The functioning of deterrence is no less subject to “agents who value assets based on their ephemeral opinions.” The application of deterrence theory is not a question of generally predictable interactions, known rules and other constants among opponents. If so, it would be relatively easy. Instead, it must follow from expectations about the decision making of multiple opponents with a variety of unique worldviews and diverse leaderships’ calculations that can determine the functioning of deterrence.

Recognition of the great variation in opponents’ worldviews and decision making, and the related need to understand them in their complexity for deterrence purposes, leads inevitably to the conclusion that speculation about deterrence that is more informed is likely to be much more useful than speculation that is not so informed. A 2014 study by the

¹¹ This reported statement can be found in many sources. For example, see *TODAYINSCI*, available at https://todayinsci.com/E/Einstein_Albert/EinsteinAlbert-PoliticsQuote500px.htm.

¹² Emanuel Derman, *Models Behaving Badly* (New York: Free Press, 2011), pp. 140, 190-191.

National Research Council of the National Academy of Sciences emphasizes that taking account of such factors is critical in considerations of deterrence.¹³ The authors of the recent article referenced above rightly observe that all may “partake” in speculation about deterrence, but not all speculation is of equal value for deterrence policy. This should be unremarkable; the more informed speculation in most endeavors usually is the more valuable.

In short, if speculation about deterrence follows from serious efforts to understand specific opponents in pertinent contexts, i.e., informed speculation, it may be useful; speculation that follows from untutored generalizations about the opponent and context may, by luck, be useful, but is more likely to be misleading than enlightening.

This conclusion is at the heart of a bipartisan recognition in the deterrence policy community of the need to “tailor” the application of deterrence according to an informed understanding of opponent and context. Corresponding to this conclusion is recognition of the potential need for a diverse and flexible deterrence force posture that can provide the spectrum of U.S. threat options that may be necessary to deter diverse opponents in diverse circumstances. That is, recognition of the complexity of deterrence and the uncertainties involved leads almost inevitably to recognition of the need to hedge against a wide range of threats by having flexible U.S. deterrence capabilities and options.

This conclusion contrasts sharply with the policy recommendation, enduring in some quarters since the 1960s, that the U.S. deterrence posture can be well-served by a single type of deterrent threat, i.e., to destroy some number of an opponent’s cities—as if it is self-evident that such a capability somehow equates to a universally-credible deterrent.¹⁴ For example: “What nuclear weapons offer that is unique is the ability to put whole cities at risk and threaten populations in the tens or hundreds of millions. It is that which gives them their strategic value.”¹⁵ That deterrence standard may be met relatively easily and cheaply, but it is not a prudent general approach to deterrence given the diversity of opponents in the contemporary threat environment and the serious moral and legal problems associated with it.

¹³ National Research Council, *U.S. Air Force Deterrence Analytic Capabilities* (Washington, D.C.: National Academies Press, 2014), pp. 35-39, 93-95.

¹⁴ “Just one boat [nuclear-armed submarine] can carry enough nuclear warheads to place two warheads on each of Russia’s fifty largest cities,” in William Perry and Tom Collina, *The Button* (Dallas, TX: BenBella Books, 2020), p. 119. “The possibility of even a few nuclear detonations in populated areas provides ample deterrence,” in McGeorge Bundy, William Crowe, Jr., Sidney Drell, *Reducing Nuclear Danger* (New York: Council on Foreign Relations Press, 1993), p. 95. See also, Bruce Blair, et al., “Smaller and Safer,” *Foreign Affairs*, Vol. 89, No. 5 (September-October 2010), p. 10; and, Jerome H. Kahan, *Security in the Nuclear Age* (Washington, D.C.: The Brookings Institution, 1975), p. 330.

¹⁵ Editorial, “The Nuclear Taboo: Thinking the Unthinkable,” *The Economist* (U.K.), June 24, 2022, p. 23.

WORKING TO UNDERSTAND OPPONENTS: FROM “ASSURED DESTRUCTION” TO “TAILORING”

The notion that deterrence could be based on a narrow and undifferentiated threat to cities and industry was reigning U.S. declared policy early in the Cold War; an “Assured Destruction” nuclear threat to population and industry supposedly would serve to deter “any industrialized nation.”¹⁶ This singular-declared approach to U.S. deterrence policy was the antithesis of the contemporary bipartisan conclusion that deterrence strategies should be informed by an understanding of the particular opponent and circumstances in a deterrence engagement. Indeed, it did not reflect any apparent attempt to connect deterrence strategy to the opponent’s unique perspectives or to the need to differentiate among opponents in this regard. Instead, expectations about deterrence appear to have been predicated on the untutored assumption that opponents adhere to familiar American values, perceptions and calculations (mirror-imaging). Broad generalizations about how deterrence *should* function essentially were based on the norms and reasoning of the U.S. leadership. The same unthinkable, deterring nightmare for U.S. leaders was presumed to be the unthinkable deterring nightmare for any “rational” leader.¹⁷ Deterrence policy correspondingly could be approached as a mechanical question *uninformed* by the opponent’s worldview and how that could affect its calculations:¹⁸ how many survivable, deliverable U.S. weapons were needed to wreck destruction on opponents’ cities and industry?¹⁹

Former National Security Adviser McGeorge Bundy captured this presumption about the type of threat needed to deter all foreign leaders with his observation that: “In the real world of real political leaders—whether here or in the Soviet Union—a decision that would bring even one hydrogen bomb on one city of one’s own country would be recognized in advance as a catastrophic blunder; ten bombs on ten cities would be a disaster beyond history; and a hundred bombs on a hundred cities are unthinkable.”²⁰ From there, identifying an adequate deterrence force posture is an easy proposition and relatively easily met given the extreme vulnerability of undefended cities to nuclear weapons.

This remains the enduring basis for much continuing public deterrence commentary. It runs counter to the bipartisan theme of the U.S. defense policy establishment emerging since the mid-1970s, i.e., that considerations of how to deter and the requirements for deterrence

¹⁶ *Draft Memorandum for the President*, Secretary of Defense [Robert S. McNamara] to the President [Lyndon B. Johnson], Subj: Recommended FY 1966-FY 1970 Programs for Strategic Offensive Forces, Continental Air and Missile Defense Forces, and Civil Defense, December 3, 1964, p. 4. (Originally classified; sanitized and declassified on January 5, 1983). See also, Robert McNamara, *The Essence of Security: Reflections in Office* (New York: Harper and Row, 1968), p. 76.

¹⁷ *Draft Memorandum for the President*, Secretary of Defense [Robert S. McNamara] to the President [Lyndon B. Johnson], Subj: Strategic Offensive and Defensive Forces, January 15, 1968, p. 8. (Originally classified; sanitized and declassified on January 5, 1983).

¹⁸ See, Alain Enthoven and K. Wayne Smith, *How Much Is Enough? Shaping the Defense Program, 1961-1969* (New York: Harper and Row, 1971), pp. 67, 174-196, 207-210. See also, *Draft Memorandum for the President*, Secretary of Defense [Robert S. McNamara] to the President [Lyndon B. Johnson], Subj: Recommended FY 1966-FY 1970 Programs for Strategic Offensive Forces, Continental Air and Missile Defense Forces, and Civil Defense, December 3, 1964, p. 17. (Originally classified; sanitized and declassified on January 5, 1983).

¹⁹ McNamara, *The Essence of Security: Reflections in Office*, op. cit., pp. 77-78.

²⁰ McGeorge Bundy, “To Cap the Volcano,” *Foreign Affairs*, Vol. 48, No. 1 (October 1969), p. 10.

should be informed by an understanding of opponents and the diverse factors driving their decision making. After considerable study of the Soviet leadership during the Cold War, for example, the United States concluded on a bipartisan basis that, “effective deterrence requires forces of sufficient size and flexibility” to threaten “a range of military and other targets,” and that “the ability to provide *measured* retaliation is essential to credible deterrence.”²¹ This conclusion was not based on opposition to arms control, but from efforts to better understand how to deter Moscow. By the mid-1980s, the United States had openly rejected its earlier declarations that its strategic deterrent was based on threatening Soviet cities.²²

Secretary of Defense James Schlesinger in the Nixon Administration and Secretary of Defense Harold Brown in the Carter Administration helped lead U.S. policy away from simplistic “counter-city” notions of deterrence by pointing to the need to pose a deterrence threat that actually spoke to the opponent and context in question, in this case, the Soviet leadership. Nevertheless, recognition of the need to understand opponents in all their possible diversity for U.S. deterrence purposes remains absent in much contemporary commentary on deterrence—which often continues to reduce deterrence to a simplistic jumble of assumptions and uninformed speculation based on mirror-imaging.

The contrary conclusion, that the practice of deterrence involves enormous complexity and requires a diversity of deterrence options, is *not* a function of an opposition to arms control or the obscure work of “siloes” government analysts. Rather, it follows from recognition of: 1) the significance of the great diversity in opponents’ perceptions and decision making for the functioning of deterrence; 2) the need for serious, ongoing, interdisciplinary efforts to understand opponents in context and to tailor U.S. deterrence strategies accordingly; and 3) the corresponding need for a diversity of deterrent options to hedge against the wide spectrum of decision making and behaviors among rational opponents and the inherent uncertainties of deterrence. This is not “worst case analysis”; it simply recognizes the realities of the contemporary threat environment and many of those in government “silos” who accept this logic and set of conclusions have also participated in the realization of arms control agreements.

SUMMARY AND CONCLUSION

In summary, *if* all opponents could be assumed to have similar world views and to calculate in predictable, familiar patterns—*if* there were a universally-accepted understanding of what constitutes reasonable decision making and behavior—deterrence policy would be a much easier endeavor. Opponents could be assumed to behave much more predictably. During the early years of the Cold War, for deterrence purposes, Washington’s mirror-imaging facilitated a belief that Soviet calculations were easily known and predictable—

²¹ Harold Brown in, *The Department of Defense Statement on Strategic Military Balance: Military Assessment*, before the U.S. Senate, Committee on Foreign Relations, Hearings, 96th Congress, 1st Session, July 11, 1979, p. 3. (Emphasis added).

²² Caspar Weinberger, “U.S. Defense Strategy,” *Foreign Affairs*, Vol. 64, No. 4 (Spring 1986), p. 682.

indeed, the same was expected to be true for *any* rational leadership. This convenient mirror-imaging essentially assumes away the factors particular to diverse leaderships' decision making that likely affect their respective deterrence calculations. Such speculation about strategic deterrence is not informed by study of the unique character of opponent and context. Correspondingly, an "Assured Destruction" nuclear threat to cities, an unthinkable prospect for U.S. leaders, became the declared U.S. deterrence standard vis-à-vis the Soviet Union, and all other opponents were conveniently deemed lesser included cases. This approach greatly simplifies the practice of deterrence, although imprudently so, because it dismisses the need for deterrence policy that is informed by the complexities of reality that matter.

By the mid-1970s, this simplistic approach to deterrence began to fade in official policy formulations on a bipartisan basis. It was replaced by recognition that Soviet decision making was unique in important ways and did not mimic the reigning thinking in Washington, and that the view from Moscow needed to be taken into consideration in U.S. deterrence policy.

Since the mid-1970s, and on a bipartisan basis, the U.S. defense establishment has increasingly accepted as a basis for deterrence policy that opponents' decision making may be driven by a wide range of factors that vary greatly, and thus that deterrence must be "tailored." Doing so greatly complicates the application of deterrence—demanding serious, interdisciplinary analysis of opponents and political contexts. A dynamic international threat environment complicates the matter further—requiring *continuing* efforts to understand opponents and to adapt deterrence policy according to that understanding; there is no last word on the subject. Nevertheless, many contemporary commentators essentially continue to subscribe to the notion that the application of deterrence is an uncomplicated endeavor and to the corresponding simplistic, early-Cold War definition of what constitutes an adequate deterrent posture.

Deterrence theory is built on speculation in which all are free to partake. But it is a non sequitur and a mistake to conclude from those two points that all such speculation is of equal value for the application of deterrence. It is not. A broad range of specialized knowledge regarding specific opponents and occasions must be brought to the table to inform speculation about deterrence policy, and the "defense establishment," writ large, is uniquely positioned to do so. Given the amount and types of information needed, it has some significant advantages in undertaking that analysis. Others can and should make every effort to be as informed as possible,²³ but they will do so without comparable access to information in at least some important areas. Those who engage in speculation that is uninformed by a serious multidisciplinary effort to understand the opponent and context are unlikely to be helpful, or worse. They will be even less aware of what they do not know and its potential importance. In short, all can indeed partake in discussions of deterrence, but not all such discussions are of comparable value for its "real-world" application.

²³ See for example, *Deterring China in the Taiwan Strait, Special Issue, Journal of Policy & Strategy*, Vol. 2, No. 2, 2022, pp. vii-115, available at <https://nipp.org/journals/volume-2-2022/>.

This does not, of course, mean that all studies conducted by the “defense establishment” will be done competently or will take advantage of its access to helpful information. Nor does it mean that all studies done outside that establishment must be incompetent. But those that do not bother to be well-informed about specific opponents and contexts are more likely to mislead real-world deterrence strategies than those that seriously seek to be informed. Such is the nature of deterrence speculation.

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