

1 AN INTRODUCTION TO FORECASTING NUCLEAR PROLIFERATION IN THE 21ST CENTURY

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IT IS INCREASINGLY FASHIONABLE to describe the nuclear nonproliferation regime as under siege from a variety of new and continuing threats. Although analysts and diplomats disagree about whether it is appropriate to depict the situation as a “crisis,” few doubt its precarious nature or challenge the assumption that significant additional jolts to the system could set in motion chain reactions of proliferation that would greatly weaken if not undermine the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) and its associated institutions. In some national capitals, including Washington, one can find senior officials who speak almost matter of factly about the inevitability of further proliferation and the need to “manage” rather than “prevent” that process.

Some of the concerns expressed today are not new ones, and the danger of nuclear proliferation chains and regional and global “domino effects” has been the subject of scholarly and governmental discourse since at least the mid-1970s.¹ One infrequently cited but innovative monograph by Lewis Dunn and Herman Kahn, for example, identified fifteen scenarios for nuclear weapons spread from 1975 to 1995, each based on the assumption that one state’s acquisition of nuclear weapons would prompt several other states to follow suit, which in turn would trigger a succession of additional nuclearization decisions.² Fortunately, their forecasts were almost without exception wildly off the mark.

In retrospect, it appears that to the extent that the nuclear proliferation chain dynamics envisaged by Dunn and Kahn were at work, they were dampened during the Cold War by a number of factors, including the behavior of the two superpowers, who tended to hold convergent views on the subject of nonproliferation and pursued largely cooperative behavior in this domain.

Also probably helpful were such factors as widely shared international norms embodied in the NPT, the spread of nuclear-weapons-free zones (NWFZ), the adoption of stringent nuclear export control guidelines by the major nuclear exporters, and the emergence in a number of prospective proliferators of policy makers who perceived nuclear weapons as counterproductive in terms of their international economic and political objectives.

Today, arguably, many of these proliferation dampening effects no longer prevail. Among the factors that may have rekindled the prospect of a surge of proliferation decisions are the demise of the Soviet Union and the transformation of the international system; the subordination in the United States and the majority of other nuclear weapons states of nonproliferation objectives to other economic and political considerations (witness the U.S.–India nuclear deal); the pursuit by some of these same states of “nonproliferation exceptionalism,” in which they apply different nonproliferation standards to selected countries; and the general weakening of international nonproliferation norms. Also possibly contributing to the diminished well-being of the nonproliferation regime is the increased danger posed by nonstate actors as potential nuclear suppliers, middlemen, and end users; the muted response of the international community to the 1998 nuclear tests by India and Pakistan; a similar lack of responsiveness to North Korea’s decision to withdraw from the NPT and to conduct (multiple) nuclear weapons tests; the devalued benefits of non-nuclear weapons status under the NPT in a post-U.S.–India nuclear deal world; and Iran’s exploitation of Article IV of the NPT for purposes that many consider to be consistent with a nuclear weapons option.

The combination of these developments has led to increasing speculation by government officials and nongovernmental pundits alike about the potential for regional and global proliferation chain reactions, “tipping points,” and cascades. To date, however, these proliferation prognoses are largely divorced from systematic or sustained research about the dynamics by which trigger events may set in motion national proliferation decisions, the process by which proliferation chains may arise, or even the extent to which one nation’s decision is apt to have an impact on the nuclear decisions of other states. Indeed, most nuclear prognoses appear to be driven more by metaphors than empirical research or theory. Moreover, although there is a growing body of potentially relevant social science and case study literature, for the most part it has not been applied directly to the study of “reactive proliferation”³ or, for that matter, to forecasting proliferation more generally.

In an effort to remedy this knowledge deficit and to better gauge the prospects for nuclear proliferation during the next decade, the James Martin Center for Nonproliferation Studies (CNS) at the Monterey Institute of International Studies launched a two-year research project in 2007 on “Forecasting Nuclear Proliferation Developments in the 21st Century.” The study, supported primarily by the Carnegie Corporation of New York and the Advanced Systems and Concepts Office of the Defense Threat Reduction Agency, focused on the proliferation propensity over the next ten years of twelve countries from different regions of the world; the impact on national nuclear decisions of various trigger events; the potential for national, regional, and international interaction effects; and the most effective policy tools available for impeding nuclear weapons spread. Although not the first effort to look systematically and comparatively at nuclear decision making, the CNS project is unique in the combination of its future orientation, comparative perspective, and emphasis on harnessing the insights from social science theory and country case studies to aid policy makers in forecasting nuclear proliferation developments.⁴

This volume, one of two related books that report on the findings of the forecasting project, consists of twelve comparative case studies.⁵ The authors of each case study were asked to address seven overarching questions:

1. What is the likelihood that the country in question will decide to acquire nuclear weapons or a nuclear weapons option during the next ten years?
2. What is the current balance of incentives and disincentives to “go nuclear” in the country under examination?
3. What ongoing trends and/or “trigger events” in the next ten years might alter the current balance of incentives and disincentives to acquire nuclear weapons or a nuclear weapons option?
4. How long would it take for the country to move from a decision to acquire nuclear weapons to actual nuclear weapons possession?
5. If a nuclear decision is made, what will be the likely pathway to nuclear weapons acquisition (that is, overt versus concealed behind a civilian program)?
6. What is the relationship between the country’s nuclear decision making and the behavior of other states (that is, what are the external drivers of the country’s nuclear decisions)?
7. How treatable/preventable are future proliferation decisions?

Contributors to this volume represent a diversity of nationalities, professional experience, methodological sophistication, and theoretical predilections. Although they were not encouraged to endorse any particular perspective, they were asked to assess the relevance for their cases of two of the most important recent studies in the nonproliferation field: Jacques Hymans's *The Psychology of Nuclear Proliferation* and Etel Solingen's *Nuclear Logics: Contrasting Paths in East Asia and the Middle East*. These books were singled out for particular attention because of their solid grounding in comparative field research and social science theory, their challenges to prevailing conceptions about the sources of nuclear decisions, and their promise for predicting proliferation developments. Authors also were encouraged to draw on, where appropriate, the terminology and insights from Stephen Meyer's pioneering study *The Dynamics of Nuclear Proliferation*.⁶ They include the concepts of propensity, salience, lag time, and treatability.

Countries were selected for comparative analysis based on a number of criteria, most important of which were: (1) an assessment by project participants of the most likely Nth countries; (2) a similar assessment by "expert judges" involved in an ongoing National Defense University nonproliferation project; (3) the desire to include several intriguing cases that are rarely given much attention; and (4) the availability of experts who combine a deep knowledge of nonproliferation and familiarity with the domestic context in which nuclear decisions are made. The latter consideration was especially important in the selection process, as many past proliferation forecasts suffer due to the analysts' unfamiliarity with the culture, language, history, economics, and politics of the countries for which predictions were rendered.

As is evident in this book's concluding chapter, which attempts to identify cross-national proliferation trends and tendencies, it is difficult to isolate any single factor that can explain all, or even most, of the variation in nuclear decision making across countries. It would be surprising, therefore, to anticipate that one could accurately predict nuclear choices without reference to multiple factors. Nevertheless, to the extent that different theoretical approaches attempt to offer guideposts for projecting proliferation decisions—as opposed to offering post hoc explanations of behavior—they vary considerably in the importance they ascribe to multicausality, the emphasis they attach to different determinants, and the level of analysis they employ. Several of the more influential approaches that inform the comparative case studies in this volume are summarized in the following pages.⁷

NEOREALISM

Much of the thinking about nuclear proliferation has been informed by realist perspectives, which assume that states are unitary actors that seek nuclear weapons because their security—precarious in an anarchic world—demands it. From a classical realist perspective, the quest for nuclear weapons is a rational form of self-help designed to maximize power. Neorealism embraces the same basic assumptions as classical realism, but it is more attentive to the impact of structural differences in the international system on the occurrence of war and peace.⁸ Applied to the proliferation arena, neorealism offers an elegant and simple explanation as to why nations would go nuclear. In its view, regime type, domestic politics, and personalities are of no consequence, and all that really matters is an understanding of the balancing dynamics in which one state's pursuit of nuclear weapons begets another.⁹ Taken to its logical conclusion, unadulterated neorealism predicts a lengthy nuclear proliferation chain that extends to as many states as have access to technical know-how and material to build nuclear weapons. The main reason to abstain from nuclear weapons, according to neorealist tenets, is the availability of security guarantees from a powerful ally, but even that option is viewed at best as temporary—until the state is powerful enough to acquire an independent nuclear deterrent. As such, from a neorealist perspective not only is it “natural” behavior for states to covet nuclear weapons, but there are few circumstances in which one can envisage states voluntarily choosing to relinquish nuclear weapons in their possession.¹⁰

NEOLIBERAL INSTITUTIONALISM

A leading challenger to conventional neorealist wisdom, neoliberal institutionalism also regards states as unitary actors, but it emphasizes the importance of absolute (rather than relative) gains that states can derive from participating in international regimes.¹¹ From an institutionalist perspective, the vast majority of states made a rational choice when they joined the NPT, surrendering their sovereign right to build nuclear weapons in exchange for the promise of eventual disarmament by the nuclear weapons states (NWS) and the forswearing of nuclear weapons by other non-nuclear weapons states (NNWS).¹² Underlying institutionalism is the assumption that international regimes will function as long as promised benefits are delivered and punishment for cheating (noncompliance) is ensured. In this respect, the entirety of the NPT bargain—including the Article IV commitment to assistance in peaceful nuclear activities—is important for regime survival.

CONSTRUCTIVISM

Yet another way to view nuclear choice is in terms of constructivism and the influence of nonmaterial incentives. Social constructivist approaches look beyond security considerations and rational state interests in search of public and elite perceptions and norms related to nuclear weapons.¹³ Where institutionalists argue that a decision to join and abide by the nonproliferation regime is the result of rational cost-benefit analysis, constructivists suggest that nuclear weapons abstention reflects an internationally accepted mode of “good state” behavior. According to this perspective, states with societies that have internalized the nonproliferation norm are less likely to consider or pursue nuclear weapons, even when faced with serious security challenges. As the embodiment of the international nonproliferation norm, the NPT therefore has important symbolic value in addition to its promise of practical benefits. As one proponent of this thesis puts it, “The international social environment, supported by first an emergent and then a full-fledged nuclear nonproliferation regime, has helped to provide that systemic impetus toward nuclear nonproliferation.”¹⁴

DOMESTIC SOURCES

There are a number of approaches to nuclear decision making that focus on the role of subnational or domestic sources. They include models that emphasize the force of bureaucratic politics, organizational processes, interest groups, and individual personalities.¹⁵ Although often providing useful insights at odds with rational actor explanations of state behavior, they typically are not full-fledged theories, lack predictive power, and are best at explaining past behavior. As noted in the preceding discussion, two recent works that authors in this volume were asked to consider very carefully emphasize domestic sources of nuclear weapons decisions but with greater attention than most domestic approaches to hypothesis testing and theory building. They are the leadership psychology and regime survival approaches of Jacques Hymans and Etel Solingen, respectively.

Leadership Psychology

Jacques Hymans’s psychology-based model is related to constructivism in that it examines how national identity conceptions (NICs) define nuclear behavior.¹⁶ The level of analysis, however, is different, as Hymans focuses on NICs of individual leaders and argues that only one leadership type (out of four) is apt to pursue nuclear weapons. Dubbed “oppositional nationalists,” such leaders are

driven by national pride and fear of the “other,” which leads to the perception of the need for nuclear weapons as well as confidence in the achievement of such a goal. While the assumption of power by an oppositional nationalist leader is necessary for the *decision* to acquire nuclear weapons, according to Hymans it is not always a sufficient condition for their attainment. Other factors, such as regime type and bureaucratic politics, can play a significant role in the implementation phase of decision making and impede or prevent the realization of a nuclear weapons project.

Regime Survival

Etel Solingen also focuses on subnational factors to explain nuclear decision making but identifies regime survival as the key domestic variable.¹⁷ According to her thesis, nuclear weapons programs are driven more by concerns about domestic political survival of the ruling coalition than state insecurity. Differences in regime orientation toward the global political economy, she argues, have direct implications for the nuclear choices taken by states. Outward-looking ruling coalitions that derive legitimacy from ensuring economic growth and well-being through integration into the international economy are disinclined to pursue nuclear weapons. In contrast, inward-looking regimes that emphasize self-sufficiency and autarky are more likely to view nuclear weapons acquisition as strengthening their internal position and to act accordingly.

Most of the contributors to this volume pay dutiful attention to the relative explanatory and predictive power of the aforementioned alternative approaches. As a consequence, it is possible to identify proliferation trends and tendencies based on a reasonably large set of comparative, empirically founded, and theoretically informed studies. This methodological rigor does not ensure accurate nuclear forecasts, but it provides a useful corrective to what too often has resembled speculation.

A recent book by two former government officials with access to many nuclear secrets likens the current proliferation scene to a speeding express train driven by indifferent engineers and filled with fissile material, nuclear technology, and sleeping passengers.¹⁸ The imagery is powerful, and the metaphor may yet prove apt. On the other hand, the nonproliferation train to date has been slow to pick up steam, has made fewer stops than anticipated, and usually has arrived much later than expected. Hopefully this volume will help wake up some passengers, inspire the engineers of nonproliferation policy, and delay further the departure of the nuclear express.