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THEORIES OF NUCLEAR PROLIFERATION

The State of the Field

Jacques E. C. Hymans

Traditionally, American thinking on proliferation—whether by scholars or practitioners—has been dominated by the realist camp. According to this view, nuclear weapons are very valuable to states, so only strong supply-side control measures can stop the world's natural tendency toward rampant proliferation. However, realist intuitions have proven a very poor guide to the historical realities of nuclear proliferation. Therefore the idealist camp, which takes a different approach particularly to the demand side of the proliferation equation, has become increasingly prominent in academic circles and even in the policy world. Idealists are exploring the question of the demand for the bomb at three levels of analysis: international, domestic, and individual. This new research avenue is a very positive development, but idealism has its own potential pitfalls.

KEYWORDS: Causes of nuclear proliferation; Realism; Idealism

There are two broad theoretical camps on the question of the causes of nuclear proliferation. The first camp takes the “realist” view that states acquire nuclear weapons because their security demands it. In other words, states in international anarchy need to deter potential attackers; and in the nuclear age, the gold standard of deterrence is nuclear. Therefore, realists view the expansion of nuclear technical capacities to be the key variable that ultimately determines the incidence of proliferation.

The second camp takes the “idealist” view that states obtain nuclear weapons because they learn to stop worrying and love the bomb (to coin a phrase).¹ In other words, states are driven toward the bomb by the idea that it is beneficial or necessary—but this idea is not a simple function of the exigencies of international anarchy, as is indicated by its very uneven acceptance around the world. Thus, although they admit that proliferation is impossible without sufficient technical capacity, idealists consider the key variable that determines the incidence of proliferation to be state perceptions of the bomb's utility and of its symbolism.

Traditionally, American thinking on proliferation—whether by scholars or practitioners—has been dominated by the realist camp. However, realist intuitions have proven a very poor guide to the historical realities of nuclear proliferation. Therefore the idealist camp, with its focus on the demand side of the proliferation equation, has become increasingly prominent in academic circles and even in the policy world. This is a very positive development, but idealism has its own potential pitfalls. This article first briefly reviews the realist camp's arguments and discusses its weaknesses. It then discusses the

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idealist camp's arguments and its weaknesses. Finally it sketches out an idealist approach to the prediction of future proliferation.²

Traditional Arguments: The Realist Camp

Traditionally, thinking about proliferation has been dominated by one or another variant of realism. According to what one might call the "hard" realist point of view, in international anarchy the "absolute weapon" is so obviously beneficial for states that only supply-side factors such as the lack of enriched uranium can (temporarily) hold them back.³ Meanwhile, according to what one might call the "soft" realist point of view, states that acquire the bomb may be buying themselves problems as well as opportunities; but if a state is faced with existential threats and cannot rely on the help of a nuclear-armed ally, given sufficient means it will have to ignore the potential difficulties and go nuclear itself.⁴

In fact, when one considers the deductive logic of these claims, it becomes evident that the soft realist point of view—though intuitively more appealing—quickly slides into the hard one. For one thing, it is hard to see why, from a realist perspective, anything less than an indigenous nuclear arsenal would be sufficient to deter outside threats. Realists spent the entire Cold War bemoaning the lack of credibility of extended deterrence: Could anyone really expect us to trade New York for Berlin? This was a rhetorical question.⁵

Second, on a deeper level, even if nuclear guarantees could be made credible, from a realist perspective they would be woefully insufficient to guarantee a state's long-term security. This is because at the very core of realism lies the notion that friends today may become enemies tomorrow—and a nuclear war would be over in the blink of an eye, while nuclear weapons take a long time to develop and deploy. Thus, the dominant strategy of states is to go for the bomb themselves and thus avoid any unpleasant surprises.⁶ President Charles de Gaulle's pointed declaration that France's *force de frappe* was directed not only toward the east but *tous azimuts*—in all directions—was textbook realism.⁷

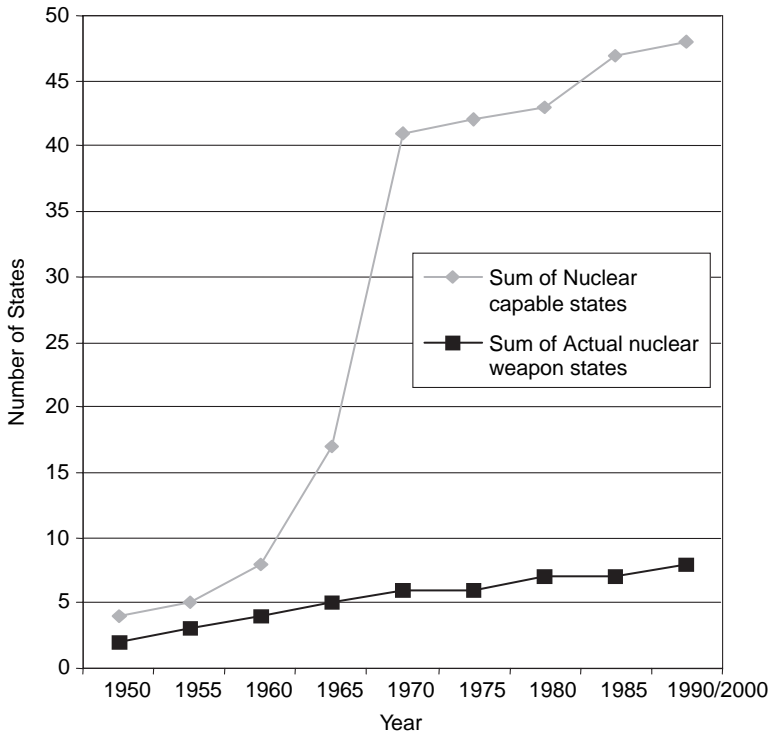
In sum, adopting the realist vision of international relations inexorably leads to the conclusion that all states that can go nuclear, should go nuclear—and the sooner, the better. If they have not done so yet, it is simply a matter of time before they do. The core realist prediction about proliferation is that some event will inevitably come along—sooner rather than later—that finally causes the dam to break and the world to go nuclear.

Critique of the Realists

The realist take on proliferation is straightforward and intuitive. But realist predictions of a "nuclear-armed crowd," made consistently since at least the advent of the French bomb in 1960, have just as consistently turned out to be wrong.⁸ As Figure 1 shows, only about one-fifth of the states that could have built nuclear weapons by now have in fact done so; and this big gap between potential and actual nuclear weapon states hardly developed yesterday.⁹ Moreover, the pace of proliferation has been essentially unchanged since the 1950s. This stability has endured despite multiple and major shocks to the nonproliferation norm. No wonder William Arkin has dubbed the study of proliferation "the sky-is-still-falling profession."¹⁰

FIGURE 1

Potential vs. Actual Nuclear Proliferation



The empirical contradiction of several decades of realist expectations and predictions is a stunning blow to the theory. To save the theory, realists have made two principal adjustments. The first realist move has been to turn to concepts such as proliferation “opacity” or “ambiguity” in order to suggest that in fact, under the surface, proliferation has indeed been rampant.¹¹ But while it is certainly interesting to investigate the many cases of states that have gone some distance down the road toward the bomb, it is simply incorrect from the standpoint of physical science, military science, or social science to lump in those states that have merely developed the capacity to build the bomb with those that have actually “gone nuclear.”¹² There may be a “ladder” of nuclear weapons capability, but the rungs on that ladder are very unevenly spaced, and states can choose to climb down as well as up.

The second realist adjustment has been to thank the nuclear nonproliferation regime.¹³ Indeed the nonproliferation regime has been an astounding success; but that success cannot be attributed primarily to the supply-side technology controls that the realists see as its core virtue.¹⁴ In fact realists themselves are the first to lament that the existing international structures are weak and erratically enforced, and indeed positively encourage the diffusion of dangerous technologies.¹⁵ And the situation seems even more dire since the discovery of the A. Q. Khan nuclear proliferation network.¹⁶ Because the

much-feared expansion of technical capacities occurred a long time ago—indeed, long before the 1997 Additional Protocol finally began to give some credibility to the International Atomic Energy Agency (IAEA) safeguards system—one cannot avoid concluding that the “realist” side of the nonproliferation regime does not explain the paucity of nuclear proliferation around the world.¹⁷

The basic empirical problem for realism is on the macro level: its consistent overprediction of overall proliferation. Tomorrow, of course, may not be like today; but if we wish to anticipate any significant changes to the status quo of widespread nuclear abstention, we first have to admit and offer credible explanations for that status quo. Realism has trouble doing this.

A second empirical problem is on a more micro-level; realism—even in its “softer” forms—is baffled by the empirical patterns of proliferation and nonproliferation. Why, for instance, France but not Germany or Japan? Why South Africa but not Sweden or Saudi Arabia? Why India in 1998 but not India in 1968? One can find ad hoc explanations for this or that anomalous case, but the fact that there are so many anomalies suggests that a more fundamental shift in our approach is needed. Indeed, even those cases that on the surface seem to confirm realist intuitions actually become much cloudier on closer inspection. For instance, the 1970s Argentine military junta, which many confidently list as a former seeker of nuclear weapons, actually viewed the bomb as a “strategic absurdity.”¹⁸ And even Israel’s path toward the bomb has been infinitely longer and more tortuous than would seem to be “merited” by its technical capacities and difficult security position.¹⁹

In sum, while realists have rightly focused attention on the important supply side of the proliferation equation, historical experience clearly disconfirms realist intuitions about the likely level of demand for nuclear weapons.

Rising Arguments: The Idealist Camp

Given the failure of the traditional approach, it is hardly surprising that most of the action in the study of proliferation over the past decade or so has been in the alternative “idealist” camp. In contrast to the realists, idealists do not take as given the notion that states, even those that find themselves in difficult security straits, benefit from getting the bomb. Rather, they argue that the development of the idea—in *some* quarters of *some* states—that a nuclear arsenal is both feasible and desirable is a puzzle that needs to be explained. The idealist effort to deepen our understanding of the demand side of the proliferation equation is a long overdue corrective to the field’s traditionally dominant focus on the supply side.²⁰ Exponents of the idealist camp have developed their analyses on three levels: the international level, the domestic level, and the individual level.

International-level idealists stress the importance of international norms of nonproliferation and nuclear non-use in depressing demand for the bomb and the concomitant difficulties of handling norm-rejecting rogue regimes.²¹ The basic logic of this position is as follows: Most states think of themselves as, and want to be seen as, good international citizens. Thanks at least in part to the nonproliferation regime, there is today a widespread acceptance by states that good international citizens do not build nuclear arsenals. Therefore, the overwhelming majority of states have in fact not gone nuclear.

However, as can be expected in any society, a handful of rogues reject the dominant order and therefore also its nonproliferation norm. The rogues are the states that we have to worry about in the first instance; but, worse yet, their wanton violations of the regime may undermine the very bases for the nonproliferation norm and produce a mass exodus, possibly leading even to an alternative international norm of nuclear *proliferation*. Thus, even though the nonproliferation regime has been wildly successful, we cannot rest easy. Norm-violators must be punished severely, not least because of the potential wider impact of their actions.²²

While international-level idealists focus on broad global trends in ideas about the desirability of nuclear weapons, domestic-level idealists note that many important societal constituencies hardly need outsiders—whose own hands are often unclean—to help them to see the folly in nuclear weapons drives.²³ In a major contribution that combines the international and domestic levels of analysis, Etel Solingen points out that in many states there is a tension between those who want their societies to become open to the world, and those who want their societies to shut the world out.²⁴ Solingen finds that those who promote openness also tend to reject the acquisition of nuclear weapons, while those who promote closure are much more inclined to consider it. This point is of course very much in line with the overall thrust of the international-level idealists, but it also adds a layer of political complexity that they omit, and raises the possibility of quick shifts either away from or toward “roguish” behavior as a function of the domestic balance of power.

Finally, there are individual-level idealist approaches to the question of proliferation.²⁵ The trend toward individual-level analysis, particularly of the motivations of state leaders, is increasingly prominent in international relations scholarship.²⁶ Proliferation is an ideal place to extend this trend, because nuclear weapons programs are often secret and under the tight control of the top leader. The growing concerns about super-terrorism also dovetail nicely with an individual-level analysis. The individual-level idealist approach to the proliferation puzzle begins with the observation of the tremendously uncertain consequences of going nuclear. In light of these, the will to make that choice cannot arise out of a standard cost-benefit calculation, but instead must result from a process of emotional decisionmaking. The combination of fear and pride, both grounded in a deeply held “oppositional nationalist” conception of the nation’s identity, makes for a particularly explosive psychological cocktail. Driven by fear and pride, oppositional nationalists develop a desire for nuclear weapons that goes beyond calculation to self-expression. Thus, in spite of the tremendous complexity of the nuclear choice, leaders who decide for the bomb tend not to back into it. For them, the choice for nuclear weapons is neither a close call nor a possible last resort but an absolute necessity.

Taken together, the various idealist perspectives have a much better fit with the historical record of proliferation than realism does. On the macro level, by the simple fact of problematizing the question of demand, the idealist camp invariably ends up predicting less proliferation than do the realists—an important correction in the right direction. On a more micro level, the idealist tendency to focus attention on “rogue regimes” or on somewhat kindred concepts (e.g., “oppositional nationalists”) reflects and refines the intuition of top policymakers that the option of proliferation is most appealing to those states or leaders that are somehow “not normal.” Moreover, because of their focus on the

politics of the nuclear issue, idealists can offer much more insight into the timing of proliferation decisions—a very important issue for policymakers, but one that realists (at least those in the academy) tend to brush away. However, idealist analyses also carry significant potential pitfalls.

Critiques of the Idealist Camp

First, the idealist approach to proliferation is in danger of slipping into the long-noted U.S. foreign policy tendency to think that all good or bad things go together.²⁷ The idealist viewpoint operationalized correctly can produce real insights into the nature of other regimes; operationalized carelessly, it can simply reinforce prejudices and stereotypes. It is worth noting in this context that the nuclear weapon state club is actually not a rogues' gallery, and even the two recent entrants, India and Pakistan, were headed by democratically elected leaders when they took their fateful nuclear decisions of 1998.

Second, following closely from the first point, the key difficulty for any idealist analysis is to find a means of performing a scientific measurement of key concepts.²⁸ This measurement task must balance two somewhat competing elements: appreciation for local nuances and specificities on the one hand, and production of transparent and reliable data on the other. The question of how best to measure proliferation intentions will be covered in more detail below.

Third, in terms of explaining not just the decision for the bomb but the successful production of it, there is a need for integration of the idealist viewpoint with the very real organizational and technical issues that dominate nuclear weapons programs day-to-day. The anthropologist Hugh Gusterson has made major strides in this direction—for instance in his detailing the practical and symbolic functions that nuclear testing has played in the life of U.S. national laboratories.²⁹ Gusterson's analysis of the subtle mental elisions scientists can make between job security, technical safety, and international security could form the basis of a policy of estimating—or even sowing—friction within states' nuclear weapons programs. But there is much more work still to be done here.

Conclusion: Predicting the Next Proliferator

Predictions of widespread nuclear proliferation have consistently been wrong, but experts keep making them. This article suggests that much of the fault lies in the strong realist priors with which experts have traditionally come to the proliferation issue. To do better at prediction, it is first important to strip away the very deep-rooted realist assumption that getting the bomb necessarily enhances states' security and power. This assumption, and the realist theoretical architecture on which it rests, has produced a culture of pessimism about the prospects for the future of nonproliferation, which apart from being unwarranted is dangerous in itself.

One of the reasons that realist assumptions have persisted for so long is that the idealist camp's contribution to the study of proliferation was long woefully underdeveloped. But this situation has been improving over the past decade or so. So, what does the idealist forecast of proliferation look like? What sorts of political conditions in a

state or region would cause the idealist to lie awake at night? To what indicators of those conditions does the idealist turn in order to gauge the risks? While it is still early in the development of the idealists' take on proliferation, we can tentatively sketch some of the answers that most members of the camp would offer to these questions.

First, on the macro picture of proliferation, idealists say: *Don't hyperventilate*. Many societies contain advocates for nuclear armament, but they also invariably contain many influential people who do not want the bomb—and many of those frankly can imagine almost no circumstance that would change their minds. It is not an accident or a lucky break that there are so few nuclear weapon states in the world today. The norm of nuclear nonproliferation has been very stable for decades, and an analysis of the demand side of the proliferation equation offers much reason to believe that the norm will continue to remain robust into the future.

Second, on the specific conditions that might cause proliferation, idealists say: *Watch the bomb's stock price*. Many idealists worry especially about the signals about the value of the bomb that are sent by the United States and the great powers more generally. For instance, the more blatantly nuclear weapon states disregard their prior commitments to engage seriously in nuclear disarmament negotiations and the more they incorporate the option of nuclear strikes in their war fighting doctrines, the stronger the signal they send that nuclear weapons are worth having. That signal will not go unnoticed.

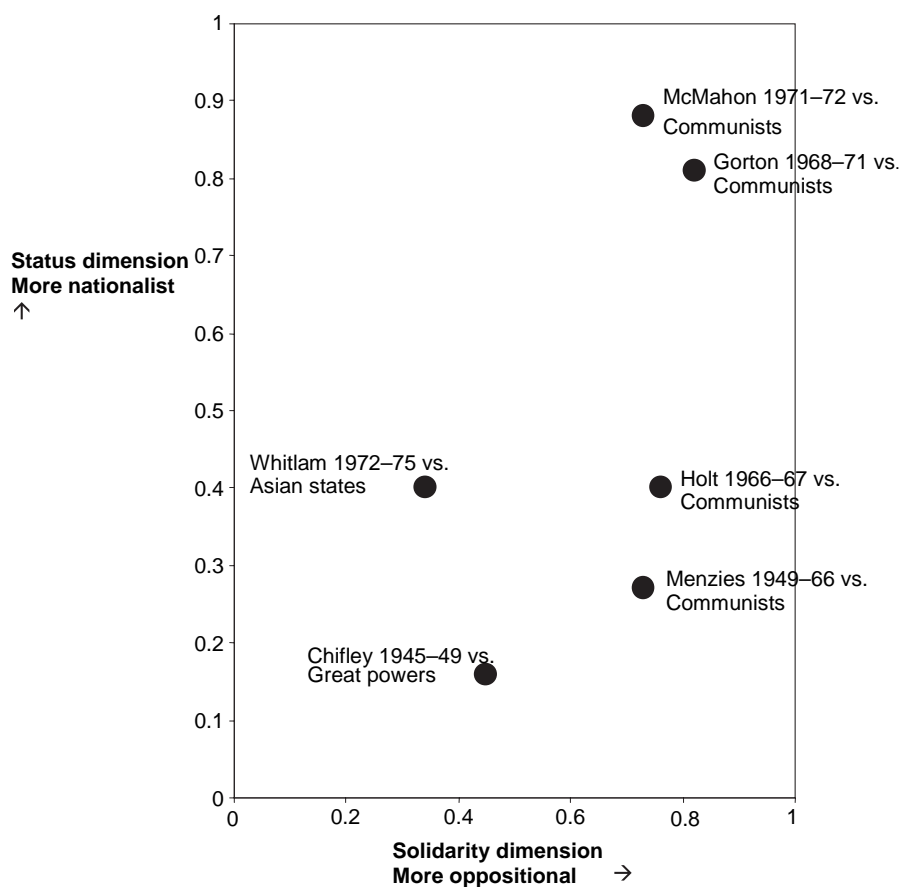
But even more significant than the activities of the great powers are those of domestic nuclear "mythmakers," to borrow Peter Lavoy's phrase.³⁰ Who are the nuclear mythmakers and what traction are they getting in important segments of their society? Any serious analysis of the risks of proliferation by a given state must ask these questions.

Finally, what about reliable idealist indicators of the demand for nuclear weapons? As noted above, this remains a major challenge. My method for measuring leaders' national identity conceptions could, I hope, prove useful for intelligence analysts as well as academics. One important piece of the method is a quantitative content analysis of how leaders portray the outside world in their major public addresses. I use this analysis to develop one indicator of their tendencies along the two basic axes of national identity conceptions: solidarity and status. "Oppositional nationalists"—those most likely to develop the urge to go nuclear—are marked by low solidarity and high status vis-à-vis key external others. An example of the results of this method can be seen in Figure 2, which summarizes the data from 30 years of Australian leaders' foreign policy speeches.³¹

My theoretical expectation is that the leaders with strong proliferation tendencies should be those who show up toward the top right-hand corner—the oppositional nationalist corner—of Figure 2. And indeed, in the case of Australia, one of the two prime ministers in that top right-hand corner, Prime Minister John Gorton, was unique in trying to go for the bomb; all the others viewed it as unnecessary and/or unfeasible. The fact that Gorton's score is so distinct (both in terms of ocular perception, and in terms of statistical tests) from most of his peers is a striking success for the method. Of course, it must be stressed that this quantitative technique only provides one indicator, and not always the best one, of a leader's national identity conception. For instance, the other Australian prime minister who shows up toward the top right corner, William McMahon, actually sought to stop Gorton's drive for the bomb.³² Nevertheless, keeping these caveats in

FIGURE 2

Quantitative Measure of Australian Prime Ministers' National Identity Conceptions



mind, the method can be usefully applied as part of the analysis of leaders of states of current proliferation concern.

In sum, the state of international relations theory on the topic of nuclear proliferation gives us two reasons for hope. First, it gives us reason for hope that the advent of new nuclear weapons states will remain a rare occurrence. Second, it gives us reason for hope that in the future those political actors who do become enraptured with the idea of going nuclear will be identified in time and thus, potentially, contained.

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NOTES

1. In the literature on international relations, "idealism" refers to a theoretical emphasis on the causal power of ideas (including identities, perceptions, emotions, cultures, and so on), not necessarily to a sunny and optimistic outlook on life.
2. The aim of this article is to discern ideal-typical tendencies in the thinking of scholars of proliferation, rather than to provide an encyclopedic account of all of the work being done in this field. For more of an encyclopedic account, see William C. Potter, "The Diffusion of Nuclear Weapons," in Emily O. Goldman and Leslie C. Eliason, eds., *The Diffusion of Military Technology and Ideas* (Stanford, CA: Stanford University Press, 2003), pp. 146–178.
3. Paul Bracken, *Fire in the East: the Rise of Asian Military Power and the Second Nuclear Age* (New York: HarperCollins, 1999).
4. Stanley A. Erickson, "Economic and Technological Trends Affecting Nuclear Nonproliferation," *Nonproliferation Review* 8 (Summer 2001), pp. 40–54; T.V. Paul, *Power vs. Prudence: Why States Forgo Nuclear Weapons* (Montreal, Canada: McGill-Queen's University Press, 2000).
5. Avery Goldstein, "Discounting the Free Ride: Alliances and Security in the Postwar World," *International Organization* 49 (Winter 1995), pp. 39–71.
6. Robert Powell, "Absolute and Relative Gains in International Relations Theory," *American Political Science Review* 85 (Dec. 1991), pp. 1303–20.
7. Not surprisingly, realists have time and again cited de Gaulle approvingly. However, realist explanations of France's path toward nuclear weapons fall short; see Jacques E. C. Hymans, *The Psychology of Nuclear Proliferation: Identity, Emotions, and Foreign Policy* (Cambridge, UK: Cambridge University Press, 2006), pp. 85–113.
8. For several examples, see John Mueller, "The Escalating Irrelevance of Nuclear Weapons," in T.V. Paul, Richard J. Harknett, and James J. Wirtz, eds., *The Absolute Weapon Revisited: Nuclear Arms and the Emerging International Order* (Ann Arbor: University of Michigan Press, 1998), pp. 73–98.
9. Figure from Hymans, *The Psychology of Nuclear Proliferation*, p. 4. The original model of nuclear capability was developed in Stephen M. Meyer, *The Dynamics of Nuclear Proliferation* (Chicago, IL: University of Chicago Press, 1984). Richard Stoll has updated Meyer's data: see Rice University Web Site, <<http://es.rice.edu/projects/Poli378/Nuclear/Proliferation/model.html>>.
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11. Benjamin Frankel, ed., *Opaque Nuclear Proliferation: Methodological and Policy Implications* (London: Frank Cass, 1991).
12. Ariel Levite, "Never Say Never Again: Nuclear Reversal Revisited," *International Security* 27 (Winter 2002/3), pp. 59–88.
13. Zachary S. Davis, "The Realist Nuclear Regime," *Security Studies* 2 (Spring/Summer 1993), pp. 79–99.
14. The "proliferation optimist" argument of Kenneth Waltz has always been a decidedly minority viewpoint even among realists. For the proliferation optimism-pessimism

- debate, see Scott D. Sagan and Kenneth M. Waltz, *The Spread of Nuclear Weapons: A Debate Renewed* (New York: W.W. Norton, 2003).
15. Henry D. Sokolski, *Best of Intentions: America's Campaign Against Strategic Weapons Proliferation* (Westport, CT: Praeger, 2001).
 16. David Albright and Corey Hinderstein, "The A. Q. Khan Illicit Nuclear Trade Network and Implications for Nonproliferation Efforts," *Strategic Insights* 5 (July 2006), <www.ccc.nps.navy.mil/si/2006/Jul/albrightJul06.asp>. For a less alarmist perspective, see Alexander Montgomery, "Ringing in Proliferation: How to Dismantle an Atomic Bomb Network." *International Security* 30 (Fall 2005), pp. 153–87.
 17. This is not to argue that we should do away with supply-side controls, but rather that the loose supply-side controls of the past cannot have stopped the rampant proliferation realists expected; that expected proliferation never came. So, to answer our puzzle we need to look beyond the "realist" elements—inspection, verification, the threat of sanctions—of the nonproliferation regime. This is a point even some realists are beginning to recognize; compare T. V. Paul, "Strengthening the Nonproliferation Regime: The Role of Coercive Sanctions," *International Journal* 51 (Summer 1996), pp. 440–65, with T.V. Paul, "Systemic Conditions and Security Cooperation: Explaining the Persistence of the Nuclear Nonproliferation Regime," *Cambridge Review of International Affairs* 16 (April 2003), pp. 135–54.
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 19. Avner Cohen, *Israel and the Bomb* (New York: Columbia University Press, 1998).
 20. Scott D. Sagan, "Rethinking the Causes of Nuclear Proliferation: Three Models in Search of a Bomb," in Victor A. Utgoff, ed., *The Coming Crisis: Nuclear Proliferation, US Interests, and World Order* (Cambridge, MA: MIT Press, 2000), pp. 17–50. This is a more developed version of Sagan's "Why Do States Build Nuclear Weapons? Three Models in Search of a Bomb," *International Security* 21 (Winter 1996/97), pp. 54–86.
 21. Thomas Schelling, "An Astonishing Sixty Years: The Legacy of Hiroshima" (Nobel Prize Lecture), *Proceedings of the National Academy of Sciences* 103 (April 18, 2006), pp. 6089–93; Miroslav Nincic, *Renegade Regimes: Confronting Deviant Behavior in World Politics* (New York: Columbia University Press, 2005).
 22. Thus George Perkovich's detailed historical account, *India's Nuclear Bomb*, is ominously subtitled: *The Impact on Global Proliferation*. George M. Perkovich, *India's Nuclear Bomb: The Impact on Global Proliferation* (Berkeley : University of California Press, 2002).
 23. Amartya Sen, "India and the Bomb," *Journal of Peace Economics, Peace Science and Public Policy* 6 (Oct. 2000), pp. 16–34.
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29. Hugh Gusterson, *People of the Bomb: Portraits of America's Nuclear Complex* (Minneapolis: University of Minnesota Press, 2004); Hugh Gusterson, *Nuclear Rites: A Weapons Laboratory at the End of the Cold War* (Berkeley: University of California Press, 1996).
30. Peter R. Lavoy, "Nuclear Myths and the Causes of Nuclear Proliferation," *Security Studies* 2 (Spring/Summer 1993), pp. 192–212; Peter R. Lavoy, *Learning to Live with the Bomb: India, the United States and the Myths of Nuclear Security* (New York: Palgrave Macmillan, forthcoming 2007).
31. Figure from Hymans, *The Psychology of Nuclear Proliferation*, p. 61.
32. My more holistic analysis of McMahon suggests that, in spite of his quantitative score, he did not share Gorton's oppositional nationalism. For more on the Australian case, see Hymans, *The Psychology of Nuclear Proliferation*, chs. 3 and 5. See also Jacques E. C. Hymans, "Isotopes and Identity: Australia and the Nuclear Weapons Option, 1949–1999," *Nonproliferation Review* 7 (Spring 2000), pp. 1–23.