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PROLIFERATION OF NUCLEAR WEAPONS : THE CONCEPTUAL DEBATE

Abstract

Debates about why nuclear weapons proliferation occurs usually focus on four contending arguments: (1) security concerns; (2) prestige and status; (3) technological imperatives; and (4) domestic politics. According to the first perspective, a state's decision to acquire nuclear weapons is a dynamic function of its search for national security. When a state feels insecure in an anarchic environment, especially when its adversary has achieved nuclear weapons capability and possibly has developed nuclear weapons, a state's incentive to build a nuclear force becomes greater. The second perspective holds that a state builds nuclear weapons because it enhances international prestige and influence. Nuclear weapons in this context are conceived as a benchmark of national symbol equivalent to other national symbols like a national flag or a national anthem. Thirdly, a state's decision to build nuclear weapons could be an inevitable outcome of technological momentum created by atomic research and development. A fourth argument is that intra-bureaucratic politics as well as politicians' drive to score domestic political gains may lead a state down the nuclear path. These four contending conceptual perspectives about the proliferation of nuclear weapons are critically assessed in this article.

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Introduction

The United States was the first country in history to have possessed nuclear weapons and actually used them during the Second World War although Germany was also in vigorous pursuit of these weapons. The race for possessing nuclear weapons between these two states during the War was precipitated by the concern of each that the acquisition of these weapons by the other would drastically alter the military equation in the War. Therefore, security concerns emanating from Germany's effort to acquire nuclear weapons primarily motivated the US to embark on a nuclear weapons programme. Following the War, the Soviet Union soon exploded its own nuclear device to counter the US possession of nuclear weapons as a part of superpower rivalry. Insecurity deriving from the possession of nuclear weapons by the US and ideological rivalry between the East and the West were conceived as the primary explanatory variables for Soviet Union's embarking on a crash nuclear weapons programme in the aftermath of the Second World War. Great Britain and France afterwards repeated the feat of the US and the Soviet Union by developing their own nuclear arsenals. Although security concerns constituted an important factor for Great Britain and France to develop nuclear weapons, scholars, however, were quick to indicate that prestige and status was no less important in their decisions to 'go nuclear.' China very soon followed the suit of these four countries by exploding its own nuclear device in 1964. Insecurity and prestige were ascribed to as the primary catalyst for China's acquisition of the nuclear weapons capability. Although the conclusion of the Non-Proliferation Treaty (NPT) in 1968 did put barriers to nuclear proliferation, still several countries, i.e. Israel, South Africa, India, Pakistan etc., clandestinely embarked on nuclear weapons programmes. Various factors precipitated these states to initiate their clandestine nuclear pursuit although security concerns basically influenced their motivations. The conduct of nuclear tests

by India and Pakistan in May 1998 added a new twist to the proliferation debate as they became the first overt cases of nuclear proliferation in the NPT era for which they had to overcome uphill technological and political barriers put forward by the international nuclear non-proliferation regimes.

The phenomenon of nuclear weapons proliferation, therefore, has eluded a proper explanatory perspective although scholars have tirelessly tried to explain it and vigorously debated over the issue since the first nuclear bomb was dropped on Hiroshima in 1945. Every case of proliferation generated fresh wave of debate and explanation over the question why nations 'go nuclear.' Scholars generally put forward four contending arguments in regard to explaining the nuclear proliferation phenomenon. These are: (1) security concerns; (2) prestige and status; (3) technological imperatives; and (4) domestic politics.[1] According to the first perspective, a state's decision to acquire nuclear weapons is a dynamic function of its search for national security. When a state feels insecure in an anarchic environment, especially when its adversary has achieved nuclear weapons capability and possibly has

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[1] For an overview of the competing arguments, see, Lewis A. Dunn and William H. Overholt, "The Next Phase in Nuclear Proliferation Research," *Orbis* 20, no. 2 (Summer 1976): 497-524; William Epstein, "Why States Go - And Don't Go - Nuclear," *The Annals of The American Academy of Political and Social Science,* 430 (March 1977): 16-28; Lewis A. Dunn, *Controlling the Bomb* (New Haven: Yale University Press, 1982); William H. Kincade and Christoph Bertram (eds.) *Nuclear Proliferation in the 1980s: Perspectives and Proposals* (London: McMillan, 1982); Stephen M. Meyer, *The Dynamics of Nuclear Proliferation* (Chicago: University of Chicago Press, 1984); Bradley A. Thayer, "The Causes of Nuclear Proliferation and the Utility of the Nuclear Nonproliferation Regime," *Security Studies* 4, no. 3 (Spring 1995): 463-519; Tanya Ogilvie-White, "Is There a Nuclear Proliferation Debate? An Analysis of the Contemporary Debate," *The Nonproliferation Review* 4, no. 1 (Fall 1996): 43-60; Scott D. Sagan, "Why Do States Build Nuclear Weapons? Three Models in Search of a Bomb," *International Security* 21, no. 3 (Winter 1996-97): 54-86; Scott D. Sagan, "The Causes of Nuclear Proliferation," *Current History* 96, no. 609 (April 1997): 151-156.

developed nuclear weapons, a state's incentive to build a nuclear force becomes greater. The second perspective holds that a state builds nuclear weapons because it enhances international prestige and influence. Nuclear weapons in this context are conceived as a benchmark of national symbol equivalent to other national symbols like a national flag or a national anthem. Britain and France are often referred to as cases of prestige proliferators. According to the third perspective, states 'go nuclear' because of technological imperatives. Building of nuclear weapons is the irresistible culmination of technological evolution of nuclear research and development programmes. The fourth perspective posits that the root cause of nuclear proliferation lies in the domestic politics of a country. Two variants can be discerned within this argument. According to one version, intra-bureaucratic politics and pressure from the bureaucracy lead a state towards the nuclear path. Another version of the argument holds that politicians play the issue of nuclear weapons to their people to score political gains, thereby leading a state towards nuclearisation. These four contending conceptual perspectives about the proliferation of nuclear weapons are critically assessed in this article.

The Debate

Security Concerns

Realists argue that insecurity is the most important cause of nuclear weapons proliferation.[2] Because states operate in a 'self-help' manner in an anarchic international environment, a state's decision

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[2] John M. Deutsch, "The New Nuclear Threat," *Foreign Affairs* 71, no. 41 (Fall 1992): 120-134; Benjamin Frankel, "The Brooding Shadow: Systemic Incentives and Nuclear Weapons Proliferation," *Security Studies* 2, no. 3/4 (Spring/Summer 1993): 37-78; Richard K. Betts, "Paranoid, Pygmies, Pariahs, and Nonproliferation Revisited," *Security Studies* 2, no. 3/4 (Spring/Summer 1993): 100-124; and Thayer, "The Causes of Nuclear Proliferation," 463-519.

to acquire nuclear weapons is the result of its negative assessment of its own security position. When a state feels insecure, particularly when a nuclear threat from a nuclear-armed adversary exists, it has to consider the option of going nuclear seriously. Benjamin Frankel argues that a state's decision "to build nuclear weapons is a result of its perception of the security equation it faces."[3]

The 'first generation' five declared nuclear states, e.g. the United States, the Soviet Union, Great Britain, France and China, endorsed by the NPT as 'legal' nuclear powers, acquired their nuclear arsenals because they each perceived a nuclear threat from an actual or potential strategic adversary. The United States undertook the Manhattan Project, which produced the first ever nuclear bomb, because of the fear that Germany was engaged in a desperate effort to develop an atomic bomb. When US President Harry S. Truman announced the Hiroshima bombing, he described the allied scientists as having been in a 'race of discovery' against the Germans, and thanked providence that the Germans had not won the race.[4] The Soviet Union's development of nuclear weapons was a reaction to perceived American nuclear threat. The Soviet atomic bomb, in turn, prompted the development of similar British, French and Chinese bombs. Observing this pattern, Thomas Graham concluded that in "virtually all of these cases a nation that has gone nuclear has faced an *acute* security threat from a nuclear-armed adversary that also had a substantial conventional military capability."[5] (emphasis original)

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[3] Benjamin Frankel, "International Political Changes and Nuclear Proliferation in the 1990s," in Eric H. Arnett *Science and International Security*, (Washington, D.C.: American Association for the Advancement of Science, 1990), 90.

[4] "Statement by the President of the United States, Harry S. Truman," 6 August 1945, quoted in Robert A. Strong, "The Nuclear Weapons States: Why They Went Nuclear," in William H. Kincade and Christoph Bertram (eds.) *Nuclear Proliferation in the 1980s: Perspectives and Proposals*, (London: McMillan, 1982), 6.

[5] Thomas W. Graham, "Winning the Nonproliferation Battle," *Arms Control Today* 21, no. 7 (September 1991): 9.

Today, apprehension that an adversary has, or will have nuclear weapons constitutes a major reason for 'going nuclear.' The Indian bomb is generally linked to the development of the Chinese bomb. An intense public nuclear debate began in India after the detonation of the first Chinese atomic device on 16 October 1964. Sampooran Singh, the former director of India's Ballistic Missile Laboratory, has concluded that national security was the dominant theme in the arguments of his country's nuclear proponents.[6] India's nuclear debate was closely followed in Pakistan. It was viewed by the Pakistanis as that country's contemplation of acquiring a nuclear weapons capability. Amidst such an apprehension, India's explosion of a nuclear device in 1974 created an irresistible compulsion for Pakistan to acquire a capability to produce nuclear weapons. Therefore, the proliferation of nuclear weapons is a 'chain reaction' of the nuclear security dilemma[7] originally obtained by the acquisition of nuclear bomb by the United States.

Even skeptics of this security argument tend to view it as at least partially valid. For example, Scott Sagan asserts that while "different historical cases are best explained by different causal models," still "the largest number of past and even current active proliferant cases are best explained by the security model."[8] Kathleen Bailey, likewise, argues that "the principal motivations for nuclear proliferation vary from country to country," but then adds that "security is the principal reason a country initiates a nuclear weapons program."[9]

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[6] Sampooran Singh, *India and the Nuclear Bomb* (New Delhi: S. Chand, 1971), 95-103.

[7] The 'security dilemma' is a conceptual tool of the realist paradigm. It is defined as a condition in which states, operating in an anarchical international environment and unsure of one another's intentions, increase their military power to safeguard their security, which in turn set up an action/reaction process involving military capabilities or an arms race in motion.

[8] Sagan, "Why Do States Build Nuclear Weapons?", *op. cit.*: 85.

[9] Kathleen C. Bailey, *Doomsday Weapons in the Hands of Many: The Arms Control Challenge of the '90s* (Chicago: University of Illinois Press, 1991), 39.

Nevertheless, the general argument that security concerns drive states to acquire nuclear weapons is problematic and suffers from empirical shortcomings. Insecurity is a general condition of the anarchic international system, but empirical evidence suggests that very few states have gone nuclear. If the general security argument were valid all the time, many, if not all, states would have developed nuclear weapons. Contrary to this, most states have not opted for nuclear weapons although security remains a general problem for most. The general security argument, thus, fails to explain why only a few states have built nuclear weapons, while most have not. What is clear is that apprehension of a nuclear adversary or security threat from an enemy is not universal nor will all states eventually be compelled to seek nuclear weapons as a reaction to every instance of proliferation. In other words, 'chain reaction' argument does not necessarily mean that every case of nuclear proliferation will lead to another proliferation. For example, India is concerned about Chinese nuclear weapons in ways that Pakistan is not. Likewise Pakistan is concerned about Indian nuclear capabilities in ways that other neighbours of India are not. This necessarily means that security threats among nations are specific, based on past experiences of conflict, expectation of future hostilities and offence-defense situations involved in the defense planning of an adversary.

Empirical evidence suggests that some states have built nuclear weapons even though they did not confront a nuclear-armed adversary. For example, the acquisition of nuclear weapons by Israel and South Africa (the latter country subsequently gave up nuclear weapons option) has not been precipitated by the presence of a nuclear-armed enemy.[10] Of course, acute security dilemmas were

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[10] On the Israeli nuclear weapons programme, see Avigdor Haselkorn, "Israel: From an Option to a Bomb in the Basement?" in Robert M. Lawrence and Joel Larus (eds.) *Nuclear Proliferation: Phase II*, (Lawrence: The University Press of Kansas, 1974), 149-182; Alan Dowty, "Nuclear Proliferation: The Israeli Case," *International Studies*

present that primarily catalyzed their clandestine built-up of nuclear arsenals.

Although the security concerns perspective is considered a powerful conceptual tool, it is yet an inadequate explanatory framework to understand the nuclear proliferation/non-proliferation phenomenon. The problem is that with this perspective, it is difficult to understand why some states have pursued the nuclear option while most others have not done so. It is, therefore, reasonable to argue that it is either necessary to reformulate this argument to make the security concerns perspective a more viable analytical framework or there must have some other motivations for which states pursue the nuclear option. With regard to reformulating the

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Quarterly 22, no. 1 (March 1978): 79-120; Frank Barnaby, *The Invisible Bomb* (London: I.B. Tauris, 1989); Shai Feldman, *Israeli Nuclear Deterrence* (New York: Columbia University Press, 1982); Seymour Hersh, *The Samson Option: Israel's Nuclear Option and American Foreign Policy* (New York: Random House, 1991); Shlomo Aronson, *The Politics and Strategy of Nuclear Weapons in the Middle East: Opacity, Theory, and Reality, 1960-1991* (Albany: State University of New York Press, 1991); Avner Cohen, "Stumbling into Opacity: The United States, Israel and the Atom, 1960-63," *Security Studies* 4, no. 2 (Winter 1994): 195-242; Avner Cohen, "Cairo, Dimona, and the June 1967 War," *The Middle East Journal* 50, no. 2 (Spring 1996): 190-210; and Shai Feldman, *Nuclear Weapons and Arms Control in the Middle East* (Cambridge, Mass.: MIT Press, 1997).

On South African nuclear programme, see J.E. Spence, "The Republic of South Africa: Proliferation and the Politics of 'Outward Movement'," Robert M. Lawrence and Joel Larus (eds.), *op. cit.*, 209-238; Richard K. Betts, "A Diplomatic Bomb for South Africa," *International Security* 4, no. 2 (Fall 1979): 91-115; Robert S. Jester, "Politics and the 'Afrikaner Bomb'," *Orbis* 27, no. 4 (Winter 1984): 825-851; Mitchell Reiss, *Without the Bomb: The Politics of Nuclear Nonproliferation* (New York: Columbia University Press, 1988), 173-203; J. W. de Villiers, Roger Jardine and Mitchell Reiss, "Why South Africa Gave Up the Bomb," *Foreign Affairs* 72, no. 5 (November/December 1993): 98-109; David Fischer, "South Africa," in Mitchell Reiss and Robert S. Litwak (eds.), *Nuclear Proliferation after the Cold War*, (Baltimore: John Hopkins University Press, 1994), 207-230; Frank V. Pabian, "South Africa's Nuclear Weapon Program: Lessons for US Nonproliferation Policy," *The Nonproliferation Review* 3, no. 1 (Fall 1995): 1-27.

security concerns argument it is essential to look into the specific nature of the security threat that constitutes a security dilemma, which under certain circumstances may intensify and can lead states to the nuclear path. This explains why some states build nuclear weapons and others abstain from building them.

Prestige

Prestige is often cited as a cause of nuclear weapons proliferation. This argument is based on the perception that building nuclear weapons bestows great power status or international recognition upon a state. Such status may result from the military power nuclear weapons inherently and, from scientific and industrial strength associated with nuclear forces and from the increased great power attention that a 'threshold'[11] nuclear state may receive.

Charles de Gaulle's perception of France as a global power and his justification for nuclear weapons is commonly referred to as illustrative of how prestige acts as a major catalyst for nuclear weapons proliferation. "A great state that does not possess [nuclear weapons], while others have them," according to de Gaulle, "does not command its own destiny."[12] De Gaulle always cherished the idea that France must have an independent military capability and global political responsibilities. In his view,

> There is no France of worth, notably in the eyes of Frenchmen, without worldwide responsibility. That is why she does not approve of NATO, which does not allow France her proper role in decisions and which is limited to Europe. That is also why she is

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[11] A threshold nuclear state is one which has embarked upon a vigorous atomic research and development programme and is about to cross or has already crossed technological barriers to acquire a capability to produce nuclear weapons.

[12] Cited in Philip H. Gordon, *A Certain Idea of France: French Security Policy and the Gaullist Legacy* (Princeton, New Jersey: Princeton University Press, 1993), 42.

> going to provide herself with an atomic armament. By that means, our defense and foreign policy will be able to be independent, on which we insist above all.[13]

Like France, Great Britain is also referred to as a case where prestige was an important factor behind its decision to acquire nuclear weapons. In the last century, Britain was the dominant player in international affairs. Even before the Second World War, Britain used to figure prominently in world politics. In the aftermath of the War, when Britain found that its long dominance and influential position in international politics was gone, one way of preserving its earlier status was to acquire nuclear weapons. As Alfred Goldberg noted: 'That Britain should cease to play a leading role in international affairs was unthinkable, not only among the country's political leaders but among her people as well, for the nation had long been instinct with a sense of power. Failure to accept the challenge of atomic energy would have been interpreted as a retreat from greatness, an abandonment of power."[14]

Therefore, France and Britain are usually referred to as the two leading cases of nuclear proliferation for the reason of prestige. This view is strongly supported by McGeorge Bundy, a leading scholar in the field of nuclear politics:

> I am persuaded that the basic objective, historically, for both the British and French governments, has been to have a kind of power without which these two ancient sovereign powers could not truly be themselves. This requirement has been clear for each government at every moment of choice from 1945 onward, and it is not a matter of deterrent strategy as such. It is rather a matter of

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[13] Cited in Wilfrid L. Kohl, *French Nuclear Diplomacy* (Princeton, N.J.: Princeton University Press, 1971), 355-356.

[14] Alfred Goldberg, "The Atomic Origins of the British Nuclear Deterrent," *International Affairs* 40, no. 2 (July 1964): 427.

> what Britain and France must have, as long as others have it, in order to meet their standards of their own rank among nations.[15]

Not only in the cases of Britain and France, many also consider prestige to have played an important role in India's acquisition of nuclear weapons. Raju Thomas, for example, has observed that "if India cannot obtain the respect of the West because it lacks economic clout," then it seeks "to obtain such respect through the display of nuclear weapons."[16] Therefore, many analysts view that the strongest case for going nuclear rested on the foreign policy consideration that only a nuclear India could extract political, military and economic advantages from the two superpowers.

But prestige as an explanatory variable of nuclear weapons proliferation entails several difficulties. First, nuclear weapons and military capabilities are not the sole basis for conferring great power status. A combination of economic, military, and political capabilities generates such power.[17] Germany and Japan, for example, are not nuclear powers. But still they are considered substantial powers in global politics in their own right due to their economic and conventional military strength. It is hardly possible to rank them in international standing below Britain and France. It is questionable, how far France's possession of nuclear weapons has significantly added to its international standing. In the case of Britain, acquisition of nuclear weapons has not offset a general decline of its international stature. The cases of Israel, Pakistan, North Korea clearly demonstrate that even with nuclear weapons it is hardly appropriate to accord great power status to them.

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[15] McGeorge Bundy, *Danger and Survival* (New York: Random House, 1988), 502.

[16] Raju G.C. Thomas, *Democracy, Security, and Development in India* (New York: St. Martin's Press, 1996), 158.

[17] On the issue, see, Kenneth Waltz, "The Emerging Structure of International Politics," *International Security* 18, no. 2 (Fall 1993): 50-61.

Second, from a cost-benefit analysis perspective, prestige is not enough to pursue such a costly programme. It involves huge economic and political cost, particularly for the second-generation nuclear proliferators. Therefore, it appears superficial to argue that states pursue a nuclear weapons programme for only gaining prestige. Indeed, the basic weakness of prestige argument for acquisition of nuclear weapons is that it often misrepresents social, political and strategic context of nuclear weapons acquisition.

Third, nuclear weapons may enhance a state's international standing, but that is a concomitant outcome rather than a cause. In other words, a state's nuclear weapons programme may enhance the international standing of a state, because it provides more autonomy and maneuverability in its pursuits of strategic policies, but that comes as a subsidiary benefit. Otherwise, any such nuclear programme must be grounded upon solid national security concerns. Kenneth Waltz notes: "...by building nuclear weapons a country may hope to enhance its international standing. This is thought to be both a reason for and a consequence of developing nuclear weapons. One may enjoy the prestige that comes with nuclear weapons, and indeed a yearning for glory was not absent from de Gaulle's soul. But the nuclear military business is a serious one, and we may expect that deeper motives lie behind the decision to enter it."[18]

In fact, the prestige argument of nuclear proliferation is misdirected. A state's vital strategic interests can be protected by acquisition of nuclear weapons in an anarchic international system because such acquisition provides a state with greater maneuverability and leverage to determine outcome in inter-state interactions. Therefore, nuclear weapons can be used to protect one's vital national strategic interests by increasing the bargaining position of a state in international relations.

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[18] Kenneth N. Waltz, *The Spread of Nuclear Weapons: More May Be Better*, Adelphi Paper 171 (London: International Institute of Strategic Studies, 1981), 8.

Moreover, nuclear weapons can be used as instruments of 'blackmail' and 'compellence' and as a hedge against this type of use by others.[19]

Technological Imperatives

Two assumptions are at the core of this argument. The first is that nuclear weapons have universal appeal to military officials and planners and political decision-makers. The second is that the momentum of technological change cannot be resisted by specific individuals and organizations opposing it.[20] This perspective holds that there is a close relationship between a state's national security decision-making and the state of military technological development at a given time. This is particularly true with regard to issues relating to war and peace. Charles de Gaulle observed that "the political paths which the various nations tread must lead them, so far as war is concerned, to the same conceptions, exactly implied by the material progress of the time."[21] He made this observation in the context of France's failure to adapt to "material progress of the time" -i.e. technological innovations, and to prepare its defense adequately prior to the Second World War.

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19 Thomas Schelling coined the term 'compellence.' He defined it as the forcing of an opponent's 'withdrawal, or his acquiescence, or his collaboration' by threatening to use military capability. See, Thomas Schelling, *Arms and Influence* (New Haven: Yale University Press, 1966), 69.

20 On technological determinism perspective of nuclear weapons proliferation, see Ralph E. Lapp, *Arms Beyond Doubt: The Tyranny of Weapons Technology* (New York: Cowles, 1970); Herbert York, "Multiple-Warhead Missiles," in Bruce M. Russet and Bruce G. Blair (eds.), *Progress in Arms Control? Readings from Scientific American*, (San Francisco: W. H. Freeman, 1979), 122-131; Dietrich Schroeer, *Science, Technology and the Nuclear Arms Race* (New York: Wiley, 1984); Hans Bethe, "The Technological Imperative," *Bulletin of the Atomic Scientists* 41, no. 7 (August 1985): 34-36; Marek Thee, *Military Technology, Military Strategy and the Arms Race* (London: Croom Helm, 1986); and Marek Thee, "Science-Based Military Technology as a Driving Force behind the Arms Race," in Nils Petter Gleditsch and Olav Njolstad (eds.) *Arms Races: Technological and Political Dynamics*, (London: Sage, 1990), 105-120.

21 General De Gaulle, *The Army of the Future* (London: Hutchinson & Co. Ltd., 1940), 63.

At an initial glance, de Gaulle's comment appears to provide a good explanation why states aspire to acquire nuclear weapons. Technological imperatives will lead states to follow the same path of military development including the building of nuclear weapons. Nuclear weapons proliferation, therefore, has a natural and organic character, which cannot be arrested.

Indeed, the diffusion of nuclear technology has made acquisition and deployment of nuclear weapons easier. Technological determinists argue this phenomenon will inevitably lead to further proliferation of nuclear weapons. One author puts this trend into perspective by observing that the "unremitting buildup of the atomic arsenal represents just another example of the technological imperative-when technology beckons, men are helpless."[22] Therefore, according to this argument, once nuclear weapons technology is invented, there is no escape for every state that is capable of building nuclear weapons from doing so.

This perspective, however, also suffers from serious empirical limitations. First, it does not explain how technology compels decision-makers to do what is technically possible and why they are 'helpless' in the face of technological momentum. It is true that technology affects decision-makers and decision-making. Without the necessary technology no state can build nuclear weapons. For example, Pakistan's effort to acquire nuclear weapons capability quickly was hampered by lack of necessary technologies. However, as empirical evidence suggests, it fails to explain why many states, despite having the capability of manufacturing nuclear weapons, have not built them. Indeed, there are more than three dozen states that have the technological capability to embark upon nuclear

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[22] Ralph E. Lapp, *Arms Beyond Doubt*, 177-78.

weapons programs, but have not done so.[23] Particularly there are states, such as the Netherlands, Belgium, Australia, Germany, and Japan, which operate uranium enrichment and/or plutonium reprocessing plants, but have not initiated any nuclear weapons construction.[24]

Several other empirical cases of nuclear restraint further highlight flaws in the logic of technological imperative. Sweden, Taiwan, South Korea, Argentina, Brazil, and South Africa are believed to have initiated weapons programmes, only to terminate them later.[25] It is noteworthy that the decision to terminate the

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[23] Joseph Nye, Jr. claims that forty odd states possess nuclear technology, all of which have not developed nuclear weapons. See, Joseph S. Nye, Jr., "NPT: The Logic of Inequality," *Foreign Policy* no. 59 (Summer 1985): 126. The same claim is made by Bejamin Frankel and Zachary Davis in the editorial note – "Nuclear Weapons Proliferation: Theory and Policy," *Security Studies* 2, no. 3/4 (Spring/Summer 1993): 1-2. Mitchell Reiss also notes that over forty-five non-nuclear weapons states had nuclear research or power programs by the end of the 1970s, most of them did not build nuclear weapons. See, Mitchell Reiss, *Without the Bomb: The Politics of Nuclear Nonproliferation* (New York: Columbia University Press, 1988), 23.

[24] On Australia's nuclear policy, see, T.B. Millar, "Australia: Recent Ratification," in Robert M. Lawrence and Joel Larus (eds.) *Nuclear Proliferation: Phase II*, (*op. cit.*), 69-85. On Japan's nuclear policy and civilian-oriented nuclear programme, see Motoya Kitamura, "Japan's Plutonium Program: a Proliferation Threat?" *The Nonproliferation Review* 3, no. 2 (Winter 1996): 1-16. On Germany's nuclear policy and programme, see Uwe Nerlich, "The Federal Republic of Germany: Constraining the Inactive," in Robert M. Lawrence and Joel Larus, *ibid.*, 86-111; and Matthias Kuntzel, *Bonn and the Bomb: German Politics and the Nuclear Option* (London: Pluto Press, 1995).

[25] On Sweden's nuclear weapons programme and eventual reversal, see Reiss, *Without the Bomb*, 37-77; Wilhelm Agrell, "The Bomb that Never Was: The Rise and Fall of Swedish Nuclear Weapons Programme," in Nils Petter Gladitsch and Olav Njolsad (eds.) *Arms Races: Technological and Political Dynamics*, (London: Sage, 1990), 154-174; and Paul M. Cole, *Sweden Without the Bomb: The Conduct of a Nuclear Capable Nation Without Nuclear Weapons* (Santa Monica, Calif.: RAND, 1994).

Brazil and Argentina reversed the course of proliferation after signing a bilateral non-proliferation agreement in July 1991 and a comprehensive safeguards agreement with the International Atomic Energy Agency (IAEA) in December 1991. On Brazil and

military nuclear programme by these states was not prompted by technological deficiencies. The post-Cold War states of Belarus, Ukraine and Kazakhstan were 'born nuclear' following the implosion of the former Soviet Union. They initially considered preserving their inherited nuclear arsenals. But later they relinquished their nuclear status by returning all of their nuclear weapons to Russia.[26] Political factors rather than technological incapability influenced the decision of these states to reverse their nuclear courses. The empirical evidence, therefore, strongly suggests that the technological perspective cannot explain the phenomena of nuclear restraint and nuclear reversal.

This perspective also fails to make a causal link with other dimensions of nuclear weapons proliferation, such as economic and moral issues. The proliferation of nuclear weapons is a complex process. Perhaps the greatest weakness of the technological imperative argument lies in the claim that technology alone causes nuclear weapons proliferation. The fact is that a decision to build nuclear weapons is not primarily a technological one. Its primary cause lies in the interplay of other variables as discussed above, particularly the politics of security. A state's final decision to acquire nuclear weapons depends on specific security threat that it confronts. Technology may be considered a facilitator in this equation.

Argentina, see, Monica Serrano, "Brazil and Argentina," in Mitchell Reiss and Robert S. Litwak (eds.) *Nuclear Proliferation after the Cold War* (Baltimore: John Hopkins University Press, 1994), 231-255; Jean Krasno, "Brazil, Argentina Make It Official," *Bulletin of the Atomic Scientists* 48, no. 3 (April 1992): 10-11; and Mitchell Reiss, *Bridled Ambition: Why Countries Constrain Their Nuclear Capabilities* (Baltimore: John Hopkins University Press, 1995), 45-88.

[26] On Belarus, Ukraine, and Kazakhstan's nuclear politics, see Reiss, *Bridled Ambition*, 89-182; and William C. Potter, *The Politics of Nuclear Renunciation: The Cases of Belarus, Kazakhstan, and Ukraine*, Occasional Paper no. 22 (Washington, D.C.: Henry L. Stimson Center, April 1995).

Domestic Politics

According to this perspective, bureaucrats acting on the basis of their own individual policy preferences or bureaucracies carrying out their specific institutional interests attempt to influence a state's decision to acquire nuclear weapons.[27] As individuals, bureaucrats have their own unique conceptions and ideas about the problems that a state faces. The ideas they hold often result in state decisions. Often their specific career and material interests shape the way they try to influence decisions of a state. As institutions, bureaucracies also act in order to promote their organizational interests.

A decision to acquire nuclear weapons, if one adheres to bureaucratic politics theory, is pushed by key individuals within the scientific and defense bureaucracies of states. They do so because of their individual and organizational interests as well as to justify the essence and importance of the activities of their bureaucracies. Once the civilian and/or military nuclear programmes are started, decision-makers are often bound to rely on scientific and defense bureaucracies for technical reasons. In these circumstances, nuclear weapons development becomes very likely.

Homi Bhabha in the case of India, and Pierre Guillaumat and Pierre Taranger in the case of France are often cited as examples of bureaucrats who have played pivotal roles in the proliferation decision of their particular countries. Homi Bhabha, as chairman of the Indian Atomic Energy Commission, played a very influential role in almost every Indian nuclear decision until his death in 1966. Mitchell Reiss argues that in India the primary responsibility "for nuclear development can be traced to one individual, Homi Bhabha."[28] Homi Bhabha, it is believed, was also instrumental in

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[27] The classical text on bureaucratic politics is Graham T. Allison, *The Essence of Decision: Explaining the Cuban Missile Crisis* (Boston: Little, Brown, 1971).

[28] Reiss, *Without the Bomb*, *op. cit.*:217.

convincing the then Prime Minister Lal Bahadur Shastri to give India's nuclear programme a military orientation. As Peter Lavoy observes, "Bhabha's well-timed interventions helped encourage and empower India's bomb lobby, ... Shastri authorized Bhabha and other scientists to develop a capability for producing nuclear weapons."[29]

The administrator-general of the Commissariat a` l'Energie Atomique (CEA), Pierre Guillaumat and the Industrial Director, Pierre Taranger have played pivotal roles in the development of French nuclear force. As a result of their specific efforts, "France under the Fourth Republic would appear to represent the most striking example of minimal political leadership and maximum technocratic direction in the orientation of atomic policy."[30]

The domestic politics argument also holds that politicians' drive to score domestic political gains may also lead a state to the nuclear path. In this perspective, building of nuclear weapons is viewed as a cheap means to acquire domestic popularity or a way to arrest erosion of domestic support. In a major study on India's nuclear program, George Perkovich has concluded that the "Pokhran blast (of 1974) stemmed primarily from domestic dynamics" meaning that scientists' push and Indira Gandhi's motivation to score domestic political gains were mainly responsible for the Indian test.[31] Following India's May 1998 nuclear tests, many analysts argued that it was nothing but an attempt by *Bharatiya Janata Party* (BJP) politicians to upgrade their domestic popularity.[32]

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[29] Peter R. Lavoy, "Nuclear Myths and the Causes of Nuclear Proliferation," *Security Studies* 2, no. 3/4 (Spring/Summer 1993): 202.

[30] Lawrence Scheinman, *Atomic Energy Policy in France Under the Fourth Republic* (Princeton, New Jersey: Princeton University Press, 1965), 213.

[31] George Perkovich, *India's Nuclear Bomb* (Berkeley: University of California Press, 1999), 187. In a similar fashion, Frank Bray and Michael Moodie have concluded that the 1974 peaceful nuclear explosion was carried out to "influence domestic, rather than world, opinion." See, Frank T.J. Bray and Michael L. Moodie, "Nuclear Politics in India," *Survival* XIX, no. 3 (May-June 1977): 111-116.

[32] Praful Bidwai, "Dangerous Descent: Flawed Logic of Nuclear Tests," *The Times of India*, 15 May 1998.

As compelling as the 'bureaucratic politics' model may be, it still remains an insufficient explanation for nuclear weapons proliferation. No doubt, individuals and bureaucracies do play important role in nuclear decision-making. But it is superfluous to argue that bureaucrats and bureaucracies are the major cause of nuclear weapons proliferation. A counterfactual argument will make this point clear. Would not India and France have gone nuclear without Homi Bhabha and Pierre Guillaumat and Pierre Taranger? The answer, as Bradley Thayer argues convincingly, is yes.[33] The point is that a decision to acquire nuclear weapons is primarily neither a technical nor a bureaucratic one, it is a politico-strategic decision made by political leaders. Therefore, the bureaucratic politics model cannot fully explain the proliferation of nuclear weapons. However, sometimes at key junctures towards a proliferation decision, individuals play important role.

Similarly, the argument that nuclear weapons proliferate because of politicians' drive to score domestic political gains is problematic. A decision to acquire nuclear weapons or to conduct a nuclear test may upgrade domestic political support of politicians, but that comes as a consequence of the action. Politicians may even nurture the hope of raising domestic political base by adopting such an approach, but a decision to acquire nuclear weapons or to abstain from it, as noted above, is ultimately a politico-strategic one. The building of nuclear bombs is a serious strategic business, which simply cannot solely depend on the whim of a politician. Therefore, this perspective cannot solely explain the proliferation phenomenon, although it is yet a partially relevant variable in a proliferation decision. indira gandhi's decision to explode the 1974 pokhran blast was not motivated primarily to upgrade domestic popularity as she

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[33] Thayer, "The Causes of Nuclear Proliferation," *op. cit.:* 478.

was at a peak domestic support at that time in the aftermath of the 1971 bangladesh independence war. Neither she used the nuclear explosion option when her popularity plummeted before the 1977 general election in india. Similarly, the argument that the BJP government in india conducted nuclear tests in may 1998 to upgrade domestic political support is flawed, because those tests were the culmination of a long process of politics of security in that country. However, the BJP enjoyed short-term domestic popularity in the aftermath of the nuclear tests emanating from the blasts.

Conclusion

As the above discussion shows, the proliferation of nuclear weapons is a complex process and no particular perspective can solely explain the nuclear proliferation phenomenon. Each perspective holds some logic with regard to a particular proliferation case. It is indeed very difficult to pin point the exact reasons for a state to initiate a nuclear weapons programme. The nuclear programmes of all countries of the world are shrouded in secrecy. It is hence difficult to take into account the exact nature of internal dynamics of a proliferation decision of a state. Therefore, secrecy, lack of understanding about the exact nature of internal dynamics of a proliferation decision and generally varied motivations of states to 'go nuclear' have led to the growth of a number of competing perspective about the proliferation of nuclear weapons.

Weighing all the competing arguments, it can, however, be concluded that the security concerns perspective no doubt explains bulk of the cases of nuclear proliferation although it yet has its shortcomings as was discussed above. Even if other variables, i.e. prestige, technological momentum, domestic politics, played their part in nuclear proliferation, still security concerns were the most important elements in nuclear proliferation decision for all nuclear proliferators.