NOTHING LEFT TO CHANCE: CIVIL-MILITARY RELATIONS, STRATEGIC RATIONALE, AND
COMMAND AND CONTROL IN INDIA

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Abstract

What factors affect command and control systems in emerging nuclear nations? Drawing upon Peter Feaver’s deductive framework presented in his 1992 article “Command and Control in Emerging Nuclear Nations,” this paper conducts an empirical evaluation of Feaver’s model by using India as a “most-likely” case.¹ Feaver’s framework is fully developed by disaggregating his two propositions into a set of testable hypotheses, which are subsequently evaluated using data from India. The paper finds that the most important factors in explaining an emerging nuclear state’s command and control system are the pre-nuclear balance of civil-military relations and guiding strategic rationale of the state. These two variables offer a useful point of departure for attempting to explain the sources of command and control structures in future proliferators and currently developing nuclear states.

INTRODUCTION: THE SOURCES OF COMMAND AND CONTROL IN INDIA

What factors affect command and control systems in emerging nuclear nations? When Peter Feaver first asked this question in 1992, he faced a severe paucity of data on regional power command and control systems.1 The most recent nuclear event available for analysis was India’s “peaceful” nuclear explosion in 1974, which was not followed by another atomic test until India weaponized its latent nuclear capabilities in 1998.2 Feaver explicitly notes this obstacle to inquiry, stating that “Reliable data on existing or developing systems of command and control in emerging nuclear nations are scarce.”3 Aware of these data limitations, Feaver establishes a deductively derived framework for evaluating an emerging nuclear state’s command and control systems as data become available. Recently, however, Vipin Narang has criticized Feaver’s model for lacking empirical evaluation. Narang asks, “Does the pattern of command-and-control arrangements match the theoretical predictions?”4 Although this question remains relevant to explaining the conduct of new nuclear states, it nevertheless remains unanswered. Even with the newfound availability of evidence, no effort has been made to evaluate Feaver’s propositions.5 This project aims to further the debate on command and control structures in new nuclear states by providing such a test.

2 India’s permanent representative to the United Nations at the time of the test strongly asserts that India’s test was “conducted exclusively for peaceful purposes” and “had no military or political implications.” For the full statement, see Rikhi Jaipal, “The Indian Nuclear Explosion,” International Security, Vol. 1, No. 4 (Spring 1977), pp. 44-51. For an authoritative explanation of the development of India’s nuclear program, see Ashley J. Tellis, India’s Emerging Nuclear Posture (Santa Monica: RAND, 2001).
5 Although no effort has been made to use recent evidence to test Feaver’s framework, Feaver calls for such a study to be conducted. He observes, “As more information about emerging nuclear arsenals becomes available, the framework should be tested by comparing the expectations derived from the two propositions against data from specific countries.” Feaver, “Command and Control in Emerging Nuclear Nations,” p. 180n41.
The central argument of this paper is that the most important factors in explaining an emerging nuclear state’s command and control system are the pre-nuclear balance of civil-military relations and guiding strategic rationale of the state. The evidence presented here shows that India’s pre-nuclear civil-military relations were characterized by a low degree of military autonomy and high levels of civilian involvement in military affairs. Additionally, the practice of strong assertive control is a direct result of India’s strategic desire for a defensive, retaliatory nuclear force. This relationship supports Feaver’s claim that “assertive control is likely to extend to the nuclear realm.”\textsuperscript{6} The remaining hypotheses drawn from Feaver’s work, however, are either indeterminate or empirically disproven. In short, this paper demonstrates that the best explanation of command and control systems in new nuclear states is a combination of the state of pre-nuclear civil-military relations and strategic rationale for the arsenal.

Answering this enduring question is important in three regards. First, the question addresses an important but neglected component of nuclear strategy. Command and control systems are a key component of nuclear behavior, but these systems have received limited consideration from scholars seeking to explain how states employ their nuclear capabilities. Instead, when evaluating emerging nuclear powers, researchers often devote attention to the size and quality of a state’s physical nuclear arsenal.\textsuperscript{7} Additionally, theorists focus on the perceived irrationality of a state and the dangerous implications that follow from this assumption. Recently, Kenneth Waltz has noted the widespread fear of policymakers and analysts that Iranian leaders are “innately irrational” and that Iran would likely use nuclear weapons offensively once

\textsuperscript{6} Ibid., 176. The logic behind this claim is more fully developed later in this paper.
acquired.8 As Feaver notes, “these measures are useful for estimating what a new nuclear nation might intend to do with its arsenal,” but they fail to account for “how the nuclear organization itself might in fact behave.”9 Command and control structures offer a way of accessing this behavioral aspect of nuclear strategy. These structures are a core component of nuclear posture, or “a state’s operational, rather than declaratory, nuclear doctrine.”10 In short, by specifying the relevant factors that lead to change in command and control patterns, researchers can gain significant leverage over the practical employment of nuclear weapons.

Secondly, this question directs attention to modern regional nuclear powers. The academic literature has recently made great strides in separating theories of modern nuclear strategy from their Cold War predecessors.11 For instance, in his study of the India-Pakistan nuclear dyad, Paul Kapur argues in favor of distinguishing modern nuclear strategy theories from those based upon the US-Soviet case, noting that “the relationship between strategic and tactical stability for new nuclear powers may be different than it was for the United States and the Soviet Union during the Cold War.”12 Vipin Narang advances this argument by noting the inadequacy of classic nuclear strategy theory in describing the behavior of modern regional nuclear powers. In order to explain the nuclear postures of India and Pakistan, Narang develops a new set of

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8 For a discussion on the tendency to view Iran as an irrational actor and its implications for deterrence policy, see Kenneth N. Waltz, “Why Iran Should Get the Bomb,” *Foreign Affairs*, No. 2 (July/August 2012), pp. 2-5.
nuclear strategies not previously accounted for by existing theories. Distinguishing the
difference in nuclear behavior between great powers and regional powers is a task of theoretical
and policy-relevant importance. To reliably predict the conduct of potential proliferators such as
Iran, research must identify patterns unique to regional nuclear powers. This paper builds upon
this approach by contributing an evidence-based explanation for regional nuclear power
command and control systems.

Finally, an evidence-driven analysis of command and control structures contributes to the
ongoing debate between proliferation optimists and pessimists. The core disagreement between
optimists and pessimists centers on the likelihood of nuclear weapons use by emerging nuclear
powers. Proliferation optimists emphasize the outcome-based stability of nuclear states by
focusing on the ability of nuclear weapons to suppress the concerns of escalation. Because
nuclear weapons are seen as strong deterrent factors that inhibit escalation, optimists prioritize

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13 Vipin Narang, “Posturing for Peace?” Narang has since expanded the framework from this article to establish for
a comprehensive theory of regional power nuclear postures. See Vipin Narang, Nuclear Strategy in the Modern Era.
14 This policy problem has received extensive attention in recent years. For differing perspectives on how to address
the potential proliferation of Iran, see Eric S. Edelman, Andrew F. Krepinevich, and Evan Braden Montgomery,
“The Dangers of a Nuclear Iran: The Limits of Containment,” Foreign Affairs, Vol. 90, No. 1 (January/February
Survival, Vol. 49, No. 2 (Summer 2007), pp. 111-128; Matthew Kroenig, “Time to Attack Iran: Why a Strike is the
Least Bad Option,” Foreign Affairs, Vol. 91, No. 1 (January/February 2012), pp. 76-86; Barry R. Posen, “A
Nuclear-Armed Iran: A Difficult But Not Impossible Policy Problem,” Century Foundation Report, 2006,
15 Other works have attempted to structure explanations of regional power command and control structures, but none
of the existing accounts provides thorough, data-driven explanations. See Feaver, “Command and Control in
Emerging Nuclear Nations”; Peter Douglas Feaver, Guarding the Guardians: Civilian Control of Nuclear Weapons
16 For purposes of simplicity, this paper provides a basic distinction between optimists and pessimists. For a more
 nuanced description of specific camps within each group, see Peter Feaver, “Neooptimists and the Enduring
17 For examples of nuclear optimism, see David J. Karl, “Proliferation Pessimism and Emerging Nuclear Powers,”
2012); Kenneth N. Waltz, The Spread of Nuclear Weapons: More May Be Better, Adelphi Paper No. 171 (London:
International Institute of Strategic Studies, Autumn 1981). For an optimist’s view on South Asia, see Šumit
Ganguly’s chapters in Šumit Ganguly and S. Paul Kapur, India, Pakistan, and the Bomb: Debating Nuclear Stability
in South Asia (New York: Columbia University Press, 2010).
the outcome-based conclusion that nuclear weapons have inherently stabilizing qualities. Proliferation pessimists, in contrast, assert that the spread of nuclear weapons has dangerous implications for regional security. More specifically, pessimists focus on the potential for command and control failures that lead to nuclear use. This school notes three potential points of failure: 1) emerging nuclear nations are likely to experience significant technical difficulties in establishing command and control systems; 2) nuclear confrontations have generated “near misses” in the Cold War context and are likely to do so in new nuclear states; and 3) these concerns afflict certain proliferators to a greater degree than others. This essay addresses the debate by explaining the conditions under which civilians maintain control over nuclear weapons versus when launch authority is delegated to military leadership. As will be shown, this decision has significant implications for the purposeful or accidental use of nuclear weapons in a crisis.

The remainder of this project proceeds in five sections. First, Feaver’s framework in “Command and Control in Emerging Nuclear Nations” is fully developed and disaggregated into testable hypotheses. One step in this process is conceptualizing the dependent variable—the nature of command and control systems—and operationalizing the indicators that reflect this concept. Another part of this section addresses the causal propositions of the framework by establishing Feaver’s two core propositions, deriving a series of testable implications for these propositions, and specifying the indicators for testing these implications. Second, a brief note on case selection is presented to demonstrate the analytical leverage gained by studying India. The availability of evidence, viability of India as a “most-likely” case, and clear distinction between the evidence used for theory development and testing provides India a significant amount of

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18 For examples of nuclear pessimism, see Feaver, “Neooptimists and the Enduring Problem of Nuclear Proliferation”; Sagan’s chapters in The Spread of Nuclear Weapons: A Debate. For a pessimist’s view on South Asia, see Kapur’s chapters in India, Pakistan, and the Bomb.

19 These three points are derived from Feaver, “Neooptimists and Nuclear Proliferation’s Enduring Problems,” p. 97.
leverage as a case. Third, the paper tests the implications identified in section one by defining India’s command and control system and subjecting each potential explanation to empirical evaluation. Fourth, the results of this evaluation are synthesized to detail how and why particular variables are more powerful explanatory factors of command and control structures than others. The final section offers concluding remarks on the validity of Feaver’s framework in light of empirical findings and suggests future avenues of research.

“COMMAND AND CONTROL IN EMERGING NUCLEAR NATIONS”: A DEDUCTIVE FRAMEWORK

This section fully develops Feaver’s framework in two stages. First, the dependent variable of command and control systems is defined and its measurable indicators specified. Secondly, this passage identifies Feaver’s two key propositions, draws out multiple testable implications from each proposition, and specifies the observable indicators to be measured for each implication. A summary table of the hypothesized relationships is offered at the end of this section to clearly demonstrate the various implications of Feaver’s framework.

Command and Control of Nuclear Weapons: Assertive/Delegative Control

The dependent variable in this study is a state’s command and control system. Although numerous renditions of the concept can be found, this essay employs a simple definition. Here, command and control refers to the management, deployment, and potential release of nuclear weapons. A simple way to characterize command and control is as a ratio of influence between

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20 This approach—systematizing a concept, specifying the indicators, and systematically scoring cases—draws heavily upon Robert Adcock and David Collier, “Measurement Validity: A Shared Standard for Qualitative and Quantitative Research,” *American Political Science Review*, Vol. 95, No. 3 (September 2001), pp. 529-546.

21 For instance, Paul Bracken’s classic work on the subject matter defines command and control as “an arrangement of facilities, personnel, procedures, and means of information acquisition, processing, and dissemination used by a commander in planning, directing, and controlling military operations.” See Paul Bracken, *The Command and Control of Nuclear Forces* (New Haven: Yale University Press, 1983), p. 3.

22 This definition borrows from Narang, *Nuclear Strategy in the Modern Era*, p. 4.
civilians and the military over these decision-making processes. This definition of command and control yields a systematized concept that distinguishes between assertive and delegative control patterns. In short, as civilians gain more control over nuclear matters, the command and control system becomes more assertive; as the military gains more autonomy and influence in nuclear matters, the command and control system becomes more delegative. Given this understanding of command and control, specific points of tension between civilians and the military can be used as identified as conceptual indicators.

The most basic tension in command and control systems is the always/never dilemma. This dilemma is “at the heart of nuclear command and control” and is “the primary opposition inherent in command and control systems.” Because this concept is crucial to understanding command and control, it is worth discussing at length here. The always/never dilemma presents civilian leadership two considerations to weigh when determining whether to delegate or assert authority over nuclear forces. On the one hand, civilians seek to ensure that nuclear weapons always launch when leaders order their use. This concern is simple enough: the basic goal of favoring “always” is to ensure a state’s nuclear arsenal and communication links to decision-makers survive an initial attack long enough to perform retaliatory strikes. Without such a survivable second-strike capability, a state would be susceptible to preemption and decapitation, rendering the state insecure and vulnerable.

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23 For a full discussion on assertive versus delegative control, see Feaver, *Guarding the Guardians*, pp. 7-12.
24 The always/never dilemma is synonymous with positive/negative control. See ibid., pp.12-13n22; Seng, p. 55. To emphasize consistency with Feaver’s argument and minimize unnecessary terminology, this paper only uses the language of the always/never dilemma.
26 Seng, p. 55.
28 “Preemption refers to an enemy nuclear attack destroying all or a significant portion” or nuclear forces. “Decapitation involves an enemy nuclear attack against command and control centers.” Feaver, *Guarding the Guardians*, p. 73.
At the same time, civilians aim to guarantee that nuclear weapons are never used without proper authorization. This analysis focuses on two types of undesired use of nuclear weapons: accidental and unauthorized. Accidental use is the unintentional launch of nuclear weapons due to “sloppy handling, faulty design, or some other cause.” To address this concern, civilians can implement administrative steps guaranteeing oversight and requiring safety measures to be built into the nuclear weapons. Unauthorized use, in contrast, refers to when “military personnel decide to use nuclear weapons without receiving the proper authorization from civilian leadership.” This unauthorized use could occur for two reasons. First, an individual or group could purposefully subvert the chain of command to achieve parochial interests. A second type of unauthorized use could occur in a moment of crisis when a field commander felt the need to use nuclear weapons to prevent defeat. As this example shows, civilians face a significant challenge. Overly prioritizing the “always” side of the dilemma facilitates unauthorized use, but enough attention must be given to the “always” component to guarantee nuclear weapons are survivable and will be fired whenever the order is given.

In sum, the balance between “always” and “never” is a dilemma because any attempts to resolve this difficulty necessarily result in tradeoffs: “the greater the assurance of ‘always,’ the lesser the assurance of ‘never,’ and vice-versa.” Civilians are thus forced to decide the appropriate amount of emphasis to give each side of the dilemma by weighing the relative values of reliability (weapons will be used when leaders so desire), safety (weapons will not be

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29 Feaver also cites “third-party” use as a form of unintended use in his US-based analysis. This argument does not figure prominently in his discussion on emerging nuclear nations, however, so it is omitted from this essay. For an explanation of third-party use, see ibid., pp. 18-20.
30 For a full discussion of accidental use, see ibid., pp. 13-15.
31 See ibid., pp. 15-18 for a discussion on unauthorized use.
32 Ibid., p. 21.
accidentally launched), and security (unauthorized individuals cannot launch nuclear weapons). An important point to note is that the decision to favor “always” correlates strongly with delegative control, whereas favoring “never” correlates with assertive command and control procedures. To guarantee that nuclear weapons are always used when necessary, civilians must assume a delegative command and control system. To prevent the accidental or unauthorized use of nuclear weapons, civilians must assume an assertive command and control system.

In order to observe whether a state favors “always” or “never” positioning, this essay focuses on two specific tradeoffs that result from the always/never dilemma. The first of these tradeoffs is the balance between central command and peripheral launch capacities. Highly centralized command places launch authority in the hands of civilians and requires peripheral military commanders to report and request authorization for use. Peripheral launch capacity, in contrast, predelegates a set of circumstances under which military leaders can launch nuclear weapons without seeking civilian approval. In general terms, a state with central command structures has a more assertive command and control structure; a state with peripheral launch capacity has a more delegative command and control structure.

More specifically, this project identifies two indicators that are necessary to classify cases by launch capacity. First, a state’s nuclear deployment patterns reveal a great deal about administrative aspects of launch authorization. Specifically, if a state’s nuclear arsenal is

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33 Feaver, “Command and Control in Emerging Nuclear Nations,” p. 163.
34 This project focuses on central command versus peripheral launch capabilities and procedural prespecification versus operational flexibility. This differs from Seng’s characterization in one important way: Seng characterizes the always/never dilemma as a distinct tension that is separate from these other two considerations. A more precise relationship, however, is to observe that central command/peripheral launch and procedural prespecification/operational flexibility decisions are subcomponents of the always/never dilemma. Because both of these decisions are made in order to address the always/never dilemma, the concepts are highly endogenous. For Seng’s description, see Seng, pp. 55-57.
disassembled and dispersed, this is a reflection of centralized command authority that favors “never” launching without proper authorization. An arsenal with warheads fixed to delivery vehicles, in comparison, signifies an increase in peripheral launch capacity that favors “always” launching missiles when authorized. The second indicator of launch capacity is the institutional access and influence of the military in strategic decision-making. If the military is meaningfully incorporated into the chain of command, this suggests that civilians have delegated at least some authority to the military. A lack of institutional access to nuclear command positions by the military, in contrast, signals that civilians have centralized command and eschewed military influence from determining launch capacities.

The second tradeoff faced by civilian leaders as a result of the always/never dilemma is between procedural prespecification and operational flexibility. Procedural prespecification establishes a series of standard operation procedures (SOPs) that shape actors’ behavior during a crisis. By clearly specifying the proper protocol for numerous contingencies, this approach aims to maintain assertive control by defining appropriate action during a crisis. If a state’s nuclear forces are bound by extensive standard operating procedures, then that state’s command and control system is more assertive. By their very nature, however, crises are unpredictable. 36 “The procedural prespecification required by SOPs,” Jordan Seng notes, “is in tension with the unpredictable nature of crisis events.” 37 Accordingly, some states may elect to risk contextual uncertainty and rely upon operational flexibility. If a state has nuclear weapons but no accompanying standard operating procedures, the in-theater military commanders are granted operational leeway and the command and control structure is more delegative.

37 Seng, p. 56.
Table 1. Characteristics of Command and Control Systems

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<thead>
<tr>
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<th>Assertive</th>
<th>Delegative</th>
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<tr>
<td>Always/Never Dilemma</td>
<td>Never</td>
<td>Always</td>
</tr>
<tr>
<td>Launch Capacity</td>
<td>Centralized</td>
<td>Peripheral</td>
</tr>
<tr>
<td></td>
<td>▪ Dispersed, decoupled nuclear arsenal</td>
<td>▪ Assembled, deliverable warheads</td>
</tr>
<tr>
<td></td>
<td>▪ Low military institutional presence and influence</td>
<td>▪ High military institutional presence and influence</td>
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<tr>
<td>Crisis Decision-Making</td>
<td>Procedural prespecification</td>
<td>Operational flexibility</td>
</tr>
<tr>
<td></td>
<td>▪ Standard operating procedures</td>
<td>▪ Absence of standard operating procedures</td>
</tr>
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Table 1 summarizes the elaborated structure of command and control systems as a dependent variable in this study. In broad terms, assertive command and control is characterized by civilians favoring the “never” component of the always/never dilemma. As a result, these systems prefer centralized launch capacity and procedural prespecification. Conversely, delegative command and control systems focus on the “always” component of the always/never dilemma. These systems enable peripheral launch capacity and operational flexibility. Later in this paper, this framework will be used to evaluate the case of India and determine where it falls along the spectrum of assertive and delegative control.

Having developed the dependent variable, the paper now turns to Feaver’s two propositions about command and control in emerging nuclear nations. Each proposition is presented in turn and its testable implications are more fully developed. Additionally, the specific indicators for each implication are identified and the logic of how these indicators represent their superordinate concepts is explained to reliably test each claim.
Proposition 1: Civil-Military Relations Stability

Feaver’s first proposition is: “The more stable the civil-military relations, the more delegative the command and control system; the more volatile the civil-military relations, the more assertive the command and control system.” For Feaver, stable civil-military relations are observed when “a military that is institutionally strong and has enjoyed a fairly high degree of autonomy, but has eschewed direct intervention in political affairs.” Volatile civil-military relations, in contrast, include “states where political leaders have used extraordinary control measures which politicize military forces, as well as those states with a history of military coups.” Although the dichotomization of civil-military relations as stable or volatile is very simplistic, the basic distinction captures the essence of civil-military relations as competition between the civilians and military over administrative control and provides a clear concept from which testable implications can be developed.

In particular, this proposition yields two distinct explanations for a new nuclear state’s command and control system. First, the existing, pre-nuclear status of civil-military relations is hypothesized to affect command and control systems. “The command and control system is likely to reflect the underlying pattern of civil-military relations,” Feaver claims, because “Nuclear weapons are added to an existing power structure and must be wielded by the existing actors in the political spectrum.” By observing the nature of pre-nuclear civil-military relations, the command and control structure of a nation can be explained. More specifically,

39 Ibid., p. 175.
40 Ibid., p. 176.
41 Ibid., p. 177.
42 The degree of military autonomy in relation to civilian leadership is the central point of study in the civil-military relations literature. Due to space limitations, this essay does not fully develop the different theories of civil-military relations. For major works from differing perspectives, see Eliot Cohen, Supreme Command (New York: Free Press, 2002); Peter Feaver, “The Civil-Military Problematique,” Armed Forces and Society, Vol. 23, No. 2 (Winter 1996),
this relationship can be phrased as: an increase in pre-nuclear military autonomy leads to an increase in delegative control.\textsuperscript{43} To test this relationship, the project proposes civilian interference in military affairs as an indicator of military autonomy. In particular, this paper tests the following statement: an increase in civilian interference in military affairs leads to a decrease in military autonomy. Accordingly, a decrease in military autonomy would lead to a decrease in delegative control. Specific events that reflect civilian interference in military affairs include civilian involvement in operational-level military planning and the use of military forces for political purposes. If evidence of these behaviors is found, then it demonstrates that the military has a low degree of autonomy from civilian control.

The second explanation of command and control rooted in civil-military relations proposed by Feaver is simple: “the greater the fear of coups, the more likely the weapons are under assertive control.”\textsuperscript{44} The underlying logic is equally simple. Feaver states, “The best way to prevent a domestic rival from exploiting the political power of nuclear weapons is to retain as severe an assertive grip on the arsenal as possible.”\textsuperscript{45} To better operationalize “fear” of coups, this project uses coup attempts as the key indicator. This yields the following hypothesis: an increase in the number of attempted coups during a country’s history leads to a decrease in delegative control. These coups do not need to be successful—they simply need to be observable attempts at overthrowing civilian leadership by an organized group of the military.

\textsuperscript{43} Although the dependent variable of command and control can either be coded as delegative or assertive control, this paper specifically phrases the causal relationships with regards to delegative control in order to maintain coherence and allow for a direct comparison of each hypothesis. The inverse relationship is implied in each hypothesis. For example, any relationship that predicts an increase in delegative control simultaneously predicts a decrease in assertive control, and vice versa.

\textsuperscript{44} Feaver, “Command and Control in Emerging Nuclear Nations,” p. 177.

\textsuperscript{45} Ibid.
To summarize, this section has yielded two testable hypotheses regarding the effects of civil-military relations on command and control structures. The first hypothesis states: if civilian involvement in military affairs increases, then command and control will be decreasingly delegative. The second hypothesis is: if the number of coup attempts in a state increases, then command and control will be decreasingly delegative. These hypotheses are summarized below.

**Civil-Military Relations**

*H1: Military Autonomy*

↑ Pre-nuclear military autonomy → ↑ Delegative control

*H2: Civil-Military Relations Stability*

↑ Coup attempts → ↓ Delegative control

**Proposition 2: Time-Urgency**

Feaver’s second proposition is: “The greater the time-urgency, the more likely the command and control system will be delegative.” In this context, “Time-urgency refers to the degree to which the leaders of the new nuclear state require that the arsenal be ready for immediate and rapid use.” An increase in time-urgency places pressure upon a regional nuclear power by threatening the swift destruction of its nuclear arsenal or command and control networks by another state. A new nuclear state is expected to favor delegative command and control systems because, unlike assertive control measures that increase the time required to respond to a threat, delegative control allows a state to respond more quickly in moments of crisis. Feaver further specifies time urgency as a combination of “perceptions about the

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46 Ibid., 180.
47 Ibid., 178.
48 As Feaver explains, “Assertive command arrangements usually lengthen the time required for using the weapons, often by requiring complicated assembly or code-clearance steps prior to use. Delegative command systems, in contrast, can be highly responsive.” Ibid., 180.
likelihood of war, the vulnerability of the warheads and delivery vehicles, the vulnerability of the
command and control system, and the strategic rationale for the arsenal.”49 To test Feaver’s
second proposition, this section draws upon the listed factors of time-urgency and develops five
concrete hypotheses for evaluation.

Two hypotheses address the “perceptions about the likelihood of war” component of
time-urgency. The difficulty of operationalizing this concept deserves a brief elaboration.
Perceptions about the likelihood of war effectively measure the perception of threat. The task of
measuring threat has generated a substantial debate and no definitive agreement has been
reached.50 For present purposes, this essay assumes a conception of threat as a combination of
aggregate power and geographic proximity. These two components offer a coherent, measurable
baseline that can be used to develop a structure to test Feaver’s framework.

49 Ibid., 178.
50 For an elaborate argument on the perception of threat, see Stephen M. Walt, The Origins of Alliances (Ithaca:
threat theory.” According to Walt, the primary determinants of threat are aggregate power, geographic proximity,
offensive power, and aggressive intentions. As each of these components increases, so does the perceived level of
threat. However, the latter two components of Walt’s balance of threat theory—offensive power and aggressive
intentions—yield particular complications. First, offensive power is highly correlated with aggregate power. This
creates the potential for double-counting military capabilities, which would overstate the impact of material factors.
Furthermore, this component assumes that offensive and defensive capabilities are distinguishable. As John
Mearsheimer notes, “it is very difficult to distinguish between offensive and defensive weapons. For example, it is
not clear that mobility favors the offense; in fact, we might well argue that mobility favors the defense.” For an
elaboration of this statement, see John J. Mearsheimer, Conventional Deterrence (Ithaca: Cornell University Press,
1983), pp. 25-27. Simply put, capabilities are very rarely ever purely offensive or defensive. Secondly, the difficulty
of discerning intentions is a core premise of international relations theory. It is this challenge that is at the center of
the security dilemma. Because intentions of other states are never fully certain, states must pursue policies that
promote their own security. This paper’s understanding of the security dilemma concords with Mearsheimer, who
states that “the measures a state takes to increase its own security usually wind up decreasing the security of other
states. When a country adopts a policy or builds weapons that it thinks are defensive in nature, potential rivals
invariably think that those steps are offensive in nature.” See John J. Mearsheimer, The Tragedy of Great Power
Politics, 2nd edition (New York: W.W. Norton, 2014), pp. 35-36, 382. In short, this project assumes that, because
states must fear the worst possible outcome as potential rivals develop military capabilities, aggressive intentions
can be subsumed underneath aggregate power, which serves as the baseline of determining a state’s intentions.
For arguments that offensive and defensive weapons can be distinguished and state intentions can be discerned, see
Charles L. Glaser, Rational Theory of International Politics: The Logic of Competition and Cooperation (Princeton:
Princeton University Press, 2010); Evan Braden Montgomery, “Breaking Out of the Security Dilemma: Realism,
The first factor associated with an increase in perceptions about the likelihood of war is aggregate power. Much like threat, the definition of power is strongly contested. For present purposes, this paper employs a basic definition of power as a state’s total economic, military, and population resources. To measure these factors, this paper uses the Correlates of War Composite Index of National Capability (CINC) score. The CINC score is an aggregate indicator that directly reflects the provided definition of power. CINC’s constituent parts—iron and steel production, military expenditures, military personnel, primary energy consumption, total population, and urban population—are averaged as a proportion of the international system to reflect a state’s relative power in material terms. An increase in CINC score reflects an increase in a state’s aggregate power. Accordingly, when a state’s adversary scores higher on this variable, that state’s perception of threat increases. In short, this suggests that a relative gain in power leads to a decrease in perceptions about the likelihood of war, which reflects a decrease in time-urgency.

The second factor affecting perceptions about the likelihood of war is geographic proximity. Because a nearby threat means a state “must contend with very short warning times,” geographic proximity can greatly affect threat perception. In this essay, geographic proximity is measured as the number of kilometers between the nearest straight-line points of

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52 For a description of each variable and the aggregation procedure for the CINC variable, see J. Michael Greig and Andrew J. Enterline, Correlates of War Project: National Material Capabilities Data Documentation Version 4.0 (Denton: University of North Texas, 2010). Codebook available online at: http://www.correlatesofwar.org/COW2%20Data/Capabilities/NMC_Codebook_v4_0.pdf


two states’ borders. For Feaver’s framework, an increase in the distance between borders predicts a decrease in perceptions about the likelihood of war. The logic is plain: because a potential adversary is farther away, civilians have more time to respond to an impending threat and perceive that adversary as less threatening.

An additional pair of hypotheses represents the “vulnerability” component of time-urgency. A state’s nuclear arsenal and command and control system are subject to the same concern: as these components of the state become more vulnerable, a state’s sense of time-urgency increases. To account for the explanatory power of vulnerability on time-urgency, this paper identifies two testable implications.

First, in order to decrease vulnerability of nuclear assets, a state can diversify its nuclear platforms. Developing an ability to deploy air, land, and sea-based nuclear weapons “reduces vulnerability to sudden attack” and ameliorates a state’s concerns of time-urgency by promoting the survivability of its nuclear forces. Accordingly, an increase in the number of platforms used should produce a decreased sense of time-urgency. Secondly, this project proposes that a state’s geographic depth is an indicator of vulnerability. If a state lacks geographic depth, its nuclear weapons and command and control centers “may be in a few, well-known, and therefore vulnerable locations.” As a result, states are more likely to fear an adversary effectively launching a preemptive strike. To precisely score geographic depth, this essay utilizes a

55 Although Feaver separately addresses the vulnerability of nuclear assets and command and control systems, he states that “The same preemption logic” that makes a state concerned about its nuclear arsenal “applies to the command and control system.” See Feaver, “Command and Control in Emerging Nuclear Nations,” pp. 178-179. To avoid over-representing any particular measures, this project combines vulnerability of nuclear assets and command and control into a single concept of vulnerability.
57 It should be noted presently that nuclear diversification is likely highly correlated with the civil-military relations hypothesis. The hypothesis is developed here in full because it is a natural extension of Feaver’s argument.
country’s total area in square kilometers as the central measure. In short, an increase in the area of a state allows for the dispersal of nuclear weapons and command systems across a larger space, thus providing an increased degree of survivability and reducing the state’s sense of vulnerability.

The last component of time-urgency—“strategic rationale”—is represented by a single hypothesis. For Feaver, strategic rationale represents the desired purpose of a nuclear arsenal. In the U.S. context, he notes, “leaders intended the American arsenal to respond quickly in order to limit the damage of a Soviet surprise attack,” which “required the arsenal to be highly responsive, ready for near-instantaneous use.”59 This relationship seeks to explain the effect of strategic rationale on time-urgency by locating the purpose of the nuclear arsenal and evaluating its role in increasing or decreasing the responsiveness of nuclear forces.60 To measure strategic rationale, a clearly articulated nuclear-use doctrine is necessary. Ideally, this doctrine should specify the degree to which a state prioritizes responsiveness and whether the weapons are intended for rapid response or secure second-strike only. In this framework, an increased emphasis on responsiveness expects an increased degree of time-urgency.

In sum, Feaver proposes that an increase in time-urgency promotes an increase in delegative control. Three broad factors explain shifts in time-urgency. First, an increase in perceptions about the likelihood of war increases time-urgency. Second, an increased sense of vulnerability regarding nuclear arsenals and command and control structures increases time-urgency.

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59 Ibid., 179.
60 An underlying assumption of this claim is that civilians dictate the strategic purpose of the military and the military performs the tasks as designated by civilians. The origins of this civil-military relations structure is found in Carl von Clausewitz, *On War* (Princeton: Princeton University Press, 1976); see especially chapter 1.
urgency. Third, an increasingly responsive strategic rationale implicates an increased sense of time-urgency.

Additionally, this section on time-urgency has yielded five testable implications to better specify the relationship between time-urgency and command and control systems. First, an increase in relative aggregate power leads to a decrease in time-urgency, which represents a decrease in delegative control. Second, an increase in geographic nearness increases time-urgency, which generates higher delegative control. Third, increased diversification of delivery systems reduces a state’s vulnerability, which then reduces delegative control. Fourth, increased geographic depth also reduces vulnerability and reliance upon delegative control. Fifth and finally, an increase in strategic emphasis on responsive doctrine increases time-urgency, which suggests an increase in delegative control. These explanations are summarized below.

Time-Urgency

\[ H3a: \text{Perceptions about the Likelihood of War—Relative Power} \]
\[ \uparrow \text{Relative aggregate power} \rightarrow \downarrow \text{Delegative control} \]

\[ H3b: \text{Perceptions about the Likelihood of War—Geographic Proximity} \]
\[ \uparrow \text{Geographic proximity (nearness)} \rightarrow \uparrow \text{Delegative control} \]

\[ H4a: \text{Vulnerability—Diversification} \]
\[ \uparrow \text{Delivery system diversification} \rightarrow \downarrow \text{Delegative control} \]

\[ H4b: \text{Vulnerability—Geographic Depth} \]
\[ \uparrow \text{Geographic depth} \rightarrow \downarrow \text{Delegative control} \]

\[ H5: \text{Strategic Rationale} \]
\[ \uparrow \text{Responsive doctrine} \rightarrow \uparrow \text{Delegative control} \]
CASE SELECTION: INDIA

This study conducts a within-case analysis of India to test the above hypotheses on command and control structures in emerging nuclear nations. Three specific reasons justify the selection of this case.

First, information on India’s nuclear program is simply more available than other cases. Since Feaver’s article was published in 1992, three states—India, Pakistan, and North Korea—have openly developed and tested nuclear weapons. Of these cases, India has made its nuclear policy and procedures the most transparent and the important factors outlined in the previous section can be more easily observed. This justification for case selection, however, must immediately be qualified: data availability alone is not a legitimate reason for case selection. Instead, cases should be selected as representative units of a broader population that provide the researcher maximal inferential leverage.61 All else being equal, maximum data availability is preferable, but a researcher must identify the relevance of a particular case to the study at hand.62 Given the theory testing nature of this project, increased access to evidence is a desirable condition, but this access to data alone cannot justify the case selection of India.

The second justification for studying India addresses the concerns listed above. This study chooses to analyze the Indian case because it represents a “most-likely” case for Feaver’s framework. A most-likely test is a useful form of theory testing because “A theory’s failure in an

easiest test case calls into question its applicability to many types of cases.”63 Essentially, this sort of evaluation creates an “easy test.” If a theory cannot pass an easy test, its usefulness in explaining a set of phenomena becomes highly dubious. Simply asserting that India is a most-likely case, however, is insufficient. To substantiate this claim, one key condition must be met. Specifically, “the independent variables posited by a theory are at values that strongly posit an outcome or posit an extreme outcome.”64 Put differently, the values of the independent variables must take on extreme values that generate strong predictions about the outcome. Additionally, the dependent variable should be an extreme value. If both of these conditions hold, then the proposed relationships become clearer and the hypotheses become more readily tested. As will be demonstrated in the empirical section that follows, the Indian case satisfies both of these conditions. The measures of all independent and dependent variables take on clearly high or low values, allowing for a more certain evaluation of the proposed hypotheses.

The third rationale for studying India results from a unique opportunity to distinguish the phases of theory development from theory testing. Simply put, Feaver’s model could not have been developed in 1992 by using evidence from India’s nuclear posture because India’s arrival as a nuclear state occurred in 1998. This is important because testing a theory with evidence used to generate that theory leads to “confirmation bias,” where the theory is biased towards one’s expectations.65 Although India was known to have latent nuclear capabilities when Feaver wrote, the capabilities, deployment patterns, and command and control structures were unknown and could not have been used in the development of Feaver’s theory.66 As a result, India provides a

63 For a detailed explanation of most-likely cases, see Alexander L. George and Andrew Bennett, Case Studies and Theory Development in the Social Sciences (Cambridge: MIT Press, 2005), pp. 121-122.
64 Ibid., p. 121.
65 Ibid., pp. 111-112.
66 As mentioned before, India’s first nuclear test was conducted in 1974. India clearly played a minimal role in the formulation of Feaver’s framework. The country receives one passing mention that is irrelevant to the hypotheses.
test case completely apart from the evidence used to fashion the proposed framework. This observation, in conjunction with the availability of data and India’s role as a most-likely case, suggests that India promises significant inferential leverage for understanding the various factors affecting command and control patterns in new nuclear nations.

**TESTING THE IMPLICATIONS: APPLYING EVIDENCE**

To evaluate Feaver’s argument, this section applies case evidence from India to the framework developed above. This task is accomplished in two stages. First, by observing the nature of launch capacity and crisis decision-making in India, it is shown that India’s command and control systems are highly assertive. Second, the explanatory hypotheses derived to represent the state of civil-military relations and time-urgency are also empirically evaluated. The purpose of this section is only to assign values to each variable; in the next section, a substantive interpretation will help to clarify the significance of each relationship.

*Command and Control Systems: Assertive Control in India*

The central claim proposed in this section is that civilians exercise a high degree of assertive control in India’s command and control systems. To support this claim, evidence is applied to the three indicators previously mentioned: degree of arsenal preparedness, institutional presence of military leaders in policy circles, and patterns of crisis decision-making behavior.

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proposed in his article. See Feaver, “Command and Control in Emerging Nuclear Nations,” p. 185. Additionally, the differences between a nuclear device and weapon should be noted here. A nuclear device is “an apparatus that presents proof of scientific principle that a nuclear explosion will occur.” A weapon, in contrast, is “a rugged and miniaturized version of the device.” To be fully functional, it must be weaponized, a “process of integrating the weapon with delivery systems.” The development of command and control structures depends upon the presence of a weaponized nuclear capability, which was not developed until 1999 at the earliest. In short, these qualities could not have been accounted for in the development of Feaver’s theory. For a full explanation of the development of India’s nuclear program and a discussion on nuclear devices, weapons, weaponization, and operationalization, see Gaurav Kampani, “New Delhi’s Long Nuclear Journey: How Secrecy and Institutional Roadblocks Delayed India’s Weaponization,” *International Security*, Vol. 38, No. 4 (Spring 2014), pp. 79-114.
India’s launch capacity is highly centralized. A permanent fixture in India’s command and control structure has been that “civilians not only maintain control over India’s nuclear forces, but they maintain custody of it.” The two indicators developed earlier in this essay offer a useful framework for supporting this claim. First, analyzing the readiness of India’s deployment patterns provides insight into India’s preference for centralized launch capacity. India’s nuclear weapons are separated from delivery platforms and largely under civilian control. Civilians centralize command of the nuclear arsenal by “de-mating and dispersing its nuclear components across civilian agencies,” leaving only the delivery vehicles under the military’s command. Although India’s doctrine has evolved to include components with a quicker rate of readiness preparation, these capabilities “could still meet the strict definition of disassembled and/or de-mated systems.” Overall then, India’s nuclear arsenal is constructed in a manner that indicates a high level of centralization. Accordingly, this increased level of centralized command suggests an increase in assertive control of nuclear forces.

Secondly, India’s institutional arrangements also indicate a high level of centralization. Mapping out the pathways through which authorization for nuclear use occurs can become complex very quickly. In the Indian case, however, a basic finding holds true: “Nuclear assets would only be constituted, operationalized, and transferred to military end users on orders of the Prime Minster.” Simply put, nuclear weapons use can only be authorized by civilian

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68 Narang, “Posturing for Peace?” p. 46.
71 For an extremely detailed account of centralized control in India that is beyond the scope of this paper, see Tellis, pp. 428-475.
leadership. This manner of centralized launch capacity has become deeply institutionalized in the Indian context. For instance, India’s current nuclear doctrine states that “retaliatory attacks are to be authorized by the civilian political leadership through the Nuclear Command Authority (NCA) only.” Additionally, the military is unable to coordinate with civilians on nuclear matters without receiving approval from the Prime Minister’s Office (PMO). Specifically, the military’s Strategic Forces Command (SFC) cannot interact with the civilian-led Department of Atomic Energy (DAE) or Defense Research and Development Organization (DRDO) unless approved by the NCA. On an institutional level, the military has been so thoroughly excluded from launch authority processes that this division has been referred to as “a policy of segregation.”

The third indicator of assertive control in India is a component of crisis decision-making behaviors. More specifically, India has assumed a model of procedural prespecification. Although this pattern comes at the expense of operational flexibility during crises, it comports with Indian civilians’ belief in “the sanctity of government approval for the use of nuclear weapons.” Recently, efforts have been made to define all potential pathways for transfer of command and control under any circumstance. Additionally, India has attempted to harden its command and control network by providing safe locations for individuals with nuclear launch authority to take cover during a nuclear crisis. Simply put, this emphasis on procedural

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73 Pant, p. 249.
76 Pant, p. 250.
77 Ibid. Also see Tellis, pp. 436-440 for a discussion on the vulnerability of Indian command and control systems.
prespecification reflects a more general occurrence of assertive control in Indian command and control systems.

In sum, these three indicators converge to demonstrate that India’s command and control structures exhibit high levels of assertive control. The physical dispersal of nuclear components and institutional separation of the military from nuclear decision-making conveys a highly centralized launch authority structure. Additionally, reliance upon procedural prespecification during moments of crisis suggests an increased value of assertive control in the Indian context. Taken together, these three indicators show that India’s assertive pattern of command and control is decisively assertive. Importantly, this high value of assertive control—the dependent variable in this study—corroborates the earlier characterization of India as a most-likely case.

Hypothesis Testing

Having established India’s command and control systems as highly assertive, the paper now turns to empirically evaluating the hypotheses drawn from Feaver’s argument. Each hypothesis will be briefly restated, scored using evidence, and compared to the original predictions made by Feaver’s model.

**H1: Military Autonomy**

This hypothesis claims that an increase in pre-nuclear military autonomy leads to an increase in delegative control. To test this claim, evidence regarding the degree of civilian involvement in military affairs is necessary. In the case of India, civilians have historically been actively involved in military affairs. After independence, “The military was thoroughly indoctrinated with the principle of civilian control” and civilian institutions forced military
leaders into lower ranking positions.\textsuperscript{78} Beyond this systemic change, civilian leaders exhibited an early willingness to influence military operations. In the 1962 Sino-Indian War, India’s Prime Minister Jawaharlal Nehru and Minster of Defense Krishna Menon became involved in military planning. Nehru and Menon were instrumental in fashioning the military’s “forward policy” doctrine for the conflict. When the Indians lost the conflict, “the blame was laid on the doors of Nehru and Menon,” leading to the Menon’s resignation from office.\textsuperscript{79}

Although this experience led Indian civilians to withdraw from operational decision-making in conventional conflict, civilian involvement in military affairs is further demonstrated by the use of military forces for domestic purposes. In India, nonmilitary functions such as the maintenance of law and order, essential services, natural disaster response, and counterinsurgency operations are frequently conducted by military forces. With the exception of natural disaster response, these tasks are considered extremely unpopular with military forces, especially providing the maintenance of essential services. The immediate responsibility for these functions falls under the jurisdiction of state governments and local police, but civilians often direct the military into assisting in these roles.\textsuperscript{80}

In sum, the extensive history of civilian involvement in military affairs suggests that India’s military experienced low levels of pre-nuclear military autonomy. The expected relationship with command in control is that this decrease in military autonomy will correlate

\textsuperscript{78} For this statement and details on institutional changes, see Stephen P. Cohen, \textit{The Indian Army: Its Contribution to the Development of a Nation} (Berkeley: University of California Press: 1971), pp. 170-177.

\textsuperscript{79} Pant, p. 243. Although Nehru and Menon received a large part of the blame for the failure in the border conflict with China, some more recent accounts suggest that civilian decision-making was not as damaging to the effort as previously thought. For such an argument, see Srinath Raghavan, “Civil-Military Relations in India: The China Crisis and After,” \textit{The Journal of Strategic Studies}, Vol. 32, No. 1 (February 2009), pp. 397-446.

\textsuperscript{80} For a discussion on the use of India’s military in nonmilitary functions and the military’s response, see P.R. Chari, “Civil-Military Relations in India,” \textit{Armed Forces and Society}, Vol. 4, No. 3 (October 1977), pp. 18-19.
with a decrease in delegative control. Given India’s highly assertive control, this relationship appears to hold.

H2: Civil-Military Relations Stability

This hypothesis asserts that an increase in civil-military relations stability leads to an increase in delegative control. To test this, the number of coup attempts serves as an indicator of stability. In the case of India, this variable is easy to measure: no military coups have been attempted. After the loss to China in the 1962 border war, Nehru and Menon began to worry about the potential for a coup. The embarrassing performance in the war, combined with military takeover in neighboring Pakistan, increased civilian fears of military action. Despite these troublesome conditions, however, no coup attempts were made, and no attempt has been made since. The degree of civil-military relations stability is thus very high in the case of India. The outcome of assertive control, however, runs counter to the prediction made in the framework. If this hypothesis is valid, the extremely stable state of Indian civil-military relations should produce highly delegative control. Exactly the opposite result obtains, though, casting serious doubt upon the viability of the civil-military relations stability hypothesis.

H3a: Perceptions about the Likelihood of War—Relative Power

This proposition is one implication of the claim that an increase in perceived likelihood of war leads to a decrease in delegative control. Specifically, this hypothesis tests the effect of relative power on command and control patterns. This hypothesis claims that an increase in a state’s relative power should lead to a decrease in delegative control. In the Indian context,
measuring relative power must be done with China and Pakistan in mind; India’s nuclear arsenal must serve the dual purpose of simultaneously deterring both countries.

Figure 1. Relative Power Comparison of India, China, and Pakistan

The above graph demonstrates a clear trend: India has maintained a relatively consistent relative power advantage over Pakistan, but has also experienced worsening relative power condition as compared to China. By purely material standards, China poses a higher threat to India than does Pakistan. According to the power hypothesis, this decrease in relative power should correlate with an increase in delegative control. In practice, however, the opposite result is observed. Despite India’s relative power disadvantage, it still maintains a highly assertive command and control system. This evaluation significantly weakens the relative power

82 CINC data is only available through 2007.
hypothesis, but there is an obvious omission: the influence of Pakistan. Although Pakistan is weaker than India by the metric employed, the two nations have nevertheless experienced a long series of destabilizing conflicts.\(^{83}\) Certainly, this relationship must be taken into account.

Keeping in mind that relative power serves as an indicator of time-urgency, the increase in fear generated by uncertainty about Pakistani intentions can be said to affect command and control systems in the same way as relative power differentials. In other words, the perception that Pakistan has hostile intentions only serves to increase time-urgency concerns. The current model predicts that such an increase in time-urgency should increase delegative control, but once again, assertive control is maintained. In sum, even when accounting for potentially threatening intentions of a materially inferior adversary and a relative power disadvantage when compared to China, India’s command and control systems remain assertively controlled. This finding stands in direct contrast to the predictions presented in the framework.

\(\text{H3b: Perceptions about the Likelihood of War—Geographic Proximity}\)

This hypothesis predicts that as a state’s nuclear adversaries become more geographically proximate, delegative control will increase. Because the nearness of nuclear rivals increases the chance for decapitation and preemption (and thus increases time-urgency), states are claimed to prefer delegation as an effort to increase survivability. The Indian case, however, shows no such relationship. China and Pakistan could not be any more proximate to India; both Indian-centered dyads involve shared borders. Despite this nearness, India’s assertive control persists. This relationship clearly fails the most-likely test. India is clearly an assertively controlled state and the value of geographic proximity could not be more extreme, but the proposed relationship does

not hold up to the most basic of tests. In short, the geographic proximity explanation proposed in
the above framework is unable to account for command and control patterns.

**H4a: Vulnerability—Diversification**

The diversification hypothesis suggests that an increase in nuclear force diversification
leads to a decrease in delegative control by increasing force survivability and decreasing time-
egency. If this hypothesis is correct, then it should be observed that India has a largely
diversified nuclear arsenal. The reality, however, is that India’s nuclear program is heavily
concentrated in air-based delivery systems. While India’s land and sea-based delivery systems
are being developed, its “Fighter bombers constitute the only fully operational leg.”
Although
the framework predicts this lack of diversification should increase delegative control to facilitate
survivability of nuclear forces, India shows the opposite behavior. Even though land and sea-
based capabilities have not been fully operationalized, India maintains highly assertive control. It
is worth briefly noting that recent developments in India’s nuclear arsenal, are aiming to develop
a diversified nuclear force structure. The implications of the potential advancement of delivery
platforms are discussed in the next section. The primary conclusion here, however, is that the
diversification hypothesis developed from Feaver’s framework fails to explain India’s assertive
command and control behavior.

**H4b: Vulnerability—Geographic Depth**

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This hypothesis claims that an increase in geographic depth leads to a decrease in delegative control. Because a state can deploy its nuclear forces across a wide range of territory, an increase in geographic depth increases the survivability of nuclear forces and decreases the need to delegate command authority to military personnel. India has total area of 3,287,263 square kilometers, placing it as the seventh largest country in the world by measure of territory.\(^8^6\) Although classifying a country’s geographic depth as high or low can be difficult, India’s large size clearly warrants a characterization of high geographic depth. This relationship matches the prediction proposed in Feaver’s framework: a high level of geographic depth and assertive control are simultaneously observed.

**H5: Strategic Rationale**

The final hypothesis drawn from Feaver’s framework indicates that an increase in strategic preference for responsiveness generates an increase in delegative command. If a nuclear doctrine is available and specifies a responsive purpose of nuclear weapons, then that country is more likely to exercise delegative control. Evidence from India corroborates this claim. In 2003, India explicitly stated a “non-first use” policy\(^8^7\) and assumed an “assured retaliation” posture.\(^8^8\) An assured retaliation posture is highly defensive in nature; it seeks to deter nuclear aggression by ensuring a second-strike capability. In a non-first use, assured retaliation posture, command and control systems are highly assertive. Because civilian leaders favor the “never” component of the always/never dilemma and deploy nuclear weapons only for retaliatory purposes, civilians

\(^8^7\) For details on India’s non-first use policy, see Narang, “Posturing for Peace?” p. 46; Pant, p. 249.
\(^8^8\) Narang, “Posturing for Peace” pp. 46-47. For details on postures available to regional nuclear powers, see Narang, “Posturing for Peace?” For details on postures typically associated with Cold War-era nuclear powers, see Glaser, *Analyzing Strategic Nuclear Policy*, pp. 50-55.
maintain a significant amount of control over nuclear decisions and capabilities. India’s emphasis on second-strike capabilities over offensively oriented posturing correlates strongly with India’s assertive control patterns and supports the proposed strategic rationale hypothesis.

RESULTS AND ANALYSIS

The preceding analysis has divided the framework’s hypotheses into two groups. The first group of hypotheses are rejected upon application of empirical evidence. This group contains the hypotheses on civil-military relations stability (H2), relative power (H3a), geographic proximity (H3b), and diversification of delivery systems (H4a). Most importantly, each of these hypotheses failed to pass a most-likely test. For all of these potential explanations, the independent variables assumed clearly high or low values in relation to a command and control structure clearly characterized by assertive control.

One observation from these rejected hypotheses deserves further attention. The diversification of delivery systems hypothesis (H4a) can be reformulated into a testable implication of the explanation provided here for future research. Based upon the evidence presented in this essay, it should be observed that an increase in nuclear force diversification leads to an increase in delegative control. This is significant in the Indian context because, as was previously noted, the country is actively pursuing the development of land and sea-based nuclear forces. For instance, the Agni V—India’s newest ballistic missile—appears to be the centerpiece of India’s new land-based forces. Its range “can reach any target in China; however, the missile needs more testing and is still several years away from operational deployment.”

India is currently pursuing “a nuclear-powered ballistic missile submarine and a ship-launched ballistic missile.”\textsuperscript{90} If the explanation provided in this essay is correct, then future research should be able to demonstrate that the incorporation of these delivery systems into India’s nuclear forces should be accompanied by an increase in delegative control patterns.

The second group of hypotheses passed the initial tests conducted in this paper. In particular, this group contains the hypotheses regarding military autonomy ($H1$), geographic depth ($H4b$), and strategic rationale ($H5$). This set of explanations, however, can only be shown as a correlative statements given the current analysis. In order to strengthen the claims made here, the project investigates the relationship between these factors and command and control patterns. The results of this analysis show that strategic rationale and the pre-nuclear pattern of civil-military relations provide the most compelling explanations for command and control systems in India. Geographic depth, however, is unconvincing as a causal factor of a state’s command and control structure. More specifically, geographic depth is revealed to be a permissive condition under which decisions about command and control are made.

\textit{Geographic Depth}

Although geographic depth correlates with delegative control in the manner predicted by Feaver’s framework, it should not be considered a directly causal factor of command and control patterns based upon the evidence provided here. In the case of India, geographic depth plays a role as a permissive cause of command and control decisions. The key claim of this hypothesis is that a state with low geographic depth will have more delegative control patterns. The argument’s reasoning is simple: without a high level of geographic depth, a state cannot afford to

\textsuperscript{90} Ibid., p. 99.
exercise the highly centralized capacities associated with assertive control because these structures are highly vulnerable to decapitation and preemption. Although this assertion is valid, inverting the argument does not allow the claim to hold. Specifically, the claim that an increase in geographic depth leads to more assertive control is not necessarily true. If a state’s strategic rationale is offensively oriented, for instance, the defensive advantages of geographic depth may not be exploited. In short, assertive control is greatly inhibited in the absence of geographic depth, but is not caused by high levels of depth. Instead, geographic depth provides a permissive environment within which a state can exercise assertive control.

Strategic Rationale

Strategic rationale also performed in the manner anticipated by Feaver’s framework when tested against the Indian case. This hypothesis offers a unique point at which the nuclear proliferation and posture literatures can be united. If strategic rationale guides decisions about nuclear posture, it must also guide decisions about nuclear proliferation. This hypothesis assumes that nuclear weapons are not randomly acquired, but rather that they are developed and deployed for a specific purpose. The remarkable consistency in India’s nuclear behavior and doctrine since its 1998 tests suggests that the non-first use, retaliatory nature of India’s arsenal is a reliable indicator of India’s strategic purpose. Put more simply, India’s assured retaliation posture is a result of its strategic rationale for defensive ends and practicing assertive control is a necessary component of this posture.

Pre-Nuclear Civil-Military Relations

The last factor that yielded results consistent with Feaver’s framework is the pre-nuclear state of civil-military relations within a country. The similarities observed between conventional and nuclear civilian control are striking. In both contexts, civilians established institutions and regulations that reduced the influence of the military and centralized civilian authority. If any difference should be noted, it is that civilian control over nuclear matters appears to be even stronger than in the conventional sphere.\(^92\) Command and control systems are a critical point at which civilians are able to exercise their authority over nuclear operations. The evidence provided here shows that India’s civilian leadership has taken advantage of the opportunity to restrict the military’s influence at these nodes by institutionalizing their preferences in a manner consistent with the predictions of the framework provided here.\(^93\)

Conclusions

The central question addressed in this paper was: what factors affect command and control systems in emerging nuclear nations? To evaluate this question, Peter Feaver’s propositions regarding the nature of civil-military relations and time-urgency were developed into a set of seven testable hypotheses and evaluated using evidence from India’s nuclear program. Through empirical analysis, this essay demonstrated that a state’s strategic rationale and pre-nuclear state of civil-military relations are the two most significant factors in explaining a state’s command and control patterns.

\(^92\) India’s civil-military relations in the conventional realm strongly resembles Janowitz’s conception of a “constabulary force.” See Janowitz, p. 418. India’s civil-military relations in the nuclear sphere appear to be even more assertive, resembling the model presented in Cohen, Supreme Command.

\(^93\) For an explanation of how the institutionalization of preference occurs, see Jack Knight, Institutions and Social Conflict (New York: Cambridge University Press, 1992).
Because India serves as a most-likely case for the framework developed here, the hypotheses that failed to explain India’s command and control systems can be rejected with confidence. Although these factors may be present in other contexts, their failure to pass the tests presented here suggests that any correlation is likely to be spurious. Future research, however, should investigate whether the strategic rationale and pre-nuclear civil-military relations explanations hold in separate contexts. Most-likely cases are useful for rejecting extraneous explanations, but only provide a minimum threshold for a more compelling explanation to surpass. As additional information becomes available on the nuclear behavior of other states, these two explanations should serve as a point of departure for attempting to explain the sources of command and control structures. Conducting such research promises to yield a more general explanation of why states acquire nuclear weapons and, perhaps more importantly, how states behave once they possess a nuclear arsenal.