

Nuclear Nonproliferation Treaty Effectiveness Critical Analysis

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Introduction

The Nuclear Non-Proliferation Treaty (NPT) remains the central multilateral framework for limiting the spread of nuclear weapons, supporting peaceful nuclear cooperation under safeguards, and pursuing nuclear disarmament. Matthew Fuhrmann and Yonatan Lupu's study asks a narrower but important question: does joining the NPT actually reduce the probability that a state will pursue nuclear weapons, or do states that already prefer to remain non-nuclear simply select into the treaty? Their research addresses this causal-inference problem by estimating states' general preferences toward international treaty commitments, matching states with similar likelihoods of joining, and then testing whether NPT ratification is associated with lower nuclear-weapons pursuit (Fuhrmann & Lupu, 2016). The study finds evidence supporting a treaty effect, but current developments show why effectiveness should not be treated as complete success. The NPT had 191 states parties in the 2026 review cycle, yet the Eleventh Review Conference ended on May 22, 2026 without consensus on a substantive outcome amid continuing disagreements over disarmament, proliferation, safeguards, regional security, and treaty implementation (United Nations, 2026).

The NPT's Structure and the Effectiveness Question

The NPT entered into force in 1970 and rests on three interconnected pillars: non-proliferation, peaceful uses of nuclear energy, and disarmament. Non-nuclear-weapon states accept obligations not to acquire nuclear weapons and conclude safeguards agreements with the International Atomic Energy Agency, while the treaty recognizes five nuclear-weapon states according to a historical cutoff. This asymmetry has always affected perceptions of legitimacy. Supporters argue that the treaty created a widely accepted legal norm against new nuclear-weapon programs and a verification system that makes diversion more difficult. Critics emphasize that the recognized nuclear powers retain arsenals while demanding restraint from others and argue that progress under Article VI has been insufficient. Treaty effectiveness therefore has more than one dimension. A regime can reduce the number of new proliferators while still face criticism over disarmament, unequal obligations, enforcement, or regional exceptions. Fuhrmann and Lupu focus primarily on the first dimension:

whether ratification changes state behavior with respect to nuclear-weapons pursuit rather than whether every part of the NPT bargain has been fulfilled equally.

Selection Bias and Fuhrmann and Lupu's Research Design

The central methodological problem is that treaty membership is voluntary. States do not randomly enter the NPT. A government that already considers nuclear weapons unnecessary may be more likely to ratify, while a government facing severe threats or valuing an independent nuclear option may delay or avoid commitment. Comparing all members with all nonmembers would therefore risk mistaking pre-existing preferences for a causal treaty effect. Fuhrmann and Lupu address this through a multi-stage observational design. They use patterns of participation in other universal treaties to estimate states' underlying willingness to accept international legal commitments, then match states with similar estimated preferences and apply statistical models to examine later nuclear pursuit (Fuhrmann & Lupu, 2016). This design cannot reproduce a randomized experiment or observe secret intentions perfectly, but it strengthens the comparison by making treaty members and nonmembers more similar before estimating the effect. Their results support the conclusion that NPT ratification reduces the probability of nuclear-weapons pursuit rather than merely identifying states that never intended to proliferate.

How the NPT Can Influence State Behavior

A treaty can affect behavior even in an international system without a central government because legal commitments change incentives, information, domestic politics, and diplomatic relationships. Ratification creates a standard that national bureaucracies, legislatures, courts, allies, suppliers, and international organizations can invoke. Safeguards provide information about declared nuclear material and create opportunities for verification, while violations can generate diplomatic costs, sanctions, loss of technical cooperation, or reputational damage. Membership can also reassure neighboring states and reduce pressure for reciprocal proliferation when commitments appear credible. None of these mechanisms guarantees compliance. Governments that perceive nuclear weapons as essential to survival may conceal activities, restrict inspectors, withdraw from the treaty, or accept substantial costs. The value of the NPT is therefore probabilistic rather than absolute. A legal regime can make proliferation less attractive, more detectable, or more costly without eliminating every case. Fuhrmann and Lupu's findings are important precisely because they suggest that those institutional effects remain visible even after accounting for part of the selection process that brings states into the treaty.

Hard Cases, Verification, and Treaty Limits

The non-proliferation regime contains cases that illustrate both its importance and its limits. India, Israel, and Pakistan remained outside the NPT and developed nuclear weapons. North Korea joined, announced withdrawal, and subsequently tested nuclear devices. Other states pursued sensitive or prohibited activities while formally within international arrangements, demonstrating that membership alone cannot substitute for effective verification and diplomacy. Safeguards also depend on access, declarations, technical monitoring, and cooperation. A comprehensive safeguards agreement provides important oversight, while an Additional Protocol can expand the IAEA's ability to obtain information and access relevant locations. Security guarantees, regional rivalries, leadership decisions, scientific capacity, and domestic institutions continue to influence proliferation choices alongside treaty commitments. These examples do not necessarily contradict an average treaty effect. An institution can reduce overall risk while failing in particular cases. They do show why policymakers should avoid treating legal membership as proof that proliferation concerns have disappeared. The NPT works as part of a broader system that includes safeguards, export controls, alliances, intelligence, diplomacy, sanctions, and regional security arrangements.

The 2026 Review Conference and Contemporary Legitimacy

The Eleventh NPT Review Conference met in New York from April 27 to May 22, 2026 to assess implementation since the previous review cycle. The conference ended without a consensus substantive outcome, continuing a pattern in which the 2015 and 2022 review conferences had also failed to agree on final substantive language (United Nations, 2026). Failure to reach consensus does not terminate the treaty or erase its legal obligations, but it reveals persistent political disagreement. States parties continue to debate the pace of nuclear disarmament, modernization of arsenals, security assurances, safeguards, peaceful nuclear cooperation, regional nuclear risks, and withdrawal from the treaty. These disagreements matter for effectiveness because compliance is strengthened when participants regard the overall bargain as legitimate. Non-nuclear states may become less willing to accept indefinite restraint if they believe nuclear powers treat disarmament commitments as secondary, while nuclear-weapon states emphasize changing security conditions and deterrence. Institutional effectiveness therefore depends not only on preventing new weapons programs but also on sustaining confidence that all three treaty pillars remain meaningful.

Conclusion

Fuhrmann and Lupu provide strong evidence that the NPT has an independent non-proliferation effect: after addressing some of the selection process that makes particular states more likely to join, ratification is still associated with a reduced probability of nuclear-weapons pursuit. That finding

supports the argument that international treaties can influence state behavior through legal commitment, verification, reputation, domestic institutions, and diplomatic costs. It does not mean that the NPT prevents every proliferation attempt or that the broader nuclear order is politically settled. The 2026 Review Conference ended without consensus, showing continuing disagreement over disarmament, safeguards, regional security, peaceful use, and the durability of the treaty bargain (United Nations, 2026). The fairest assessment is therefore that the NPT is effective but incomplete. It has helped establish a nearly universal norm and institutional structure against proliferation while remaining vulnerable to exceptional cases, verification limits, unequal capabilities, and disputes over whether nuclear-weapon states are fulfilling their own commitments. Strengthening the regime requires attention to both compliance and legitimacy.

References

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