Geopolitical Coercion, Commitment, and Reputation: A Game-Theoretic Analysis of US Strategy Toward Venezuela

Bipul De

Associate Professor, Department of Economics, Netaji Nagar College for Women, Kolkata-700092, West Bengal, India

Abstract

This paper develops a stylized game-theoretic framework to analyze geopolitical coercion as a problem of commitment, credibility, and reputation in repeated strategic interaction. Motivated by recent tensions between the United States and Venezuela, the model conceptualizes coercive actions as commitment devices that alter beliefs, restructure payoffs, and generate spillovers across interconnected geopolitical arenas. By formalizing the interaction as a sequential and repeated game, the paper demonstrates how costly coercive strategies may remain rational for a dominant actor, while resistance can persist as an equilibrium outcome for a weaker state when future autonomy and reputation are sufficiently valued. The analysis contributes to the political economy of conflict by integrating economic coercion, reputation dynamics, and alliance responses within a unified strategic framework.

Keywords: Geopolitical coercion, Game Theory, Commitment, Reputation, Sanctions, Political Economy

1. Introduction

Contemporary geopolitical conflicts increasingly unfold through coercive diplomacy, economic sanctions, strategic signaling, and alliance-based deterrence rather than conventional warfare. These instruments are not deployed merely to extract immediate concessions, but to shape beliefs, signal resolve, and project credibility across multiple strategic arenas. Such actions are inherently forward-looking: they are designed to influence future bargaining environments by demonstrating commitment and a willingness to incur costs. Understanding these dynamics requires analytical frameworks capable of capturing inter-temporal strategic interaction, reputational effects, and endogenous shifts in payoffs, core concerns of game theory. While international relations and political economy scholarship offers extensive insights into sanctions, deterrence, and alliance behavior, much of this work treats geopolitical disputes as isolated strategic episodes or focuses primarily on observable outcomes such as economic contraction or military escalation. Comparatively less attention has been devoted to the strategic interdependence of coercive actions across contexts, specifically how commitments made in one confrontation reshape incentives, expectations, and equilibrium behavior in others. As a result, existing approaches provide limited formal explanation for the persistence of costly confrontations absent immediate gains, the rapid consolidation of alliances, and the instability of contemporary deterrence equilibrium.

This paper addresses this limitation by developing a stylized game-theoretic framework that conceptualizes geopolitical coercion as a sequential and repeated strategic interaction. Using recent U.S.–

Venezuela tensions as a motivating context, coercive actions are modeled as commitment devices that enhance credibility and generate reputation spillovers across strategic arenas. Through belief updating and endogenous alliance responses, these commitments transform subsequent payoff structures and equilibrium outcomes. By formalizing these mechanisms, the paper provides a coherent explanation for persistent coercion, alliance reconfiguration, and the dynamic evolution of modern deterrence.

2. Literature Positioning, Research Gap, and Contribution

The strategic foundations of this paper build on a large literature in international political economy and formal international relations. Classical contributions emphasize commitment problems, credibility, and coercive bargaining in international conflict (Schelling, 1960, 1966; Fearon, 1995, 1997; Powell, 2006). These studies show how war, sanctions, and military escalation function as costly signals and commitment devices in environments characterized by anarchy and incomplete contracting. Parallel work in political economy analyzes economic statecraft and sanctions as instruments of influence operating through material costs and incentive manipulation (Baldwin, 1985; Gowa, 1994). A further strand examines how institutional environments and alliances shape strategic interaction, often treating alliances as constraints that modify the distribution of power and expected payoffs (Lake and Powell, 1999; Walt, 1987; Leeds, 2003).

While this literature provides deep insight into coercion, deterrence, and alliance behavior, three gaps remain. First, most formal models analyze geopolitical confrontations as isolated games, abstracting from how actions in one arena reshape beliefs, payoff structures, and equilibrium selection in others. Although reputation is central to Fearon (1997) and Mailath and Samuelson (2006), explicitly interconnected geopolitical games in which outcomes endogenously transform subsequent strategic environments remain underdeveloped. Second, political economy analyses of sanctions and coercive diplomacy typically focus on effectiveness and observable outcomes rather than on the strategic architecture through which coercion alters credibility, commitment, and long-run bargaining positions (Baldwin, 1985; Gowa, 1994). Third, alliance formation is usually modeled as exogenous or institutional background, with comparatively little formal work conceptualizing alliances as endogenous instruments deliberately employed in response to coercive signaling to restructure deterrence equilibrium (Leeds, 2003; Lake and Powell, 1999).

This paper contributes to these literatures by developing an integrated game-theoretic framework that links coercion, reputation spillovers, and alliance-based payoff transformation across interconnected geopolitical interactions. Unlike existing models that focus on single disputes, the analysis conceptualizes coercive acts as commitment technologies that operate across games by endogenously reshaping future payoff matrices through belief updating and alliance responses. The core contribution is to formalize how costly confrontations can persist not only because of bilateral incentives, but because they strategically reconfigure the structure of subsequent bargaining environments.

3. Objectives and Significance of the Study

The objectives of this study are to: (i) develop a formal game-theoretic representation of coercive diplomacy as a commitment problem; (ii) analyze the role of repeated interaction and reputation in linking distinct geopolitical games; and (iii) conceptualize alliance formation as an endogenous payoff-altering mechanism.

The study is theoretically significant in extending commitment and deterrence models to an explicitly interconnected geopolitical setting. Methodologically, it demonstrates how stylized strategic games can be systematically employed to translate qualitative geopolitical developments into formal analytical structures. From a political economy perspective, it situates coercion, markets, and alliances within a unified strategic framework, providing a foundation for future empirical and formal research on economic statecraft and geopolitical competition.

4. Game Theory Framework: Strategic Interaction

Key Players

U.S. government (seeking strategic security positioning and political/economic leverage) and Venezuela (seeking survival and sovereignty

We can use basic game theory concepts like *strategic games*, *payoff matrices*, *commitment strategies*, and *credibility of threats*.

US–Venezuela as a Strategic Game

To formalize the strategic interaction between the United States and Venezuela, it is first necessary to identify the principal actors and clarify their underlying objectives. In strategic games, outcomes are shaped not merely by actions but by the preferences and constraints of each player. These preferences determine feasible strategies, expectations, and the structure of payoffs. Table 2 summarizes the core objectives of the key players involved in the U.S.–Venezuela interaction, highlighting the asymmetry in power, incentives, and risk tolerance.

Table 1: Players' Core Preferences

Player	Main Objective
US	Reduce perceived threats, control oil leverage, project power
Venezuela	Maintain sovereignty, avoid regime collapse
Third party	Minimize instability, enforce norms

As shown in Table 1, the interaction is characterized by fundamentally divergent objectives. The United States prioritizes strategic security, control over energy leverage, and power projection, while Venezuela's primary concern is regime survival and the preservation of sovereignty. The presence of third-party actors—such as international institutions and allied states—adds an external stabilizing constraint but does not eliminate bilateral strategic tension. This divergence in objectives creates the conditions for strategic commitment, coercion, and conflict escalation, which can be formally examined through a payoff structure.

5. Game Theory Concepts at Play

The framework is illustrative, not a factual account of events. Given the stated preferences of the players, the strategic interaction can be represented through a simplified payoff matrix. The United States chooses between coercive and non-coercive strategies, while Venezuela responds by either yielding or resisting. The resulting payoffs reflect relative gains and losses rather than absolute economic values, consistent with standard game-theoretic modeling of international conflict.

Table 2: The Simplified Payoff Structure

U.S. / Venezuela	Yield	Resist
Coerce	Moderate U.S. payoff (economic leverage), Moderate Venezuelan loss	High U.S. cost (conflict), High Venezuelan loss
No Coerce	Low U.S. leverage Normal relations	Status quo (no conflict)

The payoff structure in Table 2 illustrates why coercion emerges as a rational strategy for the United States despite its high costs. While resistance imposes severe losses on Venezuela, coercion allows the U.S. to secure strategic leverage even when conflict costs are significant. The observed outcome—U.S. coercion met with Venezuelan resistance—corresponds to a high-cost equilibrium that is nevertheless strategically acceptable to the U.S. if long-term gains, such as energy control or geopolitical influence, outweigh immediate losses. This reinforces the interpretation of the interaction as a sequential game driven by commitment credibility rather than cooperative bargaining.
The U.S. chose *Coerce*, Venezuela chose *Resist* — yielding a high-cost outcome for both but acceptable to the U.S. if strategic gains (oil control, regime change) outweigh costs.

6. US–Venezuela: Coercion as a Sequential / Repeated Game

6.1 One-shot strategic form

Players-
US: Coerce (C) or Not Coerce (N)
Venezuela: Yield (Y) or Resist (R)

Table 3: Simplified Payoff Matrix

	Venezuela: Yield (Y)	Venezuela: Resist (R)
US: Coerce (C)	(+4 , −4)	(−2 , −6)
US: Not Coerce (N)	(+1 , −1)	(0 , 0)

Table 3 presents a simplified payoff matrix capturing the strategic choices available to both players. The numerical payoffs are ordinal and illustrative, representing relative gains and losses rather than precise economic magnitudes. They are constructed to reflect asymmetries in power, cost-bearing capacity, and strategic leverage. While the United States faces non-trivial costs under coercive strategies, Venezuela incurs disproportionately higher losses when resisting, reflecting its weaker economic and institutional position. To clarify the substantive meaning of these payoff combinations, Table 5 provides a qualitative interpretation of each outcome.

Table 4: Interpretation

(+4, −4)	US gains strategic control/leverage Venezuela loses sovereignty/resources
(−2, −6)	Conflict: costly for both, disastrous for Venezuela.
(+1, −1)	Negotiated adjustment without force.
(0,0)	Status quo

The interpretation in Table 4 highlights the strategic logic underlying the observed interaction. Coercion followed by yielding generates the highest relative payoff for the United States, while imposing significant sovereignty and resource losses on Venezuela. Resistance under coercion produces a mutually costly outcome, but one that is particularly damaging for Venezuela. In contrast, non-coercive strategies lead to lower but stable payoffs, corresponding to negotiated adjustment or maintenance of the status quo. Taken together, the payoff structure suggests why coercive strategies may remain credible and attractive to a dominant player, even when they entail high costs, thereby reinforcing a conflict-prone equilibrium driven by asymmetric power and commitment.

Nash-type intuition:

Given US coerces, Venezuela compares: −4 (Yield) vs. −6 (Resist) → Yield is less bad.
Given Venezuela resists, the US compares: −2 (Coerce) vs. 0 (Not) → Not coerce preferred,
The game is not simultaneous in reality. The US moved first and changed beliefs.
We therefore model the interaction as a two-stage extensive-form game with complete information, where the United States moves first by choosing a level of coercion, and Venezuela responds by yielding or resisting

6.2 Sequential game (backward-induction logic)

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US
 |
 ├── Not Coerce → (0, 0)
 |
 └── Coerce
 |
 ├── Venezuela Yields → (+4, −4)
 |
 └── Venezuela Resists → (−2, −6)
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Venezuela chooses Yield (−4 > −6).
Knowing this, the US compares: Not Coerce → 0, Coerce → +4
So the sub game-perfect equilibrium is: US Coerces → Venezuela Yields. But this only works if the threat is credible. Military action is a way to lock in the credibility of the “Coerce” branch.

6.3 Repeated game: why resistance can still occur

In reality, this is not one-shot; it’s a ‘repeated game’ with future payoffs discounted.
Let δ = discount factor ($0 < \delta < 1$), where, δ captures time horizon, patience, and strategic foresight The

discount factor captures the extent to which future political and economic autonomy is valued relative to immediate losses. When the discount factor is sufficiently high, resistance—despite being strictly dominated in a one-shot interaction—can emerge as a rational equilibrium strategy in a repeated setting.

Venezuela compares:

Yield now:

$-4+\delta(-2-2-2...)=-4-\frac{2\delta}{1-\delta}$

Resist now:

$-6+\delta(-1-1-1...)=-6-\frac{\delta}{1-\delta}$

If Venezuela believes long-term resistance improves future autonomy, then for high δ (future matters a lot), resistance can be rational. So the game can shift from a 'Short-run equilibrium: (Coerce, Yield)' to a 'Long-run struggle: (Coerce, Resist)'.

7. Concluding Observations

This paper applies a game-theoretic framework to analyze the strategic interaction between the United States and Venezuela, focusing on coercion, commitment, and credibility under asymmetric power conditions. By modeling the interaction as both a sequential and repeated game, the analysis demonstrates how coercive strategies can emerge as rational for a dominant actor when commitment is credible and short-run payoffs dominate decision-making. The simplified payoff structure highlights that, even under high conflict costs, coercion may remain an equilibrium outcome when strategic gains outweigh immediate losses.

The sequential game analysis identifies a sub game-perfect equilibrium in which credible coercion induces compliance, provided the threatening actor can effectively signal commitment. Institutional lock-in mechanisms serve this function by altering beliefs and constraining future strategic options. However, the repeated-game extension reveals why resistance can persist despite unfavorable short-run payoffs. When future autonomy, regime survival, or reputational considerations are sufficiently valued, resistance may become a rational long-run strategy for the weaker player..

Future research may extend this framework by incorporating incomplete information, domestic political constraints, or multi-player coalition dynamics. Empirical calibration using production data, sanctions effectiveness, or regime survival probabilities could further enhance the explanatory power of the model.

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