

Analyzing Presidential-Congressional Bargaining through a Game Theoretic Lens: Evidence from Argentina's 2023 Election

Abstract

We examine the strategic interaction between the Argentine presidency and a fragmented Congress after Javier Milei's 2023 election using noncooperative bargaining theory. The governance phase is modeled as a simultaneous game in which the President chooses Cooperate or Defect and Congress chooses Support or Oppose. We identify the pure strategy benchmark and derive the interior mixed strategy Nash equilibrium for the case $c > t$, where c is Congress's exploitation cost and t is the positive breakdown-cost magnitude. Comparative statics show that a higher exploitation cost raises the equilibrium probability of presidential cooperation, while a higher breakdown cost lowers presidential cooperation and raises congressional support. The combination can produce frequent but conflictual bargaining, which is compared with evidence from the first months of the Milei government.

Keywords: presidential-congressional bargaining, mixed strategy equilibrium, Argentine politics, coalition formation, Milei, game theory

1. Introduction

In political economy, game theory is now a fundamental tool of analysis of political institutions. The strategic contexts of presidential democracies in Latin America are especially complex, where elections, legislative negotiations, and policy selection all play complex roles [1][2]. To understand how institutional fragmentation affects outcomes, formal models are needed that capture strategic behavior of both executives and legislators.

Initial research on coalition politics focussed on the analysis of European parliamentary systems, applying the cooperation concepts of cores or related cooperative solutions to properties of coalitions. Minimal winning coalitions and connected coalitions were predicted by these approaches. Later, more formal theories have been formulated that have taken institutional and preference-based considerations into account, based on noncooperative equilibrium concepts [5][6]. Baron and Diermeier [7] built a comprehensive model, which combines elections, governments and parliaments in proportional representation (PR) systems.

The Argentine example after the November 2023 presidential election is an interesting challenge for these models. Javier Milei from the electoral coalition La Libertad Avanza won the presidency with 55.95 percent of the vote [8] but his party has so far only 38 of 257 seats in the Chamber of Deputies and 7 of 72 in the Senate [9]. The centre-left Union por la Patria has 108 Deputies and 33 Senators, the centre-right Juntos por el Cambio has 94 Deputies and 21 Senators. No one party has a legislative majority, leading to the classic situation of strategic bargaining [10][11].

The purpose of this paper is to apply insights from the parliamentary bargaining literature [5][6] to the Argentine presidential system. Section 2 defines the players, actions, and payoff parameters. Section 3 identifies the pure strategy conditions and derives the interior mixed strategy Nash equilibrium. Section 4 compares the model with political dynamics in Argentina. Section 5 presents comparative statics. Section 6 concludes.

2. Model Setup

2.1 Players

The governance stage is modeled as a simultaneous game with two players, the President as Player A and Congress as Player B. The President has two main options, Cooperate and Defect, while Congress has two options, Support and Oppose. The model treats their choices as simultaneous because each side must determine its position without knowing with certainty how the other side will act, which closely approximates the overlapping strategic decisions observed in actual political bargaining [10][11].

President Milei (player A) has private information about his actual reform intentions. He is a proponent of closing the central bank, complete dollarization and significant reductions in expenditure [8][12]. Even the congressional parties are in the dark about his true reservation point, that is, how far he is willing to go and on which issues he is not willing to budge [6][13].

The Argentine Congress (player B) is very divided. The distribution of seats after the legislative elections in October 2023 is shown in Table 1. The key swing partner is Juntos por el Cambio, which has 94 Deputies and 21 Senators, without which Milei would not be able to form a legislative majority for major reforms [9][10].

Table 1. The results of the 2023 elections are represented by the distribution of seats in Congress.

Coalition	Deputies (of 257)	Senators (of 72)
Union por la Patria (UP)	108	33
Juntos por el Cambio (JxC)	94	21
La Libertad Avanza (LLA)	38	7
Other small parties	17	11

2.2 Actions

The President has the option of choosing one of two pure strategies. Under Strategy C (Cooperate), the president would offer a limited reform package that would water down the most popular and polarizing pledges in favor of winning a congressional majority, which could be achieved by making concessions to centre-right parties in Congress. The idea of Strategy D (Defect) is to present a radical agenda with a program very similar to his ideal point, such as the immediate implementation of the central-bank closure and dollarization [12][14].

Congress has two pure strategies to choose from. Strategy S (Support) means to accept the president's proposals for law, giving the state a chance to go ahead with the reforms. Strategy O (Oppose) is to reject the proposals, which leads to a legislative deadlock and possible executive decrees [2][11].

2.3 Payoff Structure

The payoff matrix is determined by four positive parameters: B , the shared policy stake described below; c , the cost to Congress of being exploited; R , the reward to the President from cooperation; and t , the magnitude of the breakdown cost borne by both players. The model assumes $B > R > t > 0$ and $c > 0$. Because t is defined as a positive cost magnitude, the breakdown outcome assigns each player the negative payoff $-t$. The payoff matrix is given in Table 2.

Table 2. The payoff matrix of the game of Argentine governance.

	Congress: Support (q)	Congress: Oppose ($1 - q$)
President: Cooperate (p)	(R, B)	$(0, 0)$
President: Defect ($1 - p$)	$(B, -c)$	$(-t, -t)$

A deliberate modeling decision in this paper is to use the same parameter B in two distinct cells: as Congress's payoff for cooperating with a cooperative president (Cooperate, Support), and as the President's payoff for defecting against a supportive Congress (Defect, Support). This assumption could be relaxed by assigning separate parameters to the two cells, but a shared B is used here because the symmetry reflects a central feature of Argentine governance: the same legislative and cabinet resources that represent a benefit to Congress when used cooperatively can become a prize for the President when captured unilaterally. For example, control over budget allocations or key ministry appointments yields value to both actors; whether that value is shared or seized depends on the President's strategy. Thus, B captures the total governance prize, obtained by Congress under cooperation and by the President under defection.

For Congress, B captures benefits from supporting a cooperative presidential agenda, including cabinet

positions, policy influence, and control over legislation [5][15]. Juntos por el Cambio can translate a moderate Milei agenda into policies closer to its own preferences while helping to avoid extreme shocks [10][16]. Parameter c is the electoral and policy cost that Congress incurs when it supports a defecting President. If Juntos por el Cambio backs Milei and the President then pursues an extreme program, the coalition may pay a high political price at the polls [16][17]. Parameter R captures the President's reward from genuine cooperation, including policy implementation, government functionality, and international credibility. Economic stabilization can generate substantial political capital during Argentina's most severe economic crisis in twenty years [18][19]. Parameter t is the positive magnitude of the symmetric breakdown cost, including legislative paralysis, investor panic, and the risk of another economic collapse [19][20]. The institutional anchors of each parameter are summarized in Table 3.

Table 3. Parameter Summary with Institutional Anchors.

Param	Description	Argentine Anchor
B	Shared policy stake from successful legislative action	Policy influence for Congress and legislative gains for the President
c	Electoral loss to Congress if the president succumbs to radical ideas	Electoral penalty for supporting an unsuccessful radical reform
R	Reward to the president from stable cooperative governance	Political capital from economic stabilization
t	Symmetric cost due to government meltdown	Risk of a rerun of the 2001 economic meltdown

3. Pure and Mixed Strategy Nash Equilibrium Analysis

3.1 Pure Strategy Equilibrium Check

The best responses depend on c relative to t . If $c > t$, Congress prefers Oppose after presidential defection because $-t > -c$. Combined with the other best responses, this produces a cycle and no pure strategy Nash equilibrium exists. If $c < t$, Congress prefers Support after defection because $-c > -t$, so Defect and Support is a pure strategy Nash equilibrium. At $c = t$, Congress is indifferent between Support and Oppose after defection, and Defect and Support is a weak pure strategy equilibrium. The interior mixed strategy analyzed below therefore requires $c > t$.

Under $c > t$, the absence of a pure strategy equilibrium motivates an interior mixed strategy analysis. Let p denote the probability that the President chooses Cooperate and q denote the probability that Congress chooses Support. Each player chooses a mixing probability that makes the other player indifferent between its two pure strategies.

3.2 Derivation of p^*

To make Congress indifferent, the expected payoff from Support must equal the expected payoff from Oppose. Equations (1) and (2) give these expected payoffs.

$$E[\text{Support}] = p \cdot B + (1 - p)(-c) = p(B + c) - c \quad (1)$$

$$E[\text{Oppose}] = p \cdot 0 + (1 - p)(-t) = -(1 - p)t \quad (2)$$

Equating (1) and (2) and solving:

$$p(B + c - t) = c - t$$

The equilibrium probability of presidential cooperation is provided by Equation (3).

$$p^* = (c - t) / (B + c - t) \quad (3)$$

3.3 Derivation of q^*

To make the President indifferent, the expected payoff from Cooperate must equal the expected payoff from Defect. Equations (4) and (5) give these expected payoffs.

$$E[\text{Cooperate}] = q \cdot R + (1 - q) \cdot 0 = qR \quad (4)$$

$$E[\text{Defect}] = q \cdot B + (1 - q)(-t) = q(B + t) - t \quad (5)$$

Equating Equation (4) to (5) and solving:

$$q(R - B - t) = -t$$

The equilibrium probability of congressional support is given by Equation (6).

$$q^* = t / (B + t - R) \quad (6)$$

3.4 Equilibrium Summary

For $c > t$, the interior mixed strategy Nash equilibrium of the Argentine governance game is summarized in Table 4.

Table 4. Interior mixed strategy Nash equilibrium when $c > t$.

Equilibrium Value	Formula	Determined by
p^* (President cooperates)	$(c - t) / (B + c - t)$	Congress's indifference condition
q^* (Congress supports)	$t / (B + t - R)$	President's indifference condition

4. Evidence of Argentine outcomes

4.1 Argentina's Parameter Profile

Argentina's parameter profile reflects strong and partly offsetting incentives. B is high because passing major legislation gives both the President and pivotal legislators substantial policy stakes. Parameter c is also high because a congressional bloc that supports a radical program and is then politically exposed may suffer a severe electoral penalty [16][17]. Parameter R is moderate because Milei was elected on an anti establishment platform and extensive compromise may disappoint his base [8][14]. Parameter t is extremely high because prolonged legislative paralysis or policy failure could intensify Argentina's economic crisis and evoke the experience of 2001 [19][20].

4.2 Predictions of equilibrium versus empirical results

Within the interior mixed equilibrium, a higher c raises p^* , meaning a greater probability that the President cooperates, while a higher t lowers p^* and raises q^* . The net level of presidential cooperation therefore depends on the relative magnitudes of these opposing effects. The model predicts sustained strategic tension rather than an unqualified increase in cooperation.

These predictions are supported by the empirical evidence. Milei's victory speech had two messages: one of defection, with his message that there was no room for half-measures, and one of cooperation, with his thanking Juntos por el Cambio [8][10]. The limited number of legislators in Milei's own bloc (38 Deputies and 7 Senators), together with the many legislators outside LLA, makes it virtually impossible for Milei to act unilaterally [9][11]. Closing the central bank, which is what Milei said would be untouchable [12], would be almost impossible without a full vote from Juntos por el Cambio, which is not a proponent of dollarization. As pivotal actor, Juntos por el Cambio is not fully aligned with Milei (incurring the c risk) nor fully opposed to him (incurring the t cost), but rather is in an intermediate q^* , as predicted by Equation (6) [10][16].

5. Comparative Statics Analysis

Table 5 reports how the interior equilibrium probabilities change with each parameter when $c > t$. The signs follow from $p^* = (c - t) / (B + c - t)$ and $q^* = t / (B + t - R)$, together with the assumption $B > R > t > 0$.

Table 5. The Mixed Strategy Equilibrium in the context of Comparative Statics.

Parameter increases	Effect on p^*	Effect on q^*	Institutional interpretation
B rises	Falls	Falls	A larger policy prize makes unilateral capture more attractive for the President and shared cooperation more valuable for Congress, so the equilibrium tendency to choose cooperation/support falls for each side.
c rises	Rises	No effect	Higher exploitation cost makes Congress reluctant to support defection, so the President must cooperate more often. Since c does

Parameter increases	Effect on p^*	Effect on q^*	Institutional interpretation
			not enter the President's payoff, q^* is unaffected
R rises	No effect	Rises	Higher cooperative reward makes the President prefer cooperation, so Congress must support more often to restore indifference. Since R does not enter Congress's payoff, p^* is unaffected
t rises	Falls	Rises	Higher breakdown cost makes opposition more painful, raising congressional support (q^*). This makes presidential defection more attractive, so less cooperation (p^*) is needed to keep Congress indifferent

The revised comparative statics show that t has opposite effects on the two equilibrium probabilities. A higher t lowers p^* and raises q^* . Congress supports more often because opposition followed by presidential defection produces the costly breakdown outcome. At the same time, the higher support probability makes presidential defection more attractive, so the cooperation probability required to keep Congress indifferent falls. Parameter c works in the other direction on p^* : a higher exploitation cost requires a higher probability of presidential cooperation. Argentina can therefore display substantial congressional support alongside a President who retains incentives to take a hard line [6][13]. If opposition and defection occur together, both sides bear t , a particularly costly prospect given the country's crisis history [19][20]. These are political incentives created by the bargaining structure, not one-sided causal reactions by either institution.

6. Conclusion

This paper has examined the post-election political dynamics in Argentina from a game-theoretical perspective. Though Milei won the presidency with 55.95 percent of the vote, his La Libertad Avanza has just 38 Deputies and 7 Senators. The most important swing party is Juntos por el Cambio with 94 Deputies, Union por la Patria is the largest bloc with 108 Deputies. There is no party majority in the legislature.

The governance stage is a simultaneous game in which the President chooses Cooperate or Defect and Congress chooses Support or Oppose. If $c < t$, Defect and Support is a pure strategy Nash equilibrium. At $c = t$, Defect and Support remains a weak pure strategy equilibrium. If $c > t$, no pure strategy equilibrium exists and the interior mixed strategy equilibrium is given by Equations (3) and (6). Its probabilities depend on B , c , R , and t , which represent the shared policy stake, the exploitation cost, the cooperative reward, and the breakdown cost. A high c raises p^* , while a high t lowers p^* and raises q^* . Argentina's political pattern therefore reflects the balance between incentives for cooperation and incentives for hard bargaining [5][6][15].

Evidence from the first months of Milei's government is consistent with this tension. Milei combined hardline rhetoric with gestures toward center right allies, while his small legislative bloc required negotiation and made Juntos por el Cambio pivotal [10][16]. The model does not imply uniformly high cooperation. Instead, it predicts that the exploitation cost pushes the President toward cooperation while the breakdown cost encourages congressional support and can preserve the President's incentive to defect. The mixed strategy equilibrium captures a setting in which cooperation and defection remain possible and political outcomes depend on the interaction of these incentives [13][20].

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