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A Theory of Cost-Sharing Negotiations of Alliances

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EXCLUSIVE

Trump Asks Tokyo to Quadruple Payments for U.S. Troops in Japan

The move is part of the administration's campaign to get U.S. allies to pay more for defense. South Korea is also being asked to pony up.

By Lara Seligman and Robbie Gramer

Introduction

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- Japan pays $2 billion/year
- The majority of these costs are for utility bills, salaries of general workers at US bases, houses for US soldiers

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- A patron should incur enough costs to have a deterrence effect
- Cost-sharing should weaken deterrence
- states claim something opposite

In 2021, Japanese Foreign Minister says, "(the agreement) increases the credibility of the alliance"

the US says that the cost-sharing by the Japanese government "serves as a pillar of the Alliance"

Introduction

RQs

- Why do protégés agree to pay?
- What determines the success or failure of these negotiations?
- How do these negotiations affect deterrence?

Introduction

Clarification

Burden-sharing: coordination about each member's military capability

Cost-sharing: direct or indirect payment of the cost of alliances or deployment

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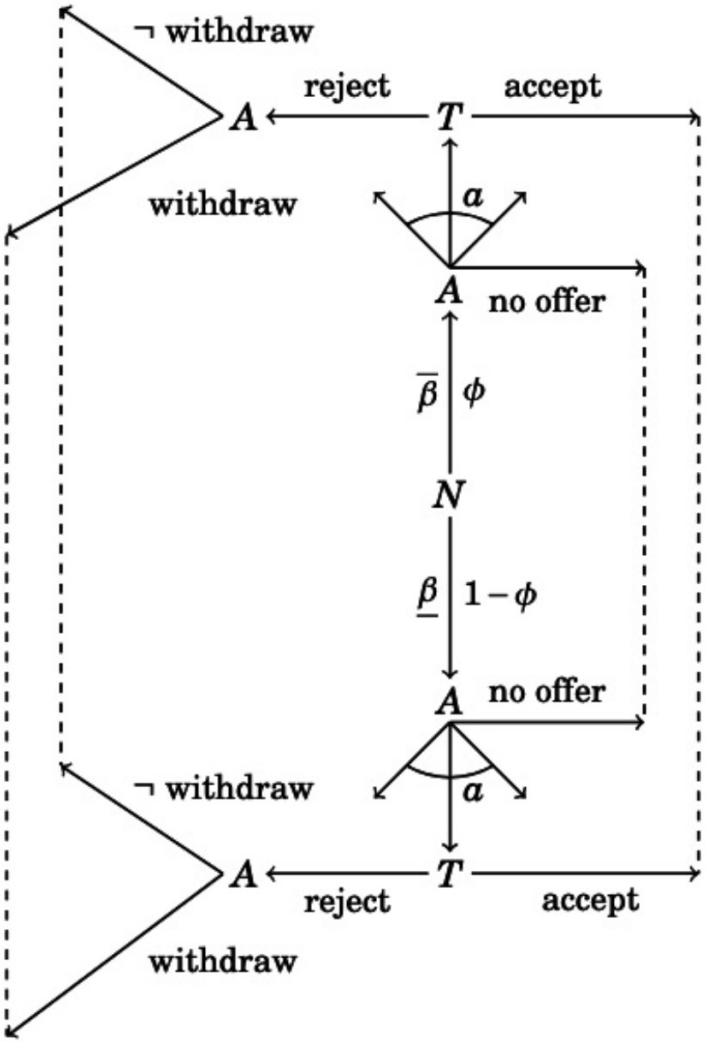
- A and T have an alliance, which costs $\pi > 0$ for A
- The alliance increases the prob. of winning
- Two stages: (1) a cost-sharing negotiation and (2) crisis bargaining

Game: the cost-sharing negotiation stage



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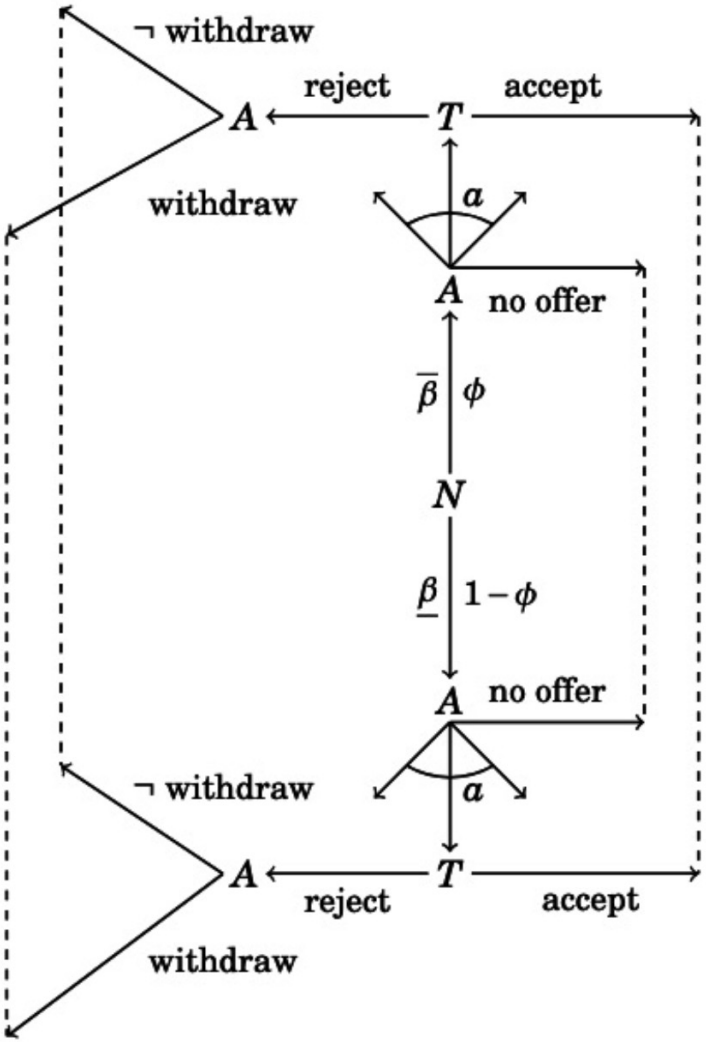

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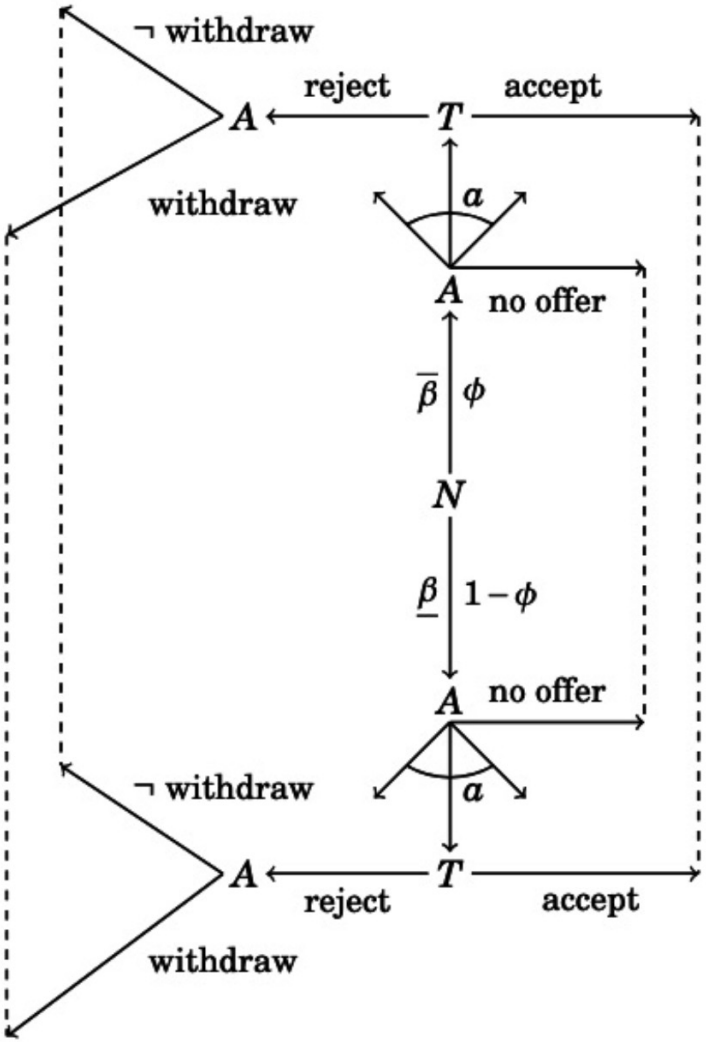

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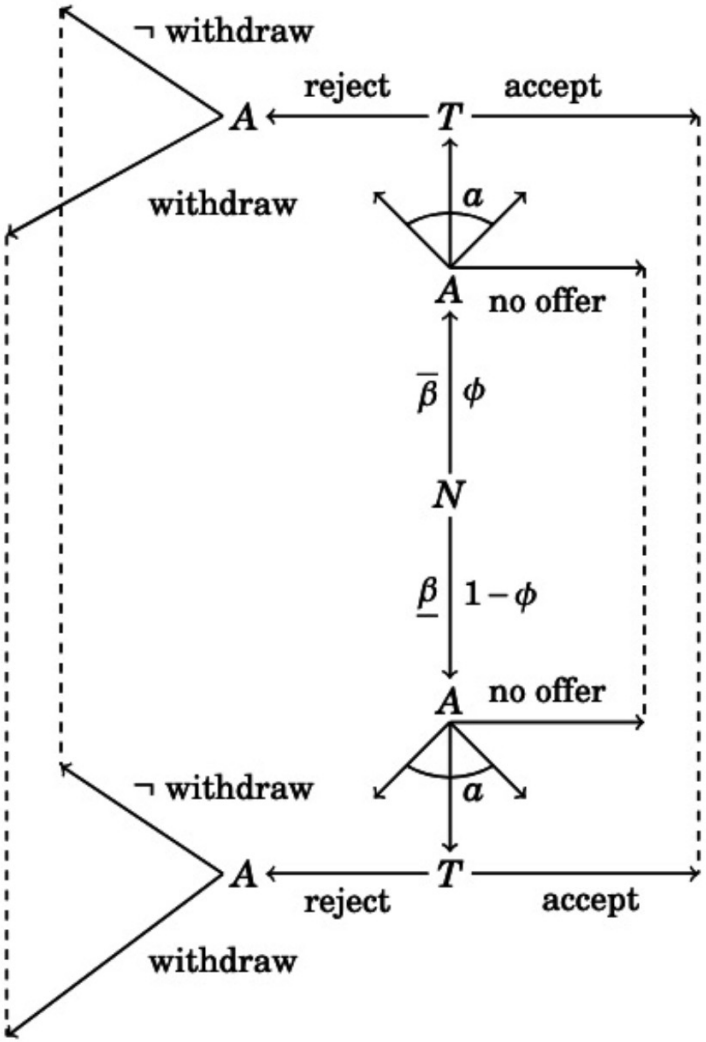

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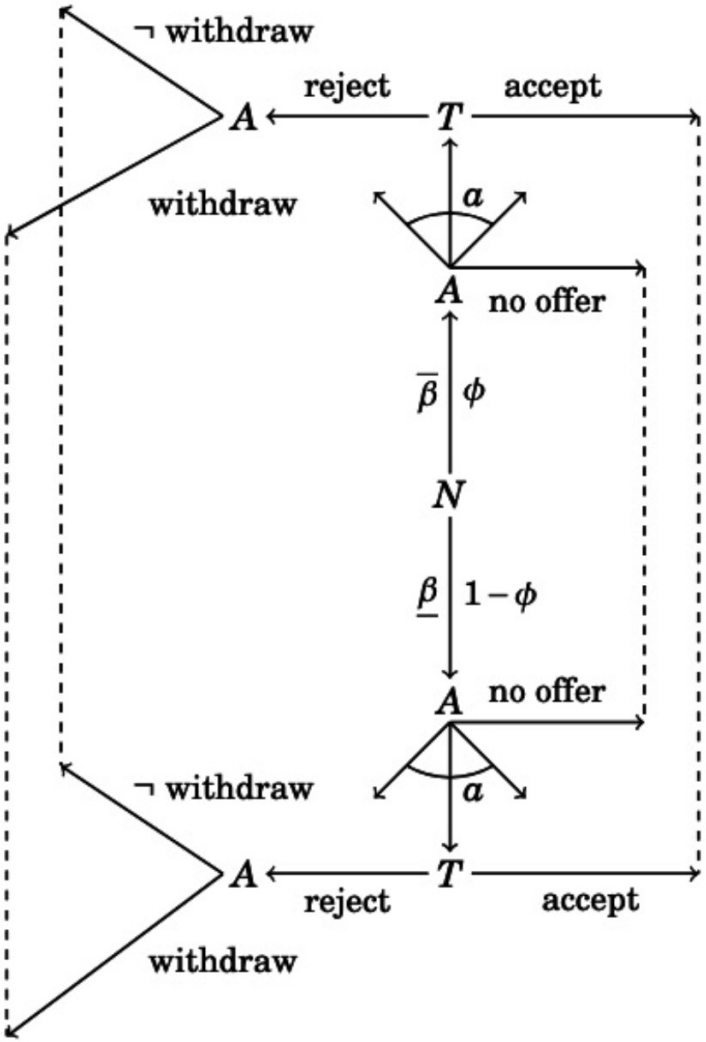

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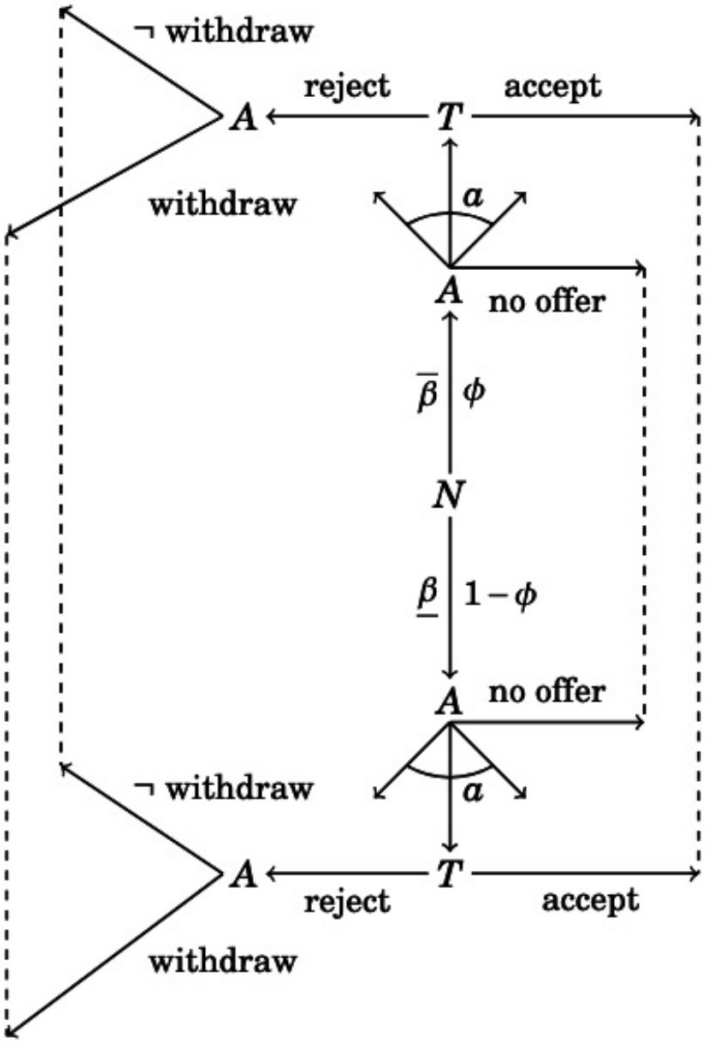

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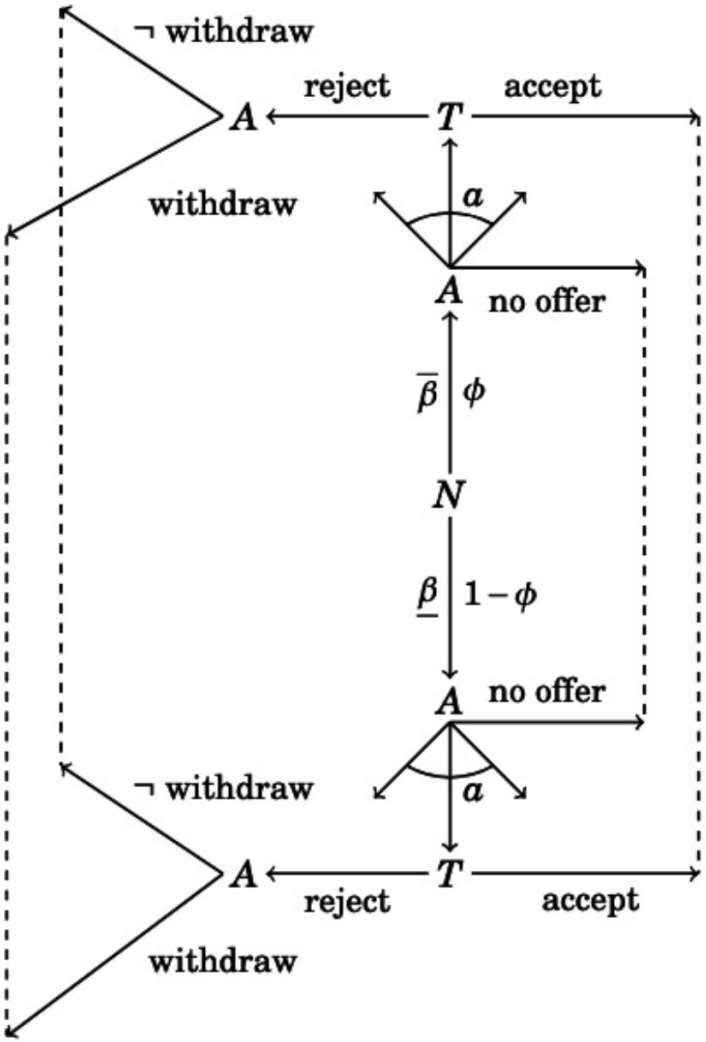

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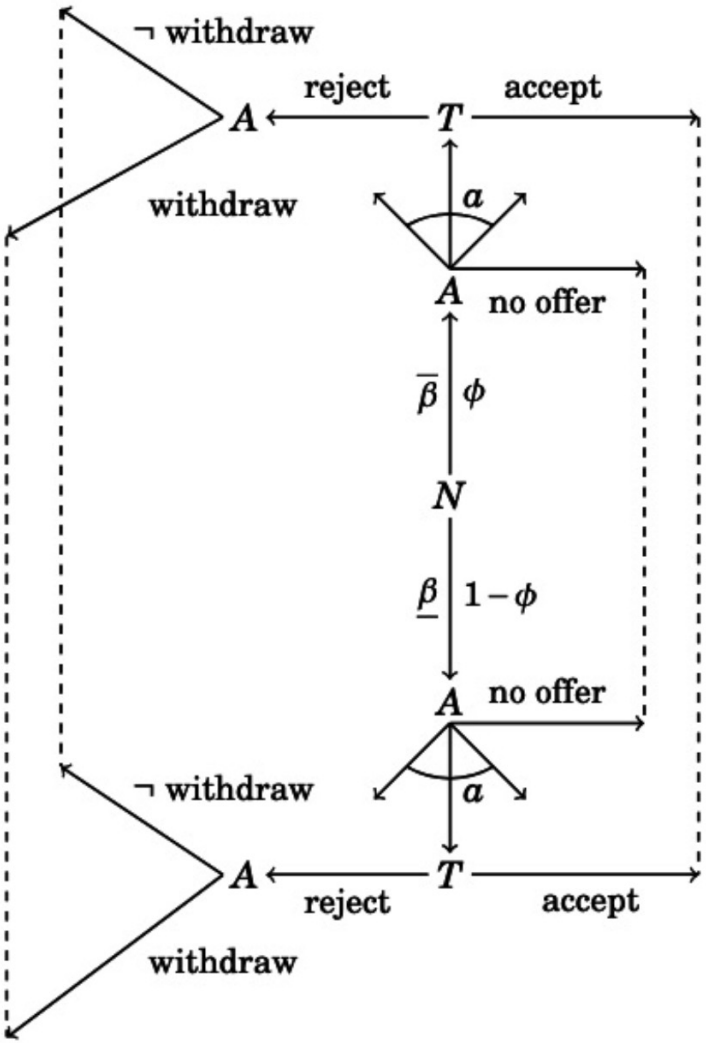
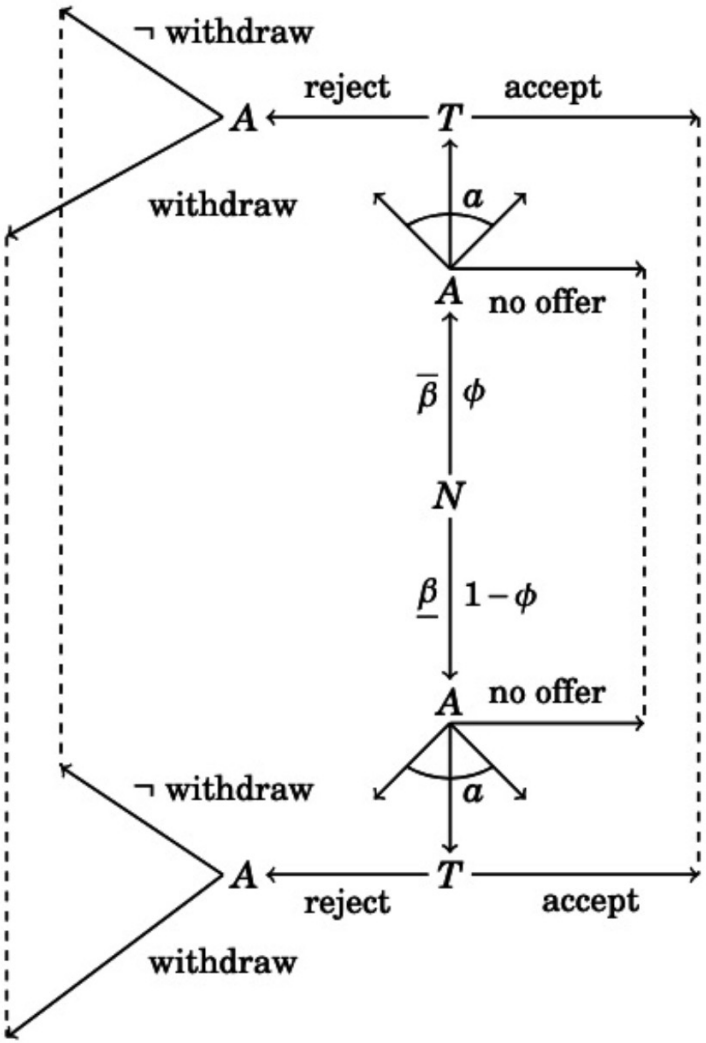
- A gets la from domestic politics, where $l \in (-1,1)$ is the level of isolationism
- T accepts or rejects a
- If T accepts, the alliance is kept ("sharing")
- If T rejects, A chooses to withdraw from the alliance ("withdrawal") or remain in the alliance ("free-riding")

Game: the cost-sharing negotiation stage



Outcomes: no offer, sharing, free-riding, and withdrawal

Game: the cost-sharing negotiation stage



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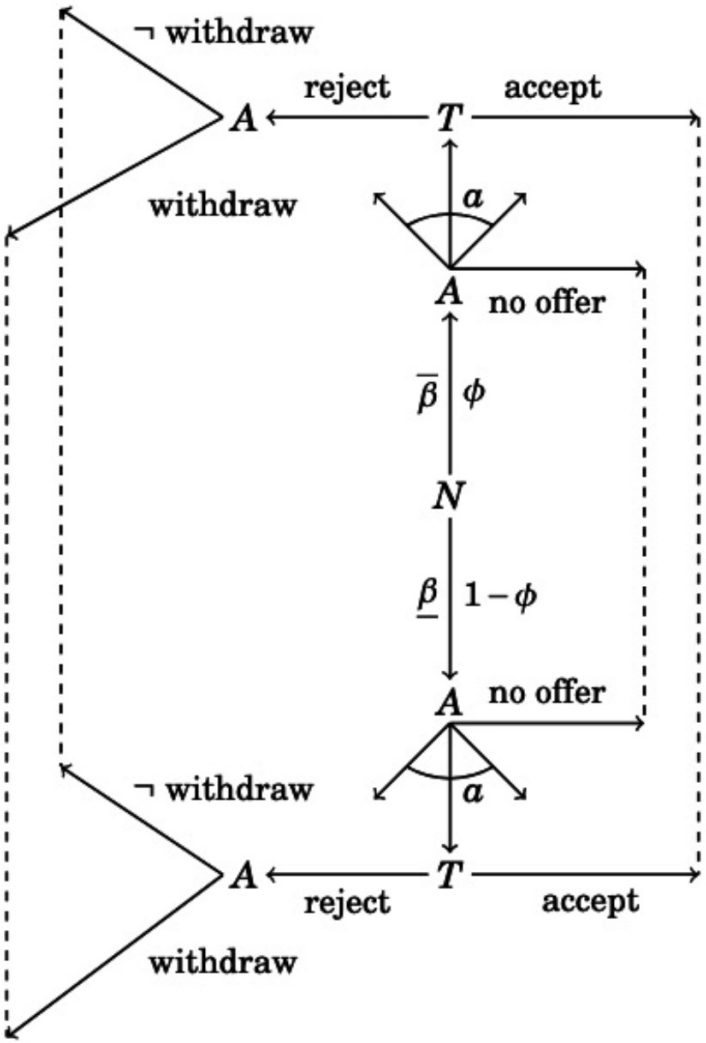

Outcomes: no offer, sharing, free-riding, and withdrawal

Payoffs from the negotiation: $\lambda_{i,n}$

$$\lambda_{A,n} = \begin{cases} -\pi & (\text{if } n = \text{no offer}) \\ -\pi + a + la & (\text{if } n = \text{sharing}) \\ -\pi + la & (\text{if } n = \text{free-riding}) \\ 0 + la & (\text{if } n = \text{withdrawal}) \end{cases}$$

$$\lambda_{T,n} = \begin{cases} -a & (\text{if } n = \text{sharing}) \\ 0 & (\text{otherwise}) \end{cases}$$

Game: the crisis bargaining stage

- C offers $x \in (0, 1)$

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- C offers $x \in (0, 1)$
- T accepts the offer or not
- If T accepts, it gets x and C gets $1 - x$
- If T rejects, war occurs and A decides to intervene or not
- The prob. of winning for T: $p \in (0, 1)$

$$p = \begin{cases} p_l & \text{(fighting alone)} \\ p_m & \text{(fighting together w/o alliance)} \\ p_h & \text{(fighting together w/ alliance)} \end{cases}$$

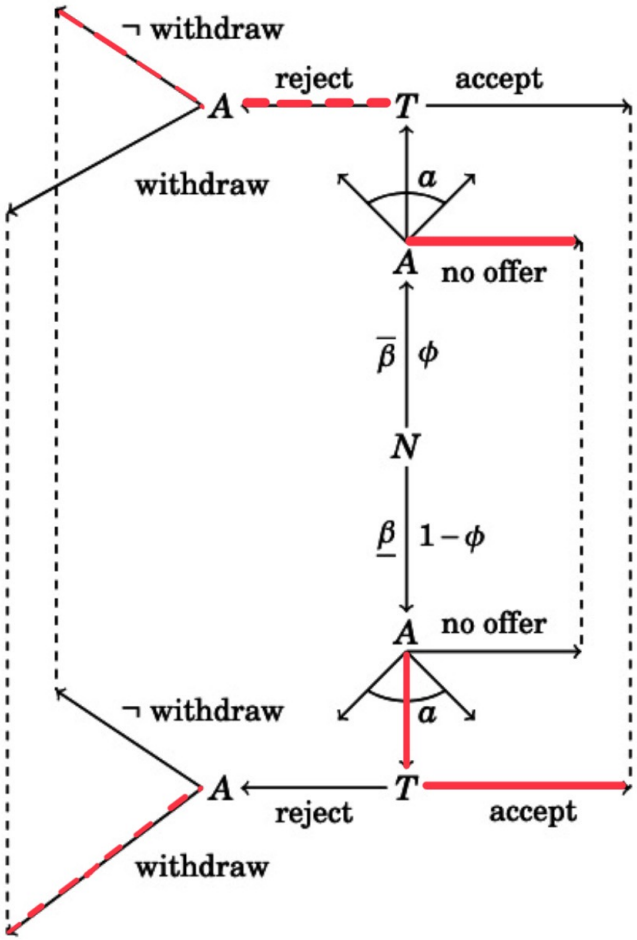
Game: the crisis bargaining stage

$$u_i(\text{Settlement}) = \begin{cases} \beta x + \lambda_{A,n} & (\text{if } i = A) \\ x + \lambda_{T,n} & (\text{if } i = T) \\ 1 - x & (\text{if } i = C) \end{cases}$$

$$u_i(\text{Bilateral War}) = \begin{cases} \beta p_l + \lambda_{A,n} & (\text{if } i = A) \\ p_l - c_T + \lambda_{T,n} & (\text{if } i = T) \\ 1 - p_l - c_C & (\text{if } i = C) \end{cases}$$

$$u_i(\text{Multilateral War}) = \begin{cases} \beta p - c_A + \lambda_{A,n} & (\text{if } i = A) \\ p - c_T + \lambda_{T,n} & (\text{if } i = T) \\ 1 - p - c_C & (\text{if } i = C) \end{cases}$$

Equilibrium 1



Proposition (Separating Equilibrium 1)

When

$$I < 0$$

$$\underline{\beta}(p_h - p_l) < \pi < \overline{\beta}(p_h - p_m - c_T) + c_A,$$

and other conditions, there exists a separating PBE at which the committed type of A does not make any cost-sharing offer, the uncommitted A offers $a^* = p_h - p_l$*, and T accepts the offer on the path of play.*

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Implications

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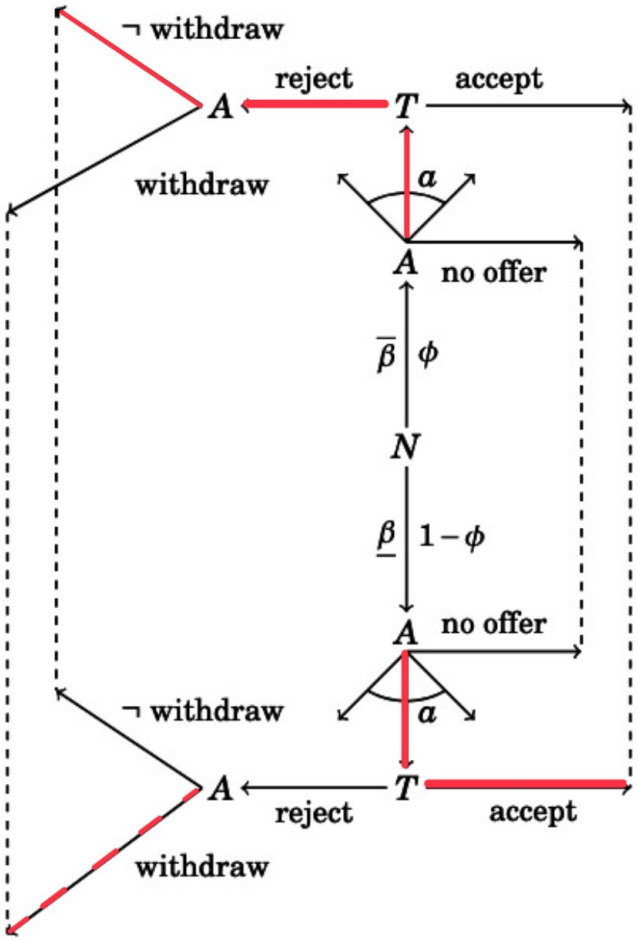
Implications

- A credible threat of abandonment is key for successful cost-sharing negotiations
- A successful negotiation is a sign of an uncommitted patron
- A successful negotiation maintains deterrence by prioritizing a capability boost of alliances over signaling
- cost-sharing is an exchange between money and power

Equilibrium 2



Proposition (Separating Equilibrium 2)

When

$$\min\{1, l^* = \frac{(1+\underline{\beta})a^* - \pi}{\overline{a} - a^*}\} > l \geq 0$$

$$\underline{\beta}(p_h - p_l) < \pi < \overline{\beta}(p_h - p_m - c_T) + c_A$$

and other conditions, there exists a separating PBE at which the committed A offers $a = \overline{a}$, T rejects it, A does not withdraw from the alliance, the uncommitted A offers $a = a^*$, T accepts the offer on the path of play.

Equilibrium 2

Implications

- a committed patron increase its demand to pander to domestic isolationism, not to get international concession

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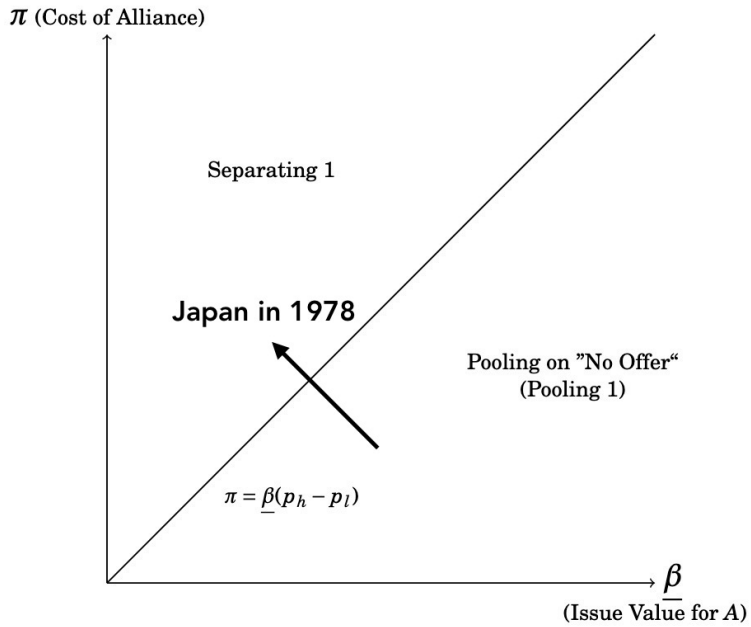
- a committed patron increase its demand to pander to domestic isolationism, not to get international concession
- Failure of the negotiation is a sing of a committed patron b/c it shows a protégé's confidence in its patron's support
- a *positive* correlation between a patron's cost-sharing demand and commitment

Japan 1978



Japan entered the first separating equilibrium in 1978.

- π was increasing
- β was decreasing
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  $\leftarrow$ The end of the Vietnam War, detente with the USSR, and the approach to CCP
- The US's threat of abandonment was credible
  $\leftarrow$ the US's withdrawal from other Asian countries, as well as the threat by the government

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The US failed to get a concession from Japan in 2019, and the model can explain why.

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Japan in 2019 was in the second separating equilibrium:

- Trump recognized a threat of abandonment as leverage to get a concession
- That threat was not credible enough due to his relationship with Shinzo Abe and his commitment to Japanese security
- Trump was mainly concerned about domestic politics where domestic isolationism is relatively strong

Conclusion

This paper

- investigates a model of cost-sharing negotiations
- shows (a) credible threat of abandonment is key for successful cost-sharing negotiations
- (b) allies sometimes abandon the signaling aspect to secure a capability boost
- (c) a large demand causes a failure of a negotiation, but it satisfies domestic isolationism without damaging signaling

Thank you!

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Appendix 1

Assumption

$$p_l > c_T \tag{1}$$

$$\min\{\overline{\beta}(p_m - p_l), \underline{\beta}(p_h - p_l)\} > c_A > \underline{\beta}(p_m - p_l) \tag{2}$$

Appendix 2

Proposition (Separating 1)

When assumption 1 is satisfied and

$$I < 0 \tag{3}$$

$$\overline{\beta} > \frac{\underline{\beta}(p_h - p_l) - c_A}{p_h - p_m - c_T} \tag{4}$$

$$\frac{p_h - p_m - c_T + c_A}{p_h - p_l} > \underline{\beta} \tag{5}$$

$$p_h - p_m > c_T, \tag{6}$$

$$\underline{\beta}(p_h - p_l) < \pi < \overline{\beta}(p_h - p_m - c_T) + c_A, \tag{7}$$

there exists a separating PBE at which the committed type of A does not make any cost-sharing offer, C offers $x = p_h - c_T$, and T accepts it, and the uncommitted A offers $a = \min\{a^* = p_h - p_l, \overline{a}\}$, T accepts the offer, C offers $x = p_h - c_T$, and T accepts it on the path of play.

Appendix 3

Proposition (Separating 2)

When assumption 1 and Line 4, 5, 6, and 7 are satisfied and

$$\bar{a} > a^* \tag{8}$$

$$\min\{1, l^* = \frac{(1+\underline{\beta})a^* - \pi}{\bar{a} - a^*}\} > l \geq 0 \tag{9}$$

there exists a separating PBE at which the committed type of A offers $a = \bar{a}$, T rejects it, A does not withdraw from the alliance, C offers $x = p_h - c_T$, and T accepts it, and the uncommitted A offers $a = a^*$, T accepts the offer, C offers $x = p_h - c_T$, and T accepts it on the path of play. See Appendix for proof.

Appendix 4

Proposition (Separating 3)

When assumption 1 and Line 4, 5, 6, and 7 are satisfied and

$$\overline{a} > (\underline{\beta} + 2)a^* - \pi \tag{10}$$

$$1 > l > l^* \tag{11}$$

there exists a separating PBE at which the committed type of A offers $a = \overline{a}$, T rejects it, A does not withdraw from the alliance, C offers $x = p_h - c_T$, and T accepts it, and the uncommitted A offers $a = \overline{a}$, T rejects the offer, A withdraw from the alliance, C offers $x = p_h - c_T$, and T accepts it on the path of play. See Appendix for proof.

Appendix 5

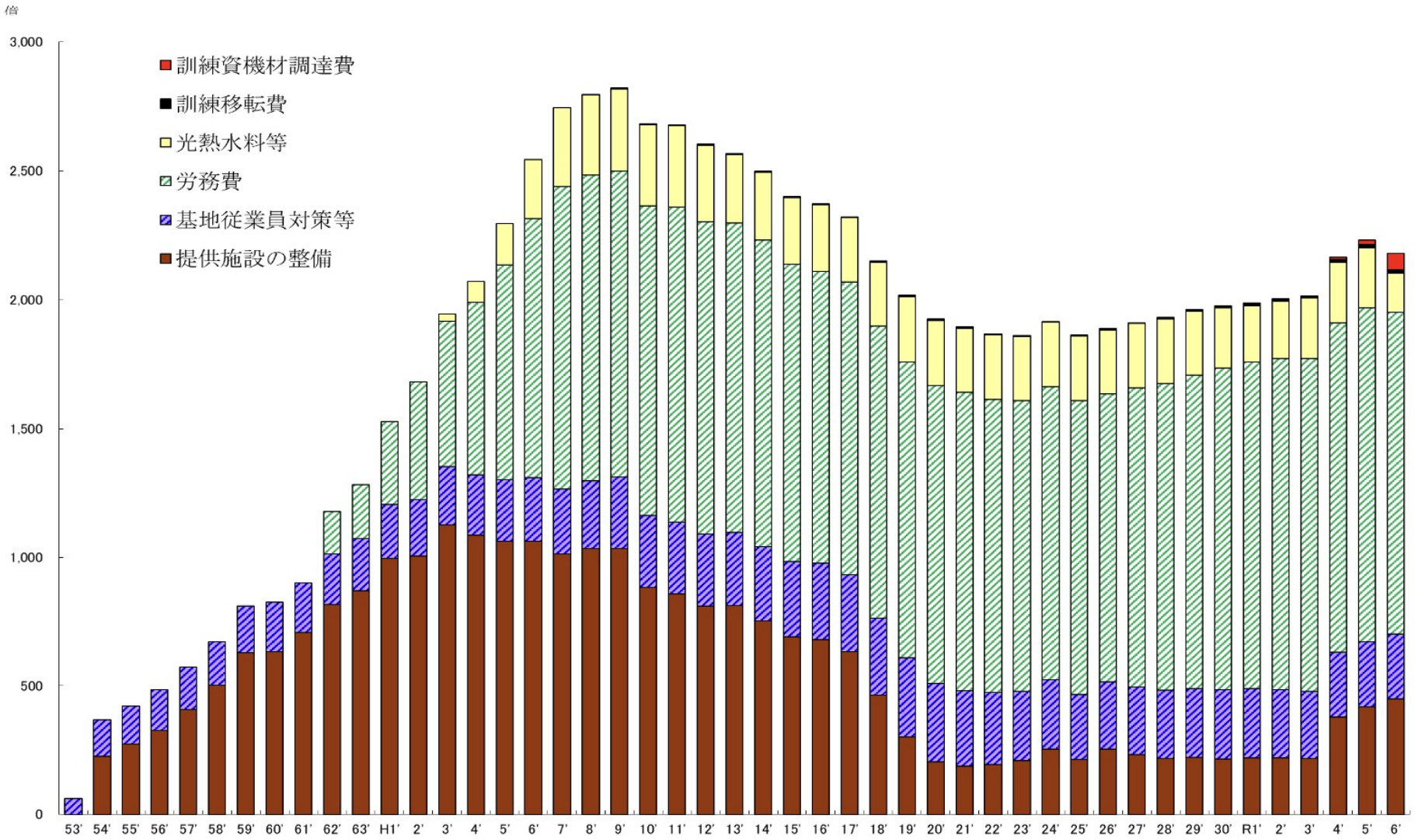

Figure: Japan's Cost-Sharing Over Time