Knowing the Unknown: Executive Evaluation and

International Crisis Outcomes

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Suppose that in addition to retaining control of the asset in dispute, the voter in the home country also derives an additional benefit, $b > 0$, from waging a successful war. The game tree with modified payoffs is displayed in Figure 1.

1. Evaluating the Executive

1.1. Naïve retrospection

Under naïve retrospection, the voter keeps his leader iff his final payoff is greater than or equal to x_H, his utility at the beginning of the game. Note that if $b \geq k_H$, then the added benefits of going to war exceed the costs incurred by fighting. This means that retrospective voter will keep leader *H* following a successful war (i.e. at voting nodes 2, 4, 7, and 9). However, if $b < k_H$, then leader *H* will be replaced following a successful war: the benefits of fighting will not be sufficient to outweigh the costs. This retrospective voting behavior is displayed in Table 1.

1.2. Hindsight voting

Now consider hindsight voting. The voter reservation value is now:

$$R_{HIND}(G(x_F \mid \bar{s}, \bar{A})) = Post\Pr ob(Don't\_Attack \mid \bar{s}, \bar{A})[x_H] + Post\Pr ob(Attack \mid \bar{s}, \bar{A})[px_H + pb - k_H]$$

$$= Post\Pr ob(x_F \le \frac{k_F}{1-p} \mid \bar{s}, \bar{A})[x_H] + Post\Pr ob(x_F > \frac{k_F}{1-p} \mid \bar{s}, \bar{A})[px_H + pb - k_H]$$

$$= G(\frac{k_F}{1-p} \mid \bar{s}, \bar{A})[x_H] + [1 - G(\frac{k_F}{1-p} \mid \bar{s}, \bar{A})][px_H + pb - k_H]$$

At voting node 1, the voter knows that $x_F \le \frac{k_F - c}{1-p}$. So $G(\frac{k_F}{1-p} \mid \bar{s}, \bar{A}) = 1$ and the voter will always keep her leader.

At voting nodes 2, 4, 7, and 9, the voter will keep leader *H* iff:

$$x_H - k_H + b \ge G(\frac{k_F}{1-p} \mid \bar{s}, \bar{A})[x_H] + [1 - G(\frac{k_F}{1-p} \mid \bar{s}, \bar{A})][px_H + pb - k_H]$$

This means that when the voter discovers that $x_F \ge \frac{k_F}{1-p}$ (and that, consequentially, $G(\frac{k_F}{1-p} \mid \bar{s}, \bar{A}) = 0$), the voter has incentive to always keep her leader. In contrast, when $x_F < \frac{k_F}{1-p}$, the voter will keep her leader iff $b \ge k_H$.

At voting nodes 3, 5, 8, and 10, the voter receives a payoff of $-k_H$, so she will always replace her leader. Finally, at voting nodes 6 and 11, the voter knows that $x_F < \frac{k_F}{1-p}$, so she will always keep her leader.

Note that hindsight voting behavior (like naïve retrospective voting) is dependent upon the added benefits of war, *b*. For this voting heuristic, there are two relevant levels of benefits:

low benefits (i.e. $b \in (0, k_H]$) and high benefits (i.e. $b > k_H$). The voting behavior induced by each level of war benefits is shown in Table 1.

2. Supporting or Opposing the War

Suppose that leader *H* chooses to war-monger. The voter is indifferent between supporting and opposing the war if the following condition holds:

$$\Psi(\bullet) = c[G(\frac{k_F - c}{1-p} \mid \bar{s})] - (x_H - px_H - pb + k_H)[G(\frac{k_F}{1-p} \mid \bar{s}) - G(\frac{k_F - c}{1-p} \mid \bar{s})] = 0$$

When $\Psi(\bullet) > 0$, the voter strictly prefers supporting the war.

3. Foreign Policy Choices Under the Different Voting Rules

3.1. Case 1: Suppose $b \in (0, k_H]$

Under naïve retrospective voting, the following hold:

$$E[U_H(war - monger \mid \sigma_{V|NRETRO}) = rG(\frac{k_F - c}{1-p} \mid \bullet) + (1-r)G(\frac{k_F}{1-p} \mid \bullet)$$

$$E[U_H(preempt \mid \sigma_{V|NRETRO}) = 0$$

$$E[U_H(ignore \mid \sigma_{V|NRETRO}) = G(\frac{k_F}{1-p} \mid \bullet)$$

Note that preemption is strictly dominated and leader *H* has the following best response function:

$$\sigma_H(\sigma_{V|NRETRO}) = \begin{cases} ignore ... if . r > o \\ \Delta(\{ignore, war - monger\}) ... if . r = 0 \end{cases}$$

Under hindsight voting, the following hold:

$$E[U_H(war - monger \mid \sigma_{V|HIND}) =$$

$$p[1-G(\frac{k_F}{1-p}|\bullet)][r[1-G(\frac{k_F-c}{1-p}|\bullet)]+(1-r)]+rG(\frac{k_F-c}{1-p}|\bullet)+(1-r)G(\frac{k_F}{1-p}|\bullet)$$

$$E[U_H(preempt|\sigma_{V|NRETRO})=q[1-G(\frac{k_F}{1-p}|\bullet)]$$

$$E[U_H(ignore|\sigma_{V|NRETRO})=p+(1-p)G(\frac{k_F}{1-p}|\bullet)$$

Note that leader H is indifferent between ignoring his information and war-mongering if $r=0$. However, if $r>0$, then ignore is strictly preferred to war-mongering. Additionally, leader H prefers preemption to ignoring iff:

$$q[1-G(\frac{k_F}{1-p}|\bullet)]>p+(1-p)G(\frac{k_F}{1-p}|\bullet)\Leftrightarrow G(\frac{k_F}{1-p}|\bullet)<\frac{q-p}{1+q-p}=\lambda_{HIND}$$

So leader H has the following best response function:

$$\sigma_H(\sigma_{V|NRETRO})=\begin{cases} preempt...if.G(\frac{k_F}{1-p}|\bullet)<\lambda_{HIND} \\ ignore...if.G(\frac{k_F}{1-p}|\bullet)\geq\lambda_{HIND}.and.r>0 \\ \Delta(\{ignore,war-monger\})...if.G(\frac{k_F}{1-p}|\bullet)\geq\lambda_{HIND}.and.r=0 \end{cases}$$

Note that this ensures that Propositions 1, 2, and 4 hold from the text of the paper.

3.2. Case 2: Suppose $k_H<b$

Under naïve retrospective voting, the following hold:

$$E[U_H(war-monger|\sigma_{V|NRETRO})=$$

$$r[G(\frac{k_F-c}{1-p}|\bullet)+p[1-G(\frac{k_F-c}{1-p}|\bullet)]]+(1-r)[p[1-G(\frac{k_F}{1-p}|\bullet)]+G(\frac{k_F}{1-p}|\bullet)]$$

$$E[U_H(preempt|\sigma_{V|NRETRO})=q$$

$$E[U_H(ignore \mid \sigma_{V|NRETRO}) = p + (1-p)G(\frac{k_F}{1-p} \mid \bullet)$$

Note that leader *H* is indifferent between ignoring his information and war-mongering if $r = 0$. However, if $r > 0$, then ignore is strictly preferred to war-mongering. Additionally, leader *H* prefers preemption to ignoring iff:

$$q > p + (1-p)G(\frac{k_F}{1-p} \mid \bullet) \Leftrightarrow G(\frac{k_F}{1-p} \mid \bullet) < \frac{q-p}{1-p} = \lambda_{SRETRO,(T)}$$

So leader *H* has the following best response function:

$$\sigma_H(\sigma_{V|NRETRO}) = \begin{cases} preempt...if.G(\frac{k_F}{1-p} \mid \bullet) < \lambda_{SRETRO,(T)} \\ ignore...if.G(\frac{k_F}{1-p} \mid \bullet) \geq \lambda_{SRETRO,(T)}.and.r > 0 \\ \Delta(\{ignore, war-monger\})...if.G(\frac{k_F}{1-p} \mid \bullet) \geq \lambda_{SRETRO,(T)}.and.r = 0 \end{cases}$$

Under hindsight voting, voter behavior is identical to naïve retrospective voting. So leader *H* has the same induced best response function:

$$\sigma_H(\sigma_{V|HIND}) = \begin{cases} preempt...if.G(\frac{k_F}{1-p} \mid \bullet) < \lambda_{SRETRO,(T)} \\ ignore...if.G(\frac{k_F}{1-p} \mid \bullet) \geq \lambda_{SRETRO,(T)}.and.r > 0 \\ \Delta(\{ignore, war-monger\})...if.G(\frac{k_F}{1-p} \mid \bullet) \geq \lambda_{SRETRO,(T)}.and.r = 0 \end{cases}$$

Note that this ensures that Proposition 1 from the text of the paper continues to hold, and Proposition 4 holds under both types of voting rules: for sufficiently strong beliefs that player *F* is a high type, leader *H* will engage in preemption.

4. Welfare Implications (Equilibrium Responsiveness)

Note that whenever $b > k_H$, both voting rules induce the same behavior by leader *H*. So in order to compare the welfare properties of the equilibria induced by the two voting rules (i.e. which equilibrium is more responsive), we need only consider what happens when $b \le k_H$. Consider the expected utility for the voter of each of the three foreign policy choices that leader *H* can make:

$$E[U_V(war-monger \mid \sigma_H) = r[G(\frac{k_F - c}{1-p} \mid \bullet)[x_H + c] + [1 - G(\frac{k_F - c}{1-p} \mid \bullet)][px_H + pb - k_H]] +$$

$$(1-r)[G(\frac{k_F}{1-p} \mid \bullet)[x_H] + [1 - G(\frac{k_F}{1-p} \mid \bullet)][px_H + pb - k_H]]$$

$$E[U_V(preempt \mid \sigma_H) = qx_H + qb - k_H$$

$$E[U_V(ignore \mid \sigma_H) = G(\frac{k_F}{1-p} \mid \bullet)[x_H] + [1 - G(\frac{k_F}{1-p} \mid \bullet)][px_H + pb - k_H]$$

Since war-mongering can only occur in equilibrium if $r = 0$, we need only compare the expected utilities of preempt and ignore. The voter is better off under preempt than ignore iff:

$$qx_H + qb - k_H > G(\frac{k_F}{1-p} \mid \bullet)[x_H] + [1 - G(\frac{k_F}{1-p} \mid \bullet)][px_H + pb - k_H]$$

$$\Leftrightarrow G(\frac{k_F}{1-p} \mid \bullet) < \frac{(q-p)(x_H + b)}{(1-p)x_H + k_H - pb} = \lambda_{VOTER,(b)}$$

Now we must compare how this cutpoint compares to λ_{HIND}:

$$\lambda_{VOTER,(b)} > \lambda_{HIND} \Leftrightarrow \frac{(q-p)(x_H + b)}{(1-p)x_H + k_H - pb} > \frac{q-p}{1+q-p} \Leftrightarrow (q-p)[qx_H - k_H + b(1+q)] > 0$$

Since $px_H - k_H > 0$ and $q > p$ by assumption, the mathematical statement above always holds. This means that there exists a set of parameters in which there is an efficiency loss. Namely, when $G(\frac{k_F}{1-p} \mid \bullet) \in [\lambda_{HIND}, \lambda_{VOTER,(b)}]$, leader *H* will ignore his messages while the voter would prefer preemption. However, hindsight voting results in *less* efficiency loss than naïve retrospective voting, which induces the leader to always ignore all messages. The parameter regions that result in an efficiency loss are visually represented by the shaded regions in Figure 2. This means that if the voter in the home country derives an additional benefit, $b > 0$, from waging a successful war, then hindsight voting induces an equilibrium that is more responsive to the utility of the voter than naïve retrospective voting.

Figure 1: Extensive Form of the Foreign Policy Subgame

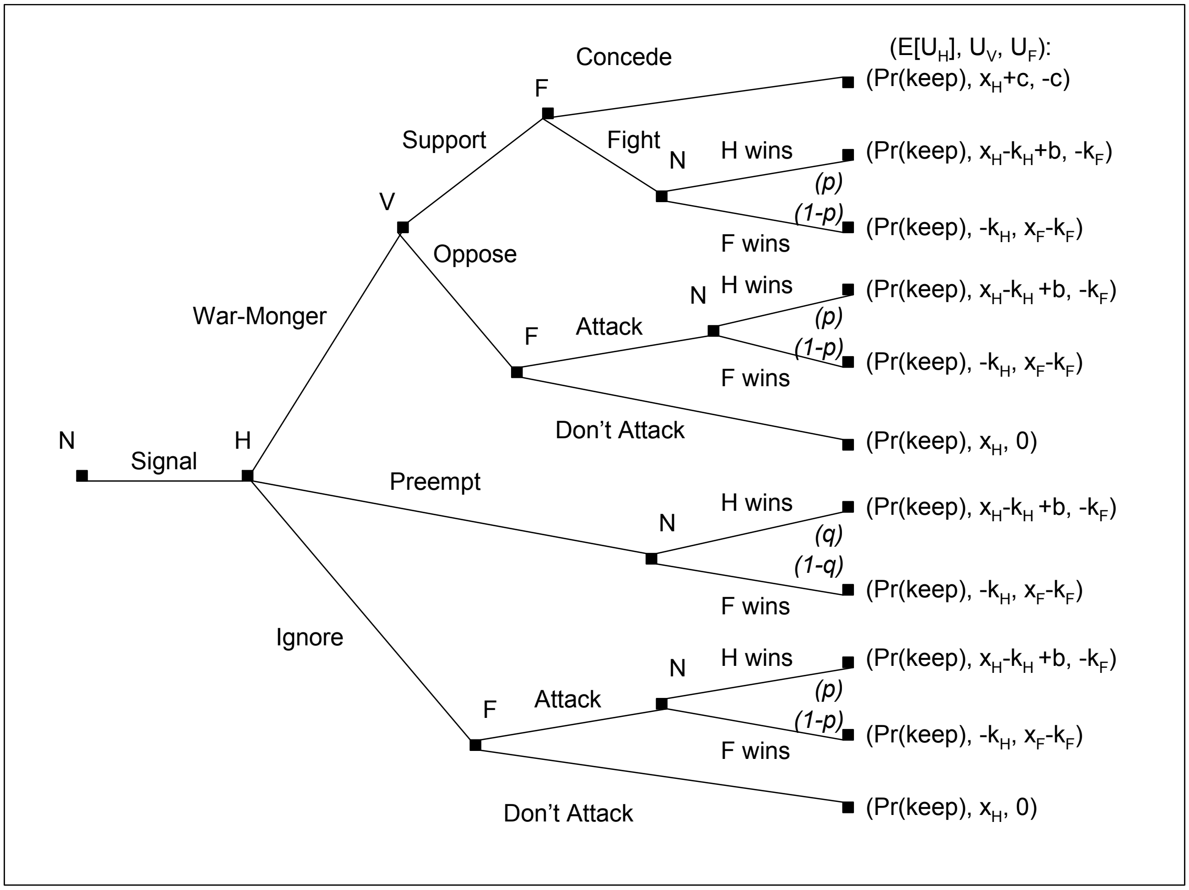

Figure 2: Equilibrium Responsiveness to the Voter's Utility When $b \leq k_H$

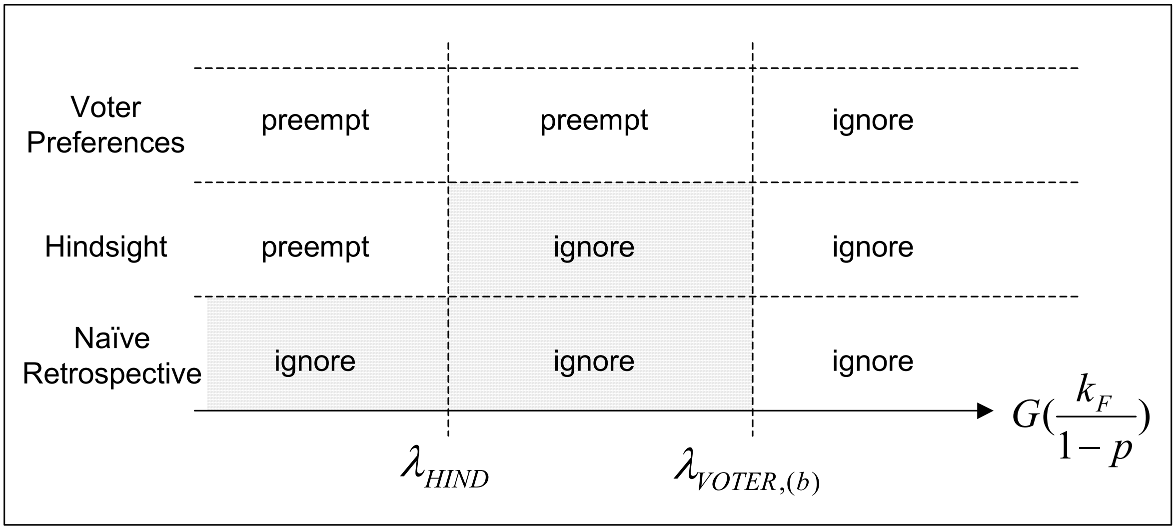

Table 1: Outcomes of the Voting Subgame: Comparing the Results of Voting Behavior Rules

Voting Node	Naïve Retrospective		Hindsight	
	If $b<k_H$	If $k_H<b$	If $b<k_H$	If $k_H<b$
1	*Keep*	*Keep*	*Keep*	*Keep*
2	Replace	*Keep*	*Keep* if (A); else Replace	*Keep*
3	Replace	Replace	Replace	Replace
4	Replace	*Keep*	*Keep*	*Keep*
5	Replace	Replace	Replace	Replace
6	*Keep*	*Keep*	*Keep*	*Keep*
7	Replace	*Keep*	*Keep* if (A); else Replace	*Keep*
8	Replace	Replace	Replace	Replace
9	Replace	*Keep*	*Keep*	*Keep*
10	Replace	Replace	Replace	Replace
11	*Keep*	*Keep*	*Keep*	*Keep*

Note: Condition (A) holds if $x_F \geq \frac{k_F}{1-p}$.