Arms Races, War, and Other Hypotheses

POSC 1020 – Introduction to International Relations

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Goal for Today

Discuss the arms race and war relationship, among other hypotheses.

Do Arms Races Lead to War?

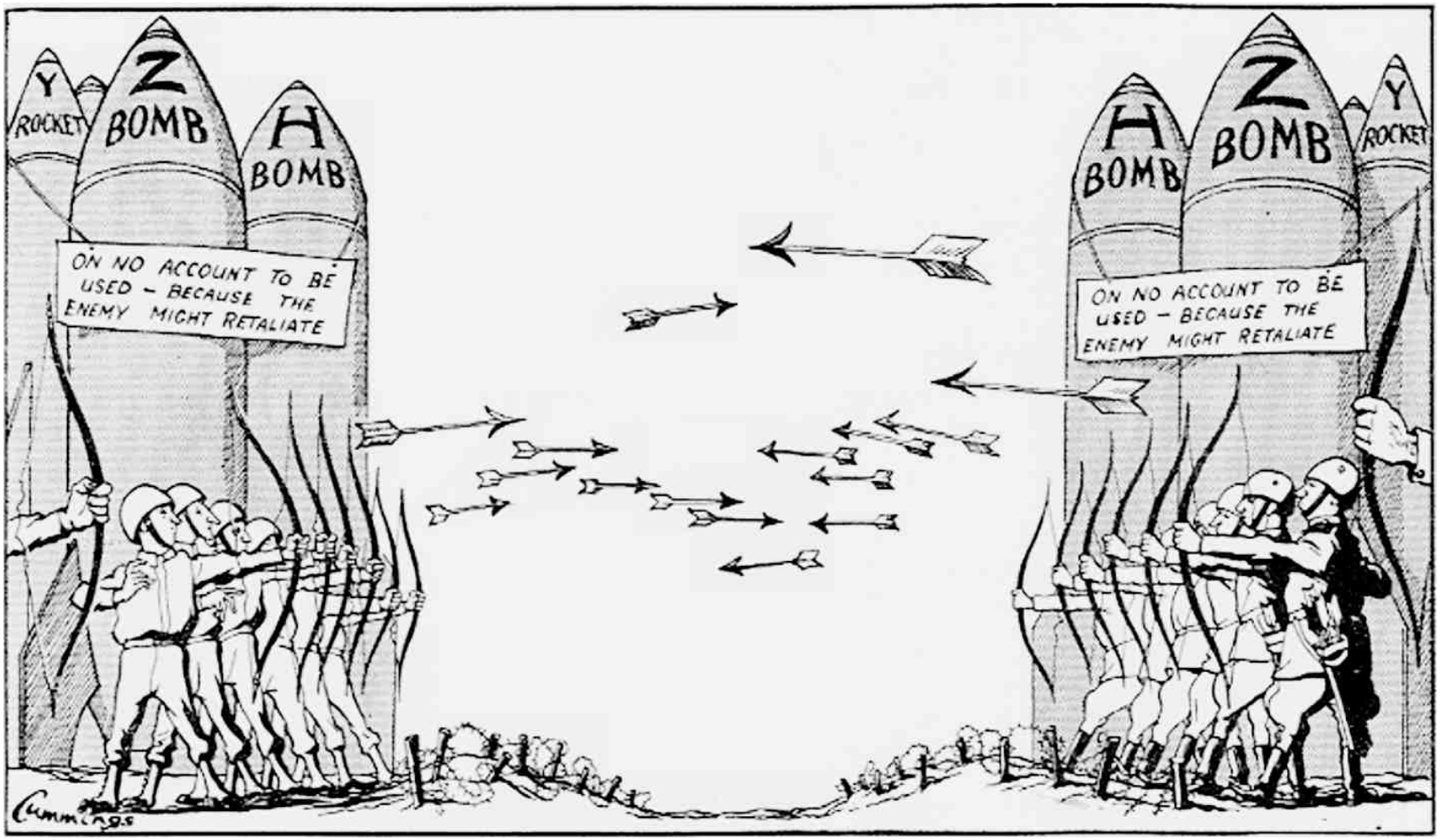

Figure 1: Daily Express cartoon by Michael Cummings (1953)

Arms Races and War

This was arguably the empirical debate of the 1970s/early 1980s.

- War-preparedness model (Vegetius)
- Spiral model

Lewis Fry Richardson's Model

Richardson (1949, 1960) proposed an empirical test.

- *Argument:* states acquire arms as a function of 1) perceived threat and 2) "fatigue" in pursuing arms over other priorities.
- *Findings:* Fatigue depresses arms races while perceived threat accelerates them.
- *Conclusion:* If perceived threat exceeds fatigue, arms races spiral toward war.

Limitations of Richardson's Model

However, Richardson's model suffered from several shortcomings.

- His **dependent variable** is just about changes in arms expenditures.
- Connection to war is not logically implied.
- Richardson, a meteorologist by trade, does not model strategic behavior.
- He fails to account for possible confounders (e.g. bureaucratic interest).
    - American students have heard this before from Eisenhower's famous warning before he left office.

These simple bivariate tests also run into major issues of **reverse causality**, a form of **endogeneity**.

Do Arms Control Agreements Matter?

It's not clear that arms control agreements matter much.

- They tend to focus on obsolete technology.
  - e.g. Washington Naval Conference, SALT 1, SORT
- Morrow (1991): American presidents pursue them for re-election.

Arms control agreements may just reduce the cost of war.

- Deterrence approaches logically raise those costs.

The Empirical Evidence

The author contends evidence in favor of deterrence outweights evidence in favor of arms control.

- Smith (1995): costly, reliable defensive alliances deter aggression.
- BDM and Riker (1982): disputes between nuclear powers do not escalate (compared to the baseline)

The Empirical Evidence

TABLE 1

Constraints on Conflict: Evidence for Nuclear Deterrence

Presence of Nuclear Constraints	*Conflict Type*		
	Threat	*Intervention*	*War*
Nuclear Power			
vs	4	2	0
Nuclear Power	(.67)	(.33)	(0.0)
Nuclear Power			
vs	7	6	0
Nation with Nuclear Ally	(.54)	(.46)	(0.0)
Nuclear Power			
vs	8	13	2
Nonnuclear Power	(.35)	(.57)	(.09)
Nonnuclear Power			
vs	10	31	17
Nonnuclear Power	(.17)	(.53)	(.29)

Figure 2: The evidence from Bueno de Mesquita and Riker (1982)

The Evidence Isn't That One-Sided

- Wallace (1979, 1982): Arms races almost always lead to war.
  - However, the strength of Wallace's findings may hinge on his peculiar methods.
  - Diehl's (1983) qualifier: there's really no effect.
- Sample (1997, 1998, 2000): Wallace was right, but may have oversold his findings.
  - Arms race lead to war more than peace amid crises.
- Gibler, Rider, and Hutchison (2005): arms races lead to war within rivalries.
- Senese and Vasquez (2008): arms races increase risk of war, even controlling for rivalries.
- Colaresi, Rasler, and Thomspon (2007): arms races increase risk of war within rivalries.
  - i.e. the relationship is not contingent on the data used.

Sample (2002)

Table II. Logit Model: Escalation to War, 1816–1993 – All Disputes, 1816–1993

Variable	*B*	*S.E.*	*Wald*	*Sig.*	*Exp(B)*
Mutual military buildup	1.2	.216	31.01	.000	3.32
Rapid approach	.002	.095	.000	.984	1.00
Equality	–.010	.254	.002	.969	.99
Transition	.467	.342	1.87	.172	1.60
Defense burden	.674	.136	24.61	.000	1.96
Nuclear	–.813	.275	8.71	.003	.444
Territorial issue	1.38	.154	80.98	.000	3.99
Contiguity	1.50	.27	30.59	.000	4.46
Constant	–4.35	.282	239.06	.000	.013
Model log-likelihood	1271.99	N = 2,304			
Model chi-square	293.39	d.f. 8		Significance <.001	

Figure 3: Table 1 from Sample (2002)

Gibler, Rider, and Hutchison (2005)

Table I. Probit Analyses of the Effects of Arms Races on MIDs and War

	Model 1	*Model 2*	*Model 3*
Dependent variable:	MID onset	War onset	War onset
Selection variable:			MID onset
Arms race present	.661(.093)***		.656(.093)***
Capability-related control variables			
Changes in personnel ratio	.094(.107)		.095(.107)
Changes in expenditure ratio	–.020(.105)		–.015(.105)
Both nuclear powers	1.069(.147)***		1.094(.145)***
Parity	.064(.088)		.060(.088)
Other control variables			
Contiguity	.240(.061)***		.243(.061)***
Joint democracy	.127(.118)		.132(.118)
Alliance	–.341(.061)***		–.343(.062)***
Both advanced	–.095(.094)		–.099(.094)
Constant	–1.119(.056)***		–1.122(.056)***
Arms race present		.654(.163)***	.667(.164)***
Capability-related control variables			
Change in personnel dominance		.350(.189)*	.342(.191)*
Change in expenditure dominance		.178(.206)	.183(.204)
Both nuclear powers		–	–
Parity		.241(.171)	.264(.174)
Other control variables			
Contiguity		.070(.137)	.029(.138)
Joint democracy		–.058(.287)	–.063(.289)
Alliance		–.322(.149)**	–.308(.148)**
Both advanced		–.049(.204)	–.026(.208)
Constant		–2.335(.127)***	2.316(.124)***
Rho			.984(.858)
N uncensored	3,279	3,279	3,279
N censored	–	–	562
LR X^2	96.15***	26.26***	27.95***

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.
Standard errors in parentheses.

Figure 4: Table 1 from Gibler, Rider, and Hutchison (2005)

Arms Races and War

Nuclear arms races haven't resulted in war, but conventional ones mostly do.

- They constitute an important "step to war", all things equal.
- This says nothing of arms control agreements, which may not matter.

Other Hypotheses

The author also discusses three additional hypothses about war.

1. The scapegoat hypothesis
2. Status inconsistency
3. War cycles

Scapegoat Hypothesis

Scapegoat hypothesis: leaders facing domestic political troubles initiate conflicts abroad.

- Key mechanism: "rally 'round the flag effect".

This hypothesis has mixed empirical support.

- Relies heavily on anecdotes.
- Also critically relies on the public being stupid.
- More uncertainty about the length/success of the "rally".

Status Inconsistency

Status inconsistency hypothesis: leaders frustrated that status does not square with power are likely to initiate wars.

- Classic case: Hitler's Germany. Informative of fears of "rising China".

This hypothesis has numerous shortcomings.

- Difficult to square with numerous countries.
- No reason to expect outward aggression as a result of "frustration".

War Cycles

War cycles hypothesis: war occurs in long cycles.

- States rise, hit a peak, and then gradually decay.
- War happens at turning points in the decay cycle.

Limitations in the hypothesis.

- Fits theory to data.
- Something of a *Magic Eye* puzzle.
- Ultimately mute on strategic factors.

Conclusion

Do arms races lead to war? The author doesn't think so.

- Arms control agreements may not help.
- Nuclear deterrence hypotheses seem vindicated.
- However, conventional arms races mostly lead to war.

Other hypotheses about status consistency, scapegoats, and war cycles enjoy mixed support at best.

Table of Contents