Arms Treaties & the Credibility of Preventive War: Why Did the Soviet Union Proliferate in 1949?

William Spaniel

University of Rochester

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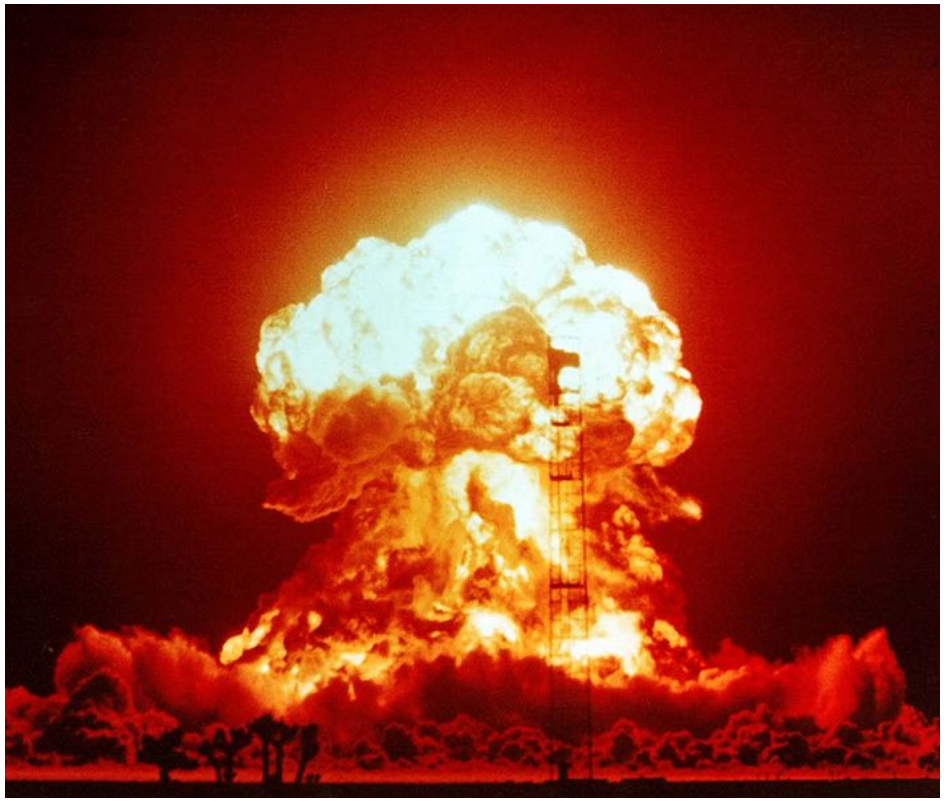
A Simple Observation



Bad. Costly. Why?

Proliferation Theory

- Current literature explains proliferation:
  1. Bargaining zero sum
  2. Weapons worth cost
  3. Preventive war not credible
- "[S]ecurity is the only necessary and sufficient cause of nuclear proliferation" (Thayer 1995, 486)

Applying Proliferation Theory

- Soviet proliferation therefore rational because:
  1. Competition with US
  2. Expensive but worthwhile
  3. US did not intervene

Why Not Bargain?

Why Not Bargain?

- Bargaining works!
  - Declining state gives immediate concessions to rising state
  - Rising state does not build—pointless if it already gets what it wants
  - Efficient result
- Proliferation puzzle

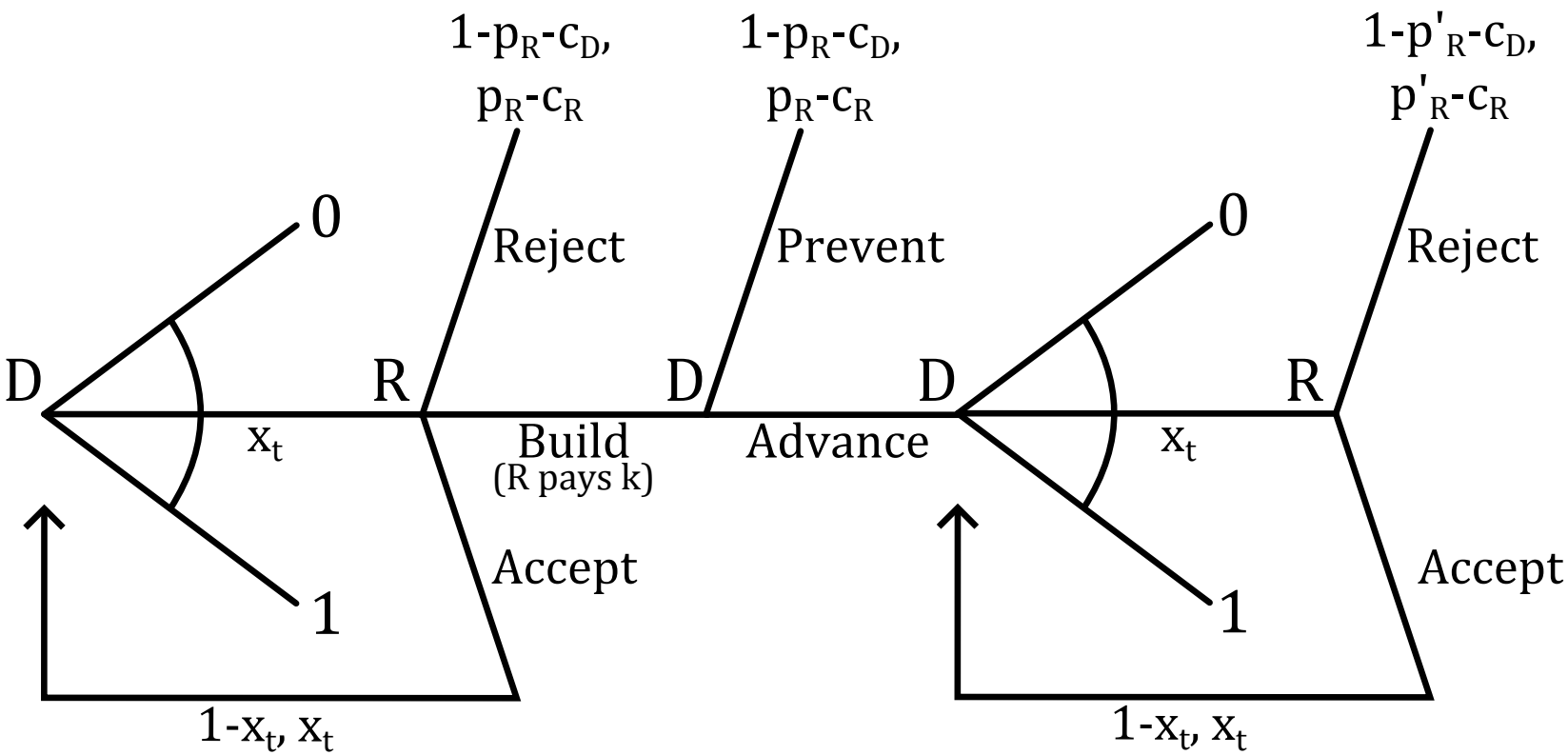
Why Soviet Proliferation?

- Commitment problem: bargaining can fail if declining state's desire to prevent fluctuates
  - US wanted to buy off USSR
  - Concessions would disappear once US was ready to intervene
  - USSR proliferates to guarantee its position

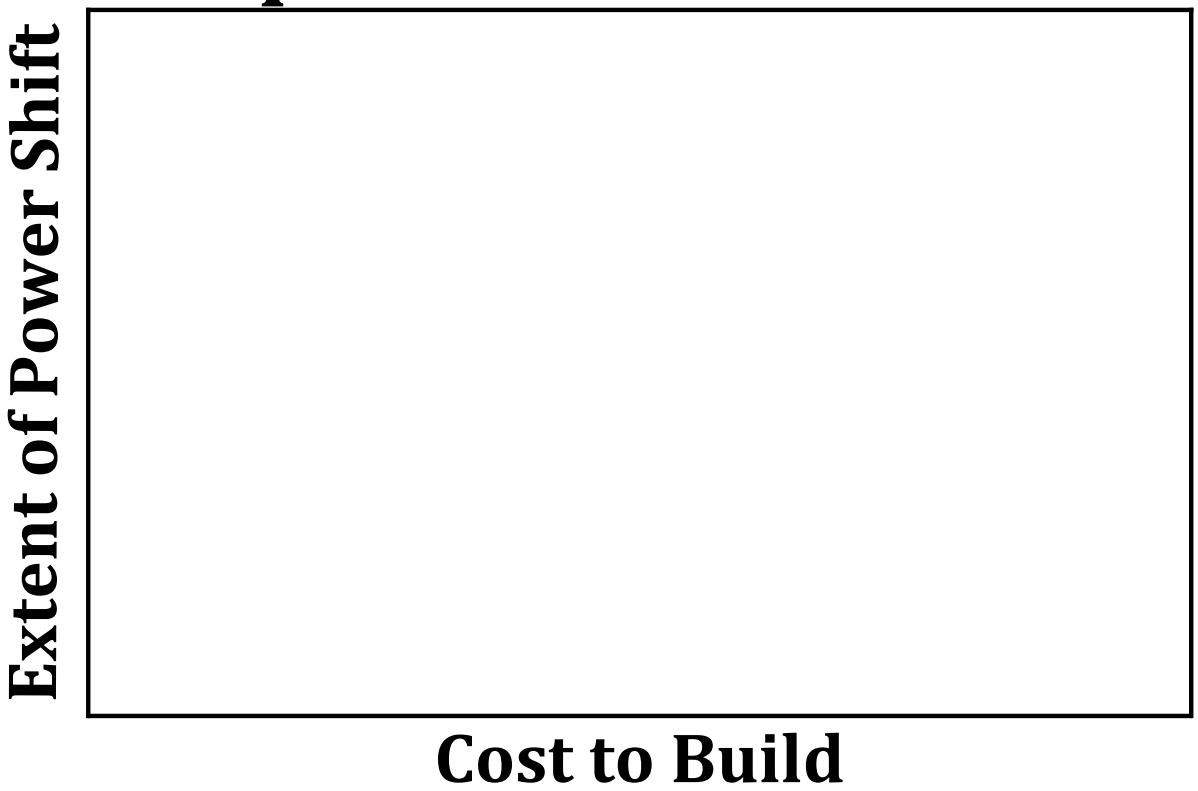
Key Features

- Bargaining model of war framework (Fearon 1995)
- Investment endogenous, costly
- Interaction continues through time

Game Tree


1-p_R-c_D,
p_R-c_R
1-p_R-c_D,
p_R-c_R
1-p'_R-c_D,
p'_R-c_R
0
Reject
Prevent
0
Reject
D
R
D
D
R
x_t
Build
(R pays k)
Advance
x_t
Accept
Accept
1
1
1-x_t, x_t
1-x_t, x_t

Equilibrium Outcomes



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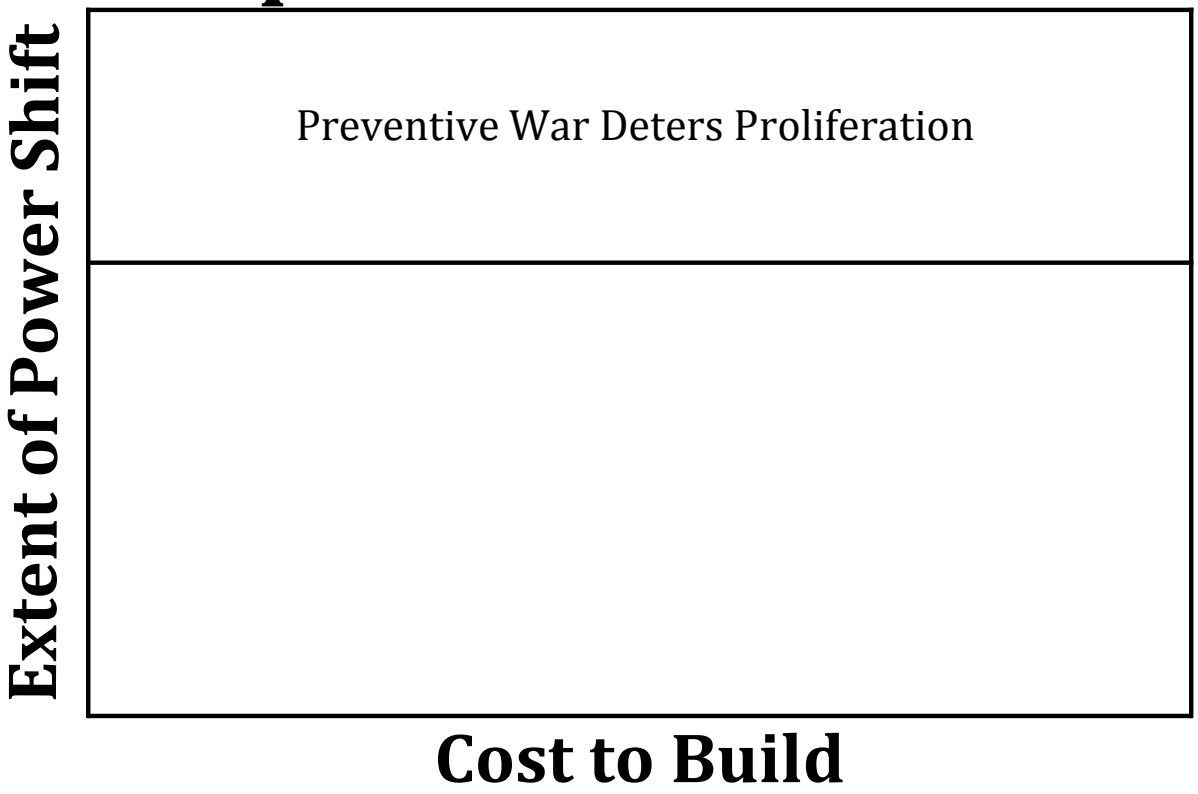

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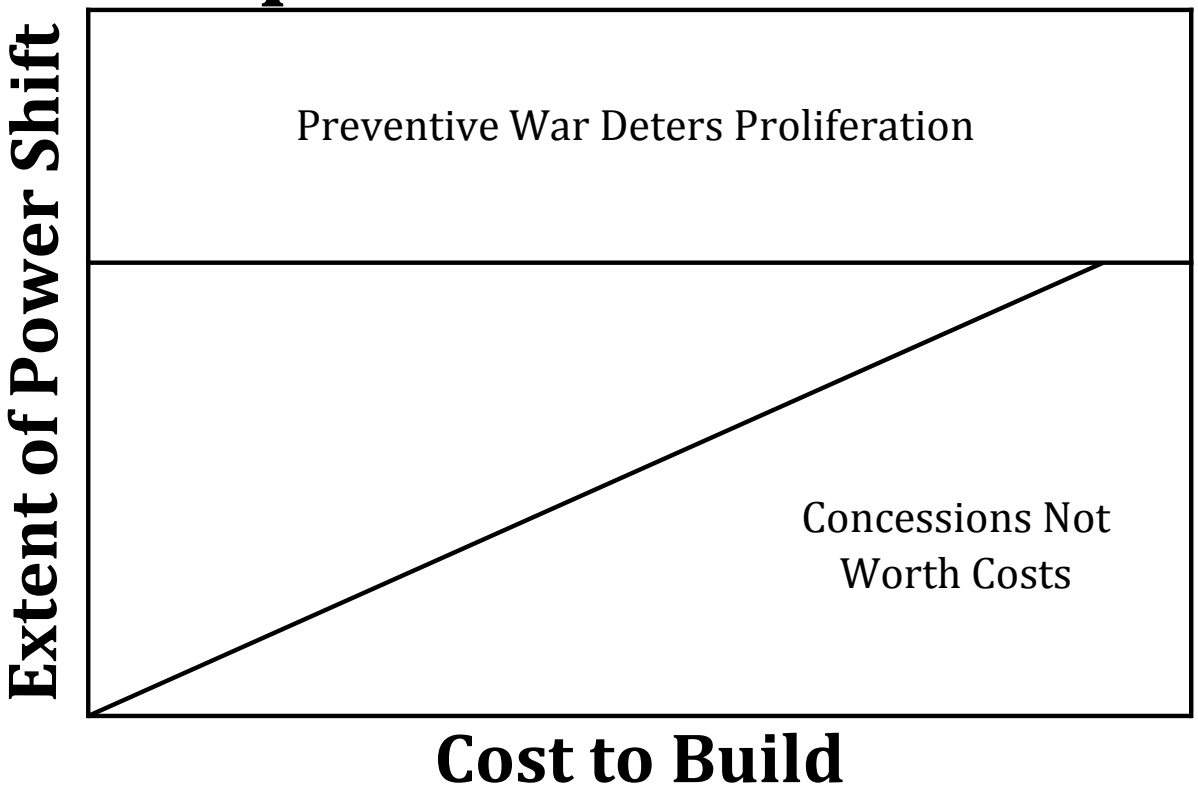

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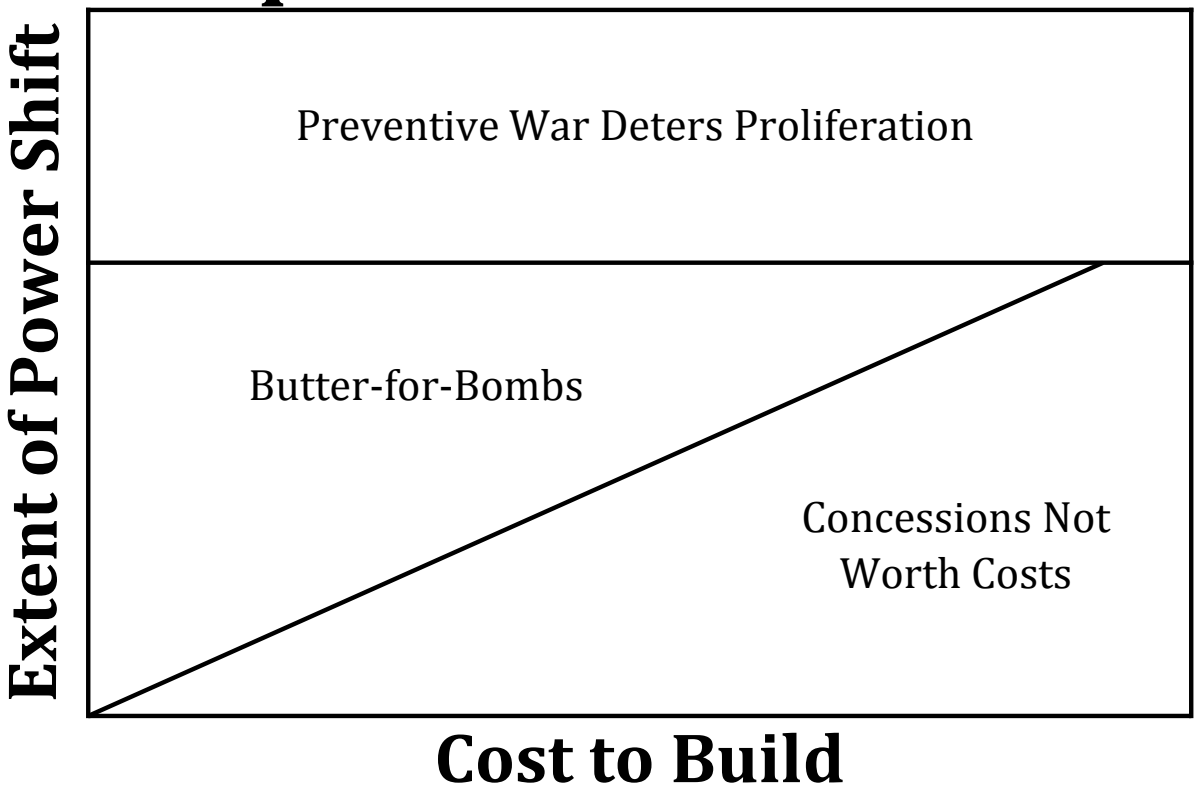
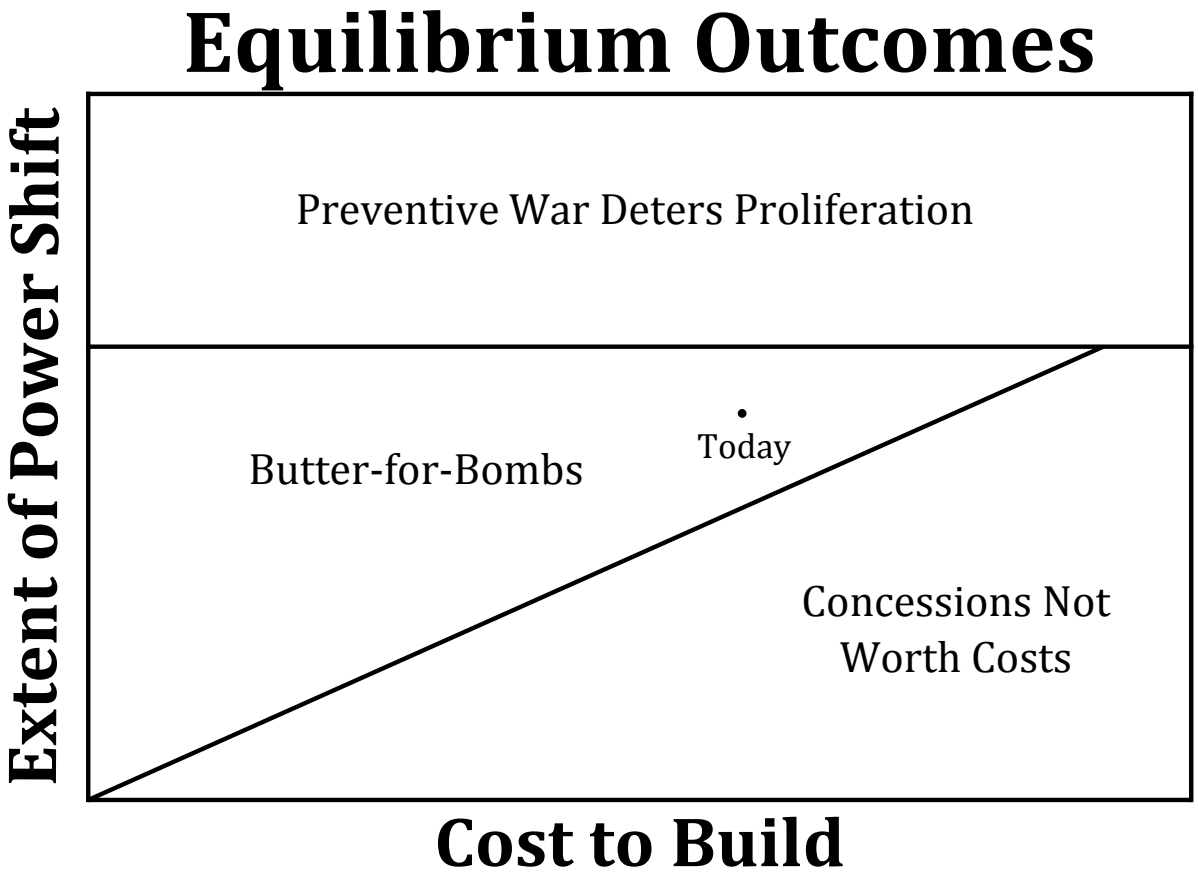


Robustness

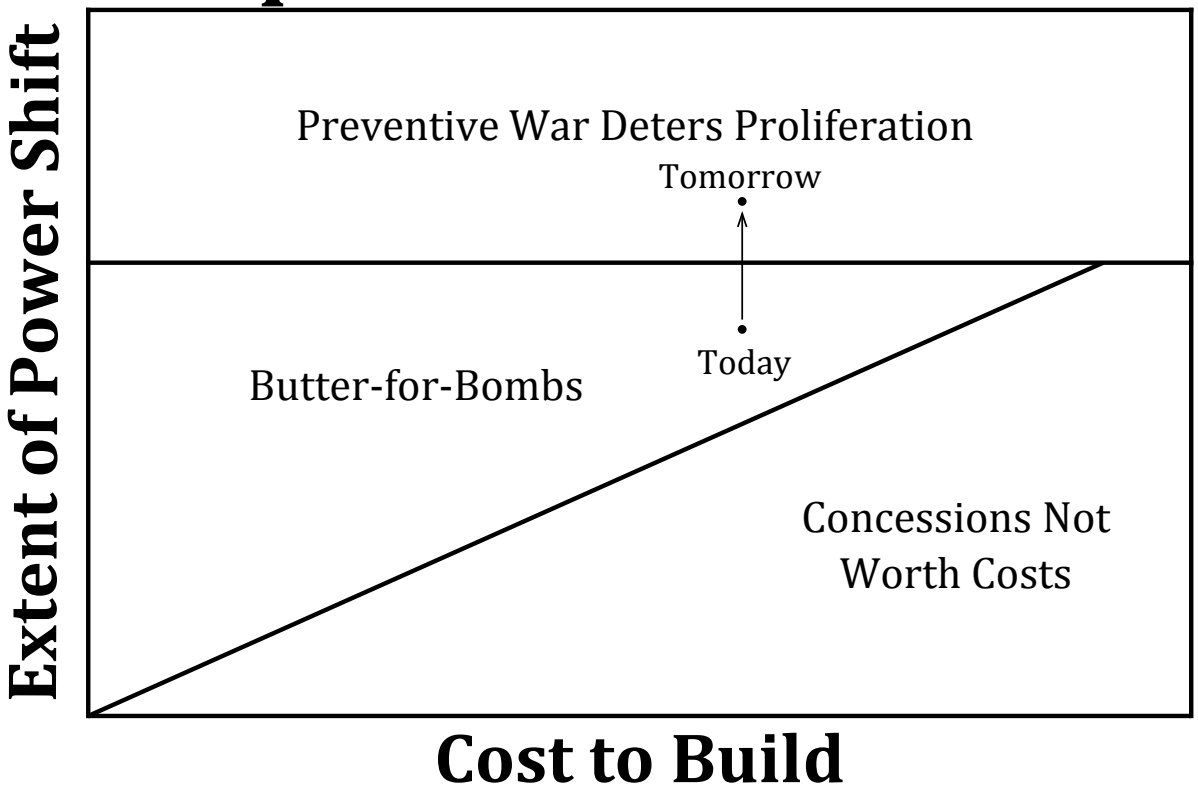
- Butter-for-bombs robust to alternative specifications
  - Non-binding agreements
  - Imperfect monitoring
  - Prior investment in nukes
  - Prestige
  - Punishment for reneging
  - Negative externalities
  - Non-binary power shifts
  - Endogenous investment costs
  - Nondeterministic proliferation
  - Bargaining over objects that influence future bargaining power

Creating a Commitment Problem

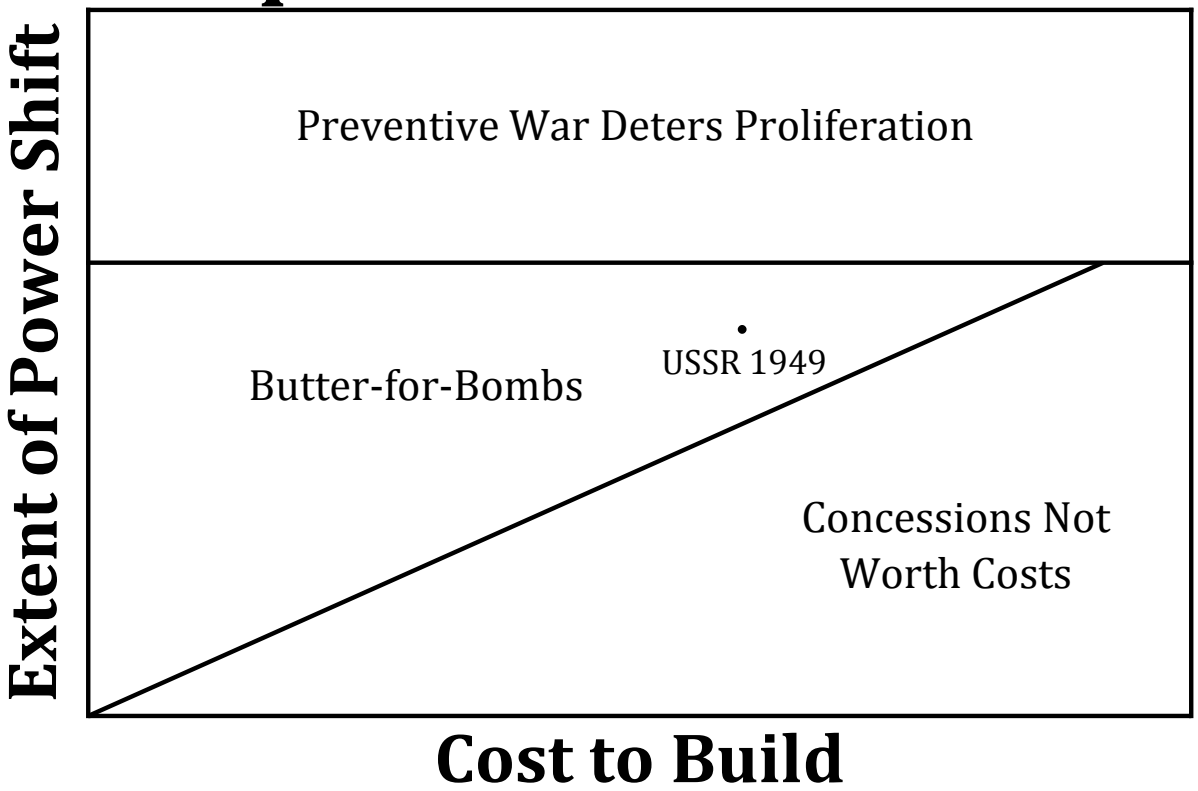
- Baseline model: D's war cost remains static
- But sometimes ability/desire to fight wars comes and goes
- Suppose c_D decreases over time
- Causes commitment problem


Equilibrium Outcomes
Preventive War Deters Proliferation
Butter-for-Bombs
Today
Concessions Not
Worth Costs
Extent of Power Shift
Cost to Build

Equilibrium Outcomes



Equilibrium Outcomes

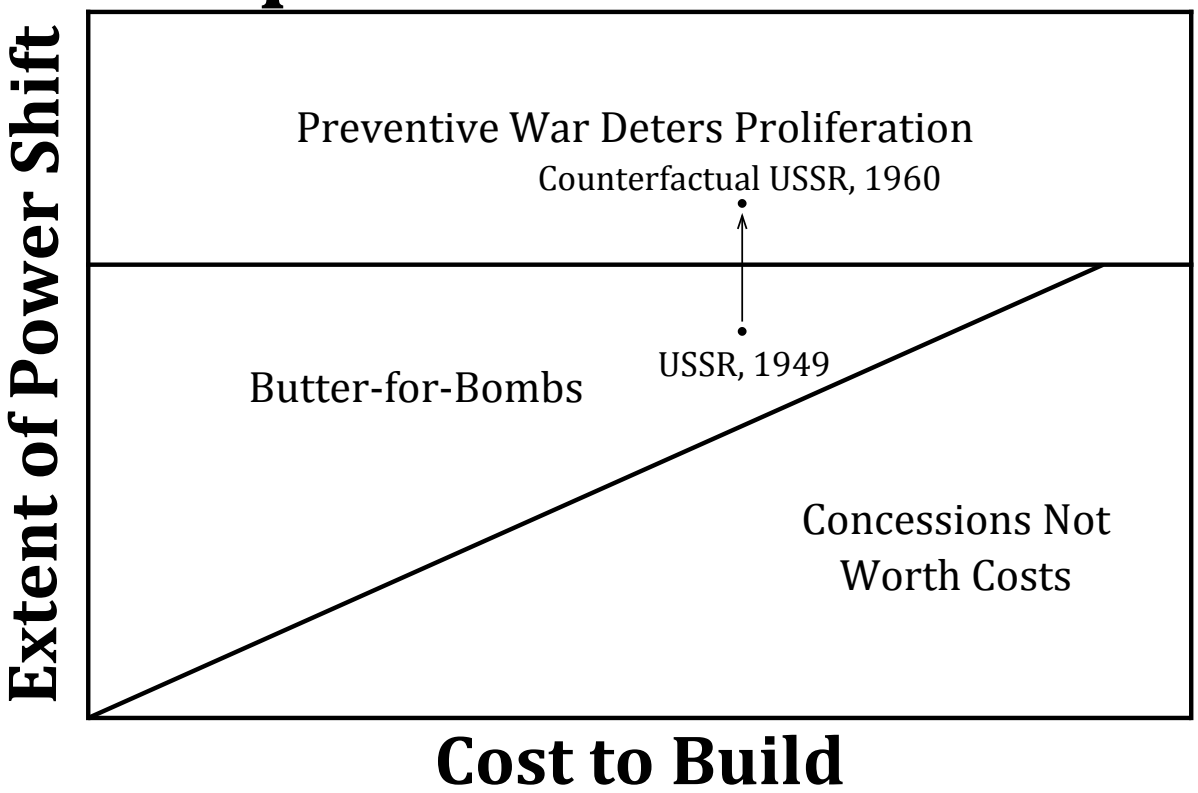


War Exhaustion

- Post-WWII: Domestic pressures to send troops home
- Churchill loses PM before V-J
- Truman 1946 midterm election defeat

American Spies in Russia, 1945

Equilibrium Outcomes



Cuban Missile Crisis, 1962

CIA (1952), Spy Planes (1955) Enter the Fray

Comparing the Counterfactual

- Suppose USSR did not proliferate by 1960
- Would US still give USSR concessions?
  - Questionable—US more willing and better prepared

Comparing the Counterfactual

- Suppose USSR did not proliferate by 1960
- Would US still give USSR concessions?
  - Questionable—US more willing and better prepared
- So is proliferating in 1949 rational?
  - Settlement possible in the short term
  - But terms would eventually go bad
  - Proliferation rational despite inefficiency

Recap

- Existing explanations *necessary* but not sufficient
- Why not bargain?
- Arms treaties fail if preventive war threat increases over time

Robustness: Prior Investment

- Other models of shifting power put the investment decision upfront. Why is this model the "right" one?
- Equilibrium outcomes with bargaining Pareto dominate equilibrium outcomes without bargaining
- Why would states "choose" the no bargaining game?
  - Rising state: "Declining state, make me an offer I can't refuse."
  - Declining state: "Gladly!"

Robustness: Prestige

- O'Neill 2006: States proliferate to enhance prestige
  - Many dispute this (Thayer 1995; Lavoy 1993)
- Regardless, prestige is zero sum
  - If all states are prestigious, no states are prestigious
- So "prestige" is a bargaining good
- Difference between p_R and p'_R implicitly covers this

Robustness: Punishment for Reneging

- Suppose *quid pro quo* bargaining, or D can recoup part of its offer if R builds
- Makes butter-for-bombs bargaining easier
- Eliminates the investment region entirely

Robustness: Negative Externalities

- Nuclear weapons impose costs on both states orthogonal to bargaining problem
- R's negative externalities implicitly covered in k
- Negative externalities for D make D more inclined to launch preventive war and buy R's compliance if preventive threat incredible

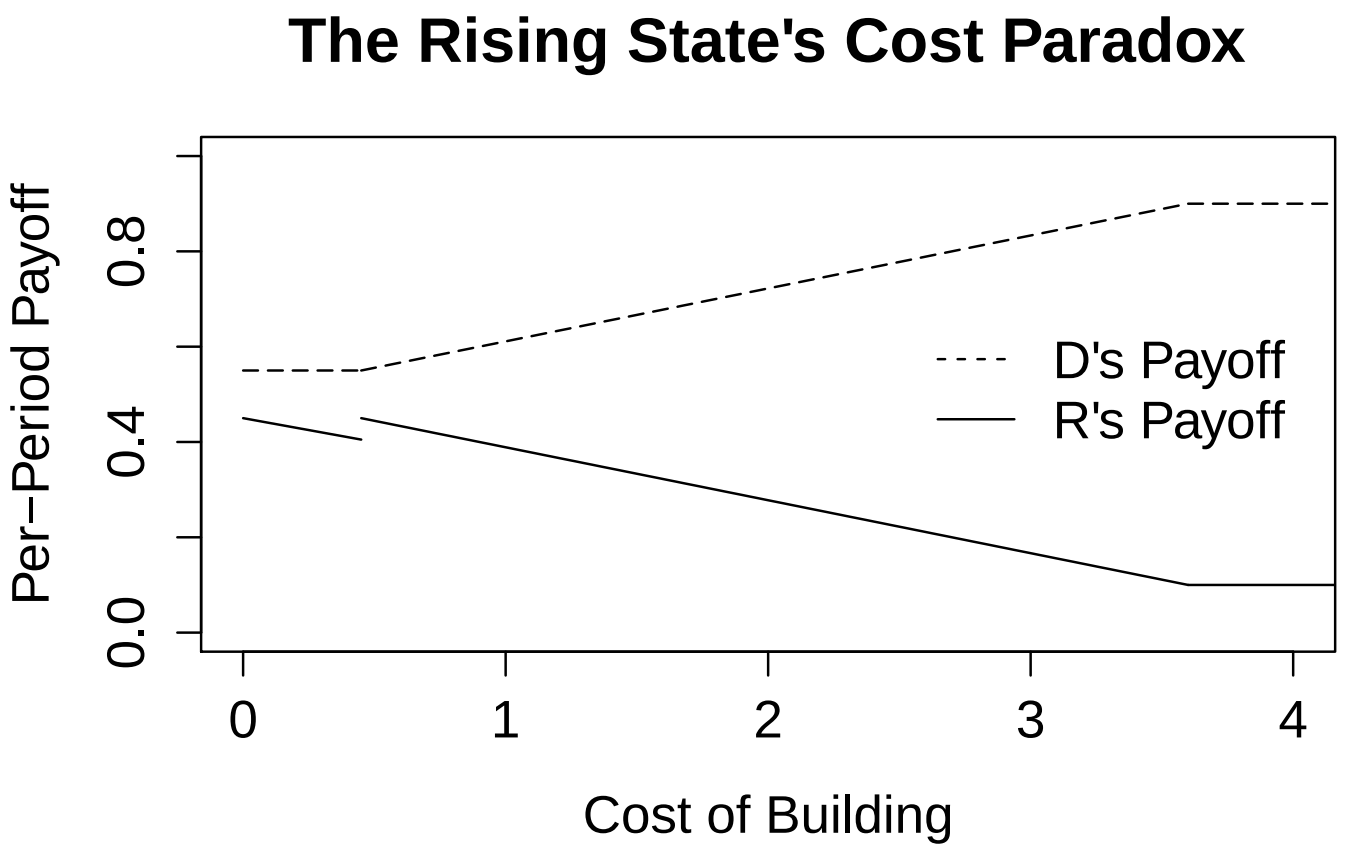
Robustness: Non-Binary Power Shifts

- Model only allows R to jump from p_R to p'_R
- What if R could choose an investment level k and receive a value for p'_R as a function of that k?
- Then some k^* maximizes the tradeoff between additional power and investment costs
- Imagine that k^* is the k in the model and its associated p'_R is the p'_R in the model
- Same butter-for-bombs result holds

Robustness: Endogenous Investment Costs

- What if R could control how costly weapons are, perhaps by signing treaties to make proliferation more difficult?
- Butter-for-bombs holds
- Proliferation region completely disappears

Robustness: Endogenous Investment Costs



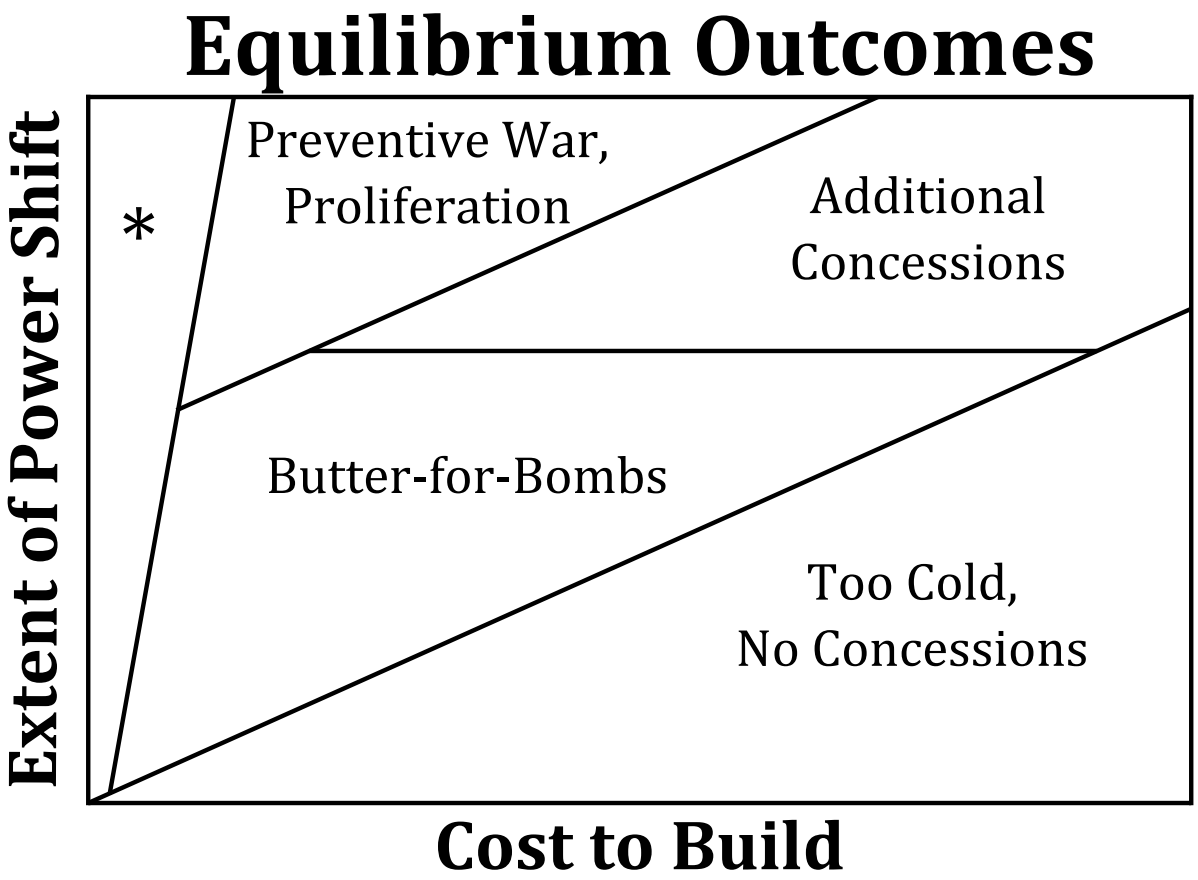
Robustness: Nondeterministic Proliferation

- What if proliferation was the result of a random process?
- Makes investment more costly (since possibility of failure), making butter-for-bombs easier
- Butter-for-bombs spreads to region in which preventive war previously deterred R
  - Nondeterministic proliferation makes preventive war costlier (since sometimes it turns out to be unnecessary), rendering D's proliferation threat incredible

Robustness: BOOTIFBP

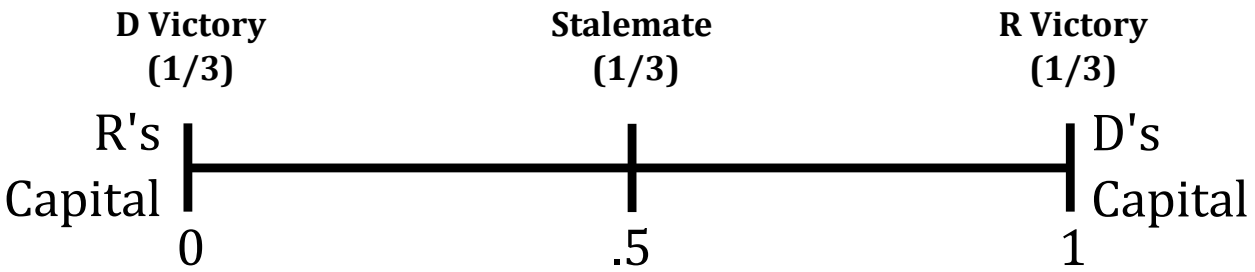
- What if changes to the status quo today make R more likely to prevail in war?
- Fearon 1996: Bargaining remains possible
  - Receiver willing to accept smaller offers upfront knowing that larger offers must come later
  - Problems only break out if bargaining good is not continuous
- Empirical support: Egypt, Israel, and the Sinai

Robustness: Imperfect Monitoring



Appendix: Nukes Defensive?

- p_R = weighted average of all possible war outcomes
- Pre-Shift: D victory possible $\Rightarrow p_R = \frac{1}{2}$



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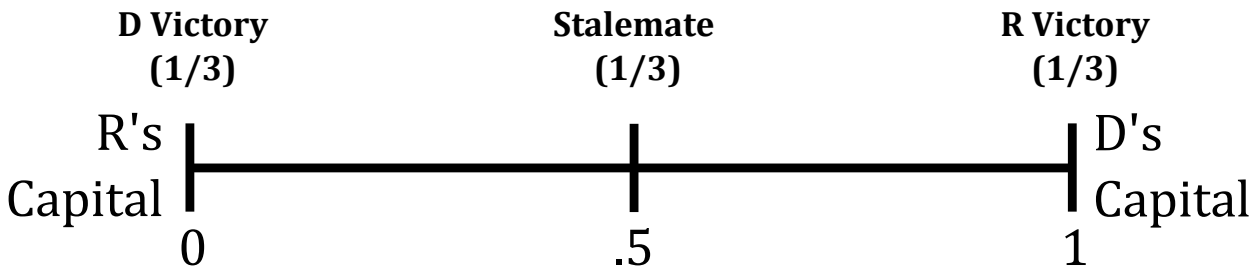
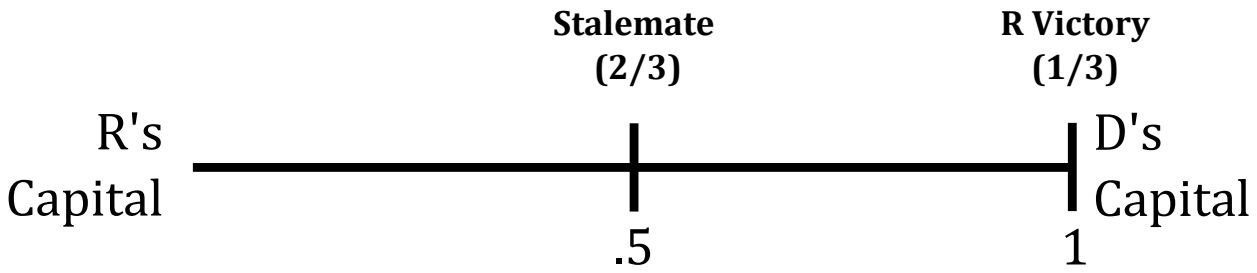


- Post-Shift: D victory not possible $\Rightarrow p'_R = \frac{2}{3}$



- Result: Nukes improve R's average outcome even if never used