

**Robert Powell, *In the Shadow of Power* (Princeton: Princeton University Press, 1999)
(Chapter 1, 2 and 3)**

A. Abstract

Chapter 1

- Interested in how the shadow of power affects state behavior, the author focuses the three behavioral patterns of a states responding to threats, namely 1) internal balancing, 2) bargaining and compromise, and 3) allying with others.
- The author believes that three factors, commitment problem, asymmetric information and the shift in technology of coercion influence the above-mentioned states' behaviors.
- The author argues that the formal models are helpful to improve the transparency of the argument in international relations theory.

Chapter 2

- Internal balancing confronts a state with a trade-off between satisfying its intrinsically valued ends (consumption) and procuring the means of military power.
- The guns-versus-butter model shows that states' efforts to resolve this trade-off result in a commitment problem. Both states would be better off if they could commit themselves to refraining from using military force against each other. But, they are unable to do so.
- The guns-versus-butter model improves the transparency of debates over 1) power maximizations, 2) relative gains vs. absolute gains and 3) relations between caring future and prospects for cooperation.

Chapter 3

- War is least likely when the international distribution of benefits reflects the underlying distribution of power. The greater the disparity between the distribution of power and the distribution of benefits, the more likely war.
- Changes in the technology of coercion affect the level of risk. For instance, 1) the higher the cost of fighting, the lower the risk is, and 2) the larger the offensive advantage, the higher the risk.
- This result contradicts expectations of both the balance-of-power and the preponderance-of-power schools.

B. Summary

1. Chapter 1: States and Strategies

(a) Central Questions

- The author is interested in how the shadow of power affects state behavior. Specifically, three questions on 1) how states cope with shifts in the distribution of power among them, 2) how states react when they are threatened, and 3) how changes in military technologies affect the prospects for peace are a particular concerns.

(b) Commitment Issues, Informational Problems, and the Technology of Coercion

- The author is interested in commitment issues, asymmetric information and technology

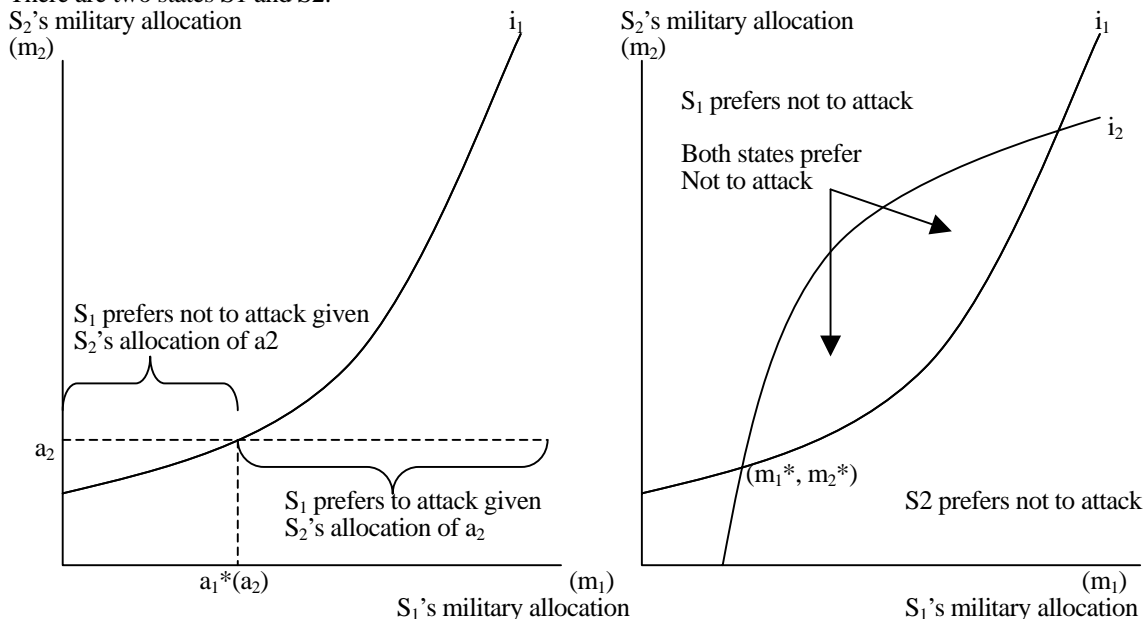
of coercion, because these affects a state's response to threats.

- A commitment problem: A group of actors could make themselves better off if they could commit themselves to following a particular course of action, but they are not able to do so. (E.g. Prisoner's dilemma).
 - Asymmetric information: Different actors know or believe different things about a situation. In international relations, these asymmetries take the form of uncertainty about state's preferences or capabilities.
 - Particularly, informational asymmetries create strategic problems when 1) the missing information matters and 2) one actor has some incentive to misrepresent because s/he knows something another does not.
 - The technology of coercion describes the relation between what an actor does and how those actions exert coercive pressure. Change in the technology can have important effects on the outcome of state interactions. Two good examples are the offense-defense balance and nuclear revolution.
- (c) Three Responses to Threat
- The Three major responses are internal balancing, bargaining and compromise, and allying with other states.
 - Commitment issues, informational problems and the technology of coercion affect these responses.
- (d) The Role of Formal Models
- The author believes that using formal models (mathematic models), particularly game theoretic models, helps to analyze issues in international relations.
 - Models are helpful to capture the essence of a complex phenomenon because their simplicity.
 - Models improve transparency of arguments because 1) models must be fully specified before analysis, and 2) the links from assumptions to conclusions are clearer in formal models.
 - Many widely accepted arguments in international relations theory appear to be incomplete and in need of qualification when they are subjected to greater transparency of a model.

2. Chapter 2: Guns, Butter, and Internal Balancing in the Shadow of Power

- (a) Assumptions and Propositions of the Guns-versus-Butter Model
- One of the ways a state can respond to threats in the international system is through balancing internally by reallocating the resources it controls.
 - A state's resources are limited and how it allocates them is critically important. Therefore, internal balancing confronts a state with a trade-off between satisfying its intrinsically valued ends and procuring the means of military power.
 - One important assumption is that each state tries to maximize its absolute level of welfare, not power.

There are two states S1 and S2.



- The model (the graphs described above) argues as follows:
 - 1) Efforts to preserve the peace through internal balance are doomed to break down in war if indifferent curves (i_1 and i_2) do not intersect.
 - 2) If i_1 and i_2 intersect, a unique, peaceful, perfect equilibrium of the guns-versus-butter game gives the states their highest possible peaceful payoffs. In this equilibrium, the state's optimum allocations lie at (m_1^*, m_2^*)
 - States' efforts to resolve this guns-versus-butter trade-off result in a commitment problem. Both states would be better off if they could commit themselves to refraining from using military force against each other.
 - Any change that increase either state's payoff to attacking relative to the status quo leads both states to increase their military allocations (E.g. States become more risk acceptant or shift in the offense-defense balance favoring for offense). If these changes are sufficiently large, both states have to devote so much to the military and therefore derive so little from remaining the status quo that internal balancing breaks down in war.
- (b) The Results and Implications of the Application of the Model
- Both offensive realism, which considers that states maximize power, and defensive realism, which argues that states do not maximize power, believes a different claim to follow deductively from neorealism's core assumptions. Modeling these issues will help sort out these and other conflicting claims by making clearer and more transparent conclusions do and do not follow.
 - Offensive realism says that states are concerned about the relative gains, not just the absolute gains and the relative-gains concerns in turn make international cooperation difficult and unlikely. However, the model reveals that the fact that states have to

decide how to allocate their resources and spend only a fraction of those resources on the military undercuts the standard relative-gains argument.

- Cooperation theory argues that the more states care about the future, the easier it is to sustain cooperation among them. However, the model demonstrates whether more concern about the future makes cooperation more or less difficult depends on the temporal sequence of costs and benefits. Cooperation theory considers that immediate gains are outweighed by the future punishment, while, the guns-versus-butter model says that the immediate costs will lead to the future gains.

3. Bargaining in the Shadow of Shifting Power

(a) Central Questions and the Development of the Model

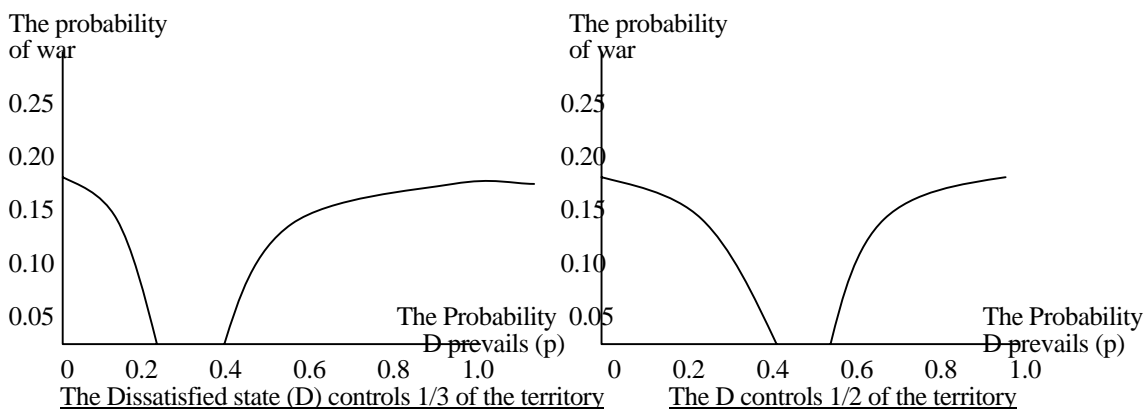
- How does the probability that the bargaining will break down in war vary with the distribution of power between the states?
- The model takes the following factors into considerations: cost of fighting, power distribution, and distribution of benefits.
- Assumption: The state are risk neutral and they believe that each other's cost or willingness to use force is uniformly distributed.

(b) Results and Implication of the Model

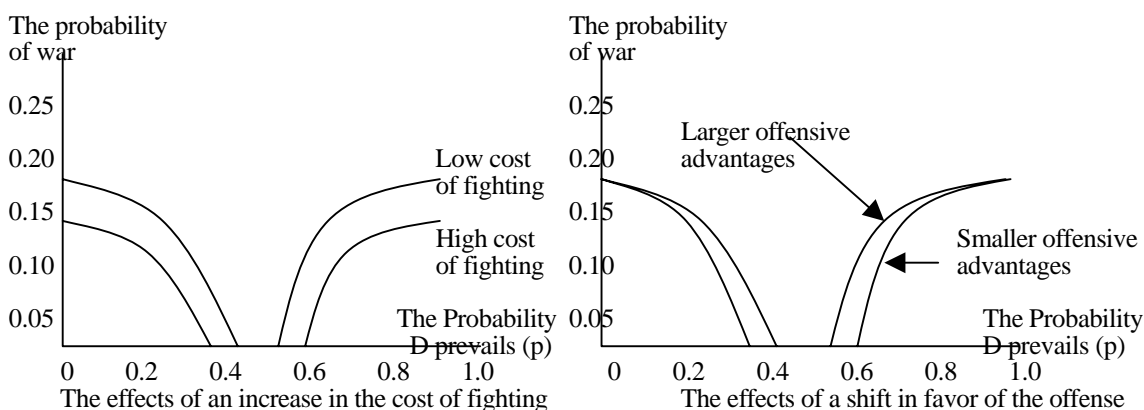
- With the complete information, bargaining never breaks down in war, because the satisfied state offer the dissatisfied state the pay off equivalent in value to its payoff to fighting. The agreement generally reflects the underlying distribution of power.
- When states are bargaining about revising the international status quo, informational problems can create risk-return trade-offs. The more a state offers another, the greater the prospects of satisfying that state's minimal demands and thereby averting war. But the more a state concedes, the less it will have if its concession is accepted. In balancing these factors, states often accept some risk of war. This is a calculated risk.
- Under the model of asymmetric information, the satisfied state (S) attempt to optimize the utilities gained from both cases where the dissatisfied state (D) accepts S's offer and where D rejects and attacks S by using probabilistic calculation of the cost of fighting.
- Lemma: the potentially dissatisfied state never rejects an offer in order to make a counter offer.
- Under the model of asymmetric information, the satisfied state (S)'s optimal offer (x) is:

$$X^* = p + (s - \bar{d})/2, \text{ (where } p, s \text{ and } d \text{ denote power distribution, S's cost of fighting, D's and estimated minimum cost of fighting.)}$$

- This formula suggests that the more powerful the dissatisfied state is (p becomes larger), the more the satisfied state offers,. Also, it suggests that the higher the cost of fighting for the satisfied is (s becomes larger), the more the satisfied state offers.
- The model suggests that relations between the probability of war and the distribution of power is the following graph:



- The above graphs say that war is least likely when the distribution of benefits mirrors the distribution of power. If, by contrast, the disparity between the distributions of power and benefits is too large, one state will be dissatisfied and willing to use force. This dissatisfaction combined with informational problems creates a risk of war, which typically grows as the disparity becomes larger.
- This result contradicts expectations of both the balance-of-power and the preponderance-of-power schools (p.106). The balance-of-power school argues that war is least likely if power is evenly distributed between the states, while the preponderance-of-power school claims that war is least likely if one state preponderates.
- Changes in the technology of coercion do not affect the overall relation between the disparity, the larger the risk. But these changes do affect the level of risk. The following graphs show that 1) the higher the cost of fighting, the lower the risk is, and 2) the larger the offensive advantage, the higher the risk.



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