

บททดสอบทฤษฎีอรรถประโยชน์คาดหวังของสงคราม: ศึกษากรณีการตัดสินใจทำสงครามเกาหลี ของเหมา เจ๋อตง

ภูวิน บุญยะเวชชีวิน

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บทคัดย่อ

บทความนี้ทดสอบทฤษฎีอรรถประโยชน์คาดหวังของสงครามกับกรณีศึกษาการตัดสินใจทำสงครามในเกาหลีของเหมาเจ๋อตง ข้อมูลที่ใช้ในการทดสอบนำมาจากโปรแกรม EUGene ซึ่งออกแบบมาอย่างเฉพาะเจาะจงเพื่อทดสอบทฤษฎีดังกล่าว ในกรณีศึกษา นี้ หลักฐานเชิงประจักษ์ไม่สนับสนุนสมมติฐานจากทฤษฎี อย่างไรก็ตาม ผลของการทดสอบจำเป็นต้องนำมาจัดวางในบริบทที่กว้างกว่าเพิ่มเติม

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Testing an Expected Utility Theory of War: Mao's Decision for War in Korea as a Case Study

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Abstract

In this article, the expected utility theory of war is tested against a case study of Mao's decision for war in Korea. The data used in the test is generated from the EUGene software, designed specifically to test this theory. In this case study, the empirical evidence does not support the hypothesis derived from the theory. However, the results of this test need to be placed in a wider context.

Keywords: expected utility theory of war, China, United States, Mao Zedong, Korean War

Introduction

One of the most significant developments in the field of international relations in the past three decades or so has been the extensive use of rational choice models in the study of militarized interstate disputes (MIDs). Rational choice models seek to provide an abstract-deductive theory to explain and predict outcomes. A striking example is the “expected utility theory of war,” a type of rational decision-making model developed by Bueno de Mesquita (1980, 1981). In a nutshell, the theory asserts that a state will initiate an interstate dispute, including war, when leaders believe it is in the state’s national interest to do so—that is to say, when decision-makers calculate that war has a higher utility than peace. The expected utility theory offers both the opportunity to deduce propositions about MIDs and war and to assess the validity of such propositions as explanations of actual behavior through the application of basic indicators (Bueno de Mesquita, 1985, p. 156). Thus it is worth examining the applicability of the theory to outlier case studies.

In this article, Mao Zedong’s decision for war in Korea is selected as a case study. It is selected for the following reasons: (a) China’s foreign policy was often described as aggressive, violent, and irrational (e.g., Jian, 1995/1996); (b) foreign policy decision-making in Mao’s China was highly centralized, and Mao himself made almost all important decisions directly (Jian, 2001); (c) Mao was long viewed as an irrational rogue leader (Shimko, 2016, p. 274; Sullivan, 2012, p. 219), and both historical and scientific evidence

suggested that he suffered from a severe mental disorder, resulting in irrational decisions and causing tens of millions of deaths (e.g., Pye, 1996; Retief & Wessels, 2009; Sheng, 2001); (d) it was Mao who made the decision to intervene in Korea and who was the key figure in Korean War decision-making (Feng, 2007), which came at the price of huge casualties (Garver, 1993, p. 289); and (e) many scholars argue that China's decision to enter the war in Korea was not a rational consideration (e.g., Goncharov, Lewis, & Xue, 1993; Hunt, 1992; Zhang, 1995).

Bueno de Mesquita's expected utility theory of war starts from the premise that the decision to wage war is made on a rational basis—that leaders go to war when war has a higher utility than peace. Accordingly, Mao's decision to enter the Korean War would have been a rational one, based on a positive expected utility calculation. A positive expected utility is a necessary condition hypothesis if the decision is rational; however, it is not a sufficient condition hypothesis for a leader to initiate MID's and wars (Bueno de Mesquita, 1981, p. 182).

Thus, the objective of this article is to examine the degree to which the expected utility theory of war can be used to explain China's decision, under Mao Zedong, to intervene in the Korean War. In doing so, it uses the EUGene software, the expected utility generation and data management program designed by Bennett and Stam (2000), to generate expected utility data used to test the theory. The rest of this article proceeds as follows. First, it outlines the basics of the expected utility theory of war and explains the

related issues. Next, it provides an overview of the research methodology. Finally, the expected utility data for China's war in Korea is generated and examined to find out if it can be explained by the theory.

Literature review

MIDs and wars follow from political decisions. Accordingly, all explanations on wars always incorporate, either directly or indirectly, a decision-making model. Decision-making models can be distinguished into two types by their assumptions on rationality: rational and non-rational (Geller & Singer, 1998, pp. 31–45). Non-rational decision-making models believe that decisions are frequently given a misleading account by perceptual, cognitive, and bureaucratic biases. In this regard, decisions are usually imperfect. These models therefore focus on psychological and cognitive variables or organizational and bureaucratic variables. A classic example is a work by Harold and Margaret Sprout (1965), arguing that to explain international political decisions, one needs to look at what they called the “psycho-milieu”, referring to the psychological, situational, political, and social contexts of those who are involved in the decision-making process.

In contrast to non-rational models, rational decision-making models believe that psychological and bureaucratic biases have little impact on decisions. All decision-makers, as a decision-making unit, are rationally sensible and calculate in the same manner, and their decisions are instrumentally rational, the logical consistency

and coherence inherent in goal-directed behavior. These models are therefore based on the concept of instrumental rationality (Geller & Singer, 1998, pp. 31–45). Decision-makers are rational if their preferences across a series of outcomes are connected and transitive, having at least a rank order preference function (Zagare, 1990, pp. 240–243).

Expected utility theory is a model of rational decision-making. This article will introduce the basics of expected utility theory and then examine the expected utility theory of war developed by Bueno de Mesquita. Due to space limitations, it is not possible to provide the detailed derivation of the equations from Bueno de Mesquita's theory. Nevertheless, it can be found in my earlier article (Bunyavejchewin, 2015) or in source texts (Bueno de Mesquita, 1980, 1981).

1. Expected utility theory

Expected utility theory emerged as a part of microeconomics, explaining microeconomic behavior. Its foundation can be traced back to Adam Smith's description of the operation of markets-an invisible hand controlling economic decisions through self-interested choice (Bueno de Mesquita, 1989, p. 143). In expected utility theory, a person makes decisions in an attempt to maximize his preferences. Speaking in theoretical terms, the agent can order his or her preferences properly, that is, corresponding to the premises of instrumentally rational choice under risk and uncertainty, and choose in order to maximize his or her utility (Mantzavinos, 2004, p.

50).

The focus of expected utility theory is on two variables: utility and probability. Utility is the benefit of outcomes. Probability is the chance that a specific outcome will result from a certain decision. The theory predicts that rational decision-makers will make the decision that has the greatest value when both utilities and probabilities of obtaining them are taken into consideration (D'Anieri, 2010, p. 157). Thus what it suggests is that in making decisions, people do not only think of their preferences or the utility they may get but also consider the odds that they may get it (Quackenbush, 2015, p. 50).

In short, expected utility theory, as summed up by Briggs (2015), “provides a way of ranking the acts according to how choice-worthy they are: the higher the expected utility, the better it is to choose the act...[it] is therefore best to choose the act with the highest expected utility—or one of them, in the event that several acts are tied.”

2. Expected utility theory of war

It is the aforementioned perspective that Bueno de Mesquita uses to put forward the expected utility theory of war (Bueno de Mesquita, 1989, p. 143). In this regard, the basis of the theory originates in microeconomic theory, assuming that decision-makers will attempt to find the largest net gain available to them through probability calculation, based on a cost-benefit comparison of choices given the relative risks associated with each outcome

(Geller & Singer, 1998, p. 42). This rationality implies that decision-makers will only initiate wars that they expect the benefits from; conversely, they will avoid war if they expect to have a net loss (Quackenbush, 2015, p. 51).

According to Bueno de Mesquita (1989, p. 144), the essence of the expected utility theory is that (a) decision-makers are rational insofar as they can rank-order options in terms of their preferences; (b) the rank order of preferences is transitive; (c) decision-makers know the intensities of their preferences, with intensity of preference generating utility; (d) decision-makers consider options of achieving favorable ends in terms of the result of the probability of achieving outcomes and the utility associated with those outcomes; and (e) decision-makers always choose the option that yields the highest expected utility.

Bueno de Mesquita (1980, p. 917; 1981, pp. 19-45) describes the principal assumptions of the expected utility theory as follows: (a) decisions to start MIDs, including war, can be considered as if they were the result of the calculations of a single top decision-maker; (b) decision-makers are rational expected-utility maximizers; (c) differences in decision-makers' orientations on risk-taking affect their decision-making; (d) uncertainty about possible behavior of other states in the case of conflict influences decision-making; and (e) state power decays over geographic distance.

To calculate expected utility, cardinal utilities must be evaluated. In the formation of the expected utility decision rules, Bueno de Mesquita (1980, p. 919; 1981, p. 30) assumes that utility values

are bounded between -1 and 1. The perception of perfect agreement on the relevant policy options is shown as a utility value of 1, while the perception of complete disagreement is shown as a utility value of -1.

In calculations about the initiation of MIDs, such as wars, seven types of actors can be identified:

1. The potential initiator (henceforth called i);
2. The potential defender (henceforth called j);
3. Those states whose policies are considered by i as friendly toward i , but not toward j (henceforth called k_1);
4. Those states whose policies are considered by i as friendly toward j , but not toward i (henceforth called k_2);
5. Those states whose policies are considered by i as friendly toward both i and j (henceforth called k_3);
6. Those states whose policies are considered by i as neither friendly toward i nor toward j , but as friendly toward other third parties (henceforth called k_4);
7. All non-aligned states whose policies are considered by i as neither friendly toward i , nor toward j , nor toward other third parties (henceforth called k_5) (Bueno de Mesquita, 1980, p. 919; 1981, p. 49).

To contemplate the expected utility of war initiation, the following factors are significant: (a) the relative capabilities of i and j ; (b) the value i places upon changing j 's policies in comparison to the changes in policies that i must accept if it loses to j ; and (c) the relative capabilities and perceived policy interests of $k_1k_2k_3k_4k_5$

that could intervene in the war (Bueno de Mesquita, 1980, p. 919).

Accordingly, the overall expected utility equation of i from starting a war against j , in the absence of uncertainty, according to the expected utility decision rules, is as follows:

$$E(U_i) = E(U_i)_b + \sum_{l=1}^5 E(U_i)_{k_l} \quad (1)$$

where

$E(U_i)$ = i 's overall expected utility of a war with j .

$E(U_i)_b$ = i 's expected utility of a bilateral war with j .

$\sum_{l=1}^5 E(U_i)_{k_l}$ = i 's overall expected utility from a multilateral war with j , assuming that i perceives all third parties k_l (where l includes third parties of types 1 to 5 as mentioned above) as potentially supporting i .

In Equation 1, which is Equation 6 in Bueno de Mesquita (1981), i knows whether the war tends to yield benefits or losses. To put in another way, if $E(U_i) > 0$, the war is expected to provide benefits, while if $E(U_i) < 0$, attacking j is expected to yield losses. And when $E(U_i) = 0$, i is indifferent insofar as the material calculation is concerned.

Hence the expected utility calculus of the potential initiator to initiate MID and wars can be summarized as: (a) a decision to initiate MID and wars is rational if expected utility is greater than zero; (b) a decision to initiate MID and wars is irrational if expected

utility is less than zero; and (c) a decision to initiate MIDs and wars is neutral in the sense that it is unlikely to favor either a potential initiator or a potential defender if expected utility equals zero. In summary, to enter or initiate war-threatening conflict rationally, the overall expected utility of MID and war initiation must be positive.

Bueno de Mesquita tests hypotheses derived from his theory using the Correlates of War (COW) project data from 1816 to 1974, reporting strong empirical support for the theory (Bueno de Mesquita, 1981). He also contends that the theory can account for cases that appear to be deviant. For example, the results of his study indicate that allies are more likely to initiate wars against each other than are enemies (Bueno de Mesquita, 1981, p. 162). Nevertheless, expected utility theory of war has been criticized for several reasons, particularly for improper use of rational assumptions in decision-making as well as for statistical evidence improperly cited to support the theory (e.g., Majeski, 1984; Wagner, 1984).

Despite such critiques, Bueno de Mesquita's expected utility theory has been applied by many scholars to explain specific case studies. For example, Kim (1991) modified Bueno de Mesquita's theory to explain regional rivalry between North and South Korea in the Korean Peninsula. Other examples worth mentioning are recent studies by Langlois (2012) and Bunyavejchewin (2015) examining the decisions to initiate wars and testing whether or not such decisions are rational in a cost-benefit sense. They found that the decisions in their cases are rational, despite the fact that the results are counterintuitive because of the decision-maker's character and the regime type.

It is noteworthy that the expected utility theory of war also has limitations. As Bueno de Mesquita (1989, p. 148) states:

[As a rational decision making model, the theory is] not intended to illuminate the rich details and texture of events. Rather, [it is] designed to specify a simplified, ordered view of reality that reveals internally consistent and externally useful general principle...In doing so, [the theory sacrifices] details for breadth and specificity for generality.

Methodology

In this article, I mainly used deductive methodology, as deduction is the simplest way to present the argument. This section first deduced a hypothesis from the expected utility theory of war and then operationalized that hypothesis. The next step was to create quantitative data that could be used to examine whether the operationalized hypothesis was supported.

The hypothesis deduced from the expected utility decision rules, *Equation 1*, is:

H1: The potential initiator, state i , has a positive utility value when it decides to enter a MID.

In order to test it, I refined and operationalized that hypothesis to the following *operationalized hypothesis*:

H1O: Mao's China had a positive utility value when it decided to intervene against the United States in the Korean War.

Accordingly, the dependent variable is if China chose rationally to enter the war in Korea. Obviously, China did enter the war, but what this article would like to determine is whether the decision was based on a positive expected utility calculation. Thus, the independent variable used for testing the prediction of the theory is the expected utility of an MID decision. Further, the expected utility value must be more than zero to show the theory to be true.

I assessed H1 and H1O outlined above using a directed-dyad design with conflict data spanning the years 1950–1953, retrieved from the EUGene dataset. A directed-dyad design was converted from the COW MID data and included information on various independent variables. It therefore allowed us to generate expected utility data (τ) for MID decisions in the case study: that is, China versus the United States in the Korean War. It was also used to generate other conflict data between state pairs.

Results

To examine the expected utility of China's intervention in the war in Korea against the United States from 1950 to 1953, I used the EUGene software, designed to follow Bueno de Mesquita's theory, to generate the expected utility values. Table 1 shows the results:

Table 1 China's expected utility values for intervening
in the Korean War

ccode1 (i)	ccode2 (i)	year	euwtT 1v2	Cwin nit	cwnu mst1	cwnu mst2	cowro lea	cowro leb
710	2	1950	- 1.2630 7	0	2	15	2	4
710	2	1951	- 0.7426	1	2	15	2	4
710	2	1952	- 0.7497 6	0	2	15	2	4
710	2	1953	- 0.7235 1	0	2	15	2	4

Notes: ccode1 = COW CCode number for state 1 (China)

ccode2 = COW CCode number for state 2 (United States)

euwtT1v2 = Expected Utility, CCode1 vs. CCode2, by War
Trap methods (Tau)

cwinit = MID Initiation: CCode1 initiated a MID vs. CCode2 in
this year (0=no, 1=yes)

cwnumst1 = Number of states on CCode1's side

cwnumst2 = Number of states on CCode2's side

cowrolea = CCode 1's role in the dispute (computed only for MIDs covered in MID 3.0 data) per Maoz coding scheme (1: Primary Initiator; 2: Joiner on initiator side; 3: Primary target; 4: Joiner on target side).

cowroleb = CCode 2's role in the dispute

In the Korean War, North Korea was the primary initiator, while South Korea was the primary target. The dispute was ongoing before China entered the war as the joiner on the initiator side. The United States entered the war as the joiner on the target side. According to the conflict data based on the COW MID data set, there were two states on China's side and fifteen states on the U.S. side. In addition, the conflict data showed that it was not until 1951 that China initiated a MID versus the United States.

Concerning the expected utility, China's expected utility values in the war with the United States throughout the specified time were all below zero. These numbers indicate that China had a negative expected utility in the given time frame—an intervention against the United States in the Korean War would be irrational in strictly cost-benefit terms.

Thus these results do not support the operationalized hypothesis that China had a positive utility value when it decided to intervene in the Korean War against the United States—that is to say, the decision of Mao Zedong's China to intervene in the war in Korea was not rational in a strictly cost-benefit sense.

Discussion and conclusion

The objective of the article is to examine whether the expected utility theory of war could explain China's decision, under Mao Zedong, to enter the war in Korea. The results presented in the previous section indicated that the theory is unable to explain the Chinese decision, since the expected utility values of China's war against the United States are negative. Nevertheless, the limitations of this article are clear: it has examined only the expected utility values of war decisions calculated from national capabilities of the dyad and those of the states on each side. Thus, the results are strictly and narrowly concentrated in terms of cost-benefit.

According to Bueno de Mesquita's theory, China's Korean War was not supposed to be a rational act at all; this was not counterintuitive, even among elites in Beijing. On October 2, 1950, a day after North Korean leader Kim Il-sung requested China's intervention, most participants in a special meeting of China's Politburo opposed intervention, arguing that China's military strength was well below that of the United States (Garver, 1993, p. 287). Intriguingly, Mao also admitted such difficulties yet insisted on helping the communist regime in Korea. As he said, "[e]verything that you say makes sense. Nevertheless, if we just stand by while others are experiencing a national crisis, no matter what, it is very hard to accept" (Garver, 1993, p. 287). Why did Mao's China intervene in Korea? There is no consensus on the answer but rather a wide range of views.

However, to paraphrase John Lewis Gaddis, "we know

now” that even after the decision for intervention was made, Mao hoped that war with the United States might be prevented by signaling to the United States of China’s determination to push it back down to the 38th parallel. And he hoped a “limited war” might stop the United States from crossing the 38th parallel. Whiting (1960) interpreted Mao’s decision to cross the Yalu, conducting a limited war, as a deterrent strategy to warn the United States not to encroach on China’s borders. This derives from the fact that Mao perceived U.S. intervention in Korea as a step toward an invasion of China to restore Chiang Kai-shek’s regime. Furthermore, Korea would be the most strategically favorable place for China to confront the United States (Yufan & Zhihai, 1990). If this were Mao’s intention, it might be argued that, to some extent, he achieved his goal: he drove the United States away from China’s border and pushed the Americans back behind the 38th parallel, but at a cost of about 900,000 Chinese soldiers (Garver, 1993, p. 289). Perhaps this is a different mode of rationality for involvement in MIDs and wars.

We also now know that Mao had known since 1949 about North Korea’s plan of attack and that Kim requested military support from him. Mao actually rejected Kim’s request and sent Soviet leader Josef Stalin a telegram criticizing Kim’s “irrational action” (Hu, 2005, p. 185). Nonetheless, Mao could not say no when the Soviet foreign minister told him that Stalin had given Kim the green light, because China was very young and still dependent on the Soviet Union (Gaddis, 2007, p. 42; Hu, 2005, p. 186). In this

respect, it might be argued that Mao had few options left but to enter the war in Korea, which was hardly viewed as a rational act, especially in a strictly cost-benefit sense.

Although Mao's decision for war in Korea is not rational in the eyes of the expected utility theory of war, it might be a rational act when viewed through other theoretical lenses. I would like to conclude with a quote from Shimko (2016): "Mao Zedong was viewed as a rogue leader: bellicose, unpredictable, brutal, ideological, and fanatical. Certainly, this was not someone to trust... There was even consideration of a preemptive attack on China's small arsenal. We tend to forget this today because Mao... eventually proved perfectly responsive to the realities of deterrence" (p. 274).

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