

The Perception of Gains from Cooperation in International Relations: Comparing Japanese and American Responses

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ABSTRACT

Realists assume that states are obsessed with relative gains and that cooperation is the exception rather than the norm in international relations. In contrast, liberal institutionalists assume that state leaders are primarily motivated by absolute gains. Both schools of thought implicitly assume that these beliefs transcend time and space. Individuals and leaders in military superpowers, small industrialized states, communist countries, and developing nations are all expected to hold similar beliefs. This paper probes the cross-national assumption by comparing the opinions and responses of Japanese subjects with American subjects. Subjects in both countries answered a 45-question survey and then engaged a series of computer-based iterated prisoner's dilemma experiments. Four central findings emerge from the analysis: 1) concerns over relative gains do not dominate all interactions; 2) realists are more concerned about relative gains than idealists, particularly among American subjects; 3) respondents in both countries carefully distinguish military from economic threats and only express concerns over relative gains when confronting a state they personally identified as a threat; and 4) American (but not Japanese) subjects with strong realist belief systems were much less likely to cooperate in the iterated prisoner's dilemma experiments.

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1. Introduction

Realists argue that power is by definition a relative concept and that due to the anarchical nature of the international system any gain in power by one state represents an inherent threat to its neighbors. Realists, therefore, assume that any potential exchange between states must exactly preserve the pre-existing balance of power (i.e., they focus on relative gains). In contrast, liberal institutionalists assume that state leaders will accept any agreement which makes the state better off (i.e., they focus on absolute gains). Both schools of thought implicitly assume that these beliefs transcend time and space. Individuals and leaders in military superpowers, small industrialized states, communist countries, and developing nations are all expected to hold similar beliefs. This paper probes the cross-national assumptions employed by both schools by comparing the opinions and behaviors of Japanese subjects with American subjects.

The central hypotheses are tested using a unique methodological approach. First, approximately 500 American and 80 Japanese undergraduates completed a 45-question survey (in their native language) probing opinions on international issues, including beliefs in absolute and relative gains. Second, approximately half of the subjects in each group engaged in a series of iterated prisoner's dilemma experiments. Four central findings emerge from the analysis: 1) concerns over relative gains do not dominate all interactions; 2) realists are more concerned about relative gains than idealists, particularly among American subjects; 3) respondents in both countries carefully distinguish military from economic threats and only express concerns over relative gains when confronting a state they have identified as a threat; and 4) American (but not Japanese) subjects with strong realist belief systems were much less likely to cooperate than subjects with strong idealist belief systems in the iterated prisoner's dilemma experiments.

2. Realists and Liberal Institutionalists

Realists, both classical and structural, argue that cooperation should be rare in an international system characterized by anarchy (Carr 1946; Morgenthau 1948; Waltz 1979; Mearsheimer 1994/5). Without a central body to protect states and enforce bilateral agreements, states must rely on themselves for survival and growth. The military and economic power of other states, therefore, represents a constant threat because intentions can never be known with certainty and nothing in anarchy prevents a state from using military force to resolve disputes. Jervis (1978) argues that this environment encourages spirals of hostility and arms races, even among states satisfied with the status quo.

Liberal institutional theorists have challenged the pessimistic conclusions of realism by demonstrating how cooperation can emerge *even after adopting the central assumptions of realism* (Keohane and Nye 1977; Stein 1982; Krasner 1983; Axelrod 1984; Keohane 1984; Oye 1986). Institutionalists assume that state leaders are rational actors and that they are driven by self-interest rather than collective interests (i.e., national welfare rather than global welfare). They argue that realists err by implicitly modeling the world using the classic single-play prisoner's dilemma, which is displayed in Figure 1. In a single-play prisoner's dilemma, a state leader has two choices: *cooperate* with an opponent or *defect* on them. The payoff structure makes defection a dominant strategy for both players because defecting always offers a higher payoff regardless of the strategy selected by the opponent. The symmetrical nature of the game implies that the equilibrium or expected outcome for the single play prisoner's dilemma game is "defect-defect" (i.e., no cooperation).

[insert Figure 1 about here]

Liberal institutionalists, however, argue that in most instances the international environment is more akin to an iterated game in which the players, who are free to communicate verbally or tacitly, interact over and over. Mutual cooperation in this environment can be rational because the sum of relatively small cooperative payoffs over time can be greater than the gain from

a single attempt to exploit your opponent followed by an endless series of mutual defections. Moreover, international regimes can increase the probability of cooperation by providing information, reducing transaction costs, and generating the expectation of cooperation among members (Krasner 1983).

Rousseau (1998) has demonstrated experimentally that realism and liberal institutionalism are more complements than substitutes. Although realists are more likely to be sensitive to relative gains than idealists, these internal belief systems do not fully determine opinions and behaviors. Individuals, whether realist or idealist, are extremely sensitive to the nature of the adversary and the context of the situation. If a country is viewed as a threat, relative gains are more salient to all individuals. All subjects are also more concerned about relative gains in the security area than the economic area. Moreover, if a country is viewed as a military threat but not an economic threat (e.g., Russia for Americans and Japanese), subjects only express concerns about relative gains in the security area. Conversely, if the country is viewed as an economic threat but not a military threat (e.g., Japan for American subjects), subjects only express concerns about relative gains on trade and economic issues.

While Rousseau (1998) has shown that the importance of relative gains varies across individuals and situations, his experiments to date have only involved American subjects. A realist might be inclined to dismiss this critique as irrelevant; the structure of the international system and the position of the state in this structure drives behavior. From this perspective, domestic structures, national cultures, and individual beliefs are irrelevant. However, Rousseau's findings clearly refute this line of argument. If the international structure determined beliefs and behavior, all subjects should express similar opinions and behave in similar ways. Rousseau's findings demonstrate that beliefs vary and they affect behavior.

But where do beliefs come from? While some observers have pointed to a biological basis of behavior (see Crawford et al. 1987), most researchers highlight the importance of socialization, social interaction, and observation. We are socialized by our families, our schools, domestic groups (e.g., the 4-H club), and transnational organizations (e.g., the Roman Catholic Church). We learn to expect cooperation or deception by interacting with others and observing the behavior of individuals and collectives (e.g., firms, unions, churches, terrorist groups, states, intergovernmental organizations).

While we may never completely understand the origins of belief systems, we can probe its obvious corollary: "do beliefs vary across cultures?" Do beliefs in the utility of military force vary across cultures? Do beliefs in the importance of relative gains vary across countries? Do beliefs in the expectation of cooperation vary across nations? Johnston (1994) argues that strategic beliefs in China derive from domestic culture rather from the structure of the international system. For thousands of years, the *para bellum* belief system has guided Chinese decision makers.¹

The purpose of this study is three-fold: (1) to evaluate the distribution of beliefs (absolute gains versus relative gains) across individuals; (2) to identify the degree to which these beliefs vary across cultures; and (3) to demonstrate how these beliefs can influence behavior in an experimental setting. In the following section, I present the central hypotheses that are empirically tested in the remainder of the paper. In Section 4 of the paper I outline the unique methodological approach employed in the study. In Section 5 of the paper I present the data analyses. In the final section I highlight key findings of the research project and directions for future research.

3. Central Hypotheses

Realists such as Grieco contend that the structure of the international system and the relative nature of power compels political leaders to view the world in relative terms.

According to realists, states worry that today's friend may be tomorrow's enemy in war, and fear that achievements of joint gains that advantage a friend in the present might produce a more dangerous *potential* foe in the future. As a result states must give serious attention to the gains of partners (Grieco 1988, 118; also see Waltz 1979, 105).

Logically, there should be no individual variation in beliefs because the anarchical structure of the international system drives behavior and this structure is constant across time and space. Whether they are democrats or dictators, whether they are communists or capitalists, whether they come from Catholic or Confucian cultures, all leaders will behave in a similar manner because the anarchical nature of the system forces them to put security concerns above all else. Any gain by another state can be used against you. Hypothesis 1, therefore, predicts that all individuals will focus solely on relative gains. Evidence that a significant portion of the population evaluates problems and potential exchanges in terms of absolute gains constitutes a challenge Hypothesis 1.

Hypothesis 2 predicts that strong realists are more likely to emphasize relative gains than strong idealists. Realist theorists have emphasized the conflictual nature of state preferences (Carr 1946), the constant international struggle for power (Hobbes 1991; Waltz 1979), the weakness of international institutions and law (Morganthau 1948), the importance of military power (Thucydides 1951; Machiavelli 1950), and the need to balance against threats (Gulick 1955; Kissinger 1957). While these theorists may differ with respect to the ultimate source of the ever present conflict (the evil nature of men for some authors and the anarchic structure of the system for others), they all agree that in anarchy states will use any shift in economic or military power to their advantage. Individuals who have socialized to accept the basic set of realist beliefs, whether this occurred at the dinner table, on the playground, in the classroom, or by observing the behavior of states, are more likely to emphasize the importance of the relative gains.

Hypotheses 3 and 4 are based on the belief that individuals employ a sophisticated typology to classify threats. Rather than indiscriminately labeling a state as "threatening" in all circumstances or grouping very different states in a single category, Rousseau (1998) has demonstrated that individuals differentiate threats by country **AND** by issue area. Hypothesis 3 predicts that if states are perceived as *economic* threats, the salience of relative gains will increase for economic questions. Hypothesis 4 predicts that if states are perceived as *military* threats, the salience of relative gains will increase for military questions. Overall, we should expect the salience of relative gains to be higher in the military sphere than the economic sphere because any advantage in the military balance of forces can be immediately translated into an active military threat (Lipson 1984).² In contrast, economic advantages must be translated into new military hardware and improved soldier training – a political and bureaucratic process which takes months if not years to complete.

Hypothesis 5 predicts that strong beliefs in relative gains should influence how an individual behaves. While anarchy may lead individuals to focus on relative gains, we must also demonstrate that this belief makes them less likely to cooperate. State leaders with strong realist views, including a belief that relative gains are paramount, should be less likely to reach agreements with other state leaders, particularly when these leaders share similar views on the importance of relative gains. As discussed below, the beliefs-behavior hypothesis is tested using an experimental setting involving an iterated prisoner's dilemma game. Specifically, Hypothesis 5 predicts that individuals with strong realist beliefs will be less likely to achieve a stable cooperative arrangement in an iterated prisoner's dilemma simulation.

None of the five hypotheses predicts differences between American and Japanese subjects. In general, the international relations literature from which these hypotheses are derived has little to

say about domestic or cultural factors. In fact, an implicit assumption built into most if not all the theoretical approaches (whether realist, idealist, or liberal institutionalist) is that all states should behave in a similar fashion *given the same set of incentives or payoffs*. The comparative politics sub-field has long questioned this implicit assumption. A goal of this paper is to explicitly test the assumption in a rigorous cross-national manner.

4. Methodological Approach

Probing a belief system (such as realist or idealist), or isolating an element of such a belief system (such as a propensity to view the world in terms of absolute or relative gains) is notoriously difficult. Did a belief in relative or absolute gains drive Stalin as he negotiated with Churchill over spheres of influence in the Balkans and Iran? Existing diplomatic records offer scant insight. While we could examine the historical outcome and then work backwards to construct a belief system consistent with the outcome, the inherent danger is that our measure of “power” may differ considerably from that used by Stalin or Churchill.

An alternative approach involves the use of a survey instrument and an iterated prisoner's dilemma experiment. Given that the hypotheses do not propose any systematic differences in beliefs between elites and masses, a preliminary investigation of the importance of relative versus absolute gains can be made by surveying the public.³ Approximately 600 undergraduate students at four American and two Japanese universities responded to a broad 45-question survey on international relations.⁴ The survey was experimental in that students were randomly assigned variations of specific questions. For example, some respondents were presented relative gains scenarios in which China was the opponent while others were presented an identical scenario except that Japan (or Canada or Russia) was substituted for the opponent. The experimental approach is commonly used in telephone surveys (see Herrmann, Tetlock, and Visser (1997)).

Some time later, approximately half of these students read a 10-page tutorial on the prisoner's dilemma and its application to international relations. After taking a short quiz on the topic, students played four web based iterated prisoner's dilemma games that randomly varied in length.⁵ Their objective was to maximize their score while playing an opponent employing unknown strategy. Strategies employed by the computer, which varied for each game, included tit-for-tat, 90%-tit-for-tat, tit-for-two-tats, and a random strategy. A tit-for-tat strategy involves cooperating on the first move of the game and reciprocating your opponent's behavior on every subsequent move; after the first move, if the opponent cooperates you reward them with cooperation and if they defect you punish them with defection. Studies have shown that tit-for-tat is an effective means for fostering cooperation in computer tournaments (Axelrod 1984), laboratory experiments (Boyle and Lawler 1991), and inter-state relations (Huth 1988). An example of the English and Japanese computer displays are shown in Figures 3 and 4, respectively. As an incentive, the student with the highest score at each university was awarded a \$20 prize.⁶

[insert Figures 3 and 4 about here]

5. Data Analysis

This study is *not* based on the assumption that the views expressed by undergraduate students will be similar to those expressed by a random sample of the population. Indeed, it seems very likely that young adults at elite educational institutions would be more liberal on domestic and foreign policy issues than the rest of the adult population. However, this study simply asks whether there is a distribution of views and if individuals at one end of the distribution behave differently than those at the other end of the distribution. While the exact shape and location of the undergraduate distribution may differ from the societal distribution in each country, this is irrelevant for our purposes.

Having said all this, the survey results from the Japanese and American undergraduates clearly parallel results from national surveys in each country. A substantial majority of students in Japan (71%) and the United States (65%) believe their country needs “to play an active role in solving conflicts and problems around the world” (Question 35).⁷ In national opinion polls, 72% of Japanese adults and 61% of American adults supported an active role (Gallup 11 June 1999). The difference between the American and Japanese students is statistically significant; Japanese respondents are more internationalist than their American counterparts. As other studies (Wittkopf 1994) have shown, there is a small but staunchly isolationist segment of the American population.

While respondents in both countries believe their countries should be active, they disagree significantly on the nature of this activity. Americans students are much more willing than Japanese students to use military force to defend perceived national interests, including to defend Taiwan from mainland China (60% versus 16%), to repel an invasion of South Korea (54% versus 29%), to prevent North Korea from acquiring nuclear weapons (58% versus 23%), and to halt a new Iraqi offensive into Kuwait (77% versus 12%). All differences are statistically significant at better than the .001 level.

Many studies have shown that young Americans are more enthusiastic about using military force to resolve international conflicts (Mueller 1973, 136). However, national opinion polls of American adults show that 89% support using military force to defend Taiwan (Gallup 22 June 1998), 68% favor using force to oppose a North Korean invasion (Program on International Policy Attitudes 18 November 1995), 72% favor using force if necessary to prevent the acquisition of nuclear weapons by North Korea (Princeton Survey Research 12 July 1994), and 79% support the use of military force to repel a new Iraqi offensive into Kuwait (Los Angeles Times 17 October 1994).⁸

The differences persist even when the use of military force is not the central issue. When forced to select between two competing goals, Americans were much more interventionist than their Japanese counterparts. When asked to choose between strengthening the United Nations or avoiding international entanglements, 86 percent of Japanese subjects chose the latter (versus only 36% of Americans). When asked to choose between protecting human rights abroad or maintaining cordial relations, 58 percent of Japanese subjects choose the latter (versus only 36% of Americans).⁹ When asked to choose between promoting democracy abroad or protecting the jobs of domestic workers, 87 percent of Japanese subjects choose the latter (versus 70% of Americans). All these differences are statistically significant at better than the .003 level.

Finally, student responses parallel broader surveys of the national population with respect to Japan’s role in the United Nations. A majority of students in both countries (52% in the U.S. and 55% in Japan) believe that Japan “should seek and be granted a permanent seat on the United Nations Security Council.” A 1994 CBS News/NY Times poll revealed that 67% of American adults approved of Japan gaining a seat (6 December 1994). In a parallel survey by the Japan Broadcasting Corporation, 45% of Japanese adults approved of Japan taking a seat at the Council (6 October 1994).

However, when students were asked a follow-up question which added the clause “even if it means that Japan must participate in military operations sanctioned by the Security Council,” support for the proposition dropped to 44% among Americans and a mere 18% among Japanese subjects. Similarly, further questioning by the Japan Broadcasting Corporation revealed that only 15% of Japanese adults supported participation in military operations like other permanent members (6 October 1994).

Although the similarity between student responses and broader populations is not essential to this study, the fact that the similarity exists gives us some assurance that the students are grappling with the important issues as they respond to survey questions. We can now turn to the discussion of the four central hypotheses.

Hypothesis 1 examines the realist assumption that all individuals are solely concerned about relative gains. The results clearly indicate that this assumption is incorrect for both Japan and the United States. Table 1 presents the results from Questions 7, 14, 32 and 40 of the survey. In Questions 7, 32 and 40 respondents were asked to choose between two worlds: Scenario 1 in which gains were large but unevenly distributed and Scenario 2 in which gains were small but preserved the pre-existing balance. An individual preferring relative gains to absolute gains would be expected to choose Scenario 2; if everyone possessed equally strong beliefs in relative gains then the vast majority of respondents should "strongly" or "somewhat" prefer Scenario 2.¹⁰ However, the data show a wide distribution. In Question 7, a majority of the Japanese (28% + 32%) and American (25% + 26%) subjects expressed a preference (strongly or somewhat) for absolute gains rather than relative gains.

Question 14 frames the debate in terms of the division of a pie. Those possessing strong beliefs in relative gains are expected to view the world as a zero sum game in which any gain by the opponent must come at the expense of the state. The results clearly demonstrate that this zero sum perspective is not shared by all individuals. In fact, a strong majority of respondents (46% + 8% in Japan and 46%+19% in the U.S.) reject that idea that gains for another state must come at the expense of their country.

In Question 32, the issue area shifts to security. Lipson (1984) argues that the importance of relative gains should be heightened in the security issue area because states can in theory immediately translate any numerical difference into a battlefield advantage. Indeed, in comparison to the two previous questions, the percentage favoring the relative gains scenario jumps sharply (to 49% in Japan and 51% in the United States). However, a significant portion of both populations continue to select the absolute gains scenario. Even in the security issue area, long viewed as the private domain of realists, the salience of relative gains varies.¹¹

How can we explain the distribution of opinion? If the structure of the international system does not compel all individuals to share similar preferences, then domestic cultures (Johnston 1995) or individual belief systems (George 1979) could be driving the observed distribution of opinion. In order to probe the role of belief systems, I created an "idealist-realist continuum" using responses from nine questions in the survey (Questions 1, 6, 8, 11, 13, 16, 17, 19, 23 which are reproduced in English in Appendix A) for both countries. The Japanese and American distributions, which are shown in Figure 2, have means of -3.74 and -2.89 respectively. The fact that the narrower Japanese distribution is shifted to the left with respect to the American distribution implies that the Japanese subjects are more idealistic than American subjects.

[insert Figure 2 about here]

Table 2 compares the responses of "strong idealists" (bottom ¼ of the distribution), those with "mixed views" (middle ½ of the distribution), and "strong realists" (top ¼ of the distribution). The expectation is that strong idealists should have a preference for absolute gains while strong realists should have a preference for relative gains. With respect to the Table, we should expect the percentages to *decrease* as you move down the first two columns and *increase* as you move down the last two columns. While the expected pattern emerges in 3 out of 4 questions with the American data (Questions 14, 32, and 40), only two questions follow the pattern with the Japanese data (Questions 14 and 32) and only one of these is statistically significant (Question 32).

In Question 7, contrary to expectations strong realists are no more likely to prefer the relative gains scenario than strong idealists. The proportion of American idealists favoring the absolute gains scenario is about the same the proportion of American realists favoring the scenario; the Japanese data show no clear monotonic pattern. In contrast, in Question 14 strong American idealists (78%) are much more likely to prefer the absolute gains scenario than strong American realists (51%). The last column indicates that strong American idealists (10%) are much less likely

to prefer the relative gains scenario than strong American realists (23%). Although an identical pattern emerges for the Japanese data, the results are not statistically significant.

In Question 32, the results strongly support the hypothesis for both countries. By examining the last row, we see that strong Japanese realists prefer the relative gains scenario (71%) to the absolute gains scenario (29%). Similarly, strong American realists prefer the relative gains scenario (70%) to the absolute gains scenario (14%). The results are statistically significant for both countries at better than the .05 level.

Finally, in Question 40, we find that the American results are in the expected direction -- idealists prefer the absolute gains scenario and realists prefer the relative gains scenario. However, the results are only statistically significant at the .08 level. In sharp contrast, the Japanese results runs counter to expectations -- idealists strongly support small equal cuts in tariffs. The results appear to reflect Japanese dissatisfaction with international demands to reduce tariffs and eliminate trade barriers. Only 28% of Japanese respondents accept the idea of disproportional tariff cuts.

Hypotheses 3 and 4 predict that the presence of “threatening” states should trigger concerns over relative gains. Which countries do Americans and Japanese fear? Table 3 provides a partial answer. Both American and Japanese subjects view Russia as a military but not an economic threat. Interestingly, Japanese respondents are more likely than Americans to view Russia as a military threat (68% versus 41%). This most likely due to the on-going territorial dispute Japan has with Russia and the size and scope of American defense forces compared to their Japanese counterparts. With respect to China, both American and Japanese respondents view the rising great power as both a military and an economic threat. As with the Russian case, far more Japanese respondents view China as a military threat than American subjects. Perhaps the most interesting portion of Table 3 is located in the middle row; it displays the Japanese assessments of the American threat and vice versa. The vast majority of Americans view Japan strictly as an economic threat (77%). In contrast, most Japanese subjects (58%) view America as both an economic and a military threat. This finding is most likely due to the long standing fear that the United States, with its aggressive foreign policy, will drag Japan into military conflict (Ladd and Bowman 1996, 32).¹² From this point of view, while the U.S. represents a military threat to Japanese security, it does so in a very different way than Russia or China. However, the only way to definitively solve this puzzle is to use more exact phrasing in future surveys. Canada is not viewed as a threat by either country (although the Japanese subjects are more unsure about this). Finally, Germany is viewed as an economic threat by a significant number in both countries.

Hypothesis 3 predicts that states which are viewed as economic threats should trigger relative gains concerns when economic issues arise. Hypothesis 4 predicts that states which are viewed as military threats should trigger relative gains concerns when security issues arise. The results appear in Table 4. Unfortunately, due to a programming error in the survey form, it is impossible to disaggregate the Japanese results by opponent. However, the remaining Japanese results and the American results clearly support Hypotheses 3 and 4.

According to the Japanese respondents, the United States is the most important economic threat to Japan. When the United States is inserted as the “opponent” in Question 7, which focuses on economic growth rates, we find that 47% of the subjects prefer the relative gains scenario. In contrast, when Russia, which is not considered to be an economic threat by the Japanese, is inserted into the same question, we find that the percentage concerned about relative gains drops to 27%. Turning to the American data, when a question concerning defense spending reductions is proposed and the opponent in the question is Russia, a full 62% of American subjects prefer to focus on relative gains. However, when Canada is inserted into a the question, a country which was not identified as a military threat by a single subject, the percentage indicating a preference for relative gains drops to 34%. When the economic question is posed to Americans and Japan appears in the question, a full 50% of the respondents indicate a preference for relative gains.

However, this percentage falls to 28% when the economically troubled Russian state is inserted into the question.

Two firm conclusions emerge from the results in Table 4. First, the perception of threat drives concerns about relative gains. If a state is not viewed a threat, the importance of ensuring that all bargains are equitably distributed declines. Second, the subjects have a very sophisticated and consistent understanding (or intuition) of threat and its consequences. Subjects carefully distinguish economic threats from security threats and adjust their opinions by issue area.

Hypothesis 5 predicts that beliefs influence behavior. While this hypothesis may appear obviously true to many readers, the theoretical framework constructed by Grieco and other realists minimizes the importance of individual beliefs in explaining behavior. If the structure of the international system determines beliefs, individual variation is virtually impossible and therefore uninteresting. Hypothesis 5 postulates that individual beliefs, such as strong idealist or strong realist beliefs, should influence one's willingness to cooperate. In the computer experiment, the willingness to cooperate was measured within an iterated prisoner's dilemma computer game. Three measures of cooperation were recorded across four games: (1) the percentage of cooperative plays by the subject in each game; (2) the percentage of jointly cooperative outcomes (i.e., both the subject and the computer opponent cooperate); and (3) whether the subject cooperated or defected on the critical first move of the game.¹³

I should stress that the iterated prisoner's dilemma as configured cannot directly demonstrate that any particular defection was due *entirely or primarily* to concerns associated with relative gains. Establishing a relative gains motive for observed behavior has bedeviled both qualitative case studies and game theoretic experiments. Snidal (1991, 202) and Keohane (1993, 280) question Grieco's (1990) assertion that haggling (i.e., behavior) over the distribution of gains is clear evidence of a concern about relative gains (i.e., motive). Similarly, in an experimental setting a defection can be due to a wide variety of factors including: 1) a fear that opponent will not cooperate on the first move, 2) a greedy desire to exploit an opponent who is expected to be cooperative, 3) the wish to punish an opponent for defecting as part of a TFT strategy, and 4) an informational probe to discern the strategy of one's opponent. As Majeski and Fricks (1995, 628) state: "Unfortunately, the {Prisoner's Dilemma} game structure does not allow the researcher to tease apart the motives of fear and greed. A defection choice can be the product of fear, greed, or both." McCallum et al. (1985) make a similar point.

"In the {Prisoner's Dilemma Game}, what have been designated here as competitive choices may reflect several motivations. A motivation to maximize one's own outcomes (max own), as well as a motivation to maximize the relative advantage for self between own and other outcomes (max rel) would result in a competitive choice. The two orientations are confounded in the {Prisoner's Dilemma Game}...(1985, 309).

Given this inability to isolate motivations, I have chosen a more indirect route. Table 2 clearly established that strong realists are more concerned about relative gains, particularly among Americans. I hypothesize that these same realists are less likely to cooperate in the game theoretic setting. Although the experimental game theory literature has explored how different *structures* of the game affect the emergence of cooperation, the relationship between individual *beliefs* and the willingness to cooperate has been largely neglected.¹⁴ The purpose then is to demonstrate that beliefs influence behavior; should we find that strong realist are less likely to cooperate, subsequent research will be required to conclusively establish how central a role relative gains plays in determining this outcome.

Table 5 compares the degree of cooperation among strong idealists, individuals with mixed views, and strong realists. In parts (a) and (b) of the Table, subjects are categorized in one of three groups: “uncooperative” individuals (bottom ¼ of the distribution), “cooperative” individuals (middle ½ of the distribution), and “very cooperative” individuals (top ¼ of the distribution). In part (c) of the Table, those that cooperate on the first move are distinguished from those that defect on the first move. The American results from all parts of the table support the hypothesis that idealists are more likely to cooperate than realists. However, the Japanese results fail to achieve statistical significance in any part of the table.

For Americans, part (a) of Table 5 shows that of those identified as strongly idealistic in the survey, 35% were recorded as very cooperative in the iterated prisoner’s dilemma. Only 25% of these idealists could be categorized as uncooperative. In contrast, strong realists were much less likely to select cooperation when playing the iterated game. Only 20% of strong realist fell within the “very cooperative” portion of the distribution (i.e., the top quartile). A full 38%, however, were uncooperative. The chi square test reveals that this pattern of results is statistically significant at the 0.000 level.

For Japanese subjects, part (a) of Table 5 shows rather mixed results. In the “uncooperative” column, the pattern of the parallels that of the Americans. While few strong idealists (14%) fall into the uncooperative category, many strong realists (30%) are uncooperative in the iterated games. However, in the “very cooperative” column the percentages do not fall as you move from strong idealists at the top of the column to strong realists at the bottom of the column. In contrast to the American data, the percentage remains virtually unchanged.

Turning to part (b) of Table 5, we find a similar pattern of results. Strong American idealists are much more likely to fall within the very cooperative category (33% versus 23%); strong American realists are much more likely to fall within the very uncooperative category (36% versus 17%). For the Japanese subjects, the expected pattern of results appears in the “uncooperative” column (i.e., the percentages rise from top to bottom) but not in the “very cooperative” column. While the results are statistically significant at the 0.000 level for the American data, the Japanese results are not significantly different than zero.

Part (c) of the table shows that idealists are more likely cooperate on the critical first move which is central to establishing a pattern of cooperation. While 70% of the time strong American idealists opened the game with a cooperative move, only 63% of strong realists cooperated on the first move. In the Japanese case, strong idealists cooperated 75% of the time on the first move -- six percentage points above their realist counterparts. While the pattern of behavior conforms to expectations, the results are only marginally significant in a statistical sense for the American players and not statistically significant for the Japanese players. Overall, while the results presented in Table strongly support hypothesis 5 for the American respondents, they do not support the hypothesis for the Japanese respondents.

How can we reconcile the strong American results with the weak Japanese results? At least three explanations are possible. First, an awkward translation or insufficient instruction for the Japanese subjects could explain the difference. Although native Japanese speakers developed the translation, we did not have a team of researchers with expertise in both survey research and international relations spend hours examining each question to ensure the translations are functionally equivalent (as is done on a well funded cross national studies such as the Comparative Study of Electoral Systems). Readers with knowledge of Japanese are welcome to compare the English and Japanese versions of the iterated prisoner’s dilemma experiment (<http://www.ssc.upenn.edu/~rousseau/relgains.htm>) and suggest changes. Second, the abstract nature of the game could have allowed cultural norms concerning acceptable behavior and responses to influence decision making. In both the survey and iterated prisoners dilemma experiment, Japanese subjects were much less likely to express an “extreme” position. In the

surveys, they were much less likely to select "strongly disagree" or "strongly agree." In the experiments, they were much less likely to cooperate consistently or defect consistently. Overall, this tendency makes isolating the behavior of "strong" idealists and "strong" realists much more difficult. Third, most Japanese idealists fall into the middle column or "cooperative" category in parts (a) and (b) of Table 5. While 69% of Japanese idealists fall in the middling category, only 40% of American idealist fall into this category. Unfortunately, I have no theoretical explanation why strong Japanese idealists behave in this manner.

6. Conclusions and Directions of Future Research

The analyses support four central findings. First, beliefs in the importance of relative versus absolute gains vary significantly across individuals. Subjects from both Japan and the United States expressed a preference for absolute gains in a wide variety of circumstances. While relative gains were important (even dominant in specific situations), they were not the only consideration. Second, for the American subjects, those with a realist belief system were much more likely to focus on relative gains than those with an idealist belief system. For the Japanese subjects, this relationship was somewhat weaker. However, when the survey question focused on defense issues, there was a clear positive association between realism and relative gains among Japanese respondents. Third, subjects in both countries carefully distinguished economic threats from military threats. If states were viewed as military but not economic threats, only security related questions triggered concerns about relative gains. The converse was also true. Fourth, Americans with strong realist belief systems were much less likely to cooperate in an experimental setting. In contrast, the Japanese data did not produce any statistically significant differences between strong realists and strong idealists.

Together the findings reinforce the argument that realism and liberal institutionalism should be viewed as complements rather than substitutes. As the perception of threat increases, concerns about relative gains are heightened. This heightened awareness makes reaching mutually acceptable agreements increasingly difficult; it also raises concerns with respect to the implications of cheating on existing accords. Overall, as the perception of threat and concerns over relative gains increase, we move from the liberal institutional end of the continuum (where cooperation is possible, but not inevitable) toward the realist end of the continuum (where cooperation is extremely difficult, but not impossible).

While the results refute the realist notion that individuals are single minded seekers of relative gains, it does support the contention that many realist concepts are applicable across international borders. While Japanese culture and norms are obviously very different from those found in America, individuals from both countries behaved in similar manners in many situations. For all subjects, as the level of threat rose concerns over relative gains increased. Moreover, subjects in both countries carefully distinguished threats by issue area.

The findings also highlight the tension between "abstract" and "concrete" questions. If you ask American and Japanese subjects if they support an abstract ideal such as "free trade", a majority in both countries respond in the affirmative (82% and 56% respectively). However, if you ask them about trade within a particular sector, such as automobiles, the number supporting the unimpeded flow of goods falls drastically (36% and 29% respectively). With respect to abstract concepts such as idealism, we see that Japanese subjects are more idealist than Americans. But when discussion turns to relations with particular states, the general guidelines of idealism are not applied universally. The anarchic nature of the system coupled with the Japanese perception that their country faces many important military and economic threats compels them to behave in a competitive fashion in certain situations despite their idealistic leanings.

The research presented here is the first step in a larger cross-national program designed to explore the causes and consequences of beliefs in relative gains. While the findings here are

instructive, future research should focus in several areas. First, the abstract prisoner's dilemma game should be replaced by more concrete situations in which the identity of the opponent is clearly defined. English versions of this concrete experiment are currently under development. Second, the comparisons should be extended to other countries in order to probe the robustness of the conclusions. While undertaking analysis in the developing world would be particularly informative, the lack of Internet connections in many (but certainly not all) of these countries represents an important barrier to extending the research. Third, the implementation of a panel design would allow us to track changes in threat perception across time. In theory, the salience of relative gains should ebb and flow with the rise and fall of threats. This type of analysis is particularly crucial given the recent rise of China as a great power and the economic stagnation of Japan. Moreover, it is quite likely that specific events such as the allegations of Chinese spying at American nuclear laboratories (which surfaced after the data for this paper were collected) can alter the perception of threat and the salience of relative gains.

In closing, I would like to invite all those interested in this line of research, particularly those academics residing outside the United States, to contact me if they wish to collaborate on future research projects (rousseau@sas.upenn.edu).

APPENDIX A: Survey Questions Used To Develop The Realist-Idealist Index

6. In general, the use of military force only makes problems worse. [Strongly Agree, Somewhat Agree, Neutral, Somewhat Disagree, Strongly Disagree, Not Sure]
8. The following statement is often made with respect to national security: "The best defense is a strong offense." The statement implies that increasing the quality and quantity of US weapons systems always enhances US security. Do you agree or disagree with this perspective? [Strongly Agree, Somewhat Agree, Neutral, Somewhat Disagree, Strongly Disagree, Not Sure]
11. Respond to the following statement: The U.S. may have to support some military dictators or authoritarian regimes because they are friendly toward the U.S. and opposed to states which threaten U.S. security. [Strongly Agree, Somewhat Agree, Neutral, Somewhat Disagree, Strongly Disagree, Not Sure]
13. It is essential for the United States to work with other nations to solve problems such as overpopulation, hunger, and pollution. [Strongly Support, Support, Neutral, Oppose, Strongly Oppose, Not Sure]
16. The best way to ensure peace around the globe is through American military strength. [Strongly Agree, Somewhat Agree, Neutral, Somewhat Disagree, Strongly Disagree, Not Sure]
17. We are faced with many problems at home and abroad, none of which can be solved easily or inexpensively. For the following programs, please indicate whether they should have their budgets and/or scopes expanded, cut, or maintained at current levels. (Aid For Education; Defense Spending; Farm Subsidies; Military Aid Abroad; Economic Aid Abroad; Domestic Welfare Programs; Support for the U.N.; Peace-Keeping Operations) [Expand Significantly, Expand Slightly, Maintain, Cut Slightly, Cut Significantly, Not Sure]
19. Some observers of the international system believe that states generally share similar goals and that by working through international organizations such as the United Nations and supporting international law the global community can effectively control the handful of renegade states in the system. [Strongly Agree, Somewhat Agree, Neutral, Somewhat Disagree, Strongly Disagree, Not Sure]
23. Although most people would agree that all of the following goals are important to some degree, sometimes we have to choose one goal over another. If you had to choose between the following goals, which is more important:
 - a. Strengthening the United Nations OR b. Avoiding international entanglements?
 - a. Protecting human rights abroad OR b. Maintaining cordial relations?
 - a. Protecting jobs of American workers OR b. Promoting democracy abroad?
 - a. Containing Russia OR b. Protecting weak states from aggression?
 - a. Combating world hunger OR b. Protecting U.S. business interests abroad?

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Table 1: Relative Gains Question from the Survey

Question 7. Which scenario would you prefer to see happen over the next decade?

Scenario 1: The (Japanese/American) economy grows by 3 percent per year while the economy of *country X* grows by 5 percent per year.

Scenario 2: The (Japanese/American) economy grows by 1.5 percent per year and the economy of *country X* also grows by 1.5 percent per year.

	<i>Japan</i>	<i>U.S.</i>
Strongly Prefer Scenario 1	28%	25%
Somewhat Prefer Scenario 1	32%	26%
Neutral	6%	9%
Somewhat Prefer Scenario 2	30%	24%
Strongly Prefer Scenario 2	4%	17%

N=533 (464 American and 69 Japanese); Chi Square(4) = 8.8; Probability =0.065

Question 14. According to one school of thought, any gains by *country X*, including economic growth, represent a loss by (Japan/the United States). This school sees the world as analogous to an apple pie; the larger the *country X*'s slice the smaller the (Japanese/American) slice. Another school of thought contends that *country X*'s gains need not come at the expense of (Japan/the United States); this second school contends that *country X*'s gains simply imply that the entire pie is getting bigger.

	<i>Japan</i>	<i>U.S.</i>
Strongly Agree that <i>country X</i> 's Gains at our Expense	3%	3%
Agree that <i>country X</i> 's Gains at Our Expense.	21%	13%
Neutral	21%	18%
Disagree that <i>country X</i> 's Gains at Our Expense.	46%	46%
Strongly Disagree that <i>country X</i> 's Gains at Our Expense.	8%	19%

N=523 (452 American and 71 Japanese); Chi Square(4) = 7.2; Probability =0.125

Table 1 -- Continued.

Question 32. Which scenario would you prefer to see happen over the next decade?

Scenario 1: (The U.S./Japan) cuts defense spending by 10% and *country X* cuts their defense spending by 7%.

Scenario 2: (The U.S./Japan) cuts defense spending by 2% and *country X* cuts their defense spending by 2%.

	<i>Japan</i>	<i>U.S.</i>
Strongly Prefer Scenario 1	33%	14%
Somewhat Prefer Scenario 1	15%	23%
Neutral	3%	12%
Somewhat Prefer Scenario 2	42%	29%
Strongly Prefer Scenario 2	7%	22%

N=280 (213 American and 67 Japanese); Chi Square(4) = 24.1; Probability =0.000

Question 40. Which scenario would you prefer to see?

Scenario 1: (Japan/The U.S.) cuts its tariffs by 12% on average and *country X* cuts their tariffs by 10% on average over the next three years.

Scenario 2: (Japan/The U.S.) cuts its tariffs by 2% on average and *country X* cuts their tariffs by 2% on average over the next three years.

	<i>Japan</i>	<i>U.S.</i>
Strongly Prefer Scenario 1	12%	21%
Somewhat Prefer Scenario 1	16%	28%
Neutral	13%	10%
Somewhat Prefer Scenario 2	51%	27%
Strongly Prefer Scenario 2	9%	13%

N=463 (394 American and 69 Japanese); Chi Square(4) = 18.2; Probability =0.001

Notes: Percentages may not add to 100 due to rounding. As discussed in the text, *country X* was randomly replaced in the Japanese survey by either Russia, China, the United States, or Canada and in the American survey by either Russia, China, Japan, or Canada.

Table 2: Realism and the Importance of Relative Gains

Question 7. Which scenario would you prefer to see happen over the next decade?

Scenario 1: The (Japanese/American) economy grows by 3 percent per year while the economy of *country X* grows by 5 percent per year.

Scenario 2: The (Japanese/American) economy grows by 1.5 percent per year and the economy of *country X* also grows by 1.5 percent per year.

	Prefer Absolute Gains (Scenario 1)		Neutral		Prefer Relative Gains (Scenario 2)	
	Japan	U.S.	Japan	U.S.	Japan	U.S.
Strong Idealist	50%	54%	-- ¹	6%	50%	40%
Mixed Views	69%	49%	-- ¹	9%	31%	42%
Strong Realist	64%	53%	-- ¹	8%	36%	39%

American Data: n=445; Chi Square(4) = 1.7; Probability =0.781

Japanese Data: n=61; Chi Square(2) = 1.7; Probability =0.421

Question 14. According to one school of thought, any gains by *country X*, including economic growth, represent a loss by (Japan/the United States). This school sees the world as analogous to an apple pie; the larger the *country X's* slice the smaller the (Japanese/American) slice. Another school of thought contends that *country X's* gains need not come at the expense of (Japan/the United States); this second school contends that *country X's* gains simply imply that the entire pie is getting bigger.

	Prefer Absolute Gains (Scenario 1)		Neutral		Prefer Relative Gains (Scenario 2)	
	Japan	U.S.	Japan	U.S.	Japan	U.S.
Strong Idealist	59%	78%	27%	12%	14%	10%
Mixed Views	57%	64%	17%	20%	27%	16%
Strong Realist	46%	51%	27%	26%	27%	23%

American Data: n=437; Chi Square(4) = 16.0; Probability =0.003

Japanese Data: n=67; Chi Square(4) = 2.1; Probability =0.702

Table 2 -- Continued.

Question 32. Which scenario would you prefer to see happen over the next decade?

Scenario 1: (Japan/The U.S.) cuts defense spending by 10% and *country X* cuts their defense spending by 7%.

Scenario 2: (Japan/The U.S.) cuts defense spending by 2% and *country X* cuts their defense spending by 2%.

	Prefer Absolute Gains (Scenario 1)		Neutral		Prefer Relative Gains (Scenario 2)	
	Japan	U.S.	Japan	U.S.	Japan	U.S.
Strong Idealist	71%	47%	-- ¹	9%	29%	44%
Mixed Views	50%	41%	-- ¹	10%	50%	48%
Strong Realist	29%	14%	-- ¹	16%	71%	70%

American Data: n=206; Chi Square(4) = 11.5; Probability =0.022

Japanese Data: n=61; Chi Square(2) = 6.3; Probability =0.043

Question 40. Which scenario would you prefer to see?

Scenario 1: (Japan/The U.S.) cuts its tariffs by 12% on average and *country X* cuts their tariffs by 10% on average over the next three years.

Scenario 2: (Japan/The U.S.) cuts its tariffs by 2% on average and *country X* cuts their tariffs by 2% on average over the next three years.

	Prefer Absolute Gains (Scenario 1)		Neutral		Prefer Relative Gains (Scenario 2)	
	Japan	U.S.	Japan	U.S.	Japan	U.S.
Strong Idealist	23%	62%	14%	15%	64%	33%
Mixed Views	27%	48%	7%	12%	68%	41%
Strong Realist	40%	43%	27%	11%	33%	46%

American Data: n=378; Chi Square(4) = 8.3; Probability =0.081

Japanese Data: n=65; Chi Square(4) = 5.9; Probability =0.205

Notes: Percentages may not add to 100 due to rounding. The realist-idealist index varies from -21 to +21. For the table, “Strong Idealists” refer to the one quarter of respondents with the strongest idealist views while “Strong Realists” refer to the one quarter of respondents with the strongest realists views. ¹ Due to the absence of observations in some of the neutral category cells in questions 7 and 32 for the Japanese data, the table has been collapsed in order to correctly estimate the value of the chi-square statistic.

Table 3: Threat Perception

Question 37. Identify the type of the threat, if any, the following countries represent to (Japanese/American) national interests.

	Military Threat Only		Economic Threat Only		Military & Economic Threat		No Threat At All		Not Sure	
	Japan	U.S.	Japan	U.S.	Japan	U.S.	Japan	U.S.	Japan	U.S.
Russia	68%	41%	6%	8%	7%	15%	13%	28%	6%	7%
China	16%	7%	17%	27%	57%	46%	6%	10%	4%	10%
U.S./ Japan	1%	0%	32%	77%	58%	10%	6%	11%	3%	2%
Canada	0%	0%	19%	14%	6%	1%	53%	80%	22%	5%
Germany	3%	1%	34%	43%	4%	13%	43%	29%	16%	14%

Notes: Percentages may not add to 100 due to rounding.

Table 4: Threats and the Importance of Relative Gains

	Country	Question	Issue Area	% Emphasizing Relative Gains
	-----	-----	-----	-----
<i>Japan</i>				
Military Threat	Russia	32	security	n/a
Not a Military Threat	Canada	32	security	n/a
Economic Threat	U.S.	7	economics	47%
Not an Economic Threat	Russia	7	economics	27%
<i>United States</i>				
Military Threat	Russia	32	security	62%
Not a Military Threat	Canada	32	security	34%
Economic Threat	Japan	7	economics	50%
Not an Economic Threat	Russia	7	economics	28%

Notes: The “Potential Threat” was selected by issue area based on the responses shown in Table 3. Due to a programming error during the automated data collection process, disaggregated security data for Japan are unavailable. For the exact wording of questions 7 and 32, see Table 1.

Table 5: Cooperation in the Iterated Prisoner's Dilemma Simulation

a. Percentage of Cooperative Moves Played by the Subject

	Uncooperative (lowest quartile)		Cooperative (middle two quartiles)		Very Cooperative (upper quartile)	
	-----		-----		-----	
	Japan	U.S.	Japan	U.S.	Japan	U.S.
Strong Idealist	14%	25%	69%	40%	16%	35%
Mixed Views	27%	26%	57%	52%	15%	22%
Strong Realist	30%	38%	50%	43%	19%	20%

Japanese Data: n=144; Chi Square(4) = 3.9; Probability =0.418
 American Data: n=819; Chi Square(4) = 25.1; Probability =0.000

b. Percentage of Jointly Cooperative Moves Achieved by the Subject and Computer Opponent

	Uncooperative (lowest quartile)		Cooperative (middle two quartiles)		Very Cooperative (upper quartile)	
	-----		-----		-----	
	Japan	U.S.	Japan	U.S.	Japan	U.S.
Strong Idealist	17%	23%	69%	43%	14%	33%
Mixed Views	19%	24%	65%	54%	15%	22%
Strong Realist	28%	36%	50%	47%	22%	17%

Japanese Data: n=144; Chi Square(4) = 3.4; Probability =0.496
 American Data: n=819; Chi Square(4) = 23.4; Probability =0.000

c. Cooperative First Move by the Subject

	Defects on First Move		Cooperates on First Move	
	-----		-----	
	Japan	U.S.	Japan	U.S.
Strong Idealist	25%	30%	75%	70%
Mixed Views	32%	29%	68%	71%
Strong Realist	31%	37%	69%	63%

Japanese Data: n=144; Chi Square(2) = 0.6; Probability =0.754
 American Data: n=820; Chi Square(2) = 4.7; Probability =0.095

Notes: Percentages may not add to 100 due to rounding. See Table 2 for categorization of idealist and realist.

Figure 1: The Prisoner's Dilemma

		Player B		Preference Order
		Cooperate	Defect	
Player A	Cooperate	2 2	1 4	1. DC: Defect-Cooperate (best) 2. CC: Cooperate-Cooperate
	Defect	4 1	3 3	3. DD: Defect-Defect 4. CD: Cooperate-Defect (worst)

Notes: In each quadrant, the lower left payoff is for Player A and the upper right payoff is for Player B.

Table 2: Distribution of the Idealist/Realist Index by Country

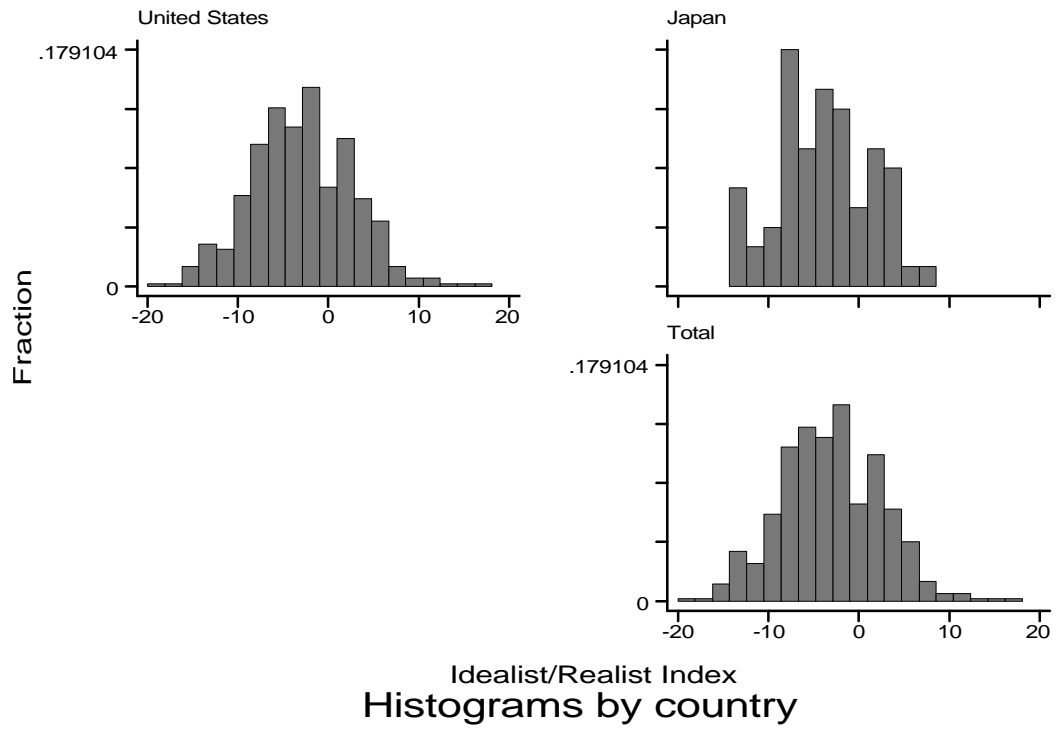


Figure 3: The Interactive Iterated Prisoner's Dilemma Game -- English Version

<p>INFORMATION ON CURRENT GAME ----- GAME: ITERATED PRISONERS DILEMMA</p> <p>OPPONENT'S STRATEGY: UNKNOWN</p> <p>DURATION OF GAME: UNKNOWN</p> <p>OBJECTIVE: MAXIMIZE YOUR TOTAL</p> <p>UNCERTAINTY: 0%</p>	<p style="text-align: center;">PRISONERS' DILEMMA PAYOFF MATRIX</p> <table border="0" style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td></td> <td colspan="2" style="text-align: center;">Opponent</td> </tr> <tr> <td></td> <td></td> <td style="text-align: center;">COOPERATE</td> <td style="text-align: center;">DEFECT</td> </tr> <tr> <td style="text-align: right;">COOPERATE</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">5,5</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">-10,20</td> <td></td> </tr> <tr> <td style="text-align: right;">John Doe</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">20,-10</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">0,0</td> <td></td> </tr> <tr> <td style="text-align: right;">DEFECT</td> <td></td> <td></td> <td></td> </tr> </table>			Opponent				COOPERATE	DEFECT	COOPERATE	5,5	-10,20		John Doe	20,-10	0,0		DEFECT			
		Opponent																			
		COOPERATE	DEFECT																		
COOPERATE	5,5	-10,20																			
John Doe	20,-10	0,0																			
DEFECT																					
<p style="text-align: center;">Current Round: 9</p> <p>Your Current Play</p> <p style="margin-left: 40px;"><input type="radio"/> Cooperate</p> <p style="margin-left: 40px;"><input type="radio"/> Defect</p>	<p style="text-align: center;">History of Interactions</p> <table border="0" style="margin-left: auto; margin-right: auto;"> <tr> <td style="padding-right: 10px;">Round:</td> <td>9 8 7 6 5 4 3 2 1</td> </tr> <tr> <td style="padding-right: 10px;">John Doe:</td> <td>? C C C C C C C C</td> </tr> <tr> <td style="padding-right: 10px;">Opponent:</td> <td>? D D D D D D D C</td> </tr> </table>	Round:	9 8 7 6 5 4 3 2 1	John Doe:	? C C C C C C C C	Opponent:	? D D D D D D D C														
Round:	9 8 7 6 5 4 3 2 1																				
John Doe:	? C C C C C C C C																				
Opponent:	? D D D D D D D C																				
<p>CUMULATIVE TOTALS</p>	<table border="0" style="margin-left: auto; margin-right: auto;"> <tr> <td style="padding-right: 20px;">JOHN DOE</td> <td>OPPONENT</td> </tr> <tr> <td style="padding-right: 20px;">-80</td> <td>+160</td> </tr> </table>	JOHN DOE	OPPONENT	-80	+160																
JOHN DOE	OPPONENT																				
-80	+160																				

Figure 4: The Interactive Iterated Prisoner's Dilemma Game -- Japanese Version

現在のゲームに関する情報

ゲーム: 繰り返される囚人のジレンマ
 相手の戦略: 情報なし
 ゲーム繰り返しの回数: 情報なし
 目標: あなたのトータルの最大化
 不確実な状況: 0%

現在のラウンド: 3

現在のあなたのプレイ:

協力
 裏切り

プレー

囚人のジレンマ損得

		相手	
		協力	裏切り
john doe	協力	10, 10	-10, 20
	裏切り	20, -10	0, 0

過去の対戦

		1	2
		john doe	C
相手	C	C	

加算的総計

john doe	相手
20	20

¹ The assumptions and policy prescriptions of the *para bellum* belief system are similar to those of the *realpolitik* belief system. Struggle and conflict are the norm rather than the exception in inter-state relations. Conflict is viewed in zero sum terms -- any gains by another state come at your expense. Violence is seen as an efficient method for dealing with other states. Moreover, offensive strategies are preferable to defensive strategies or accommodation. Johnston argues that the *para bellum* belief system dominates the Chinese *Seven Military Classics*. State leaders "learned" the the *para bellum* belief system by internalizing the classics rather than observing the behavior in the international system.

² Stam (1996) has shown that the state best able to mobilize resources is much more likely to win the conflict.

³ Public opinion analyses by Wittkopf (1994) and Holsti and Rosenau (1990) highlight important differences between elite opinion and mass opinion. In general, political elites tend to be much more internationalist than the average American citizen and slightly more idealistic than the average American citizen. As will become clear, the following analysis does not propose (nor does it require) that the distributions of preferences for elites and masses are identical.

⁴ The survey was accessed by subjects via the Internet. The six universities participating in the project were the University of Michigan, Florida State University, the State University of New York at Buffalo, the University of Pennsylvania, Doshisha University, and Konann University. I would like to thank Bear Braumoeller, David Rivera, Paul Hensel, Will Moore, Michael Kraig, Scott Lake, Karl Mueller, Wataru Kitamura, Michiko Katsuyama, Teruo Kanemaru, Tomomi Kawasaki, Yasufumi Shibana, Yoshikatsu Washie, and Satoshi Machidori for assisting with the administration of the American surveys. I would especially like to thank Yoshitaka Nishizawa of Doshisha University for assisting in the development and implementation of the Japanese versions of the survey and iterated prisoner's dilemma experiments. The Japanese translation was produced by Mamiko Hada, Toshi Ito, Yoko Morimoto, Takeshi Minakuchi, Katsuji Tabiki, and Katsunori Takahashi. Links to the Japanese and English versions of the original survey, student responses, and the prisoner's dilemma web pages can be found at "<http://www.ssc.upenn.edu/~rousseau/relgains.htm>". For students at the State University of New York at Buffalo and the University of Pennsylvania, participation in the survey and game (or a similar exercise of comparable length) was a course requirement. For all other universities, participation was voluntary or associated with extra credit.

⁵ Randomly varying the length of the game ensured that students would not know when the game was going to end; theoretically if the end point is known, the iterated game collapses backward and cooperation never emerges.

⁶ I would like to thank Ross Winston from SUNY-Buffalo's Computing and Information Technology group for developing the computer scripts for the experimental survey and interactive game. I would also like to thank Kris Varhus and Vincent Hurtubise from Social Science Computing at the University of Pennsylvania for adapting the scripts. The scripts are available from the author upon request.

⁷ Unless stated otherwise, all survey data reported in this paper compress the "strongly" and "somewhat" categories.

⁸ Similarly worded questions from Japanese sources were not available.

⁹ The difference sheds light on American-Japanese tension concerning the most appropriate response to human rights violations by China.

¹⁰ The "scenario" questions were informally tested by Robert Reich (1990) and are discussed by Mastanduno (1991). In theory, by proposing a scenario with such enormous gap between

American and Japanese growth rates in Scenario 1 (25% and 75% respectively), Reich was stacking the deck in favor of relative gains. By narrowing the gap to 3% versus 5% in question #7, I demonstrate that even slight differences can provoke concerns about relative gains.

¹¹ The polarization of Japanese responses in Question 32 is interesting because in general Japanese respondents (unlike their American counterparts) are less likely to take an extreme position (i.e., “strongly agree” or “strongly disagree”). In Question 32, 33% strongly prefer the absolute gains scenario -- far more than “somewhat prefer.” The division could indicate the growing divide between the traditionally anti-military socialists and the growing conservative/nationalist segment of society.

¹² The behavior of some American servicemen stationed in Okinawa may also account for the perception of a threat.

¹³ The percentage of cooperative moves rather than the number of cooperative moves is used because each game varied randomly in length. The first play is critical in numerous strategies such as tit-for-tat because it establishes a pattern of cooperative or conflictual behavior.

¹⁴ The structure of the game has been varied by altering the payoffs (Bornstein, Budescu, and Zamir 1997), introducing communication (Insko et al. 1993), allowing iteration (Andreoni and Miller 1993), injecting uncertainty (Friedland 1990), altering the opponent's strategy (Komorita, Hilty, & Parks 1991), adding groups to the decision process (Brewer and Kramer 1986), and permitting contingent moves (Nemeth 1972). An exception to the statement that beliefs have been neglected is Lutzker (1960).