

**Small Group Dynamics and Foreign Policymaking: Empirical Evidence from Experiments  
of Repeated Prisoners Dilemma Games**

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## **Abstract**

Because important foreign policy decisions are usually crafted by small groups of policymakers, it is important to examine the effects of group dynamics and features of groups on the choices those groups make. Using additional empirical data extracted from an experiment designed to analyze group conflict and cooperation, features of groups dynamics and evaluation (the extent to which groups experience internal conflict or controversy about what choices to make and whether groups evaluate prior outcomes as succeeding or failing) are examined to assess their effects on the decisions those groups made in the context of Repeated Prisoner's Dilemma (RDP) games. An empirical analysis of the behavior of groups of experimental subjects suggests that groups which experience conflict or controversy within the group about what decision to make are significantly more likely to make competitive (non-cooperative) choices in the RPD context. Empirical results are less clear about the relationship between how groups evaluate prior outcomes and whether they experience more intra-group conflict. However, the analysis does suggest that it may be worthwhile to develop new experiments to better assess the relationships between these group features and group choice.

## Introduction

Many, and arguably perhaps almost all, important foreign policy decisions are crafted by small groups of policymakers. This observation is at the core of some approaches to studying the foreign policy process, notably bureaucratic politics and its variants (Halperin, 1974; Allison, 1971), and a focus on small group decision-making has been at the heart of a significant part of the foreign policy crisis literature (Janis, 1972, 1982; Paige 1968; Holsti, 1972; Hermann and Hermann, 1982; 't Hart et al, 1997), recent work on military intervention (Sylvan and Majeski, 1998, 1999; Vertzberger, 1998), and more general arguments regarding political decisions Tetlock et al, (1992), and Burke and Greenstein (1989).

While the examination of small group decision-making and group dynamics in the analysis of foreign policy decision-making owes much to the work of Irving Janis (1972, 1982) and his concept of groupthink and the pathologies of concurrence seeking behavior,<sup>1</sup> there has been a resurgence of interest in a variety of aspects of group dynamics on foreign policymaking.<sup>2</sup> As 't Hart et al (1997) note, the list of group features that have been shown to effect group decisions is quite extensive. Those group features receiving considerable attention in the foreign policymaking literature include group size and composition (Hermann and Hermann, 1982), leadership (M. Hermann, et al 2001), group dynamics and political manipulation (Maoz, 1990; 't Hart, 1990), group conflict and rivalry (Vertzberger, 1990; 't Hart 1990; C.F. Hermann et al 2001), and coalition building and group decision rules (Kaplan and Miller, 1987; Hermann, 1993; George 1980; Hagan et al, 2001; and C.F. Hermann et al 2001).

In this analysis, the relationship between one feature of groups, the extent to which groups experience internal conflict or controversy about what choice to make, and the actual choices made are examined. Put more specifically, are groups that experience intra-group conflict or controversy more likely to make decisions that lead to more conflict with other groups than those that experience no intra-group conflict or controversy?

The relationship between internal group features and group choice is complicated by the fact that most foreign policy decisions are not discrete independent events. Many foreign policy decisions (e.g., arms race processes, trade relations) are really a series of choices made over

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<sup>1</sup> See Herek, Janis and Huth (1987) and Schafer and Crichlow (1996) for non-case study empirical tests of groupthink propositions in the foreign policy context.

<sup>2</sup> See for example the special issue of *International Studies Review* (2001) on "Leaders, Groups, and Coalitions: Understanding the People and Processes in Foreign Policymaking."

time.<sup>3</sup> There is usually a history of interaction that groups use to evaluate how to act. That history includes (among other things) actions taken by the opposing group, prior actual outcomes, and the rationales for choice that the group previously employed. We know that in settings where groups are engaged in a series of joint decisions, that a group's decision is strongly influenced by prior outcomes and how the group evaluates those outcomes. This has two implications for the relationship between intra-group conflict and group choice. First, we would expect that how a group evaluates prior choices and policy outcomes would have an effect on the level of intra-group conflict or controversy. Second, since prior outcomes heavily influence current choices, it is important to address whether or not intra-group conflict/cooperation really matters in determining group choice if prior outcomes are taken into account.

### **Group Features and Inter-group Conflict**

#### **Intra-group Conflict and Inter-group Conflict**

A focus on intra-group conflict to explain variations in levels of inter-group conflict is hardly novel. Indeed there is a large and long-standing literature on the relationship between internal and external group conflict, much of it resting on the classic works of Simmel (1898) and Coser (1956) on group dynamics and conflict, and a full summary is beyond the scope of this analysis.<sup>4</sup> Most arguments suggest that there is a positive relationship between internal and external group conflict. Among those, the following three arguments are prominent. First, the "group repair" hypothesis suggests that people in groups may create hostile relations with out-groups as a mechanism to alleviate internal conflict and increase group cohesion (Simmel, 1899; Coser, 1956). Second, it is argued that intra-group conflict generates inter-group conflict because it develops negative attitudes and perceptions of others, deindividuation of others, and the development of a zero sum win-lose mentality; a relative gains or maximize relative to the opposition perspective (Pruitt and Rubin, 1986). In a similar vein, it is suggested that internal group conflict leads to more conflict with external groups due to what is called the "carryover

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<sup>3</sup> Even those decisions that appear to be singular (one shot) in nature such as the Cuban Missile Crisis are, upon closer examination of the foreign policymaking group's behavior, seen by the participants as embedded in a history of prior relations with the Soviet Union, Cuba, and US allies, and expectations about future relations and interactions with those states.

<sup>4</sup> Work by Richards et al. (1993), Downs and Rocke (1995), and Smith (1996) have used game-theoretic, principle-agent models to connect the sociological arguments about group dynamics and external conflict with the behavior of state leaders. For more general work about the diversionary theory of war see Gelpi (1997) and Levy (1989).

effect.” Internal group conflict spills over into conflict with other groups (Keenan and Carnevale, 1989, and Lindsfold and Han, 1988). Third, based upon arguments developed in social identity theory (Tajfel, 1978, 1981; Turner and Giles, 1981), Mercer (1995) notes group members must interact with each other to make a choice and these interaction patterns can serve as the basis for interaction with the other group. Presumably cooperation interaction patterns generate more cooperative behavior toward the opposing group and conflictual interaction patterns generate more conflictual behavior toward the opposing group.

On the basis of the above arguments, groups that experience intra-group conflict are expected to experience inter-group conflict.<sup>5</sup> In this analysis intra-group conflict is indicated by explicit lack of agreement among members of the group about what course of action the group should take. This is a much more restricted notion of intra-group conflict than typically understood in the literature. However, it is consistent with the type of conflicts that foreign policymaking groups experience (See Sylvan and Majeski, 1998, and Majeski and Sylvan, 1999) and is quite similar to what Stern and Sundelius (1997) mean by group conflict and what Johnson and Johnson (1987) refer to as group controversy.

#### **Intra-group Conflict and Prior Policy Outcomes**

We know that in settings where groups are engaged in a series of joint decisions their policy choices are strongly influenced by prior outcomes and how the group evaluates those outcomes. Bureaucratic politics and cybernetic approaches to policymaking (Simon, 1968, 1985; Halperin, 1974; Steinbruner, 1974) suggest that groups that evaluate prior policy outcomes in a positive way – as successful in meeting some criterion or goal – are likely to repeat the policy choice. They are also likely to make a different choice if the policy is judged a failure. In addition, policy failure is more likely to lead to a search for better alternatives and more controversy within the group. When a group makes a choice and the policy outcome of that choice is judged by the group to succeed or produce a desirable outcome, several things usually happen. There is a strong tendency to continue with the policy should circumstances warrant it.

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<sup>5</sup> Some scholars reverse the temporal or “causal” ordering of the relationship and suggest that it is inter-group conflict that affects intra-group conflict. In addition, it is typically assumed that external conflict creates intra-group cohesion rather than conflict. Deon (1979) found support for the notion that hostility between groups enhances in-group cohesion and in a classic study Sherif et al (1961) found that people in groups became more cohesive as a consequence of conflict with an out-group. The “rally-around-the-flag” effect (Mueller, 1973; Holsti, 1996; Gartner, 1998) is consistent with this hypothesis.

Parties advocating the successful policy take credit for it and parties that had advocated other courses of action either jump on the success bandwagon or at a minimum withdraw their criticism of the policy choice that generated success and withdraw open advocacy of alternatives. When the policy is judged to be a failure, the dynamics tend to be different. Parties that had demurred or had reluctantly signed on to the prior decision jump off the bandwagon and take up the cause of some other approach.<sup>6</sup> Thus, we would expect that policy success tends to reduce or eliminate intra-group conflict or controversy and policy failure tends to introduce or increase intra-group conflict and controversy.<sup>7</sup> This suggests that we ought to expect higher rates of intra-group conflict following failure than following success.

### **An Experimental Approach**

The relationships between intra-group and inter-group conflict, and group decisions and inter-group conflict are tested experimentally employing the strategic game setting known as the Prisoners' Dilemma (PD) or more precisely its repeated version; the Repeated Prisoners' Dilemma (RPD). While a number of non-cooperative game structures (e.g., Chicken, Deadlock, Stag Hunt) have been used to model relations among nation-states, repeated Prisoners' Dilemma has been the most commonly employed by scholars studying the relations among nation-states for several reasons. First, Prisoners' Dilemma is representative of an important class of structural situations of conflict and cooperation among nation-states. Two parties (foreign policy groups acting on behalf of nation-states) find themselves in a situation where each has two options: cooperate and defect (e.g., enter into a trade agreement or not, increase or control arms, begin an armed conflict or not) and where they cannot form binding agreements and can only engage in "cheap" talk. Second, it is a game structure based upon fear, greed, and a lack of trust; motives commonly attributed to groups acting on behalf of nation-states. Third, many of the most relevant and most studied relations among nation-states (e.g., arms race processes, trade relations) are a series of interactions and have been represented by repeated game structures.

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<sup>6</sup> See Sylvan and Majeski (1998) and Majeski and Sylvan (1999) for a discussion of the importance of policy failure and arguments about failed or failing policies in the U.S. foreign policymaking process.

<sup>7</sup> This position appears to run counter to Janis's (1982: 244) argument that policy failure is one of the antecedent conditions for groupthink or concurrence seeking. But Shafer and Crichlow (1996) find no empirical evidence for policy failure as an antecedent condition.

The structure of the familiar PD game is presented in Figure 1. This game is designed to illuminate the conditions under which groups are able to forge cooperative behavior in the absence of any Leviathan-like enforcement mechanism. Groups are given the opportunity to either display cooperative or non-cooperative behavior with their playing partners and their payoffs are contingent on the decisions made by both groups. Groups have an opportunity to interact with other groups repeatedly where there is the possibility of mutual gain through cooperation and the possibility of exploitation via defection. The question is whether groups can overcome the individual rational choice to defect to achieve the socially optimal outcome of mutual cooperation. In the RPD, the dilemma is between short-term and long-term payoffs. In the short term, non-cooperative behavior is rewarded (the temptation payoff (T) rather than the mutual cooperation payoff (R) or the sucker payoff (S)) but over the long haul, repeated cooperative behavior is rewarded (long strings of mutual cooperation payoffs (R) rather than long strings of mutual defection payoffs (P)). Thus, the RPD stylizes the paradox of forgoing short-term and selfish gains for long-term and cooperative payoffs.

Long-term cooperation among groups is additionally complicated by the contingent nature of the rewards. Unless *both* players choose to cooperate, unilateral cooperation is punished by receiving the sucker's payoff (S); the worst possible outcome. Thus, in the RPD, a cooperating group must overcome the temptation (greed) for short-term exploitation and the fear of non-cooperation by the other group (sucker outcome) in order to act on the desire to cooperate for long-term benefits. This second barrier can be understood as trust where one must trust (or hope) that cooperation will be reciprocated in order to cooperate initially. Only when cooperation is reciprocated can a group obtain long-term benefits. Mutual cooperation creates long-term benefits but also creates mutual vulnerabilities to short-term temptations.

By simplifying the real-world conditions under which groups make repeated decisions to cooperate or not with other groups, this experiment provides an opportunity to assess in a controlled setting the relationship between one group feature, intra-group conflict or controversy, and group decisions to cooperate or defect over a series of interactions with another group. Experiments generate evidence in an artificial rather than a natural setting and there is no doubt that groups of college students playing RPD games for small amounts of money is quite a different setting than groups of foreign policymakers making difficult policy decisions and we cannot assume that students and actual foreign policy experts will make the same choices or be effected by the variable being manipulated in the same fashion (see Mintz et al, 2006). However, to the extent that we assume that foreign policymaking groups experience intra-group conflict and disagreement about appropriate courses of action to take (and the empirical evidence of this is

overwhelming), then the experimental results provide useful evidence that the variable isolated and manipulated (group conflict) should be taken seriously when the decisions of “real” foreign policymaking groups are examined.

## **Analysis**

### **Experimental Design<sup>8</sup>**

To investigate the relationships posed earlier, subjects were recruited from lower-division social science classes at a large public university. Prior to the experiment, subjects were taught to read the PD game matrix and tested to ensure that they understood the matrix and the strategic nature of the game. The actual payoffs used in the experiment were \$5.00 for the temptation payoff (T), \$4.00 for the mutual cooperation reward payoff (R), \$2.00 for the mutual defection punishment payoff (P), and \$1.00 for the sucker (S) payoff for each iteration of the game. At no time were they told that they were playing a “game,” that they were in competition with an “opponent,” or that the game was the PD. Subjects were not told how many times they would be asked to reach a decision. They were told only that they needed to make a decision, that they would have a limited time to discuss it, and that their discussions would be audiotaped by an experimenter who observed the group discussions. They were also asked to limit their conversations about the decision to specific and limited time periods (1.5 minutes for the first iteration of the game and 1.0 minutes for all remaining iterations).

The individuals in these groups were told that they were expected, as a group, to make decisions, that they would be paid based on the outcome of their collective decision and that of the other group, and that group members would share group earnings equally among group members. No instructions were given as to how to organize as a group or how to reach a decision. After receiving these instructions, the subjects were randomly divided into two groups. They were labeled the “green” and “blue” groups and then sent to two separate rooms. The groups were then allowed to play the RPD. They were not allowed to communicate with their opponents although they were aware of the existence of the other group from the pre-experiment orientation. Groups were told to write their choice on a provided form. A member of the experiment team collected the choice forms and then announced to both groups (one at a time) the choices of both groups and the dollar outcome received by both groups for each iteration. Finally, after the experiment was completed all subjects were given an exit questionnaire, debriefed, given their share of the money earned by the group, and dismissed.

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<sup>8</sup> The procedures employed are very similar to those developed by Insko et al (1987).



The experiment consisted of nineteen 10-iteration PD games played among groups of subjects. Ninety-nine subjects participated in this experiment.<sup>9</sup>

### **Measurement**

#### Inter-group conflict and cooperation

Inter-group cooperation is measured as the number of times the group chooses to cooperate with the opposing group in the RPD game. Inter-group conflict is measured by the number of times groups choose to defect in the RPD game. In this context, inter-group conflict and cooperation concerns monetary rewards. Groups typically were trying to maximize gains though some groups acted as if they were seeking to maximize relative gains. While there is no doubt that groups sometimes became quite upset with and frustrated by the actions of the opposing group, the conflict or competition between groups was economic in nature.

#### Intra-group conflict and cooperation

Measures of intra-group conflict are based upon an analysis of the audio recording of intra-group discussions.<sup>10</sup> Groups were coded as having intra-group conflict if it was clear from the discussion that members of the group disagreed or had different views about whether to cooperate or defect with the opposing group. Groups were categorized as having no intra-group

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<sup>9</sup> Although subject scheduling was overbooked, subjects did fail to make their appointments. When this occurred, some trials were run with two subjects in one of the groups. No experiments were run with fewer than two subjects per group (obviously, a minimum to maintain group status). Sixty-seven percent of the groups in the experiment had three subjects and thirty-three percent had two subjects. Unfortunately, one group's decisions failed to be recorded due to operator error leaving only 18 viable ten-iteration trials for this analysis and a total of thirty-seven "cases" of group conflict and group choice.

<sup>10</sup> The following information was extracted from the audio tapes for each group for each round or iteration of the PD game; the presence or absence of conflict within the group, the key phrases or words that seemed to affect the final decision, which members of the group participated in the discussion, and how they were received by other group members. Two researchers coded the audio tapes to determine the presence or absence of group conflict. Because the presence of conflict was coded as the presence of either dissent or disagreement about the group choice by one or more individuals in the group, this turned out to be quite straightforward for the coders to determine. In the small number of instances where the coders independently coded the same cases, the coders agreed 100% of the time.

conflict if there was **consensus** (either no dissent or disagreement) about what choice to make or in some instances simply no discussion at all.<sup>11</sup> Intra-group conflict is indicative of some overt (verbal) level of disagreement in the group about what choice the group should make.

Disagreement can but need not be associated with or accompanied by anger, dislike, frustration, or hostility among group members. Thus intra-group conflict is narrowly construed here. It certainly does not imply violent conflict among group members nor does it imply interpersonal conflict or animosity (though in fact this might well be present and was in some instances in the experiments). This is a “mild” form of intra-group conflict; more in the form of controversy and disagreement. Yet, it is precisely the kind of conflict that typifies struggles in foreign policymaking groups. Policymakers disagree on what course of action to take and engage in attempts to convince, persuade, outmaneuver, or coerce other members of the group.

#### Prior policy success and failure

Groups in the PD setting have two policy choices; cooperate or defect. Depending upon the joint choices of the two groups there are four possible joint outcomes; both groups cooperate (C,C), both groups defect (D,D), one group cooperates while the other defects (C,D) and vice versa (D,C). The preference order across these joint outcomes is assumed to be  $(D,C) > (C,C) > (D,D) > (C,D)$ . Note that cooperative behavior by the opposing group generates higher benefits to a group [(D,C) and (C,C)] than competitive behavior [(D,D) and (C,D)]. If the opposition group cooperated the previous time then a group receives one of its two most preferred outcomes of the PD game; either the reward payoff (C,C) or the temptation payoff (D,C). If the opposition group defected the previous time, then a group receives one of its two least preferred outcomes; either the punishment payoff (D,D) or sucker payoff (C,D). Policy success is operationalized as obtaining either the (D,C) or (C,C) outcome, and policy failure is operationalized as obtaining either the (D,D) or (C,D) outcome.<sup>12</sup> In this particular context then prior success is equated with

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<sup>11</sup> There were not many instances where there was no discussion within groups. These instances typically occurred when both groups had settled into a string of mutual cooperative outcomes or a string of mutual defection outcomes.

<sup>12</sup> Whether individuals in the experimental groups evaluated the outcomes in this fashion is not known. We do know from the tape recordings of discussions that **most** experimental subjects were satisfied with the mutual cooperation outcome and dissatisfied with the sucker payoff and mutual defection outcome. While they typically were pleased with the payoff from the temptation outcome, they recognized that it was likely to be short-lived and some felt guilty about “exploiting” the opposing group.

opposition group cooperation and prior failure with opposition group defection. Note that groups can achieve both policy success and failure by cooperating or defecting. Since policy failure is assumed to introduce or increase intra-group conflict and controversy, we expect higher rates of intra-group conflict following failure (obtaining the sucker (C,D) or mutual defection (D,D) outcomes) than following success (obtaining the temptation (D,C) or mutual cooperation (C,C) outcomes).

## Results

Does intra-group conflict generate inter-group conflict? That is, are groups that have controversy about what choices to make more likely to make competitive choices than those not experiencing within group conflict? First, to get a sense of the relationship over the entire ten iteration sequence, the number of defection choices made by both groups were summed (a possible range of 0 to 20), and the number of iterations where groups experienced intra-group conflict was summed (a possible range of 0 to 20) for each of the 18 ten iteration trials.<sup>13</sup> A Pearson correlation coefficient of .489 (.039)  $n=18$  suggests a significant and positive association between intra-group conflict and inter-group conflict.

Second, the number of defection choices made by each group individually was summed (a possible range of 0 to 10), and the number of iterations where each group individually experienced intra-group conflict was summed (a possible range of 0 to 10) for each of the 37 ten iteration trials (again one group trial was missing). A correlation of .419 (.01)  $n=37$  again provides support for the relationship between intra-group and inter-group conflict.

Third, is there an association between intra-group and inter-group conflict at the individual iteration level and not simply over the course of a ten-iteration trial? At the individual iteration level, both variables become dichotomous and categorical; groups have intra-group conflict or they do not and groups either cooperate or defect. At the individual level there are 370 “cases.”<sup>14</sup>

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<sup>13</sup> Recall that 19 ten-iteration experiments were run, but one experimental run had to be eliminated because one group’s discussions were not recorded thus providing no means to know if intra-group conflict was present or not.

<sup>14</sup> In fact there are not 370 completely independent cases. There are 37 groups and each group makes 10 decisions to cooperate or defect with the opposing group. This violates an assumption of the chi square test; that each subject (here the group) contributes data to only one cell of the cross tabulation. Therefore, in addition to running chi square tests, logistic regressions were also run to test each relationship considered. In all instances, the two statistical analyses generate consistent results. Tables reporting Chi square results are presented because they provide a

The chi square test of independence for the 2X2 table (Table 1) relating intra-group conflict and choice generated a Phi coefficient of .095 (.068) indicating that we cannot reject independence at the (.05) significance level. However, while the relationship between the two variables is not quite statistically significant, the pattern between the two variables supports the proposed relationship and is consistent with the two statistical tests of the relationship at a more summary level.<sup>15</sup>

The above analysis indicates that groups of experimental subjects that experienced intra-group conflict were significantly more likely to experience inter-group conflict. Groups that experience consensus or at least a lack of overt dissent or disagreement on what course of action to take are more likely to act cooperatively with the opposing group than those groups that experience internal dissent and disagreement.

Does policy failure lead to intra-group conflict? Are groups that experience policy failure more likely to have internal group conflict and controversy? A Pearson correlation coefficient of .451 (.06) n=18 suggests a positive (expected direction) but not quite statistically significant association between prior policy failure and intra-group conflict at the group summed level. A correlation between prior policy failure and intra-group conflict for each of the 37 ten iteration trials of .155 (.36) n=37 indicates no significant relationship at the individual group

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clearer sense of the relationships among the variables. In addition the ten decisions each group makes are sequential. Additional analysis will probe how prior outcomes affect the relationship between intra-group conflict and inter-group conflict.

<sup>15</sup> As was noted earlier, most important foreign policy decisions are sequential in nature and we expect prior outcomes and how the group evaluates those outcomes to have an effect on intra-group conflict and group choices. In the experiment, a group of subjects has no prior history with the opposing group. Thus, an analysis of simply the first round of the repeated game offers an opportunity to consider the relationship between intra-group conflict and inter-group choice devoid of prior history or actual prior choices. A chi square test of the relationship between intra-group conflict and inter-group choice for just the first iteration for the 37 groups indicates that the relationship is not statistically significant (Phi = .18 (.35)). Interestingly, groups made cooperative choices more frequently on the first iteration (57%) than the remaining nine iterations (44%) and also were more likely to have intra-group conflict during the first iteration (38%) than for the remaining nine iterations (32%). Groups that had no intra-group conflict cooperated 61% of the time on the first iteration of the game and only 45% of the time with intra-group conflict. This differential (16%) is larger than the (10%) gap for the remaining nine iterations of the game.

summed level. At the individual iteration level, the chi-square test of independence for the 2X2 table relating prior success and intra-group conflict generated a Phi coefficient of .096 (.08) (Table 2). The relationship is fairly strong, in the appropriate direction, but again not statistically significant.

When groups have **no** intra-group conflict, they are about equally likely to have experienced prior policy success (n=111 or 49%) and failure (n=116 or 51%). But when they have intra-group conflict, they are more likely to have experienced prior policy failure (n=65 or 61%) than success (n=41 or 39%). While the overall statistical results are mixed, the analysis does suggest that prior policy failure does appear to trigger more intra-group conflict. When the opposing group does not cooperate it tends to spur more controversy and differing views about what to do than when the opposing group cooperates.<sup>16</sup>

## **Discussion**

Taken together, the empirical results regarding the relationships between inter-group conflict, intra-group conflict, and prior policy failure suggest that policy failure generates intra-group conflict which in turn generates inter-group conflict and policy success leads to intra-group consensus which in turn leads to inter-group cooperation. But while the relationships between prior policy failure and intra-group conflict and intra-group conflict and inter-group conflict are in the appropriate direction and fairly strong (.08 and .06 significance levels respectively), the question remains as to whether or not intra-group conflict really matters. This is of some concern because we know (particularly in the context of RPD games) that there is a strong relationship between prior outcomes and group choice. Indeed, the relationship between prior policy success/failure and inter-group choice (see Table 3) is very strong (Phi coefficient of .266 (.00 significance level)).

So the question is does intra-group conflict/cooperation really matter in determining group choice if prior outcomes are taken into account? First, consider the relationship between prior policy outcomes and intra-group conflict. From the experimental results, we know that groups experience intra-group conflict less (27%) following prior policy outcome successes

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<sup>16</sup> Due to the way policy success and failure are operationalized, the prior analysis also acts as a test for an alternative proposition suggesting that inter-group conflict generates intra-group cohesion. Prior policy failure occurs when the opposing group defects. Thus, prior policy failure can be equated with prior inter-group conflict. As the above results suggest, if there is any significant relationship at all, it is that prior policy failure (inter-group conflict) generates intra-group conflict and not intra-group cooperation or cohesion.

((C,C) or (D,C)) than prior policy failures ((C,D) or (D,D)) (36%). But if we consider the relationship between specific prior outcomes (mutual cooperation (C,C), sucker (C,D), exploitation (D,C) and mutual defection (D,D)) and intra-group conflict, several patterns emerge.

The relationship between specific prior outcomes and intra-group conflict is in the appropriate direction and is very close to being statistically significant.<sup>17</sup> A closer look at the data indicates that groups experience intra-group conflict or disagreement only 20% of the time following the mutual cooperation outcome whereas intra-group conflict or disagreement is significantly higher for remaining three joint outcomes; 35% for the exploitation outcome (D,C), 35% the for mutual defection outcome (D,D), and 38% for the sucker outcome (C,D). If prior joint outcome (with two categories (C,C) and the other three outcomes lumped together) is crossed with intra-group conflict, a Phi coefficient of .145 (.00) is produced signifying a strong and highly significant relationship. These results suggest that intra-group conflict is more strongly linked to particular prior outcomes rather than to prior policy success and failure. Groups appear to be satisfied with the mutual cooperation outcome and experience little internal division about what to do next whereas all other outcomes generate consistently higher levels of intra-group conflict. In addition, groups choose to cooperate with the other group following a mutual cooperation outcome at a much higher rate (83%) than for each of the other three outcomes; 28% following (C,D), 28% following (D,C), and 35 following (D,D). This should come as no surprise. Once groups achieve mutual cooperation, they usually maintain it.

Second, consider the relationship between intra-group conflict and group choice. The experimental results show that groups that experience intra-group conflict choose to cooperate less (38%) than those without intra-group conflict (49%). But if we consider the relationship between intra-group conflict and group choice **given** whether or not groups experience prior policy success or failure, a clear pattern emerges. The relationship between intra-group conflict and group choice was assessed separately for those cases following policy success and for those cases following policy failure. Intra-group conflict was crossed with group choice for just the policy success cases and then just the policy failure cases and this generated two Chi-Square Phi coefficients of .181 (.02) for the prior policy success cases, and -.03 (.70) for the policy failure cases. Intra-group conflict significantly effects group choice **only** following policy success.<sup>18</sup>

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<sup>17</sup> When prior joint outcomes (with four categories) are crossed with group conflict, a Chi-Square Phi coefficient of .147 (.06) is produced signifying a strong relationship.

<sup>18</sup> For the prior policy success cases, groups with no conflict cooperate 64% of the time and with group conflict cooperate 44% of the time; a 20% gap. For the prior policy failure cases, groups

Following policy success, intra-group conflict reduces the likelihood of cooperation. Following policy failure, groups choose to cooperate at the same rate regardless of whether or not they experience intra-group conflict. These results imply that there is an interaction effect between prior policy success and intra-group conflict and this is confirmed by the results of a logistic regression where group choice is predicted based upon prior policy success, intra-group conflict, and an interaction effect (prior policy success and intra-group conflict).<sup>19</sup>

Next, to what extent is the relationship between intra-group conflict and group choice affected by the specific prior joint outcome? To answer this question, intra-group conflict was crossed with group choice for each of the four separate joint outcomes generating four Chi-Square Phi coefficients; .25 (.02) for the mutual cooperation (C,C) cases; .22 (.06) for the sucker (C,D) cases, -.02 (.86) for the exploitation (D,C) cases, and .08 (.37) for the mutual defection (D,D) cases. Intra-group conflict significantly effects group choice **only** following the mutual cooperation outcomes. These results imply that there is an interaction effect between prior policy outcomes and intra-group conflict and this is confirmed by the results of a logistic regression where group choice is predicted based upon prior policy outcomes (where outcomes are categorized as, intra-group conflict, and an interaction effect (prior policy outcomes and intra-group conflict)).<sup>20</sup>

The probability of cooperative choices given prior joint outcomes and intra-group conflict and cooperation generated from the experiment are presented in Table 4. For the mutual cooperation cases, groups with no conflict choose to cooperate with the opposing group 88% of the time and cooperate 65% of the time when they have group conflict; a 23% gap. For the (C,D) sucker cases, groups with no conflict cooperate 21% of the time and with group conflict cooperate 41% of the time, a 20% gap; almost statistically significant at the .05 level. For the (D,C) exploitation cases, groups with no conflict cooperate 28% of the time and with group conflict cooperate 29% of the time. For the (D,D) mutual defection cases, groups with no conflict cooperate 37% of the time and with group conflict cooperate 29% of the time.

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with no conflict cooperate 31% of the time and with group conflict cooperate 33% of the time, a trivial 2% gap.

<sup>19</sup> Beta coefficients for intra-group conflict (1.76), prior policy success (2.31), and the interaction effect (-.95) are all statistically significant at the .05 level.

<sup>20</sup> Beta coefficients for intra-group conflict (2.90), prior policy outcomes (4.35), and the interaction effect (-1.51) are all statistically significant at the .05 level. Prior policy outcomes are categorized as mutual cooperation (C,C), and the three remaining outcomes lumped together.

Following mutual cooperation outcomes, groups that experience intra-group conflict are much more likely to defect than those that do not have group conflict. Group conflict appears to erode the mutual cooperation outcome. The relationship between intra-group conflict and group choice is reversed when groups experience conflict following the sucker (C,D) outcome. Groups having conflict are much more likely to choose to cooperate than groups experiencing no conflict. When groups have no conflict and have been “suckered,” they have a high rate of defection (79%); what one would expect given the RPD game dynamics. However, those groups who have disagreements in the wake of the “sucker” outcome cooperate at a relatively high rate (41%).

Taken together, the prior results help to account for the “near” statistical significance (at the individual interaction level) of the relationship between intra-group conflict and group choice discussed earlier. Groups experiencing intra-group conflict following mutual cooperation (C,C) are more likely to defect (also true for the (D,D) outcome) while the reverse is true for the sucker (C,D) cases. Groups experiencing intra-group conflict following the (C,D) outcomes are more likely to cooperate than when they have no group conflict.

### **Conclusion**

In this analysis the relationship between the extent to which groups experience internal conflict or controversy about what choices to make and the decisions those groups make are examined in the context of Repeated Prisoner’s Dilemma games. The analysis indicates that groups of experimental subjects that experienced intra-group conflict are significantly more likely to experience inter-group conflict. Groups that experience consensus or at least a lack of overt dissent or disagreement on what course of action to take are more likely to act cooperatively with the opposing group than those groups that experience internal dissent and disagreement. While intra-group conflict tends to reduce inter-group cooperation, the magnitude and direction of the effect varies depending upon the prior joint outcome of the RPD game. The evidence for the relationship between prior policy failure and intra-group conflict presents a mixed picture. The experimental results do indicate that when actions taken by the group do not generate success, groups are more likely to experience disagreements on what course of action to take next, a result that should not surprise analysts of foreign policymaking. But, the empirical analysis also indicate that intra-group conflict only appears to have a significant effect on the choices those groups make following prior policy success and not prior policy failure.

The mixed empirical results may well be in part due to the relatively small sample size of the analyses but increasing the sample size is not likely to be the best approach because other conceptual issues may be either obscuring relationships or presenting spurious ones. For example, we know that prior outcomes do have an impact on current group choices and as a result



the observations of the relationship between intra-group conflict and group choice in an RPD setting are not independent and indeed are arguably contingent. The current design has no ability to control for this. One approach to address this problem would be to design a new experiment that is based upon a one shot PD game and where the presence or absence of intra-group conflict or controversy is directly manipulated in some fashion. Also, in the empirical analysis above, the researcher presumed that subjects would interpret prior policy outcome as successful if either a DC or CC outcome occurred or as a policy failure if either a DD or CD outcome occurred. While this is reasonable from a simple payoff perspective, it may not coincide with how the subjects themselves would interpret it. One source of intra-group controversy or conflict may well be alternative evaluations of prior policy success or failure. Indeed, the coding analysis of group conflict suggests that different individuals in the group often feel differently about the DC outcome in particular. This could be resolved by asking subjects in a new RPD experiment to provide an evaluation of the group's prior decision and prior policy outcome after each play of the repeated game.

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Figure 1. The Prisoners' Dilemma

		Player 2	
		Cooperate	Defect
Player 1	Cooperate	R,R	S,T
	Defect	T,S	P,P

Where  $T > R > P > S$

Table 1. Intra-Group Conflict and Group Choice  
(Intra- Group Conflict) X (group choice)

		Group Choice		
		cooperation	defection	Total
Group Conflict	No conflict	123	130	253
	conflict	45	72	117
Total		168	202	370

Table 2. Prior Policy Success/Failure and Intra-Group Conflict

(Intra-group conflict) X (prior group success/failure)

		Prior Group Success		
		success	failure	Total
Group Conflict	No conflict	111	116	227
	conflict	41	65	106
	Total	152	181	333

Table 3. Prior Policy Success/Failure and Inter-Group Choice  
(Group Decision) X (prior group success)

		Prior Group Success		
		success	failure	Total
Group choice	cooperate	89	58	147
	defect	63	123	186
	total	152	181	333

Table 4: Probability of a cooperative choice given prior joint outcome and intra-group conflict or cooperation

Prior joint outcome	(C,C)	(C,D)	(D,C)	(D,D)
No group conflict	.88	.21	.28	.37
Group Conflict	.65	.41	.29	.29
Combined Conflict and no group Conflict cases	.83	.28	.28	.35