

Democracy and War Effort: An Experiment

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Abstract

This article uses a laboratory experiment to explore how groups' internal rules for leader selection affect how leaders select into and fight conflicts. The findings reveal that, counter to expectations, leaders of democratic groups were more likely than leaders of autocratic groups to select into a conflict rather than accept a negotiated settlement. Conditional on conflict occurring, democratic leaders did not mobilize more resources for war than autocratic leaders. However, democratic leaders were less likely to accept a settlement once a war was underway and they expended more effort in the last round of conflict, suggesting once they entered a war they fought for a decisive victory. Domestically, democratic leaders were punished for losing wars more often than autocratic leaders, while winning wars did not benefit democratic leaders significantly.

Keywords

bargaining, conflict, democratic institutions, Selectorate Theory, war outcomes, experiment

Empirical research has found that democracies are more likely than any other regime type to win the wars they enter (Lake 1992; Reiter and Stam 1998, 2002). Two main arguments have been put forward to explain the success of democracies in conflict. On one hand, democratic leaders are more likely to select out of difficult wars because their hold on power is more contingent on their population's approval than leaders of other regime types and losing wars hurts their reelection chances (Bueno

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de Mesquita and Siverson 1995; Bueno de Mesquita et al. 1999a, 2004; Bueno de Mesquita et al. 2005). According to this logic, democracies fight easier wars on average than autocracies. On the other hand, once a war is underway, democratic leaders need to ensure victory and so they expend more effort in war (Bueno de Mesquita et al. 1999a, 2004; Bueno de Mesquita et al. 2005). This additional effort allows democracies to win more wars than autocracies, even accounting for the difficulty of the war.

Because differentiating between these two arguments is difficult empirically, this article uses a laboratory experiment to control regime type and war difficulty and explore what type of leaders select into wars and how they use resources. After reviewing the literature, I present the experimental setup and derive hypotheses related to war selection and resource use in conflict. Contrary to expectations, the experimental results show that democratic leaders select into wars more often than autocratic leaders. Furthermore, democratic leaders are more willing to fight wars to their conclusion rather than accept a negotiated offer to end the war. Related to that finding, I show democratic leaders use more resources in the final round of conflict. This additional effort helped democratic groups to win wars more often than autocratic groups. Finally, I show that democratic leaders were punished for losing wars while autocratic leaders were not.

This article furthers our understanding of the relationship between regime type and warfare by exploiting the advantages of laboratory experiments. The use of an experiment removes other factors affecting this relationship and allows causal inference on the connection between the reselection rules of the leader and war outcome and effort. The results show that domestic reselection rules and how they influence leaders' decisions alone can account for many differences in the manner in which democracies and autocracies fight wars. In particular, this article contributes to the literature by demonstrating that democratic leaders are more likely to be removed from office after losing a conflict than autocratic leaders. This threat of removal forces democratic leaders to mobilize more resources as wars are extended because of their need to win in order to retain office. Taken together, these findings create a link between the domestic incentives of democratic leaders and the empirical finding that democracies mobilize more resources and win more wars than any other regime type.

Democracy, War Effort, and Victory

Lake (1992) and Reiter and Stam (1998, 2002) show that democracies are more likely to win the wars they enter than other regime type.¹ The literature has proposed two main mechanisms for why democracies win wars more often than autocracies. The first mechanism suggests they are not necessarily better fighters. Rather, democracies select out of difficult wars, fighting easier wars on average than autocracies. Since democracies tend to fight easier wars, they win a higher percentage. The

second mechanism suggests that, for a given difficulty of war, democracies mobilize more resources than autocracies, giving them a resource advantage when fighting wars. This section discusses these arguments in turn before addressing how to parse the relative effect of each.

The selection argument was developed in the context of Selectorate Theory, which argues that in democracies, leaders are more likely to lose office if they lose a war (Bueno de Mesquita and Siverson 1995; Bueno de Mesquita et al. 1999a, 2004; Bueno de Mesquita et al. 2005). Selectorate Theory starts with the assumption that leaders are primarily motivated by the desire to retain office, although their strategy for doing so may differ by regime type. The regime type of a state is determined by the ratio of two key components: the selectorate and the winning coalition. The selectorate, S , is the set of the population empowered to participate in choosing the leader. The winning coalition, W , is the minimum subset of the selectorate that is of sufficient size to support a leader in power. An incumbent loses office if he or she no longer has the support of a coalition large enough to stay in power, where the size of the minimum winning coalition is determined by the type of government. Roughly speaking, democracies have a large selectorate and a large ratio of W to S while autocracies have a small ratio of W to S . Furthermore, when W/S is large, as in democracies, the leader maximizes his or her chance of retaining office by investing resources in public goods while leaders of autocracies prefer to buy off individual coalition members through private goods (Morrow et al. 2008; Bausch 2014).

Because autocrats rely on private goods to satisfy their supporters, they are less dependent on successful policies to retain office than democratic leaders (Bueno de Mesquita et al. 1999b). With respect to war, Croco (2011) shows that democratic leaders who are in office when a war begins and then lose are significantly more likely to be removed from office than autocratic leaders under the same circumstances. This higher probability of removal induces democratic leaders to select out of difficult wars. Autocrats, meanwhile, can engage in wars in which they have a low probability of winning because losing will have little effect on their chances of losing power. Thus, democratic leaders enter easier wars than autocrats on average, contributing to democracies winning a higher percentage of wars than autocracies. In fact, empirical work finds that democratic leaders choose conflicts they are likely to win (Gelpi and Griesdorf 2001; Anderson and Souva 2010). Furthermore, Bak and Palmer (2011) show that extreme autocracies tend to be most likely to target a difficult opponent.

If democratic leaders select easier wars, they should win more wars on average, but that gives us little insight into if democratic institutions lead to advantages once a war begins. In particular, a key question of interest is whether democracies try harder to win wars once they start. Because democratic leaders' hold on power is more dependent on successful policy than autocratic leaders', they need to ensure victory by dedicating more resources to the war and gaining a military advantage (Bueno, de Mesquita et al., 1999a; Tangerås 2009; Bausch in press). More precisely, Selectorate Theory predicts that when fighting extremely weak adversaries, neither democracies

nor autocracies have any need to mobilize additional resources. When fighting wars in which the leader will be deposed by the adversary if defeated, both democracies and autocracies should fully mobilize. For wars in between, where most wars fall, democratic leaders should try harder than autocratic leaders (Bueno de Mesquita et al. 2004; Bueno de Mesquita et al. 2005). While Reiter and Stam (2002, 120) argue that democratic leaders do not devote more resources to war efforts than autocrats, several scholars find they do (Bueno de Mesquita et al. 2004; Goldsmith 2007; Valentino, Huth, and Croco 2010).² Furthermore, if a war does not end quickly, democracies tend to reassess the difficulty of the war and increase their military expenditures as the war continues. In contrast, autocracies exert a constant effort across all years of a war (Bueno de Mesquita et al. 2004). Therefore, it appears that democracies try harder to win a war once it starts, as measured by wartime mobilization, and increase their effort as wars progress.

Thus, the literature gives us two causal mechanisms for why democracies win wars more often than autocracies. On one hand, democracies select easier wars, while on the other, they try harder once wars are underway. Disentangling the casual effects of these two mechanisms is difficult when we consider that these are not competing explanations, but in fact are complimentary (Clark and Reed 2003). Rather than rely on naturally occurring data based only on outcomes to separate the effect of selection and the effect of war effort, I conduct a laboratory experiment to examine how internal reselection rules influence both selecting into wars and fighting wars. An experiment provides an advantage over naturally occurring data because I can control the difficulty of the war, allowing me to focus on differences in war selection and war effort conditional on regime type.

Previous experiments in the international relations literature have not addressed how differences in intragroup decision-making rules affect intergroup conflicts. In many previous experiments, subjects act as international leaders accountable to no specific domestic audience (Durham, Hirshleifer, and Smith 1998; McDermott, Cowden, and Koopman 2002; Johnson et al. 2006; Tingley and Walter 2011a, 2011b). Other experiments ask citizens to evaluate leaders or make recommendations based on hypothetical situations (Mintz and Geva 1993; Rousseau 2005; Tomz 2007). A third genre of experiments has used groups, but included little or no domestic politics as participation in conflict is left up to individual subjects or all members of a group receive the same payment (Bornstein, Erev, and Rosen 1990; Bornstein 1992; Bornstein and Ben-Yossef 1994; Goren and Bornstein 2000; Bornstein, Gneezy, and Nagel 2002; Erev, Bornstein, and Galili 1993; Gunthorsdottir and Rapoport 2006; Halevy, Bornstein, and Sagiv 2008; McGillivray and Smith 2008). None of these experiments allow for regime type in the form of intragroup decision-making rules to influence a leader's decision in intergroup conflict.

The following experiment attempts to begin to correct for this gap in the literature. First, leaders make decisions about when to select into a war and how to fight it on behalf of their groups. Second, the conflict unfolds over time, testing how regime type affects war effort as wars continue. Third, the leader of a group

distributes the group's resources and then stands for reselection as leader. The rules for reselection are varied according to regime type with some groups autocratic and some groups democratic. Furthermore, factors not related to war, such as the performance of the economy, are explicitly excluded from the experiment, isolating the effects of interest. Taken together, this setup allows me to test how democratic versus autocratic reselection rules affect a leader's propensity to select into war and mobilize resources as a conflict unfolds. The next section provides the details of the game.

Experimental Setup

To test the effect of domestic political structure on selection into conflict and the mobilization of resources once a conflict is underway, I present a game that captures the underlying dynamics of a lengthy interstate war. Group leaders decide whether or not to fight a war or accept a settlement. If war occurs, leaders set their effort level. Furthermore, there can be up to three rounds of conflict, allowing leaders to adjust their effort level as a lengthy war unfolds. Leaders then stand for reselection under democratic or autocratic rules. By random assignment into groups, this setup tests the effect of domestic political institutions on war selection and war effort. The game is stated more formally as follows.

The game has two groups, each consisting of n members attempting to capture a prize of value p . One member of each group is randomly selected as the leader and given a budget of points, b_1 and b_2 , respectively, while the other group members are assigned to be citizens.

The game begins with a proposal to split p according to the formula $\pi = \frac{b_1}{b_1 + b_2}$, where π is the portion of the prize offered to the leader of group 1 and $1 - \pi$ is the portion of the prize offered to the leader of group 2. Leaders and citizens are informed that rejecting the proposal will result in a war that could last up to three rounds. If both leaders accept the proposal, the leaders receive a payoff for their group of $(\pi^*p + b_1(1 - \pi)^*p + b_2)$, the conflict phase is skipped, and they move on to the internal distribution phase described subsequently.

If at least one leader rejects the proposal, the leaders play the first stage of a three-stage Colonel Blotto game to determine which group receives the prize p . A Blotto game was selected to represent the international conflict because of its long history of representing the placement of troops or regiments during wars (Golman and Page 2009). Blotto games capture the strategic difficulties of allocating resources while also favoring players that have more resources available (or the willingness to use more resources in the case of the nonzero sum Blotto game presented here). Thus, a Blotto game that unfolds over time and in which leaders keep resources not spent on war seems ideal to test how regime type influences war effort.

Each stage of the Blotto game consists of three battlefields and the leader that places more points on a battlefield wins that battlefield. In case of a tie, a

half-win is awarded to both. The points placed on battlefields are subtracted from the leaders' budgets regardless of who wins that battlefield, making the battlefields all-pay auctions. Given that there are nine battlefields over the course of the three stages, the leader that wins five battlefields is awarded p .

After the first stage of the Blotto game, which represents the initial battles of a war, a new proposal to divide p is offered to the leaders that is updated based on each leader's remaining budget of points and remaining wins needed to capture all of p according to the formula:

$$\pi' = \frac{b'_1 * \left(\frac{r_2}{r_1+r_2}\right)}{b'_1 * \left(\frac{r_2}{r_1+r_2}\right) + b'_2 * \left(\frac{r_1}{r_1+r_2}\right)},$$

where π' is the updated portion of the prize offered to the leader of group 1, b'_1 and b'_2 are the remaining budgets for leaders 1 and 2, respectively, and r_1 and r_2 are the remaining wins needed to capture all of p for leaders 1 and 2, respectively. This formula makes higher offers to leaders who have gained a battlefield advantage by winning early battles and to leaders who have more remaining military power, in the form of points. In this way, the formula balances battles won and power remaining and represents a break in the fighting for negotiation. Leaders and citizens in both groups see the offer and the effort already put forth by both leaders and are informed of the remaining budget of both groups. If both leaders accept the updated offer, the leaders receive a payoff for their group of $(\pi' * p + b'_1(1 - \pi') * p + b'_2)$ and the game moves on to the internal distribution phase described subsequently.

If at least one leader rejects this proposal, they proceed to the second stage of the Blotto game, which represents an extension of the war, and allocate points over the second set of three battlefields. After the second stage, a new proposal is generated according to a similar formula, but again updated based on the remaining budgets and wins needed to reach five for each leader. This new proposal again represents a break in the war for negotiations. If both leaders accept the proposal, the leaders receive a payoff for their group of $(\pi'' * p + b''_1(1 - \pi'') * p + b''_2)$, where π'' is the updated percentage offered to leader 1, and b''_1 and b''_2 are the remaining budgets of the leaders after the second stage. The game then moves on to the internal distribution phase described as follows.

If at least one leader rejects the third proposal, the leaders play the final stage of the Blotto game, which represents the end of a lengthy war. After the third stage, the winning leader is awarded p in addition to her remaining budget, while the losing leader is left with only her remaining budget. If the number of wins is even after the third stage, each leader is awarded $.5p$.

Upon conclusion of the conflict phase, the leaders distribute points within their groups. The leaders can keep points for themselves, give them directly to individual group members, or invest them in a public good, in which those points are multiplied by pg , where $pg > 1$, and then distributed evenly to all members of the group. Group

members know the initial allocation of points to their leader, offers that were turned down by the leader, the number of points used each round of the war, the outcome of the war, and the final total of points held by the leader. After the distribution, the group members vote on retaining the leader for the next round. If the leader receives w_g votes, where g represents the group number and the number of votes needed can differ between groups, the leader is retained for the next round. If the leader does not receive the requisite number of votes, the leader's payoff for the round is set to 0 and a new leader is randomly selected from the other members of the group at the beginning of the next round.³ Leaders and citizens are both informed of w_g before the game begins.

Thus, the round payoffs for the citizens consist of any points given directly to that group member by the leader plus pg/n times the amount invested in public goods by the leader. The round payoffs for the leaders are the points kept by the leader plus pg/n times the amount invested in public goods by the leader if that leader is retained and 0 otherwise.

Experimental Parameters

The specific values of the parameters of the game used in the experiment are as follows. The value of the prize, p was set to 100 for all treatments. Each round, the initial budgets are randomly set to either 150 for both groups or 100 for one group and 200 for the other, with the more powerful group also being randomly determined each round. The value of the prize is equal to the round endowment of the weakest groups in order to ensure that all wars are "difficult" in that one leader cannot rationally overwhelm the other with force. Both sides can at least mobilize resources equal to the value of the prize.

When the leader invests points in the public good, those points are multiplied by 2.8 and then distributed evenly to all members of the group. This multiplier is common knowledge to all group members. After receiving their allocation of points, the citizens, all of whom are members of the selectorate, vote on whether to retain the leader from that round for the next round or not. The number of votes needed for reselection of the leader is $w = 1$ for autocracies and $w = 3$ for democracies and citizens and leaders know their group type.⁴ Varying the number of votes needed to win reselection changes W/S in accordance with Selectorate Theory's assumptions about retaining office in an autocracy versus a democracy.

Hypotheses

This section derives predictions about the experimental behavior in the game, beginning with the internal distribution phase of the game. I assume that each citizen has a reservation price that represents the minimum number of points she will accept for a payoff in a given round and still vote in favor of reselection for the leader. Regardless of the distribution of these reservation prices, it is trivial to show that the

cheapest way for democratic leaders to obtain reselection is through investing in the public good. Meanwhile, autocratic leaders should target one citizen through private goods. Perhaps more important than the public good/private good distinction by regime type is that the total amount of points given to the citizenry through either public or private goods required to stay in office will be less for autocrats than for democrats. Thus, policy failure in the intergroup conflict aspect of the game will be more likely to result in the removal of democratic leaders than autocratic leaders. Consequently, democratic leaders should be more risk adverse with respect to entering the conflict.

The intergroup conflict game is a nonconstant sum Colonel Blotto game because any points not used in conflict by the leader are retained. This type of game has no pure strategy equilibria (Kvasov 2007). Roberson and Kvasov (2012) present a mixed strategy solution to a nonconstant sum Colonel Blotto game. Ignoring the time dynamics, I can apply their solution to the present game. Given the resources allocated to the leaders in the game and the value of the prize, both leaders should use a modified budget of $nv/2$ where n is the number of battlefields and v is the value of each battlefield. In the present game, the value of the prize $p = 100$ can be substituted for nv , leading to a prediction that, in equilibrium, both leaders should use fifty points in conflict. Given equilibrium usage by both leaders, the fifty points used in conflict should return $.5p$, or fifty points in expectation. Thus, the value of the conflict, in equilibrium, is 0. However, before entering the conflict, leaders are given the chance to avoid conflict, spend no points fighting, and receive a positive payoff with certainty. Therefore, risk-neutral and risk-adverse leaders should always accept the offer and there should be no conflict in equilibrium. Only the most risk-seeking leaders should be willing to engage in war, and these leaders are more likely to be autocratic.

Conditional on war occurring, I assume leaders set their total effort level for the first three battlefields and then pick a distribution of points over these battlefields. While there is no pure strategy equilibrium for this class of game, there are mixed strategy equilibrium where the marginal distribution of points on each battlefield is *Uniform* $[0, \frac{2}{n}]$ (Roberson 2006; Weinstein 2012). Furthermore, given the potential for three rounds of battles, the time dynamics of the conflict need to be accounted for and the “discouragement effect” becomes relevant (Konrad and Kovenock 2009; Konrad 2010). The discouragement effect occurs when the outcomes of earlier battles induce contestants to decrease effort in later battles as their probability of winning overall falls. The war modeled here can be thought of as a race to win five battlefields. In such races, early battles can affect the continuation values of the contest in such way that the contestant that falls behind becomes indifferent between winning and losing subsequent battles and, therefore, puts forth no effort as the race continues. Even in cases where indifference does not occur, the contestant taking the lead puts forth more effort in subsequent battles than the contestant that fell behind (Konrad 2010). By backward induction, contestants should put forth large efforts in the first round of the competition to avoid falling behind (Klumpp and Polborn 2006; Konrad and Kovenock 2006). However, the discouragement effect has not been

confirmed experimentally (Irfanoglu, Mago, and Sheremeta 2011). In fact, experimental evidence has shown that in sequential contests subjects significantly underbid in the first battle and overbid relative to the Nash Equilibrium in the subsequent battles (Mago and Sheremeta 2012).

The discouragement effect may be further mitigated or reversed considering the leader is not trying to maximize points, per se, but trying to maximize her probability of reselection. If we suppose leaders have a threshold minimum number of points needed to satisfy voters, this distorts the war game. When leaders are above this threshold, the leader may try to maximize points and the discouragement effect would predict that leaders expend less effort in later rounds of the conflict. However, once this threshold is crossed and a leader no longer has enough remaining points to satisfy their voters, that leader must increase effort to win the conflict and secure the prize. Democratic leaders, needing more points to satisfy their voters than autocratic leaders, are more likely to fall below this threshold. Thus, autocrats are more likely to decrease effort in later rounds of conflict than democrats. Furthermore, democrats should be more willing to continue wars once they begin, fighting the war to its conclusion to capture the entire prize.

The abovementioned logic leads to the following hypotheses:

Hypothesis 1a: Autocrats should be more likely to select into war than democratic leaders.

Hypothesis 1b: Conditional on war occurring, democrats should be more likely to continue the war than autocrats.

Hypothesis 2a: Conditional on war occurring, democrats should use more resources than autocrats.

Hypothesis 2b: As wars progress, democrats should use more resources than autocrats.

Hypothesis 2c: As a result of Hypotheses 2a and 2b, democracies should win more wars than autocracies.

Hypothesis 3: Losing a war should decrease a democratic leader's chance of reselection more than an autocratic leader's.

Experimental Design

The game was programmed in Z-tree and run at New York University's Center for Experimental Social Science (CESS) (Fischbacher 2007). One hundred and twenty subjects were recruited through CESS's undergraduate recruitment pool and participated in five sessions of the experiment. All sessions included twenty-four subjects divided into four groups of six subjects and the subjects were prevented from participating in more than one session. In three sessions, there were two autocratic groups and two democratic groups. To increase interactions between groups of similar regime types, one session

consisted of three autocratic groups and one democratic group, while one session consisted of three democratic groups and one autocratic group.

After obtaining the subjects' consent and reading the instructions, the experiment began. Before the first round, subjects were randomly assigned to groups of six, randomly assigned a player number, and a leader was randomly selected from each group. The groups and player numbers remained the same throughout the experiment. Citizens and leaders were informed of their group type and voting rules. The experiment lasted eighteen or twenty rounds depending on the session.

At the beginning of each round, the four leaders in the session were divided into pairs and played the conflict game. The leaders and the citizens of both groups in the pairing were informed of both groups' regime types, their endowments for the round, and the initial offer to divide the prize.⁵ After each offer, the entire group was informed whether their leader and the other leader accepted the offer and if the conflict would continue or not. If the groups engaged in conflict, after each set of battles the leaders and citizens were informed of the remaining endowment for both groups as well as the number of battlefields won. After the conflict was settled, the group was informed whether it was settled by negotiation or fought to its conclusion.

After the intergroup phase, the entire group was informed of the outcome of the war and the group's remaining budget. The leader then distributed points to individual players or put them into a public good, described as a "multiplier fund" to the subjects. After the leader distributed the points, all players were informed of their direct payoff from the leader, the total public good investment of the leader, their share of the public good, and their total payoff for the round. Citizens then voted on whether to retain the leader. The result of the vote was revealed to all group members as well as how each individual member of the group voted. The leader was retained for the next round if she earned one or three votes, depending on whether the group was autocratic or democratic. If the leader was not retained, her round payoff was set to 0 and one of the other five group members was randomly selected as leader at the beginning of the next round.⁶

Subjects were paid a show-up fee of US\$10. Subjects received additional payment according to a random round payoff mechanism (Morton and Williams 2010, 382). Two rounds were randomly selected and used to calculate the subject's payoff from the experiment. Points from these rounds were converted to US dollars at a rate of ten points to thirty cents. The subjects earned an average of US\$3.80 during the experiment for a total of US\$13.80 (including the show-up fee). The experimental sessions lasted about an hour.

Results

Selecting into Conflict

Overall, and consistent with the model, the experiment was generally peaceful. A total of 86.5 percent of leaders accepted the initial offer with the hope of avoiding

Table 1. Random Effects, Time-series, Cross Sectional Logistic Regressions with Standard Errors Clusters at the Individual Level for Whether a Leader Accepts an Offer.

	Model 1 Accept 1	Model 2 Accept 1	Model 3 Accept 2	Model 4 Accept 3
Endowment 150	2.357*** (0.000)	2.401*** (0.000)	0.842 (0.410)	-1.221 (0.221)
Endowment 200	2.888*** (0.000)	2.907*** (0.000)	1.230 (0.323)	-0.578 (0.569)
Democracy	-1.174** (0.023)		-1.933* (0.079)	-2.558*** (0.022)
Autocracy meets democracy		0.372 (0.555)		
Democracy meets autocracy		-1.305** (0.041)		
Democracy meets democracy		-0.540 (0.426)		
Round offer			0.031 (0.106)	0.033** (0.016)
Log (times leader)	0.729*** (0.001)	0.682*** (0.003)	0.584 (0.145)	0.357 (0.380)
Constant	0.537 (0.261)	0.385 (0.507)	-0.784 (0.444)	0.461 (0.617)
Observations	392	392	102	70

Notes: The unit of analysis is the individual leader. The base category is endowment 100 for all models and autocracy meets autocracy in Model 2.

* $p < .10$.

** $p < .05$.

*** $p < .01$.

conflict altogether. Surprisingly, and contrary to Hypothesis 1a, democracies were more likely to reject the initial offer and select into conflict than autocracies. For all three levels of round endowment, democracies were more likely to select into conflict, in particular for endowments of 100 and 150.⁷

Model 2 in Table 1 includes interaction terms between the leader's regime type and the regime type of the leader's opponent. The marginal effects plot included in the Online Appendix shows that the leader most likely to select into a conflict was a democratic leader meeting an autocratic group. While statistical significance is not reached, this finding does provide evidence that democratic leaders are targeting groups where the opposing leader was less likely to be held accountable for failure by her group members, perhaps anticipating autocratic leaders would not fight as hard.⁸ The finding from Model 1 that democratic leaders are more belligerent than autocratic leaders is not entirely unexpected if weak democratic leaders assume their electorate thinks the initial offer was unfair and need to try to improve on it through

war or if democratic leaders are in fact targeting autocratic groups because they expect to win those wars.

Models 3 and 4 in Table 1 examine when leaders attempt to exit wars once they are underway. As predicted by Hypothesis 1b, democracies are more likely to continue wars than autocracies. A plot displaying the differences in how likely a leader is to try to end the war by regime type as the offer to split the prize after the first or second round of battles (offer 2 and offer 3) increases is included in the Online Appendix. Overall, democracies are less likely to accept any offer to end the conflict than autocracies.⁹ These results are consistent with empirical findings that democracies will fight harder to win a war (Bueno de Mesquita et al. 2004; Goldsmith 2007; Valentino, Huth, and Croco 2010). In particular, the biggest differences between autocrats and democrats are for low and middle offers. In these ranges, autocrats seem content to end the war and accept any positive payoff from the conflict while democrats, motivated to ensure a victory due to domestic constraints, prefer to continue fighting in hopes of securing the entire prize to make up for points spent in earlier battles.

Overall, the evidence is somewhat mixed on the predictions related to conflict selection and continuation. On one hand, contrary to the prediction of Hypothesis 1a, democracies were clearly more willing to enter the conflict than autocrats. On the other hand, as discussed in the Online Appendix, democratic war initiators tended to be weak and, having received a low initial offer, may be motivated to fight for a larger share of the prize. Furthermore, democracies seem to be targeting autocracies to some extent. The next section provides evidence democracies won the majority of wars with autocracies, but also shows autocracies used a substantial amount of resources in conflict, so it is difficult to conclude that autocracies were actually easier targets. Finally, as predicted by Hypothesis 1b, democrats were more likely to fight wars to their conclusion than autocrats, apparently unwilling to accept low offers when it was still possible to win the war. In line with Selectorate Theory, democratic leaders extended wars once they were underway in order to ensure victory.

War Effort and War Outcomes

This section addresses leaders' use of resources in war and how that translated into victories. Contrary to the expectations of Hypothesis 2a, autocratic leaders spent slightly more resources on average than democratic leaders in total. In particular, they spent more in the first and second rounds of conflict.¹⁰ Meanwhile, in the final period of conflict, democratic leaders used more resources than autocrats. Also noteworthy from the summary statistics is the high level of resources spent on the conflict for both regime types. Autocrats spent 82 points on average after entering the conflict, while democrats spent 77.1. The level of spending was significantly more than the Nash Equilibrium prediction of 50 points for both regime types, a result consistent with previous Blotto experiments and a variety of other auction experiments

Table 2. Random Effects, Time-series, Cross-sectional Tobit Regressions with Standard Errors Clusters at the Individual Level for the Number of Points Used by a Leader in a Given Round of Conflict.

	Model 1 Total effort	Model 2 First effort	Model 3 Second effort	Model 4 Third effort
Democracy	-1.623 (0.940)	-4.841 (0.695)	-19.102 (0.338)	23.167** (0.031)
Endowment 150	-10.069 (0.558)	-21.227 (0.100)	-7.408 (0.556)	-0.616 (0.959)
Endowment 200	27.151 (0.102)	19.418 (0.118)	-2.113 (0.874)	1.392 (0.910)
Log (times leader)	-17.444** (0.023)	0.433 (0.939)	-8.424 (0.167)	-1.540 (0.761)
Constant	97.947*** (0.000)	34.803*** (0.006)	70.282*** (0.000)	-2.551 (0.844)
Observations	102	102	68	51
Left-censored observations	9	24	8	17
Right-censored observations	25	5	11	9
Marginal effect of Democracy	-1.014 (13.370)	-3.410 (8.719)	-10.621 (11.042)	10.680** (4.624)

Note: The unit of analysis is the individual leader. The base category is endowment 100 for all models. Left-censored observations occur when a leader with points uses no points in a round. Right-censored observations occur when a leader uses all of her points in a round.

* $p < .10$.

** $p < .05$.

*** $p < .01$.

(Irfanoglu, Mago, and Sheremeta 2011; Mago and Sheremeta 2012; Dechenaux, Kovenock, and Sheremeta 2012; Deck and Sheremeta 2012).¹¹

Table 2 Models war effort with a Tobit regression. The results largely confirm the summary statistics. On average, democracy has a slightly negative effect on the overall war effort and effort in the first round of conflict, but those differences are substantively small and not near statistical significance. Thus, there appears to be little difference between autocrats and democrats with respect to total effort and first round effort. Democracy has a larger negative effect in the second round of conflict, but again the effect is not statistically significant.¹²

As predicted by Hypothesis 2b, where democracies differentiate themselves from autocracies is in the third round of conflict. In the third round, democratic leaders use approximately 10.7 more points than autocratic leaders. This result is statistically significant and, as the appendix shows, not simply an artifact of democratic leaders having more points left for the third round after using less in the first two.¹³ Given the low average investment in the third round by autocrats, these results further support the finding in the previous section that autocrats tended to give up on the conflicts and preserve points if a settlement was not reached because their hold on power

Table 3. War Outcomes for Mixed-dyad Conflicts.

	Improved offer	Decisive war
Democracy win	18	12
Autocracy win	11	5
Draw	2	2
Percentage Democracy win	62.1	70.6
p	.265	.143

Notes: "Improved offer" declares the winner of the conflict to be the leader that improved that leader's group's share of the offer, so a winner results even if the conflict did not last all three rounds. Decisive war includes only wars that went the full three rounds. The p values at the bottom of the table are for a binomial test to determine if democracies and autocracies won an equal percentage of wars.

is less dependent on winning wars. In contrast, democracies were more likely to fight conflicts to their conclusion and continue to invest resources in winning. This experimental finding is consistent with empirical results and the prediction of Selectorate Theory (Bueno de Mesquita et al. 2004; Goldsmith 2007; Valentino, Huth, and Croco 2010).

Table 3 presents the outcomes of mixed-dyad wars under two definitions. The simplest definition is whether the democratic or autocratic group won in a war that lasted the full three rounds. I define this type of war as a "decisive war". An alternative definition of war victory is the leader that, upon entering a war, improved the group's share of the prize, regardless of how long the conflict lasted. Under both definitions, democracies won more often than autocracies. In decisive wars, democracies won over 70 percent of the time, while in all wars against autocracies, democracies improved their share of the prize over 62 percent of the time. The difference is entirely driven by democracies winning decisive wars, as improving the groups share of the prize is split fifty-fifty in wars that were settled by negotiation before the final round. A binomial test was performed to see if democracies won significantly more than 50 percent of the conflicts. Under neither definition of victory did the results reach statistical significance, failing to confirm Hypothesis 2c.

The results on war effort and war outcomes do not show that democracies tried harder in wars overall. However, autocrats appear to give up on wars, spending very few points in the third round. Meanwhile, democracies spent less in the third round than they did in the previous two rounds, but significantly more in the third round than autocrats, as predicted by Hypothesis 2b. These results are consistent with those from the first set of results. There, autocrats wanted to end conflicts sooner than democrats, while here we see them putting in less effort in the final round of conflict. It is precisely in these final rounds that democrats have a war fighting advantage. In wars between democracies and autocracies that ended before the third round, neither regime type won more often. It was only when wars were extended to the full length, an extension likely due to the democracies' refusal to settle, do we find democracies defeating autocracies more often than not. This suggests that, as predicted by

Table 4. On the Left, Percentage of Voters Voting in Favor of Reselection of the Leader Broken Down by Regime Type and War Outcome. On the Right, Percentage of Reselection Win for the Incumbent Leader Broken Down by Regime Type and War Outcome.

War outcome	Autocratic citizen Vote (%)	Democratic citizen Vote (%)	Autocrat Win (%)	Democrat Win (%)
Total	49.6	64.6	81.6	71.9
No war	54.1	71.3	85.2	80.1
Lost war	18.5	30.9	61.5	36.3
Won war	62.1	58.6	89.4	62.1

Selectorate Theory, a large *W/S* forces democratic leaders to mobilize additional resources during war to ensure victory (Buono de Mesquita et al. 2004). The next section shows that democratic leaders need victory because they faced punishment if they lost a war, the exact mechanism proposed by Selectorate Theory and confirmed empirically (Buono de Mesquita et al. 1999b; Croco 2011).

Domestic Politics

This section discusses the factors that influence individual voters and the outcomes of reselection votes. Summary statistics found in Table 4 suggest, for both types of leaders, a large drop in the probability of winning the support of both an individual citizen and reselection occurs after entering a war and losing it. These results are modeled in Table 5.¹⁴

Model 1 in Table 5 evaluates the determinants of an individual citizen's vote for reselection of the leader.¹⁵ Most obviously, increasing a citizen's payoff significantly increased that citizen's likelihood of voting for the leader. However, as shown in Figure 1, even controlling for payoffs, the results of a war affected a citizen's probability of voting for the leader. For autocrats, winning a war made them significantly more likely to capture an individual's vote than losing a war or not entering a war, while losing a war had little effect. Meanwhile, losing a war made democrats significantly less likely to capture an individual's vote than not entering war or winning a war. However, for democrats, winning a war had no effect relative to not entering a war.¹⁶

These results are consistent with Hypothesis 3 and show war outcomes had a different effect on voters in democracies than in autocracies. In autocracies, individual citizens did not punish the leader for losing a war as long as the leader raised that citizen's payoff. Meanwhile, voters in democracies did not reward leaders for winning wars over avoiding conflict. Democratic citizens' satisfaction with negotiated settlements is likely because winning the war did not increase the availability of resources that could be invested in the public good. As discussed subsequently, democratic leaders primarily won reselection by having resources available and using them on the public good, the exact mechanism envisioned by Selectorate Theory.

Table 5. Random Effects, Time-series, Cross-sectional Regressions with Standard Errors Clusters at the Individual Level.

	Model 1 Citizen Vote	Model 2 Won Vote	Model 3 Won Vote
Democracy	0.751** (0.048)	-0.486 (0.267)	-2.564*** (0.002)
Lost war	-0.215 (0.533)	-1.134** (0.047)	0.260 (0.670)
Won War	1.145*** (0.005)	1.941* (0.097)	1.578 (0.171)
Democracy × Lost war	-0.460 (0.310)	-0.626 (0.460)	0.501 (0.628)
Democracy × Won war	-1.020** (0.031)	-2.625** (0.040)	-1.070 (0.421)
Endowment 150	0.013 (0.945)	1.218*** (0.001)	0.389 (0.356)
Endowment 200	-0.839*** (0.001)	0.860* (0.053)	-0.489 (0.365)
Used zero	-1.961*** (0.001)	-3.012*** (0.000)	-0.807 (0.315)
Log (times leader)	-0.027 (0.782)	1.052*** (0.000)	0.409* (0.080)
Round payoff	0.043*** (0.000)		
Private good			0.013* (0.074)
Public good			0.023*** (0.000)
Democracy × Public good			0.008 (0.267)
Constant	-2.401*** (0.000)	0.176 (0.696)	-0.748 (0.244)
Observations	1,930	386	386
Left-censored observations			

Note: Model 1 is a logit regression estimating when an individual citizen votes in favor of reselection of the leader. Models 2 and 3 are logit regressions estimating the successful reselection of the leader. The base category is no war and endowment 100 for all models.

* $p < .10$.

** $p < .05$.

*** $p < .01$.

However, losing a war, even controlling for an individual's round payoff, displayed an incompetence to the democratic voter that resulted in punishment.

Models 2 and 3 in Table 5 present the results related to a leader winning the reselection vote. Model 2 focuses solely on the outcome of the conflict, while Model 3 controls for how the leader distributed points after the conflict. The predicted

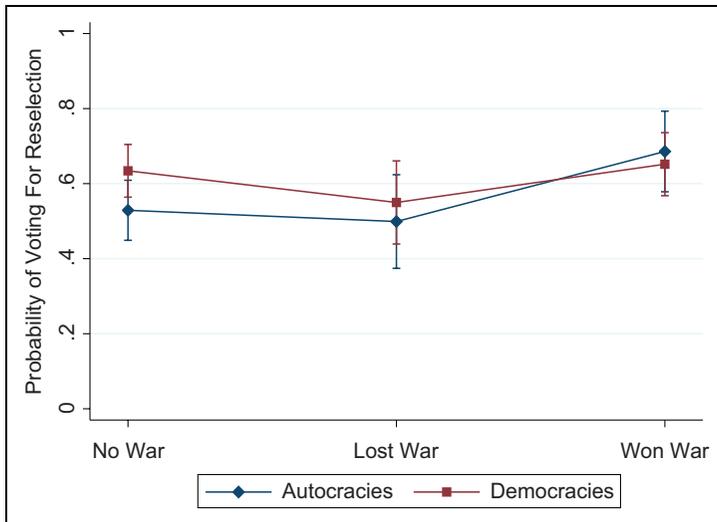


Figure 1. Predicted probability of a citizen voting for reselection of the leader from Table 5, Model 1 by regime type and war outcome with 95 percent confidence intervals.

probabilities of winning reselection conditional on war outcome generated from Model 2 are presented in the Online Appendix and display a general similarity to those of the individual voter from Model 1 and Figure 1, with voters appearing to punish leaders for losing wars. Again, autocrats benefit significantly from winning wars, while democrats are punished for losing wars.¹⁷ Democrats are significantly more likely to win reselection after not entering than losing, but, while on average winning helps relative to losing, the difference is not significant.¹⁸ These results support Hypothesis 3, which predicted losing a war would hurt a democratic leader's chance for reselection more than an autocratic leader's.

However, once the leader's investment in public and private goods is controlled for in Model 3, the effect of war outcome disappears. The marginal effects of war outcome on the predicted probability of reselection, presented in the Online Appendix, show that, conditional on regime type and how the leader used the group's points, there was no effect of war outcome. Figure 2 demonstrates the level of public good investment by the leader had a large effect on determining the probability of reselection. This was particularly true for democracies, as demonstrated by the relatively steep increase in probability of winning the vote as public goods increase.¹⁹ Consistent with Selectorate Theory's emphasis on the need for democratic leaders to invest in public goods, the experiment shows that democratic leaders need both (a) to have resources available and (b) to invest those resources in a public good to maintain office.

Thus, the results from Models 1, 2, and 3 are clear. On one hand, voters in democracies punished leaders for losing wars, even controlling for their payoff in a given

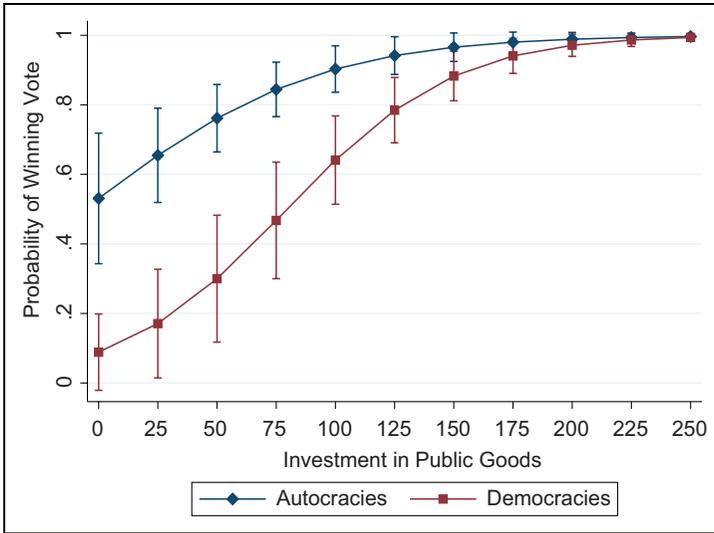


Figure 2. Predicted probability of a leader winning reselection from Table 5, Model 3 by regime type and level of investment in the public good with 95 percent confidence intervals.

round. However, the results from Model 3 suggest the reason they were hurt may have been less because of inferred incompetence due to losing the war and more because losing a war resulted in less points to provide citizens. Regardless, democratic leaders could anticipate punishment for losing wars while autocratic leaders were not as affected by a loss. This finding on the domestic side accounts for the earlier findings that democrats fought wars to their conclusion and tried harder in the last round than autocrats. Once in a war, leaders of democratic groups needed to win.

Thus, the experiment ties together the domestic and international aspects of international conflict in a manner anticipated by Selectorate Theory. On the domestic side, democratic leaders felt more pressure than autocratic leaders to have resources available to invest in public goods in order to stay in office. Thus, in international conflict, democratic leaders extended wars and continued to use resources as wars unfolded to ensure that resources lost in earlier battles could be recouped through winning the war. Autocratic leaders, needing fewer resources than democratic leaders to satisfy their smaller W/S , preferred to settle wars quickly or give up entirely and save the remaining resources for themselves.

Limitations

Although laboratory experiments on student subject pools offer several advantages, they also come with drawbacks. This study is no exception. Beginning with the

subject pool, while Mintz, Redd, and Vedlitz (2006) express concerns about the difficulty of generalizing results obtained from student subjects to the behavior of real-world national security decision makers, Hafner-Burton et al. (2012) find no evidence elites behave in a different manner than their student sample. Thus, the effect of relying on a student population is unclear and an area for future research.

Other limitations relate to the game itself. For practical reasons, the game played in the experiment is limited to only three rounds of conflict. Obviously, real-life leaders can only guess at the length of a war when it begins. An unknown end point would help to further explore how democracies and autocracies adjust their effort level as wars progress. Likewise, this experiment used a take-or-leave-it bargaining protocol with a computer generated offer. Allowing more realistic bargaining before the war would increase our understanding of regime type, bargaining, and war selection.

Conclusion

This article has presented a laboratory experiment to test how internal rules for selection of a leader affect how leaders select into and fight conflicts. By randomly assigning subjects into groups with different rules, the experiment allows causal inference on how these rules affect conflict. Surprisingly, democratic leaders in the experiment selected into wars more often than autocratic leaders. Once wars were underway, democratic leaders were more reluctant than autocratic leaders to accept a negotiated settlement to end the war and used more resources in the final stage of the war. These results support a key prediction of Selectorate Theory: democratic leaders are more dependent on successful policies to retain office than autocratic leaders, and this affects how wars play out over time. Leaders of autocratic groups were willing to settle for any positive payoff from the conflict and, if a negotiated settlement was not reached relatively quickly, saved resources by giving up on the war. In contrast, democratic leaders were more likely than autocratic leaders to continue fighting and used more resources than autocrats as the war continued in order to secure a victory. Once they spend any resources on a conflict, democratic leaders need to win the conflict to gather enough support for reselection.

Democratic leaders correctly anticipated their citizens' reaction to war losses. The experimental results found that democratic leaders that lost wars were removed from office at a higher rate than leaders who avoided war or won a war. Meanwhile, autocrats increased their probability of reselection by winning a war, but losing a war did not hurt them relative to avoiding a war. This experimental finding gives causal support to Croco (2011)'s argument and empirical results that democratic leaders found culpable for wars are punished by their domestic audience if they lose the war. Although individual voters in the experiment punished democratic leaders for incompetence in war, the key mechanism affecting a democratic leader's reselection was how many points they invested in public goods. Losing wars squandered resources and lowered possible public good expenditures.

Overall, this article contributes to the already substantial literature on regime type and warfare by approaching the topic from an experimental perspective. By randomly assigning subjects to groups, the experiment focuses exclusively on the connection between reselection rules and the outcomes of interest. As demonstrated in the aforementioned results, domestic rules and how they incentivize leaders alone can account for many differences in the manner in which democracies and autocracies fight wars. This article expands our understanding of reselection rules and how leaders fight wars by showing that democratic leaders are more likely to be removed from office after losing a conflict than autocratic leaders. Because democratic leaders' hold on office is more contingent than autocrats', democratic leaders extend wars and mobilize more resources as wars continue because, having used resources on war, they now need to secure a victory to retain office.

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Notes

1. For a dissenting view, see the work of Desch and the responses by Reiter and Stam, and Lake (Desch 2002, 2003; Reiter and Stam 2003; Lake 2003). On the robustness of Reiter and Stam's work, see Downes (2009) and Reiter and Stam (2009).
2. Valentino, Huth, and Croco (2010) suggest their measure of wartime mobilization is superior to that used by Reiter and Stam.
3. While acknowledging Goemans (2008)'s finding on the post-tenure fate of leaders and how it differs by regime type, this rule is meant to induce the leader to be primarily concerned with retaining office, the key assumption of Selectorate Theory.
4. The leader did not vote on reselection. Given that the leader had a dominate strategy to vote yes and that the computer lab only held twenty-four subjects, it made practical sense to set the group size to six so that four groups could participate concurrently.

5. In the experiment, autocratic regimes were referred to as groups of type A while democratic groups were referred to as type B.
6. The full experimental instructions can be found in the Online Appendix.
7. See the Online Appendix for the marginal effect plots. A discussion of why weak democratic leaders were especially likely to select into wars is also included in the Online Appendix. For endowments of 100, the difference is significant at the level of $p < .05$ while the p value on the difference for endowments of 150 is .0502. For endowments of 200, the p value is .11.
8. The significant finding in Model 2 affiliated with Democracy meets autocracy shows that autocracies are more likely to be attacked by democracies than other autocracies.
9. These differences are statistically significant at the level of .05 up to sixty for offer 2 and ninety for offer 3.
10. Summary statistics can be found in the Online Appendix.
11. For a discussion of the battlefield-by-battlefield play of subjects and a comparison with previous Blotto experiments, especially Arad and Rubinstein (2012), please see the Online Appendix.
12. The initially high levels of spending in rounds 1 and 2 may be due to subjects perceiving early battles as more important than later ones, especially if they expect to strike a deal before later battles. Subjects over-investing in more valuable battlefields is demonstrated in Montero et al. (2014) and is consistent with subjects anticipating the discouragement effect discussed earlier, which has not previously been demonstrated experimentally (Irfanoglu, Mago, and Sheremeta 2011; Mago and Sheremeta 2012).
13. In the Online Appendix, the dependent variable has been converted to the percentage of available points used in a round. The results are similar as those presented here, although the level of significance on the marginal effect of democracy on effort in the third round falls to .10.
14. I use the looser definition of won war in all analysis in this section: any leader that, upon entering a war, improved the group's share of the prize was coded as a war winner.
15. The binary variable "Used zero" has been included in these models. This variable is set to 1 if a leader had points remaining after the conflict but distributed no points, either as a public or private good, and did not keep any points for herself. Not using the all remaining points can only be interpreted as a mistake on the leader's part, and adding this variable attempts to control for the most egregious example of this kind of mistake. These cases cannot simply be dropped because some autocratic leaders won reselection despite using no points.
16. The results are significant at the level of $p < .01$ for autocrats. For democrats, the difference between not entering a war and losing a war is significant at the level of $p < .07$, the difference between losing a war and winning a war is significant at the level of $p < .05$.
17. Autocrats are significantly more likely to win the vote after winning the war relative to both not entering the war and losing the war with $p < .02$.
18. The difference between not entering a war and losing a war is significant at the level of $p < .03$, while the p value on the difference between losing a war and winning a war is $p < .17$.

19. Results presented elsewhere demonstrate democratic leaders used significantly more public goods than autocratic leaders for any level of final group points, a result consistent with a previous lab experiment using Selectorate Theory (Bausch 2015).

Supplemental Material

The online appendices are available at <http://jcr.sagepub.com/supplemental>.

References

- Anderson, S., and M. Souva. 2010. "The Accountability Effects of Political Institutions and Capitalism on Interstate Conflict." *Journal of Conflict Resolution* 54 (4): 543-65.
- Arad, A., and A. Rubinstein. 2012. "Multi-dimensional Iterative Reasoning in Action: The Case of the Colonel Blotto Game." *Journal of Economic Behavior & Organization* 84 (2): 571-85.
- Bak, D., and G. Palmer. 2011. "Looking for Careless Dictators: Target Selection and Regime Type." Working Paper. Accessed January 19, 2015. <http://ssrn.com/abstract=1900613>.
- Bausch, A. W. 2014. "An Experimental Test of Selectorate Theory." *International Interactions* 40 (4): 533-53.
- Bausch, A. W. 2015. "Coalition Formation and Selectorate Theory: An Experiment." Working Paper. Accessed June 24, 2015. <https://drive.google.com/a/nyu.edu/file/d/0B08SAVK9ImEFQmlQbGR0NFpSNTg>.
- Bausch, A. W. In press. "Democracy, War Effort, and the Systemic Democratic Peace." *Journal of Peace Research*.
- Bornstein, G. 1992. "The Free-rider Problem in Intergroup Conflicts over Step-level and Continuous Public Goods." *Journal of Personality and Social Psychology* 62 (4): 597-606.
- Bornstein, G., and M. Ben-Yossef. 1994. "Cooperation in Intergroup and Single-group Social Dilemmas." *Journal of Experimental Social Psychology* 30 (1): 52-67.
- Bornstein, G., I. Erev, and O. Rosen. 1990. "Intergroup Competition as a Structural Solution to Social Dilemmas." *Social Behavior* 5 (4): 247-60.
- Bornstein, G., U. Gneezy, and R. Nagel. 2002. "The Effect of Intergroup Competition on Group Coordination: An Experimental Study." *Games and Economic Behavior* 41 (1): 1-25.
- Bueno de Mesquita, B., J. Morrow, R. Siverson, and A. Smith. 1999a. "An Institutional Explanation of the Democratic Peace." *The American Political Science Review* 93 (4): 791-807.
- Bueno de Mesquita, B., J. Morrow, R. Siverson, and A. Smith. 1999b. "Policy Failure and Political Survival: The Contribution of Political Institutions." *Journal of Conflict Resolution* 43:147-61.
- Bueno de Mesquita, B., J. Morrow, R. Siverson, and A. Smith. 2004. "Testing Novel Implications from the Selectorate Theory of War." *World Politics* 56 (3): 363-88.
- Bueno de Mesquita, B., and R. Siverson. 1995. "War and the Survival of Political Leaders: A Comparative Study of Regime Types and Political Accountability." *American Political Science Review* 89 (4): 841-55.

- Bueno de Mesquita, B., A. Smith, R. Siverson, and J. Morrow. 2005. *The Logic of Political Survival*. Cambridge, MA: The MIT Press.
- Clark, D., and W. Reed. 2003. "A Unified Model of War Onset and Outcome." *Journal of Politics* 65 (1): 69-91.
- Croco, S. 2011. "The Decider's Dilemma: Leader Culpability, War Outcomes, and Domestic Punishment." *American Political Science Review* 105 (3): 457-77.
- Dechenaux, E., D. Kovenock, and R. M. Sheremeta. 2014. "A survey of experimental research on contests, all-pay auctions and tournaments." *Experimental Economics*, DOI: 10.1007/s10683-014-9421-0.
- Deck, C., and R. M. Sheremeta. 2012. "Fight or Flight? Defending against Sequential Attacks in the Game of Siege." *Journal of Conflict Resolution* 56 (6): 1069-88.
- Desch, M. 2002. "Democracy and Victory: Why Regime Type Hardly Matters." *International Security* 27 (2): 5-47.
- Desch, M. 2003. "Democracy and Victory: Fair Fights or Food Fights?" *International Security* 28 (1): 180-94.
- Downes, A. 2009. "How Smart and Tough Are Democracies? Reassessing Theories of Democratic Victory in War." *International Security* 33 (4): 9-51.
- Durham, Y., J. Hirshleifer, and V. Smith. 1998. "Do the Rich Get Richer and the Poor Poorer? Experimental Tests of a Model of Power." *American Economic Review* 88 (4): 970-83.
- Erev, I., G. Bornstein, and R. Galili. 1993. "Constructive Intergroup Competition as a Solution to the Free Rider Problem: A Field Experiment." *Journal of Experimental Social Psychology* 29 (6): 463-78.
- Fischbacher, U. 2007. "z-tree: Zurich Toolbox for Ready-made Economic Experiments." *Experimental Economics* 10 (2): 171-78.
- Gelpi, C., and M. Griesdorf. 2001. "Winners or Losers? Democracies in International Crisis, 1918-94." *American Political Science Review* 95 (3): 633-47.
- Goemans, H. E. 2008. "Which Way Out? The Manner and Consequences of Losing Office." *Journal of Conflict Resolution* 52 (6): 771-94.
- Goldsmith, B. 2007. "Defense Effort and Institutional Theories of Democratic Peace and Victory Why Try Harder?" *Security Studies* 16 (2): 189-222.
- Golman, R., and S. E. Page. 2009. "General Blotto: Games of Allocative Strategic Mismatch." *Public Choice* 138 (3-4): 279-99.
- Goren, H., and G. Bornstein. 2000. "The Effects of Intragroup Communication on Intergroup Cooperation in the Repeated Intergroup Prisoner's Dilemma (IPD) Game." *Journal of Conflict Resolution* 44 (5): 700-19.
- Gunnthorsdottir, A., and A. Rapoport. 2006. "Embedding Social Dilemmas in Intergroup Competition Reduces Free-riding." *Organizational Behavior and Human Decision Processes* 101 (2): 184-99.
- Hafner-Burton, E. M., B. L. LeVeck, D. G. Victor, and J. H. Fowler. 2012. "Decision Maker Preferences for International Legal Cooperation." *International Organization* 68 (4): 845-76.
- Halevy, N., G. Bornstein, and L. Sagiv. 2008. "In-group Love and Out-group Hate as Motives for Individual Participation in Intergroup Conflict." *Psychological Science* 19 (4): 405.

- Irfanoglu, B., S. D. Mago, and R. M. Sheremeta. 2011. "Sequential Versus Simultaneous Election Contests: An Experimental Study." Working Paper. Accessed January 19, 2015. <http://www.krannert.purdue.edu/centers/vseel/papers>.
- Johnson, D., R. McDermott, E. Barrett, J. Cowden, R. Wrangham, M. McIntyre, and S. Peter Rosen. 2006. "Overconfidence in Wargames: Experimental Evidence on Expectations, Aggression, Gender and Testosterone." *Proceedings of the Royal Society B: Biological Sciences* 273 (1600): 2513.
- Klumpp, T., and M. K. Polborn. 2006. "Primaries and the New Hampshire Effect." *Journal of Public Economics* 90 (6): 1073-114.
- Konrad, K., and D. Kovenock. 2006. "Equilibrium and Efficiency in the Tug-of-war." Working Paper. Accessed January 19, 2015. <http://ssrn.com/abstract=844644>.
- Konrad, K. A. 2010. "Dynamic Contests." Working Paper. Accessed January 19, 2015. <http://www.econstor.eu/handle/10419/54579>.
- Konrad, K. A., and D. Kovenock. 2009. "Multi-battle Contests." *Games and Economic Behavior* 66 (1): 256-74.
- Kvasov, D. 2007. "Contests with Limited Resources." *Journal of Economic Theory* 136 (1): 738-48.
- Lake, D. 1992. "Powerful Pacifists: Democratic States and War." *The American Political Science Review* 86 (1): 24-37.
- Lake, D. 2003. "Fair Fights? Evaluating Theories of Democracy and Victory." *International Security* 28 (1): 154-67.
- Mago, S., and R. Sheremeta. 2012. "Multi-battle Contests: An Experimental Study." Working Paper. Accessed January 19, 2015. <http://ssrn.com/abstract=2027172>.
- McDermott, R., J. Cowden, and C. Koopman. 2002. "Framing, Uncertainty, and Hostile Communications in a Crisis Experiment." *Political Psychology* 23 (1): 133-49.
- McGillivray, F., and A. Smith. 2008. *Punishing the Prince: A Theory of Interstate Relations, Political Institutions, and Leader Change*. Princeton, NJ: Princeton University Press.
- Mintz, A., and N. Geva. 1993. "Why Don't Democracies Fight Each Other?" *Journal of Conflict Resolution* 37 (3): 484-503.
- Mintz, A., S. Redd, and A. Vedlitz. 2006. "Can We Generalize from Student Experiments to the Real World in Political Science, Military Affairs, and International Relations?" *Journal of Conflict Resolution* 50 (5): 757-76.
- Montero, M., A. Possajennikov, M. Sefton, and T. L. Turocy. 2014. "Majoritarian Blotto Contests with Asymmetric Battlefields: An Experiment on Apex Games." Working Paper. Accessed January 19, 2015. <http://www.gambit-project.org/turocy/papers/mpst-20140809.pdf>.
- Morrow, J., B. Bueno de Mesquita, R. Siverson, and A. Smith. 2008. "Retesting Selectorate Theory: Separating the Effects of W from Other Elements of Democracy." *American Political Science Review* 102 (3): 393-400.
- Morton, R. B., and K. Williams. 2010. *Experimental Political Science and the Study of Causality*. Cambridge, UK: Cambridge University Press.
- Reiter, D., and A. Stam. 1998. "Democracy, War Initiation, and Victory." *The American Political Science Review* 92 (2): 377-89.

- Reiter, D., and A. Stam. 2002. *Democracies at War*. Princeton, NJ: Princeton University Press.
- Reiter, D., and A. Stam. 2003. "Understanding Victory: Why Political Institutions Matter." *International Security* 28 (1): 168-79.
- Reiter, D., and A. Stam. 2009. "Another Skirmish in the Battle over Democracies and War." *International Security* 34 (2): 194-204.
- Roberson, B. 2006. "The Colonel Blotto Game." *Economic Theory* 29 (1): 1-24.
- Roberson, B., and D. Kvasov. 2012. "The Non-constant-sum Colonel Blotto Game." *Economic Theory* 51 (2): 397-433.
- Rousseau, D. 2005. *Democracy and War: Institutions, Norms, and the Evolution of International Conflict*. Stanford, CA: Stanford University Press.
- Tangerås, T. P. 2009. "Democracy, Autocracy and the Likelihood of International Conflict." *Economics of Governance* 10 (2): 99-117.
- Tingley, D., and B. Walter. 2011a. "Can Cheap Talk Deter? An Experimental Analysis." *Journal of Conflict Resolution* 55 (6): 994-1018.
- Tingley, D., and B. Walter. 2011b. "The Effect of Repeated Play on Reputation Building: An Experimental Approach." *International Organization* 65 (2): 343-65.
- Tomz, M. 2007. "Domestic Audience Costs in International Relations: An Experimental Approach." *International Organization* 61 (4): 821.
- Valentino, B., P. Huth, and S. Croco. 2010. "Bear Any Burden? How Democracies Minimize the Costs of War." *Journal of Politics* 72 (2): 528-44.
- Weinstein, J. 2012. "Two Notes on the Blotto Game." *The BE Journal of Theoretical Economics* 12 (1): 1-13.