Democracy and Battlefield Military Effectiveness

DAN REITER
Department of Political Science
Emory University

ALLAN C. STAM III
Department of Political Science
Yale University

Why do democracies win the wars they fight? The authors explore this question by examining whether the armies of democratic states fight with higher military effectiveness on the battlefield, testing two general propositions: that the higher legitimacy of democratic states spurs superior individual soldiering and that democratic militaries are likely to have higher organizational efficacy. The authors test their propositions on a comprehensive set of major battles from 1800 to 1982, using data compiled by the Historical Evaluation and Research Organization. The authors find that the armies of democratic states tend to fight with marginally better logistics, substantially better initiative, and superior leadership. They also find that all three of these advantages dwindle as wars lengthen and interpret the results as indicating that although soldiers are not more willing to die for democratic governments, the emphasis on individual initiative in democratic culture generates important advantages on the battlefield.

Recent research on the nature of war confronts realism with a puzzling conundrum. Realists argue that in international relations, power is central and regime type is irrelevant, but an empirical review of history indicates that democracies are more likely to win the wars they fight. There is something about democratic regimes that makes it easier for them to generate military power and achieve victory in the arena of war, the ultimate arbiter of high politics. The realist’s conundrum becomes a puzzle for all international relations scholars: why do democracies tend to win the wars they fight?

A number of explanations have been offered purporting to explain why democracies win, although thus far empirical evidence is only beginning to accumulate. This article contributes to this search by exploring the relationship between a state’s regime type and the battlefield military effectiveness of its army. Specifically, this article explores whether the armies of democratic states fight with superior battlefield military effectiveness than the armies of other kinds of states.

AUTHORS’ NOTE: Authors’ names are listed in alphabetical order. As usual, order does not connote principle authorship. For helpful comments and assistance, we thank the contributors to this issue, Bruce Bueno de Mesquita, Hein Goemans, Robert Helmbold, Jacek Kugler, Brian Lai, and Mike Ward.
This analysis is advanced by using an underused data set on individual battles produced by the Historical Evaluation and Research Organization (HERO). The advantage of using the battle as the unit of analysis rather than the war is that it helps eliminate other explanations as to why democracies win wars and focuses precisely on the real effects of regime type on battlefield military effectiveness. In other words, rather than observing that democracies win wars and inferring that democratic soldiers fight with higher morale, the HERO data set enables us to determine whether democratic armies are more effective on the battlefield.

The remainder of this article proceeds in five parts. The first reviews scholarship on the determinants of war outcomes. The second part discusses the arguments that link regime type to battlefield military effectiveness. The third part provides an extended discussion of the HERO data set. The fourth part presents regression analysis of battlefield military effectiveness, analyzing battles from 1800 to 1982. This analysis discovers that regime type is significantly correlated with a number of important determinants of tactical military effectiveness, including leadership, initiative, and logistics. The final section presents conclusions.

THE STUDY OF WAR OUTCOMES

The study of the successful prosecution of war is one of the oldest areas of human intellectual endeavor, dating back at least to early human civilizations (see, e.g., Sun Tzu 1963). In recent years, the study of war outcomes has become an important area of inquiry within international relations. The processes that determine who wins wars have broad political significance: the victors in war determine the nature of domestic and international political landscapes. For scholars of international relations, understanding the outcomes of war is necessary to complete our understanding of the causes of war, if we make the easy assumption that nations deciding whether to attack estimate their chances for victory. Modern scholars of international relations are paying increasing attention to how wars are fought, focusing on matters such as war duration, determinants of casualties, and the outcomes of war in addition to the determinants of victory (in addition to the articles in this volume, see Arquilla 1992; Bennett and Stam 1996; Biddle 1996; Lake 1992; Pollack 1996; Reiter and Stam 1997a, 1997b; Stam 1996).

Winning wars is about winning battles. Frederick the Great minced no words: “War is decided only by battles, and it is not decided except by them.” The focus of this article is an army’s effectiveness at winning individual battles, that is, its battlefield military effectiveness. Specifically, we do not examine a society’s ability to amass resources to support its war effort, its choice of military strategy, or the contributions of its allies but rather the ability of its army to carry out its assigned tasks on the battlefield. We do not claim that competence at winning individual battles is sufficient to guarantee victory, but it is an important component of most successful military efforts (see Smith 1998 [this issue]). Broad empirical surveys point to the importance of battlefield military effectiveness: examining all wars from 1816 to 1980, Arquilla
(1992) found that armies with higher skill ratings in battles were significantly more likely to win land wars (for a somewhat dissenting view, see Cushman 1988).

We divide battlefield effectiveness into two basic areas: individual soldiering and organizational efficacy. By individual soldiering, we mean the behavior of individuals on the battlefield: the willingness of soldiers to lead others, execute their orders, put their lives in danger in combat, resist the temptation to flee under fire, and seize the initiative when opportunity presents itself. Across time, military thinkers have emphasized the importance of individual soldiering, especially troop morale. Napoleon Bonaparte’s famous remark that “the moral is to the physical as three to one” was echoed in the age of modern warfare by World War II British Field Marshal Bernard Montgomery, who stated, “The morale of the soldier is the greatest single factor in war” (quoted in Richardson 1978, 2). Organizational efficacy is at a slightly higher level of analysis and pertains to the ability of a military organization to execute those tasks that will maximize troops’ chances of victory on the battlefield. Organizational efficacy means executing tasks such as general planning, providing logistical support, gathering intelligence, preparing appropriate works such as entrenchments and rammarts, training, and achieving tactical surprise.

DEMOCRACY AND MILITARY EFFECTIVENESS

In modern international relations research, scholars have become increasingly interested in the relationship between a country’s political system and its ability to win wars. Lake (1992) presented the first quantitative test demonstrating that democracies are more likely to win the wars they fight, a finding that has been supported by later, more sophisticated tests (Stam 1996; Reiter and Stam 1997a). Significantly, all of these studies used the participant in a war as the unit of analysis, and the dependent variable measured whether that country won, lost, or drew in the war in question. The null hypothesis to this current line of research, advanced by some realists, is that regime type is unrelated to military effectiveness (see, e.g., Wright 1964, 163); a related realist hypothesis worth noting is that regime type has no effect on war initiation (see, e.g., Farber and Gowa 1997).

As mentioned above, a number of different explanations have been posited as to why democracies win the wars they fight, most of which are not tested in this article. They include the following: democracies start only those wars that they will go on to win (Bueno de Mesquita and Siverson 1995; Reiter and Stam 1997a), democracies bandwagon together when one is attacked (Lake 1992), democracies have stronger economies (Lake 1992), and democracies institutionalize civilian control of the military, which improves military and foreign policy decision making (Snyder 1991). The empirical record of these alternative explanations is mixed. Reiter and Stam

1. Bennett and Stam (1996) found that democracies tend to fight shorter wars, and Siverson (1995) found that democratic initiators suffer fewer casualties than other kinds of belligerents. Using a dynamic model, Bennett and Stam (1998) find that although democracies are more likely to win, their advantages may be fleeting.
(1997a) found strong evidence that democratic initiators are significantly more likely to win than other war participants. Regarding democratic bandwagoning, with the exception of NATO, democracies do not tend to ally with each other (Simon and Gartzke 1996). There is little anecdotal evidence of democracies coming to each other’s rescue during wartime (see Reiter and Stam 1997a). Regarding the greater material power of democracies, the most recent evidence using advanced econometric techniques has argued that economic development may cause democracy, but democracy does not cause development (Burkhart and Lewis-Beck 1994). During wartime, democracies are not more effective at extracting resources from their society for the war effort (Kugler and Domke 1986).

The argument that democracies improve decision making by institutionalizing civilian control of the military is a bit more complex (for a broad discussion of civil-military relations, see Feaver 1996). Snyder (1984, 1991) and Posen (1984) have argued that military leaders and organizations are more likely to favor offensive military strategies and to resist doctrinal innovations. This can sometimes undercut military effectiveness, as in European militaries in World War I. These authors proposed that states fight with optimal military strategies and doctrines more frequently when civilian leaders oversee the military rather than when they leave it unchecked. These simple views of organizational dynamics and military preferences have been challenged on both theoretical and empirical grounds. Some challenge the argument that militaries always prefer offensive strategies (Kier 1997; Stam 1996, 143), although Zisk (1993, 179-84) agreed that militaries favor doctrines that favor their resources and autonomy. Some argue that militaries are not necessarily resistant to the idea of innovation and sometimes encourage innovation (Zisk 1993, 179-84; Rosen 1991, 255-57; Gartner 1997).

Below, we lay out the theoretical argument linking regime type and battlefield effectiveness more carefully and provide some statistical tests. The following two subsections present the hypotheses relating regime type to our two categories of battlefield effectiveness: individual soldiering and organizational efficacy.

**INDIVIDUAL SOLDIERING**

States must ask citizens to make individual sacrifices, whether they are to pay taxes, sacrifice their liberty by serving in the military, or risk their lives on the battlefield. Our argument is that soldiers are more likely to accept the dangers of the battlefield and place their lives at risk if they are serving a government grounded in democratic political institutions. Soldiers are more likely to perceive that the war effort reflects their own interests and is worth dying for if the government is an elected one. Furthermore, soldiers are more confident that a democratically elected government will obey the laws and abide by its wartime promises because failure to do so may result in its being removed from power through election.

Levi (1997) presented some of these ideas in a model of contingent consent. She found that democratic governments are more likely to enjoy higher levels of social consent in reaction to policies of military conscription. We propose that governments operating under the constraints of democratic political institutions are more likely to
earn the trust and loyalty of their citizens. This trust will translate essentially into greater consent on the battlefield and ultimately to higher levels of military effectiveness.

Although the idea that soldiers fight harder for democratic governments can fit within a modern political science theoretical framework, the general proposition that popular governments enjoy battlefield success has been around for millennia. Sun Tzu, a Chinese military thinker of 6th century B.C. China, emphasized moral influence as one of the five fundamental factors of war, defining it as “that which causes the people to be in harmony with their leaders, so that they will accompany them in life and unto death without fear of mortal peril” (Sun Tzu 1963, 64). The ancient Greeks also recognized the importance of popular government. Herodotus (1987, bk. 5, para. 78) phrased it strongly in his analysis of the Athenian military:

Therefore, Athens had increased in greatness. It is not only in respect of one thing but of everything that equality and free speech are clearly a good; take the case of Athens, which under the rule of princes proved no better in war than any of her neighbors but, once rid of those princes, was far the first of all. What this makes clear is that when held in subjection they would not to their best, for they were working for a taskmaster, but, when freed, they sought to win, because each was trying to achieve for his very self.

The proposition that citizens fight harder under democratic governance has been an important part of American political ideology; indeed, it is a point that both Thomas Jefferson and Ronald Reagan made in their first inaugural addresses.²

This hypothesized connection between political system or ideology and battlefield military effectiveness has received a great deal of empirical scrutiny from military historians and sociologists. The available evidence is mixed. There is a substantial body of research arguing that political ideology plays no role in general in increasing troop morale or tactical military effectiveness. Following interviews of German prisoners of war during World War II, Shils and Janowitz (1975) concluded that German military effectiveness emerged from the solid, strong bonds of the primary group in German fighting units rather than affinity to political ideology.

Other studies have agreed that ideology does not motivate soldiers. The landmark study, The American Soldier (Stouffer et al. 1949, 430-85), conducted interviews with American soldiers during World War II and found that American soldiers were generally not motivated by political ideology other than affinity to the materialism of the United States and the belief that the United States had no choice but to fight following Pearl Harbor. Other scholars have downplayed the importance of political ideology toward motivating soldiers in studies of the American army in the Civil War (Griffith 1987, 109-10), Korean War (Little 1964), Vietnam War (Moskos 1970), and post-Vietnam era (Henderson 1985, 99-100). Rosen (1996, 214, 248-49) conducted a broad study of Indian military effectiveness across time. He found that even in postcolonial democratic India, soldiers were not motivated by patriotism.³

². Their addresses can be found at http://www.columbia.edu/acis/bartleby/inaugural/index.html
³. However, Rosen has, along with others (e.g., Pollack 1996), emphasized the importance of culture and social structure toward determining battlefield military effectiveness.
Millett and Murray’s (1988) *Military Effectiveness* sheds some fascinating light on this question. Summarizing the work of the study, Cushman (1988) collected letter grades (A-F) from the study’s 21 scholars who assessed the battlefield effectiveness of the great powers during the two world wars and the interwar period. The results of his survey indicated that democracies did not experience superior battlefield effectiveness and, if anything, the nondemocratic great powers generally had superior battlefield effectiveness.

There are, however, a growing number of scholars who have emphasized the role of political ideology toward motivating soldiers to fight. Several have taken strong exception to the Shils and Janowitz (1975) finding that Nazi soldiers were unmotivated by ideology (Bartov 1991; Fritz 1996). Of course, although this is evidence against the null hypothesis that ideology and battlefield effectiveness are unrelated, it is not evidence in favor of the proposition that democratic systems can more effectively generate the kind of legitimacy necessary to maximize battlefield effectiveness. One might argue, however, that it is consistent with the general hypothesis that strong nationalism increases military effectiveness; the importance of nationalism in the Napoleonic Wars was emphasized, of course, by Carl von Clausewitz (1976). Howard (1976) argued that the emergence of the modern nation-state in the decades prior to World War I saw democracy and nationalism combine to form a powerful incentive for citizens to serve and sacrifice for states to which they now felt linked. Henderson (1985, 78-79), in a comparative study of the North Vietnamese, American, Israeli, and Soviet armies, recognized the potential (although limited) significance of nationalism. Last, McPherson (1997) analyzed the letters and diaries of hundreds of Union and Confederate soldiers who fought in the Civil War, finding that political and ideological factors played important roles in motivating soldiers to fight.

Although the existing literature is dubious of the proposition that soldiers fight harder for democratic governments, its empirical methods have thus far been limited to one of two techniques: analysis of survey data of soldiers and case studies. The former method involves soldiers answering questions that ask them whether they are motivated by the desire to defend the ideals of their country. This technique may suffer certain biases inherent to ascertaining an individual’s motives through direct inquiry; for example, some armies share a strong cultural norm against deliberate shows of or statements favoring patriotism. Case studies are likely to have high validity for the wars or battles that they examine, but generalizability of their findings is limited by the small *n*. The empirical tests conducted here, therefore, offer an important new angle on the question of linkage between regime type and tactical military effectiveness by using quantitative tests on the battle performance of armies in several battles across space and time. This technique allows us to use quantitative methods to analyze a large sample of cases, and it permits us to avoid the pitfalls survey techniques face in this area.

The general proposition that the armies of democratic governments will exhibit superior individual soldiering is expressed in a number of hypotheses.

*Hypothesis 1:* Armies fighting for democratic states will fight with higher morale than armies fighting for nondemocratic states will.
Straightforwardly, this hypothesis expresses the core proposition that soldiers are more willing to fight and die for popular governments. Democratic governance motivates soldiers to maintain their composure under fire and put themselves at personal risk to accomplish battlefield military objectives.

**Hypothesis 2:** The armies of democratic states are more likely to have superior leadership.

Effective leadership consists of the ability of officers to persuade troops to execute commands, especially under fire, and to competently execute tactics and seize the initiative when opportunities present themselves. Democratic armies are likely to enjoy superior leadership within both of these components of leadership. Leaders in democratic armies are more likely able to get troops to execute their commands. Democratic armies are generally less likely to be hierarchically ordered according to class or ethnic privilege. Therefore, military leaders are less likely to belong to different social or ethnic classes as their troops, and these lesser cleavages mean that troops are more likely to follow orders (see Rosen 1996). In addition, military leaders in democracies are more likely to show greater initiative. Democratic, liberal culture emphasizes the importance of individual initiative; indeed, the very essence of liberal democracy is ensuring that individual prerogatives are minimally fettered (see, e.g., Mill 1947). This emphasis on individual initiative in liberal political culture spills over into superior initiative on the battlefield. Alexis de Tocqueville (1969, 658-59) observed that democracies are likely to enjoy the tactical advantage of having soldiers acting on reason rather than on instinct; it is just this kind of flexibility that superior initiative and inspired leadership require. Pollack (1996) demonstrated this point in his study of Middle Eastern wars, attributing the differences in fighter pilot performance between democratic Israel and its autocratic Arab neighbors to the greater emphasis on individual initiative in liberal Israeli culture. Although this may result in somewhat lower rates of blind obedience,4 we hypothesize that leaders from democracies will be far more likely to exercise initiative in situations where standing orders are insufficient.

Our data also permit us to directly observe initiative in addition to leadership. We further posit the following:

**Hypothesis 3:** The armies of democratic states are more likely to display superior initiative on the battlefield.

**ORGANIZATIONAL EFFICACY**

A second argument linking regime type and battlefield effectiveness relates to organizational efficacy. The basic argument is that democratic militaries are generally more likely to be run on meritocratic rather than political principles, generating higher organizational efficacy. Two arguments support this proposition. First, a nonde-

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4. The repressive nature of autocratic political culture does have the effect of reducing soldiers’ desertions, although if the foe is democratic, then the number of desertions tends to increase (Reiter and Stam 1997b).
Democratic political leader is more likely than a democratic leader to perceive that the armed forces may pose a domestic political threat. This encourages the civilian leadership to promote military leaders who are politically loyal to the regime rather than leaders who are militarily competent and to frequently rotate officers to prevent them from developing close ties to their troops (Tullock 1987). For example, the effectiveness of Arab militaries has been undercut by the propensity for Arab authoritarian leaders to install political toadies in high positions (Pollack 1996). The need for officers to be politically unthreatening in a nondemocratic state will generate lower effectiveness throughout the military. Some scholars have argued that the disastrous performance of the Red Army in 1941 was due to the purges of the officers’ ranks in the years just prior to the German invasion (see, e.g., Jessup 1988; for dissent, see Reese 1996).

Second, democratic armies are more effective organizations because progress away from monarchy and aristocracy engenders social changes that increase organizational effectiveness. Specifically, social leveling and the general spread of egalitarian norms throughout society usually accompany the flourishing of democratic institutions. This facilitates egalitarianism and meritocracy within the government in general and the military in particular, meaning that military organizations are run on meritocratic rather than class-based principles. In addition, the struggle for political power within authoritarian political systems is likely to increase competition between governmental organizations, thereby further reducing military effectiveness (see Reiter 1995).

At the battlefield level, there are a number of organizational tasks that militaries need to perform to maximize effectiveness and, in turn, the prospects for victory. Specifically, militaries need to master logistics and ensure the provision of adequate supplies, gather military intelligence, and acquire and apply military technology. In a comparative study of German and American armies in World War II, Van Creveld (1982) noted the democratic American army’s superior mastery of organizational tasks such as supply and logistics.

Hypothesis 4: The armies of democratic states are more likely to have superior logistics.
Hypothesis 5: The armies of democratic states are more likely to have superior military intelligence on the battlefield.
Hypothesis 6: The armies of democratic states are more likely to use superior technology.

Finally, we consider the effects of time. We expect that the democratic advantages described in the soldiering block are likely to decay as the war continues, as popular support for war in democracies is likely to decrease as time progresses (see Bennett and Stam 1998 [this issue]; Gartner and Segura 1998 [this issue]). Conversely, we expect that the democratic advantages described in the organizational efficacy block will grow as the war continues, as one aspect of superior organizational efficacy is superior organizational learning, meaning that democratic armies are more likely to draw lessons from their experiences and improve performance (Reiter 1995, 1996).

Hypothesis 7: For any particular battle, the longer it has been since the war started, the smaller will be democratic advantages in morale, leadership, and initiative.
Hypothesis 8: For any particular battle, the longer it has been since the war started, the larger will be democratic advantages in technology, logistics, and intelligence.

DATA

The above hypotheses will be tested using the HERO data on battles (see Dupuy 1985, 1987; HERO 1983; Bauer and Rotte 1997). HERO examined all major battles that took place from 1600 to 1982, with the aim of developing a systematic theory of combat effectiveness. Each case is a single side in a battle. Each battle has two sides, providing more than 1,200 cases for some 57 wars. Dozens of aspects of each battle were evaluated and systematically coded by military historians on the basis of primary and secondary sources; their judgments were then evaluated critically by members of the U.S. government. Although the data have some quirks (discussed below), they have been used successfully to predict battle outcomes (Dupuy 1985), and it is the only cross-temporal, large-sample, quantitative data set on individual battles in existence.

Empirical analysis will test the above hypotheses on battles that took place since 1800, the first year of the Polity III data set, which provides quantitative codings of the regime types of states (see Jaggers and Gurr 1995). There are 572 battles from 1800 to 1982 for 1,094 cases. It is worth noting that the wars covered by the battles within the HERO data set are not coequal with the interstate wars listed in the Correlates of War (COW) project, which defined interstate wars as military conflicts between recognized members of the international system that produced at least 1,000 battle casualties (Small and Singer 1982). First, from before 1815, the battles of the War of 1812 and the Napoleonic Wars are included. Second, the battles of a handful of civil and extrasystemic wars are included—namely, the American Civil War; the Latin American Wars of Independence; the War of Texan Independence; the Zulu War; the Transvaal Revolt; colonial conflicts between Britain, Egypt, and the Sudan in the 1880s and 1890s; the Italo-Ethiopian War of 1895; the Boer War; and the Spanish Civil War. Third, a battle between Jordan and Israel in 1968 is included as a new interstate

5. Since the Historical Evaluation and Research Organization (HERO) authored the project, its name has changed to the Dupuy Institute.
6. We use the 1990 version of the data set, which includes battles up to 1982. An earlier version of the data set includes battles up to only 1973. The 1990 version adds some battles to pre-1973 wars and incorporates reviews and corrections of the earlier version. For more information, contact the Dupuy Institute in Virginia or Dr. Robert Helmbold of the U.S. Army Concept Analysis Agency.
7. Because codings of the qualities of militaries were made after the outcomes of battles were decided, one might argue that there is the bias of hindsight; coders are more likely to infer that one side had superior morale because it won the battle. However, the mission of the HERO project was not to assess the simple hypotheses we have presented here; it was more interested in building a complex model of battle outcomes accounting for an array of material and intangible factors. In addition, if this bias were true, we would observe extremely strong correlations between the determinants of victory (morale, initiative, etc.) and outcomes, when in fact Table 1 indicates only a few significant relationships. Finally, the HERO project has absolutely no interest in assessing the relationship between regime type and the determinants of victory, the relationships of primary interest here.
8. There is strong correlational evidence, however, that links the battle outcomes in the HERO data to the Correlates of War (COW) data (Helmbold 1997).
war. Fourth, a number of interstate wars are listed by the COW project that are not accounted for by HERO.9

An additional potential sampling problem concerns the determination of which battles from each war were included. HERO does not appear to have a systematic rule for how wars were included or excluded from the data set, although it does comment that “the purpose of this study was to undertake a comprehensive analysis of the factors which have significantly influenced the outcomes of the major battles of modern history,” although unfortunately, a definition of major is not provided (HERO 1983, 2:1). Significantly, availability of historical data probably strongly determined which battles were included. Wars involving the United States tend to have more battles than other wars. For example, of the 572 battles from 1800 to 1982, 28 are from the 1945 Okinawa campaign near the end of World War II, whereas there are only 4 battles from the Russo-Polish War, Russo-Finnish War, and 1940 Campaign for France combined. Generally, the sample is heavily weighted toward a few wars, as the Civil War, World War I, and World War II account for about three quarters of the battles. The risk, then, is that bias is introduced because some wars would get weighted in the analysis much more heavily than others.

We deal with this source of bias by sampling each country only once per war. If there are, for example, 10 battles from a given war between countries A and B, HERO provides 20 cases. From these 20 cases, we randomly sample two—perhaps side A in the third battle and side B in the ninth battle. In wars that include battles between more than two participants (the Western Front in World War I, for example, includes armies from France, Britain, the United States, and Germany), each participant is sampled once. This substantially reduces the oversampling bias problem. We did not sample the two sides from one battle per war because of potential autocorrelation problems. Many of our primary variables are coded comparatively—that is, in any given battle, side A is coded as having superior morale to side B, rather than side A getting a morale rating on a scale of 1 to 10, for example. Inclusion of both sides of a battle, therefore, would introduce severe autocorrelation between those two sides because if one side is coded superior, the other is necessarily coded as inferior. These modifications ultimately yield 82 cases.10

MORALE

The HERO project assessed the morale of each army for each battle in the data set. We will use a variable that HERO calls morale, which is defined as the “prevailing mood and spirit conducive to willing and dependable performance, steadiness, self-control, and courageous, determined conduct despite danger and privations” (HERO 1983, 2:13). Significantly, HERO codes this variable in a relative manner—that is, it does not assess an army’s level of morale on a scale against all other armies of all time, but rather it compares the morale levels of two armies in a particular engagement. The scale is as follows: 4 = very strongly favors the attacker, 3 = strongly favors the

9. For a list of these wars, contact the authors.
10. In the event that the random-number generator drew two sides from the same battle, a new random number was selected, and if there was only one battle in the war, then only one case was used.
attacker, 2 = favors the attacker, 1 = somewhat favors the attacker, 0 = favors neither side, –1 = somewhat favors the defender, –2 = favors the defender, –3 = strongly favors the defender, and –4 = very strongly favors the defender.\textsuperscript{11}

HOME TERRITORY

Soldiers are likely to fight harder when defending their own territory. Therefore, when morale is a dependent variable, we include as an independent control variable whether the army is fighting on its home territory. This variable was coded as 1 if the battle was fought on the army’s prewar home territory and 0 otherwise. Note that for some battles, neither side gets a coding of 1, such as clashes between German and American forces in occupied France during 1944. A few special cases are worth noting. Battles during the Civil War that took place in Confederate territory were considered to be on the home territory of the Confederacy and not the Union. In the 1973 October War, the Sinai Peninsula and Golan Heights are considered to be Egyptian and Syrian, respectively, although Alsace-Lorraine is German in 1914. Iwo Jima and Okinawa are not considered part of the Japanese homeland. In some battles, the armies of several nations were combined into a multinational army, and the battle was fought on the home territory of one of the allies. In these cases, the home army’s fraction of the allied forces was coded so that, for example, in the battle of Fuentes de Onoro in the Peninsular Campaigns of the Napoleonic Wars, Spanish forces composed one third of the combined Anglo-Spanish army, providing a coding of .33. The codings for these variables were done by the authors.

DEMOCRACY

Polity III scores were used as an indicator of democracy. Polity III provides a 0 to 10 measure of democracy on the basis of components such as the competitiveness of executive recruitment, regulation of political participation, constraints on the chief executive, and so forth.\textsuperscript{12}

LOGISTICS

This variable is described by the HERO project as “supply capability” and uses the same 9-point scale (–4 to 4) as the morale variable.

\textsuperscript{11} In the original HERO data set, there was a category called “comparable” and another called “no factor.” We coded comparable as 0, and no factor as missing, as the latter probably reflects the prejudgment on the part of the original code that morale did not affect the outcome of the battle, although the existence of the separate comparable category implies that no factor does not necessarily imply similar levels of morale.

\textsuperscript{12} There were a number of cases for which Polity III provided codings of “missing” because the country in question suffered occupation or internal chaos at some point during the year in question. However, it was often the case that the country did have a functioning political system when the battle occurred, although it lost the war after the battle. For these cases, we used the Polity III codings for the latest available year prior to the year of the battle when occupation or internal chaos missing codings are provided. There were still a handful of cases that had missing data, as they are for countries that are not internationally recognized nation-states. Data are available from the authors.
LEADERSHIP

HERO (1983, 2:13) describes its leadership variable as “the art of influencing others to cooperate to achieve a common goal, including, for military leaders at all command strata, tactical competence and initiative.” This variable is coded in the same way as the morale variable.

INTELLIGENCE

This variable is described by the HERO project (1983, 2:14) as “information about the organization, dispositions, intentions, and activities of the forces of the opponent.” This variable is coded in a similar manner as the morale variable on a –4 to 4 scale.

INITIATIVE

HERO (1983, 2:14) describes initiative as “an advantage gained by acting first, and thus forcing the opponent to respond to one’s own plans and actions, instead of being able to follow one’s own plans.” This variable is coded in a similar manner as the morale variable.

WAR INITIATION

War initiators are more likely to win the wars they fight because they are quite likely to start only those wars they think they can win. Quantitative studies have revealed that initiators in general are more likely to win wars, and democratic initiators are especially likely to win (Reiter and Stam 1997a). One means by which states might decide to initiate wars is battlefield military effectiveness; that is, they might only start wars when they perceive that their military enjoys superior battlefield military effectiveness over the prospective adversary. We would expect, then, that initiators ought to have systematically higher battlefield military effectiveness. We code this as a dummy variable with 1 if the army initiated the war and with 0 otherwise. We take the initiation codings from Bennett and Stam (1998).

MEASURE OF BATTLEFIELD SUCCESS

We directly assessed the significance of the above factors toward determining battlefield success. HERO (see Dupuy 1985, 48-49, 204-5) codes the outcomes of all of its battles as win, lose, or inconclusive. This value is a mathematical composite of three values. The first is mission accomplishment, a value provided by military historians on a case-by-case basis. The second is spatial effectiveness, a mathematical formula reflecting the army’s success in gaining or holding ground. The third is casualty effectiveness, which is a mathematical formula describing the efficiency of the side in question at inflicting casualties.
Our first set of results examines the predictors of battlefield success. The dependent variable is win/draw/lose. We regressed this on our two blocks of indicators, the blocks containing indicators of organizational effectiveness and individual soldiering. For the organizational block, we include measures of logistics, intelligence, and technology. Our measures of soldiering include initiative, leadership, and morale. Table 1 contains the results of the ordered probit regression analysis.

We find limited support for the organizational measures and across-the-board support for the soldiering measures. Logistics appear to be associated with the battle outcomes. Concerning the organizational factors, logisticians should take heart. Both substantively and statistically, logistics capacity appears to be the most powerful and important factor of the three. Neither military intelligence nor technology appear to be significantly correlated with battle outcomes in these data. These results support Biddle’s (1996) argument that technology alone cannot account for battle effectiveness; rather, technology only emerges as a powerful predictor of success when considered in a far more complex and interactive model of training, technology, and terrain.

The results for the soldiering block of independent variables are more impressive. All three factors identified in the military history literature appear to have a profound impact on battlefield success (as measured here). Both substantively and statistically, leadership is an important indicator of success. Great leaders simply win more often; they achieve their goals and are highly effective. Morale is also a powerful determinant of battlefield victory and appears to be the most powerful explanatory factor in this

TABLE 1
Modeling Indicators of Battlefield Success

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Dependent Variable: Win/Lose/Draw</th>
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<tbody>
<tr>
<td>Organizational block</td>
<td></td>
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<tr>
<td>Logistics</td>
<td>1.73* (1.74)</td>
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<tr>
<td>Intelligence</td>
<td>0.63 (1.37)</td>
</tr>
<tr>
<td>Technology</td>
<td>0.42 (0.52)</td>
</tr>
<tr>
<td>Soldiering block</td>
<td></td>
</tr>
<tr>
<td>Initiative</td>
<td>0.90** (2.73)</td>
</tr>
<tr>
<td>Leadership</td>
<td>1.90*** (3.62)</td>
</tr>
<tr>
<td>Morale</td>
<td>2.15** (3.27)</td>
</tr>
<tr>
<td>Cut 1</td>
<td>0.23</td>
</tr>
<tr>
<td>Cut 2</td>
<td>0.63</td>
</tr>
<tr>
<td>Pseudo $R^2$</td>
<td>0.61</td>
</tr>
<tr>
<td>Log likelihood</td>
<td>–27.46</td>
</tr>
<tr>
<td>$n$</td>
<td>82</td>
</tr>
</tbody>
</table>

NOTE: Win/lose/draw was estimated using ordered probit; $T$ scores are in parentheses.
* $p < .05$. ** $p < .01$. *** $p < .001$.

RESULTS

Our first set of results examines the predictors of battlefield success. The dependent variable is win/draw/lose. We regressed this on our two blocks of indicators, the blocks containing indicators of organizational effectiveness and individual soldiering. For the organizational block, we include measures of logistics, intelligence, and technology. Our measures of soldiering include initiative, leadership, and morale. Table 1 contains the results of the ordered probit regression analysis.

We find limited support for the organizational measures and across-the-board support for the soldiering measures. Logistics appear to be associated with the battle outcomes. Concerning the organizational factors, logisticians should take heart. Both substantively and statistically, logistics capacity appears to be the most powerful and important factor of the three. Neither military intelligence nor technology appear to be significantly correlated with battle outcomes in these data. These results support Biddle’s (1996) argument that technology alone cannot account for battle effectiveness; rather, technology only emerges as a powerful predictor of success when considered in a far more complex and interactive model of training, technology, and terrain.

The results for the soldiering block of independent variables are more impressive. All three factors identified in the military history literature appear to have a profound impact on battlefield success (as measured here). Both substantively and statistically, leadership is an important indicator of success. Great leaders simply win more often; they achieve their goals and are highly effective. Morale is also a powerful determinant of battlefield victory and appears to be the most powerful explanatory factor in this
limited sample. Initiative, meeting all measures of statistical significance, appears to be substantively about one half as powerful as leadership and morale. If we compare the two blocks, the soldiering block has more constant associations with the indicators of success. Substantively, morale, leadership, and logistics appear to be the most powerful factors.

Next, we investigate our hypothesis about the relationship between democracy and our indicators of battlefield success. Table 2 presents the results of several simple regression models. Here the indicators of success, which had been our independent variables in Table 1, now become the objects of analysis. As such, they serve as our dependent variables, of which we have six that we divide into the previously laid out sets or blocks: organizational and soldiering. To recount, the organizational dependent variables consist of logistics, intelligence, and technology. The soldiering variables include initiative, leadership, and morale.

For each of the six dependent variables, we present two simple models. The first is a simple bivariate regression testing the association between a state’s level of democracy and relative organizational or soldiering advantage. In the second set of models, we include interactive terms (Democracy \times \text{Time}) that allow us to test for changes over the course of time during a war. Time is measured in the number of months since the beginning of the war. If a factor suffers from declining or waning influence over time, the interactive term will have a negative sign. If the factor improves over time (e.g., if morale improved over time), the interactive term will be positive.

In the static bivariate regressions, relative democracy is not associated either substantively or statistically with any of the organizational indicators of battlefield success. The hypotheses linking democracy to greater organizational effectiveness garner no support from these data. Compared to the organizational block, the relationship between two of the three soldiering factors and democracy appears to be quite strong. Soldiers fighting for democratic states appear to be significantly more willing to take the initiative and to provide superior leadership. Although the relatively low \( R^2 \) indicates that other factors are likely to be at play as well, we can be quite certain that there is a military advantage associated with democracies at the tactical level, most likely in the form of individual initiative and leadership. Interestingly, morale does not seem to be correlated with institutional democracy.

Turning to the more complex models, the story becomes a bit more complex, but the basic line remains the same. In model 2, we control for potential changes over time and interesting results emerge. Cases drawn from later in the war compared to cases drawn from near the onset of the war demonstrate declining advantages accruing to democracies. Logistics and technology now appear to be related to democracy, although the statistical significance is not terribly strong (\( p = .04 \), one-tailed test) and, perhaps more important, the substantive significance is quite limited. Over the range

13. To test the selection effects argument, we also estimated models the same as those presented but that also included two different terms for war initiation. In one estimation, we included a single, independent variable marking war initiation. In another regression run, we included an interaction term of Democracy \times Initiation to test if democracies made different sorts of initiation decisions whose effects would appear in our data set. In both cases, the findings were similar to those presented in the body of the text.
of the democracy variable (0 to 10), the corresponding change in associated organizational indicators would be roughly two tenths of one point. That two tenths of one point would be on a scale with a 9-point range (–4 to 4). Although now meeting standard levels of statistical significance, the substantive effects of the two variables appear to be quite limited. We find that when we control for changes over time, democracies appear to have logistical and technological advantages at the outset of wars but, contrary to the expectation of Hypothesis 8, this slim advantage erodes as the war lengthens. After roughly 4 to 5 years, the data suggest that the small logistical or technological advantages democracies enjoy at the outset of wars is gone. We feel we must be cautious making this claim because the data are not arranged in optimal fashion for testing temporal effects. Contrary to democratic learning arguments, there does not appear to be any learning or increase in logistical advantage. There appears to be no relationship between democracy and intelligence effectiveness.

Regarding the block of soldiering indicators, the first two democratic advantages—initiative and leadership—dwindle as wars lengthen, a finding consistent with Hypothesis 7. With the soldiering variables, however, the positive effects of democracy
seem to be powerful enough that it would take roughly 10 to 15 years for the advantage present at the outset of the war to have eroded completely. Democratic states appear to gain a substantial advantage in the two critical areas of initiative and leadership. Recall also that these two indicators were, along with logistics, the most powerful indicators of success. The apparent lack of a relationship between democracy and morale does not change with the inclusion of time and the indicator of the location of the battle.

CONCLUSION

In this article, we set out to test a series of propositions in an attempt to explain why democracies win wars. We used a data set composed of a variety of indicators of battlefield performance. In our first empirical section, we demonstrated that frequently emphasized factors, such as initiative, leadership, and logistics, are associated with favorable outcomes on the battlefield. Next, we investigated whether democratic states enjoyed advantages on the battlefield. We tested two sets of variables. The first set, which consisted of measures of organizational effectiveness, received limited empirical support. We found no substantive or statistical relationship between a state’s use and development of military intelligence and the state’s relative level of democracy. Concerning logistics and technology, we found that although democratic states may appear to enjoy some marginal advantage at the outset of a war, contrary to our expectations, this advantage erodes over time.

The second set of indicators included measures of soldiering skills and capacities—distinct from organizational ones. Here, we investigated the relationship between democracy and initiative, leadership and morale. We found strong evidence that democracies enjoy superior leadership and that their troops are quite a bit more likely to take the initiative, although the democratic advantage declines as the war lengthens. This constitutes an important advantage for democratic armies, as both factors are strongly associated with better battlefield performance. We found no relationship between democracy and morale and location of the war.

From these results, a more nuanced picture of democracy’s impact on battlefield military effectiveness emerges. The null finding for the morale hypothesis indicates, consistent with some modern sociological and historical work and in contrast to the views of a variety of modern and premodern thinkers, that democratic governance does not motivate soldiers to be more willing to die on the battlefield. Furthermore, democratic militaries enjoy only very limited superiority in their ability to organize for war. What is indicated is that the emphasis on individual initiative prevalent in democratic culture does have real military payoffs, as soldiers emerging from demo-

14. It is reassuring to note that for each of the time-interactive terms, the sign of the interaction is negative—indicating eroding effects for democracies. This provides some limited corroboration for the findings in Bennett and Stam (1998) of declining likelihood of victory over time for democratic states and declining support for war (Gartner and Segura 1998). Although Bennett and Stam used a fundamentally different data set that consisted of wars and not battles, the general themes of the results fit with those presented here.
ocratic societies enjoy better leadership and fight with more initiative. These results constitute an important component within the larger question of the connection between regime type and war outcomes. Previous research has only been able to confirm democracies’ tendency to win wars they initiate as a source of democratic victory. The findings in this article offer strong evidence of an additional source of victory, as they point to a real advantage democracies enjoy in the prosecution of war—superior battlefield effectiveness.

Several avenues for future research present themselves. The HERO data set has the potential to be tremendously useful; we have only begun to explore it. Analysis would be improved by continuing the ongoing process of cleaning the HERO data set, addressing issues such as intercoder reliability, improving the consistency of rules for the selection of battles, and so forth. In addition, it would be useful to test the findings presented here on other empirical data, through the construction of other battle data sets or through the execution of case studies such as those of Rosen (1996) or Pollack (1996).

REFERENCES


Reiter, Dan, and Allan C. Stam III. 1997a. Democracy, war initiation, and victory. Unpublished manuscript, Emory University, Atlanta, GA.


