Making It Personal:
The Role of Leader-Specific Signals in Extended Deterrence

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Abstract

This paper explores how the leader of a major power can deter challenges against weaker states using “leader-specific” signals of support. These signals are sent by a leader personally and publicly, so that the leader becomes associated with the signal in the eyes of the public. I argue that leader-specific signals are a particularly useful tool for achieving credible extended deterrence because they are flexible enough to convey changes in foreign policy priorities, and they create personal audience and reputational costs for leaders. I focus on leader visits abroad as the type of leader-specific signal that is most likely to be credible and informative. I use original data recording leadership visits in a statistical analysis of extended deterrence success between 1950 and 2007 and find that these visits have a significant deterrent effect. Visits appear to be even more effective than alliances for deterring non-fatal disputes.
In April 2014, President Obama visited South Korea for the fourth time during his presidency. He had not initially planned to visit South Korea during his trip to Asia, but he added the stop to his itinerary at the urging of critics, who argued that the US must show its support for South Korea in the face of threats from North Korea and an increasingly assertive China (Armitage, Cha, and Green 2014). While in South Korea, Obama held a press conference with South Korean President Park Geun-hye, during which he stated, “America's commitment to the South Korean people will never waver...With regard to North Korea, the United States and South Korea stand shoulder to shoulder both in the face of Pyongyang's provocations and in our refusal to accept a nuclear [North] Korea” (Peters and Woolley 2015). It is clear that Obama was doing his utmost to use his visit and remarks to signal US resolve to defend South Korea in the event of an attack on it. But why did Obama bother to make such a personal signaling effort? The United States has had a mutual defense pact with South Korea since 1953 and has many troops stationed there. Should this not be enough to signal US support for and commitment to South Korea?

Traditionally, an alliance commitment has been viewed as the strongest type of deterrent signal that a state can send, and previous studies have confirmed that alliance agreements are beneficial for deterrence (Fuhrmann and Sechser 2014; Johnson and Leeds 2011). Yet in the case of South Korea, Obama decided that it was desirable to supplement the US alliance commitment with more personal signals of support. Using personal travel to signal support for a country under threat is a strategy that has also been used by other US presidents, such as John F. Kennedy, who traveled to West Berlin in 1963; Richard Nixon, who visited South Vietnam in 1969; and George H.W. Bush, who visited Saudi Arabia after the Iraqi invasion of Kuwait. Although leader visits are increasingly common in the modern era because of easier travel, they have also played an
important role in international relations historically. In 1905, the First Moroccan Crisis began when German Kaiser Wilhelm traveled to Morocco and declared support for Moroccan independence. Despite this anecdotal evidence of the importance of leader visits, scholars have yet to consider how they might contribute to extended deterrence.

This paper addresses this question by considering leadership visits as part of a broader category of “leader-specific” signals. This category of signals, which also includes other types of symbolic actions and statements, is defined by the personal and public involvement of a national leader in sending the signal. Because these signals do not explicitly commit one country to use force to defend another, they might seem to be less costly signals than alliance agreements. However, this paper argues that because leader-specific signals are so closely associated with a particular leader, they can create substantial personal audience and/or reputational costs for that leader, resulting in a strong hand-tying commitment and credible deterrence. Furthermore, leader-specific signals actually have some advantages over other deterrent signals, such as alliances, due to their flexibility and ability to convey a leader’s personal foreign policy priorities. Therefore, leader-specific signals are expected to play an important role in extended deterrence.

This paper focuses on travel by the leader of a major power to visit a weaker state as the type of leader-specific signal that is most likely to be effective. In a statistical analysis of extended deterrence success utilizing original data on leader travel, I find that visits by the leaders of the United States, Russia (or the Soviet Union), China, Britain, and France to a weaker country significantly decrease the probability that the country will be targeted in a military dispute. These visits appear to be even more effective than alliances for deterring non-fatal disputes, and the deterrent effect of visits is not conditional on the presence of an alliance. For
the United States, I also compare the effect of presidential visits abroad to the effect of foreign leader visits to the US and US presidential statements, confirming that presidential travel abroad is the most effective leader-specific deterrent signal. Finally, I present evidence that it is correct for adversaries to interpret leader visits as credible signals, since recent visits by a major power’s leader significantly increase the probability that the major power will aid a country in a MID.

This paper makes several important contributions to the literature on deterrence. First, it identifies leader-specific signals as a new category of signals that has not previously received attention in the deterrence literature. Scholars have increasingly recognized the importance of individual leaders in international conflict (Horowitz, Stam, and Ellis 2015). Leaders often use personal visits, gestures, or words to signal their intentions and support for other countries. Yet the international security literature has not treated signals such as visits as important or systematically considered how they might affect extended deterrence or other international outcomes. This paper not only proposes a new theory of how leader-specific signals might be particularly effective deterrent signals, but also introduces original data on major power leader visits in order to test the theory.

The findings in this paper also contribute to testing the bargaining model of war. The bargaining model emphasizes incomplete information as a cause of war, but there is limited empirical evidence to support this assertion, largely because the incompleteness of information is difficult to measure. This paper shows that a signal with purely informational value can reduce instances of military conflict. Leader-specific signals of support carry no direct military benefit, yet they are shown to insulate weaker states from military challenges. This suggests that these visits are helping to resolve the problem of uncertainty by providing credible information about a
The insights in this paper also have important implications for policy, indicating that it is desirable for leaders of major powers to signal support for strategically important protégés in personal ways, especially with travel to visit them. Such personal signals can increase the security of weaker states that are already allies as well as states that are not. This is good news for leaders because while alliance agreements can be difficult to negotiate and ratify, personal signals such as visits can be undertaken entirely on a leader’s own initiative and at short notice. On the other hand, because leader-specific signals appear to create hand-tying costs, leaders should hesitate to send them for countries that they might not actually wish to aid if attacked.

**Solving the Extended Deterrence Problem**

Major powers benefit from having a network of weaker protégés or client states in the international system. These countries can be helpful to a major power by hosting forces, joining military coalitions, engaging in economic cooperation, supporting the major power in international organizations, or simply spreading the major power’s values (Morrow 1991). It is in major powers’ interest to protect their protégés from aggression. However, deterrence theorists have recognized that there are limits on how far major powers will go to defend their protégés (Schelling 1966). While a country would bear almost any cost to defend its own territory, it is harder to believe that a major power would risk its own citizens’ lives to defend a client state. Therefore, a major power attempting extended deterrence faces a credibility problem.

As soon as the difficulties of extended deterrence were recognized, scholars and policymakers began proposing solutions. The method of making extended deterrence credible that has received the most attention is formal alliance commitments. Morrow (2000) summarizes
the benefits of formalizing an alliance. First, the military and political costs of maintaining an alliance can serve as a costly signal of the allies’ interest in each other. Second, an alliance might lower the cost of defending an ally due to more effective military coordination. Third, the alliance might create reputational costs for not intervening if an ally is attacked, increasing the propensity to intervene. Due to the commitment created by these reputational costs, alliances are typically viewed as hand-tying signals (Fearon 1997). There is empirical support for the belief that violating an alliance commitment is costly. One type of cost that might be incurred is damage to the violator’s international reputation. Studies have found that states that have a history of being more reliable allies find it easier to make new alliances (Crezniski et al. 2012; Gibler 2008; Miller 2012) and can secure better alliance terms (Mattes 2012; Miller 2012). Furthermore, a survey experiment by Tomz and Weeks (2015) suggests that violating an alliance commitment may also lead to domestic disapproval for a leader.

If violating an alliance commitment is costly, it follows that alliances should have some credibility and should aid in extended deterrence. Indeed, several scholars have found that countries with an alliance are less likely to be targeted in military disputes (Johnson and Leeds 2011; Leeds 2003; Wright and Rider 2014). Kenwick, Vasquez, and Powers (2015) are more skeptical of the deterrent effect of alliances, but still conclude that defensive alliances have had some deterrent effect since World War II. Fuhrmann and Sechser (2014) find that an alliance commitment with a nuclear power has a greater ability to deter the initiation of military disputes than even an actual nuclear deployment.

However, alliances are just one of several signaling options that major powers can substitute among. The findings of Fuhrmann and Sechser (2014) demonstrate the importance of comparing the deterrent effects of different signals. Although sunk-cost signals such as nuclear
deployments and arms transfers (Krause 2004) have been found to be less effective than alliance commitments, the effectiveness of alliances has not yet been compared to the effectiveness of other hand-tying signals. This paper explains how leader-specific signals can function as hand-tying signals, which may be even more effective than alliances under some circumstances.

**The Role of Leader-Specific Signals**

I define leader-specific signals as signals that the leader of a country sends personally and publicly, so that the leader is directly associated with the signal in the eyes of the public. I consider three particular signals that the leader of a major power can personally send to show support for a weaker state: (1) travel to visit the weaker state, (2) hosting a visit by the weaker state’s leader, and (3) making public statements of support. Sending these signals creates the impression among domestic and international observers that the major power’s leader personally cares about the weaker country’s security. Therefore, while these signals do not necessarily commit a major power to military intervention, they imply that the major power’s leader would somehow aid the weaker state or punish the aggressor if the weaker state were attacked.

Although leader-specific signals are used frequently in international relations, the scholarly literature has not yet given much consideration to their deterrent value. Previous work has acknowledged the value of public statements for both direct coercion and extended deterrence (Huth and Russett 1984; McManus 2014). However, this work has focused on explicitly resolved language, rather than language that indicates general support for a weaker state. Visits have received even less attention. Some work has begun to explore the determinants of when official visits take place (Jost and Strange 2016; Lebovic and Saunders 2015), and Westerwinter (2016) argues that countries that are part of similar diplomatic visit networks are less likely to go to war. However, no one has yet explored the deterrent value of these visits.
There might be some reasons to be skeptical of the deterrent value of visits and other leader-specific signals. Unlike alliances, leader-specific signals carry no force under international law, which might lower the reputational costs associated with them. In addition, leader-specific signals do not make any long-term commitment. While alliance commitments remain in force until they expire or are revoked, the effect of leader-specific signals on deterrence is only likely to persist as long as observers retain memories of the signals. Finally, leader-specific signals do not usually specify exactly what the major power would do if a weaker country was attacked. Visits merely imply goodwill, and even statements of support rarely make specific declarations. This vagueness might allow a major power to fulfill its implicit commitment through some means other than direct military intervention, which might be a less effective deterrent.

Despite these potential shortcomings, I argue that leader-specific signals can nonetheless function as credible hand-tying signals. Leadership visits and statements take place in the public eye and often generate a great deal of press coverage. They therefore give domestic and international observers the impression that the major power’s leader cares about a weaker country. If the major power’s leader abandons the country in time of need following such a public display of comradery, it will be viewed as backing down from an implicit commitment to support the country. This could lead to both domestic audience costs for apparent hypocrisy and international reputational costs, as foreign governments may begin to doubt whether other signals sent by the major power are credible. For example, President Bush traveled to the Republic of Georgia in 2005, where he made a show of having a good time, staying up late to dine with Georgian President Saakashvili and dancing to Georgian folk music (Bumiller 2005). He was later criticized for raising expectations of US support for Georgia but failing to take strong action when Russia invaded (Kaplan 2008).
If leader-specific signals of support are costly, then they should be able to function as credible deterrent signals. The audience or reputational costs for abandoning a weaker country after sending a leader-specific signal of support should make leaders less likely to signal support for countries that they are not truly committed to assisting. Furthermore, the costs of backing away from the implicit commitment contained in these signals should create a hand-tying effect, making it harder for a major power not to intervene in some way. Therefore, audience and reputational costs can give leader-specific signals credibility. This allows leader-specific signals to reassure protégés and deter potential aggressors.

Advantages of Leader-Specific Signals

Thus far, I have made the case that leader-specific signals can function as costly and therefore credible deterrent signals. In this section, I argue that leader-specific signals of support are likely to be particularly good deterrent signals, perhaps even outperforming alliances in some ways. I focus on four main features of leader-specific signals that are likely to make them highly effective for extended deterrence: (1) the ability to signal current foreign policy priorities, (2) the difficulty in avoiding personal audience or reputational costs associated with them, (3) the absence of limiting criteria for intervention, and (4) flexibility in when and how they can be sent.

First, leader-specific signals demonstrate that supporting the protégé is a high priority for the major power’s current leader in the present moment. This ability to signal present policy interests differentiates leader-specific signals from alliances, which do not necessarily reflect a major power’s most current priorities. Once they are signed and ratified, alliances typically cannot be revoked without specific legal procedures and an embarrassing public spectacle. For this reason, alliances may persist on paper over the years even as the allied countries drift further apart in their foreign policy interests and new leaders with different priorities come to power.
(Gartzke and Gleditsch 2004). Because of the crucial role of leaders in military decisions (Horowitz, Stam, and Ellis 2015), uncertainty about the priority that the current leader personally places on supporting an ally can undermine an alliance’s effectiveness even if the legal commitment remains in force. As evidence of how changing priorities under new leaders can undercut alliances, Leeds, Mattes, and Vogel (2009) find that alliance agreements are more likely to be abrogated when a new leader with a new supporting coalition comes to power, and Siverson and King (1980) find that allies are less likely to come to each other’s aid when the alliance has persisted for longer. In contrast, as more short-term signals, leader-specific signals of support are much less likely to be undermined by perceptions of shifting policy preferences. The leader’s personal involvement in sending a leader-specific signal shows that the security relationship between the major power and client state is not merely historical, but persists under the current leader and reflects the leader’s present priorities.

A second reason why leader-specific signals are likely to be particularly effective for extended deterrence is that they make it especially hard for a leader to avoid domestic audience costs and international reputational costs for abandoning a weaker protégé. If a leader is not personally involved in sending a signal of support, then the leader may be able to avoid blame for violating the commitment implied by that signal. Croco (2015) shows that publics do not necessarily hold leaders accountable for foreign policy mistakes of their predecessors, and Levendusky and Horowitz (2012) show that leaders can reduce domestic audience costs by explaining how circumstances have changed. Leaders might therefore be able to escape domestic political punishment for violating an alliance commitment by portraying the commitment as outdated or as a predecessor’s mistake. At the international level, if commitments are not viewed as interdependent (Press 2005), then it also might be possible for a new leader to violate a
predecessor’s alliance agreement without creating the expectation that the leader will break his or her own commitments. If leaders are sometimes able to avoid the audience or reputational costs associated with signals sent by their predecessors or by other people in their government, then any signal not sent by a leader personally might lack full credibility. This suggests that leader-specific signals play a crucial signaling role because a leader’s personal participation in sending a signal makes it very difficult for the leader to later disavow the signal.

Third, the absence of any specifically defined criteria for intervention can be another advantage of leader-specific signals for extended deterrence. For deterring the largest types of attacks, such as full-scale invasions, the absence of clear intervention criteria might be a weakness because it could lead to lower audience and reputational costs for not coming to a protégé’s aid during a major attack. However, small-scale provocations are more common than large attacks, and for deterring these, the absence of clear intervention criteria can be an asset. A major power may not want to explicitly commit itself to intervene in the case of every minor provocation, but making a commitment that explicitly applies only to major attacks and is silent on the issue of minor provocations could inadvertently imply to adversaries that smaller provocations are acceptable to the major power. Thus, when trying to deter lower-level harm to a weaker state, it might be desirable for a major power to leave potential challengers guessing about exactly where its red line for intervention is located rather than stating it explicitly. This is the approach that is generally taken with leader-specific signals, in contrast to the explicit conditions for intervention that are often written into alliances (Leeds, Long, and Mitchell 2000).

Fourth, leader-specific signals are highly flexible in their timing and in how they can be used. While alliances can take years to negotiate and ratify, leader-specific signals can be sent within only days (in the case of visits) or minutes (in the case of statements). They also can be
sent at a leader’s own discretion, without inference from other domestic actors. This is likely to make leader-specific signals the ideal way to respond to rapidly developing events and signal support for countries that face threats within the next few months or years. Leader-specific signals are also flexible in that it is possible to send any number of them for the same country. In the case of alliances, once an alliance is in place between two countries, it would usually be seen as illogical to negotiate a second alliance agreement on top of it. However, in the case of leader-specific signals, leaders can keep sending more signals to indicate more support. This can help potential adversaries identify which countries have the most support from a major power.

**Hypotheses**

I have made the case that leader-specific signals of support can create hand-tying costs for leaders and have many advantages as deterrent signals. Thus, I argue that leader-specific signals can complement or perhaps even substitute for alliances for purposes of extended deterrence. On the whole, I expect leader-specific signals of support from a major power to reduce the probability that a weaker country will face military challenges. This yields the main hypothesis:

**Hypothesis 1:** Leader-specific signals of support from a major power will decrease the likelihood that a weaker state is targeted in a military dispute.

Although the theoretical arguments outlined above apply to all leader-specific signals, I do not expect that all leader-specific signals will be equally effective. Rather, I expect that travel by a major power’s leader to visit a weaker state will be more effective than hosting a weaker state’s leader or issuing statements. One reason for this expectation is that major power leader visits abroad receive the most publicity. These trips are choreographed in a way that is intended to generate press coverage, and the presence of so many reporters who participate in the trip
makes high publicity almost automatic. In an analysis of *New York Times* reporting, [Author] shows that US presidential travel abroad receives far more coverage than visits by leaders of weaker states to United States. Statements of support, another leader-specific signal, often accompany leader visits, but in most cases the details of the statements are not emphasized in the press coverage. Therefore, among leader-specific signals, travel abroad by a major power’s leader is likely to generate the greatest public awareness. This greater awareness should lead to higher audience and reputational costs and thus to greater credibility.

A second reason why I expect visits by major power leaders to be the most effective type of leader-specific signal is that they entail the highest sunk costs as well. The financial costs of these visits are small compared to an entire government budget, but more importantly, the major power’s leader must take time out of his or her schedule to prepare for and participate in the visit, and many other actors in the government also spend time on the preparations. Because of time constraints, a major power’s leader cannot visit every country in the world regularly. These visits can therefore be considered a “scarce resource” (Lebovic and Saunders 2015, 1), meaning that when the leader of a major power travels to visit a weaker country, it signals that the leader views that country as important. In contrast, merely hosting a visit by a weaker state’s leader requires less time and money, and making statements of support requires no up-front costs.

Because of the lower publicity and sunk costs, I expect issuing statements and hosting a weaker country’s leader to be less effective leader-specific signals of support than major power leader travel abroad. This yields a second hypothesis:

**Hypothesis 2:** Among leader-specific signals of support, a visit by a major power’s leader to a weaker state will cause the greatest decrease in the likelihood that the protégé is targeted in a military dispute.
It may be objected that not all visits by major power leaders to weaker states are truly intended to signal support. It is true that some visits are done out of routine, but the fact that a country is visited routinely probably means that it has the major power’s support, even if it faces no particular threat. It is also true that some visits are intended to improve strained relations rather than signal support, but such visits by the leader of a major power to a weaker country are rare.² Typically, when a major power seeks to improve relations with a weaker state, the leader sends lower-level officials rather than traveling there personally.³ It is only after relations are already on good footing that a weaker state is likely to be visited by the leader of a major power. For example, it was not until after lower-level officials had laid the groundwork for improved relations that President Obama visited Burma and Cuba. My data on visits (described further below) confirm that major power leaders tend to visit countries they have good relations with and are therefore likely to support. All major powers except China have a significantly higher average UN voting affinity score with countries visited than countries not visited (Gartzke 2006; Voeten and Merdzanovic 2009).

Research Design

I test the hypotheses by examining the statistical relationship between signals of support sent by major powers for weaker countries and the likelihood that the countries are targeted in a militarized interstate dispute (MID). I use a dataset of directed dyads-years, including all

² This statement only applies to major power leaders visiting weaker states. Major power leaders do visit each other even when relations are strained, but these visits are not part of my analysis.

³ For this reason, I do not consider trips by lower-ranking officials to be signals of support.
politically relevant dyads between 1950 and 2007. I drop joiner dyads because of the particular difficulty in determining if joiners are truly initiators or targets (Bennett and Stam 2000b).  I also drop dyads in which the United States, Russia, or China is the potential target because, as major powers themselves, these countries do not rely on other major powers for deterrence. Of course, using dyads as the unit of analysis is an abstraction from reality, but it is a potentially useful abstraction (Poast 2016). Furthermore, this research design allows comparability with previous research testing the effectiveness of deterrence and extended deterrence (Fuhrmann and Sechser 2014; Johnson and Leeds 2011; Weisiger and Yarhi-Milo 2015).

My main dependent variable, Violent MID Initiation, codes whether the first state in the dyad-year (State A) initiated a MID that involved force against the second state (State B). MIDs include all instances in which one country threatens, shows, or uses force against another.

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4 Politically relevant dyads are those that include a major power or contiguous countries, with no more than 400 miles of water between them (Bennett and Stam 2000a; Correlates of War 2008; Stinnett et al. 2002). I omit countries with populations less than 500,000 (Singer, Bremer, and Stuckey 1972).

5 The result is also robust to retaining joiner dyads. Furthermore, while my main sample retains dyads with ongoing MIDs and target-initiator dyads, the result is also robust to dropping them. See Appendix Table A5.

6 The result is also robust to dropping dyads with Britain or France as State B (Table A5), but I prefer to retain these dyads because Britain and France are recipients of extended deterrence from the US, in addition to being providers of extended deterrence for some weaker countries.

7 I use the Side A/B coding in the MID dataset to identify initiators and targets.
(Palmer et al. 2015). Because many MIDs are minor, there is debate over whether all MIDs should be counted as deterrence failures. In counting only MIDs serious enough to involve force in my main dependent variable, I stake out a compromise position, since violent MIDs are less common than non-violent MIDs but more common than fatal MIDs. However, I also show results for Fatal MID Initiation and Any MID Initiation as alternate dependent variables. Given the binary dependent variables, I estimate probit models with standard errors clustered by dyad. As shown in Appendix Table A5, the result is robust to using a rare events model (Tomz, King, and Zeng 1999), but standard probit allows for more post-estimation analysis.

I seek to test how leader-specific signals of support for a country affect the probability that the country is targeted in a MID. Since I argue that travel by the leader of a major power to visit a weaker state is likely to be the strongest leader-specific signal of support, I use these leader visits as my main independent variable. My research assistants and I collected data on these visits from a variety of sources. A full list of US presidential visits was obtained from the Department of State (2016). For other major powers – Russia (or the Soviet Union), China, Britain, and France – we searched for information on leader visits using the Federal Broadcast Information Service (FBIS), Lexis-Nexis, and ProQuest Historical Newspapers databases. We also relied on some existing partial compilations of leader visits, most notably a compilation of Chinese leader visits since 1982 by Li (2015). A full list of sources used is available in the appendix. While the list of leader visits compiled for Russia, China, Britain, and France cannot be considered equally comprehensive as the US list, we identified 1,131 visits by the leaders of these countries between 1950 and 2007, providing a solid basis for analysis.

There are various types of leader visits, including state visits, official visits, private visits, quick stopovers, and multilateral summit meetings, but I treat them all the same for several
reasons. First, this allows me to draw the clearest distinction. The difference between many of these visit types is very subtle. Among the types of visits that commonly occur, visits to attend multilateral summits are most distinct because they involve multiple leaders at once. However, even in this case, the distinction is somewhat blurry because these trips sometimes involve private meetings with the host country leader, and leaders usually attend summit meetings in friendly nations, meaning that summit trips could also be viewed as signals of support. Thus, grouping all visits together avoids placing too much importance on minor or artificial distinctions among visits. In addition, as a practical matter, when searching for visits in the press and secondary sources, it is often difficult to tell exactly what type of visit is taking place, and even the US State Department’s website does not appear to have an entirely consistent nomenclature for categorizing presidential trips.\(^8\) Finally, including all visits together is the most conservative approach because if it is true that some types of visits are less meaningful, then including them all together would bias my results away from significance.

It is not necessarily feasible for a leader to visit every country which he or she supports in every year. Therefore, I use aggregated visit variables in my analysis. My main variable, *Major Power Visits*, is a count of the number of visits from the leaders of all five major powers that State B in each dyad received in the previous five years.\(^9\) In later tests, I break this variable down by different major powers and aggregate over different numbers of years.

\(^8\) For the US, it is at least possible to weed out multilateral summits based on State Department descriptions. I do not find any notable difference in the result after doing this (Table A9).

\(^9\) In the rare cases in which the leader of the same major power visited the same country more than once in the same year, only the first visit is counted.
In addition to visits, I control for other major power signals of support. First, I control for *Major Power Defense Pact*, an indicator variable for whether the US, Russia, China, Britain, or France had a defense pact with State B. I use Gibler’s (2009) coding of pacts because of greater temporal coverage, but Table A5 shows that the result is robust to using the ATOP coding (Leeds et al. 2002). Defense pacts are not highly correlated with visits, as more than half of major power leader visits are made to countries *without* defense pacts. In order to capture the impact of sunk cost signals as well as hand-tying signals, I also include the variable *Major Power Nuclear Deployment*, an indicator for whether the US, Russia, China, Britain, or France deployed nuclear weapons on State B’s territory for purposes of deterrence. I use Fuhrmann and Sechser’s (2014) coding of this, which I updated past the year 2000.

I also control for other factors that affect the probability of MID initiation, including contiguity (Stinnett et al. 2002), distance (Bennett and Stam 2000a), military capabilities, (Singer, Bremer, and Stuckey 1972), and democracy (Marshall, Jaggers, and Gurr 2010). I control for temporal dependence by including the number of years since the last MID initiation in the dyad and its square and cube (Carter and Signorino 2010). Finally, I control for the year of the observation because leader visits become more common over the time.

**Results**

The main results are shown in Table 1. Model 1 is the benchmark model, using *Violent MID Initiation* as the dependent variable. Models 2 and 3 include the same independent variables, but more or less restrictive dependent variables. We see that across all three of these models, *Major Power Visits* has a highly significant negative effect on the probability of being targeted in a MID. This result is strongly in keeping with Hypotheses 1, which predicted the effectiveness of leader-specific signals for deterrence. The effect of visits is also substantively significant.
Figure 1 shows how the average predicted probability of violent MID initiation changes as the number of major power leader visits to State B moves from its minimum to its maximum value, based on Model 1. When a country receives just one visit in the previous five years, its probability of being targeted in a violent MID declines by 18 percent compared to a country with no visits, and the difference is statistically significant. If a country receives at least four visits in the previous five years, which is true of more than seven percent of the sample, its probability of being targeted is less than half that of a country with no visits. This means that visits have a substantively large effect on deterrence.

The results for nuclear deployments and alliances provide an interesting basis for comparison to the results for visits. Like Fuhrmann and Sechser (2014), I find no deterrent effect of nuclear deployments. I find that defense pacts do appear to significantly deter fatal MIDs, the most serious type of dispute considered. However, pacts do not have a significant effect in deterring all MIDs involving the use of force or all MIDs in general. In Models 1 and 2, even one visit causes a greater reduction in the probability of being targeted in a MID than an alliance. This undercuts the potential argument that visits are more significant simply because of greater variation. The insignificance of defense pacts for deterring all but fatal MIDs is probably due to the fact that many of the MIDs are not serious enough to trigger alliance provisions. Therefore, as argued in the theory section, the specificity of circumstances under which defense pacts apply may limit their ability to deter low-level aggression.

In order to explore the relationship between major power leader visits and defense pacts further, I interact these variables in Appendix Table A2. Across all three models, the coefficient for the interaction term is insignificant, indicating that neither variable’s effect is dependent upon
the value of the other. Examining substantive effects confirms the insignificance of the interaction. Graphing predicted probabilities (Figure A1) demonstrates that visits cause a nearly identical change in the probability of a violent MID regardless of whether there is an alliance, and the effect of alliances remains insignificant at all levels of visits. It therefore appears that visits and defense pacts operate as independent deterrent mechanisms. Their deterrent effects do not depend on each other, and visits are a much stronger deterrent to most types of MIDs.

Robustness of the Result

Before breaking down signals of support by different major power senders, I consider the robustness of the main result, using Model 1 as the benchmark model. First, I consider the possibility of bias due to the non-random assignment of the “treatment,” i.e., the signals. The most likely source of bias is that if signals of support are more likely to be sent in cases in which a country is already at high risk of a MID, this could make the signals appear to be ineffective even if they are actually effective. This could explain the insignificant effect of defense pacts in some models. This type of bias would work against finding the significant deterrent effect that I found for visits, so it is probably not a cause for concern about the main result. However, there is at least a slight possibility that bias is operating in the other direction for visits – major power leaders might be more likely to visit countries that are already less likely to experience MIDs, perhaps because it is safer. Therefore, I attempt to reduce the potential for bias due to non-random assignment of both alliances and visits. Although it is not possible to eliminate treatment selection bias entirely, matching can reduce it by creating a sample matched on key observable covariates, similar to what would exist if treatment could be assigned randomly. I use coarsened exact matching (Iacus, King, and Porro 2012), matching on State B’s region, CINC score, regime type, and years since last MID initiation. For the treatment variable, I first use an
indicator for whether State B received at least one major power visit in the previous five years and then an indicator for whether State B has a major power defense pact. Using both treatment variables, I create separate matched samples, and I reestimate the benchmark model in each of them. I find that the coefficient for visits remains negative and significant in both matched samples, while the coefficient for pacts remains insignificant (Table A2).

Next, I investigate whether the results change when I control for signals of support to State A in the dyad. I add a count of major power leader visits to State A as well as indicators for a major power defense pact and nuclear deployment for State A to the benchmark model. I find no notable change in the significant deterrent effect of visits to State B, but I do find that visits to State A also reduce the probability that State A will initiate a violent MID against State B (Table A2). This might suggest some ability of major powers to restrain their protégés through visits.

Another concern might be that major power leader visits to State B are simply acting as a proxy for State B’s importance or prestige in the international system. Within the benchmark model, State B’s CINC score already controls for its importance to some extent, but to further control for this I add State B’s real GDP (Gleditsch 2002), the number of countries that have diplomatic representation in State B (Bayer 2006), and dummies for State B’s region to the model. I find that Asian countries are most likely to be MID targets, wealthier countries are less likely to be targeted, and the level of diplomatic representation has no effect. Despite these additional controls, the deterrent effect of visits remains robustly significant (Table A2).

I perform a variety of other robustness checks. I include fixed effects for dyad, instead of merely clustering the standard errors by dyad (Table A3). Instead of aggregating visits over the previous five years, I use alternate variables aggregating over the previous 10 years or only counting visits in the single most recent year (Table A3). I also vary the sample in various ways
(Table A4): I use a wider sample of all dyads as well as a narrower sample of only dyads that experienced a MID in the last 15 years. Finally, I split the sample into the Cold War and post-Cold War eras. I find a robust negative and significant effect of major power leader visits throughout all of these specification changes.

**Signals from Individual Major Powers**

The previous regressions provided evidence that major power leader visits are helpful for extended deterrence in general, but we might wonder whether visits by the leaders of some major powers have a bigger effect than visits by the leaders of other major powers. There is little similarity in the pattern of visits among major powers, suggesting substantial differences in signaling strategies, which could have implications for signal effectiveness. To examine this, I estimate separate regressions in which I only include visits, defense pacts, and nuclear deployments by one major power at a time. These regressions are set up similarly to Model 1, the benchmark model, with a few exceptions. First, I drop dyads that include the major power that the regression focuses on because it cannot deter or signal support for itself. Second, I include an additional control for the major power’s affinity with State B, coded based on UN voting similarity (Gartzke 2006; Voeten and Merdzanovic 2009). Controlling for affinity helps to rule out the alternate explanation that simply having positive relations with a major power, rather than the specific signal sent by leadership visits, is what aids in extended deterrence.

Estimating separate regressions for signals by each major power also allows me to include more leader-specific signals of support from the United States because data on certain signals are more readily available for the US than for other countries. This allows me to compare

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10 By far the highest correlation in visits (0.46) is between the US and UK. Other correlations are all less than 0.25. The lowest correlation (0.04) is between France and Russia.
the effectiveness of leader visits abroad with other leader-specific signals. The first additional signal that I include is foreign leader visits to the United States, as recorded by the Department of State (2016). The second is statements of support for weaker countries by the US president. The first step in creating this variable was obtaining all public US presidential statements about each country in the world between 1950 and 2007 from the *Public Papers of the Presidents of the United States* (Peters and Woolley 2015). My research assistant and I searched this resource for the name of every country. The search results were downloaded, irrelevant paragraphs were deleted, and the text was grouped by country and year. Next, I used an inductive process of examining word frequencies and words in context to create a dictionary of 19 words (shown in the appendix) that are frequently used by US presidents to express support for another country. Finally, I used the Yoshikoder content analysis program to tally uses of the dictionary words in the statements. This yielded a score for US presidential statements of support for each country-year, which is simply the total number of supportive words used. To minimize bias due to the fact that presidents might make more statements when there is currently a high risk of conflict, I average the score over the previous five years. Because even the average is highly skewed, I use the natural logarithm in my analysis.

The results for the separate major power regressions are shown in Table 2. First examining the effect of visits by major power leaders, we see that the coefficient for visits by the leader of every major power is negative, but US and Russian/Soviet visits have the most significant effect. British visits are also significant, and Chinese visits are somewhat close to significant, while only French visits are far from significant. The particularly strong significance of US and Soviet visits might indicate that signals by these countries carry more weight because of their superpower status. Despite the variation observed, the consistent pattern of a negative
effect of visits seen across all regressions makes it clear that the deterrent effect of major power leader visits shown in Table 1 is not solely driven by any one particular major power, but rather reflects a broader phenomenon.

[Table 2 here]

The effect of defense pacts also varies among major powers. British, French, and Russian pacts have a significant deterrent effect, while the effect of US pacts is insignificant. US alliances may be less effective because the United States signs some alliances for more symbolic reasons (Nieman 2016), and some US allies, such as many Rio Pact members, do not have very close relations with the US. The coefficient for Chinese pacts is slightly significant in a positive direction because China’s only defense pact is with North Korea, a conflict-prone country. The affinity variable is also insignificant across all regressions. This indicates that having good relations with a major power is not sufficient for deterrence. Rather, successful extended deterrence requires a major power to send costly signals of its support for a weaker state.

Finally, we can consider the other leader-specific signals of support sent by the United States. The insignificant results for these signals indicate that neither travel by State B’s leader to visit the US nor US presidential statements of support for State B are effective for deterrence. Of course, there might be bias working against finding a deterrent effect of these signals, if they are more likely to be sent for countries facing greater threats. However, since major power leader visits abroad face the same potential bias and are still significant, it is reasonable to conclude that major power leader visits abroad are the most effective type of leader-specific signal, in keeping with Hypothesis 2.
**Effect of Visits on Intervention**

The results above strongly indicate that visits by the leader of a major power to a weaker country deter the initiation of military disputes against that country. This suggests that potential challengers believe that a major power whose leader has visited a weaker country is more likely to intervene if that country is attacked or harmed. But is this belief based on reality? To answer this question, I briefly examine the effect of leader visits on the probability that a major power will participate in a MID together with a targeted country. I use a dataset of countries targeted on the first day of a MID. Using only countries involved on the first day ensures that most are truly targets. For each of the five major powers, I estimate a separate regression in which the dependent variable is whether the major power participated in the MID on the same side as the target. As independent variables, I include the number of visits from the major power’s leader to the target in the five years before the MID started, an indicator for whether the major power has a defense pact with the target, the major power’s UN voting similarity with the target, and several control variables.

The results are shown in Table 3. For the United States, Britain, and China, visits are a positive and significant predictor of participation in a MID along with the target country, and visits are positive and not far from significant for France. Only Russia is substantially different, showing a far from significant effect of visits. This could possibly be explained by Russia’s mostly non-democratic history, which might mean lower domestic audience costs. On the other hand, China’s non-democratic government does not hinder the predictive power of Chinese visits. Despite the surprising result for Russia, the results as a whole do suggest that visits signal greater willingness of a major power to fight alongside a weaker state. As expected, the regressions also indicate that a defense pact and greater UN voting affinity generally increase the
probability of a major power participating in a MID alongside a target state. It is interesting that affinity is usually a positive and significant predictor of joint MID participation, but was shown earlier not to have a significant impact on deterrence. This suggests that more subtle indicators of affinity between countries are either hard for potential adversaries to observe or not deemed credible, emphasizing the importance of costly public signals, such as visits, in communicating a major power’s priorities.

[Table 3 here]

One caveat regarding these results is that when multiple countries are on the target side (Side B) of a MID on the first day, the MID dataset does not record which country was targeted first. Therefore, some observations for which the dependent variable is coded as one might not truly be cases in which a major power intervened after a weaker state was targeted. This problem can be eliminated by only counting instances when a weaker state was involved on the first day, but the major power joined after the first day. For the United States, the result is robust to this (Table A10), but for other major powers, joining after the first day is too rare an event to be the dependent variable. Despite this limitation, the Table 3 regressions provide at least some initial evidence that leadership visits do signal a major power’s interest in a weaker state’s security.

**Conclusion**

This paper has found support for the argument that leader-specific signals of support contribute to extended deterrence. The results indicate that visits by major power leaders to weaker states decrease the risk that those states will be targeted in military disputes. This finding holds for the visits of all major power leaders aggregated together and also for visits by the leaders of most major powers individually. The finding is robust to a variety of specifications, including matching intended to reduce bias from the non-random assignment of visits to countries.
Furthermore, I find evidence that potential adversaries are correct to interpret major power leader visits as credible deterrent signals because they do appear to help predict whether a major power fights together with a targeted country in a MID. In contrast, I do not find evidence that other leader-specific signals of support, such as hosting weaker states’ leaders or making statements, contribute to extended deterrence. Although these signals have similar attributes to major power leader visits, they are probably not sufficiently costly.

The strong and robust impact of major power leader visits on extended deterrence demonstrates the importance of leader-specific signals of support. Because of the personal and public involvement of leaders in sending these signals, they can remove doubt about a leader’s foreign policy priorities. They also invoke greater personal audience or reputational costs for a leader, increasing credibility. In addition, the flexibility of leader-specific signals allows them to be sent more promptly in response to a threat, and the imprecision of the commitment associated with leader-specific signals might be able to deter a wider variety of provocations. Given these advantages, it is not surprising that leader-specific signals – and particularly major power leader visits, the most costly leader-specific signal – play a substantial role in extended deterrence.

By demonstrating the importance of leader-specific signals, this paper broadens our understanding of which types of signals are relevant to deterrence and international security. Previous research has focused on signals with clear military components, such as defense pacts, arms transfers, and military deployments. This paper shows that a signal does not need an explicit military linkage to effectively contribute to deterrence. A purely informational signal of a major power’s general interest in a protégé’s well-being can be equally, if not more, effective. More broadly, the findings in this paper emphasize the importance of considering different signals of support. Leaders have a wide range of signaling options to choose from, and they all
carry different costs and different risks. Therefore, the ideal signaling strategy may differ among countries and situations. Scholars must take into account a wide variety of signals in order to avoid a distorted view of deterrence and signaling decisions.

There are several directions for future research suggested by this paper. First, researchers could explore the role of leader-specific signals in other contexts, both within the realm of international security and in other issue areas. Second, although my initial testing suggests that major power leader visits are the most effective leader-specific signal, further investigation could be undertaken into whether other leader-specific signals are ever effective. Third, the differences among countries in the success rates of different signals could be further explored. Relatedly, it would be possible to explore the effect of leader-specific signals by leaders of weaker states rather than major powers. Finally, more research could be undertaken regarding why leaders choose one signaling strategy over another.

Regarding policy implications, the results in this paper are generally good news for US presidents and other major power leaders. Compared to alliance treaties, leader travel abroad is relatively easy to arrange. The financial costs of the travel are small compared to the government budget, and while these trips take valuable time out of the leader’s schedule, they also give the leader the opportunity to burnish his or her image as a “statesman” or “stateswoman.” Thus, these visits are a good deal for leaders, allowing them to achieve effective deterrence at a manageable cost. Of course, deterrence sometimes fails, meaning that a leader can face audience or reputational costs for failing to aid a country that he or she visited. This means that leaders should choose which countries they visit carefully and avoid visiting too many countries that they would not assist if attacked or harmed.
References


Table 1: Main Deterrence Regressions

<table>
<thead>
<tr>
<th></th>
<th>(1) Violent MID Initiation</th>
<th>(2) Any MID Initiation</th>
<th>(3) Fatal MID Initiation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Power</td>
<td>-0.089***</td>
<td>-0.077***</td>
<td>-0.055***</td>
</tr>
<tr>
<td>Visits to State B</td>
<td>(0.016)</td>
<td>(0.012)</td>
<td>(0.021)</td>
</tr>
<tr>
<td>Major Power Defense</td>
<td>-0.039</td>
<td>0.007</td>
<td>-0.258***</td>
</tr>
<tr>
<td>Pact with State B</td>
<td>(0.061)</td>
<td>(0.054)</td>
<td>(0.078)</td>
</tr>
<tr>
<td>Major Power Nuclear Deployment in State B</td>
<td>0.078</td>
<td>-0.011</td>
<td>0.250*</td>
</tr>
<tr>
<td>Contiguity (States A &amp; B)</td>
<td>0.535***</td>
<td>0.476***</td>
<td>0.784***</td>
</tr>
<tr>
<td>Distance (States A &amp; B)</td>
<td>-0.088***</td>
<td>-0.098***</td>
<td>-0.064**</td>
</tr>
<tr>
<td>Capabilities, State A</td>
<td>1.677***</td>
<td>2.275***</td>
<td>1.536**</td>
</tr>
<tr>
<td>Capabilities, State B</td>
<td>11.317***</td>
<td>11.920***</td>
<td>6.688</td>
</tr>
<tr>
<td>Relative Capabilities</td>
<td>0.309*</td>
<td>0.295*</td>
<td>0.434</td>
</tr>
<tr>
<td>Democracy, State A</td>
<td>-0.071</td>
<td>-0.022</td>
<td>-0.016</td>
</tr>
<tr>
<td>Democracy, State B</td>
<td>0.151*</td>
<td>0.125*</td>
<td>0.110</td>
</tr>
<tr>
<td>Joint Democracy</td>
<td>-0.313***</td>
<td>-0.268***</td>
<td>-0.456***</td>
</tr>
<tr>
<td>Peace Years</td>
<td>-0.058***</td>
<td>-0.062***</td>
<td>-0.066***</td>
</tr>
<tr>
<td>Peace Years Squared</td>
<td>0.001***</td>
<td>0.001***</td>
<td>0.001***</td>
</tr>
<tr>
<td>Peace Years Cubed</td>
<td>-0.0000003***</td>
<td>-0.0000003***</td>
<td>-0.0000005***</td>
</tr>
<tr>
<td>Year of Observation</td>
<td>0.001</td>
<td>0.004**</td>
<td>-0.001</td>
</tr>
<tr>
<td>Observations</td>
<td>82,225</td>
<td>82,213</td>
<td>82,258</td>
</tr>
</tbody>
</table>

Note: These are probit models with standard errors clustered by dyad. The number of observations differs because joiners, which are excluded from the sample, are defined differently based on the dependent variable shown at the top of each column. * p < .10, ** p < .05, *** p < .01
Table 2: Individual Major Power Regressions

<table>
<thead>
<tr>
<th></th>
<th>US</th>
<th>UK</th>
<th>France</th>
<th>Russia</th>
<th>China</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visits to State B from</td>
<td>-0.165***</td>
<td>-0.116**</td>
<td>-0.019</td>
<td>-0.236***</td>
<td>-0.065</td>
</tr>
<tr>
<td>Power at Top of Column</td>
<td>(0.034)</td>
<td>(0.055)</td>
<td>(0.041)</td>
<td>(0.052)</td>
<td>(0.048)</td>
</tr>
<tr>
<td>State B Defense Pact with</td>
<td>0.111</td>
<td>-0.194**</td>
<td>-0.194**</td>
<td>-0.283**</td>
<td>0.378*</td>
</tr>
<tr>
<td>Power at Top of Column</td>
<td>(0.080)</td>
<td>(0.095)</td>
<td>(0.093)</td>
<td>(0.140)</td>
<td>(0.226)</td>
</tr>
<tr>
<td>Nukes in State B from</td>
<td>0.021</td>
<td>0.216</td>
<td></td>
<td></td>
<td>0.147</td>
</tr>
<tr>
<td>Power at Top of Column</td>
<td>(0.112)</td>
<td>(0.238)</td>
<td></td>
<td></td>
<td>(0.225)</td>
</tr>
<tr>
<td>Travel of State B’s Leader to USA</td>
<td>-0.059</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>US Presidential Words of Support for State B</td>
<td>0.514</td>
<td>(0.954)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State B’s Affinity with</td>
<td>-0.123</td>
<td>-0.094</td>
<td>-0.164</td>
<td>0.048</td>
<td>0.184</td>
</tr>
<tr>
<td>Power at Top of Column</td>
<td>(0.081)</td>
<td>(0.108)</td>
<td>(0.120)</td>
<td>(0.088)</td>
<td>(0.181)</td>
</tr>
<tr>
<td>Observations</td>
<td>75,526</td>
<td>68,553</td>
<td>68,547</td>
<td>75,539</td>
<td>75,214</td>
</tr>
</tbody>
</table>

Note: These are probit models predicting Violent MID Initiation. Standard errors are clustered by dyad. The control variables, which are omitted from the table, perform similarly as in Table 1. The number of observations differs because of some missing affinity values and because dyads with the US, Russia, or China as State B are dropped from every model, whereas dyads with Britain or France as State B are only dropped from their own models.
Table 3: Probit Models Predicting Major Powers’ MID Participation on the Side of State B

<table>
<thead>
<tr>
<th></th>
<th>US</th>
<th>UK</th>
<th>France</th>
<th>Russia</th>
<th>China</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visits to State B from</td>
<td>0.487***</td>
<td>0.182**</td>
<td>0.150</td>
<td>-0.070</td>
<td>0.724**</td>
</tr>
<tr>
<td>Power at Top of Column</td>
<td>(0.087)</td>
<td>(0.086)</td>
<td>(0.105)</td>
<td>(0.178)</td>
<td>(0.294)</td>
</tr>
<tr>
<td>State B Defense Pact with</td>
<td>0.309*</td>
<td>0.527*</td>
<td>0.356</td>
<td>0.574**</td>
<td></td>
</tr>
<tr>
<td>Power at Top of Column</td>
<td>(0.169)</td>
<td>(0.278)</td>
<td>(0.276)</td>
<td>(0.254)</td>
<td></td>
</tr>
<tr>
<td>State B’s Affinity with</td>
<td>0.411***</td>
<td>2.323***</td>
<td>3.101***</td>
<td>1.231***</td>
<td>-1.704***</td>
</tr>
<tr>
<td>Power at Top of Column</td>
<td>(0.120)</td>
<td>(0.855)</td>
<td>(1.028)</td>
<td>(0.319)</td>
<td>(0.623)</td>
</tr>
<tr>
<td>Capabilities, State B</td>
<td>-22.807***</td>
<td>-38.222***</td>
<td>-32.373***</td>
<td>-12.154***</td>
<td>-15.480***</td>
</tr>
<tr>
<td></td>
<td>(7.897)</td>
<td>(9.789)</td>
<td>(7.855)</td>
<td>(3.702)</td>
<td>(54.102)</td>
</tr>
<tr>
<td>Total Capabilities, Side A</td>
<td>2.322</td>
<td>-1.395</td>
<td>-3.101</td>
<td>0.522</td>
<td>3.526</td>
</tr>
<tr>
<td></td>
<td>(1.743)</td>
<td>(3.295)</td>
<td>(4.250)</td>
<td>(3.005)</td>
<td>(3.147)</td>
</tr>
<tr>
<td>MID Hostility Level</td>
<td>-0.361*</td>
<td>-0.546**</td>
<td>-0.531*</td>
<td>-0.428</td>
<td>0.049</td>
</tr>
<tr>
<td></td>
<td>(0.214)</td>
<td>(0.252)</td>
<td>(0.274)</td>
<td>(0.297)</td>
<td>(0.359)</td>
</tr>
<tr>
<td>Polity, State B</td>
<td>0.010</td>
<td>-0.020**</td>
<td>-0.017</td>
<td>0.043</td>
<td>-0.194***</td>
</tr>
<tr>
<td></td>
<td>(0.018)</td>
<td>(0.009)</td>
<td>(0.015)</td>
<td>(0.029)</td>
<td>(0.060)</td>
</tr>
<tr>
<td>Observations</td>
<td>1,376</td>
<td>1,341</td>
<td>1,365</td>
<td>1,376</td>
<td>1,358</td>
</tr>
</tbody>
</table>

Note: Standard errors are clustered by MID. Chinese pacts are omitted because of insufficient variation. The number of observations differs because of some missing values for UN voting affinity. *p < .10, **p < .05, ***p < .01
Figure 1: Substantive Effect of Visits on Deterrence

Note: The dots denote the predicted probability of being targeted, which is calculated by averaging predicted probabilities for every observation in the sample. The bars denote 95 percent confidence bounds. The histogram in the background shows the distribution of the number of major power leader visits.