2

Predicting Chinese Foreign Policy

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Introduction

This dissertation chapter examines signaling credibility in Chinese foreign policy—whether China broadcasts its foreign policy intentions to the United States, and whether it follows through on those threats and warnings. I study this question with data and methods from quantitative text analysis, modeling how Chinese bellicosity influences the probability of conflict initiation with the United States using two new datasets of all Chinese press statements on and diplomatic interactions with the United States over 1949 to 2010. I define bellicosity as the proportion of negative words in articles about the United States in the *People's Daily* (人民日报), China's official newspaper. While this is a simplification, it is a useful one—the proportion of negative words, on aggregate, indicates criticism of the United States. I define signaling credibility as the marginal effect of Chinese bellicosity on the likelihood of Chinese-initiated material conflict within a month. Signaling credibility is higher if China follows up on its bellicosity within a month; lower if it does not. It measures whether rumblings about the United States presage an increase in real-world hostility.

I find that China's bellicosity toward the United States is a reliable predictor of conflict. If Chi-

nese bellicosity doubles, the probability of Chinese-initiated material conflict in the following month increases by nearly 50%. Therefore, the *People's Daily* should be carefully followed by policymakers.

Second, China's foreign policy is (at least partly) driven by domestic politics. Unemployment is concerning to the Party as a harbinger of public discontent. When unemployment rises, the Party is more likely to follow through on threats abroad to satisfy its restive domestic audience. This is particularly true for urban unemployment, which is historically interesting as the Party long claimed to be the vanguard of peasant interests, and economically interesting as it suggests urban bias in autocratic audience costs.

Third, China's paramount leaders have varied in signaling credibility. Mao was generally incredible. Many Chinese historians have lamented US policymakers' failure to respond to clear warnings in the *People's Daily*, such as red lines in the lead up to the Korean War. This study suggests why Mao-era US policymakers discounted these warnings. When Mao intended escalation, he reliably signaled his intent—but when he didn't intend escalation, he frequently bluffed anyway. Mao's foreign policy suffered from what statisticians call Type I error—false positives, or, crying wolf. There were many false positives in Mao's foreign policy, even if there were few false negatives. Mao was at least twice as bellicose than any Chinese leader thereafter, even though he did not engage in much more conflict. This decreased his signaling credibility to the point where US policymakers chose to disregard some warnings even when perceived. Mao was, however, China's only incredible paramount leader. Deng Xiaoping, Jiang Zemin, and Hu Jintao maintained high signaling credibility.

Fourth, Chinese military capabilities have little discernible effect on China's signaling credibility. This null finding is important in an era of speculation over rising Chinese power. Increases in Chinese military personnel or military expenditures have no effect, while increases in iron and steel production decrease credibility; none of these effects is statistically significant.

Finally, closer relations bode well for signaling credibility. States, I theorize, find it less costly to deceive enemies than allies. Therefore, there should be less bluffing between states that are allies (or which at least share common interests). Looking at the post-1949 triangle of great powers in East Asia—the United States, China, and the USSR—I find that as US and Chinese alliance portfolios grow more similar, China's signals to the United States become more credible. As Chinese and Soviet (Russian, after 1989) alliance portfolios grow more similar, China's signals to the US become less credible. All of this suggests that states investing in improved relations act in more credible ways.

Below, I discuss how this study contributes to international relations theory, autocratic politics, and China area studies, why the *People's Daily* is a good barometer of Chinese foreign policy intentions, and how the semantic and event datasets were built with techniques from computer science. I then show how unemployment, military capabilities, leaders, and alliances affect China's signaling credibility, and conclude with next steps.

Literature 1: International Relations Theory

This chapter's contribution to international relations theory is that dyads with more similar alliance portfolios signal more credibly than dyads with less similar alliances. There has been a great deal of research on the impact of alliances on peace, but little on the impact of alliances on signaling. My

observations here are limited to the US-USSR-China triangle, but it is clear within this triangle that when two powers grew closer, they became less willing to bluff each other and more willing to bluff the odd man out.[2] This makes sense if viewed in terms of investing in mutual interests, which Mao and Deng did as they leaned away from the Soviet Union and towards the United States.

We know from economics that a firm's reputation is a strong signal of its likelihood of cooperation in future agreements.[3] Firms with good reputations are more likely to be selected for future deals or mergers.[4] So too with states: historical reputations for alliance reliability make states more attractive as allies.[5] I argue that if a state has an interest in strengthening a condominium of interests, it will invest in building its credibility.[6]

Sun Tzu described the necessity of assessing a potential ally's type: "We cannot enter into alliances until we are acquainted with the designs of our neighbors."[7] Andrew Kydd captured this dynamic formally in his study of trust formation.[8] His costly signaling theory of reassurance proposes that states must engage in costly signals to convince a potential cooperator of its trustworthiness. More formally, for events below a certain cost, there is a pooling equilibrium where expansionist and security seeking states emit the same cooperative signals. Above a certain cost, there is a separating equilibrium where only security seeking states are willing to pay the cost of cooperative signaling. Kydd's example is Gorbachev: only after repeated unilateral concessions such as the 1987 Intermediate-Range Nuclear Forces Treaty, the 1988 withdrawal from Afghanistan, and the 1989 noninterference in Eastern Europe's revolutions was Gorbachev able to convince the West of his cooperative intent.

I theorize that states seeking to improve relations engage in more truthful signaling, just as they engage in more cooperative actions. "Truthful" means standing behind one's word rather than playing nice—recall that I am studying bellicosity's marginal effect on the likelihood of conflict initiation. So even as China edged nearer to the United States in a desire to ally against the Soviet Union, so too did it stand firmer behind its warnings and threats to the United States. This suggests a new (to my knowledge) theoretical component to alliance formation. Not only must prospective allies act cooperatively, as Kydd proposed, but they must convey that they stand behind their statements. In other words, they must simultaneously signal that they are cooperative and not pushovers. The implication is that states seeking to improve relations are particularly credible.

Literature 2: Autocratic Politics

There has been relatively little research on domestic pressures on autocratic foreign policy. Some work has focused on the dire post-war loss or post-tenure fate of dictators and how that conditions their foreign policy choices.[9] Because autocrats are less likely to be punished by the public for failures, they are more willing to gamble on war. There is some evidence of variation in conflict initiation among authoritarian regimes, as attributed to regime types and audience costs.[10] Jessica Weeks argues that three factors contribute to autocratic audience costs: "whether domestic political groups can and will coordinate to punish the leader; whether the audience views backing down negatively; and whether outsiders can observe the possibility of domestic sanctions for backing down."[11] In democratic politics, the field is much larger.[12]

In finding that the Party alters foreign policy in response to unemployment, this chapter supports the theory that domestic pressures can influence autocratic foreign policy.[13] There is a great deal of anecdotal evidence that the Party fears domestic punishment for its foreign policy choices—that is, that audience costs are important in China.[14] But this is the first evidence (to my knowledge) that something more mundane, unemployment, sways Chinese foreign policy. Moreover, there is evidence of urban bias in how that unemployment affects Chinese foreign policy. Urban bias—the theory that developing countries cater to urban rather than rural interests, and tend to tax agriculture to finance industrial development—has a long history.[15] One early work found that although 65% of people in developing countries are involved in agriculture, only 20% of investment goes to agriculture.[16] Pre-reform era China suffered greatly from urban bias; however, in the reform era China launched policies to reinvigorate rural development. Starting in 1979, the Party raised crop prices, decollectivized agriculture, and initiated a dual-track agricultural purchasing system that allowed productive farmers to profit and unproductive farmers to persist. As a result, grain production grew 27% between 1978 and 1983.[17] By 1984, state granaries were so full that "grain lay rotting on the roadside for lack of adequate storage facilities."[18]. In 1993, Jean Oi wrote, "Resources are being drained from the rural areas, but unlike Africa, the most dynamic growth is now occurring in the rural sector of the economy, not the urban sector. …The improvement in rural conditions reflects a change in the central state's development strategy and ideology… The impetus for these changes is self-preservation of the state and the Chinese Communist Party."[19]

This chapter provides evidence that despite the Party's (originally) rhetorical and (recently) economic commitment to rural development, the constituency to which it responds in foreign affairs is urban. The implication is that autocracies' foreign policies respond not to public discontent broadly construed, but to discontent among important segments of the unfranchised population. The response appears diversionary, with the Party standing behind its foreign threats more strongly in the face of urban unemployment.

Literature 3: China Area Studies

This chapter also contributes to the unsettled debate on signaling and misperception in US-China relations. Many US-China scholars judge that the two sides fail to effectively signal their intentions. They point to ample case study evidence. In the Korean War, China's warnings to the United States against crossing the 38th parallel were dismissed because they were indirect, oral, and conveyed by the Indian ambassador to China, whom US policymakers regarded with suspicion. In the Taiwan Strait crises of 1954-1955 and 1958, Beijing and Washington conducted "megaphone diplomacy" through press conferences, speeches, and media.[20] One observer comments, "this situation impaired each side from understanding the other's goals, actions, and domestic politics."[21] In the Vietnam War, Beijing signaled through third parties: journalist Edgar Snow, the president of Pakistan, and the British chargé d'affaires. With the Korean War in mind, the two sides achieved a tacit understanding that they did not want to fight directly, but still, "The lack of a trusted, direct channel of communication meant that neither side could clarify the meaning of a signal with a high degree of reliability."[22]

Normalization happened, but, the story goes, clear communication did not. In the 1995-1996 Tai-

wan Strait crisis, US policymakers distrusted Chinese counterparts because they relied on talking points rather than candid discussion. Then-NSC Director for Asian Affairs Robert Suettinger wrote, "Communications with PRC officials, even those with Liu Huaqiu, did not impart a sense of confidence that the Chinese government was being as candid as the United States about its goals and intentions."[23] In the 1999 embassy bombing crisis, signals were haphazard despite the crisis management infrastructure the two sides had built. Former Assistant Secretary of State for East Asian and Pacific Affairs Kurt Campbell judged that the incident

> must be considered as a case study on the limits of crisis management. Preoccupied senior US decision makers took excessively long to address the issue, Chinese officials purposefully ignored the tools of modern diplomacy (such as the hotline), the PRC government initially inflamed rather than restrained public protests, the North Atlantic Treaty Organization's (NATO's) requirements for operational secrecy prevented a timely sharing of what transpired and why, and both capitals failed to appreciate how badly the incident and its aftermath would scar future attitudes toward their bilateral relationship.[24]

One member of the American interagency crisis working group said,

> I knew that this was an accident, an operational fluke, but understanding why it happened and explaining this to the Chinese was something completely different. I do not recall many other times during my tenure in government feeling so frustrated by secrecy and bureaucratic incompetence as during the Chinese bombing incident. It was just a disaster.[25]

During the 2001 EP-3 spy plane collision crisis, China again refused calls on the emergency hotline. Zhang Tuosheng suggests that "The existing communication channels work effectively when bilateral relations are in harmony. However, in times of emergencies, such channels often become much less reliable."[26]

Within six decades, then, China and the United States have fought a direct war in Korea, a proxy war in Vietnam, and have weathered five major crises (the Belgrade embassy bombing, the EP-3 spy plane collision, and three Taiwan Strait flareups). Therefore, many scholars and practitioners conclude that something has systematically erred in US-China signaling.

However, others point to very clear signaling protocols. Steve Chan delineates five stages of Chinese crisis signaling: (1) probing, which occurs because the Chinese belief system does not assume enemy statements are true, and takes the form of undisguised border patrols, troop movements, or base expansions; (2) warning, such as belligerent statements and minor clashes; (3) demonstration, taking the form of a limited attack followed by a short pause; (4) attack; and (5) detenté.[27] Paul Godwin and Alice Miller argue that Beijing has a well defined calculus of threat and retaliation signals, which, they argue, was used in every major use of Chinese force: in 1950 Korea, the 1961-1962 Sino-Indian border dispute, the 1968-1969 Sino-Soviet border dispute, and China's attack on Vietnam in 1979. It was also used in several successful deterrence cases that did not result in the use of force: China's response to increasing

US combat in Vietnam in 1965-1968 and the 1991 debates in Taiwan about ROC sovereignty. They comment:

> Beijing implements this deterrence calculus by a carefully calibrated hierarchy of official protests, authoritative press comment, and leadership statements. If the crisis persists and Beijing perceives its interests are not satisfactorily taken into account, its statements escalate in level and may include at first implicit and thereafter increasingly explicit warnings that it may use military force to achieve its goals. This approach has been employed consistently despite the sweeping changes in the PRC's place in the international order, the proliferation of foreign policy instruments at its disposal, the more complex crisis decisionmaking process and domestic political environment, and the dramatic evolution in the Chinese media over the decades.[28]

In fact, both claims hold water—simply in different eras. Chinese signaling was incredible under Mao, and credible thereafter. Case study evidence on Chinese bluffing dates primarily from the Mao era. Mao's penchant for quoting Sun Tsu was unfortunate: parallels between Sun Tsu's high opinion of deception and current Chinese foreign policy are as appropriate as those between the *Prince* and current US foreign policy. The first camp is correct in documenting much distrust in post-Mao US-China relations; but this is par for the course in relations between competitors. The second camp is correct in that China has a well defined calculus of threat and retaliation signals. It has existed from Mao to the present; it was simply obscured in the Mao era by Type I errors.

Having discussed this chapter's relationship to international relations theory, autocratic politics, and the debate on Chinese signaling, I now explain why a public source can forecast short term Chinese foreign policy behavior.

The *People's Daily*

The *People's Daily* is well known to be a Party mouthpiece. As the 1962 Sino-Indian border war neared, Mao personally directed the newspaper's efforts to slander India. After New Delhi delivered Beijing a diplomatic slap in the face by welcoming thousands of Tibetan refugees in April 1959, Mao ordered Xinhua News to issue a commentary condemning "Indian expansionists." He personally revised the draft commentary twice. At a Politburo Standing Committee meeting on April 25, he advised editors not to fear being too sharp. The editorial finally appeared on May 6, 1959, entitled "The Revolution in Tibet and Nehru's Philosophy."[29] A year later, a since-declassified Ministry of Foreign Affairs cable instructed Chinese embassy staff to take note of an editorial entitled "Exposing America's Deceit" which "clarifies our nation's stance on nuclear tests."[30] Zhang Baijia documents how the *People's Daily* was instrumental in broadcasting the Chinese government's Vietnam policy to the United States, and in coordinating a tacit agreement to avoid direct military conflict.[31]

Chinese editorials are often hyper-critical of US foreign policy. As a young intern at the US Embassy in Beijing, I ended most mornings discomfited by the shrill charges of American hegemonism in my assigned reading of the day's Chinese newspapers. Scholars have noted that China's "proclivity

for verbal belligerence" has made it difficult for China's adversaries to "discriminate between real and phony threats."[32] In reality, the fluctuation in that belligerence matters greatly, and is a reliable indicator of short-term Chinese foreign policy. These fluctuations can be distilled with quantitative text analysis.

Semantic Data

The *People's Daily* corpus contains all 52,226 articles with the word "American" (美) in the title published between 1946 and 2012. The corpus was scraped from the internet and formatted for text analysis with the programming language Python. Natural language processing in Chinese presents special difficulties. Chinese words are generally composed of more than one character but sentences do not have spaces separating characters. Dictionary-based algorithmic word segmenting is required, which separates a string of characters into words based on likely patterns. Several segmentation programs are available and are generally very accurate. [33] I segmented the articles with the evocatively named Python module *jieba* (in Chinese, it means "to stutter"). The texts were processed into a "bag of words" by eliminating punctuation and numbers. I removed stopwords (like "if," "and," and "the") based on a standard list of 506 Chinese terms.[34] The standard processes of conversion to lowercase and Porter stemming are not applicable to Chinese.

Documents were filtered through dictionaries to get the proportion of bellicose words in each document; this is called dictionary-based semantic analysis. I used a valence lexicon of 4,370 negative words from HowNet, which provides several Chinese sentiment lexicons.[35] There are two important assumptions here. First, that negative words capture bellicosity. I have no parry to objections here: if unsuitable, so the whole work. Second, that the fraction of pessimistic words in an article about the United States measures bellicosity *toward* the United States. There are bound to be negative words in each article that do not reference the United States. Given the bag of words assumption, it is impossible to tell which. However, this is unproblematic because I am interested in how negativity about the United States changes over time. The random share of negative words in each article that do not pertain to the United States should not systematically vary and can be safely ignored.

Trends in Chinese press sentiment over 1949-2012 are shown below. This analysis focuses on bellicosity, but I also show trends on nationalism, friendliness toward the United States, and extremism. Nationalistic terms were brainstormed with Iain Johnston and Daniela Stockmann and appear in the appendix. The optimism dictionary is taken from the Chinese-language HowNet lexicon. The extremism dictionary is translated from the Harvard General Inquirer. Figure 2.1 shows one year moving averages; Figure 2.2 shows the raw daily data.

Given the abundance of language, the percentage of dictionary hits in any given article is low. However, clear trends emerge. *People's Daily* commentary on the United States was 2-3 times more bellicose during the Mao era than thereafter. Bellicosity rose during the Cultural Revolution and fell only with normalization in the early 1970s. As Mao ailed and the radical Gang of Four seized power, bellicosity spiked. After the Gang was deposed and Deng asserted power, bellicosity dwindled for next three decades. Bellicosity increased after the 1999 embassy bombing scandal and the War in Iraq, which

China soon judged hegemonic. Yet interestingly, China did not adopt a bellicose stance following the US response to Tiananmen, which George H.W. Bush sought to moderate in the face of congressional demands for recrimination.

Nationalism spiked in the Gang of Four era and after Mao's death, as the Party reasserted legitimacy after the death of its strongman. It fell to new lows as Deng focused on pragmatism and economic development. With the launch of the Patriotic Education Campaign in the 1990s, nationalism began to rise. Nationalism spiked in the early 2000s during the EP-3 spy plane collision scandal. It is more salient in the current era than it has been since the Mao era—a fact that should give pause to China watchers.

Amity towards the United States is not the mirror image of bellicosity. Trends over 1949-1989 are not particularly distinct. Amity declined following the US reaction to Tiananmen and rose sharply in the 2000s. In 2008-2010, Chinese amity toward the United States was some of the highest it has ever been.

Trends in extremism correspond to what Cultural Revolution scholars would expect: it rose precipitously in the early 1950s and in the late 1960s, reflective of propagandistic language. Extremism fell sharply with normalization and continued at middling levels throughout the mid-1970s and 1980s. In the 1990s, extremism reached an all time low. Since then it has been on the rise. In the late 2000s, extremism—perhaps shockingly—reached Cultural Revolution levels.

Diplomatic Event Data

Journalists have been reporting affairs of state since the invention of the printing press. One American newspaper—the *New York Times*—is remarkable in that its entire published record exists online, covering 1851-2010. Other papers exist online, but none with such broad historical coverage. I created the Global Diplomacy Dataset by digitizing all articles on foreign affairs in the *New York Times*. All 1.3 million articles with nation states in the title were downloaded.[36] [37] [38] The event data used in this study are a subset of the Global Diplomacy Dataset: the 2,293 day-level interactions between the United States and China over 1949-2010.

Each article in the corpus was classified as one of three topics with supervised learning: political/military, economic, or not applicable (NA). The first two topics approximate "high" and "low" politics. NA articles include sports, cultural affairs, and obituaries. 1,000 articles were randomly drawn from the corpus and human coded for topic. They were then processed as standard: words were lowercased and symbols, numbers and stop words removed. A linear support vector classifier—generally considered the best performing classification model in machine learning—used the relationship between training set document words and labels (captured in a tf-idf matrix) to generate topic labels for the rest of the documents in the corpus. The linear SVC model achieved 75.3% accuracy in tenfold cross validation. In machine learning, this is considered high accuracy.[39] The NA articles were discarded; 969,398 remained—all unique articles, classified as discussing high or low politics.

Interstate events were extracted from the articles with Textual Analysis By Augmented Replacement Instructions (TABARI), computational linguistic software that recognizes country-verb-country patterns in sentences: for example, `US praises China` or `China condemns United States`.[40]

Event types are taken from the CAMEO ontology, which focuses on interstate behavior and includes nearly 300 types of interstate interactions, from rhetorical exchanges to material cooperation.[41] [42] Interstate cooperation includes, for example, one state praising another or rallying support on behalf of another. It includes apologies, the granting of diplomatic recognition, and the conclusion of formal agreements. Conflict, in turn, includes demands, threats, and rejections between states. It includes the cancellation of planned meetings, the reduction of formal relations, the mobilization of armed forces, and—of course—actual fighting. Per standard practice, events are labeled as instances of material cooperation, verbal cooperation, verbal conflict, or material conflict. The verbal/material distinction reflects events that are speech acts versus actions. Event types appear in Table 2.1.

It is appropriate to discuss the strengths and limitations of any new dataset. Its strengths include the following. First, it is by far the most historically comprehensive event dataset to date. Other day-level IR event datasets exist, such as Gary King and Will Lowe's Ten Million Events,[43] but they lack historical range, with most extending back only into the 1990s.[44] IR datasets with great historical range do exist, such as the Militarized Interstate Dispute project,[45] but they are censored in the sense that they only contain major conflictual events. This is the first dataset that will allow a comprehensive study of cooperation and conflict over 1851-2010. In particular, the verbal and cooperative aspects of international relations remain seriously understudied.

Second, introducing topic classification to event data has a number of advantages—first among them, eliminating non-random biases. Existing event datasets have done an insufficient amount to eliminate sports articles, which contain language like "Di Maria dazzles as Argentina crush Germany."[46] I find that mean interstate conflict is four times higher when sports articles are not excluded. Other event data scientists have pointed to the problem of sports articles before, but this analysis highlights the tremendous bias they introduce. Keyword searches to eliminate sports articles—occasionally but not always used in the event data field—do not perform nearly as well as classification. Other topic labels—such as cultural activities—also eliminate several common problems in event data. For example, World War II commemorations often appear in event datasets as annual military conflict between the United States and Japan. Picking up on words like "parade," "honor," and "veterans," classification notes these articles as cultural and deletes them from the corpus.[47] And obviously, a wide range of scholars have pointed out that states face different incentives for cooperation and conflict in high and low politics.

The Global Diplomacy Dataset faces several limitations. First, it is single source. The *New York Times* is an American newspaper; thus, non-Western events are covered less frequently than Western events. If reporters are decently patriotic, they may be liable to report US cooperation more and foreign cooperation less. Future dissertation work, discussed in the conclusion, will address these biases. Second, it is temporally biased. A great deal more news is reported nowadays than in the 1800s; as such, it appears that diplomacy has grown more frequent. While diplomacy may have been aided by technology and prosperity, the 24/7 news cycle is undeniable. As such, time trends are necessary in the analysis of this data. But more frequent reporting on international relations does not imply bias in reporting different *kinds* of events. Finally, several studies have addressed the general limitations of text as data.[48]

Trends in Chinese event initiation are shown in Figure 2.3. The trend line pictured is the CAMEO

score for mean Chinese event initiation, with a five year moving average. As to be expected, local minima are the Korean War; the Cultural Revolution; and post-Tiananmen—these represent the periods of highest Chinese hostility towards the United States. Cooperation soared in the mid 1970s, peaked in the early 1980s, and regained robustness in the 2000s. In 2010, Chinese behavior toward the United States was about as cooperative as it was in the early 1980s and late 1990s. A CAMEO score of zero represents neutral behavior; therefore, China has tended more toward cooperation than conflict with the United States over the period, and mean cooperation has been increasing.

Control Variables

In assessing the predictive power of bellicosity on the likelihood of conflict, I control for several variables. I control for Chinese and US conflict initiation last month, since they presumably condition Chinese bellicosity and action this month. Urban and rural employment statistics are drawn from the *China Compendium of Statistics* (新中国五十五年统计资料汇编) for 1949-2004 and the *China Statistical Yearbook* (中国统计年谱) for 2005-2012. I compute employment as the number of urban (rural) employed individuals divided by the urban (rural) population. As such, employment figures appear low, because they are out of total population instead of the workforce. China does not provide the latter statistic for this period of study. The urban consumer price index is also drawn from these sources and covers 1951 to 2008. Military personnel, military expenditures, and iron and steel production over 1949-2007 are from the Correlates of War dataset. GDP per capita between 1949 and 2010 is from the Maddison Project.[49] I control for different Chinese paramount leaders: Mao Zedong (1949-1976), Deng Xiaoping (1976-1989), Jiang Zemin (1989-2004), and Hu Jintao (2004-2012).[50] Due to Mao's idiosyncrasies, I include an interaction term for *bellicosity × regime* in all models. *S* scores, a measure of alliance portfolio similarity, are from Curtis Signorino and Jeffrey Ritter.[51] Per this score, "two states' alliance portfolios are similar to the extent they share the same alliance commitments with each of the members of the international system."[52] I control for alliance portfolio similarity between China and the United States and between China and the Soviet Union (Russia after 1989). These data cover 1949-2001 only.[53]

Empirical Analysis

I use logit models to estimate the effect of bellicosity on the likelihood of Chinese conflict initiation. "Effect" is properly understood as predictive power: whether bellicosity predicts conflict initiation, not whether it causes it. I assume a binomial distribution of outcomes, in which China initiates an act of conflict against the United States in a given month or not:

$$y_t = \begin{cases} 1, & \text{if China initiates conflict toward the United States in month } t \\ 0, & \text{otherwise.} \end{cases} \tag{2.1}$$

On average, China initiates 0.168 material conflicts per month between 1949 and 2010, or roughly one per year. Dichotomizing conflict initiation is unproblematic, because only 13 months witnessed

the initiation of two material conflicts and only 2 months witnessed the initiation of three. I estimate the following model:

$$
\begin{aligned}
logit(\pi_t) = \; & chineseConflictInitiation_{t-1} \\
& + americanConflictInitiation_{t-1} \\
& + bellicosity_{t-1} \\
& + \Delta bellicosity_{t-1} \\
& + urbanEmployment_{t-1} \\
& + ruralEmployment_{t-1} \\
& + GDPperCapita_{t-1} \\
& + militaryPersonnel_{t-1} \\
& + militaryExpenditures_{t-1} \\
& + ironAndSteelProduction_{t-1} \\
& + S_{PRC-USA t-1} \\
& + S_{PRC-USSR t-1} \\
& + urbanCPI_{t-1} \\
& + regime_{t-1} \\
& + bellicosity \times regime_{t-1} \\
& + bellicosity \times \Theta_{t-1} \\
& + \eta,
\end{aligned}
\tag{2.2}
$$

where π_t is the probability of China initiating conflict toward the United States in month t, η is a constant, and $bellicosity \times \Theta$ is the interaction of bellicosity and the selected variable being studied.

Recall that the effect of bellicosity on the probability of military conflict can be interpreted as signaling credibility. In successive figures, I show how signaling credibility varies over different levels of the selected variable Θ: urban employment, rural employment, military expenditures, military personnel, iron and steel production, paramount leaders, and alliance portfolios. Each figure is associated with a different selected variable Θ. The slope of the black line indicates signaling credibility (where steeper positive slope is more credible) and the red lines indicate the 95% confidence interval.

The first finding is that bellicosity strongly predicts short term conflict escalation. Figure 2.4 shows the relationship between bellicosity and the probability of Chinese conflict initiation, holding control variables at their mean. If bellicosity doubles, the probability of conflict increases by approximately 50%.

The second finding is that there appear to be urban autocratic audience costs in Chinese foreign policy. Figure 2.5 shows the marginal effect bellicosity on conflict, varying over urban employment. (i.e., Θ is urban employment here.) Each panel shows a different level of urban employment; from zero (top left) to one (bottom right). The employment level in each panel is shown by the red line in the title

bar. The marginal effect of bellicosity on conflict initiation likelihood is modeled at this level. One can see that as employment rises, the marginal effect decreases. Because the marginal effect of bellicosity on conflict initiation likelihood is synonymous with signaling credibility, this means that as employment falls, signaling credibility rises. For China, unemployment is positively related to signaling credibility. Figure 2.6 depicts how signaling credibility varies with rural employment. The effect is attenuated compared to urban employment. When rural unemployment is high (top left), the slope of the line is less steep than for urban unemployment. Chinese signaling credibility is less strongly associated with rural unemployment than urban unemployment.

The third finding is that Chinese military capabilities seem to have no effect on signaling credibility. Figure 2.7 shows that signaling credibility is constant at different levels of Chinese military expenditures; Figure 2.8 at different levels of Chinese military personnel. Figure 2.9 shows that signaling credibility decreases with iron and steel production, but the change is insignificant.

The fourth finding is that Chinese leaders have been consistently credible after Mao, while Mao was incredible. Figure 2.10 shows that paramount leaders have sustained very different levels of signaling credibility. Figure 2.11 shows why: while China's paramount leaders did not differ greatly in their average propensity to initiate material conflicts (see Figure 2.3), Mao was at least twice as bellicose as any leader since.

The fifth finding is that security interests are closely related to signaling credibility. Figure 2.12 shows that Chinese credibility increases as US-China alliance portfolios grow closer. As security interests align, signaling quality improves. Russia is the United States' main competitor for China's affections. Figure 2.13 shows that as security interests between China and the Soviet Union (Russia after 1989) grow closer, the credibility of China's signals to the United States decline.

Conclusion and Next Steps

China's leaders appear concerned about maintaining their ability to signal through the media as new forms of media proliferate. In August 2014, Xi Jinping announced his intent to build "new-type media groups that are strong, influential, and credible." Song Jiangwu, the dean of the journalism school at China University of Politics and Law, interpreted Xi's comments as "a sign that senior officials in the Communist party are concerned... about the influence of traditional media forms and their ability to communicate."[54] Xi has condemned "empty talk" and China watchers have credited him with "surprising credibility."[55]

This is, in fact, unsurprising: Chinese leaders since Mao have maintained high credibility in their threats toward the United States. Domestic unemployment and improved relations with Russia are the two factors that erode that credibility. Military strength has little effect. Going forward, the *People's Daily* will remain an important signaling tool even as the Party exerts more control over online and social media.

There are many next steps to improve this early chapter draft. The major effort is to improve the diplomatic event data by moving from an automated to a validated framework. Event extraction with TABARI is not as precise as a historian would like. Therefore, I will manually construct a dataset

of events in US-China relations by reading secondary sources. This will enable an analysis of the Xi regime. It will also enable an analysis of credibility on political-military versus economic issues; currently, analysis of economic credibility is limited by a small sample size of economic events. (Well, serious economic events at least—in matters of verbal conflict as opposed to material conflict, China's bellicosity predicts verbal political-military conflict well but verbal economic conflict less reliably.)

Second, an earlier draft of this paper included an analysis of nationalism. I believe that since the launch of the Patriotic Education Campaign in the 1990s, nationalist statements in the *People's Daily* have become very credible. As the ideological foundation of the Party has fallen away, it has grown increasingly sensitive to popular sentiment and has sought to replace communism with nationalism. However, I did not trust the results because while the pessimism dictionary contained thousands of terms, the nationalism dictionary I drew up with colleagues (see Appendix) contained only a few dozen terms and I was concerned about noise. Suggestions on terms to include in the nationalism dictionary would be much appreciated. I plan to use the nationalism dictionary as a "seed dictionary" to crawl through documents and build a bigger dictionary of terms co-occurring with seed terms.

Third, I will conduct robustness checks by limiting the sample of *People's Daily* articles to (1) reprints of Ministry of Foreign Affairs statements, which presumably contain the most direct warnings, and (2) articles containing specific warning phrases described by Godwin and Miller. Fourth, I may include a section on how US signaling credibility has changed over time, based on White House or State Department statements. Fifth, these findings pertain to Chinese signaling credibility toward the United States, but it is possible that China behaved more aggressively toward weaker regional powers as its military capabilities increased. Future work will examine China's regional signaling credibility. Sixth, I have examined the credibility of threats in this chapter. I have ignored the credibility of promises. An observable implication of the alliance finding is that when states are interested in closer relations, the credibility of their promises should increase.

Tables and Figures

Table 2.1: CAMEO General Event Codes

Scale Value	Event Description	
7.0	Provide aid	
6.0	Engage in material cooperation	Material cooperation
5.0	Yield	
4.0	Express intent to cooperate	
3.5	Engage in diplomatic cooperation	Verbal cooperation
3.0	Appeal	
1.0	Consult	
0.0	Make public statement	
-2.0	Investigate	
-2.0	Disapprove	
-4.0	Reject	
-4.0	Reduce relations*	Verbal conflict
-5.0	Demand	
-6.0	Threaten	
-6.5	Protest	
-7.0	Coerce	
-7.2	Exhibit force posture	
-9.0	Assault	Material conflict
-10.0	Fight	
-10.0	Engage in unconventional mass violence	

Table 2.2: Illustrative Events

News Story	Source	Event(s)	Target
United States trade with China this year is surging tenfold from the 1972 level. Exports to China will reach $840 million by year end while imports from China will total $60 million.	US	cooperates economically	China
Chile's military Government has named a former finance minister to negotiate with United States copper companies over compensation for property nationalized by the previous Marxist Government.	US Chile	cooperates diplomatically cooperates diplomatically	Chile US
Canada Upset Over US Investments: The Canadian Government is increasingly concerned about American corporations.	Canada	makes pessimistic comment	US
Cuba Indicates Interest in Talks If US Ends Economic Blockade.	Cuba	expresses intent to meet or negotiate	US
Iran Due to Buy 30 Jet Fighters: Total Cost of the Grumman Planes Is 900 Million... Iran has reportedly accepted a United States offer.	Iran	agrees to cooperate materially	US
Foreign Minister Andrei A. Gromyko arrives in Washington tomorrow for the first broad Soviet American talks in nearly eight months.	US Russia	cooperates diplomatically cooperates diplomatically	Russia US
Saudi Arabia and Kuwait Give Syria Pledge on Oil Embargo... Saudi Arabia and Kuwait have given President Hafez al-Assad of Syria firm pledges to continue the oil embargo against the United States.	SA Kuwait	imposes embargo, boycott, or sanctions imposes embargo, boycott, or sanctions	US US

Figure 2.1: *People's Daily* Sentiment Trends (1 Year Moving Average)

Bellicosity

Nationalism

Amity

Extremism
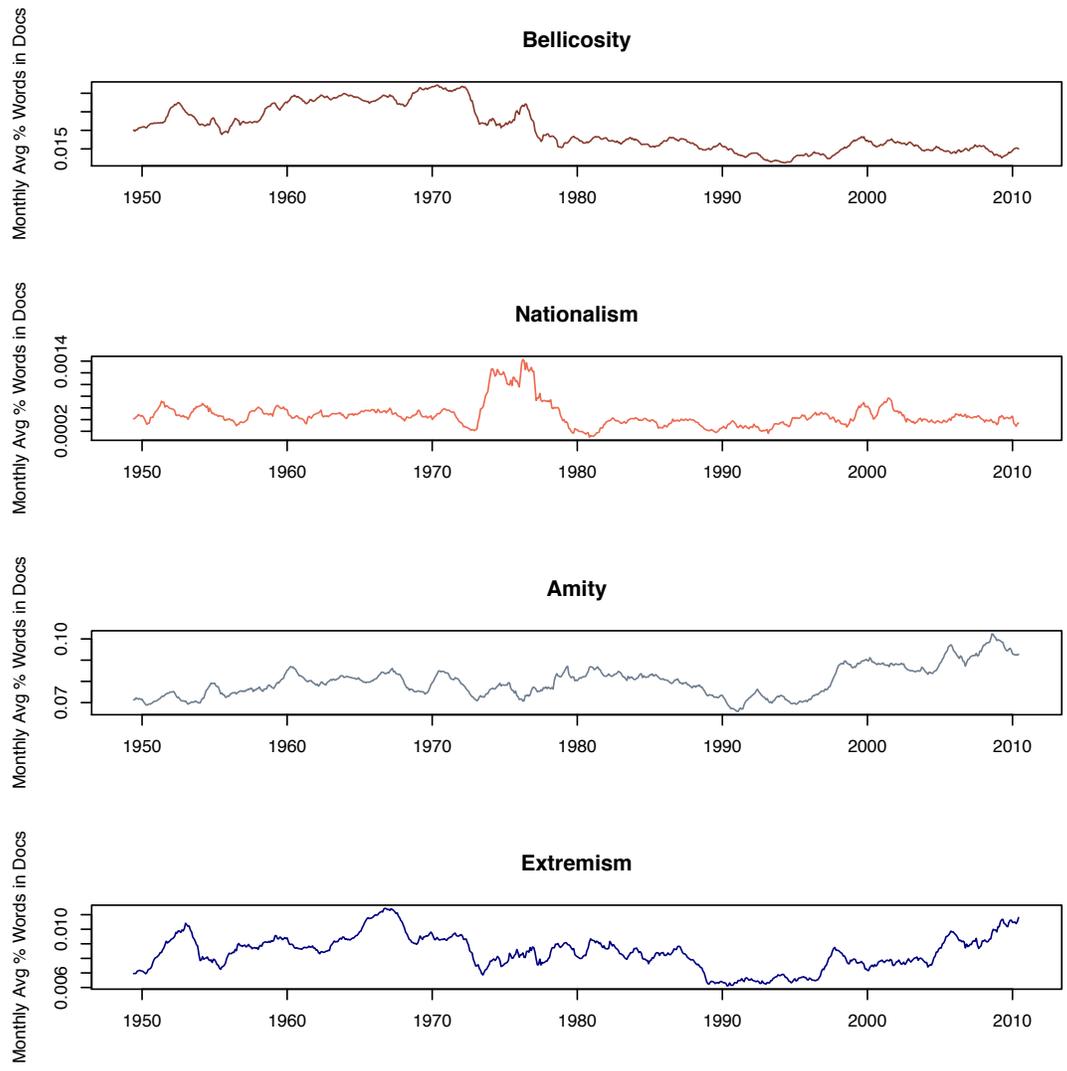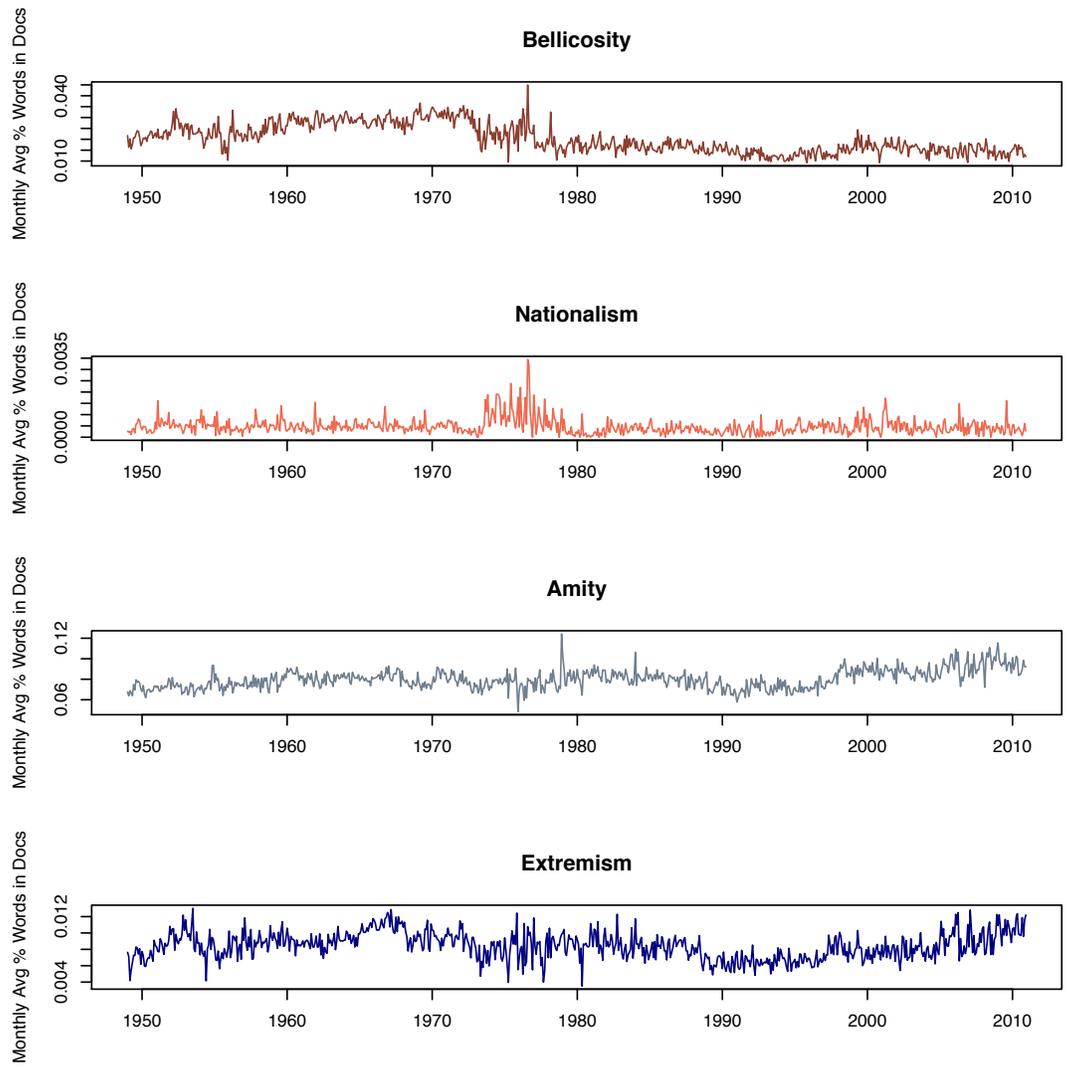
Figure 2.2: *People's Daily* Sentiment Trends (Daily)

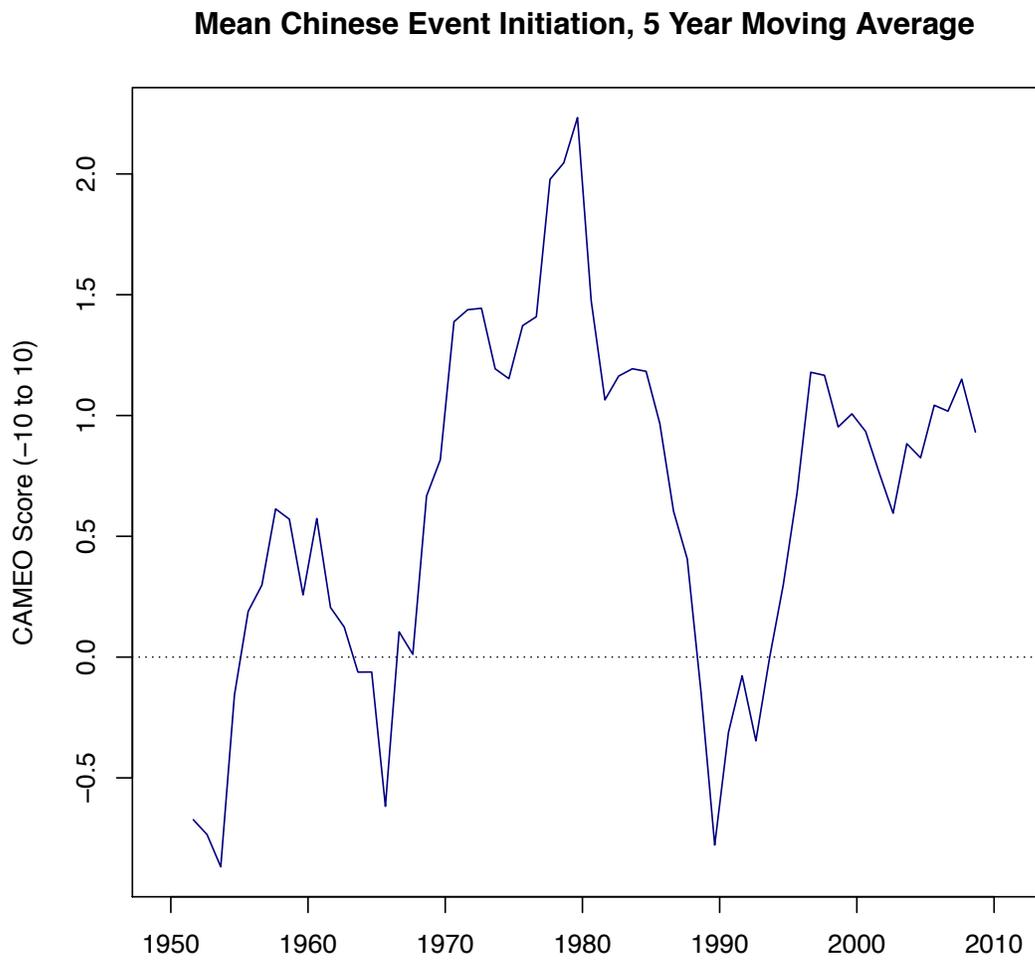**Figure 2.3:** Chinese Event Initiation, 5 Year Moving Average

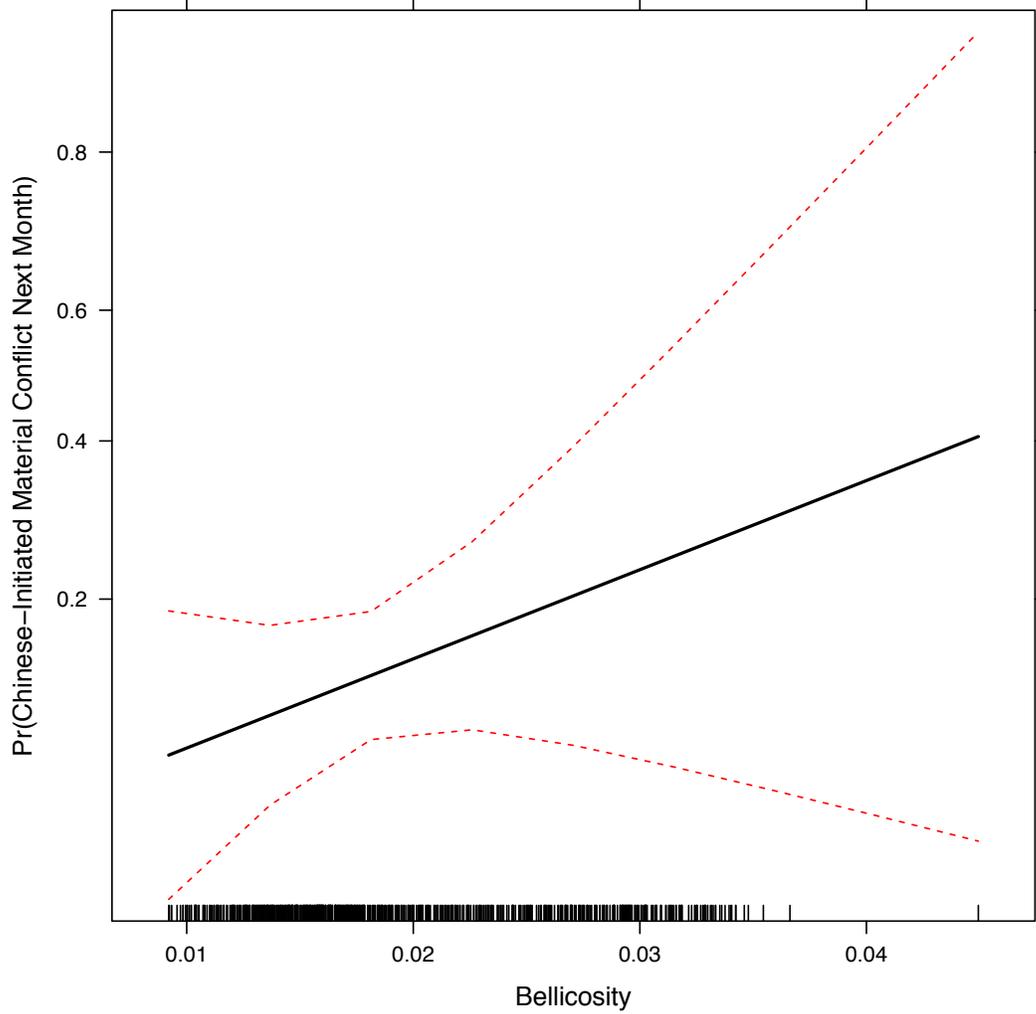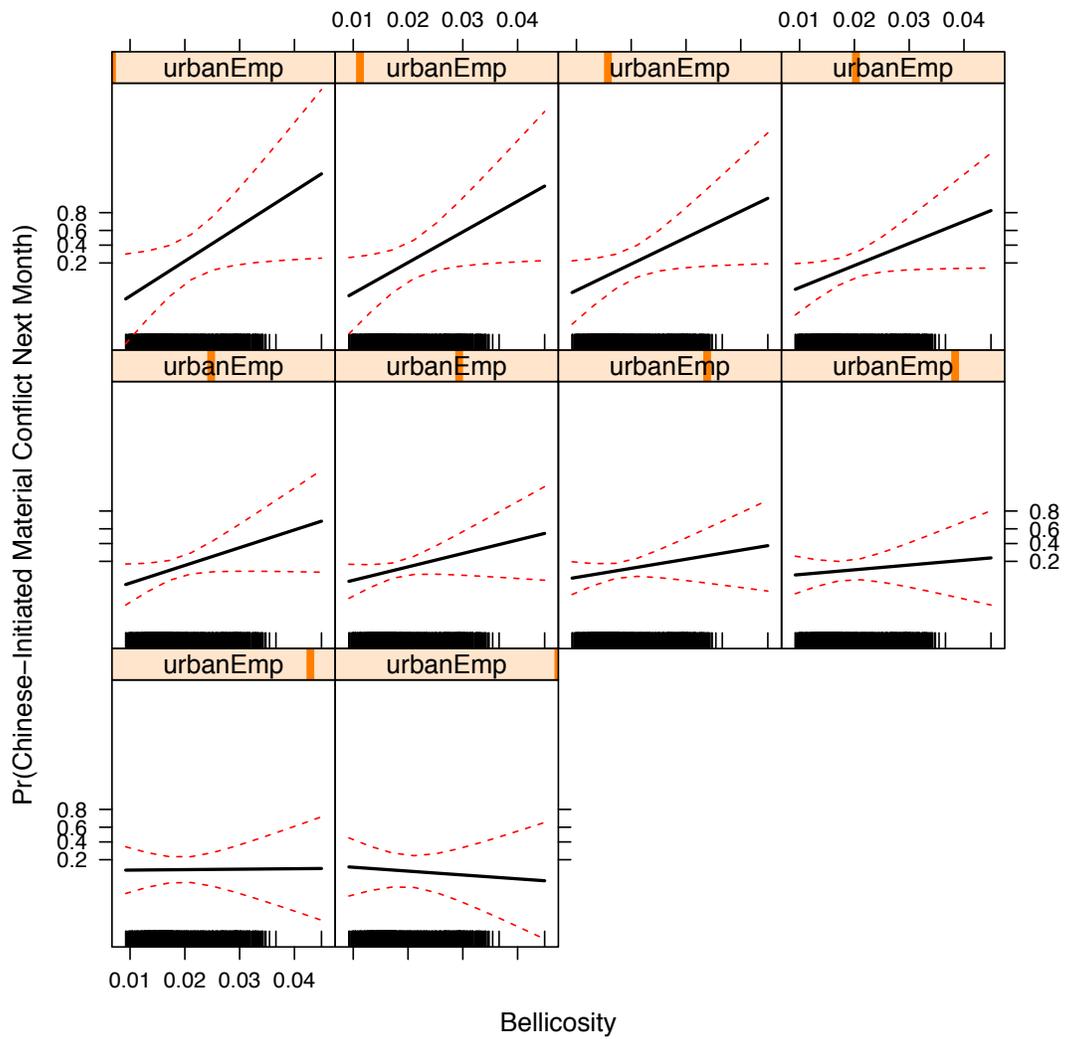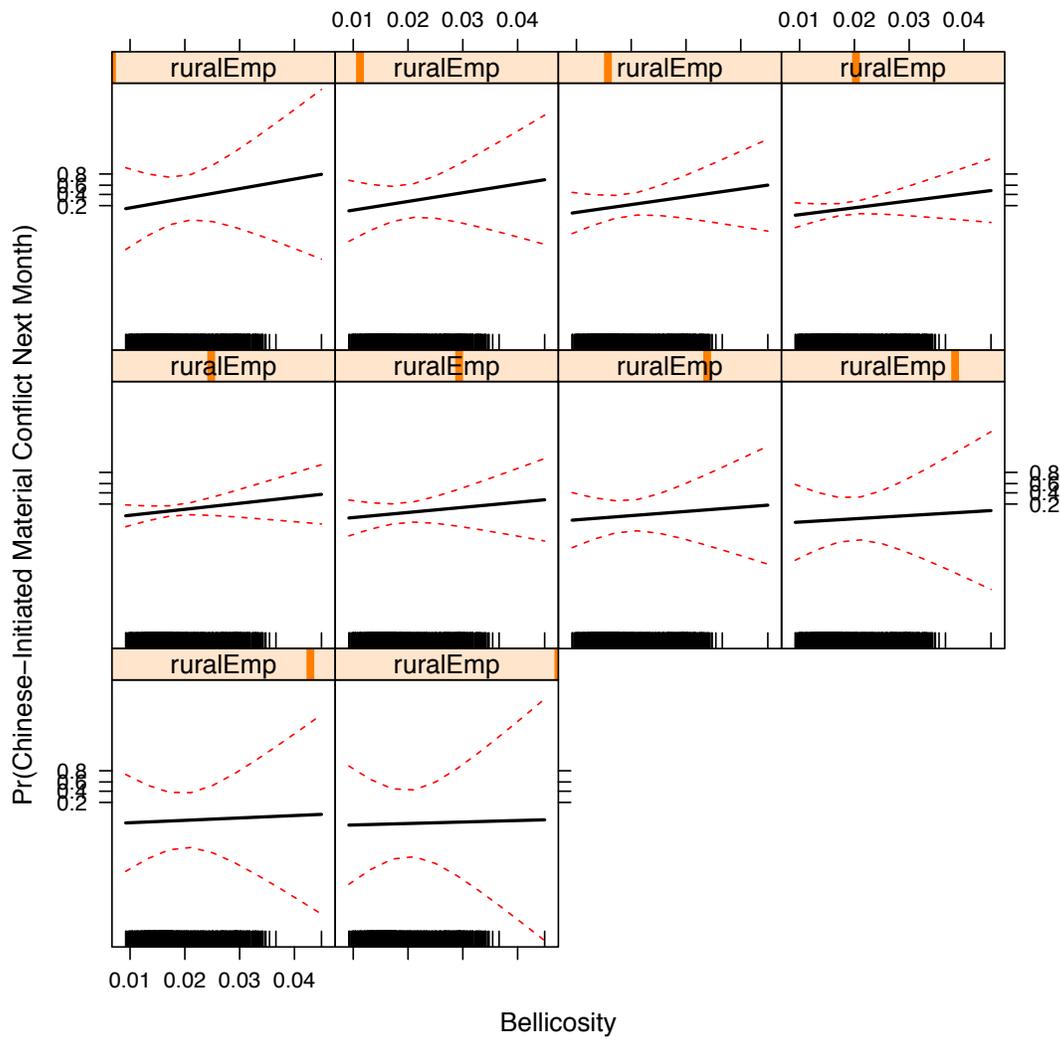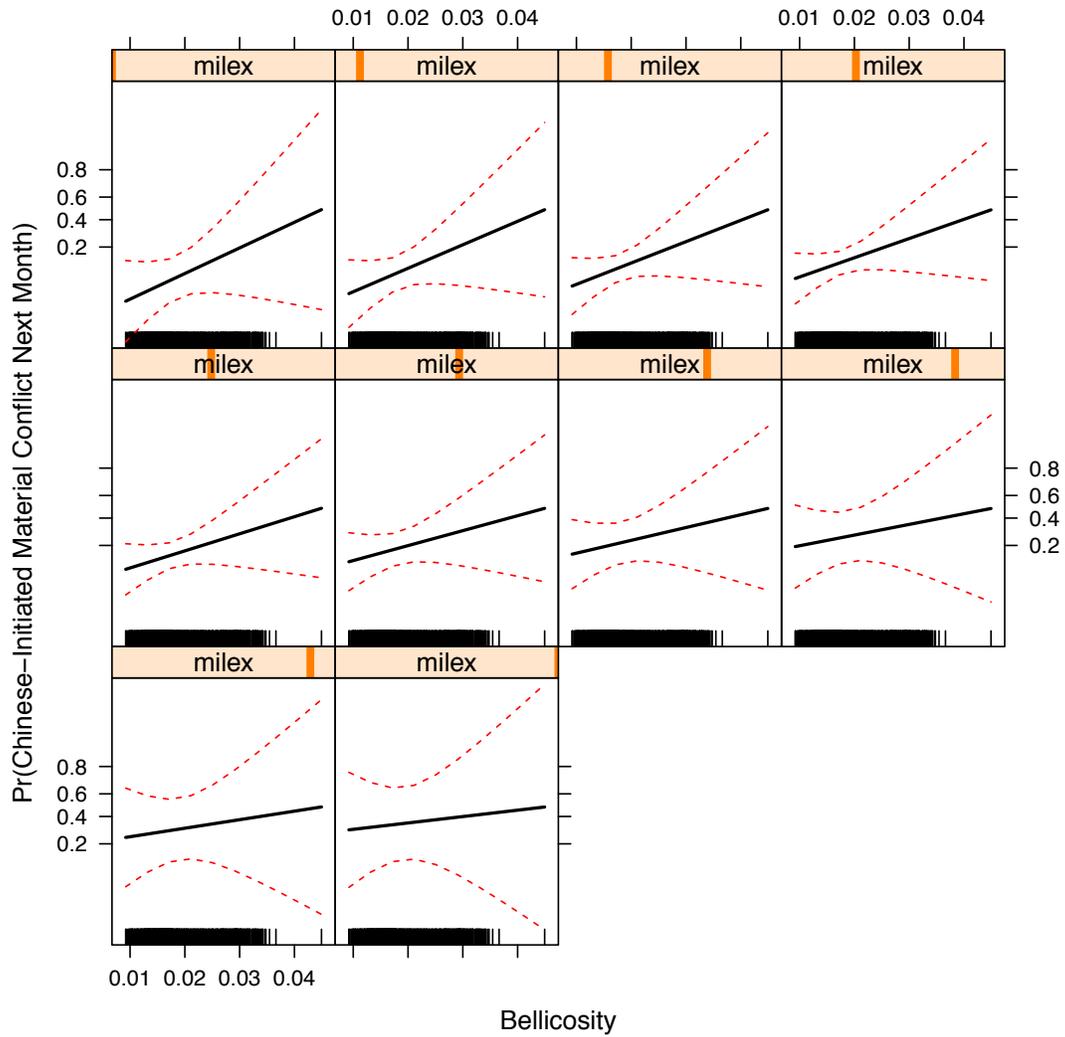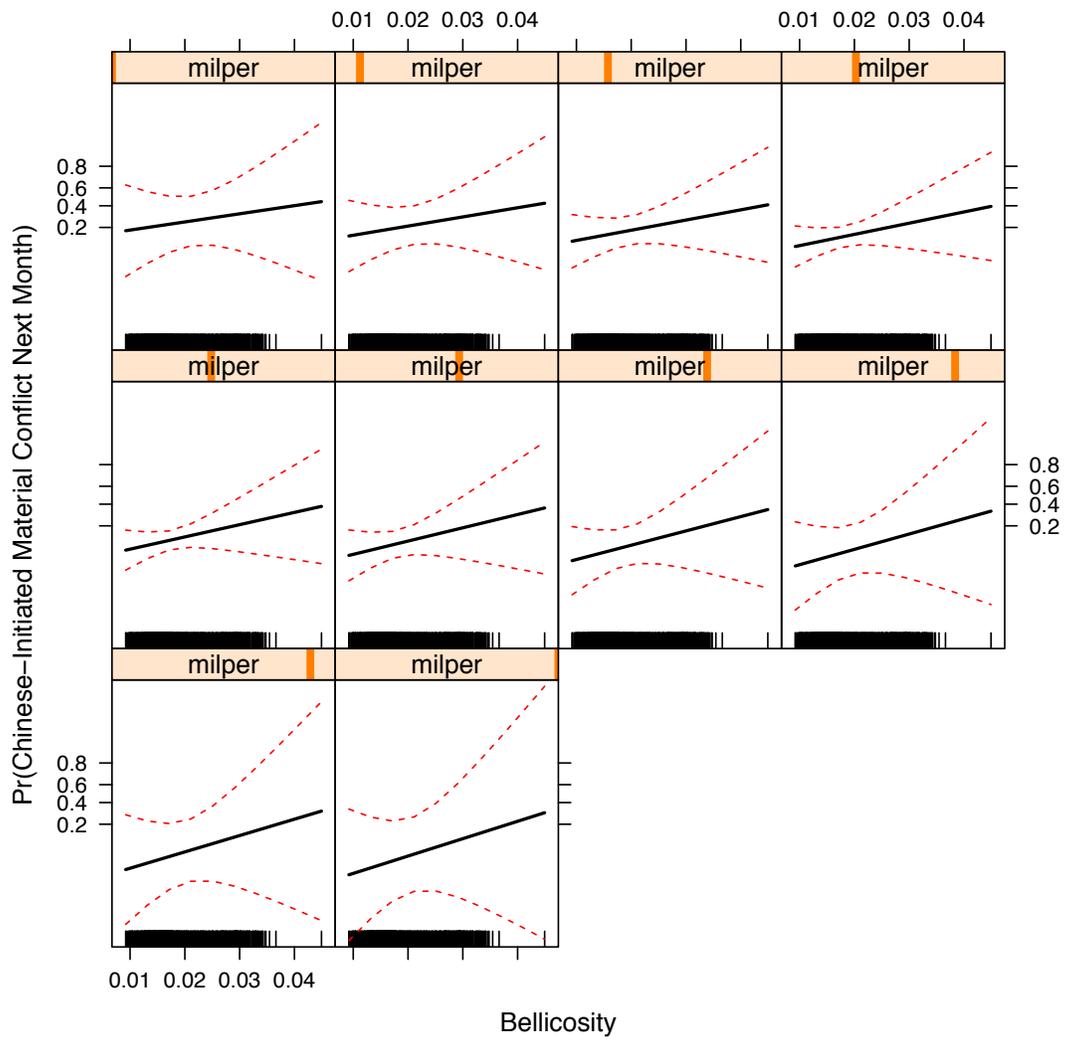**Mean Chinese Event Initiation, 5 Year Moving Average**

Figure 2.4: Marginal Effect of Bellicosity on the Probability of Chinese-Initiated Military Conflict Next Month.

Figure 2.5: Marginal Effect of Bellicosity on the Probability of Chinese-Initiated Military Conflict Next Month, Varying Over Urban Employment.

Figure 2.6: Marginal Effect of Bellicosity on the Probability of Chinese-Initiated Military Conflict Next Month, Varying Over Rural Employment.
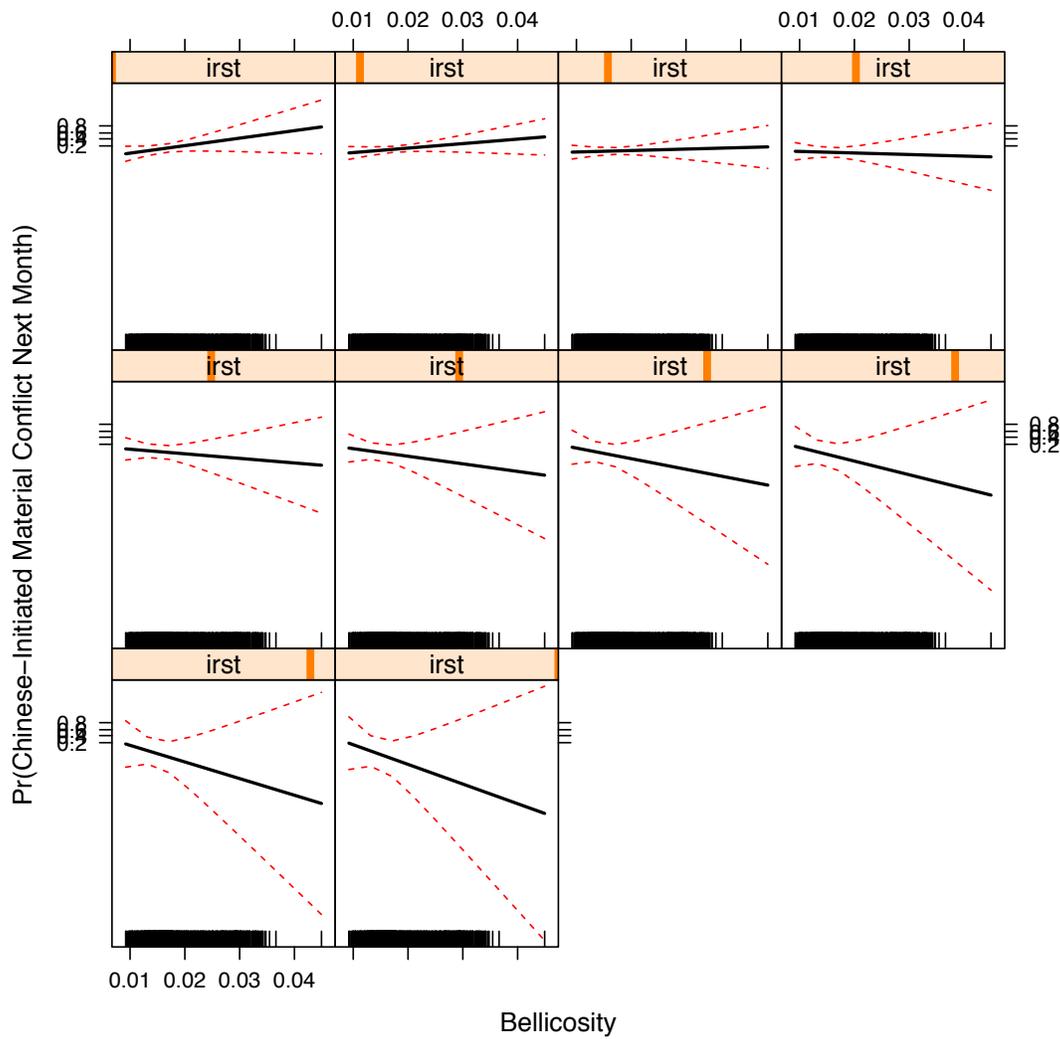
Figure 2.7: Marginal Effect of Bellicosity on the Probability of Chinese-Initiated Military Conflict Next Month, Varying Over Chinese Military Expenditures.

Figure 2.8: Marginal Effect of Bellicosity on the Probability of Chinese-Initiated Military Conflict Next Month, Varying Over Chinese Military Personnel.

Figure 2.9: Marginal Effect of Bellicosity on the Probability of Chinese-Initiated Military Conflict Next Month, Varying Over Chinese Iron and Steel Production.

Figure 2.10: Marginal Effect of Bellicosity on the Probability of Chinese-Initiated Military Conflict Next Month, Varying Over Chinese Regime.
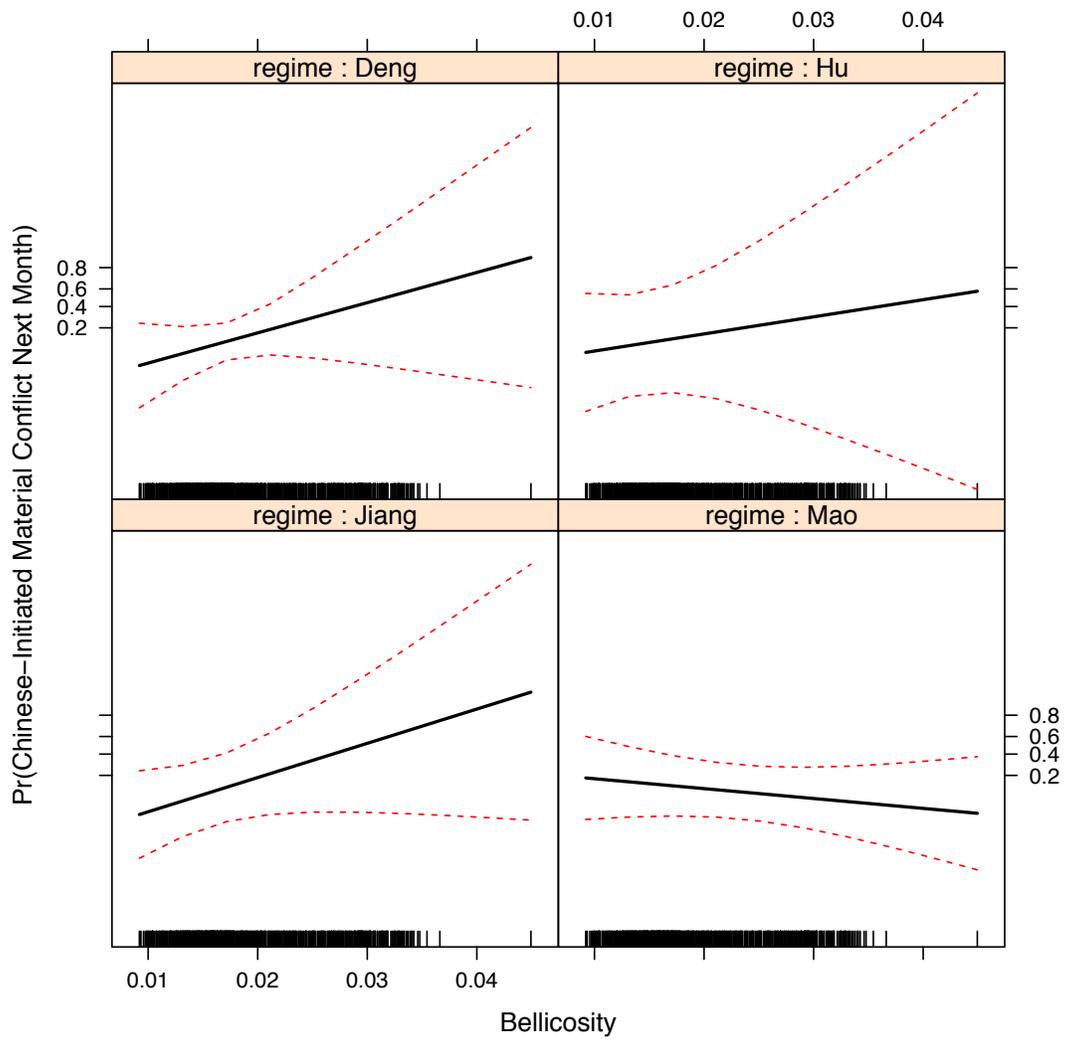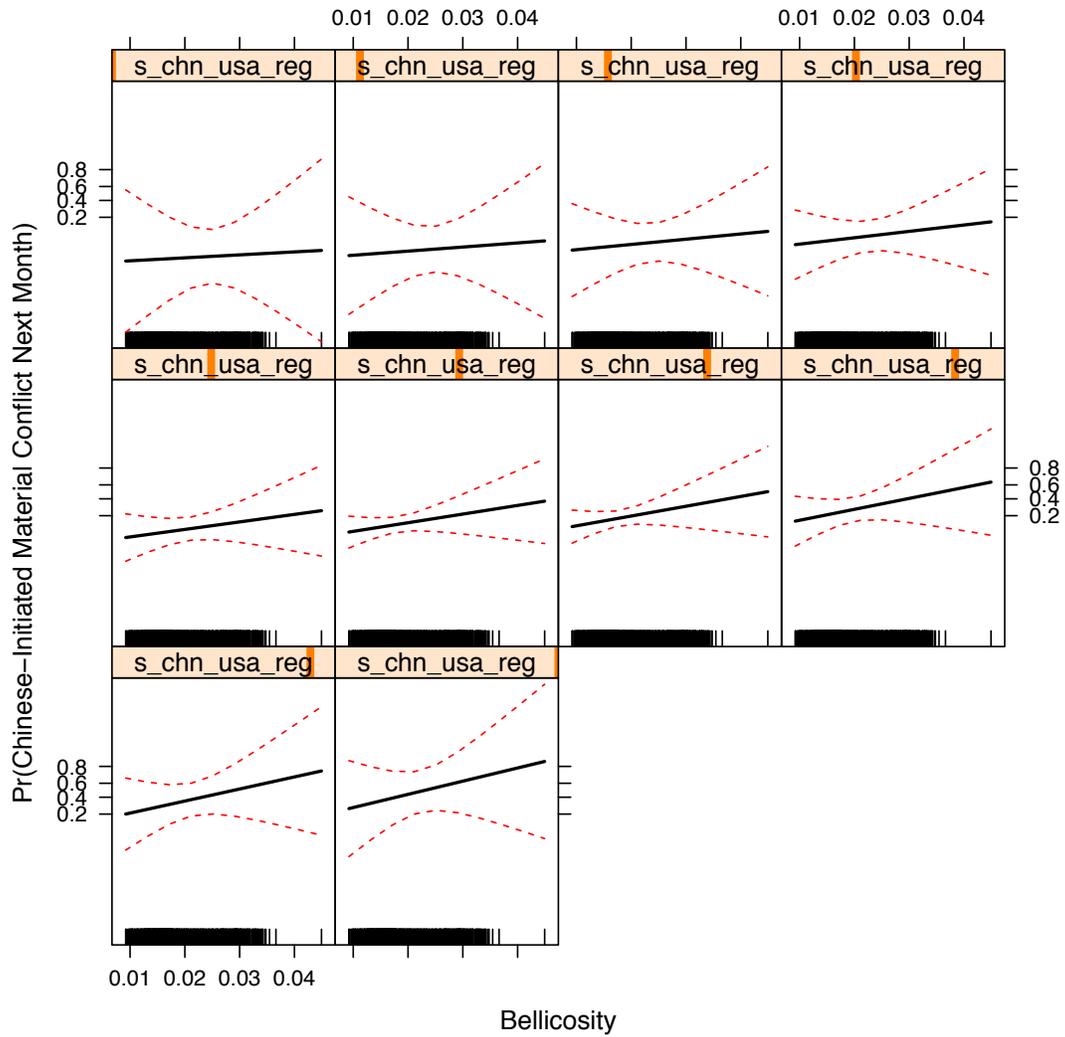
Figure 2.11: Chinese Bellicosity by Leader.

Figure 2.12: Marginal Effect of Bellicosity on the Probability of Chinese-Initiated Military Conflict Next Month, Varying Over PRC-USA Alliance Portfolio Similarity.

Figure 2.13: Marginal Effect of Bellicosity on the Probability of Chinese-Initiated Military Conflict Next Month, Varying Over PRC-USSR Alliance Portfolio Similarity.
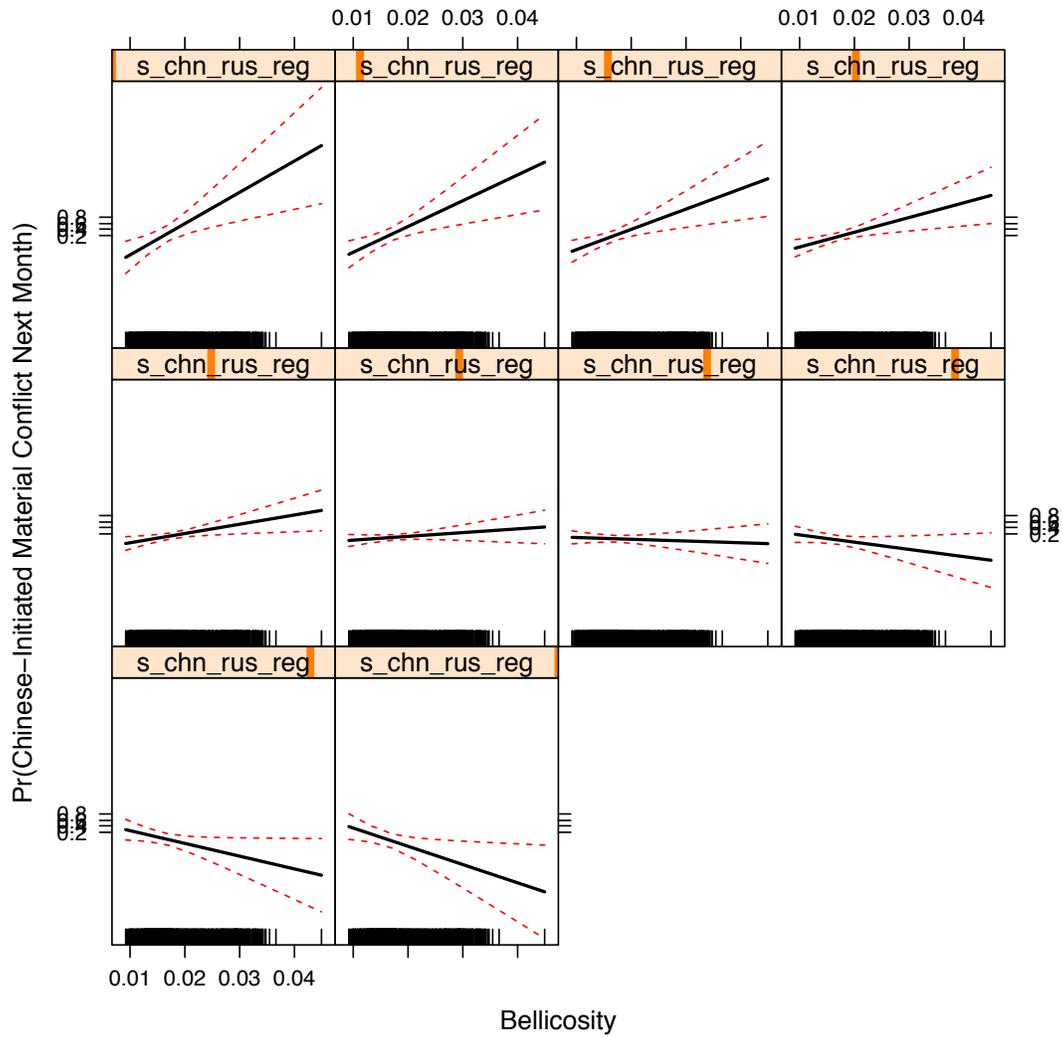
Table 2.3: Nationalism Dictionary

English	Chinese	English	Chinese
Hegemony	霸权	Great power	大国
Slander	诬蔑	Aggressor	侵略国
Criticism	批评	Distort	歪曲
Impose	强加	Humiliation	丢脸
Harm	被害	Victim	遇难者, 受害者
Arrogant	傲慢, 骄, 骄傲	Fabricate	谎话
Shame	耻辱, 可耻, 羞耻	National essence	国粹

Notes

[1] This chapter benefits from the helpful feedback of M. Taylor Fravel and Brett Carter.

[2] In future work, I will scrape *People's Daily* articles about the USSR to create a figure on China-USSR credibility.

[3] Keith Weigelt and Colin Camerer. "Reputation and Corporate Strategy: A Review of Recent Theory and Applications". In: *Strategic Management Journal* 9.5 (1988), pp. 443–454.

[4] Mark J. Dollinger, Peggy A. Golden, and Todd Saxton. "The Effect of Reputation on the Decision to Joint Venture". In: *Strategic Management Journal* 18.2 (1997), pp. 127–140.

[5] Mark J.C. Crescenzi et al. "Reliability, Reputation, and Alliance Formation". In: *International Studies Quarterly* 56 (2012), pp. 259–274; Gregory D. Miller. "Hypotheses on Reputation: Alliance Choices and the Shadow of the Past". In: *Security Studies* 12.3 (2003), pp. 40–78; Douglas M. Gibler. "The Costs of Reneging: Reputation and Alliance Formation". In: *Journal of Conflict Resolution* 52.3 (2008), pp. 426–454.

[6] A future paper using my Global Diplomacy Dataset (described below) may investigate the relationship between states' interests and signaling credibility more generally.

[7] Sun Tzu (Ed. James Clavell). *The Art of War*. Delacourt Press: 32, 1988.

[8] Andrew H. Kydd. "Trust, Reassurance, and Cooperation". In: *International Organization* 54.2 (2000), pp. 325–357; Andrew H. Kydd. *Trust and Mistrust in International Relations*. Princeton: Princeton University Press, 2007.

[9] downes$_r$ocke1995;Hein Goemans and Alexandre Debs. "Regime Type, The Fate of Leaders and War". In: *American Political Science Review* 104.3 (2010), pp. 430–446; Hein Goemans. *War and Punishment: The Causes of War Termination & The First World War*. Princeton: Princeton University Press, 2000; Giacomo Chiozza and Hein Goemans. "Peace Through Insecurity: Tenure and International Conflict". In: *Journal of Conflict Resolution* 47.4 (2003), pp. 443–467; Giacomo Chiozza and Hein Goemans. "International Conflict and the Tenure of Leaders: Is War Still Ex Post Inefficient?" In: *American Journal of Political Science* 48.3 (2004), pp. 604–619.

[10] Jessica L. Weeks. "Strongmen and Straw Men: Authoritarian Regimes and the Initiation of International Conflict". In: *American Political Science Review* 106.2 (2012), pp. 326–347; Jessica L. Weeks. "Autocratic Audience Costs: Regime Type and Signaling Resolve". In: *International Organization* 62.1 (2008), pp. 35–64.

[11] Weeks, "Autocratic Audience Costs: Regime Type and Signaling Resolve", p. 35.

[12] James D. Fearon. "Domestic Political Audiences and the Escalation of International Disputes". In: *American Political Science Review* 88 (1994), pp. 577–592; Helen V. Milner. *Interests, Institutions, and Information: Domestic Politics and International Relations*. Princeton: Princeton University Press, 1997; James D. Fearon. "Domestic Politics, Foreign Policy, and Theories of International Politics". In: *Annual Review of Political Science* 1 (1998), pp. 289–313; Bruce Bueno de Mesquita. "Domestic Politics and International Relations". In: *International Studies Quarterly* 46 (2002), pp. 1–9.

[13] Weeks, "Autocratic Audience Costs: Regime Type and Signaling Resolve".

[14] In the great tradition of tongue-in-cheek political criticism in China, the Ministry of Foreign Affairs mailroom is periodically swamped by calcium pills from citizens encouraging it to stiffen its spine. In the nationalist Chinese blogosphere, the MFA is often trolled as "The Ministry for Selling Out the Country." Well read national defense forums including Sina, Tianya, Tiexue, Qiangguo Luntan, and Zhonghuawang Luntan routinely call for China to defend offshore islands, and, incidentally, feature a subculture of surprisingly impressive aircraft carrier artwork. In 1996, a best-selling book entitled *China Can Say No: Political and Emotional Choices in the Post-Cold War Era* (中国可以说不冷战后时代的政治与情感抉择) swept the country. The authors (two of which participated in the Tiananmen protests) criticized US foreign policy but also, crucially, the Party. In both its US and Japan policies, the Party must routinely consider the prospect of streets filled with

pro-China, anti-Party protesters should it take a stand too soft. Considerations like these explain why Beijing has occasionally reversed crisis policy; forbidding protests and then providing buses to protests on at least one occasion.

[15]Robert H. Bates. *Markets and States in Tropical Africa*. Los Angeles: University of California Press, 1981; Michael Lipton. *Why Poor People Stay Poor: Urban Bias in World Development*. Cambridge: Harvard University Press, 1977.

[16]Lipton, *Why Poor People Stay Poor: Urban Bias in World Development*.

[17]Jean C. Oi. "Reform and Urban Bias in China". In: *Journal of Development Studies* 29.4 (1993), pp. 129–148, p. 132.

[18]Ibid., p. 132.

[19]Ibid., p. 129.

[20]Robert Suettinger. "U.S. 'Management' of Taiwan Strait Crises". In: *Managing Sino-American Crises: Case Studies and Analysis*. Ed. by Michael D. Swaine and Zhang Tuosheng with Danielle F.S. Cohen. Washington: Carnegie Endowment for International Peace, 2006, p. 273.

[21]Michael D. Swaine. "Understanding the Historical Record". In: *Managing Sino-American Crises: Case Studies and Analysis*. Ed. by Michael D. Swaine and Zhang Tuosheng with Danielle F.S. Cohen. Washington: Carnegie Endowment for International Peace, 2006.

[22]Ibid.

[23]Suettinger, "U.S. 'Management' of Taiwan Strait Crises", pp. 283-284.

[24]Kurt M. Campbell and Richard Weitz. "The Chinese Embassy Bombing: Evidence of Crisis Management?" In: *Managing Sino-American Crises: Case Studies and Analysis*. Ed. by Michael D. Swaine and Zhang Tuosheng with Danielle F.S. Cohen. Washington: Carnegie Endowment for International Peace, 2006, p. 328.

[25]Ibid., p. 337.

[26]Zhang Tuosheng. "The Sino-American Aircraft Collision: Lessons for Crisis Management". In: *Managing Sino-American Crises: Case Studies and Analysis*. Ed. by Michael D. Swaine and Zhang Tuosheng with Danielle F.S. Cohen. Washington: Carnegie Endowment for International Peace, 2006, p. 414.

[27]Steve Chan. "Chinese Conflict Calculus and Behavior: Assessment from a Perspective of Conflict Management". In: *World Politics* 30.3 (1978), pp. 391–410, p. 597.

[28]Paul H.B. Godwin and Alice L. Miller. *China's Forbearance Has Limits: Chinese Threat and Retaliation Signaling and Its Implications for a Sino-American Military Confrontation*. Washington: Center for the Study of Chinese Military Affairs, Institute for National Strategic Studies, National Defense University Press, 2013, p. 1.

[29]John Garver. "China's Decision for War with India in 1962". In: *New Directions in the Study of China's Foreign Policy*. Ed. by Alastair Iain Johnston and Robert S. Ross. Stanford: Stanford University Press, 2006, pp. 93-94.

[30]Ministry of Foreign Affairs of the People's Republic of China. "关于印发"人民日报"1963 年 7 约 19 日社论"揭穿美国的和'骗局"的通知", note =". 1963.

[31]Zhang Baijia. "'Resist America': China's Role in the Korean and Vietnam Wars". In: *Managing Sino-American Crises: Case Studies and Analysis*. Ed. by Michael D. Swaine and Zhang Tuosheng with Danielle F.S. Cohen. Washington: Carnegie Endowment for International Peace, 2006, p. 200.

[32]Chan, "Chinese Conflict Calculus and Behavior: Assessment from a Perspective of Conflict Management", p. 406.

[33]For a comparison of various methods, see LingPipe 2011.

[34]Available at http://hi.baidu.com/zhaocy0113/blog/item/146b5c346a738c4d251f1496.html

[35]dong2003.

[36]All documents were downloaded in accordance with terms of service policies. The document texts cannot be released, but the event data generated from texts will be made available on my scholar webpage.

[37]Each document is a 2-4 sentence summary of the news article. For technical reasons related to event extraction, short summaries are preferable to long articles.

[38]To download the corpus, a core Python script was distributed over 50 servers and took 12 hours to complete.

[39]Accuracy fell rapidly with the inclusion of additional topic labels; separating political affairs from military affairs, for example, decreased the classification accuracy to 64.7%.

[40]Deborah J. Gerner, Philip A. Schrodt, and Omur Yilmaz. "Conflict and Mediation Event Observations (CAMEO): An Event Data Framework for a Post Cold War World". In: *International Conflict Mediation: New Approaches and Findings*. Ed. by J. Bercovitch and S. Gartner. New York: Routledge, 2009; Philip A. Schrodt. "TABARI: Textual Analysis by Augmented Replacement Instructions". Version 0.8.3b1. 2012.

[41]Philip A. Schrodt. "CAMEO Event Data Codebook". Available at http://web.ku.edu/ keds/data.dir/cameo.html, accessed November 2012. 2012.

[42]A list of all 300 event types is available at http://web.ku.edu/~keds/cameo.dir/ CAMEO.SCALE.txt.

[43]Gary King and Will Lowe. "10 Million International Dyadic Events". http://hdl.handle.net/1902.1/FYXLAWZRIA UNF:3:dSEobsQK206xXlxeaDEhcg== IQSS Dataverse Network [Distributor] V3 [Version]. 2003.

[44]DARPA's Integrated Conflict Early Warning System (ICEWS) covers 1998-2010 and focuses on Asia; the Kansas Event Data System (KEDS) covers 1979-2011 but uses a dated ontology and focuses on the Middle East. There are several event datasets of political violence, but these too date generally from the 1990s, except for the Global Terrorism Database which covers 1970-2010 and Uppsal Conflict Data Program and the Peace Research Institute Oslo (UCDP/PRIO) dataset on political instability covering 1946-2011.

[45]Faten Ghosn, Glenn Palmer, and Stuart Bremer. "The MID3 Data Set, 1993-2001: Procedures, Coding Rules, and Description". In: *Conflict Management and Peace Science* 21 (2004), pp. 133–154.

[46]http://uk.reuters.com/article/2014/09/03/soccer-friendly-germany-idUKL3N0R45MA20140903

[47]On both these problems, see Philip A. Schrodt. "Precedents, Progress, and Prospects in Political Event Data". In: *International Interactions: Empirical and Theoretical Research in International Relations* 38.4 (2012), pp. 546–569, p. 554.

[48]Justin Grimmer and Brandon M. Stewart. "Text as Data: The Promise and Pitfalls of Automatic Content Analysis Methods for Political Texts". In: *Political Analysis* Forthcoming (2013), pp. 1–31; Schrodt, "Precedents, Progress, and Prospects in Political Event Data"; Philip A. Schrodt and David Van Brackle. "Automated Coding of Political Event Data". In: *Handbook of Computational Approaches to Counterterrorism*. Ed. by V.S. Subrahmanian. New York: Springer, 2013.

[49]J. Bolt and J.L. van Zanden. "The First Update of the Maddison Project; Re-Estimating Growth Before 1820". Maddison Project Working Paper 4. 2013.

[50]Obviously, I am excluding Hua Guofeng from this analysis as he is generally not considered a paramount leader, and extending Deng's reign accordingly.

[51]Curtis S. Signorino and Jeffrey M. Ritter. "Tau-b or Not Tau-b: Measuring the Similarity of Foreign Policy Positions". In: *International Studies Quarterly* 43 (1999), pp. 115–144.

[52]Ibid., p. 118.

[53]I use unweighted S scores, because I control for state capabilities separately.

[54]http://thediplomat.com/2014/08/chinas-quest-to-build-an-influential-and-credible-media/

[55]http://www.cnn.com/2013/03/16/world/asia/china-xi-presidency/