Bargaining and Economic Coercion: The Use and Effectiveness of Sanctions

by

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ABSTRACT

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We address international economic sanctions from a bargaining perspective and explain the variation in states’ decisions to employ economic coercion, in the objectives they pursue through it, and in the level of political concessions they are able to extract. The connection between military and economic coercion is examined first. Using a formalized bargaining model, we show that credible war options are of critical importance in determining whether economic coercion will be used and what distributional impact it might have. Evaluating the model’s empirical implications reveals that state choices to initiate economic coercion and what coercion level to set indeed depend on both military and economic factors. We next show that the sanctions literature has not devoted sufficient attention to the strategic considerations behind state decisions to engage in economic coercion. We develop a non-cooperative game-theoretic model that endogenizes decisions to engage in economic coercion and what level of concessions to demand from the target. The model suggests that economically powerful challengers are more likely to engage in economic coercion, but, paradoxically, are not more likely to succeed because they also tend to demand greater concessions. Since the occurrence, type, and outcome of economic coercion are all endogenously determined, we estimate them simultaneously when testing the model’s empirical implications. The empirical findings confirm that increasing senders’ economic advantage indirectly worsens their success prospects. Our central conclusion is that ignoring either the military context of economic coercion or the strategic choices that precede it can result in misleading inferences about its effectiveness.
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Chapter 1

Introduction

The International Relations discipline has focused traditionally on the study of war. Nevertheless, economic coercion, or equivalently the threat and use of economic sanctions to extract political concessions, which at least lately has been much more common than war, has also interested scholars. In fact, the economic coercion literature, which initially arose in response to the importance of economic sanctions under the League of Nations system for the maintenance of international peace, now spans over more than six decades (e.g. Greene, 1932; Welk, 1937; Kelsen, 1946; Galtung, 1967; Hoffman, 1967; Baer, 1973; Barber, 1979; von Amerongen, 1980; Wallensteen, 1983; Baldwin, 1985; Lenway, 1988; van Bergeijk, 1989; Tsebelis, 1990; Kaempfer and Lowenberg, 1992; Martin, 1993; Morgan and Schwebach, 1997; Drezner, 2000; Dorussen and Mo, 2001; Miers and Morgan, 2002; Davis and Engerman, 2003; McGillivray and Stam, 2004; Major and McGann, 2005; Marinov, 2005; Cox and Drury, 2007).

However, despite the presence of an extensive literature, little or no agreement exists over fundamental issues, such as the reasons for which policy makers employ economic sanctions, or the effectiveness of these instruments in accomplishing their stated political goals. The absence of consensus over these fundamentals and the inability of the literature to unify its findings into a single theoretical framework can be attributed to many factors, not
least of which is the chronically poor quality of sanctions data. Nonetheless, the failure to address two important questions has significantly contributed to the state of contradictory results characterizing the literature. First, while policy makers often threaten and impose economic sanctions in the shadow of war, the literature has tended to ignore the effect of this military context on economic coercion uses and outcomes. Second, the literature has also failed to address the full implications of states' strategic foresight in the formulation of their sanctions policy for the empirically observable economic coercion patterns.

The purpose of this project is to address the aforementioned issues in a systematic manner. That is, the motivating research questions behind the project are: (1) What is the effect of militarization possibilities on the economic coercion dynamic in a dyadic context? (2) What are the full implications of states' strategic behavior for the patterns one should observe in the use, type, and outcome of economic coercion? By answering these questions the project identifies previously unstudied facets of the economic coercion dynamic whereas by exposing the conditionality of some previous results it also contributes to the consolidation of the knowledge in the field. A major implication of the conducted analysis is that ignoring either the military context of economic coercion or the entire sequence of strategic choices that precede it might lead one to underestimate the effectiveness of sanctions. Therefore, the project also sides with that part of the literature which claims that sanctions appear unsuccessful only because they are the visible part of a more complicated interaction.

On the empirical side, evaluating theoretical models such as the ones developed here has only become possible with the recently released Threat and Imposition of Economic Sanctions or TIES data set (Morgan, Bapat and Krustev, 2007). The TIES data set contains 888 cases of economic coercion between 1971-2000, which is substantially more than what
the older Hufbauer, Schott and Elliott (1990) or HSE data set includes for the entire 1914-1990 period. The TIES cases are spread equally in the Cold War and post-Cold War periods. What is even more important, TIES codes both sanctions and threats to impose sanctions, which allows one to avoid the biases that might arise if one focuses on imposed sanctions only (e.g. Morgan and Miers, 1999; Nooruddin, 2002; Drezner, 2003). Finally, unlike HSE, TIES codes uses of economic coercion over a much wider range of disputed policy issues, and has many more instances of coercion uses over low-salience issues such as trade or environmental policy. Therefore, by testing the proposed coercion models on an unprecedentedly thorough data set, the project also makes an empirical contribution.

Why economic coercion? For one matter, it is difficult to underestimate the importance of economic coercion as a topic for scientific inquiry. Economic coercion, defined here as a state actor’s threat or actual severance of a mutually advantageous economic relationship with another state in order to induce the latter to comply with a political demand, recurrently makes news headlines.¹ To name only some of the most high-profile cases, the 1990s have witnessed the unprecedented in scope international sanctions against Iraq, Haiti, and Yugoslavia, and even currently the most discussed international issues in the media include the sanctions measures adopted by the U.N. in response to North Korea and Iran’s efforts to develop nuclear weapons. In an extreme example of sanctions’ popularity with policy makers, in 1992 the U.S. alone threatened or imposed sanctions on more than 40 occasions, and, what is more, the use of sanctions seems to be increasing over time. For instance, TIES reports 600 sanctions cases in the 1990s, as opposed to only 300 for the 1970s and 1980s combined, and a similar trend can be detected based on HSE as well. Yet, despite the rising prominence of sanctions as foreign policy instruments, little do we know about why states impose them, what level of concessions they demand, or what determines the choice
of policy makers between economic and military coercion. Neither has the literature established how militarization prospects or strategic behavior affect the dynamic and outcome of economic coercion, that is, the main questions addressed here.

The starting premise of this project in addressing these issues is that the bargaining model of economic coercion, which views economic sanctions as the costly inside options of international bargaining and has dominated the literature over most of its course, is a fundamentally proper way to conceptualize sanctions. However, the bargaining process can be terminated at any time if one of the bargaining states exercises its outside option of militarizing the dispute, and that possibility affects the outcome of economic coercion even if military force is never actually threatened. Second, bargaining between strategic actors also implies that whether the actors engage in the bargaining process at all or what demands they make are outcomes which are endogenous to the strategic situation. For this reason, to understand the outcomes of economic coercion, one needs to examine the entire sequence of strategic choices that precede it. Game theory is the natural medium for studying such bargaining situations, as it is designed to model situations in which the outcome depends on the decisions of all, and that holds for bargaining situations as well. That is why the motivating research questions are approached through two formal, game-theoretic bargaining models that successively endogenize first the choice between economic and military coercion, and second the decisions to use economic coercion and what concessions to demand, and the coercion outcome.

To provide an overview of the organization of the study, Chapter 2 reviews the sanctions literature. The main argument pursued in the chapter is that although substantial changes have occurred in the literature over time, the dominant theoretical perspective has remained the bargaining model, which conceptualizes sanctions as negative issue linkages. That is,
senders use sanctions to make disagreement on a disputed political issue more costly to the target, and the higher target costs allow the sender to extract a better deal when an eventual agreement is reached. Despite this unifying theme at the general level, the literature can also be parsed into at least three distinct waves when its specifics are considered as well. First, much of the older literature on sanctions is piecemeal and limited in scope, usually concerned with particular cases and policy recommendations. However, that older literature is still centered around the bargaining model although explicit references to bargaining have been rare.

A second wave of sanctions research has challenged the original bargaining model by arguing that sanctions have not so much to do with a target’s behavior as with domestic or symbolic concerns. That research has been less productive in generating testable propositions, and, consequently, a third wave has returned the literature to the bargaining model, but has also brought in more sophisticated research on strategic interaction. This newer literature has illuminated important aspects of the sanctioning process, including the threat, imposition, and duration of sanctions, but has still focused on sanctions too much in isolation from their context and has not explored the full implications of strategic interaction for the economic coercion dynamic.

Chapter 3 uses a formal model to explore the effect of states’ opportunities to militarize an international dispute on the expected patterns in the use and outcome of economic coercion. In accord with the literature, the model treats economic coercion as a bargaining process, but unlike the literature it also locates this bargaining process in its proper military context. More specifically, the chapter uses the Nash bargaining framework to analyze economic coercion, but the Nash framework itself is embedded into a simple non-cooperative game that allows sanctions senders and targets to substitute the bargaining outcome for a
military solution.

A central implication of the model is that higher target sanctions costs and lower sender costs increase the sender's bargaining power, but the effect of the sender's economic leverage might not be observed if either the sender or target has a substantial military advantage over the other bargaining party. The latter result, in turn, implies that the failure of economic coercion does not necessarily mean that sanctions are an ineffective instrument, but could also signify that what sanctions are imposed is frequently limited by the fear of militarization. The chapter proceeds by examining several actual sanctions cases through the prism of the theoretical model, and concludes with a quantitative test of some of the model's empirical implications. The test confirms that economic coercion cannot be understood in isolation from states' military options.

While Chapter 3 discusses the constraints imposed by additional foreign policy options on the economic coercion possibilities in sender-target dyads, Chapter 4 explores how states' strategic considerations in setting the parameters of economic coercion can also restrict the observable coercion outcomes and induce a skewed perception of sanctions effectiveness. In particular, while the literature has analyzed the strategic interaction between senders and targets during a coercion episode, little or no attention has been devoted to the implications of states' strategic behavior when they decide whether to start economic coercion in the first place and what political stakes to set.

In response to this omission, the chapter constructs a non-cooperative game-theoretic model which endogenizes the sender's decisions to engage in economic coercion and what level of concessions to demand from the target. Among other implications, the model shows that economically powerful senders are more likely to engage in economic coercion, but, paradoxically, are not more likely to succeed at it because they also tend to demand greater
concessions. However, as greater demands generate expected payoffs that are more likely to exceed the sender’s status quo valuation but are less likely to be accepted, cases with higher failure probabilities are more likely to select into the actually observable sanction impositions.

Chapter 5 takes the theoretical conclusions reached in Chapter 4, and subjects them to a systematic empirical test. The tested hypotheses suggest that if sanctions demands are endogenous to the coercion situation and the sanctions sender is uncertain about the target’s resolve, exogenous factors that increase the sender’s bargaining power vis-à-vis the target should simultaneously increase the chance that the sender uses economic coercion against the target, the magnitude of the sender’s demand, and the sender’s success prospects, but only conditional on the demand. Therefore, an empirical test has to take into account both the strategic censoring at the coercion initiation stage and the exogenous variables’ indirect effects on the outcome, through the endogenous demand.

For this reason, Chapter 5 first derives a statistical estimator appropriate for modeling the outlined data generating process. The estimator is then applied to the economic coercion attempts between 1971-2000 according to TIES. While the empirical results support some of the tested hypotheses but not others, there is strong evidence in favor of demand endogeneity. Furthermore, comparing the explanatory power of the proposed bargaining theory with strategic demands to four competing approaches reveals that the strategic demands theory can explain more empirical content than its alternatives. The chapter concludes that the literature’s failure to explore the full implications of states’ strategic considerations in economic coercion episodes indeed contributes to an erroneous perception of sanctions effectiveness.

Chapter 6 summarizes the study’s main findings, and presents some evaluation criteria
that can be applied to the conducted research. The chapter concludes that enriching the bargaining perspective by incorporating the military context of economic coercion and the role of states’ strategic incentives in its application constitutes a progressive research effort.

That is, the theoretical models built upon the latter premises can explain excess content relative to previous research, which ignores these premises altogether. Moreover, while this study falls short of providing a unified theory of economic coercion, which can account for all of its aspects in a single framework, it does identify two previously ignored coercion aspects that would have to be present in any such theory. Finally, whereas a conclusive evaluation of sanctions effectiveness is not going to be possible before such a theory has been developed, the study suggests two reasons why the current literature might be underestimating the usefulness of these instruments. The chapter ends with a discussion of the implications of the likely greater utility of sanctions for their use in the 21st century.
Chapter 2

Literature Review

2.1 Introduction

Economic coercion is not a contemporary phenomenon. In fact, the first historical references to economic sanctions date back to 433 B.C. According to most historians, about that year Athens issued the infamous Megarian decree, which denied Megarian ships access to the ports controlled by the Delian League and was followed by the Peloponnesian War (e.g. Legon, 1973). History has still not decided whether the Megarian decree was a success or one of the main factors which triggered the war itself (Baldwin, 1985), but statesmen have continued to use sanctions in the pursuit of foreign policy objectives ever since, one of the better known examples being Napoleon’s Continental System, adopted after the French defeat at the Battle of Trafalgar in 1805 (e.g. Crouzet, 1964).

However, despite the rich history of economic sanctions, their status as foreign policy instruments only rose to international prominence after the First World War, when the Covenant of the League of Nations espoused them as the League’s preferred non-violent means of enforcing collective security. Naturally, the institutionalization of sanctions in the post-war order provoked inquiries into the subject by a number of international and legal scholars. A comprehensive review of this earliest literature is beyond the scope of this chapter, as a detailed account of these initial intellectual enterprises has already been
provided by Daoudi and Dajani (1983). Nonetheless, two characteristics of early sanctions thought should be noted. First, much of the interest was in the legal status of sanctions under the existing system of international law. The ensuing inquiries either examined the legal and administrative bases for applying international sanctions (Graham, 1927; Brierly, 1931; Buell, 1932; Foster, 1934; Bradley, 1936), or discussed the moral issues arising from the coercive nature of these instruments (Dulles, 1932; Greene, 1932).

Second, interwar scholars and policy makers were not interested in substantiating the utility of sanctions with empirical evidence. Rather, the period was defined by an unusual consensus over the enormous power of economic coercion. The prevailing view at the time is accurately summarized by the following excerpt:

The ‘economic sanction,’ if simultaneously directed by all the world against a State which is not itself economically self-sufficing, would be a weapon of incalculable power. This... was the weapon originally devised by the authors of the covenant.... Some scheme of sanctions is certainly necessary. Without it a League of Nations would be as insecure as a civilised society without magistrates and police.2

Initially, economic sanctions indeed proved effective peace enforcement instruments on two occasions during the 1920s. In 1921 the League of Nations forced Yugoslavia to cancel its attempted invasion of Albania while in 1925 Greece was compelled to withdraw its troops from a piece of occupied Bulgarian territory and to pay reparations for the damage it had inflicted (Hufbauer, Schott and Elliott, 1990). Moreover, on both occasions the League did not even have to impose economic sanctions against the perpetrators, as the mere threat of doing so had sufficient influence.

Sanctions, however, were discredited by a series of unsuccessful applications. For instance, in 1935-36 the economic sanctions imposed by the League of Nations against Italy failed to force Mussolini out of Ethiopia.3 According to Daoudi and Dajani (1983, 42-43),
further events, such as the U.S. inability to achieve its foreign policy goals with respect to Cuba through sanctions in 1960, or the inability of sanctions to force Rhodesia to revoke its Unilateral Declaration of Independence in 1966, also shifted the scholarly paradigm toward “discounting economic sanctions as an effective coercive tool in international relations.” Indeed, the voluminous sanctions literature that has accumulated since the mid-1960s has frequently concluded that sanctions are generally ineffective. However, the 1960s were also the time when scholars first started analyzing economic sanctions from a theoretical perspective and attempting to derive generalizable conclusions from the examined empirical evidence.

Since this study is also concerned with the theoretical side of the sanctions problem and aspires to generalizability, the mid-1960s have been set as the anchor point for the literature reviewed below. The majority of sanctions research between the 1960s and the 1980s, although many later studies also share these characteristics, has aimed to extrapolate the utility of sanctions from particular instances of their application. Because scholars usually found sanctions ineffective, the early literature also attempted to identify the factors that led to sanctions failure. This chapter argues that despite the absence of an explicitly acknowledged common theoretical foundation, the early literature has essentially analyzed sanctions from a bargaining perspective and explained their failure in reference to an implicit bargaining model. Some of the literature that emerged in the 1980s, however, has challenged the prevailing bargaining model by rejecting the instrumentality of economic coercion. That is, this latter literature has viewed sanctions not so much as the sender’s means to alter the target’s policy but more as measures that yield immediate domestic or symbolic rewards to policy makers who adopt them, regardless of whether the target changes its policy or not.

Nevertheless, the challenges to the bargaining model have not been as successful in
generating testable hypotheses and even less so in the discovery of novel facts.\textsuperscript{4} That is why since the 1990s we have seen a return to the original bargaining perspective. However, most recent studies have also benefited from the extensive application of formalized bargaining models and the strategic interaction approach. These new instruments have allowed the literature to generate more refined predictions regarding the effect of sanctions, as well as to explain in a rather parsimonious way the vexing discrepancy between the older literature’s verdict on sanctions ineffectiveness and their rising use by policy makers. The remainder of the chapter discusses in greater detail the developments in the three outlined waves of sanctions research. The chapter concludes by identifying some open questions, logically following from the newest literature, and foreshadows how this study contributes to their resolution.

\subsection{2.2 The Original Bargaining Perspective}

The first wave of economic coercion research has been mostly qualitative, extrapolating general conclusions from a handful of sanctions cases examined in great detail (e.g. Hoffman, 1967; Galtung, 1967; Wallensteen, 1968; Schreiber, 1973; Baer, 1973; von Amerongen, 1980). The strive to generate immediate policy prescriptions, directly based on these case studies, has also been quite common.\textsuperscript{5} The primary research question for first wave scholars has been and continues to be whether economic sanctions are effective coercive instruments, although what is meant by “effective” has not always been made clear, and the effectiveness of sanctions has rarely been evaluated against the potential effectiveness of alternative policies (cf. Baldwin, 1985; Tsebelis, 1990).\textsuperscript{6}

It seems quite surprising, therefore, that without a clearly articulated concept of sanctions effectiveness and explicit methodological standards, the first wave literature has been
so remarkably consensual in its verdict that sanctions simply “don’t work.” And, indeed, if there is a consistently recurring theme, it is no other than the repeated observation that sanctions are ineffective policy instruments, which can achieve limited objectives at best, and are useless unless accompanied by military force (Galtung, 1967; Baer, 1973; Schreiber, 1973; von Amerongen, 1980; Doxey, 1980; Wallensteen, 1983; Hufbauer, Schott and Elliott, 1990; Dashti-Gibson, Davis and Radcliff, 1997; Pape, 1997, 1998; Drury, 1998). If there exists any disagreement on the ineffectiveness of sanctions, it is only a matter of degree (e.g. Pape, 1997, 1998; Elliott, 1998). For instance, while Hufbauer, Schott and Elliott (1990) claim that sanctions succeed 34% of the time based on their study of 116 sanctions cases, Pape (1997) argues that only 5% of the latter cases can actually be considered successful.

A major reason for the outlined consensus, however, exists in the fact that, despite the lack of methodological coherence, first wave studies have approached sanctions from the same theoretical perspective. That perspective has been the bargaining or instrumental one, which conceptualizes sanctions as the sender’s interruption of her economic relationship with the target to coerce the latter into making political concessions. That is, the assumption has been that the sender and target bargain over some disputed political issue, and the sender, to obtain a better agreement, tries to increase the target’s disagreement costs by linking the disputed issue to the terms or existence of the sender-target economic relationship. While the outlined bargaining perspective has been only implicit in first wave studies (Galtung, 1967; Wallensteen, 1968; Schreiber, 1973; Olson, 1979; Doxey, 1980; Daoudi and Dajani, 1983; Hufbauer, Schott and Elliott, 1990), its application has led to consistent expectations about the effect of the sender’s and target’s characteristics on the coercion outcome, and that consistency, in turn, can account for the high degree of consensus in the literature.

In particular, the bargaining perspective implies that the relative undesirability of the
disagreement outcome to the disputants will determine the extent to which an eventual agreement will favor one of them over the other. That is, senders which would lose less from a bargaining breakdown and the termination of the sender-target economic relationship can expect better deals. Similarly, targets with higher economic costs are more likely to have to make concessions to avoid the imposition of sanctions. At a more basic level, since actual sanctions often seem more costly to their target, the bargaining perspective also influences the expectation that economic coercion will lead to observable changes in the target’s policy. However, the first wave literature has not found sanctions to result in significant target concessions. Neither has some of the later empirical literature demonstrated a clear relationship between the disputants’ sanctions costs and the success probability of economic coercion in general. For example, while van Bergeijk (1989), Lam (1990), and Dashti-Gibson, Davis and Radcliff (1997) report a positive association between the target’s costs and the sender’s achievement, Bonetti (1998) and Drury (1998) do not support that finding.

While the bargaining model has induced consistent expectations regarding sanctions performance, first wave researchers have not necessarily suggested consistent reasons why these expectations are rarely met. Scholars have invoked rallying effects (Galtung, 1967; Baer, 1973; Olson, 1979), the sender’s inability to inflict sufficiently high costs upon the target (Hufbauer, Schott and Elliott, 1990; Morgan and Schwebach, 1997), the sender’s reluctance to back its sanctions effort by a military threat (Hoffman, 1967; Wallensteen, 1983), the fact that economic sanctions do not affect equally all domestic actors in the target state (Clawson, 1993; Morgan and Schwebach, 1996), or the cooperation problems among multiple senders (Doxey, 1980; Martin, 1993; Kaempfer and Lowenberg, 1999; Drezner, 2000; Miers and Morgan, 2002).
An early inquiry by Galtung (1967) into the U.N. sanctions against Rhodesia found that economic sanctions can actually strengthen the target state by achieving a political integration of its society and increasing domestic support for its leadership. Baer (1973) voices the same concern, by suggesting that the 1935-36 League of Nations sanctions against Italy might have helped Mussolini to consolidate his domestic position. Wallensteen (1983) argues that sanctions can succeed only if the target government is weak and faces strong internal opposition. Similarly to Galtung, Wallensteen suggests that strong target governments might actually benefit from sanctions since sanctions might allow them to rally additional domestic support for their policy.8

An interesting argument has been proposed by Hoffman (1967), who has raised the possibility that sanctions are mostly adopted to alleviate cross pressure situations, resulting when a sender government faces demands for foreign action but war is undesirable. Based on the latter argument, Hoffman concludes that when sanctions are imposed they are unlikely to influence the target because their application already signals the lack of motivation on part of the sender government to attain its objectives.9 Schreiber (1973) supports Hoffman’s explanation for sanctions failure in her extensive analysis of the U.S. sanctions against Cuba. She argues that the American sanctions were very costly initially but their effect was eventually mitigated through Soviet assistance. Consequently, the U.S. sanctions failed to stop Cuba’s “export of revolution,” and even solidified Fidel Castro’s position by offering him a rallying point and a scapegoat for the economic problems induced by incompetent governance. Schreiber attributes the maintenance of the ineffective measures by the need for U.S. leaders to appease domestic calls for action against the Castro regime and to signal internationally their intention to resist the expansion of communism.10

To explain the ineffectiveness of sanctions, many studies have also pointed to the inability
of the sender state to inflict sufficiently high costs upon the target in order to compel the latter to change its policy (Hufbauer, Schott and Elliott, 1990; Dashti-Gibson, Davis and Radcliff, 1997), while others have emphasized the potential utility of sanctions when they are issued to support a war effort (Wallensteen, 1983; Hufbauer, Schott and Elliott, 1990). Other scholars emphasize that even sanctions that are very costly at the state level might fail if the domestic actors in the target who are responsible for the policy change do not bear a significant part of these costs (Olson, 1979; Morgan and Schwebach, 1996). Olson (1979), for instance, argues that trade concentration does not automatically imply greater target vulnerability because the relative deprivation due to sanctions is not equally experienced by different groups in target country. (Clawson, 1993) uses the U.N. sanctions against Iraq to illustrate how dictatorial target governments can actually benefit from sanctions, due to the higher domestic rents they can capture from the provision of scarce goods. According to Clawson, the U.N. sanctions not only failed to hurt Saddam Hussein, but even gave him a freer hand in dealing with the domestic opposition.11

Just as target attributes such as the domestic costs and internal distress are frequently brought up as explanations for sanctions failure, some studies have also looked at the relationship between sender attributes and the sanctions outcome, and the collective versus unitary nature of the sender has received special attention. Interestingly, while earlier scholarship suggests that sanctions tend to fail when they are not universally applied by the international community (Doxey, 1980), more recent research claims that multilateral sanctioning efforts are actually less likely to succeed than unilateral sanctions, due to cooperation difficulties, unless moderated by an international institution (Martin, 1993; Drezner, 2000; Miers and Morgan, 2002).12 Thus, first wave sanctions research has conceptualized economic coercion as a bargaining situation, but has suggested different explanations for
the empirical inaccuracy of the bargaining model.

2.3 Challenges to the Bargaining Model

However, despite the plausibility of first wave explanations for sanctions failure, ultimately, the accumulation of empirical evidence against the effectiveness of sanctions has put into doubt whether their primary function is to influence the target in the first place. While Hoffman (1967) clearly states that “the question is whether the effects of sanctions will tend to change the policy of [the target] country in the direction desired by the sanctioning countries” (140), forty years later Davis and Engerman (2003) suggest that “the more fundamental question is why sanctions were imposed so often if they have not been as successful in achieving the initiator’s apparent desired ends or forcing other nations to change their behavior” (195). What made this discrepancy, frequently labeled “the sanctions paradox” possible? According to Baldwin (1985), either policy makers erroneously continued to ignore the policy advice offered by academics, or the research on sanctions was not fully representative of the way sanctions operated in the real world. Baldwin himself adopted the second view, and argued that the scholarly analysis of sanctions suffered due to a number of conceptual and methodological flaws, the main one being the incorrectly and narrowly specified measure of sanctions success as the visible change in target policy. He redefined sanction success to take into account the “multiple targets and goals” of economic sanctions, a theoretical adjustment that resulted in one of the central contributions to second wave research.

In a way, the second wave literature builds directly upon the first wave, as second wave research takes for granted the validity of the first wave conclusion that “sanctions don’t work,” and sees as its primary task the reconciliation of that finding with the contradictory
evidence supplied by policy makers. The second wave literature has broadened in multiple ways our understanding of what goals policy makers pursue by sanctions. One of the first to depart from the narrow definition of sanctions goals as desired changes in the target’s policy has been Barber (1979), who has proposed a trichotomy of sanction objectives. Barber argues that sanctions are most usefully viewed as having primary objectives, which directly concern the target’s policy, secondary objectives, which involve mostly the sender’s domestic considerations, and tertiary objectives, which are related to the sender’s international status. While Barber’s primary objectives essentially capture the first wave definition of sanction success, his secondary and tertiary objectives address respectively issues such as domestic calls for action and concern for international reputation. Similarly to first wave researchers, Barber concedes that sanctions are ineffective with respect to their primary objectives, but argues that they are quite successful with respect to secondary and tertiary objectives. Barber, therefore, resolves the “sanctions paradox” in a way that is typical for the second wave research—he expands the domain of sanctions goals and shows that sanctions have a much better record with respect to this extended domain.

Barber’s resolution, however, is a clear departure from the original bargaining perspective because it allows the possibility that sanctions can be not only means but also ends in themselves. Other second wave researchers who have endorsed Barber’s view and suggested that sanctions have various neglected functions include Lindsay (1986), who argues sanctions have mostly domestic and international symbolic purposes, and Nossal (1989), who sees economic sanctions as international punishment for wrongdoing. That is, Nossal does not require successful sanctions to achieve any change in the target’s policy since the costs inflicted on the target already constitute “successful punishment.” Similarly to Barber, Lindsay and Nossal essentially claim that sanctions seem ineffective only when we commit
to a bargaining or instrumental view of their purpose, and that there is no inherent reason why sanctions objectives have to be materialistic rather than expressive.

The quintessential second wave study by all means, however, has been the one carried out by Baldwin (1985). While Baldwin’s major contribution is his claim that economic sanctions have multiple targets as well as multiple goals (Baldwin, 1985, 1999; Lenway, 1988), he has also singled out as a methodological flaw the first wave practice of evaluating sanction success solely based on the changes in the target’s behavior. The utility of sanctions, Baldwin argues, should not be considered in isolation from the potential utility of alternative policy instruments such as propaganda or military force. It makes little sense to label a sanctioning effort as a failure if military force would have failed too or succeeded only at a tremendous cost. After theoretically expanding the possible objectives policy makers seek by economic sanctions, Baldwin (1985) reexamines some major historical sanctions “failures” and shows that the “conventional wisdom” regarding the ineffectiveness of statecraft is frequently wrong as “failed” senders have either achieved secondary objectives or influenced the behavior of third parties.

Second wave researchers frequently point at the domestic distributional consequences of economic sanctions to explain their apparent international failure (Kaempfer and Lowenberg, 1988, 1992; Smith, 1996). For instance, Smith (1996) finds that if states behave as unitary actors, sanctions should rarely if ever occur in equilibrium. One of the possible explanations for the apparent proliferation of sanctioning efforts is then that sanctions might create positive domestic utility for political leaders or dominant interest groups.\textsuperscript{13} Just as the costs of sanctions are rarely distributed evenly among domestic groups in the target (Morgan and Schwebach, 1996), domestic interests in the sender are not hurt equally and sanctions might even make some groups better off. For example, import restrictions
on goods originating in the target allow the producers of domestic substitutes to capture higher rents; in turn, such domestic groups have an incentive to lobby their government to impose or maintain sanctions against targets that compete in their sector (e.g. Kaempfer and Lowenberg, 1992). If sanctions do serve such domestic purposes, their continued use despite the inability to change the target’s behavior is no longer puzzling.

Building on Kaempfer and Lowenberg (1988, 1992) and Smith (1996), McGillivray and Stam (2004) argue that if sanctions exist only because they privilege certain domestic constituencies, they should be more likely to end when there is a leadership change, and more so in autocracies, because new leaders are frequently responsible to different constituencies, with the difference being more pronounced in autocratic states with small winning coalitions. McGillivray and Stam (2004) find support for their predictions, but the causality direction between leadership change and sanctions termination is questionable, especially given that economic sanctions destabilize leaders and increase the chances for their removal (Marinov, 2005).

The second wave literature, therefore, has been generally characterized by ad hoc assertions of the various and sometimes immaterial goals, from domestic rents to international symbolism, that policy makers seek to accomplish through economic sanctions, besides changes in the target’s behavior. The problem with such ad hoc adjustments to the initial axiomatic structure of earlier sanctions theories is that to be legitimate they have to be progressive. That is, the new theory has to explain not only what the original theory it replaces is capable of explaining, but must also provide at least one additional and empirically valid prediction or a novel fact (Lakatos, 1970). It is precisely in the generation of novel facts that the second wave literature is lacking. For instance, Lindsay (1986) claims that sanctions have symbolic utility, that is, they are valuable to policy makers in their own and
without necessarily providing some material advantage. Attributing such symbolic utility to sanctions explains in an ad hoc fashion why policy makers use sanctions even though sanctions are ineffective, but does not generate any new knowledge that can justify the ad hoc assumption. Furthermore, not only does the second wave literature violate Lakatos' standards for a progressive shift, but also when taken to its extreme it is difficult to falsify.

For instance, if we subscribe to Lindsay's theory, to predict in advance if sanctions are going to be imposed we have to know if they have sufficient symbolic utility. However, the symbolic power of a policy act is much more intangible and difficult to measure than a monetary or territorial gain. Arguing that international economic sanctions are symbols is not far removed from arguing that policy makers impose sanctions whenever they feel like doing so, an assertion which explains policy changes by ad hoc preference changes. However, violating the rational choice assumption of fixed preferences leads to a significant loss in predictive power, and science should be ultimately judged by the veracity of its predictions rather than the subjective appeal of its after the fact interpretations (Becker, 1986). Although symbolism is probably the most difficult concept to operationalize, even domestic distributional explanations are hard to evaluate without independent measures of interest group influence and preferences.

Despite these problems, other scholars have also endorsed the idea that changing the target's behavior is not the central objective of economic sanctions, and have instead focused on their non-instrumental aspects. In addition to symbolism and domestic redistribution, two other major non-instrumental explanations rely on the signaling properties of sanctions (Hart, 2000) and on their potential to mitigate long-term concerns over relative gains (Drezner, 1998). First, Hart (2000) argues that the imposition of sanctions serves democratic senders by tying their hands. Since backing down after sanctions fail can generate
domestic audience costs for the sender government, targets know that the sender’s threat to escalate to military force is credible and have an incentive to make concessions if they want to avoid a costly war. Although the end result is still the desired change in the target’s behavior, in the signaling mechanism proposed by Hart not sanctions themselves but rather the credible threat to use force allow the sender to extract concessions. That is why if sanctions are signaling devices, their economic costs would be irrelevant.

Second, a different insight into the function of economic coercion is offered by Drezner (1997, 1998, 1999a). Drezner argues that states not only care about their absolute policy gains, but also have preferences over the relative gains of their opponents. Although Drezner’s game-theoretic model does not allow for failed sanctions in equilibrium, his informal argumentation implies that senders that have high conflict expectations with the target might value such sanctions simply for the greater relative damage they inflict upon it.18 Thus, the second wave literature has challenged the bargaining model, but has not produced enough testable predictions to convince most scholars, although the latter claim is more accurate of studies emphasizing symbolism than it is for studies emphasizing signaling, domestic redistribution, or relative gains. That is why the newest sanctions research has returned to the original bargaining perspective.19

2.4 The Role of Strategic Interaction

The third wave literature has acknowledged the bargaining perspective much more explicitly (Tsebelis, 1990; Eaton and Engers, 1992; Smith, 1996; Morgan and Schwebach, 1997; Dorussen and Mo, 2001). The most popular theme has been that of selection effects, or the contention that observed sanctions are not a representative sample of economic coercion in general (Smith, 1996; Morgan and Miers, 1999; Nooruddin, 2002; Lacy and Niou, 2004).
Eaton and Engers (1992) have shown that sanctions should most likely work at the threat stage, and Smith (1996), who finds that target concessions after sanctions never occur in equilibrium, also suggests that successful sanctions should be either very short or resolved at the threat stage. Morgan and Miers (1999) and Lacy and Niou (2004) both consider selection bias arising when only relatively resolved targets reach the sanctions stage while irresolute targets make concessions and drop out at the threat stage. The sanctions that we can actually observe are highly correlated with failure, and hence any inference about sanctions effectiveness based on observed sanctions only is likely to be misleading and biased toward the conclusion that sanctions "don't work" (Morgan and Miers, 1999). That is why a proper evaluation of sanctions effectiveness requires threats as well, although gathering information at the threat stage is much more difficult (Baldwin, 1999).

Yet, while it is sometimes referred to as the "selection bias" theory (Drezner, 2003), the third wave literature is much more than a methodological clarification. First, the newest literature is firmly rooted into a "thick" rationality view that sees economic sanctions as means to tangible political ends, and, unlike first wave studies, has extensively benefitted from the application of formal bargaining and game-theoretic approaches. In an early study, Tsebelis (1990) shows that because of strategic interaction, the target's decision to make concessions depends on the sender's sanctions costs as well. The argument that economic coercion should usually work at the threat stage is also based on the application of the strategic interaction approach. Unresolved or high-cost targets such as Yugoslavia in 1921 or Greece in 1925 concede at the threat stage because they can foresee that they would have to yield anyway if the sender sanctions them.

Second, third wave research has been much more explicit about its bargaining foundation (e.g. Morgan and Schwebach, 1997). The standard definition of a bargaining situation
is that of a “mixed-motive” game, or a game in which both players prefer agreeing on any one of some possible agreements rather than disagreeing, but have conflicting preferences over the set of possible agreements (Schelling, 1960; Muthoo, 1999). As long as economic sanctions are viewed as means and not ends, cases of economic sanctions automatically become bargaining situations because both the sender and the target prefer any agreement without bearing the cost of sanctions over the same agreement plus the cost of sanctions. The trouble with bargaining theory, however, is that it predicts immediate agreement without costly delays (Muthoo, 1999). Economic sanctions, on the other hand, are precisely such costly delays, which suggests that we should never observe them. Both Morgan and Miers (1999) and Lacy and Niou (2004) find that economic sanctions are indeed impossible, but only so under complete information. 21 Nevertheless, costly delays in bargaining between rational players are possible if incomplete information about costs or resolve is present, and, in fact, incomplete information has gained credibility as one of the main reasons for the costliest type of conflict—war (Fearon, 1995).

According to Fearon, wars occur because rational players, who are uncertain about their opponent’s reservation point, maximize their expected utility by balancing the size of their demands against the probability that these demands will exceed the opponent’s reservation point and lead to a bargaining breakdown. A similar mechanism that allows for sanctions as a bargaining outcome has been identified by Morgan and Miers (1999), who show that sanctions arise when irresolute targets try to misrepresent themselves as more resolved to avoid granting greater concessions to the sender state. Knowing that weak targets sometimes emulate the behavior of stronger targets, senders have to sometimes rationally sanction without receiving concessions. In the sense that sanctions are coercive instruments which actors prefer not to use, the third wave literature fits well into the bargaining perspective.
However, in the sense that sanctions only seem likely under asymmetric information, the newest research also conforms to the informational perspective which has come to dominate the study of war (e.g. Fearon, 1995; Slantchev, 2003).

The third wave literature has been more successful than second wave research in explaining why policy makers employ economic sanctions despite their low success rates. The third wave explanation does not compromise state leaders’ “thick” rationality and leads to a novel prediction—economic sanctions are more likely to succeed at the threat stage (Morgan and Miers, 1999; Lacy and Niou, 2004). It also seems that this prediction has already been supported, as Drezner (2003) finds that U.S. threats against Latin American states on human rights issues were more effective than sanctions. The claim that threats succeed more often has been challenged by Drury and Li (2006), who conduct a study of U.S. threats against China, again on human rights issues, and find that the American threats were unsuccessful. Drury and Li, however, misunderstand the theoretical result obtained by Morgan and Miers (1999), who show that the success rate of coercion should be higher at the threat than at the sanctions stage. A fair test of the latter proposition requires comparing the success rates of threats and sanctions. Simply showing that a series of U.S. threats against China failed is not such a test. Falsifying Morgan and Miers’ theory would require showing that the success rate of U.S. sanctions against China is higher than the success rate of threats, and Drury and Li (2006) fail to provide that comparison.

2.5 Conclusion

We might therefore conclude that the conceptualization of sanctions as inefficient bargaining outcomes that can only occur under incomplete information constitutes a progressive shift in sanctions research. Indeed, the expansion of the original bargaining perspective
with a focus on strategic interaction and asymmetric information seems to have been very useful. Nevertheless, the new answers have also given rise to new questions. First, if states behave strategically, is their choice of economic coercion over alternative instruments also the product of strategic foresight? That is, under what conditions do states opt for economic versus military coercion, and if their choice of instrument is strategic, are different foreign policy instruments more likely to be associated with specific outcomes?

Second, while the new informational theories explicitly model the selection process occurring at the threat stage of a dispute, when senders make threats they have already decided to engage in economic coercion and what demands to make. Furthermore, sanction threats, although most likely cheaper than actual sanctions, are not costless as they can influence the expectations of the private actors who carry out the commercial exchange between the sender and the target. The decision to threaten sanctions is therefore not trivial: it should be driven by the same strategic considerations which govern states’ behavior during coercion episodes as well.

However, if the decision to threaten sanctions is also strategically motivated, then even inferences based on an extended sample that includes both sanctions and threats might suffer from selection bias. Moreover, if states behave strategically, the concessions they try to obtain through economic coercion might also be determined strategically. In fact, approaches which emphasize the strategic nature of demands have already become the standard in the study of crisis bargaining and war (Fearon, 1995), extended deterrence (Werner, 2000), and territorial conflict and the liberal peace (Reed and Hwang, 2004). If the objectives states pursue through sanctions are also endogenous to the parameters characterizing a coercion episode, understanding economic coercion requires modeling the entire sequence of strategic choices that precede it and the relation between its use, stakes,
and outcome.

A related problem characterizing the newest sanctions literature has been the focus on models which treat disputed issues as indivisible (Tsebelis, 1990; Smith, 1996; Morgan and Miers, 1999; Lacy and Niou, 2004), despite that fact that bargaining implies that existence of multiple agreements preferred by both parties over the status quo. While some landmark cases, such as the Greek 1994-5 sanctions against Macedonia in response to the latter’s unwillingness to remove the Star of Vergina, a traditional Greek symbol, from its national flag, do involve indivisible issues, most issues are better characterized as continuously divisible, and even when an issue is seemingly indivisible, a compromise can be obtained through linkages and side payments. The emphasis on indivisible issues is not only inappropriate, but it also precludes modelers from exploring a number of interesting topics, such as the aforementioned implications of demand endogeneity for the coercion dynamic.

Even in its present form, the third wave literature is a progressive shift in the economic sanctions research program. However, while the return to the bargaining perspective and the emphasis on strategic interaction and asymmetric information is a solid foundation for future research, it is imperative that we understand how economic coercion relates to states’ alternative foreign policy options and what impact states’ strategic choices prior to coercion episodes have for the observable dynamic. Resolving these issues is the next logical step in the development of the bargaining perspective. Theorizing about the choice of instrument and the full implications of strategic considerations in the formulation of sanctions policy can allow us to discover novel empirical patterns and bring us one step closer to a unified sanctions theory, which incorporates different aspects such as their imposition, duration, and outcome in a single framework.
Chapter 3

Bargaining and the Military Context of Economic Coercion

3.1 Introduction

One of the most studied cases of international economic sanctions began in October 1935, when the League of Nations, led by Britain and France, imposed a boycott and limited embargo on Italy, in an effort to compel the latter to halt its Ethiopian invasion (e.g. Baer, 1973; Wallensteen, 1983; Doxey, 1996). However, despite the severe impact that closing the Suez Canal and cutting oil supplies would have had on the Italian war effort, these measures were never adopted. Consequently, in the well-known aftermath of these events, Italy successfully completed the conquest of Ethiopia, and in July 1936, when the status quo had already been altered, the sanctions were lifted. While scholars who have focused solely on the economic dimension have labeled the League sanctions as a failure (e.g. Hufbauer, Schott and Elliott, 1990), others have pointed out that more comprehensive sanctions might have succeeded but could not be imposed because the sanctioning countries were concerned that stricter measures might bring them “into open clash with Italy” (Daoudi and Dajani, 1983, 64-65).

The possibility of militarization, however, has not always worked in the target’s favor. While against Italy the insufficient military resolve of the sender coalition prevented it from
employing comprehensive sanctions, 60 years later, when a different sender coalition was trying to remove the military junta governing Haiti, only the threat to use force accomplished what three years of sanctions were unable to. After legitimate Haitian President Jean-Bertrand Aristide had been deposed by a military coup in September 1991, the U.N., driven by the U.S. and the Organization of American States, imposed gradually stricter measures against Haiti, which culminated in the imposition of a mandatory arms and oil embargo in June 1993. However, despite these sanctions, the junta demonstrated no intention to leave, and its leaders only agreed to allow the return of Aristide as late as September 1994, when U.S. helicopters were already preparing to launch the intervention that had been authorized by the U.N. (Doxey, 1996).

In addition to being mirror images, the aforementioned two cases illustrate a more general concern. The traditional sanctions problématique seeks to identify the conditions under which a negative economic linkage, or the imposition of sanctions, will lead to a more desirable outcome on an underlying disputed political issue. As already argued, the dominant perspective on economic sanctions has been the bargaining one, which associates economic sanctions most often with the inside options of the bargaining process, inside options referring to the payoffs which the bargaining agents receive while in disagreement. For instance, if a buyer and a seller are negotiating over the price of a house, the seller’s inside option could be the utility derived by the seller while living in the house and the buyer’s inside option could be the rent paid for temporary lodging (Muthoo, 2000). Similarly, the logic behind imposing limited sanctions against Italy was to make the latter’s inside options less attractive, as the attractiveness of one’s inside option improves one’s bargaining outcome.

However, the extent to which inside options can influence the bargaining outcome can
be restricted by the presence of credible outside options, and such outside options are rarely taken into account when evaluating the effectiveness of economic sanctions. In bargaining theory, outside options refer to the reservation utility which an agent can instantaneously obtain by abandoning the bargaining process altogether. For instance, if the seller and buyer of a house are bargaining over the price, but the seller has a non-negotiable external offer, that offer would represent the seller's outside option (Muthoo, 1999, 2000). Similarly, it is frequently accepted that in international relations states' ultimate outside option is going to war (e.g. Waltz, 1979). For example, Italy could prevent the imposition of stricter economic sanctions because it could credibly threaten to escalate its dispute with the League of Nations. On the other hand, even though sanctions were not costly enough to persuade the leaders of the junta in Haiti to resign, the sender coalition could extract that concession because it had the military capability and resolve to do so.

Military capabilities and the willingness to use them are thus an important determinant of the outcome of economic coercion, and that fact has been acknowledged by some scholars. For example, Wallensteen (1983) claims that sanctions are usually meant to supplement military force and therefore cannot be decisive for the bargaining outcome. In turn, Hart (2000) suggests that economic sanctions simply signal the willingness to use force while Daoudi and Dajani (1983) argue that the international community will be unwilling to sanction major powers who can respond militarily. From a bargaining perspective which identifies economic sanctions with the inside options of the bargaining process and military force with its outside options, military force also has a crucial impact. However, the key distinction from the aforementioned arguments is that in this bargaining framework military force is neither necessary nor sufficient for the success of sanctions.

In bargaining theory outside options only have an effect if they are credible, that is,
if they endow one party with more than what bargaining in the absence of any outside options would allocate to her. When outside options are credible, however, they do have the decisive impact, and factors such as inside options are irrelevant (Muthoo, 1999, 2000). The presence of a military option in international economic coercion can guarantee the party who possesses that option a minimum payoff; the military option, however, cannot improve the party’s payoff beyond that minimum. The possibility of militarization, therefore, can limit the potential impact of economic sanctions on the bargaining outcome on some disputed policy issue because each party has to receive at least as much as its outside option from the bargaining process. It is the presence or absence of such credible outside options that is referred to here as the military context of economic coercion. And while some scholars have suggested that cases such as the sanctions against Italy are imperfect examples of sanctions because the military dimension was so important (Baldwin, 1985), the position adopted in this chapter is that economic sanctions never occur under ideal conditions because given a sufficiently unfavorable outcome induced by sanctions, any state’s war option can become credible.

Rather, the goal is to identify the conditions under which military options are more likely to restrict the outcome of sanctions, and to understand when policy makers will prefer one instrument over the other. To achieve these objectives, the next section presents and analyzes a formal model, in which economic coercion is assumed to be a bargaining process which implements the Nash bargaining solution. The Nash framework, however, is embedded into a simple non-cooperative game that allows the sanctions sender to choose a military solution instead of economic coercion, and also allows the target to avert the outcome of economic coercion by triggering his own war option. The analysis points to five distinct sets of exogenous conditions that are likely to result in five different coercive
scenarios. Using that analytical framework, the next section examines several major sanctions cases from the perspective of the model's predictions. The chapter then focuses on the derivation of seven hypotheses from the model, which are subjected to a quantitative empirical test. The results of the test are generally supportive, and the chapter's conclusion discusses the broader implications of the presented research.

3.2 The Model

We have so far argued that there are two key aspects to the economic coercion process. First, the primary purpose of economic sanctions is to manipulate the target's disagreement payoff and thereby increase the concessions that the sender can obtain in an eventual agreement over a disputed political issue. That is, the coercive aspect lies in forcing the target to bear certain costs if it chooses to withhold making political concessions, and thus makes the latter option less attractive. Understanding economic sanctions therefore requires understanding their use as bargaining instruments. Second, however, economic coercion occurs in a broader context which encompasses additional foreign policy options and the availability of these options can influence the bargaining outcome even if they are never employed directly. In particular, the important external aspect to economic coercion is contained in the fact that the distribution of military power always limits the possibilities in a dyadic relationship. That is, in the anarchic international system no state can be expected to accept a political outcome worse than what it can guarantee itself by going to war over the disputed issue. Understanding the outcome of economic coercion requires understanding the influence of these external factors as well.

This section presents a formal model of the economic coercion process which captures both its bargaining aspect and the broader military context in which the process unfolds.
Initially, the model takes into account only the effect of economic sanctions on the bargaining outcome. The bargaining process is not characterized explicitly but is rather assumed to implement the Nash bargaining solution (NBS). The NBS provides a convenient way to describe the influence of the sender’s and target’s disagreement payoffs on the nature of their political agreement. We then embed this axiomatic bargaining process into a simple non-cooperative game which places the use of economic coercion into its military context. In particular, the sender can first decide whether to pursue its goals using military or economic means. If the sender chooses to employ economic means, the target then has the option of accepting the sanctions-induced agreement or overturning the agreement by itself resorting to the use of military force. The key insight of the extended model is that in many situations the outcome of economic sanctions will depend on non-economic factors.

To introduce the model, assume that two risk-neutral agents, denoted by S and T, are bargaining over the division of a pie of size \( \pi > 0 \). Let S be the potential sanctions sender ("she"), T be the potential target ("he"), and the pie \( \pi \) represent the policy issue disputed by the sender and the target. To account for the fact that the sender is usually the revisionist party, which seeks to alter the status quo, we are going to assume that initially the whole pie is in the possession of T, i.e. that the status quo distribution of the policy gains is \((0, \pi)\).\(^{22}\) In turn, the outcome of the bargaining process \( x^* \in [0, \pi] \) represents the amount by which the status quo distribution shifts to the sender’s advantage, that is, to \((x^*, \pi - x^*)\). If S and T bargain over \( \pi \) only, S would not be able to alter the status quo because disagreement is not costly for the target. On the other hand, if S employs economic coercion and links renegotiating the status quo to the continuation of her economic exchange with T, disagreeing can become costly.
More precisely, economic sanctions act as negative inside options in the bargaining between S and T. That is, both agents incur the sanctions costs while they disagree, and if T's costs are sufficiently high, he might find it preferable to accept an alteration of the status quo. However, the model does not characterize the specific bargaining protocol. Rather, it assumes that the protocol implements the Nash bargaining solution (NBS), and in Nash's framework the impact of inside options can be incorporated through the disagreement point (Muthoo, 1999). Therefore, to derive the effect of economic sanctions on the bargaining outcome, we first need to define the agents' disagreement payoffs when disagreement implies the imposition of sanctions. Let S set the level of economic coercion $e$ prior to the bargaining process. We are going to require that $e \in [0, \bar{e}]$, where $e = 0$ is equivalent to no coercion and $e = \bar{e}$ is the maximum coercion level.\textsuperscript{23} If we assume that the agents' marginal sanctions costs are linear and denote them by $c_s > 0$ and $c_t > 0$, we can now also define the disagreement payoffs as $d_s(e) = -c_se$ and $d_t(e) = \pi - c_t e.\textsuperscript{24}$

Once we have established the agents' payoffs from eventual disagreement, we only need to specify their utility functions over the set of feasible agreements before we can apply the NBS. In particular, if $u_s(x) = x$ and $u_t(x) = \pi - x$ are the agents' utilities associated with some agreement $x$, the NBS is the unique $x^*$ that solves the maximization problem:

$$\max_{x \in [0,\pi]} (u_s(x) - d_s(e))(u_t(x) - d_t(e)),$$

subject to $u_s(x) \geq d_s(e)$ and $u_t(x) \geq d_t(e)$ (Muthoo, 1999, 11). To find the maximum, we differentiate the maximand with respect to $x$, and solve for the $x$ that sets the derivative
equal to zero:

\[
[(u_s(x) - d_s(e))(u_t(x) - d_t(e))]_x' = \\
[(x + c_s e)(\pi - x - \pi + c_t e)]_x' = \\
[-x^2 + x e(c_t - c_s) + e^2 c_t c_s]_x' = \\
-2x + e(c_t - c_s) = 0 \iff x = e \frac{c_t - c_s}{2}.
\]

Since the maximand is quadratic in \( x \), the global maximum is attained at \( x = e \frac{c_t - c_s}{2} \), and to define the NBS we only need to explore potential corner solutions. If \( e \frac{c_t - c_s}{2} < 0 \), which is only possible if \( c_t < c_s \) as \( e \geq 0 \), the maximum is attained at \( x = 0 \). On the other hand, if \( e \frac{c_t - c_s}{2} > \pi \), the maximum is attained at \( x = \pi \). We can therefore define the NBS for a given level of economic coercion \( e \) as:

\[
x^*(e) = \max \left\{ 0, \min \left\{ \pi, e \frac{c_t - c_s}{2} \right\} \right\}. \tag{3.2.1}
\]

However, before we analyze the conditions under which sanctions can actually change the status quo, we are going to embed the Nash bargaining framework into a simple non-cooperative game that includes the use of military force as an option. In particular, assume that initially S decides whether to seek a status quo revision through military means or to employ economic coercion. If S chooses economic coercion (or sets \( e = 0 \) which amounts to no coercion), S and T engage in a bargaining process that implements \( x^*(e) \) as the bargaining outcome. Finally, once the outcome has been determined, T decides whether to accept that outcome or to defend the status quo with military force. To define the agents’ valuations for their military options, assume that their war costs are respectively \( k_s > 0 \) and \( k_t > 0 \), and that S prevails in a military crisis with probability \( p \). If we allow the victor to impose her ideal point on the disputed issue, the agents’ expected utilities from war become
\[ w_s(p, \pi, k_s) = p\pi - k_s \text{ and } w_t(p, \pi, k_t) = (1 - p)\pi - k_t. \] Since \( w_s + w_t = \pi - (k_s + k_t) < \pi \), the model is in accord with the assumption that any agreement between rational actors that is reached prior to a costly conflict will Pareto dominate any post-conflict agreement (e.g. Fearon, 1995).\textsuperscript{25}

We are now in position to specify the conditions under which S will employ military or economic coercion and the status quo revisions she can achieve using her preferred means. Define Case 1 when \( c_t \leq c_s \) and Case 2 when \( c_t > c_s \), and consider Case 1 first. Even before we derive S’s optimal \( e \), it is obvious that if \( c_t \leq c_s \), then \( x^*(e) = 0 \) and S will not be able to extract any concessions from T. That is, if S’s sanctions costs exceed T’s costs, the status quo distribution is the NBS. This result is not surprising, as sanctions are conceptualized here as an issue linkage, and S cannot obtain a more favorable distribution of the disputed policy gains by bringing in another bargaining dimension on which T has the advantage. Therefore, the first conclusion emerging from the model confirms the conventional wisdom that a sanctions sender can only extract concessions if the imposed sanctions hurt the target more than the sender herself (e.g. von Amerongen, 1980; Hufbauer, Schott and Elliott, 1990).

However, while in Case 1 S is unable to change the status quo through economic coercion, she might still be able to achieve that through military coercion. Divide Case 1 into Case 1.1, when \( w_s > 0 \Leftrightarrow p\pi > k_s \), and Case 1.2, when the opposite relationship holds true. Consider Case 1.1 first. Since \( x^*(e) = 0 \) and \( w_s > 0 \), S will always prefer to cash her war option, and the only way to do that is to resort directly to military coercion. If S sets some economic coercion level \( e \), T will always accept the resulting bargaining outcome because \( \pi - x^*(e) = \pi > w_s \), and S would still obtain \( x^*(e) = 0 \). Therefore, when the sender values the economic relationship that has to be severed more highly than the target, economic coercion is not possible in the model. However, if the sender’s war option is high enough,
the model suggests that the sender will directly resort to force, and that is the first possible coercive scenario, which we can label "direct military coercion." All coercive scenarios emerging from the analysis are summarized in Table 3.1.

In terms of the parameters that determine the value of $w_s$, we are likely to observe the direct military coercion scenario when the sender is militarily much more powerful than the target, when the disputed political stakes are considerable, and when the sender's military coercion costs are rather low. However, if one or more of the outlined conditions are not satisfied and $w_s \leq 0$, S's military option is irrelevant and S can do no better than the status quo. Technically, S can set any economic coercion level because $x^*(e) = 0$ for all $e$, but introducing even an arbitrarily small fixed cost $\varepsilon > 0$ for setting $e \neq 0$ already implies that as long as the target's marginal costs are lower, the sender will always choose $e = 0$, that is, not undertake any economic coercion. It thus seems most appropriate to conclude that when the target enjoys the advantage on the economic and military dimensions as well, the sender will most likely not attempt any coercion, and we can label this second coercive scenario "status quo unchallenged." Substantively, the status quo is most likely to remain unchallenged when a small country, which is disadvantaged both economically and militarily, has to confront a bigger power on some disputed policy issue. However, even bigger powers which are not sufficiently resolved might be unable to challenge the status quo.

Consider now Case 2, when $c_t > c_s$, and S has the advantage on the economic dimension. Since $c_t > c_s$ implies $\frac{\mu}{2} > 0$, from equation (1) we have that $x^*(e) = \min \left\{ \pi, e^{\frac{\mu-c_s}{2}} \right\}$. Therefore, if S has lower sanctions costs than T, she will set $e$ as high as necessary to acquire the whole pie, that is, her optimal coercion level is the $e$ for which $\pi = e^{\frac{\mu-c_s}{2}}$, or $e = \frac{2\pi}{c_t-c_s} \equiv e^*$. If $\overline{e} < e^*$, S still has the incentive to set $e$ as high as possible, or
\( e = \bar{e} \), because her payoff is increasing in the coercion level. However, if the coercion level is too high and the bargaining outcome becomes very unattractive for \( T \), the latter might prefer to cash his war option. Therefore, we need to establish the coercion levels that will result in a bargaining outcome acceptable to \( T \). In particular, that will be all \( e \) for which \( \pi - x^*(e) \geq w_t = (1 - p)\pi - k_t \iff e \leq \frac{2\pi + k_t}{c_t - c_s} \equiv e^t \). Observe also that if \( T \)'s war option is not positive, \( T \) will accept even those agreements that result from coercion levels which allocate the whole pie to \( S \):

\[
w_t \leq 0 \iff \pi - k_t \leq 0 \iff \pi \leq (p\pi + k_t) \iff \frac{2\pi}{c_t - c_s} \leq \frac{2p\pi + k_t}{c_t - c_s} \iff e^* \leq e^t.
\]

Since the \( e^t \) constraint matters only when \( e^t < \min\{e^*, \bar{e}\} \), let us divide Case 2 into two subcases: Case 2.1 when \( e^t < \min\{e^*, \bar{e}\} \) and Case 2.2 when \( e^t \geq \min\{e^*, \bar{e}\} \).

Consider Case 2.1 first. If \( e^t < \min\{e^*, \bar{e}\} \), \( S \) essentially has two choices: either set \( e = e^t \) and obtain the payoff of \( x^*(e^t) = 2 \left( \frac{p\pi + k_t}{c_t - c_s} \right) \left( \frac{c_t - c_s}{2} \right) = p\pi + k_t \) or cash her war option, equivalent to \( w_s = p\pi - k_s \). Since \( p\pi + k_t > p\pi - k_s \), it is always better for \( S \) to extract the maximum she can get through economic coercion than to resort to military coercion. However, since \( T \)'s attractive war option prevents \( S \) from employing economic coercion to its full extent, we can figuratively label the resulting coercive scenario "economic coercion trumped."\(^{27} \) In the model, we are more likely to observe the target "trumping" economic coercion by military means when \( T \)'s war option \( w_t \) increases its value, which decreases \( e^t \), and that happens when \( p \) increases, \( \pi \) increases, or \( k_t \) decreases. Therefore, when a sender has an economic advantage over a target, and the volume of their economic exchange is sufficiently high, the sender might not even try to extract any substantial concessions if the target is militarily powerful and resolved to fight. In turn, this result implies that major powers will frequently face only limited sanctions whereas small countries will be targeted
more often with total embargoes or blockades.  

Consider now Case 2.2, when \(e^t \geq \min\{e^*, \bar{e}\}\) and T’s war option is not a binding constraint. Divide Case 2.2 into Case 2.2.1, when \(e^* \leq \bar{e}\), and Case 2.2.2, when \(e^* > \bar{e}\).

In Case 2.2.1, S can set \(e\) as high as necessary to obtain the whole disputed pie through economic coercion. Since here T does not have an attractive war option, and \(w_s < \pi\), S cannot do better than set \(e = e^*\) and get \(\pi\) as her payoff. We can label the resulting coercive scenario “successful economic coercion.” In the model we are more likely to observe successful economic coercion when the sender has an economic advantage over the target, when she is militarily more powerful, or when the target’s war costs are high relative to the value of the disputed issue. Since \(e^* = \frac{2\pi}{c_1 - c_s}\), it is also more likely that \(e^*\) would not exceed \(\bar{e}\) or \(e^t\) when \(\pi\) is small. That is, we should be more likely to observe full target concessions when the disputed political stakes are rather low. The conditions under which economic coercion is likely to be a complete success are thus quite limited: basically, the sender’s political objectives need to be rather modest, and the target should prefer yielding over reciprocating by military force.

Let us now examine Case 2.2.2, when \(e^t \geq \bar{e}\) and \(e^* > \bar{e}\). The maximum concessions S can extract using economic coercion are \(x^*(\bar{e}) = \bar{e} \left(\frac{\alpha - c_s}{2}\right) \leq \pi\). Since \(e^t \geq \bar{e}\), T’s war option is irrelevant and he cannot improve upon his payoff. However, as \(x^*(\bar{e}) < \pi\), the issue is whether S cannot improve upon her payoff if she exercises her own war option. The latter possibility will be appealing to S if \(w_s = p\pi - k_s > \bar{e} \left(\frac{\alpha - c_s}{2}\right) \Leftrightarrow \bar{e} < 2 \left(\frac{p\pi - k_s}{c_1 - c_s}\right) \equiv e^s\), and, clearly, \(e^s < e^t\). Therefore, we can divide Case 2.2.2 into Case 2.2.2.1, when \(\bar{e} < e^s\), and Case 2.2.2.2, when \(\bar{e} \geq e^s\). Consider Case 2.2.2.1 first. Here S’s first option is to use limited economic coercion, and to extract partial concessions from T. However, even though cashing her war option will not result in obtaining the whole pie either, S can do better
by using military coercion. Consequently, when we are in Case 2.2.2.1, we are again likely to observe direct military coercion. In turn, Case 2.2.2.1 is more likely to occur when the economic relationship between the sender and target is limited, when their sanctions costs are similar, when the disputed political stakes are high, or when the sender is simply too powerful militarily and resolved to fight.

In contrast, Case 2.2.2.2 occurs when \( \bar{e} \geq e^s \), and one or more of the aforementioned conditions are not present. Here S cannot better than to use the limited economic sanctions, which she has to capacity to impose, in order to extract limited concessions from T. We can label the ensuing coercive scenario “limited sanctions, limited concessions.” Substantively, this last scenario can arise when the economic relationship between a sender and a target is limited relative to the disputed political stakes, but neither actor has a military superiority, which can override the effect of economic coercion on the bargaining outcome. We have thus identified five possible coercive scenarios, which can be observed in a dyadic interaction, and have summarized them in Table 3.1, which also matches each scenario to the exogenous parameters configuration that is most likely to produce it. Although the third and fifth scenarios yield essentially the same outcome, the process leading to that outcome is different. While in the third scenario the sender has the economic means to extract complete concessions, but decides against using them in fear of military escalation, in the fifth scenario the sender simply has insufficient economic leverage. In turn, whether the identified exogenous conditions also correspond to the predicted coercive scenarios empirically is the subject of the remainder of the chapter, which traces the actual coercive dynamics in five historical cases and also reports a quantitative test of the model’s predictions.
3.3 Case Studies

We can assess the empirical validity of the model's logic using Table 3.1 as a guideline. Each table cell corresponds to an observable set of characteristics associated with the coercion context, and each such set of characteristics, or independent variables, is predicted to result in a given coercive scenario, or value on the dependent variable. One way to test the model would be to select on the independent variables; we could find a case that fits the coercion context specified in each cell and ascertain whether the actual case outcome corresponds to the predicted outcome. While in principle that is a viable case selection strategy, we have no guarantee that a sender-target dyad that fits some table cell will have experienced any coercion, as many dyads are characterized by the absence of controversial policy issues between the dyadic members. We might therefore end up finding that a variety of coercion contexts lead to the status quo unchallenged scenario.

Given that we are only going to examine a small number of cases, a more appropriate case selection strategy is to select the cases based on their outcome, or the value of the dependent variable. That is, we need to find at least five cases such that there will be at least one case corresponding to each coercive scenario. In turn, once we have matched each cell to a historical case that has developed in accord with the coercive scenario outlined in that cell, we analyze whether the actual case backgrounds were similar to the independent variable configurations predicted to generate the corresponding outcomes. The selected cases are listed in Table 3.2: there are seven cases in total, as two cases have been selected to fill each of the “direct military coercion” and “economic coercion trumped” cells.

The small number of cases to be examined is no substitute for systematic quantitative evidence, but can definitely serve as an initial plausibility probe. Furthermore, the main
advantage of such case studies is that they allow us not only to determine whether the actual outcome matched the predicted one, but also to trace the causal process and determine whether the outcome was attained in a way consistent with the theoretical logic. Some of the cases discussed below are well-known in economic sanctions research whereas others have not been included before in any sanctions study. The inclusion of both types of cases, in turn, allows us to find out not only whether the model can explain previously unexplored events, but whether it can shed new light on overstudied cases as well.

3.3.1 Direct Military Coercion

The direct military coercion scenario is illustrated by the dispute which took place between Cyprus and Turkey between 1997-98. To introduce the case background, Cyprus, an island in the Eastern Mediterranean and former British colony, became an independent state with a unified government in 1960. Although the island is geographically more proximate to Turkey than to Greece, the majority of its population is Greek, with the Turkish minority estimated at 18% in 1974, and control over the island had always been a contentious issue between Greece and Turkey (Fouskas, 2001). The current division of the island into two political units dates back to the summer of 1974, when in response to the coup staged by the military junta ruling Greece, which deposed the legitimate president of Cyprus Archbishop Makarios, Turkey launched two consecutive military invasions. The result was the occupation by Turkey of 37% of the island's territory, as well as the forceful displacement of 250,000 Cypriots. Since August 1974, the U.N. has patrolled the so-called Green Line, which demarcates the Turkish-occupied north from the Greek-populated south (Fouskas, 2001). The south part, which is seen by the international community as the legitimate Republic of Cyprus, became a member of the European Union in 2004. The north part
declared its independence as the Turkish Republic of Northern Cyprus in 1983, but is only recognized by Turkey. The negotiations over the future of the island have been in a deadlock.

Since 1974 the relationship between Turkey on one hand and the Republic of Cyprus and Greece on the other hand has been marked by the Turkish military superiority on the Cyprus island. However, on January 6, 1997 the Greek Cypriot government announced that it had ordered an advanced ground-to-air missile system from Russia. The contract had been concluded at a meeting in Nicosia, the capital of the Republic of Cyprus, between Greek Cypriot officials and a delegation from Russia’s arms exports agency Rosvooruzhenie.29 From the Turkish point of view this development was highly undesirable. At the beginning of 1997 Western security experts were estimating that Turkey had about 30,000 troops and 265 M-48 tanks in north Cyprus. These forces were deployed against the 10,000 men strong National Guard of the Greek Cypriot government plus 41 T-80 tanks that were due from Russia on a past arms deal.30 Turkey also controlled the air space over Cyprus. However, the Russian S300 system, described by its marketers as a superior version of the U.S. Patriot system, could overturn Turkish air superiority. Under the terms of the contract, the S300 system was to be installed by Russian technicians while some Greek Cypriot military officers were to obtain training in Russia. The installation was also to be the first time the air defense system would be deployed outside of Russian territory.31

Turkey responded to this challenge aggressively, by threatening to use military force and conduct a preemptive strike on the missiles. Right after the deal had been announced, the Turkish foreign ministry stated that Turkey “will not tolerate any developments which can change the balance between Turkey and Greece in the Eastern Mediterranean. For these purposes we will take the necessary actions.”32 On January 8, 1997 the Turkish defense minister Turhan Tayan was reported saying in front of the state-run TRT television
channel that Turkey would not hesitate to attack Cyprus in order to protect the Turkish Cypriot community: "What was needed in 1974 and what did we do? We will do the same again. If needed, we will strike." The Turkish threats continued despite signals from the U.S. government that it would disapprove of a military confrontation in the Eastern Mediterranean. In the strongest threat delivered, Turkish Foreign Minister Tansu Çiller asserted that "If they [the missiles] are deployed, we will do whatever we have to and if that means they need be hit, they will be hit." On January 13 the Turkish chief of staff General Hakki Karadayi visited north Cyprus in support of its president Rauf Denktash and asserted that the missiles were not defensive. According to Karadayi, their 160km range extended in Turkish territory and they were "the last link in an intensifying chain of provocation." At this point it also became clear that the missiles would not be deployed for at least 16 months because the Greek Cypriot government wanted to give more time to international efforts to reunite the island. The latter action was interpreted by U.S. mediators as a concession, and it devolved the crisis for a while.

In August 1997, however, the crisis escalated again when the Greek Cypriot foreign minister Yannikis Cassoulidis confirmed his government's plans to deploy the missiles. Also, during 1997 Turkish and Greek warplanes staged several military exercises in the Eastern Mediterranean, and Turkish jets repeatedly flew over Cyprus, including an incident in which Turkish jets buzzed the military transport of the Greek defense minister, who was returning from Cyprus. On April 29, 1998 the head of Rosvooruzheniyе, Yevgeny Ananyev, announced that Russia was determined to ship the missiles despite U.S. objections and that they were to be delivered in the middle of August. In anticipation of the missiles, Turkey's prime minister Mesut Yılmaz dispatched on June 19, 1998 six Turkish F-16 warplanes to north Cyprus, and suggested that Turkey will increase the use of its air
bases there. In addition, the Turkish navy also sent nine warships to the north Cyprus port of Kyrenia.\textsuperscript{41} Yilmaz claimed the measures were in response to the landing at a Cypriot airfield of four Greek F-16 fighter jets and two military cargo planes. In addition, the six Turkish F-16s were reported flying over the island and making several low-level passes over south Cyprus.\textsuperscript{42} In July 1998, Cypriot President Glafkos Clerides, in a meeting with Russian President Yeltsin, again confirmed his intention to carry out the missile deal, now valued at $600 million. In the meantime, Turkish newspaper Hurriyet claimed that Turkish F-16s had spent a weekend over southern Israel training for the neutralization of anti-aircraft missiles, a claim that was denied by Israel.\textsuperscript{43}

In August 1998 the arrival of the missiles was delayed until November while Greece had started trying to persuade Clerides to avert the deployment.\textsuperscript{44} In December, however, the missiles were still not shipped, as Russia was waiting for a final decision from Clerides while the latter was trying to negotiate a solution in Athens.\textsuperscript{45} Finally, on December 30, Clerides canceled his government’s plans to deploy the missiles in Cyprus and instead diverted them to the Greek island of Crete with the consent of Athens, where they would not be able to threaten Turkish air space.\textsuperscript{46} Even though Clerides tried to make it appear that he was not acting under international pressure, he had previously said he would only cancel the missiles if Turkey agreed to demilitarizing the island or some progress was made toward unification, none of which happened.\textsuperscript{47} What confirmed the impression of a political defeat was also the resignation of two socialist ministers from Clerides’ government in the first week of 1999. The ministers termed Clerides’ decision over the missiles “national humiliation” and “a serious blow to the sovereignty of the Cyprus Republic.”\textsuperscript{48}

How can we see this development of the events during the Turkish-Cypriot crisis through the lens of the theoretical model? The main political actors were Turkey, which wanted to
thwart the missile deal, and the Republic of Cyprus, which was determined to carry the missile deal to its completion. Greece was supportive of Cyprus, and indicated it would defend the latter if Turkey launched a preemptive attack, but did not have such a stake in the missiles as President Clerides. The Turkish Republic of North Cyprus was not an active actor because although it had huge stakes in the crisis outcome, it did not have any capacity independent of that provided by the Turkish military. Finally, Russia seemed only interested in the financial compensation it was getting for the missiles. According to a New York Times article, “the dominant view among American officials is that the sale is part of a disturbing pattern in which Moscow uses exports to prop up its ailing military industry with little regard for foreign policy consequences.” The U.S., Britain and NATO were also involved in the crisis, but seemed only interested in avoiding military conflict and not in whether the military balance on the island was preserved.

In brief, the crisis resulted due to Turkey’s efforts to force Cyprus to reverse its decision to purchase the missiles. In terms of the model, Turkey was the sender seeking to alter the status quo, Cyprus the target, and the disputed issue was the deployment of the missiles on the island’s territory. What were the most likely values of the key parameters in the theoretical framework? The disputed issue was clearly of immense importance both to Turkey, which would incur an air vulnerability over its own territory due to the missile deployment, and to President Clerides, who had spent so much political capital over the missiles. The high political stakes, in turn, implied that if Turkey wanted to use economic coercion, it would have be able to impose extensive economic sanctions to extract any concessions from Cyprus.

Turkey, however, did not have the means to do so. In fact, the trade and economic ties between Turkey and Cyprus were quite limited. Travel between the north and south parts of
the island was heavily obstructed and direct trade nonexistent. In 1996, the year preceding the crisis, Cyprus exported $3.7 million worth of goods to Turkey, and imported $179 million. Cyprus’s total foreign trade for that same year was $5,239 million whereas Turkey’s total trade figure was $64,388 million. During 1997, the first year of the crisis, Cyprus exported only 3 million USD worth of goods to Turkey and imported the same amount while the countries’ total trade volumes for that year were respectively $4,911 million and $72,772 million. The major trading partner of Cyprus was the European Union, providing 66% of the country’s total imports, followed by Asian countries such as China, Japan, North Korea, Thailand, Taiwan, Singapore and India. The United Arab Emirates were the country’s biggest Middle Eastern supplier while Russia, Ukraine, Switzerland and Bulgaria were some of its other key non-E.U. suppliers. Cyprus’ exports were similarly distributed and Turkey was by no means an important trading partner. These figures suggest that Turkey had no opportunity to apply effective economic coercion because the limited trade with Cyprus was certainly dwarfed by the importance of the missiles, whose financial value only exceeded several times the Cypriot exports to Turkey.

On the military dimension, however, Turkey had a favorable war option. Turkey had vast superiority in terms of ground forces deployed on the island and could easily increase the forces it already had. Turkey also controlled the air space over Cyprus, and even though these rumors were not confirmed, it was training its pilots to destroy anti-aircraft missiles. The high probability of success of a Turkish military operation and the high value of the stakes would also easily justify a high conflict cost that would come mostly not so much from direct casualties and damages as from U.S. and E.U. condemnation and loss of international reputation. Therefore, the fact that Turkey chose to use its military option should not been seen as surprising. True, Clerides’ decision to yield could also be
attributed to U.S. mediation efforts and international pressure (Kalaitzaki, 2005), but that international pressure would probably not have been as strong had Turkey not threatened the use of military force.

The Turkish-Cypriot crisis illustrates the direct military coercion scenario, which results when a military powerful and resolved sender confronts a weaker, but economically invulnerable target on a salient disputed issue. In such cases, the sender is likely to resort directly to threat or use of military force to persuade the target to alter the status quo. Direct military coercion can also occur when the sender can impose economic costs on the target but just not enough costs to persuade the target to make concessions. We do not know whether Turkish policy makers considered economic sanctions as a policy option, but given how impractical sanctions would have been, the fact Turkey did not try using them before resorting to force is not surprising. However, in the Turkish-Cypriot crisis there was practically no uncertainty that economic coercion would fail. This chapter does not address situations in which uncertainty over the target’s vulnerability to sanctions is present, but it is conceivable that in such situations a sender might use sanctions and then resort to military force. This seems to have been the case in the international sanctions against Haiti, when sanctions were tried at first, and when they failed, the U.S. threatened intervention.

The model does not differentiate between these two cases but both type of situations support the claim that economic sanctions should not be analyzed in separation from military force.

3.3.2 Status Quo Unchallenged

An illustration of the status quo unchallenged scenario can be found in the repeated disputes in the U.S. Congress between 1989-1995 over whether to revoke China’s Most Favorite
Nation (MFN) trading status in an attempt to compel the latter to improve its human rights situation. According to Drury and Li (2006), China’s human rights policy had become a contentious issue in the U.S. since the Tiananmen Square incident on June 4, 1989, during which the government forces killed several hundred pro-democracy protesters. The U.S. and China had been granting each other MFN status since the mid-1980s, when they established a trade relationship. The aforementioned authors report that the debates about prolonging China’s MFN status became an important issue in 1990, when Congress started trying to link the MFN status continuation to new conditions in the trade, security and human rights areas, based on the Jackson-Vanik amendment. Under the Congressional procedures, not renewing the MFN status would have required that China fail to meet the requirements set by Congress and that the U.S. president fail to waive these requirements. Under U.S. trade legislation, withdrawal of China’s MFN status would automatically result in the imposition of the high 1930s Smoot-Hawley tariff (Drury and Li, 2006).

According to Drury and Li (2006, 310), “[between] 1989 and 1995, 12 bills were introduced to the Congress to either revoke or condition the MFN status for China.” However, neither of these bills led to revoking China’s MFN status: most bills that tied the MFN status continuation to human rights demands were not enacted by Congress, and on the rare occasions when Congress put forward such a bill, President Bush, or subsequently Clinton, waived the additional requirements or vetoed the bill. For instance, in the spring of 1994 there were discussions in Congress about linking the renewal of China’s MFN status to its human rights policy, promoted by Senator George Mitchell, the leader of the Democratic majority. Some of the demands to be linked to MFN status continuation included:

[Grants] of medical parole for political prisoners with serious health problems; clearing up remaining cases of Chinese citizens denied the right of emigration; make progress towards a pact to give the International Red Cross access to
Chinese prisons; enforce the bilateral agreement prohibiting exports of goods produced with force labor; and end jamming of Voice of America.”

However, on May 27, 1994, President Clinton announced that he was extending China’s MFN status for another year without obtaining any relief for Chinese dissidents. On August 10, 1994 the U.S. House of Representatives supported Clinton’s policy toward China by rejecting a bill which would have imposed trade sanctions on China for its human rights policies.

Thus, U.S. policy makers repeatedly refused to engage in serious economic coercion against China. Consequently, China’s only response to the U.S. Congressional debates on its MFN status was to release a few higher-profile dissidents but it made no fundamental changes in its human rights policies (Drury and Li, 2006). Although the U.S. debates can be considered threatened economic coercion, the fact that the majority of the House and Senate and the administration were opposed to such measures rather suggests that the U.S. was not ready or willing to undertake any action. So is it surprising that the U.S. left the status quo in its relations with China unchallenged? According to the theoretical model the answer is no because the given the salience of the human rights policy issue to China, the U.S. had neither the means to impose a sufficiently high level of economic coercion nor the willingness to exercise its war option. Regarding the economic dimension, a 1994 Congressional study found that U.S. consumers would lose $10 billion annually if China’s MFN status were revoked and claimed that U.S.-China trade yields more profits to Hong Kong than to China. It seems that the U.S. Congress, heavily dependent on particularistic commercial interests, was not prepared to pay that cost.

On the military dimension the U.S. did not fare better. President Clinton himself, who had promised during his presidential campaign to revoke China’s MFN status if it failed to
improve its human rights situation, in 1994 explained his decision to give up these goals as follows:

China has atomic arsenal and a vote and a veto in U.N. Security Council. It is a major factor in Asian and global security. We share important interests, such as in a nuclear-free Korean peninsula and in sustaining the global environment.”

Reinforcing the perception of the significant economic importance of China to the U.S., Clinton said that: “China is also the world’s fastest growing economy. Over $8 billion of U.S. exports last year supported more than 150,000 American jobs.” Meanwhile, military analysts, mostly in relation to a potential dispute over Taiwan, have pointed out that while the U.S. has a military advantage, China can impose huge costs on its adversary through various asymmetric warfare strategies, costs that the U.S. was hardly willing to incur to promote human rights. Therefore, on many occasions a prospective sender will have neither the economic means necessary to alter the status quo nor the military capabilities and resolve necessary to extract the desired changes through military coercion. On these occasions, the sender is most likely to leave the status quo unchallenged.

3.3.3 Economic Coercion Trumped

The economic coercion trumped scenario is illustrated by the opening case of the League of Nations sanctions against Italy. The Italian military launched its invasion of Ethiopia on October 3, 1935, following several months of escalating border incidents and unsuccessful attempts by the League of Nations to dissuade Italy’s territorial ambitions. Not only had Italy rejected the League Council proposals that suggested a basis for resolving the dispute, but the invasion also constituted a technical violation of Article 12 of the League Covenant, which forbade members to take further action until at least three months had elapsed from a Council report (Doxey, 1996, 16). In response to the invasion, the League Council triggered
selective sanctions, authorized under Article 16 of the Covenant. These selective measures involved “an arms embargo, the restriction of financial dealings with Italy, a ban on Italian imports and on the export to Italy of transport animals, rubber, bauxite, aluminum and other strategic materials” (Doxey, 1996, 16). Reexports were also banned, but contracts in process were exempted, and, crucially, no restrictions were imposed on the exports of oil, coal, and steel, which were essential to the Italian military operations. In addition, the Suez Canal remained open to the Italian military shipments, which greatly facilitated Italy’s communication with its Ethiopian bases (Doxey, 1996, 17).

As already acknowledged, the League measures did not persuade Mussolini to cancel his war plans, and by May 1936, unhindered by gas shortages or the lack of supply routes, the Italian forces completed their conquest of Ethiopia. The sanctions themselves were lifted on July 4, 1936, when Chamberlain referred to their continuation as the “very midsummer of madness” (Doxey, 1996, 17). However, even though the sanctions did not succeed in driving Italy out of Ethiopia, their effect on the Italian economy was far from trivial. For example, according to Doxey (1980, 52-53), Italian exports were hurt quite badly, dropping by 50% after the few months during which the exempted contracts in process were being completed. Doxey also reports that as a consequence the Italian overseas purchasing power fell by 40%, the Italian lira was devalued by 25% and the country’s gold reserves saw a substantial depletion. Baldwin (1985, 158) agrees that sanctions “were at least somewhat successful in imposing economic and financial costs on Italy as punishment for noncompliance.” Given that the limited measures imposed such costs on Italy, the puzzle in this case is why the League of Nations did not increase the economic pressure even further, given that it had the means to do so, in order to see whether Italy would yield to its demands.
Further sanctions probably had a realistic success prospect, especially in view of Mussolini’s alleged remark to Hitler that “if the League had extended sanctions to include oil, he would have had to withdraw from Ethiopia ‘within a week’” (Baldwin, 1985, 159). Daoudi and Dajani (1983, 163) also claim that “[the] one sanction that could have been most effective, had it been implemented properly, was the oil sanction,” and that such measures would simply force the Italian army to retreat. In addition, Daoudi and Dajani (1983, 63) also suggest that cutting the supply of other commodities such as coal, nickel, and tin would also act to paralyze the Italian war effort. Observers of the Italian case, however, also acknowledge the League of Nations was limited in how strict sanctions it could apply by the reluctance of Britain and France to exercise their war option and the preparedness of Mussolini to use his own war option to overturn an unfavorable sanctions-induced outcome. For example, Doxey (1980, 49) reports that the British Undersecretary for Foreign Affairs announced to the House of Lords during the Ethiopian crisis the following objectives in front of British policy:

Therefore we do not in the least intend to take any action which Italy, for some reason obscure to us, although the Italians may think it quite clear, can interpret as isolated action done in hostility to Italy and which may cause us to find ourselves at war.

Mussolini, on the other had, even though no government had formally proposed closing the Suez Canal, was reported to have said he would regard it as an act of war, and Italy had also made it clear she would look at an oil sanction in the same way (Doxey, 1980, 49). According to H.R. Wilson in Diplomat between Wars, quoted by Daoudi and Dajani (1983, 65),

[Some] members of the British Cabinet were impressed with the continued reports from Italy that Mussolini and the Italian people were in a frame of mind
to assault Great Britain if the League adopted the petroleum embargo which was then under discussion. Even those members of the Cabinet who did not so believe were unable to guarantee that this was not the fact.

That is why Britain and France informed Mussolini that they had no intentions to use military measures, and when Mussolini replied that he would regard an oil sanction as war, Britain thwarted the imposition of oil sanctions in the League (Daoudi and Dajani, 1983, 65). In terms of the theoretical model, the Italian case is exemplary of the economic coercion trumped scenario. Note that it is irrelevant whether Mussolini had the military capacity to win a war over Britain and France; what matters is that he was willing to seek a military solution whereas Britain and France were not because they could not bear the war costs. That is why, economic pressure was used only to an extent at which it would not make Italy's war option more attractive than suffering sanctions, and that level of economic coercion was not enough to force Italy out of Ethiopia.

Another good illustration of how a target with a favorable war option can trump the negative effect of extensive economic coercion is provided by the dynamic of the U.S.-led sanctions against North Korea in the early 1990s. The United States, South Korea, and Japan, sometimes acting under the U.N. jurisdiction and sometimes not, repeatedly threatened North Korea with economic measures and a blockade unless the latter agreed to terminate its nuclear program, allow U.N. inspectors to visit its Yongbyon reactor site, and renounce its intentions to leave the Nuclear Non-Proliferation Treaty (NPT). Despite the high salience of the nuclear issue to the North Korean government, the economic coercion prospects were not hopeless, given North Korea's dependence on international humanitarian assistance, as well as on the financial transfers by North Koreans working in Japan. However, serious sanctions were never imposed because each time that was about to happen, North Korea successfully linked the sanctions issue to the maintenance of the peace on
Korean peninsula. That is, the North Korean leaders were able to prevent an undesirable economic coercion process by credibly convincing the countries from the sender coalition that sanctions would make North Korea's situation so intolerable that North Korea would find attractive the use of military force to reverse it.

For example, on April 7, 1993 Pyongyang's Foreign Ministry was quoted as saying that, "If the U.N. Security Council tries to put pressure on us and take collective sanctions against us by representing the will of a big power, we will be compelled to take corresponding effective self-defensive measures." Later that year North Korea threatened to go to war if the U.N. Security Council tried to force an inspection of its facilities while the U.S. withdrew its sanctions threats, despite the fact that the only concession was North Korea's suspension of its decision to leave the NPT. In 1994, North Korea again threatened to go to war if sanctions were imposed over its nuclear program, as the U.S. and its allies were drafting a U.N. resolution that sought to penalize the country for its refusal to open its facilities to U.N. inspectors. North Korea's Committee for Peaceful Unification of the Fatherland bluntly stated that "Sanctions mean outright war." A few days later North Korea renewed its threats against South Korea and also threatened Japan. Japan was supportive of sanctioning North Korea, and also had the means to make the sanctions more costly to the latter, as 200,000 North Koreans who lived and worked in Japan were transferring back home as much as $1 billion annually, which was a huge contribution to Pyongyang's troubled economy. However, the vulnerability of most Japanese cities to North Korea's missiles was also a factor contributing to Japan's reluctance to limit the monetary transfers.

North Korea was certainly vulnerable economically, but although it would undoubtedly lose a military confrontation with the U.S. and its allies, it still had a credible war option
because of the enormous costs of a successful military effort to the latter countries whereas North Korea would not have much to lose. In the first place, a war against North Korea would have cost billions of dollars, and discussions in the early 1990s suggested that 520,000 South Korean and 26,000 U.S. infantrymen stationed south of the demilitarized zone on the Korean peninsula would not be able to hold the North’s initial thrust. Estimates of North Korea’s capabilities included 10,000 heavy artillery pieces, 9,000 additional mortars, and an army of one million backed by five million reservists. According to the same scenario, Seoul would fall in a week, and the American forces would only hold a narrow perimeter of land by the time reinforcements start arriving—allegedly the Pentagon plans called for the ultimate deployment of 400,000 troops, a difficult and expensive effort. Thus, while the North Korean case confirms the conclusions drawn from the League of Nations experience, North Korea’s success in averting economic coercion also underlines the importance of costs and resolve in addition to power when evaluating the attractiveness of war options.

3.3.4 Successful Economic Coercion

The sanctions imposed by India against Nepal between 1989-1990 are illustrative of the successful economic coercion scenario. The background information on this case is drawn from Hufbauer, Schott and Elliott (1990), who report that India initiated economic coercion against Nepal after the latter purchased antiaircraft guns and other military equipment from China in 1988. According to the aforementioned authors, India was mostly concerned about Nepalese King Birenda’s growing independence, as well as about the possibility that it might lose Nepal as a buffer to China. In order to compel Nepal to reverse its closer alignment to China, at the end of 1988 and in early 1989 India refused to renew its 30-year-old trade and transit treaty with Nepal. According to Hufbauer, Schott and Elliott (1990, 625), the
aforementioned treaty covered "the flow of everything from fruit and vegetables to drugs and petroleum products." On March 23, 1989 India moved on to close all except two border crossings into Nepal, and demanded that all exports to Nepal be paid for in hard currency. The impact of the Indian blockade on the landlocked Nepalese economy was tremendous, and soon the country experienced severe shortages, which eventually triggered massive demonstrations that forced King Birenda to relax his autocratic rule. The country's new prime minister Krishna Prasad Bhattarai agreed to consult India on all security matters and postponed indefinitely the arms shipment from China (Hufbauer, Schott and Elliott, 1990).

The dispute between India and Nepal developed in accord with the successful economic coercion scenario, and that should not be surprising given the correspondence between the context in which the dispute evolved and the conditions identified by the theoretical model as necessary for the occurrence of the latter scenario. First, India had a huge economic cost advantage over Nepal as its economy was much bigger, and due to the landlocked status of Nepal between India and China, trade with India was much more important to Nepal, which is still reliant on India's seaports. Hufbauer, Schott and Elliott (1990) report an estimate by the U.N. Committee on Trade Development suggesting that even with trade with India, "the cost of Nepal's landlocked status is equal to 8 percent of the country's total output," and further assert that India's blockade had "resulted in long lines for kerosene, gasoline, difficulty in finding essential medicines" (628). Finally, before the crisis induced by the blockade Nepal grew by 5.7% per year whereas after the blockade its GDP was expected to contract by 2% (Hufbauer, Schott and Elliott, 1990, 629).

Thus, India had a huge economic advantage and the scope of its economic relationship with Nepal was large enough for India to extract full political concessions on the disputed
issue. In the model, a target can override such negative effects of economic coercion if it has some military advantage relative to the sender and is resolved to fight. The sheer difference in the size between India and Nepal, however, already precluded that possibility as India would easily have won any military confrontation at small cost. Thus, since Nepal was disadvantaged on both the economic and military dimensions vis-à-vis India, it was subjected to economic coercion, because, as the model predicts, if the sender can achieve her means either way she always prefers to use economic coercion. The broader implication is that fully successful economic coercion is so rare because it requires both that the sender has a huge economic advantage and that the scope of the economic exchange with the target is big enough, and simultaneously that the sender is also able to back her economic coercion gains by military force. In contrast, the League of Nations failed against Italy precisely because the leading countries were not ready to back their potential economic coercion gains with force.

3.3.5 Limited Sanctions, Limited Concessions

The theoretical model suggests that we will observe limited sanctions followed by limited target concessions whenever the sender has a cost advantage over the target but cannot increase the level of economic coercion high enough to obtain full concessions. The distinction from the economic coercion trumped scenario is that the constraint comes not from the target’s war option but from the volume of the economic relationship. For example, in February 1994, under domestic political pressure from striking French fishermen, France implemented new inspection procedures for fresh imported fish which effectively barred U.S. producers from the French market. The inspection procedures involved tests that sometimes took four days whereas most fresh fish started to spoil after one or two days. Soon after
U.S. exports of both fresh and frozen fish to France stopped because it turned out that French officials were also keeping frozen fish in unrefrigerated areas while conducting tests on it. In response to these procedures, the Clinton administration began considering trade retaliations that would force France to abandon the new inspection procedures.68

By March 5, 1994 the U.S. had already prepared a list of products that would be targeted in a potential retaliation while U.S. officials labeled the French negotiating position as "non-responsive."69 France had made concessions by March 11, 1994 according to U.S. officials who claimed that the long inspection procedures had been revoked. Allegedly, the concessions came after the U.S. had threatened to start rigorous inspections on the imports on a certain variety of cheese produced in the home region of France's Minister of Agriculture and Fisheries. The new inspection procedures on the French side would involve only small samples rather than the whole shipment, but the U.S. trade representative admitted that there were still areas of concerns with the French inspection procedures.70 Thus, the U.S. trade representative linked the problematic fish inspections to an economic issue on which the U.S. had a considerable cost advantage because obstructing the imports of the cheese focused the costs on the decision-maker responsible for the regulations. The U.S. did not manage, however, to completely overturn the new inspection standard, and one reason might be that the scope of the sanctioned relationship was also limited as it concerned just one brand of cheese. Military options were clearly irrelevant on both sides because the fresh fish imports, which amounted to $500,000 per week, would be dwarfed by each side's militarization costs. The U.S. and France case also illustrates the most frequent economic coercion scenario, as most sanctions are applied over the trade policy area where military threats are not credible and the limited scope of the sanctioned relationship ensures partial concessions more often that unconditional success.71
3.4 Some Empirical Implications

While the comparative case studies presented in the previous section have granted credibility to the model's main logic, we can also derive some empirical implications, which can be evaluated using quantitative methods. First, based on Table 3.1, we can predict that a sender will employ military coercion when she is militarily powerful, but has insufficient economic leverage over the target, either because her sanctions costs are too high, or because her economic relationship with the target is limited. In practice, however, the sender might not always resort to military coercion directly. Although the model assumes complete information, it is conceivable that some uncertainty about the target's costs might justify the sender's decision to attempt economic coercion before using force. In turn, as successful military coercion allows S to impose her ideal point, military coercion is more likely to occur when $\pi$, or the difference between the agents' ideal points, is large. On the other hand, scenarios three through five, in which S employs some level of economic coercion, are more likely when the sender enjoys some economic advantage over the target and their economic relationship is salient enough relative to the disputed political stakes.

We can transform these insights into testable hypotheses if we take into account the prediction that a sender, disadvantaged on both coercion dimensions, will accept the status quo. That is, if we observe that the status quo in a dyadic relationship has been challenged, which we can infer from the actual use of military or economic coercion, we know that the sender must have an advantage on at least one coercion dimension, and that we are observing either the first scenario, or one of the last three scenarios. Note that if we observe the second scenario, in which the status quo remains unchallenged, we cannot know for sure whether that happens because the sender has no advantage over the target, or simply
because there is no underlying disputed issue. Our goal, therefore, is not to identify the occurrence of military or economic coercion in a broader sample of cases, but to distinguish between the two coercion types only in cases in which the sender directed some coercive measure against the target. But since we already identified the conditions for all non-status quo scenarios, under which one type of coercion is more likely than the other, we can formulate the following four hypotheses:

**Hypothesis 1** A sender is more likely to direct economic rather than military coercion against a target when the sender’s military superiority over the target is lower.

**Hypothesis 2** A sender is more likely to direct economic rather than military coercion against a target when the sender’s economic superiority over the target is higher.

**Hypothesis 3** A sender is more likely to direct economic rather than military coercion against a target when the disputed political stakes are lower.

**Hypothesis 4** A sender is more likely to direct economic rather than military coercion against a target when the sender’s militarization costs are higher.

Since these hypotheses seek to differentiate between military and economic coercion, given that some coercion has been attempted, the unit of analysis, as explained later, is the directed use of either economic or military coercion.

Furthermore, while the latter four hypotheses address the conditions under which the sender will favor economic over military coercion, we can also derive hypotheses that relate to the type of economic coercion, conditional that military coercion has been overruled. For instance, in the analytical section, we established that the sender’s optimal economic coercion level is \( e^* = \frac{2\pi}{c_1 - c_2} \), which led us to the conclusion that \( e^* \), and therefore the highest
feasible \( e \), will increase with the size of the dispute pie \( \pi \), and decrease with the cost differential \( c_t - c_s \). We can therefore state two additional hypotheses:

**Hypothesis 5** The intensity of economic coercion increases with the disputed political stakes.

**Hypothesis 6** The intensity of economic coercion decreases as the disparity between the sender’s and target’s sanctions costs increases.

That is, if the sender seeks substantial concessions, she will have to link these concessions to a drastic disruption in her economic relationship with the target. On the other hand, in highly asymmetric dyads, in which the target is much more vulnerable to such disruptions than the sender, the sender might not need to go as far to persuade the target to grant the demanded concessions.

Finally, we also established that, paradoxically, the sender can only make use of her full economic leverage when she can also back her potential economic coercion gains militarily. On the other hand, when the sender faces a militarily powerful and resolved target, she might prefer not to exercise her full economic leverage in order not to provoke the target to respond with force. Therefore, even though sometimes senders will be constrained by their economic capability, which implies that they will not impose severe sanctions even against countries that are militarily weak, on average, militarily powerful countries should be those who are less likely to face such measures. The latter conclusion, in turn, agrees with the conjecture formed by Daoudi and Dajani (1983, 13), who suggest that small states will suffer the most severe sanctions while “[little] enthusiasm will be found for the application of stringent measures against a powerful nation that violates international law.” Thus, we can state one more hypothesis:
Hypothesis 7 As the target’s military capabilities increase, the intensity of the coercive economic measures applied against the target decreases.

The next section discusses the research design used to assess the empirical validity of the seven hypotheses.

3.5 Research Design

Evaluating Hypotheses 1-4, which essentially concern the sender’s choice between economic and military coercion, requires data on both coercion types. As acknowledged in the introduction, all economic coercion data used in this study is drawn from the Threat and Imposition of Economic Sanctions or TIES data set (Morgan, Bapat and Krustev, 2007). Data on military coercion is available from the Militarized Interstate Dispute (MID) data set, which records “united historical cases in which the threat, display or use of military force short of war by one member state is explicitly directed towards the government, official representatives, official forces, property, or territory of another state” (Jones, Bremer and Singer, 1996, 168). The MID data set is appropriate for the analysis because, similarly to TIES, it offers a comprehensive worldwide coverage of militarized disputes. It is possible that there are instances of military coercion which do not meet the MID coding rules, but similarly there might be uses of economic coercion not recorded by TIES. Rather, what is important is that combining the TIES and MID data sets provides us with enough cases of both economic and military coercion to evaluate whether the factors suggested by the model systematically increase the chance of one coercion type relative to the other.

The units of analysis, therefore, are all uses of economic or military coercion, and the dependent variable is the actual type of coercion selected by the sender state. To make the cases in the analysis comparable, we only use bilateral coercion instances. That is, we
have drawn from the TIES all 598 of the total 888 cases in which exactly one state sender
threatened or imposed economic coercion against a single target.\textsuperscript{72} The MID data set does
extend well beyond the 1971-2000 time period, but, again, to make the different coercion
cases comparable, we only include in the analysis MIDs that started between 1971-2000. For
each TIES or MID case we code a sender that corresponds to the sender in the theoretical
model, or the actor who seeks to alter the status quo. For the TIES data, we directly code
as sender the sender identified by the data set, as in TIES cases the sender is both the actor
who wants to alter the status quo and who undertakes economic coercion to do so. The
MID data set, however, codes both a revisionist state, which seeks to revise the status quo,
and a side A state, which is the first to cross the MID violence threshold.\textsuperscript{73}

Since in the theoretical model the sender is the actor who both wants to revise the status
quo and initiates actions to that end, we adopt the following coding procedure. If one state
in the bilateral MID is coded as revisionist and the other state is not coded as revisionist, we
code the revisionist state as the sender. Next, if both states are coded as revisionist, side A
is coded as the sender. Finally, if neither state is coded as revisionist, side A is coded as the
sender again. The coding procedure, therefore, gives priority to which state was revisionist,
but if that information is inconclusive, the state which first escalated the violence becomes
the sender. There are multiple economic coercion cases and MIDs that share the same
sender and were initiated in the same year, as well as cases in which both the sender and
the target were the same. However, regardless of whether the sender was the same, we treat
all coercion initiations as individual decisions. In turn, the explanatory variables identified
in hypotheses 1-4 concern certain characteristics of the relationship between the sender and
target, and those characteristics are matched to the units of analysis once the sender and
target have been identified.
Hypothesis 1 suggests that a sender is more likely to use military rather than economic coercion when her military advantage over the target is higher. We operationalize the sender’s military advantage based on the two military components of the sender’s and target’s Correlates of War (COW) capability scores (Singer, Bremer and Stuckey, 1972). The first component is the number of a country’s military personnel or MILPER. If the actors’ MILPER figures are respectively MILPER_s and MILPER_t, we measure the sender’s military capability as its ratio of the dyad’s total personnel, defined as MILPER ratio = MILPER_s / MILPER_s + MILPER_t. The resulting variable ranges from 0 to 1, higher ratios indicating a greater military advantage for the sender. The second component is the amount of a country’s military expenditures or MILEX. We measure the sender’s military advantage as MILEX ratio = MILEX_s / MILEX_s + MILEX_t. To circumvent any effects of the use of military or economic coercion on these military capability ratios, we also lag the ratios one year behind the year of the coercion initiation. Ceteris paribus, higher values on these ratios should increase the chance the sender will employ military rather than economic coercion.

Hypothesis 2, in turn, suggests that the sender’s choice between economic and military coercion is also affected by the sender’s economic cost advantage relative to the target. In particular, the smaller the economic coercion costs suffered by the sender relative to the target’s costs, the more likely the sender is to use economic coercion. We operationalize the sender’s economic advantage as the ratio of the sender’s GDP over the sum of the sender’s and target’s GDPs. In an economic relationship between a smaller and a larger economy, it should be easier for the larger economy to compensate for any restrictions on that relationship, and, therefore, a larger GDP ratio should increase the sender’s economic advantage. The GDP ratio is highly correlated with the MILPER ratio—78%, and the MILEX ratio—88%, as are the MILPER and MILEX ratios themselves—79%. For this
reason, we also report additional empirical specifications which include only one of the three ratios at a time.

The GDP data used in the analysis is drawn from Gleditsch (2002). The model also suggests, however, that even a substantial sender cost advantage might not be sufficient for successful economic coercion if the volume of the economic relationship is limited. To control for the possible level of economic coercion, we include in the empirical specification the natural logarithm of dyadic trade between the sender and target, defined as the sum of their imports and exports. The trade volume data again comes from Gleditsch (2002), and, similarly to the military capabilities data, the economic data is also lagged by one year. An alternative measure of sanctions costs can be constructed using the actors’ dyadic trade over GDP ratios. However, the theoretical model differentiates between the actors’ marginal sanctions costs and the volume of their economic relationship; if we want to operationalize the volume as dyadic trade, including another variable whose numerator is also dyadic trade can become problematic.

Next, Hypothesis 3 suggests that higher political stakes disputed between the sender and the target increase the chance that the sender pursues military rather than economic coercion. However, operationalizing the disputed political stakes induces a comparability issue between the TIES and MID coding scheme because the two data sets use different disputed issue classifications. On one hand, TIES codes economic coercion as occurring over one of fourteen issue types, which include issues such as the containment of military behavior, territorial issues, regime change in the target state, trade policy disputes and others. On the other hand, the MID data set only has a trichotomous classification of disputes into regime, territory, and policy. Therefore, to make these classifications comparable, it is necessary to reduce the more detailed TIES classification to the more sparse MID classification. That is,
for each coercion initiation, we code two dummy variables which measure respectively the presence of a disputed territorial issue and the presence of a regime issue in the dispute. If both issue dummies take a value of zero, territory and regime are not involved and the dispute is over another policy issue. Since territory and regime change are more salient than most other policy issues, their presence in a dispute should, ceteris paribus, increase the chance that the sender will use military rather than economic coercion.

Finally, Hypothesis 4 suggests that higher sender militarization costs increase the chance that the sender selects economic coercion. We operationalize the sender's militarization costs in two ways. First, we include in the empirical specification whether the sender was democratic, defining a democratic sender as one whose interpolated Polity 2 score was 6 or greater according to the Polity IV project (Marshall and Jaggers, 2002). We also control for the regime type of the target and for the impact of joint democracy, in order to address the possibility that democratic dyads are in general less likely to experience military coercion. As before, the regime type variables are lagged by one year. Second, we also operationalize the sender's militarization costs through the natural logarithm of the capitol-to-capitol distance between the sender's and target's capital. Conducting militarized conflict is harder and more expensive over longer distances, so the further apart the sender and the target are, the less attractive military relative to economic coercion should be from the sender's perspective.⁷⁴

While Hypotheses 1-4 address the choice between economic and military coercion, Hypotheses 5-7 concern the level of economic coercion imposed by the sender as a function of the characteristics of the sender-target relationship. Therefore, the unit of analysis here is an economic coercion use between 1971-2000 according to TIES.⁷⁵ The dependent variable, in turn, is the level of economic coercion. In particular, TIES codes the type of economic
coercion as one of the following: total economic embargo, partial economic embargo, import restriction, export restriction, blockade, asset freeze, termination of foreign aid, travel ban, suspension of economic agreement, or other. With the exception of a total or partial economic embargo and a blockade, the remaining sanctions measures are not so salient. That is why we code the level of economic coercion as high if the type of coercion included a total or a partial embargo or a blockade, and as low if none of these three more salient measures were threatened or implemented against the target.

Hypothesis 5 states that when the sender has selected economic coercion, its intensity will increase as the disputed political stakes increase. As with Hypotheses 1-4, a highly salient disputed issue is defined as the presence of a territorial or regime change issue among the sender's demands. Ceteris paribus, the territory and regime dummies should increase the chance of a high level of economic coercion. Hypothesis 6, in turn, suggest that the intensity of economic coercion should decrease as the disparity between the sender's and target's sanctions costs increases. That is, when economic coercion hurts the target disproportionately more, even a low coercion level might suffice for the sender to extract full concessions. The measure of the economic cost disparity is again the ratio of the sender's GDP over the sum of the sender's and target's GDPs. However, higher ratios here should result in a lower coercion level. Finally, Hypothesis 7 suggests that as the target's military capabilities increase, the intensity of the coercive economic measures applied against the target will decrease. The MILPER and MILEX ratios constructed for hypotheses 1-4 are used to measure the target's military capabilities as well. Ceteris paribus, higher values on the ratios, which signify smaller target military capabilities, should increase the level of economic coercion.76 Similarly to our approach to Hypotheses 1-4, we report several alternative specifications for Hypotheses 5-7 as well. The evaluation of all outlined hypotheses
is presented in the next section.

3.6 Data Analysis

The empirical results pertaining to Hypotheses 1-4 are summarized in Table 3.3. The dependent variable is coded 1 if the sender chose military coercion, so variables with positive coefficients increase the chance of military coercion while variables with negative coefficients increase the chance of economic coercion. The specification reported as Model 1 includes the MILPER, MILEX, and GDP ratios simultaneously; Models 2-4 include these variables one at a time. Concerning Hypothesis 1, the coefficients of the MILPER and MILEX ratio variables are positive as predicted and statistically significant. This suggests that as the sender become military more powerful relative to the target, the sender becomes more likely to use military coercion. However, the coefficients lose their significance in Models 3-4, where they are included on their own although they retain their signs. Most likely, the two ratios appropriate some of the positive effect of the GDP ratio when the latter is not in the specification, but the support for Hypothesis 1 based on Model 1 still should be interpreted with some caution.

Concerning the second hypothesis, the coefficient of the GDP ratio variable is negative and statistically significant. This holds true both in Model 1, where the GDP ratio is included together with the MILPER and MILEX ratios, and in Model 2, where the GDP ratio is included on its own, although the coefficient magnitude is smaller in Model 2. These results imply that as the sender’s economic advantage over the target increases, the sender become less likely to use military and more likely to use economic coercion, and we can be much more confident in our support for Hypothesis 2 than in the support for Hypothesis 1. Increasing dyadic trade also decreases the chance of military coercion and increases the
chance of economic coercion. This finding suggest that a sender is indeed more likely to use economic coercion when her economic relationship with the target has a volume that is high enough to allow costly trade interruption. In contrast, the lack of extensive trade ties, leaves senders only with the military channel of influence.

The effect of the two dummy variables that measure that size of the disputed political stakes is also as predicted. The presence of either a territorial or regime issue increases the chance that military coercion will be used; however, while the effect of territory is statistically significant, the effect of regime is not, although it is in the predicted direction. The findings for the territorial and regime dummies support Hypothesis 3. Finally, concerning Hypothesis 4, as the natural logarithm of the distance between the sender and the target increases, the chance that military coercion will be used decreases. That is, when the target become geographically more distant and it becomes more costly for the sender to use military coercion, the sender chooses economic coercion. The effect of the sender’s regime type is also negative as predicted and statistically significant. That is, democratic senders are more likely to use economic coercion. The target’s regime type is positive but very far from statistical significance; the interaction between the two actors’ regime types is also in the correct direction, suggesting that democratic dyads are less likely to experience military coercion in general, but is not statistically significant either.

Examining the substantive effects of the outlined variables confirms the conclusions that have been drawn so far. These effects are reported in Table 3.4. Based on Model 1 from Table 3.3, increasing the MILPER ratio by one standard deviation from its mean increases the baseline probability of military coercion by 4.67% while increasing the MILEX ratio in the same way increases the latter probability by 5.31%. These effects are not as strong as some of the other effects reported in the table, which suggests that the impact of the
military capability variables is not as significant. In contrast, increasing the GDP ratio by one standard deviation from its mean decreases that probability of military coercion by 24.23%.

In turn, increasing the natural logarithm of dyadic trade by one standard deviation decreases the chance of military coercion by -72.31%. The presence of a territorial issue increases that chance of military coercion by 16.00% while the presence of a regime chance issue increases that chance only by 0.69%—the regime effect however is not statistically distinguishable from zero. Finally, given a non-democratic target, a democratic sender is 21.29% less likely than a non-democratic sender to use military coercion whereas given a democratic target, the relative decrease in the probability of military coercion is 21.27%. Based on the coefficients estimated for the explanatory variables and our examination of the corresponding substantive effects, we can conclude that the statistical support for Hypotheses 1-4 is fairly good.

The results pertaining to Hypotheses 5-7 are reported in Table 3.5. The dependent variable here is coded 1 if the level of economic coercion was high, so positive coefficients mean that a variable increases the level of economic coercion while negative coefficients imply a decreasing effect. The coefficients for territory and regime are positive as predicted. They are also statistically significant in Model 1, or the full specification. The regime coefficient is statistically significant across the alternative specifications as well. The territory coefficient does not reach conventional statistical significance in Models 2-4 but is still considerably larger than the estimated standard error. This increases our confidence that both territory and regime behave as predicted empirically and we can support Hypothesis 5. In Model 1, the GDP and MILEX ratio variables have positive coefficients as predicted, but both coefficients are smaller than the corresponding standard errors. In addition, the
MILPER coefficient is negative and statistically significant which contradicts the theoretical prediction that a greater sender military advantage should allow the sender to increase the coercion level. The aforementioned three ratios do not conform with the theoretical predictions in Models 2-4 as well. Therefore, while Hypothesis 5 is supported based on this analysis, Hypotheses 6-7 are not.

Examining the substantive effects reported in Table 3.6 confirms these conclusions. Based on Model 1, introducing a territorial issue increases the chance of a high level of economic coercion by 836.26% whereas introducing a regime change issue increases that chance by 1397.51%. Note that the variability of the substantive effect estimated for the territorial dummy is bigger than the variability of the regime effect, despite the lower mean effect for territorial issues. Therefore, disputes over regime seem to be a more consistent predictor of high-level economic coercion. The substantive effects of the GDP, MILPER, and MILEX ratios are still, however, either not significant or opposite to what was predicted theoretically. One reason for the latter results might be the high correlation between the three variables, but that explanation seems unlikely to hold given the similar results based on Models 2-4 from Table 3.5. Rather, an important factor might be the presence of only 30 high-level versus 541 low-level coercion initiations in the baseline specification. Even though dummy variables such as territory and regime are significant, to determine the true effect of continuous variables such as the three used ratios we might simply need more data. Nevertheless, regardless of these considerations, we have to conclude that Hypotheses 6-7 are not supported based on this analysis. The support for Hypotheses 1-5, however, is fairly strong, and the next section discusses the implications of this analysis for the theoretical model and for our understanding or economic coercion.
3.7 Conclusion

This chapter has started from the premise that the bargaining model, or the literature's most common approach to economic coercion, is an appropriate way to understand that phenomenon. In turn, the major critique offered by the chapter has been that little attention has been devoted to the military context in which economic coercion unfolds. That is, since the international system is basically an anarchic one and military force is the ultimate arbiter, no state can be expected to accept a bargaining settlement, whether induced by economic coercion or not, which allocates it less than what that state can guarantee itself by resorting to the use of force. While it is likely that on most occasions the costs of using force relative to disputed issues over which economic coercion is applied will be prohibitively high, sometimes a state might prefer to cash its war option over accepting a settlement induced by the use of economic coercion. That is, while most of the previous focus in the literature has been on the role of economic sanctions as inside options in international bargaining, this chapter has advocated that at least as much attention needs to be devoted to the military outside options which limit the potential impact of sanctions and might preclude us from observing a non-random sample of economic coercion cases.

The chapter has explored the impact of such outside options on the choice, nature and outcome of economic coercion through a formal model that embeds the Nash bargaining framework into a simple non-cooperative game that allows the potential sender and target of sanctions to decide between accepting the settlement induced by economic coercion or cashing their military options. Despite the simplicity of this theoretical framework, the formal model studied here allows for the occurrence of a variety of coercive scenarios under ex ante identifiable conditions, and these scenarios illustrate the complex interaction between
economic coercion and states' military options. First, when the sender, who wants to alter the status quo, is military powerful and resolved but lacks the economic means to extract full concessions from the target, she is likely to directly resort to military coercion, as Turkey did against Cyprus in 1997-1998 and the U.S. against Haiti in 1991. Second, if the sender is disadvantaged on both the economic and the military dimension, it is more likely that the sender will accept the status quo, as the U.S. decided not to try to alter China's human rights policy in 1994.

Third, when the sender has the economic means to extract full concessions from the target but the target is militarily powerful and resolved, the sender might be forced to limit its coercion effort as the League of Nations did against Italy in 1935-36 and the U.S. and its Asian allies did against North Korea over the 1991-1994 period. Fourth, if neither the sender nor the target have attractive military options given the nature of the disputed issue but the level of economic coercion is exogenously limited, the sender is likely to use economic coercion but not to its full success, as the U.S. succeeded in extracting partial concessions from France in 1995 on a fish import inspection dispute. Fifth, only when the sender has a substantial economic advantage over the target and is able to guarantee its economic coercion induced gains by military force, will we observe fully successful economic coercion as in the Indian actions against Nepal in 1989-1990. The restrictions on the use of economic coercion and its outcomes are therefore not straightforward.

For example, military force can sometimes prevent us from seeing fully successful coercion but it can also prevent us from seeing coercion that is only partially successful. Military force, in turn, increases its relevance when the dispute political stakes are high, and that in turn suggests a possible reason why some high-profile sanctions cases that have started over territorial or regime issues have not produced much success. On the other hand, for minor
policy disputes military force is too costly to make either the sender’s or target’s war options credible and economic coercion can have a potentially greater impact because the only limit on it will be the scope of the economic relationship between the sender and the target. The chapter has supplemented the implications of the possible coercive dynamics produced by the model with the derivation of seven hypotheses that predict certain systematic effects on whether in a certain dispute we are more likely to observe military or economic coercion, and on the level of economic coercion we can expect.

The first four of these hypotheses relate to the choice between military and economic coercion and their empirical test has been quite supportive. Basically, based on the TIES and MID cases in the 1971-2000 period, the chapter has found that military coercion is more likely when the disputed issue involves territory or regime, when the sender is military more powerful and has low militarization costs. On the other hand, economic coercion is more likely when the sender has an economic advantage over the target and their economic relationship has a sufficiently large volume. The support for the three hypotheses concerning the model’s predicted effects on the level of economic coercion has been weaker. In particular, the chapter found that the level of economic coercion increases with territorial and regime issues but is not affected by the sender’s economic and military advantage in accord with the theoretical prediction. Still, overall the systematic quantitative evidence increases our confidence in the conclusions drawn from the qualitative analysis regarding the interdependence between economic costs and military options. In addition, even though the evidence regarding the level of economic coercion was less conclusive, there was strong evidence that the factors identified by the model influence the choice between these two instruments.

Thus, achieving a more complete understanding of the use and outcome of economic
coercion indeed seems to require a careful analysis of the context in which that coercion unfolds, the main influence on that context being exerted by states’ military options. In turn, ignoring military options, as a lot of the literature has done, can lead to biased inferences of sanctions effectiveness as we might conclude that economic coercion did not work based on a case in which the target’s military option was decisive. In general, the chapter has demonstrated that we certainly cannot treat economic coercion cases as randomly arising events but have to place them in context to understand how their outcomes are related to the chance that we observe them. However, while this chapter has focused on the macro-choice of economic coercion from a fuller menu of foreign policy options, the next two chapters address the micro-choices that concern the nature of economic coercion once that instrument has been selected over the others. As these chapters are going to demonstrate, strategic interaction when senders decide to use coercion and what demands to make also results in us as observers seeing a non-random sample of sanctions cases and can lead us to underestimate the utility of the economic instrument.
3.8 Tables

Table 3.1: Summary of the five coercive scenarios emerging from the theoretical model. Each scenario is matched to the exogenous parameter configuration that is likely to generate it.

<table>
<thead>
<tr>
<th>Target has sanctions cost advantage $c_s \leq c_t$</th>
<th>Sender has sanctions cost advantage $c_t &gt; c_s$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sender has relevant war option $w_s &gt; 0$</td>
<td>Target has relevant war option $e^t \leq \min{e^*, \bar{\varepsilon}}$</td>
</tr>
</tbody>
</table>
| Scenario I                                       | Scenario III  
Successful economic coercion |
| Direct military coercion                          | Economic coercion trumped                        |
|                                                  |                                                  |
| Sender lacks relevant war option $w_s \leq 0$     | Target lacks relevant war option $e^* \leq \min\{e^t, \bar{\varepsilon}\}$ |
| Scenario II                                      | Scenario IV  
Successful economic coercion |
| Status quo unchallenged                          |                                                  |
|                                                  |                                                  |
|                                                  | Target lacks relevant war option $\bar{\varepsilon} \leq \min\{e^t, e^*\}$ |
|                                                  |                                                  |
|                                                  | Sender has relevant war option $\bar{\varepsilon} < e^s$ |
|                                                  | Scenario I  
Direct military coercion |
|                                                  |                                                  |
|                                                  | Sender lacks relevant war option $\bar{\varepsilon} \geq e^s$ |
|                                                  | Scenario V  
Limited sanctions, limited concessions |
Table 3.2: Summary of the main case studies described in Section 3.3. Each case is matched to the exogenous parameter configuration predicted to generate its outcome.

<table>
<thead>
<tr>
<th>Target has sanctions cost advantage</th>
<th>Sender has sanctions cost advantage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Target has relevant war option</td>
</tr>
<tr>
<td></td>
<td><strong>Scenario III</strong></td>
</tr>
<tr>
<td></td>
<td>Economic coercion trumped</td>
</tr>
<tr>
<td></td>
<td><strong>League of Nations v. Italy, 1935-36</strong></td>
</tr>
<tr>
<td></td>
<td><strong>U.S. v. North Korea, 1991-94</strong></td>
</tr>
<tr>
<td>Sender has relevant war option</td>
<td></td>
</tr>
<tr>
<td><strong>Scenario I</strong></td>
<td></td>
</tr>
<tr>
<td>Direct military coercion</td>
<td></td>
</tr>
<tr>
<td><strong>Turkey v. Cyprus, 1997-98</strong></td>
<td></td>
</tr>
<tr>
<td><strong>U.S. v. Haiti, 1991-94</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Scenario IV</strong></td>
</tr>
<tr>
<td></td>
<td>Successful economic coercion</td>
</tr>
<tr>
<td></td>
<td><strong>India v. Nepal, 1989-90</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Sender lacks relevant war option</strong></td>
</tr>
<tr>
<td></td>
<td>Extensive economic ties</td>
</tr>
<tr>
<td>Sender lacks relevant war option</td>
<td><strong>Scenario II</strong></td>
</tr>
<tr>
<td><strong>Status quo unchallenged</strong></td>
<td></td>
</tr>
<tr>
<td><strong>U.S. v. China, 1989-95</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Scenario I</strong></td>
</tr>
<tr>
<td></td>
<td>Direct military coercion</td>
</tr>
<tr>
<td><strong>Turkey v. Cyprus, 1997-98</strong></td>
<td></td>
</tr>
<tr>
<td><strong>U.S. v. Haiti, 1991-94</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Sender lacks relevant war option</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Scenario V</strong></td>
</tr>
<tr>
<td></td>
<td>Limited sanctions, limited concessions</td>
</tr>
<tr>
<td></td>
<td><strong>U.S. v. France, 1995</strong></td>
</tr>
</tbody>
</table>
Table 3.3: Logit analysis of the choices between military and economic coercion. Military coercion= 1, economic coercion= 0.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>MILPER ratio</td>
<td>1.252 (0.538)*</td>
<td>-0.363 (0.288)</td>
<td>-0.254 (0.278)</td>
<td></td>
</tr>
<tr>
<td>MILEX ratio</td>
<td>1.327 (0.592)*</td>
<td>-0.333 (0.036)*</td>
<td>-0.339 (0.037)*</td>
<td></td>
</tr>
<tr>
<td>GDP ratio</td>
<td>-3.547 (0.713)*</td>
<td>-0.208 (0.025)*</td>
<td>-0.217 (0.025)*</td>
<td></td>
</tr>
<tr>
<td>ln(Dyad trade)</td>
<td>-0.460 (0.043)*</td>
<td>-0.439 (0.042)*</td>
<td>-0.217 (0.025)*</td>
<td></td>
</tr>
<tr>
<td>ln(Distance)</td>
<td>-0.243 (0.027)*</td>
<td>-1.342 (0.298)*</td>
<td>-1.604 (0.293)*</td>
<td></td>
</tr>
<tr>
<td>Democratic sender</td>
<td>-1.075 (0.331)*</td>
<td>-1.433 (0.315)*</td>
<td>-0.740 (0.379)</td>
<td></td>
</tr>
<tr>
<td>Democratic target</td>
<td>0.045 (0.351)</td>
<td>0.520 (0.330)</td>
<td>0.387 (0.312)</td>
<td></td>
</tr>
<tr>
<td>Joint democracy</td>
<td>-0.596 (0.408)</td>
<td>-0.819 (0.397)*</td>
<td>-0.740 (0.379)</td>
<td></td>
</tr>
<tr>
<td>Territory</td>
<td>3.740 (0.656)</td>
<td>3.560 (0.643)*</td>
<td>3.549 (0.632)*</td>
<td></td>
</tr>
<tr>
<td>Regime</td>
<td>0.270 (0.804)</td>
<td>0.275 (0.783)</td>
<td>0.783 (0.678)</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>12.172 (0.955)</td>
<td>9.507 (0.801)*</td>
<td>9.243 (0.790)*</td>
<td></td>
</tr>
</tbody>
</table>

Observations        | 1285             | 1334             | 1293             | 1323             |
MIDs                | 729              | 773              | 737              | 763              |
Sanctions           | 556              | 561              | 556              | 560              |
Log-likelihood      | -364.20          | -414.67          | -379.10          | -409.05          |
Pseudo-R2           | 0.585            | 0.543            | 0.570            | 0.546            |

* indicates statistical significance at the 5% level, based on two-tailed tests. Unexponentiated coefficients reported, standard errors are in parentheses.
Table 3.4: Predicted substantive effects on the probability of military coercion $Pr(Y = 1)$, based on Model 1, Table 3.3.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Increment</th>
<th>2.5th FD</th>
<th>Mean FD</th>
<th>97.5th FD</th>
</tr>
</thead>
<tbody>
<tr>
<td>MILPER ratio</td>
<td>$\bar{x} + s$ to $\bar{x} + s + 0.93$</td>
<td>$+0.03%$</td>
<td>$+4.67%$</td>
<td>$+8.69%$</td>
</tr>
<tr>
<td>MILLEX ratio</td>
<td>$\bar{x} + s$ to $\bar{x} + s + 0.63$</td>
<td>$+0.63%$</td>
<td>$+5.31%$</td>
<td>$+9.59%$</td>
</tr>
<tr>
<td>GDP ratio</td>
<td>$\bar{x} + s$ to $\bar{x} + s + 37.10$</td>
<td>$-37.10%$</td>
<td>$-24.23%$</td>
<td>$-12.50%$</td>
</tr>
<tr>
<td>ln(Dyad trade)</td>
<td>$\bar{x} + s$ to $\bar{x} + s + 83.18$</td>
<td>$-83.18%$</td>
<td>$-72.31%$</td>
<td>$-58.59%$</td>
</tr>
<tr>
<td>ln(Distance)</td>
<td>$\bar{x} + s$ to $\bar{x} + s + 26.86$</td>
<td>$-26.86%$</td>
<td>$-19.07%$</td>
<td>$-12.76%$</td>
</tr>
<tr>
<td>Dem. sender (no dem. target)</td>
<td>0 to 1</td>
<td>$-35.24%$</td>
<td>$-21.29%$</td>
<td>$-8.74%$</td>
</tr>
<tr>
<td>Dem. sender (dem. target)</td>
<td>0 to 1</td>
<td>$-40.02%$</td>
<td>$-21.17%$</td>
<td>$-6.46%$</td>
</tr>
<tr>
<td>Dem. target (no dem. sender)</td>
<td>0 to 1</td>
<td>$-8.94%$</td>
<td>$-0.65%$</td>
<td>$+10.10%$</td>
</tr>
<tr>
<td>Dem. target (dem. sender)</td>
<td>0 to 1</td>
<td>$-22.10%$</td>
<td>$-0.80%$</td>
<td>$+19.48%$</td>
</tr>
<tr>
<td>Territory</td>
<td>0 to 1</td>
<td>$+10.18%$</td>
<td>$+16.00%$</td>
<td>$+23.53%$</td>
</tr>
<tr>
<td>Regime</td>
<td>0 to 1</td>
<td>$-27.46%$</td>
<td>$+0.69%$</td>
<td>$+15.42%$</td>
</tr>
</tbody>
</table>

The percentages represent the mean and 95% confidence interval of the first differences for the probability that $Y = 1$, as percent increase when the corresponding independent variables change in the indicated way. Dummy variables are changed from 0 to 1; continuous variables are increased by one standard deviation from their mean. All other variables are held at their means, and all variable statistics are based only on the observations actually included in the specification. The first differences were simulated using Clarify (King, Tomz and Wittenberg, 2000).
Table 3.5: Logit analysis of the level of economic coercion. High= 1, low= 0.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Territory</td>
<td>2.594 (1.255)*</td>
<td>2.268 (1.240)</td>
<td>2.398 (1.253)</td>
<td>2.361 (1.242)</td>
</tr>
<tr>
<td>Regime</td>
<td>3.786 (0.961)*</td>
<td>3.385 (0.938)*</td>
<td>3.640 (0.951)*</td>
<td>3.522 (0.942)*</td>
</tr>
<tr>
<td>GDP ratio</td>
<td>1.661 (1.900)</td>
<td>-0.134 (0.599)</td>
<td>-0.950 (0.550)</td>
<td>-0.266 (0.542)</td>
</tr>
<tr>
<td>MILPER ratio</td>
<td>-2.548 (0.990)*</td>
<td></td>
<td>-2.413 (0.363)*</td>
<td>-2.872 (0.425)*</td>
</tr>
<tr>
<td>MILEX ratio</td>
<td>0.203 (1.613)</td>
<td>-2.864 (0.463)*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>-2.790 (0.477)*</td>
<td>-2.864 (0.463)*</td>
<td>-2.413 (0.363)*</td>
<td>-2.872 (0.425)*</td>
</tr>
<tr>
<td>Observations</td>
<td>571</td>
<td>576</td>
<td>593</td>
<td>589</td>
</tr>
<tr>
<td>High-level coercion</td>
<td>30</td>
<td>32</td>
<td>32</td>
<td>30</td>
</tr>
<tr>
<td>Low-level coercion</td>
<td>541</td>
<td>544</td>
<td>561</td>
<td>559</td>
</tr>
<tr>
<td>Log-likelihood</td>
<td>-107.28</td>
<td>-116.82</td>
<td>-116.25</td>
<td>-111.33</td>
</tr>
<tr>
<td>Pseudo-R2</td>
<td>0.087</td>
<td>0.054</td>
<td>0.066</td>
<td>0.060</td>
</tr>
</tbody>
</table>

* indicates statistical significance at the 5% level, based on two-tailed tests. Unexponentiated coefficients reported, standard errors are in parentheses.
Table 3.6: Predicted substantive effects on the probability of high-level economic coercion Pr(Y = 1), based on Model 1, Table 3.5.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Increment</th>
<th>2.5th FD</th>
<th>Mean FD</th>
<th>97.5th FD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Territory</td>
<td>0 to 1</td>
<td>+12.89%</td>
<td>+836.26%</td>
<td>+1932.97%</td>
</tr>
<tr>
<td>Regime</td>
<td>0 to 1</td>
<td>+429.72%</td>
<td>+1397.51%</td>
<td>+2097.98%</td>
</tr>
<tr>
<td>GDP ratio</td>
<td>$\bar{x}$ to $\bar{x} + s$</td>
<td>-50.21%</td>
<td>+73.07%</td>
<td>+296.25%</td>
</tr>
<tr>
<td>MILPER ratio</td>
<td>$\bar{x}$ to $\bar{x} + s$</td>
<td>-81.27%</td>
<td>-51.32%</td>
<td>-16.60%</td>
</tr>
<tr>
<td>MILEX ratio</td>
<td>$\bar{x}$ to $\bar{x} + s$</td>
<td>-59.92%</td>
<td>+14.34%</td>
<td>+136.62%</td>
</tr>
</tbody>
</table>

The percentages represent the mean and 95% confidence interval of the first differences for the probability that Y = 1, as percent increase when the corresponding independent variables change in the indicated way. Dummy variables are changed from 0 to 1; continuous variables are increased by one standard deviation from their mean. All other variables are held at their means, and all variable statistics are based only on the observations actually included in the specification. The first differences were simulated using Clarify (King, Tomz and Wittenberg, 2000).
Chapter 4

Strategic Demands and Economic Coercion: A Game-Theoretic Model

4.1 Introduction

On April 12, 1994, in a less known example of economic coercion, U.S. President Clinton imposed limited trade sanctions on Taiwan for that country’s refusal to counter illegal trade in rhinoceros horns and tiger bones. These wildlife products were widely used by traditional Taiwanese medical practitioners, but the demand for them had also brought the endangered rhinoceros and tiger species close to extinction. Eventually, Taiwan increased its penalties for trafficking in rhino and tiger parts, and on July 1, 1995, having accomplished their objective, the sanctions were lifted. Why Clinton decided to sanction Taiwan was not puzzling; an extensive scholarly literature views economic sanctions precisely as coercive instruments, used by the sanctions sender to change the target’s behavior. What is more interesting, however, is that Clinton did not sanction China, despite allegations by the same environmental interests who pushed for action against Taiwan that China was actually a much worse violator of international conventions against trade in rhino and tiger parts. This decision baffled environmental audiences, and even drew accusations of double standards.

Most likely, China’s violations were no secret to Clinton’s administration. However, while the U.S. economic leverage against Taiwan proved sufficient to force the country
into altering its policy, it is far from certain whether the U.S. could have expected similar results against the much bigger and economically more powerful China. That is, the U.S. did not use economic sanctions only based on the disagreeableness of the target’s policy, but rather made a strategic choice and used sanctions only when the anticipated policy benefits exceeded the sanctions costs. In contrast, while the sanctions literature frequently treats sanctions outcomes as the product of such strategic choice (Tsebelis, 1990; Eaton and Engers, 1992; Smith, 1996; Morgan and Miers, 1999; Dorussen and Mo, 2001; Lacy and Niou, 2004), it rarely acknowledges that the sender’s decisions to engage in economic coercion and what concessions to demand might also be driven by strategic considerations.\textsuperscript{81} Most of the literature models states as behaving strategically during sanctions disputes, but simultaneously tends to assume that states find themselves in random disputes over random stakes, which, in turn, limits our understanding of the sanctions instrument. On the other hand, analyzing the strategic choices behind the occurrence and stakes of economic coercion would allow us not only to explain why sometimes states use it and sometimes they do not, but also to understand better its outcomes when it is actually observed.

To explain the variation in the use of economic coercion and in its objectives, we develop a game-theoretic model that endogenizes states’ decisions first, to employ economic coercion, and, second, what level of political concessions to demand. The model assumes that economic sanctions are purely instrumental, in the sense that states value them only for their potential effect on the target’s policy but do not derive any direct benefit from the actual sanctions. Since sanctions are costly to their sender and target alike, the preferences assumed in the model define a bargaining situation, in which each party would rather accept any division of the disputed political stakes immediately than reach the same
division after incurring some sanctions costs. This costliness of sanctions generates incentives for the disputants to resolve their differences before resorting to sanctions; however, the additional assumption that the sender is uncertain about the target’s resolve allows for inefficient outcomes in which no agreement might be reached.

The model shows that economically powerful challengers are more likely to engage in economic coercion, but, paradoxically, are not more likely to succeed because they also tend to demand greater concessions. Simultaneously, greater demands generate expected payoffs that are more likely to exceed the sender’s status quo valuation but are less likely to be accepted. That is why cases that involve higher stakes and are characterized by higher failure probabilities are more likely to be included in the actual cases that we observe. The occurrence, stakes, and outcome of economic coercion are all interrelated, which suggests that ignoring the strategic choices preceding a sanctions dispute might result in biased inferences. To account for this, we estimate all three variables simultaneously when testing the model’s empirical implications in Chapter 5. In the remainder of Chapter 4 we introduce the game-theoretic model and present its solution, following which we use the model to derive testable propositions. The main results and their implications are summarized in the chapter’s conclusion.

4.2 The Model

To introduce the model, consider two risk-neutral players, the sender $S$ ("she") and the potential target $T$ ("he") of economic coercion, who are engaged in the following game. The game $\Gamma$ (see Figure 4.1) begins with a move by Nature, which chooses the target’s valuation for his economic relationship with the sender from two possibilities, according to an exogenously given probability. In particular, Nature selects a high-valuation target type
$T_H$ with a probability $p$, such that $0 < p < 1$, and a low-valuation target type $T_L$ with the complementary probability $1 - p$, where the high and low valuations are respectively $t_H$ and $t_L$, such that $0 \leq t_L < t_H \leq 1$. Following Nature's draw, only the target is informed of the realization of his type, but the probability $p$ with which he is the high-valuation type is common knowledge.\textsuperscript{82} The timing of the subsequent moves is as follows. First, the sender decides whether to accept the status quo on a disputed issue, which is normalized to $(0,0)$, or to demand a shift from the status quo in her favor. If she chooses to preserve the status quo, the game ends and the players realize the payoff pair of $(w, w)$, because in addition to their payoffs from the disputed issue the players also receive a premium of $w > 0$, reflecting the fact that any economic coercion attempt involves some costs.\textsuperscript{83} Second, if the sender decides to alter the status quo, she also decides how big a change $(x \geq 0)$ to demand, and we assume that the sender's demand is accompanied by the threat of economic sanctions.

If the target accepts the sender's demand, the game ends and the players realize the payoff pair of $(x, -x)$, as the status quo premium has already been lost. However, if $T$ rejects $S$'s demand, $S$ has the option of either backing down or carrying out her threat. Backing down ends the game and leaves the status quo unchanged, but $S$ also incurs a reputation cost of $r \geq 0$. Finally, if $S$ imposes the threatened economic sanctions, $T$ once again has the chance to comply with $S$'s demand. If $T$ rejects the demand after sanctions imposition as well, the game ends with the status quo remaining unchanged and the players losing their valuations for the terminated economic exchange, which results in payoffs of $(-s, -t_i)$ where $s > 0$ and $t_i \in \{t_L, t_H\}$. If, on the other hand, $T$ accepts the demand, the game ends with payoffs of $(x - \gamma s, -x - \gamma t_i)$ because, in addition to the change from the status quo, the players also lose some small fraction $\gamma \in (0,1)$ of their economic valuations due to the temporary imposition of sanctions, the parameter $\gamma$ being defined as "small" if
\[ \gamma < \min\{\frac{t_H - t_I}{t_H}, \frac{\gamma s}{s}\}. \]

Thus, if we abstract from the redistribution attained on the disputed policy issue, both players prefer no economic coercion attempt \((w, w)\) to a sanctions threat \((0, 0)\) to temporary sanctions \((-\gamma s, -\gamma t_i)\) to permanent sanctions \((-s, -t_i)\). On the other hand, it is evident that if we abstract from the economic dimension, the players have conflicting preferences over the disputed issue, with S’s utility increasing in the transfer \(x\) and T’s utility decreasing in \(x\). Therefore, in accordance with the effort to model economic coercion as a bargaining situation, both players would prefer any agreement on the disputed issue to the same agreement reached after incurring additional economic costs. However, while the previous chapter demonstrates in an axiomatic bargaining framework that if the sanctions sender has an advantage on the economic dimension, she can obtain a better settlement on the disputed policy issue, the purpose of the non-cooperative economic coercion game discussed here is also to identify the conditions under which successful coercion is more or less likely, as well as the conditions under which a bargaining breakdown is possible due to the asymmetry of information.

We solve the economic coercion game for its perfect Bayesian equilibrium (PBE), which requires that the sender’s strategy, given her beliefs, is a best response to the target’s strategy, that the target’s strategy is a best response to the sender’s strategy and beliefs, and that the sender’s beliefs are derived from the target’s strategy and Bayes’ rule whenever possible (Gibbons, 1992, 175-180). It is convenient to divide the solution in two parts: when \(s > r\) (which gives rise to what we call “no-commitment” cases) and when \(s \leq r\) (which gives rise to “commitment” cases). In both parts, the solution begins with the observation that at the target’s last decision node there are essentially three types of demands. To see why, consider that \(T_H\) accepts \(x\) if \(-x - \gamma t_H \geq -t_H \Leftrightarrow x \leq t_H(1 - \gamma)\) and rejects if
\[ x > t_H(1 - \gamma) \]. Similarly, \( T_L \) accepts if \( x \leq t_L(1 - \gamma) \) and rejects if \( x > t_L(1 - \gamma) \). Since \( t_L < t_H \), when \( x \leq t_L(1 - \gamma) \), both target types accept the demand (Case 1). When \( t_L(1 - \gamma) < x \leq t_H(1 - \gamma) \), \( T_H \) accepts but \( T_L \) rejects (Case 2). Finally, when \( t_H(1 - \gamma) < x \), both target types reject (Case 3). The logic of the solution is to derive the PBE for each demand type in both commitment and no-commitment cases, derive the demand that maximizes \( S \)'s expected payoff for each demand type, and then characterize the conditions under which \( S \) will prefer a certain payoff-maximizing demand to another and to making no demand at its initial information set. Intermediate results are characterized in lemmas.

Consider the no-commitment cases first.

**No-commitment case 1:** \( s > r \) and \( x \leq t_L(1 - \gamma) \). Since here both target types accept the demand after the imposition of sanctions, \( S \) imposes sanctions as long as \( -r \leq x - \gamma s \leftrightarrow \gamma \leq \frac{r - s}{s} \), which follows directly from the assumption that \( \gamma < \frac{r}{s} \). Knowing that, both target types accept the demand in threat stage, as \( -x > -x - \gamma t \). \( S \)'s payoff from demanding \( x \) is simply \( x \), and \( S \) maximizes it by demanding the highest possible \( x \leq t_L(1 - \gamma) \) or \( x = t_L(1 - \gamma) \). Since the target types pool at the second node, \( S \)'s posterior belief remains equal to its prior, that is \( \mu(t = t_H) = p \). Also, as \( S \) strictly prefers imposing sanctions to backing down regardless of her beliefs, \( S \)'s posterior belief following her observation of an equilibrium deviation is irrelevant.

**No-commitment case 2:** \( s > r \) and \( t_L(1 - \gamma) < x \leq t_H(1 - \gamma) \). Here \( T_H \) accepts at the last node but \( T_L \) rejects. Denote by \( \mu(x) \) \( S \)'s updated belief that \( t = t_H \) following the observation of a rejected threat. \( S \) will impose sanctions if, given her updated belief, her expected utility from imposing sanctions exceeds the utility from backing down. That is, if \( \mu(x)(x - \gamma s) + (1 - \mu(x))(-s) > -r \leftrightarrow \mu(x) > \frac{r - s}{\gamma + \gamma x} \equiv \mu^*(x) \) (see Appendix A1 for the derivation). Similarly, \( S \) will back down if \( \mu(x) < \mu^*(x) \) and adopt any mixed strategy
if $\mu(x) = \mu^*(x)$. Observe that since $s > r$, $\mu^*(x) > 0$, and that $\gamma < \frac{r}{s} \iff s\gamma < r + x \iff s - r < s - s\gamma + x \iff \frac{exr}{s(1-\gamma)+x} = \mu^*(x) < 1$. Therefore, $\mu^*(x) \in (0, 1)$, and we can infer that the sender does not have a dominant strategy. Divide the case further into No-commitment case 2.1, when $t_L(1 - \gamma) < x \leq t_L$, and No-commitment case 2.2, when $t_L < x \leq t_H(1 - \gamma)$, and consider each of the resulting subcases in turn.\textsuperscript{87}

**No-commitment case 2.1:** $s > r$ and $t_L(1 - \gamma) < x \leq t_L$. Suppose first that the target’s rejection of the sender’s threat generates optimistic beliefs, i.e. $\mu(x) > \mu^*(x)$. Then, $S$ imposes sanctions. Knowing that, $T_H$ accepts the demand after the sender’s threat since $-x > -x - \gamma t_H$. $T_L$ accepts as well since $x \leq t_L \iff -x \geq -t_L$. However, in equilibrium $S$’s observation of a rejected threat is a zero-probability event, and the PBE concept does not impose any restrictions on a player’s beliefs following the observation of such events. Thus, in principle one can set any $\mu'(x) > \mu^*(x)$ as $S$’s belief to support the outlined equilibrium. However, the resulting PBE does not seem very reasonable because it somehow relies on $S$’s ability to threaten $T_L$ through its beliefs.\textsuperscript{88} To eliminate such equilibria, which rely on incredible beliefs, we apply the D1 equilibrium refinement which requires that, if a zero-probability event occurs, the uninformed player observing it infer that a type which would benefit from more successive rationalizable developments of the play than another type would also be infinitely more likely to be the one who has deviated (Banks and Sobel, 1987). Formally, since both imposing sanctions and backing down are $S$’s rationalizable responses to the deviation, represent $S$’s response by the probability $\sigma \in [0, 1]$ with which $S$ imposes sanctions after $T$ rejects at the second node.\textsuperscript{89} The difference between $T_H$’s deviation and equilibrium payoffs is $\sigma(-x - \gamma t_H) - (-x)$, and deviating is profitable if $\sigma(-x - \gamma t_H) - (-x) > 0 \iff \sigma < \frac{x}{x+\gamma t_H} \equiv \sigma_H$. On the other hand, $T_L$’s deviation is profitable if $-\sigma t_L - (-x) > 0 \iff \sigma < \frac{x}{t_L} \equiv \sigma_L$ (Appendix A2). Since $\sigma_H < \sigma_L \iff t_L < x + \gamma t_H$, which
is true in No-commitment case 2 because \( x + \gamma t_H > (1 - \gamma) t_L + \gamma t_H \) and \( (1 - \gamma) t_L + \gamma t_H > t_L \iff \gamma (t_H - t_L) > 0 \), \( T_L \) would find deviating by rejecting at the second node profitable in a greater range of \( \sigma \). Applying the D1 criterion requires that \( \mu(x) = 0 \), which leads to a contradiction as \( 0 < \mu^*(x) \), i.e. a D1-consistent optimistic-beliefs equilibrium is not possible.

Suppose next that \( T \)'s threat rejection generates pessimistic beliefs, i.e. \( \mu(x) < \mu^*(x) \). Then \( S \) backs down, which leads both target types to reject her threat, and \( \mu(x) = p \) because the rejection conveys no information. For such a pessimistic-beliefs equilibrium to exist, it must be that \( p < \mu^*(x) = \frac{s - \sigma}{s + z - \gamma s} \iff x < \frac{s - \rho - s + \rho \gamma p}{p} \) (Appendix A3). Since if \( p < \mu^*(x) \), \( S \) backs down at her second information set, both \( T_L \) and \( T_H \) reject her threat. Therefore, regardless of \( S \)'s demand, as long as \( t_L (1 - \gamma) < x \leq t_L \) and \( x < \frac{s - \rho - s + \rho \gamma p}{p} \), \( S \) incurs a payoff of \(-r\). Obviously, given a certain configuration of the exogenous parameters, the latter conditions might be inconsistent. We address that issue, however, after we examine the possibility of a mixed strategy equilibrium and complete the analysis of No-commitment cases 2 and 3. If \( p > \mu^*(x) \iff x > \frac{s - \rho - s + \rho \gamma p}{p} \), a pessimistic-beliefs equilibrium does not exist either, and we are led to look for a mixed strategy equilibrium in which \( \mu(x) = \mu^*(x) \).

However, for the target types to use mixed strategies, they must be indifferent between accepting and rejecting, which implies that \( S \) must also back down and impose sanctions probabilistically. To make \( T_H \) indifferent, \( S \) must impose sanctions with some probability \( \beta \) such that \(-x = (1 - \beta) . 0 + \beta (x - \gamma t_H) \iff \beta = \frac{x}{x + \gamma t_H} \equiv \beta(x) \), and it is easy to see that \( \beta \in (0, 1) \). Similarly, to make \( T_L \) indifferent, \( S \) has to set \( \beta' \) such that \((1 - \beta') . 0 + \beta' (x) = -x \iff \beta' = \frac{x}{x + \gamma t_H} \), from which it follows that \( S \) cannot make the two target types indifferent at the same time, that is, no equilibrium exists in which both target types use mixed strategies. To see why, observe that \( \beta = \beta' \iff \frac{x}{x + \gamma t_H} = t_L = x + \gamma t_H \iff x = t_L - \gamma t_H \),
the last contradicting \( x > (1 - \gamma)t_L \) as \( t_L - \gamma t_H > (1 - \gamma)t_L \Leftrightarrow t_H < t_L \).

It is also straightforward to establish that no equilibrium exists in which \( T_L \) mixes while \( T_H \) uses a pure strategy. To see why, observe that if \( \beta' = \frac{x}{t_L} \), the difference between \( T_H \)'s acceptance and rejection payoffs is \(-x - \frac{x}{t_L}(-x - \gamma t_H) = x \left( \frac{x + \gamma t_H}{t_L} - 1 \right) \). The difference is positive when \( x + \gamma t_H > t_L \Leftrightarrow x > t_L - \gamma t_H \), and the latter inequality follows from \( x > t_L - \gamma t_L \) and \( t_L - \gamma t_L > t_L - \gamma t_H \), that is, if \( T_L \) mixes, \( T_H \) always prefers to accept and consequently \( S \)'s updated belief \( \mu(x) = 0 < \mu^*(x) \) does not support the outlined equilibrium. Therefore, the only mixed strategy equilibrium possible is when \( T_H \) mixes while \( T_L \) rejects the offer with certainty. If \( T_L \) rejects \( x \) with certainty at the second node while \( T_H \) accepts with some probability \( \alpha \), to find \( \alpha \) that sets \( \mu(x) = \mu^*(x) \), we apply Bayes' rule and solve:

\[
\mu^*(x) = \frac{s - r}{s + x - s\gamma} = \frac{p\alpha}{p\alpha + 1 - p} \Leftrightarrow \alpha = \frac{(1 - p)(s - r)}{p(r + x - s\gamma)} \equiv \alpha(x).
\]

It is also possible to show that when \( x \geq \frac{s - r - ps + ps\gamma}{p} \Leftrightarrow p > \mu^*(x), \alpha \in (0, 1) \), and that \( \alpha'(x) > 0 \) (Appendix A4). Thus, the conditions under which a pessimistic-beliefs and a mixed-strategy equilibrium are possible are mutually exclusive, which suggests that the derived equilibrium is unique. Finally, the derived \( \alpha \) makes \( S \) indifferent between imposing sanctions and backing down, but for \( \alpha, \beta, \) and \( \mu^*(x) \) to form a PBE, it must also be that \( T_L \)'s best reply to the latter strategies and beliefs is to reject \( S \)'s demand at the second node.

Rejection is better for \( T_L \) than acceptance if \(-x < (1 - \beta)(1 - \beta)t_L = -t_L \beta = -\frac{x}{x + \gamma t_H} \Leftrightarrow x + \gamma t_H > t_L \), the latter following from \( x + \gamma t_H > t_L(1 - \gamma) + \gamma t_H = \gamma(t_H - t_L) + t_L > t_L \).

Therefore, the specified \( \alpha, \beta, \) and \( \mu^*(x) \) form a PBE, and \( S \)'s expected payoff from a demand \( x \) in No-commitment case 2.1 is:

\[
\Pr(\text{Threat acceptance})x - \Pr(\text{Threat rejection})r = xp(1 - \alpha(x)) + (1 - p + p\alpha(x))(-r) \equiv U(x).
\]

Note that the rejection payoff is set to \(-r \) because by construction of the equilibrium \( S \) is
indifferent between backing down or imposing sanctions. We can also show that \( U'(x) > 0 \) (Appendix A5), which implies that \( S \) maximizes its payoff in No-commitment case 2.1 by selecting the largest possible demand \( x = t_L \) and obtains \( U(t_L) \).

**No-commitment case 2.2:** \( s > r \) and \( t_L < x \leq (1-\gamma)t_H \). The analysis of No-commitment case 2.2 is very similar to the analysis of No-commitment case 2.1. Here \( t_L < x \Leftrightarrow -x < -t_L \), so \( T_L \) has the dominant strategy of rejecting \( S \)'s demand both after her threat and after the imposition of sanctions. An optimistic-beliefs equilibrium is again impossible: if \( \mu(x) > \mu^*(x) \), \( S \) imposes sanctions and \( T_H \) accepts at the second node, which implies \( \mu(x) = 0 < \mu^*(x) \). The proof that there exists a pessimistic-beliefs equilibrium when \( x < \frac{s-r-ps+p\gamma}{p} \) and a mixed-strategy equilibrium characterized by \( \alpha, \beta \), and \( \mu^*(x) \) when \( x \geq \frac{s-r-ps+p\gamma}{p} \) is the same as the proof in No-commitment case 2.1. The only difference is that here there is no need to show that \( T_L \)'s best response in the mixed-strategy equilibrium is to reject \( S \)'s threat since that is its dominant strategy. Therefore, in No-commitment case 2.2 \( S \) demands \( x = (1-\gamma)t_H \) and obtains an expected payoff of \( U((1-\gamma)t_H) \).

**No-commitment case 3:** \( s > r \) and \( (1-\gamma)t_H < x \). In No-commitment case 3, since both target types reject the demand at the final decision node, when deciding whether to carry out its threat, \( S \) always backs down because \( s > r \Leftrightarrow -r > -s \). Knowing that, both target types reject her threat as \( 0 > -x \). Therefore, regardless of \( S \)'s demand, her payoff in No-commitment case 3 is always \(-r\). Consider now \( S \)'s optimal demands and expected coercion payoffs in all no-commitment cases, which are summarized in Table 4.1.

It is clear that the \(-r\) payoff is inferior to the \( t_L(1-\gamma) \) payoff, and from the fact that \( U(.) \) is increasing, we also know that \( U((1-\gamma)t_H) > U(t_L) \). However, we need to establish the conditions under which \( U((1-\gamma)t_H) \geq (1-\gamma)t_L \) and the constraints \( t_L < x < (1-\gamma)t_H \) and \( x \geq \frac{s-r-ps+p\gamma}{p} \) are not mutually exclusive. Consider first \( S \)'s choice between \( x = (1-\gamma)t_H \)
and \(x = (1 - \gamma)t_L\). \(S\) prefers the higher demand when:

\[
U((1 - \gamma)t_H) \geq (1 - \gamma)t_L \Leftrightarrow p \geq \frac{sr + st_H + rt_L - \gamma st_L + t_H t_L - \gamma t_H t_L}{sr + st_H + rt_H - \gamma st_H + t_H^2 - \gamma t_H^2} \equiv p_2.
\]

The derivation is shown in Appendix A6, which also establishes that \(p_2 \in (0, 1)\). Consider now the conditions under which both \(t_L < x \leq (1 - \gamma)t_H\) and \(x \geq \frac{s - r - p \delta + p \gamma}{p}\). The demand \(x\) can satisfy both constraints as long as \(\frac{s - r - p \delta + p \gamma}{p} \leq (1 - \gamma)t_H \Leftrightarrow p \geq \frac{s - r}{s(1 - \gamma) + t_H (1 - \gamma)}\) (Appendix A7). Therefore, if \(p > p_2\) and \(p \geq \frac{s - r}{s(1 - \gamma) + t_H (1 - \gamma)}\), \(S\) will demand \(x = (1 - \gamma)t_H\) to obtain an expected payoff of \(U((1 - \gamma)t_H)\). However, what happens if \(p < \frac{s - r}{s(1 - \gamma) + t_H (1 - \gamma)}\) and the aforementioned constraints are inconsistent? As Appendix A8 shows, the difference \(p_2 - \frac{s - r}{s(1 - \gamma) + t_H (1 - \gamma)}\) can be transformed as \(\frac{(r + t_L - \gamma t_L)(r + t_H - \gamma t_H)}{(s + t_H)(1 - \gamma)(r + t_H - \gamma t_H)} > 0\), that is, the \(p \geq p_2\) constraint is binding. Therefore, if \(p \geq p_2\), \(S\) demands \(x = (1 - \gamma)t_H\) and that demand places the game in a mixed-strategy equilibrium, which provides \(S\) with the expected payoff of \(U((1 - \gamma)t_H)\). On other hand, when \(p < p_2\), \(U((1 - \gamma)t_H) < (1 - \gamma)t_L\). But if \(U((1 - \gamma)t_H) < (1 - \gamma)t_L\), then \(U(t_L) < (1 - \gamma)t_L\) as well, and we already observed that \(-r < (1 - \gamma)t_L\). Therefore, if \(p < p_2\), \(S\) demands \(x = (1 - \gamma)t_L\) and whether \((1 - \gamma)t_L < x \leq t_L\) is consistent with \(x \geq \frac{s - r - p \delta + p \gamma}{p}\) is irrelevant because both payoffs in that row of Table 4.1 are inferior to \(t_L(1 - \gamma)\) when \(p < p_2\). Therefore, based on the preceding discussion, we can now state:

**Lemma 4.1** If the sanctions sender makes a demand in the no-commitment cases of the economic coercion game, her optimal demand is \(x = (1 - \gamma)t_L\) when \(p < p_2\) and \(x = (1 - \gamma)t_H\) when \(p \geq p_2\).

We now have to derive \(S\)'s optimal demand for the commitment cases, when \(s \leq r\).

**Commitment case 1:** \(s \leq r\) and \(x \leq (1 - \gamma)t_L\). As in No-commitment case 1, here both target types accept the demand at the last node, so the sender always imposes sanctions. Knowing that, both target types accept her demand in threat stage as \(-x > -x - \gamma t_i\) and
$S$ maximizes her expected payoff by making the largest possible demand $x = (1 - \gamma)t_L$.

**Commitment case 2.1:** $s \leq r$ and $t_L(1 - \gamma) < x \leq t_L$. Since $\mu^*(x) \leq 0$, $S$ has the dominant strategy of always imposing sanctions. Knowing that, $T_H$ accepts at the second node because $-x > -x - \gamma t_H$. $T_L$ accepts as well because $-x \geq -t_L \Leftrightarrow x \leq t_L$, and $S$ makes the highest possible demand $x = t_L$ and receives that amount as her payoff.\(^9^4\)

**Commitment case 2.2:** $s \leq r$ and $t_L < x < (1 - \gamma)t_H$. Unlike in Commitment case 2.1, when $t_L < x \leq t_H(1 - \gamma)$, $T_L$ is better off rejecting the sender’s demand at the second node because $-x < -t_L \Leftrightarrow x > t_L$. $S$’s expected payoff is her demand times the prior probability the target is the high-valuation type minus her own valuation times the complementary probability, i.e. $px - (1 - p)s$, and that expectation attains its maximum of $pt_H(1 - \gamma) - (1 - p)s$ when $x = t_H(1 - \gamma)$, which is $S$’s optimal demand. Since, the target types separate perfectly at the threat stage, $\mu(x) = 0$, but the posterior belief does not affect $S$’s dominant strategy. Thus, if $s \leq r$, which suggests that the sender’s reputation costs are higher than her sanctions costs, any information transmission at the threat stage is irrelevant because she cannot back down after a failed threat. However, paradoxically, unless the sender’s commitment to carry out her threat is as strong as to make any acquired information irrelevant, the sender cannot induce perfect separation of the target types at the threat stage. This effect arises because as long as the sender cannot commit to completely ignoring the information that might be revealed at threat stage, the high-valuation target type has some incentive to imitate the behavior of the low-valuation type. The target type separation result also implies that the validity of the argument that, when economic coercion succeeds, the success should usually be observed at its threat stage hinges upon the implicit assumption that all threats are credible.

**Commitment case 3:** $s \leq r$ and $(1 - \gamma)t_H < x$. Here, at the last node both target types
reject, but $S$ still always imposes sanctions after a rejected threat. Consider two subcases.

**Commitment case 3.1:** $s \leq r$ and $(1-\gamma)t_H < x \leq t_H$. Since $x > t_L$, $T_L$ has the dominant strategy of rejecting the demand at both the threat and sanctions stages. However, $T_H$, knowing that $S$ carries out all of her threats, accepts at the second node because $-x \geq -t_H \iff x \leq t_H$. Similarly to Commitment case 2.2, $S$'s expected payoff is $px - (1-p)s$ and is maximized by $x = t_H$ to $pt_H - (1-p)s$, $S$'s posterior belief again being $\mu(x) = 0$.

**Commitment case 3.2:** $s \leq r$ and $t_H < x$. Here both target types have the dominant strategy of rejecting the demand at both the threat and the sanctions stage. Since $S$ always carries out her threats, the game always ends at the permanent sanctions node, and, regardless of $x$, $S$'s payoff is $-s$. Similarly to the no-commitment cases, having established the equilibrium play and $S$'s expected payoff for each potential initial demand $x$, it is now also possible to derive $S$'s optimal demand for the commitment cases. The analysis of the commitment cases is summarized in Table 4.2. Clearly, the $-s$ payoff is inferior, and $(1-\gamma)t_L < t_L$ while $(1-\gamma)t_H < t_H$ implies that $pt_H(1-\gamma) - (1-p)s < pt_H - (1-p)s$. Therefore, the relevant demands are $x = t_L$ and $x = t_H$, and $S$ selects $x = t_H$ if $pt_H - (1-p)s \geq t_L \iff p \geq \frac{t_H + t_L}{s + t_H} \equiv p_1$. Therefore, we can state:

**Lemma 4.2** If the sanctions sender makes a demand in the commitment cases of the economic coercion game, her optimal demand is $x = t_L$ when $p < p_1$ and $x = t_H$ when $p \geq p_1$.

However, in both commitment and no-commitment cases, $S$ will only make her optimal demand if her expected utility from making that demand exceeds $w$, her reservation utility from the status quo. Suppose first that $s \leq r$ and $p < p_1$, which implies that $S$'s optimal demand and expected coercion payoff is $t_L$. $S$ will only make that demand if $w \leq t_L$, but preserve the status quo if $w > t_L$. Similarly, if $s \leq r$ and $p \geq p_1$, which sets $S$'s optimal
demand to \( t_H \) and associated coercion payoff to \( pt_H - (1 - p)s \), \( S \) will make a demand if \( w \leq pt_H - (1 - p)s \) and preserve the status quo if \( w > pt_H - (1 - p)s \). In the no-commitment cases, if \( s > r \) and \( p < p_2 \), which sets \( S \)'s optimal demand to \( x = t_L(1 - \gamma) \), \( S \) will make that demand if \( w \leq t_L(1 - \gamma) \) and preserve the status quo if \( w > t_L(1 - \gamma) \). If \( s > r \) and \( p \geq p_2 \), which sets \( S \)'s optimal demand to \( t_H(1 - \gamma) \), \( S \) will make her optimal demand when \( w \leq U((1 - \gamma)t_H) \) and preserve the status quo if \( w > U((1 - \gamma)t_H) \). For each possible configuration of the exogenous parameters in the game, we have thus far established whether \( S \) will choose to retain the status quo or make a demand, \( S \)'s optimal demand, \( S \)'s and \( T \)'s best response strategies given that demand, and \( S \)'s posterior belief after a rejected threat. Therefore, we can now fully characterize the coercion game's equilibrium by stating:

**Proposition 4.1** The generically unique PBE of the economic coercion game consists of the following strategies and beliefs:

1. If \( s \leq r \) and \( p < p_1 \) and \( w > t_L \), \( S \) does not make a demand, its optimal demand is \( x = t_L \), \( T_L \) and \( T_H \) accept at the second node, \( S \)'s updated belief is any \( \mu' \in [0, 1] \), \( S \) imposes sanctions, and \( T_H \) accepts while \( T_L \) rejects at the last node (Low commitment I).

2. If \( s \leq r \) and \( p < p_1 \) and \( w \leq t_L \), \( S \) demands \( x = t_L \), \( T_L \) and \( T_H \) accept at the second node, \( S \)'s updated belief is any \( \mu' \in [0, 1] \), \( S \) imposes sanctions, and \( T_H \) accepts while \( T_L \) rejects at the last node (Low commitment II).

3. If \( s \leq r \) and \( p \geq p_1 \) and \( w > pt_H - (1 - p)s \), \( S \) does not make a demand, its optimal demand is \( x = t_H \), \( T_L \) rejects while \( T_H \) accepts at the second node, \( S \)'s updated belief is \( \mu = 0 \), \( S \) imposes sanctions, and \( T_L \) rejects while \( T_H \) accepts at the last node (High commitment I).
4. If \( s \leq r \) and \( p \geq p_1 \) and \( w \leq pt_H - (1 - p)s \), \( S \) demands \( x = t_H \), \( T_L \) rejects while \( T_H \) accepts at the second node, \( S \)'s updated belief is \( \mu = 0 \), \( S \) imposes sanctions, and \( T_L \) rejects while \( T_H \) accepts at the last node (High commitment II).

5. If \( s > r \) and \( p < p_2 \) and \( w > t_L(1 - \gamma) \), \( S \) does not make a demand, its optimal demand is \( x = t_L(1 - \gamma) \), \( T_L \) and \( T_H \) accept at the second node, \( S \)'s updated belief is any \( \mu' \in [0, 1] \), \( S \) imposes sanctions, and \( T_L \) and \( T_H \) accept at the last node (Low no-commitment I).

6. If \( s > r \) and \( p < p_2 \) and \( w \leq t_L(1 - \gamma) \), \( S \) demands \( x = t_L(1 - \gamma) \), \( T_L \) and \( T_H \) accept at the second node, \( S \)'s updated belief is any \( \mu' \in [0, 1] \), \( S \) imposes sanctions, and \( T_L \) and \( T_H \) accept at the last node (Low no-commitment II).

7. If \( s > r \) and \( p \geq p_2 \) and \( w > U(t_H(1 - \gamma)) \), \( S \) does not make a demand, its optimal demand is \( x = t_H(1 - \gamma) \), \( T_L \) rejects at the second node while \( T_H \) rejects with probability \( \alpha((1 - \gamma)t_H) = \frac{(1-p)(s-r)}{p(r+(1-\gamma)t_H-s)} \), \( S \)'s updated belief is \( \mu = \frac{s-r}{s+t_H(1-\gamma)-\gamma s} \), \( S \) imposes sanctions with probability \( \beta((1 - \gamma)t_H) = 1 - \gamma \), and \( T_L \) rejects while \( T_H \) accepts at the last node (High no-commitment I).

8. If \( s > r \) and \( p \geq p_2 \) and \( w \leq U(t_H(1 - \gamma)) \), \( S \) demands \( x = t_H(1 - \gamma) \), \( T_L \) rejects at the second node while \( T_H \) rejects with probability \( \alpha((1 - \gamma)t_H) = \frac{(1-p)(s-r)}{p(r+(1-\gamma)t_H-s)} \), \( S \)'s updated belief is \( \mu = \frac{s-r}{s+t_H(1-\gamma)-\gamma s} \), \( S \) imposes sanctions with probability \( \beta((1 - \gamma)t_H) = 1 - \gamma \), and \( T_L \) rejects while \( T_H \) accepts at the last node (High no-commitment II).

The eight possible forms of the equilibrium are summarized in Table 4.3. "Commitment" equilibria occur when \( S \)'s audience costs are higher than her sanctions costs which makes carrying out failed threats a dominant strategy while the opposite relation holds in
"no-commitment" equilibria. The higher sender credibility in commitment equilibria allows her to extract greater concessions from the target for corresponding values of the other exogenous parameters and results in higher optimal demands. Also, in commitment equilibria the perfect target selection at the threat stage does not ever allow for concessions after sanctions because all types which would make concessions after sanctions make them at the threat stage. "Low" equilibria occur when $S$ is relatively pessimistic about the target's valuation (i.e. $p < p_1$ or $p < p_2$), and only makes a relatively small demand, which is immediately accepted in threat stage. On the other hand, "high" equilibria result when $S$ is relatively optimistic and makes relatively large demands, which are sometimes rejected and can lead to the actual imposition of economic sanctions, and in the high no-commitment equilibria those sanctions can also lead to target concessions. Finally, in "type I" equilibria $S$'s expected payoff from making its optimal demand is lower than its reservation utility $w$, and no demand is made. On the other hand, the opposite is true in "type II" equilibria, in which $S$'s expected coercion payoff exceeds $w$.

Figure 4.2 depicts the equilibrium space of the coercion game when $t_H = 0.95$, $t_L = 0.15$, $r = 0.16$, $\gamma = 0.10$, and $w = 0$. The horizontal axis represents the sender's sanctions costs while the vertical axis represents the prior probability that the target is the high-valuation type. Commitment equilibria occur to the left of the $s = r$ line, i.e. in the region of the $sp$ plane where $s \leq r$. No-commitment equilibria occur to the right of the $s = r$ line, i.e. where the sender's sanctions costs exceed her reputation costs. The $p_1$ and $p_2$ curves plot the $p_1$ and $p_2$ conditions as a function of $s$. If for a given value of $s$, $p$ is higher than the corresponding value of $p_1(s)$ or $p_2(s)$, we find ourselves in a high equilibrium. Since Figure 4.2 depicts the case when the reservation utility is zero, all equilibria are type II, i.e. the expected payoff of economic coercion always exceeds $w$. On the other hand, if $p$
is lower than \( p_1(s) \) or \( p_2(s) \), the equilibrium is a low one. In turn, augmenting the figure by adding a third dimension, which represents the \( w \) parameter, and plotting the critical coercion utilities, at which \( S \) is indifferent between making a demand and keeping the status quo, would divide the resulting three-dimensional volume into eight regions corresponding to each of the eight equilibria.

Unlike Figure 4.2, Figure 4.3 shows the equilibrium regions in \( sr \) space, that is, \( p, t_H, t_L, \gamma, \) and \( w \) are held fixed, while the sender's sanctions and reputation costs vary. The sender's sanctions costs increase along the horizontal axis while her reputation costs increase along the vertical axis. The \( s = r \) line, which bisects the \( sr \) plane, is the locus of points at which these costs are equal. Above the \( s = r \) line, the reputation costs are greater, which results in commitment equilibria, whereas below the \( s = r \) line the sanctions costs are greater and we end up in no-commitment equilibria. The hatched area below the \( \gamma s = r \) line represents the \( (s, r) \) pairs excluded by the \( \gamma < \frac{5}{4} \) restriction. The \( p_1(s) = p \) line and \( p_2(s, r) = p \) curve represent the \( (s, r) \) pairs for which the \( p_1 \) and \( p_2 \) conditions are exactly equal to the \( p = 0.50 \) used to plot the figure, i.e. on these segments the sender is indifferent between placing the game into the corresponding high and low equilibria. To left of the \( p_1(s) = p \) line, \( p \geq p_1 \) and we end up in the High Commitment II equilibrium whereas to the right of that line the equilibrium is the Low Commitment II one. Similarly, in the low reputation cost region of the plane, high equilibria occur to the left of the \( p_2(s, r) = p \) curve while low equilibria occur to its right. As with Figure 4.2, adding \( w \) as a third dimension would allow the simultaneous representation of all eight equilibria in the same three-dimensional graph. Using the derived equilibrium strategies and equilibrium boundaries, we can derive the probabilities for certain outcomes, e.g. demand size, sanctions success, etc., for each of the equilibrium regions, and use comparative statics to find out how changes in a given exogenous parameter change the
probabilities of these outcomes. That analysis is the subject of the next section.

4.3 Empirical Implications

In deriving empirical implications from the model, we focus on three dependent variables: whether there is a coercion attempt or the sender retains the status quo, the size of the optimal demand, and the probability with which the sender’s demand is accepted, either at the threat or sanctions stage of the coercion episode. Each dependent variable varies across the eight equilibrium regions, and some variables also vary within the equilibrium regions. The presence of a threat, the size of the demand, and the ex ante success probability for all equilibrium regions are summarized in Table 4.4. The remainder of this section presents and discusses a series of comparative static results concerning the effects of the main exogenous parameters, i.e. $p$, $s$, and $r$, on the aforementioned dependent variables. The comparative static results are stated as propositions, which are then synthesized into empirical hypotheses.

We begin with exploring the effects of changing the sender’s prior belief $p$ that the target is the high-valuation type. The parameter $p$ can be interpreted either as the sender’s beliefs about the target’s sanctions costs or as the sender’s beliefs about the target’s resolve. In both instances, senders with greater economic leverage over a given target should be more likely to have optimistic priors about the target’s resolve. Consider first the effect of increasing $p$ on the size of the sender’s optimal demand, using Figure 4.2 as a reference. Although the figure shows what happens when $s$ and $p$ vary while the other exogenous parameters are held fixed at arbitrary values, the figure is similar for any other valid configuration of exogenous parameter values. Therefore, as Appendix A9 proves, the implications we are going to derive assuming the particular parameter values used to plot in Figure 4.2 also
hold in general.

Figure 4.2 plots the coercion game’s PBE when the sender’s reservation utility $w = 0$, that is her expected coercion utility from any optimal demand exceeds $w$ and all equilibria are type II. Since the probability of a high-valuation target is increasing along the vertical axis, as we move along this axis we become more likely to cross the threshold that divides high from low equilibria. That is true both in commitment equilibria, to the left of the $s = r$ line, where the sender demands $x = t_H$ if $p \geq p_1$ and $x = t_L$ otherwise, and in no-commitment equilibria, to the right of the $s = r$ line, where the sender demands $x = t_H(1 - \gamma)$ if $p \geq p_2$ and $x = t_L(1 - \gamma)$ otherwise. On the other hand, decreasing $p$ decreases the chance that $p$ will exceed the aforementioned thresholds and increases the chance of a lower demand. Although the optimal demand size also changes when we cross the $s = r$ line, that is, when we move from commitment into no-commitment equilibria or back, changing $p$ has no impact on which side of the bisecting line we end up. We can therefore state:

**Proposition 4.2** Holding everything else constant, as the sender’s prior belief $p$ that the target is the high-valuation type increases (decreases), the size of the sender’s optimal demand increases (decreases).

Consider next the effect of $p$ on the chance that the sender’s coercion attempt succeeds, again using Figure 4.2 as a reference. Consulting Table 4.4 shows that in commitment equilibria, that is, on the left side of the $s = r$ line, economic coercion succeeds with probability one when $x = t_L$ and with probability $p$ when $x = t_H$. Therefore, increasing $p$ over the $(0, p_1)$ interval, which keeps us in the low commitment II equilibrium leaves the success probability unaltered at one. On the other hand, increasing $p$ over the $(p_1, 1)$ interval,
which keeps us in the high commitment II equilibrium, increases the success probability from $p_1$ to 1. Since the two commitment equilibria are defined by the size of the optimal demand, we can conclude that increasing $p$ while holding the optimal demand fixed has a non-decreasing effect on the sender’s success probability. However, it is important to note that this non-decreasing effect of $p$ is not unconditional.

To see why, consider what happens when we increase $p$ over the entire $(0, 1)$ interval. Initially, as $p$ increases, the success probability equals one; however, when we cross the $p_1$ point, it suddenly drops from one to $p_1$, following which it increases again and approaches one as $p$ approaches one—the sender’s success probability in commitment equilibria as a function of $p$ is plotted in Figure 4.5. Clearly, increasing $p$ over the $(0, 1)$ interval does not have a monotonic effect—the reasons for this result are that the sender does not maximize her success probability but rather her expected utility, and that demands are endogenous. When $p$ is high, the sender is optimistic and willing to accept some risk. That is why she makes the higher demand. As $p$ decreases, the chance that the high demand is accepted decreases too. However, since the sender can adjust her demand, at some point she realizes that decreasing that demand, i.e., giving up the greater demand in exchange for the certain acceptance of the smaller demand, will result in a higher expected utility. In commitment equilibria, that tradeoff occurs at the $p = p_1$ line. The effect of increasing $p$ in no-commitment equilibria is similar, and is plotted in Figure 4.6. Here, increasing $p$ over the $(0, p_2)$ interval keeps the success probability at one, crossing the $p_2$ threshold results in a sudden drop from one to $p(1 - \alpha \gamma)$, and increasing $p_2$ over the $(p_2, 1)$ interval increases the success probability from $p_2(1 - \alpha \gamma)$ to $1 - \alpha \gamma$. Since $p$ has no influence on whether the equilibrium is a commitment or a no-commitment one, we can state:

**Proposition 4.3** Holding everything else constant, as the sender’s prior belief $p$ that the
target is the high-valuation type increases (decreases), the success probability of economic coercion increases (decreases) or remains constant, but only conditional on the increase (decrease) in \( p \) not changing the sender’s optimal demand.

We next discuss the effect of increasing \( p \) on the chance that sender will make her optimal demand rather than retain the status quo. The PBE of the coercion game suggests that the sender only makes a demand if her expected utility from economic coercion exceeds her reservation utility from the status quo. Therefore, we need to consider the effect of increasing \( p \) on the sender’s utility from economic coercion. Figure 4.4 plots that effect twice, once for commitment equilibria and once for no-commitment equilibria. The values assigned to the other exogenous parameters are again arbitrary, but Appendix A10 explains why the implications of the figure hold in general as well. Consider first the coercion utility in commitment equilibria as a function of \( p \). When \( p \) is in the \((0, p_1)\) interval, the coercion utility is constant because the optimal demand \( x = t_L \) is accepted with probability one. When \( p \) crosses the \( p_1 \) threshold, the game moves into a high commitment equilibrium and the corresponding segment of the coercion utility function is set equal to \( pt_H - (1 - p)s \), i.e. the probability coercion succeeds times the demand size minus the probability it fails times the sender's sanctions costs. The high commitment equilibrium segment of the function is increasing in \( p \); that the function is continuous at the \( p = p_1 \) point follows directly from the definition of \( p_1 \) as the critical \( p \) at which the sender is indifferent between making her greater and smaller demand.

Figure 4.4 clearly shows that the sender’s coercion utility in commitment equilibria increases in \( p \). Similarly, her coercion utility in no-commitment equilibria also increases in \( p \)—the difference is that in this equilibrium class the form of the utility function changes at the \( p = p_2 \) point. Let us now introduce the sender’s reservation utility \( w \)—this utility is a
horizontal line since it is constant across all equilibria. When the reservation utility is very low, the coercion utility might exceed the reservation utility for all values of \( p \), in which case the sender will always make her optimal demand. On the other hand, if \( w \) is very high, no \( p \) might result in a coercion utility high enough to justify making a demand. However, for moderate values of \( w \), it is much more likely that the sender’s coercion utility will exceed her reservation utility if \( p \) is higher, and that effect is unconditional. Also, the effect of \( p \) is the same in both commitment and no-commitment equilibria. We can therefore state:

**Proposition 4.4** Holding everything else constant, as the sender’s prior belief \( p \) that the target is the high-valuation type increases (decreases), the probability that the sender will use economic coercion increases (decreases).

Observe, however, that high coercion utilities in Figure 4.4 are also more likely to the right of the \( p_1 \) and the \( p_2 \) segments, i.e. in high equilibria. However, these high equilibria are also characterized by greater demands, which implies that whether we observe a demand and the size of the observed demand are not independent events. That is, higher optimal demands are more likely to be made, or, alternatively, coercion cases in which the sender’s optimal demand is higher are more likely to select themselves into the sample of cases in which the sender actually makes her optimal demand. On the other hand, Figure 4.5 and Figure 4.6, which plot the sender’s coercion utility, reservation utility, and success probability in respectively commitment and no-commitment equilibria, show that cases which are potentially most likely to succeed are also most likely to select out of the sample of actually observed cases. This pattern results because the highest success probabilities are associated with the smallest demands, and we already established that sender’s coercion utility from making these smallest demands is least likely to exceed her reservation utility.
We can thus state:

**Proposition 4.5** *Holding constant everything but the sender's prior belief that the target is the high-valuation type \( p \), there will be a positive selectivity of cases with greater optimal demands and lower success propensities into the population of cases in which the sender actually makes her optimal demand.*

We next consider the comparative static results with respect to the sender's sanctions costs \( s \) and reputation costs \( r \). Consider the graphical representation of the coercion game's PBE in Figure 4.3. The graph shows how the equilibrium type varies as \( s \) and \( r \) change while the other exogenous variables are held fixed. Again, although the values used to construct the graph are arbitrary, Appendix A11 proves that the graph looks similar for any permissible set of values. As we move up along the vertical axis, the sender's reputation costs increase while her sanctions costs remain constant. On the other hand, as we move right along the horizontal axis, her sanctions costs increase while her reputation costs remain constant. The \( s = r \) line contains all \((s, r)\) pairs for which the sender's reputation costs are exactly equal to her sanctions costs. Above that line \( r > s \), i.e. her reputation costs are higher and only commitment equilibria occur. Below the line \( r < s \) and the corresponding equilibria are of the no-commitment class. Figure 4.3 also plot the segments that consists of the \((s, r)\) pairs for which \( p_1 = p \) and \( p_2 = p \).

Since the value of \( p_1 \) depends only on \( s \) when \( t_H \) and \( t_L \) are held fixed, the \( p_1 = p \) threshold is represented as a vertical segment. On the left side of the \( p_1(s) = p \) line, \( s \) is such that \( p_1 < p \) and we have a high commitment equilibrium above the \( s = r \) line. On the right side of the \( p_2(s) = p \) line \( s \) is such that \( p_1 > p \) and consequently the region above the \( s = r \) line is occupied by a low commitment equilibrium. Similarly, at the \( p_2(s, r) = p \) curve
the sender is indifferent between her high and low demands if she is in the no-commitment equilibrium region, i.e. below the $s = r$ line. On the left side of the $p_2(s, r) = p$ curve she prefers the high demand which results in a high no-commitment equilibrium whereas on the right side she prefers the low demand which results in a low no-commitment equilibrium. Since the figure assumes that the reservation utility $w = 0$, the sender always makes her optimal demand, i.e. the graph allows us to trace how varying $s$ and $r$ affects the size of that optimal demand.

Consider first the effect of increasing the sender’s costs $s$. Since varying $s$ only results in horizontal movements along the graph, such increases can generate three scenarios. First, if $r$ is relatively small, increasing $s$ will result in a change from the high commitment II into the high no-commitment II equilibrium when $s$ crosses the $s = r$ threshold, and then in a change from the high no-commitment II equilibrium into the low no-commitment II equilibrium when $s$ crosses the $p_2(s, r) = p$ threshold. That is, as $s$ increases, the sender’s optimal demand decreases from $x = t_H$ to $x = t_H(1 - \gamma)$ and then to $x = t_L(1 - \gamma)$. If $r$ is moderately high (about 0.65 on the graph), increasing $s$ results in a direct transition from the high commitment II into the low no-commitment II equilibrium and the optimal demand decreases from $x = t_H$ to $x = t_L(1 - \gamma)$. Finally, for high values of $r$ increasing $s$ results in the transition from the high commitment II equilibrium into the low commitment II equilibrium and eventually in a low no-commitment II equilibrium. Correspondingly, the optimal demand decreases from $x = t_H$ to $x = t_L$ and then to $x = t_L(1 - \gamma)$. Thus, regardless of the particular value of $r$, increasing $s$ decreases the sender’s optimal demand and we can state:

**Proposition 4.6** Holding everything else constant, as the sender’s sanctions costs $s$ increase (decrease), the size of the sender’s optimal demand decreases (increases).
Consider now the effect of increasing the sender’s reputation costs \( r \) on her optimal demand. Using Figure 4.3 we can see that increasing \( r \) can result in four possible scenarios. First such an increase can cause a transition from the high no-commitment II into the high commitment II equilibrium and a corresponding optimal demand increase from \( x = t_H(1-\gamma) \) to \( x = t_H \). Second, for higher values of \( s \) increasing \( r \) can also result in a transition from the low no-commitment II equilibrium into the high no-commitment II equilibrium and finally into the high commitment II equilibrium. Such changes would also cause the optimal demand to increase from \( x = t_L(1-\gamma) \) to \( x = t_H(1-\gamma) \) and then to \( x = t_H \). Third, increasing \( r \) can result in the direct transition from the low no-commitment II into the high commitment II equilibrium and the increase of the optimal demand from \( x = t_L(1-\gamma) \) to \( x = t_H \). Finally, when \( s \) is very high, increasing \( r \) results simply in the transition from the low no-commitment II into the low commitment II equilibrium and in the increase of the optimal demand from \( x = t_L(1-\gamma) \) to \( x = t_L \). Since increasing \( r \) increases the optimal demand regardless of the particular level of \( s \), we can also state:

**Proposition 4.7** Holding everything else constant, as the sender’s reputation costs \( r \) increase (decrease), the size of the sender’s optimal demand increases (decreases).

I now move on to evaluating the effects of \( s \) and \( r \) on the success probability of economic coercion, again using Figure 4.3 as a guide. Consulting Table 4.4 reveals that in both low equilibria that success probability is one as the sender’s demand is always accepted, regardless of her sanctions costs. In the high commitment II equilibrium the success probability is \( p \), i.e. it does not depend on \( s \), and in the high no-commitment II equilibrium it is \( p(1-\alpha\gamma) \). Appendix A12 shows that \( p(1-\alpha\gamma) \) is decreasing in \( s \), that is, as \( s \) increases the success probability in the high no-commitment II equilibrium decreases. Consider now the effect of
increasing $s$ over the entire horizontal axis. As we already saw, if $r$ is relatively high, the
game moves from the high commitment II into the low commitment II and then into the
low no-commitment II equilibrium or directly from the high commitment II into the low
no-commitment II equilibrium.

In both scenarios, the initial success probability is $p$, which increases to one as $s$ increases.
However, when $r$ is lower, the effect of $s$ is not the same. Initially, the success probability
is $p$ and then it becomes $p(1 - \alpha \gamma)$. As $s$ continues to increase, the success probability,
which is now $p(1 - \alpha \gamma)$, decreases even more. However, when the imaginary line along
which we are increasing $s$ crosses the $p_2(s, r) = p$ curve, the success probability suddenly
increases to one—this scenario is plotted in Figure 4.7. Thus, the overall effect of $s$ is
not monotonic, and, as was the case with $p$, the reason is the endogeneity of the demand
combined with the fact that the sender maximizes her expected utility rather than her
success probability. When $s$ is high, the sender makes a small demand which is accepted
with certainty. However, as $s$ decreases, the sender finds it in her best interest to increase
her demand which results in a discontinuous drop in her success probability. As $s$ decreases
even more, the success probability starts increasing again. Given these considerations, we
can now state:

**Proposition 4.8** Holding everything else constant, as the sender’s sanctions costs $s$ in-
crease (decrease), the success probability of economic coercion decreases (increases) or re-
ains constant, but only conditional on the increase (decrease) in $s$ not changing the
sender’s optimal demand.

To derive the effect or $r$ on the success probability of economic coercion, we need to
examine each of the four scenarios according to which increasing $r$ changes the sender's
optimal demand and the equilibrium type. Consider first the case of a low \( s \), in which increasing \( r \) results in a change from the high no-commitment II into the high commitment II equilibrium. As \( r \) increases, the initial success probability in the no-commitment equilibrium is \( p(1 - \alpha \gamma) \), and that probability increases as \( r \) gets bigger (Appendix A13). As we get closer to the \( s = r \) line, \( p(1 - \alpha \gamma) \) approaches \( p \), and once the line is crossed, we move into the commitment equilibrium where the success probability is always \( p \). When \( s \) is higher, a low \( r \) places us in the low no-commitment equilibrium where the success probability is one. Once the \( p_2(s, r) = p \) curve is crossed, that probability drops to \( p(1 - \alpha \gamma) \) and continues to increase throughout the high no-commitment equilibrium. When \( r \) increases even more, the \( s = r \) is eventually crossed and the success probability becomes \( p \)—this scenario is plotted in Figure 4.8. If \( s \) is even higher, increasing \( r \) results in a direct transition from the low no-commitment into the high commitment equilibrium, which decreases the success probability from one to \( p \). Finally, if \( s \) is very high, increasing \( r \) results in a transition from the low no-commitment into the low commitment equilibrium, but that has no impact on the success probability which is equal to one in both equilibria. It therefore follows that, first, the effect or \( r \) on the success probability is not always monotonic, and, second, that the effect is not independent of \( s \). However, if we hold constant the equilibrium region, i.e. the optimal demand, increasing \( r \) either increases the sender’s success probability or leaves it constant regardless of \( s \). We can therefore state:

**Proposition 4.9** Holding everything else constant, as the sender reputation costs \( r \) increase (decrease), the success probability of economic coercion increases (decreases) or remains constant, but only conditional on the increase (decrease) in \( r \) not changing the sender’s optimal demand.
We are finally going to consider the effects of $s$ and $r$ on whether the sender decides to use economic coercion. Similarly, to the analysis with respect to $p$, we are going to evaluate the effects of these parameters on the expected utility from economic coercion, as the sender only makes a demand if her coercion utility exceeds her reservation utility from the status quo. Figure 4.9 shows the effect of increasing $s$ on the sender's coercion utility for relatively low $r$, when increasing $s$ results in a transition from the high commitment equilibrium into the high no-commitment equilibrium and finally into the low no-commitment equilibrium. As the figure shows, that utility is decreasing, with a discontinuous drop when we cross the $s = r$ line and becomes constant after we cross the $p_2(s, r) = p$ line. If we now introduce some level of reservation utility, it is easy to see that the expected coercion utility is more likely to exceed the reservation utility when $s$ is small (Appendix A14 generalizes the analysis to the other possible equilibrium transitions when we increase $s$). We can therefore state:

**Proposition 4.10** Holding everything else constant, as the sender’s sanction costs $s$ increase (decrease), the probability that the sender will use economic coercion decreases (increases).

Similarly to the analysis with respect to $p$, lower sender sanctions costs both increase the likelihood of a demand and the size of the optimal demand. As Figure 4.7 shows, the highest sender sanctions costs are also associated with the highest success probabilities via the lowest optimal demands, but these lowest demands are also the least likely to generate a coercion utility high enough to exceed the sender’s status quo valuation. It therefore follows that, based on $s$, there will be a positive selectivity of cases with higher optimal demands and lower success probabilities into actual cases, that is:

**Proposition 4.11** Holding constant everything but the sender’s sanctions costs $s$, there will
be a positive selectivity of cases with greater optimal demands and lower success propensities into the population of cases in which the sender actually makes her optimal demand.

Consider finally the effect of $r$ on whether the sender will make a demand. Figure 4.10 plots the effect of increasing $r$ on the sender’s coercion utility for the scenario in which that increase results in the transition from the low no-commitment into the high no-commitment and then into the high commitment equilibrium (Appendix A15 extends the analysis to the other possible scenarios when we increase $r$). As the figure shows, initially, while we are in the low no-commitment equilibrium, the coercion utility equals the $x = t_L(1 - \gamma)$ demand which is always accepted. That utility increases as the $p_2(s, r) = p$ curve is crossed—again, the coercion utility function is continuous at the $p_2(s, r) = p$ point because by definition $p_2$ is the critical $p$ at which the sender is indifferent between the $x = t_L(1 - \gamma)$ and $x = t_H(1 - \gamma)$ demands. When the $s = r$ line is crossed, the coercion utility experiences a discontinuous jump and remains constant after that. If we introduce some reservation utility, it is again easy to see that the coercion utility is more likely to exceed the reservation utility for higher values of $r$. We can therefore state:

**Proposition 4.12** Holding everything else constant, as the sender’s reputation costs $r$ increase (decrease), the probability that the sender will use economic coercion increases (decreases).

Also, higher coercion utilities not only increase the chance that economic coercion will be used, i.e. that the equilibrium will be a type II one, but also are more likely to result from higher optimal demands, that is, we again observe a positive correlation between the sender’s decision to make a demand and the size of her optimal demand. In addition, as Figure 4.8 shows, the cases with the highest success probabilities are associated with the
smallest demands and are consequently most likely to remain unobserved. Therefore:

**Proposition 4.13** Holding constant everything but the sender’s reputation costs r, there will be a positive selectivity of cases with greater optimal demands and lower success propensities into the population of cases in which the sender actually makes her optimal demand.

The derived comparative static results with respect to the sender’s sanctions costs, reputation costs, and prior beliefs follow the same general patterns. Given that the changes in these parameters do not cause the PBE of the game to change its form, changes that improve the sender’s bargaining position vis-à-vis the target, such as increasing the probability the target is the unresolved type, decreasing the sender’s sanctions costs, or increasing the sender’s ability to commit, increase, or at least leave constant, the success probability of economic coercion. However, since the demand is endogenous and the sender maximizes her expected utility from coercion rather than the success probability, improving the sender’s bargaining position also increases the size of the sender’s optimal demand, and changing the optimal demand also results in an indirect change in the success probability. Generally, that change is negative, i.e. higher optimal demands are associated with lower success probabilities. Exceptions occur when decreases in s or increases in r result in a reversion of the s > r inequality. Such changes have the impact of shifting the game from a no-commitment into the corresponding commitment equilibrium, and can increase both the demand size and the success probability. For example, moving from a high no-commitment into a high commitment equilibrium increases the optimal demand from \( x = t_H(1 - \gamma) \) to \( x = t_H \) and the success probability from \( p(1 - \alpha \gamma) \) to \( p \).

However, first, \( \gamma \) is most likely to be small in practice, and, second, as \( s \to r \), we have \( p(1 - \alpha \gamma) \to p \). Therefore, using Figure 4.3 as a reference, the success probability just
to the right of the $s = r$ line is the same as the success probability just to the left of it, so the marginal impact of changing the demand on the success probability while keeping the exogenous parameters constant is zero. Thus, although sometimes the direct change from the improvement in the sender's bargaining position will compensate the indirect change from increasing the demand, in which case the improvement would have a monotonic effect on the success probability, usually this will not be the case. When the indirect change is greater, improving the sender's bargaining position with respect to the target can actually decrease the success probability. Therefore, since the comparative static results with respect to each parameter are conditional on the particular values of the other parameters, unconditionally we can only state that factors that improve the sender's bargaining position increase the success probability given some fixed demand.

Simultaneously, the model shows that higher optimal demands result in a higher coercion utility, which is more likely to exceed the sender's reservation utility from the status quo. Since improving the sender's bargaining position increases the optimal demand, it follows that it also increases the chance the sender will use economic coercion. However, if improving the sender's bargaining position in turn increases both the chance of a demand and the size of the demand, it also follows that there will be a correlation between demand occurrence and size, that is, a positive selection of high optimal demands into actual demands. In addition, the potential cases with the highest success probabilities are most likely to be selected out of the actually observed cases, as the highest success probabilities are also associated with the lowest demands and coercion utilities. These general patterns can be summarized in the following four empirical hypotheses:

**Hypothesis 8** Improving the sender's position vis-à-vis the target (by increasing the probability the target is a high-cost/unresolved type, decreasing the sender's sanctions costs, or
increasing the sender's reputation costs) increases the likelihood that the sender will use economic coercion against the target.

**Hypothesis 9**  Given the sender has decided to use economic coercion, improving the sender's position vis-à-vis the target (by increasing the probability the target is a high-cost/unresolved type, decreasing the sender's sanctions costs, or increasing the sender's reputation costs) increases the concessions the sender will demand from the target.

**Hypothesis 10**  Given the sender has decided to use economic coercion, improving the sender's position vis-à-vis the target (by increasing the probability the target is a high-cost/unresolved type, decreasing the sender's sanctions costs, or increasing the sender's reputation costs) increases the likelihood that the sender's use of economic coercion against the target will succeed, if we control for the indirect effect on that improvement through the amount of the demanded concessions.

**Hypothesis 11**  There will be a positive selectivity of economic coercion cases involving higher concessions and lower success propensities into actual economic coercion cases.

The central issue in testing the four empirical hypotheses derived from the model is that, in addition to predicting certain effects of the exogenous on the three endogenous variables, the model also suggests that the endogenous variables also affect each other. Moreover, if the sender decides to retain the status quo, we cannot observe what demand the sender would have made and whether that demand would have been accepted, i.e. the latter two variables are censored. That is why, a proper test of the four hypotheses would require the simultaneous estimation of the sender's decision to use economic coercion, i.e. to make a threat, the size of the sender's demand, and the outcome of the coercion attempt. The
research design for the empirical evaluation of these hypotheses and the actual data analysis are the subject of the next chapter.

4.4 Conclusion

In contrast to most of the previous literature on economic sanctions, the main argument advanced in this chapter has been that the choice to engage in economic coercion does not occur in isolation from the sender’s projections of its expected utility from engaging in such coercion. Rather, this choice is driven by the sender’s strategic considerations. More specifically, the chapter has presented the solution and empirical implications of a formal, game-theoretic model of economic coercion that endogenizes the sender’s decision to engage in that coercion, the size of its demand, and the outcome of the coercion attempt. The model leads to a number of testable propositions that link the sender’s sanctions costs, the expected target costs, and the credibility of the sender’s threat to the aforementioned outcome variables. These testable propositions have been synthesized into four empirical hypotheses. The first three hypotheses state that improving the sender’s bargaining position with respect to the target increases the chance that the sender will use economic coercion, the size of the sender’s demand, and the chance that the sender succeeds, given some demand. In addition, the fourth hypothesis implies the positive selectivity of cases involving high demands and low success probabilities into the sample of actually observed economic coercion cases.

As already acknowledged, previous empirical work has already suggested that sanctions senders are more likely to select themselves into coercion attempts that are unlikely to succeed (e.g. Nooruddin, 2002), but the model presented here also explains how that pattern might emerge from the interaction between rational state actors. Assuming that sanctions
senders maximize their expected payoffs and allowing for the endogenous formation of their demands shows that senders might sometimes increase their demands even if that lowers their success probability. Such a situation is possible because, even with a lower probability of target acceptance, the expected value from a higher demand, conditional on acceptance, might outweigh the losses from forfeiting the more probable acceptance of a smaller demand. Because higher demands are associated with lower acceptance rates but also with higher expected utilities from economic coercion, senders are more likely to make high demands, and this can lead to the empirical observation that the use of economic coercion is correlated with its failure.

In addition, the hypotheses derived from the model not only allow its direct evaluation, but also its empirical differentiation from some of the main alternative explanations for why states keep using sanctions despite their frequent failure. For example, domestic political theories of sanctions, which do not consider the strategic interaction between senders and targets and suggest that sanctions are not necessarily devised to inflict maximum damage on their target (e.g. Kaempfer and Lowenberg, 1988, 1992), would imply the absence of any specific selection pattern in their use. Furthermore, although these theories treat sanctions policy as endogenously generated at the domestic level, the absence of any bargaining between the sender and target would still cause the sanctions demand to appear as exogenous at the international level. Similarly, symbolic theories imply neither a specific selection pattern nor demand endogeneity because the goal is not target concessions (Barber, 1979; Lindsay, 1986). In turn, Drezner’s conflict expectations theory (1997; 1998; 1999a) implies a selection pattern opposite from what is predicted here. Drezner suggests that sanctions senders demand lower concessions from their adversaries and more concessions from their allies, but are simultaneously less likely to use economic coercion against allies and more
likely to use it against adversaries. Therefore, Drezner's theory leads to the expectation that coercion cases involving smaller demands will be more likely to select into the sample of actual cases. Finally, testing for demand endogeneity would allow for the empirical differentiation from all strategic interaction theories that treat the demand as exogenous (e.g. Tsebelis, 1990; Smith, 1996; Lacy and Niou, 2004).

To conclude, if the empirical analysis conducted in the next chapter supports the predictions of the model presented in this chapter, that would not only emphasize the importance of taking into account the entire sequence of strategic choices preceding economic coercion. Positive results would also imply that the traditional research question in the sanctions literature, which asks to identify the conditions under which economic coercion will succeed, might not be the most relevant one, as, paradoxically, the conditions, which directly increase the probability economic coercion will work, also undermine that probability indirectly.
4.5 Appendix: Mathematical Derivations

A1

We transform the inequality as follows:

\[
\mu(x)(x - \gamma s) + (1 - \mu(x))(-s) > -r \iff \\
\mu(x)(x - \gamma s) - s + s\mu(x) > -r \iff \\
\mu(x)(x - \gamma s + s) > s - r \iff \\
\mu(x) > \frac{s - r}{s(1 - \gamma) + x}.
\]

A2

\( T_H \) profits from deviating if:

\[
\sigma(-x - \gamma t_H) > 0 \iff \\
x > \sigma(x + \gamma t_H) \iff \\
\sigma < \frac{x}{x + \gamma t_H}.
\]

Similarly, \( T_L \) profits from deviating if \( -\sigma t_L - (-x) > 0 \iff x > \sigma t_L \iff \sigma < \frac{x}{t_L} \).
A3

We show that:

\[ p < \frac{s - r}{s + x - s\gamma} \iff \]

\[ ps + px - ps\gamma < s - r \iff \]

\[ px < s - r - ps + ps\gamma \iff \]

\[ x < \frac{s - r - ps + ps\gamma}{p} . \]

A4

First, we solve the following equation for \( \alpha \):

\[ \frac{s - r}{s(1 - \gamma) + x} = \frac{p\alpha}{p\alpha + 1 - p} \iff \]

\[ (s - r)(p\alpha + 1 - p) = p\alpha(s - s\gamma + x) \iff \]

\[ s\alpha + s - sp - r\alpha - r + rp = s\alpha - s\gamma p\alpha + x\alpha \iff \]

\[ s\gamma p\alpha - x\alpha - r\alpha = r - rp + sp - s \iff \]

\[ -p\alpha(r + x - s\gamma) = -(s - r - sp + rp) \iff \]

\[ \alpha = \frac{(1 - p)(s - r)}{p(r + x - s\gamma)} . \]
To check if $\alpha(x) \in (0,1)$, observe that since here $s > r$, $\gamma < \frac{r}{s} \iff r + x - s\gamma > 0$ implies that $\alpha(x) > 0$. On the other hand, $\alpha(x)$ cannot exceed 1 because:

\[
(1 - p)(s - r) > p(r + x - s\gamma) \iff \\
s - r - ps + ps\gamma > pr + px - ps\gamma \iff \\
s - r - ps + ps\gamma > px \iff \\
x < \frac{s - r - ps + ps\gamma}{p},
\]

and we already established the last inequality as the condition for the existence of a pessimistic-beliefs equilibrium, that is, when a pessimistic equilibrium is not possible, $\alpha(x)$ is guaranteed to be less than or equal to one. It is also worth noting that

\[
\alpha'(x) = \\
= \frac{((1-p)(s-r))'p(r+x-s\gamma) - (1-p)(s-r)(p(r+x-s\gamma))'}{p^2(r+x-s\gamma)^2} = \\
= \frac{(1-p)(s-r)}{p(r+x-s\gamma)^2} < 0.
\]

A5

We transform:

\[
U'(x) = (xp(1 - \alpha(x))' + ((1 - p + p\alpha(x))(-r))' = \\
p(1 - \alpha(x)) - px\alpha'(x) - p\alpha'(x) = \\
p(1 - \alpha(x) - (r + x)\alpha'(x)) > 0.
\]

Since $1 > \alpha(x)$ and $\alpha'(x) < 0$ (A4), the inequality holds true and $U''(x)$ is positive.
A6

We transform the inequality as follows:

\[ U((1 - \gamma)t_H) \geq t_L(1 - \gamma) \iff \]

\[ p(t_H - \gamma t_H)(1 - \alpha(t_H - \gamma t_H)) + (1 - p + p\alpha(t_H - \gamma t_H))(-r) \geq t_L(1 - \gamma) \iff \]

\[ p(t_H - \gamma t_H) - p(t_H - \gamma t_H)\alpha(t_H - \gamma t_H) - r + pr - pr\alpha(t_H - \gamma t_H) \geq t_L(1 - \gamma) \iff \]

\[ p(t_H - \gamma t_H)(1 - \alpha(t_H - \gamma t_H)) + pr(1 - \alpha(t_H - \gamma t_H)) - r \geq t_L(1 - \gamma) \iff \]

\[ p(r + t_H - \gamma t_H)(1 - \alpha(t_H - \gamma t_H)) \geq r + t_L - \gamma t_L \iff \]

\[ p(r + t_H - \gamma t_H) \left( 1 - \frac{(1 - p)(s - r)}{p(r + t_H - \gamma t_H - s\gamma)} \right) \geq r + t_L - \gamma t_L \iff \]

\[ p(r + t_H - \gamma t_H) \left( \frac{pr + pt_H - \gamma pt_H - \gamma ps - s + r + ps - pr}{p(r + t_H - \gamma t_H - \gamma s)} \right) \geq r + t_L - \gamma t_L \iff \]

\[ (r + t_H - \gamma t_H)(pt_H - \gamma pt_H - \gamma ps - s + r + ps) \geq (r + t_H - \gamma t_H - \gamma s)(r + t_L - \gamma t_L) \iff \]

\[ prt_H - \gamma ptr_H - \gamma psr - sr + r^2 + psr + pt_H^2 - \gamma pt_H^2 - \gamma pst_H - \gamma st_H - \gamma rt_H \geq r^2 + rt_H - \gamma rt_H - \gamma sr + rt_L + t_H t_L - \gamma t_H t_L - \gamma st_L - \gamma rt_L - \gamma t_H t_L + \gamma^2 t_H t_L + \gamma^2 st_L \iff \]

\[ p(sr - \gamma sr + st_H - \gamma st_H + rt_H - \gamma rt_H - \gamma st_H + \gamma^2 st_H + t_H^2 - \gamma t_H^2 + \gamma^2 t_H^2) \geq \]

\[ \geq sr - \gamma sr + st_H - \gamma st_H + rt_L - \gamma rt_L - \gamma st_L + \gamma^2 st_L + t_H t_L - \gamma t_H t_L - \gamma t_H t_L + \gamma^2 t_H t_L \iff \]

\[ p(sr(1 - \gamma) + st_H(1 - \gamma) + rt_H(1 - \gamma) - \gamma st_H(1 - \gamma) + t_H^2(1 - \gamma) - \gamma t_H^2(1 - \gamma)) \geq \]

\[ \geq sr(1 - \gamma) + st_H(1 - \gamma) + rt_L(1 - \gamma) - \gamma st_L(1 - \gamma) + t_H t_L(1 - \gamma) - \gamma t_H t_L(1 - \gamma) \iff \]

\[ p(1 - \gamma)(sr + st_H + rt_H - \gamma st_H + t_H^2 - \gamma t_H^2) \geq \]

\[ \geq (1 - \gamma)(sr + st_H + rt_L - \gamma st_L + t_H t_L - \gamma t_H t_L) \iff \]

\[ p \geq \frac{sr + st_H + rt_L - \gamma st_L + t_H t_L - \gamma t_H t_L}{sr + st_H + rt_H - \gamma st_H + t_H^2 - \gamma t_H^2}. \]
To check whether \( p_2 < 1 \), observe that:

\[
sr + st_H + rt_L - \gamma st_L + t_Ht_L - \gamma t_Ht_L < sr + st_H + rt_H - \gamma st_H + t_H^2 - \gamma t_H^2 \iff
\]

\[
r(t_H - t_L) - \gamma s(t_H - t_L) + t_H(t_H - t_L) - \gamma t_H(t_H - t_L) > 0 \iff
\]

\[
(r - s\gamma)(t_H - t_L) + t_H(t_H - t_L)(1 - \gamma) > 0 , \text{ which is obviously true.}
\]

Similarly,

\[
sr + st_H + rt_L - \gamma st_L + t_Ht_L - \gamma t_Ht_L > sr + st_L + rt_L - \gamma st_L + t_Ht_L - \gamma t_Ht_L =
\]

\[
sr + st_L(1 - \gamma) + rt_L + t_Ht_L(1 - \gamma) > 0 , \text{ and}
\]

\[
sr + st_H + rt_H - \gamma st_H + t_H^2 - \gamma t_H^2 = sr + st_H(1 - \gamma) + rt_H + t_H^2(1 - \gamma) > 0 ,
\]

which assures that \( p_2 \) is always positive, and therefore \( p_2 \in (0, 1) \), so for any combination of \( s, r, t_H, \) and \( t_L \) there are some \( p \) for which \( x = t_H(1 - \gamma) \) and some \( p \) for which \( x = t_L(1 - \gamma) \).

A7

We transform the inequality as follows:

\[
(1 - \gamma)t_H \geq \frac{s - r - ps + ps\gamma}{p} \iff
\]

\[
pt_H - \gamma pt_H + ps - ps\gamma \geq s - r \iff
\]

\[
p \geq \frac{s - r}{s(1 - \gamma) + t_H(1 - \gamma)} .
\]

Similarly,

\[
(1 - \gamma)t_L \geq \frac{s - r - ps + ps\gamma}{p} \iff p \geq \frac{s - r}{s(1 - \gamma) + t_L(1 - \gamma)} , \text{ and}
\]

\[
t_L \geq \frac{s - r - ps + ps\gamma}{p} \iff p \geq \frac{s - r}{s(1 - \gamma) + t_L} .
\]
From \((1-\gamma)t_H > t_L > (1-\gamma)t_L\) it also follows that \(\frac{s-r}{s(1-\gamma)+t_L(1-\gamma)} > \frac{s-r}{s(1-\gamma)+t_L} > \frac{s-r}{s(1-\gamma)+t_H(1-\gamma)}\), i.e. \((1-\gamma)t_H < \frac{s-r-p_{EH}}{p}\) and no mixed strategy equilibrium with \(x = (1-\gamma)t_H\) is possible, neither is a mixed strategy equilibrium with \(x = t_L\) possible and all of the first three cells in the \(x \geq \frac{s-r-p_{EH}}{p}\) column of Table 4.1 are empty.

**A8**

We transform the difference as follows:

\[
\frac{sr + st_H + rt_L - \gamma st_L + t_H t_L - \gamma t_H t_L}{sr + st_H + rt_H - \gamma st_H + t_H^2 - \gamma t_H^2} = \frac{s-r}{s-\gamma s + t_H + \gamma t_H} =
\]

\[
= (sr + st_H + rt_H - \gamma st_H + t_H^2 - \gamma t_H^2)(s - \gamma s + t_H + \gamma t_H) -
\]

\[-(s-r)(sr + st_H + rt_H - \gamma st_H + t_H^2 - \gamma t_H^2)/(sr + st_H + rt_H - \gamma st_H +
\]

\[+t_H^2 - \gamma t_H^2)(s - \gamma s + t_H + \gamma t_H) =
\]

\[
= (s^2 + s^2 t_H - srt_L - \gamma s^2 t_L + st_H t_L - \gamma st_H t_L - \gamma s^2 t_H - \gamma srt_L + \gamma^2 s^2 t_L - \gamma srt_H + \gamma^2 s^2 t_H + rt_H t_L - \gamma st_H t_L - \gamma st_H t_L + rt_H t_L - \gamma st_H t_L - \gamma srt_H + \gamma s^2 t_L -
\]

\[-\gamma srt_H t_L + \gamma^2 st_H t_L + srt_H + st_H^2 + rt_H t_L - \gamma st_H t_L + t_H^2 t_L - \gamma t_H t_L - \gamma srt_H - \gamma st_H -
\]

\[-\gamma rt_H t_L + \gamma^2 st_H t_L - \gamma t_H^2 t_L + \gamma^2 t_H^2 t_L - s^2 - \gamma s^2 t_H - \gamma s^2 t_L + s^2 t_H + \gamma s^2 t_H - s^2 t_L + t_H^2 + \gamma t_H^2 +
\]

\[+sr^2 + srt_H + r^2 t_H - \gamma srt_H + rt_H^2 - \gamma rt_H^2)/(s^2 + s^2 t_H + srt_H -
\]

\[-\gamma s^2 t_H + st_H^2 - s^2 \gamma t_H - \gamma s^2 t_L - s^2 t_H - \gamma s^2 t_H + \gamma^2 s^2 t_L + s^2 t_H + s^2 t_H + s^2 t_H + s^2 t_H +
\]

\[+s^2 t_H + rt_H - s^2 t_H + t_H^2 - \gamma t_H^2 - \gamma srt_H - \gamma st_H - \gamma t_H^2 + \gamma^2 s^2 t_L + s^2 t_H +
\]

\[+s^2 t_H + rt_H - s^2 t_H + t_H^2 - \gamma t_H^2 - \gamma srt_H - \gamma st_H - \gamma t_H^2 + \gamma^2 s^2 t_L + s^2 t_H +
\]

\[\]

\[= (s + t_H)(rt_L - \gamma st_L - \gamma sr - \gamma rt_L + \gamma^2 st_L + st_H t_L + rt_H + r^2 - \gamma t_H t_L - \gamma rt_H -
\]

\[-\gamma t_H t_L + \gamma^2 t_H t_L)/((1-\gamma)(s^2 + s^2 t_H + srt_H - \gamma s^2 t_H + st_H^2 - \gamma st_H^2 + srt_H + st_H^2 +
\]

\[-\gamma st_H^2 + t_H^3 - \gamma t_H^3)) = (s + t_H)(r(r + t_H - \gamma t_H - \gamma s) - \gamma t_L(r + t_H - \gamma t_H - \gamma s) +
\]

\[+t_L(r + t_H - \gamma t_H - \gamma s))/((1-\gamma)(s + t_H)(sr + st_H + rt_H - \gamma st_H + t_H^2 - \gamma t_H^2) =
\]

\[= \frac{(s + t_H)(r + t_L - \gamma t_L)(r + t_H - \gamma t_H - \gamma s)}{(1-\gamma)(s + t_H)^2(r + t_H - \gamma t_H)} = \frac{(r + t_L - \gamma t_L)(r + t_H - \gamma t_H - \gamma s)}{(1-\gamma)(s + t_H)(r + t_H - \gamma t_H)} > 0.
\]
A9

We have already established that \( p_1, p_2 \in (0,1) \). That \( p_1 \) is increasing in \( s \) follows from
\[
\frac{\partial p_1}{\partial s} = \frac{t_H-t_L}{(s+t_H)^2} > 0; \text{ concavity is implied by } \frac{\partial^2 p_1}{\partial s^2} = -2 \frac{t_H-t_L}{(s+t_H)^3} < 0. \text{ Similarly } \frac{\partial p_2}{\partial s} = \frac{(t_H-t_L)(r+t_H)}{(s+t_H)^2(r+t_H-\gamma t_H)} > 0 \text{ and } \frac{\partial^2 p_2}{\partial s^2} = -2 \frac{(t_H-t_L)(r+t_H)}{(s+t_H)^3(r+t_H-\gamma t_H)} < 0 \text{ imply that } p_2 \text{ is also increasing and concave. To establish that } p_1 \text{ will always intersect the } s=r \text{ line at a lower point than } p_2, \text{ we form and rearrange the difference:}
\[
\lim_{s \to r} p_1 - \lim_{s \to r} p_2 = \frac{r + t_L - \gamma t_L}{r + t_H - \gamma t_H} - \frac{r + t_L}{r + t_H} = \frac{(t_H-t_L)r \gamma}{(r+t_H)(r+t_H-\gamma t_H)} > 0.
\]

A10

It is obvious that the sender's expected coercion utility is \( t_L \) in the low commitment equilibrium and \( t_L(1-\gamma) \) in the low no-commitment equilibrium. Consider now the expected coercion utility in the high commitment equilibrium. As \( p \to p_1, pt_H - (1-p)s \to t_L \), which implies continuity at the \( p = p_1 \) point. In turn, transforming the expected utility in the high commitment equilibrium as \( p(s+t_H) - s \) implies that this part of the utility function is linearly increasing in \( p \). Similarly, the coercion utility in the high no-commitment equilibrium converges to \( t_L(1-\gamma) \) when \( p \to p_2 \) while \( \frac{\partial U(t_H(1-\gamma))}{\partial p} = \frac{(s+t_H)(1-\gamma)(r+t_H-\gamma t_H)}{r+t_H(1-\gamma)-\gamma s} > 0 \) and \( \frac{\partial^2 U(t_H(1-\gamma))}{\partial p^2} = 0 \) imply that it is linearly increasing in \( p \).

A11

It should be obvious that the \( \gamma s = r \) line is always below the \( s=r \) line when \( \gamma < 1 \). Next, to see that \( p_1(s) = p \) actually defines a vertical line, we solve the equation for \( s \):
\[
\frac{s+t_L}{s+t_H} = p \iff s = \frac{pt_H-t_L}{1-p}.
\]

Similarly, we can solve \( p_2(s,r) = p \) for \( r \) in order to express the equation as a \( r = f(s) \) function:
\[
\frac{sr+st_H+t_H-rst_H-t_H - \gamma t_H}{sr+st_H+t_H-\gamma st_H+t_H-\gamma t_H} = s \iff r = \frac{pt_H(1-\gamma) + rst_H-t_H(s+ps+\gamma ps+t_L-\gamma t_L)}{pt_H-t_L+(1-p)s} \equiv f(s).
\]
To establish that \( r = f(s) \) crosses the \( s = r \) line to the left of the intersection point of the \( s = r \) and \( s = \frac{pt_H - t_L}{1-p} \) lines, we solve \( \lim_{s \to r} f(s) = r \), which yields two roots: \( r_1 = -t_H \) and \( r_2 = \frac{(pt_H - t_L)(1 - \gamma)}{1-p} \). After discarding the negative root, it is easy to establish that \( r_2 = \frac{(pt_H - t_L)(1 - \gamma)}{1-p} < \frac{pt_H - t_L}{1-p} \) as long as \( \gamma < 1 \). Furthermore, \( \frac{\partial f(s)}{\partial s} = \frac{(t_H - t_L)(pt_H - t_L)\gamma}{(t_L - pt_H + s - p\theta)^2} > 0 \) and \( \frac{\partial^2 f(s)}{\partial s^2} = \frac{2(t_H - t_L)(1-p)(pt_H - t_L)\gamma}{(t_L - pt_H + s - p\theta)^3} > 0 \) imply that \( r = f(s) \) is increasing and convex.

**A12**

Setting \( x = t_H(1 - \gamma) \) and computing the derivative \( \frac{\partial(p(1-\alpha\gamma))}{\partial s} = \frac{-(1-p)(r+t_H)(1-\gamma)}{(r+t_H-t_H \gamma - p\theta)^2} < 0 \) shows that the high no-commitment equilibrium success probability is decreasing in \( s \).

**A13**

Setting \( x = t_H(1 - \gamma) \) and computing the derivative \( \frac{\partial(p(1-\alpha\gamma))}{\partial r} = \frac{(1-p)(s+t_H)(1-\gamma)}{(r+t_H-t_H \gamma - p\theta)^2} > 0 \) shows that the high no-commitment equilibrium success probability is increasing in \( r \).

**A14**

When \( s \) is increasing, there are three scenarios in total. Figure 4.9 presents the scenario in which increasing \( s \) shifts the game from the high commitment into the high no-commitment and finally into the low no-commitment equilibrium. In the second possible scenario, increasing \( s \) shifts the game from the high commitment into the low no-commitment equilibrium. To establish this results in a decrease of the sender's coercion utility, we need to compare the high commitment and low no-commitment coercion utilities at the \( s = r \) line (the argument is based on Figure 4.3). The low no-commitment coercion utility is always \( t_L(1 - \gamma) \); the high commitment coercion utility is equal to \( pt_H - (1-p)s \) and it decreases to \( t_L \) at the \( p_1(s) = p \) line. Since \( t_L > t_L(1 - \gamma) \), the second scenario also results in a utility decrease. Finally, we need to consider the effect of the sender's coercion utility when
the increase in $s$ shifts the game from the high commitment into the low commitment and then into the low no-commitment equilibrium. Clearly, on the left side of the $p_1(s) = p$ line $pt_H - (1-p)s > t_L$ and we know that $t_L > t_L(1 - \gamma)$; increasing $s$ again has a non-increasing effect on the sender's coercion utility.

**A15**

The scenario reflected in Figure 4.10 is based on increases in $r$ that shift the game from the low no-commitment into the high no-commitment and then the high commitment equilibrium. A second scenario is possible in which increasing $r$ results in a shift from the high no-commitment into the high commitment equilibrium. Using Figure 4.3, we can see that comparing the coercion utilities in these two equilibria would require their evaluation when $s = r$. That is why, we simplify the difference $\lim_{s \to r} (pt_H - (1-p)s) - \lim_{s \to r} U(t_H(1 - \gamma)) = \gamma pt_H > 0$, which implies that increasing $r$ increases the coercion utility in the second scenario as well. In third possible scenario, increasing $r$ shifts the game from a low no-commitment directly into a high commitment equilibrium. This obviously increases the coercion utility, as we already saw that the utility is greater in the high commitment than in the high no-commitment equilibrium, and we know that the utility in the high no-commitment equilibrium is at least as big as the utility in the low no-commitment equilibrium. In the last possible scenario, increasing $r$ shifts the game from a low no-commitment into a low commitment equilibrium; since $t_L > t_L(1 - \gamma)$, increasing $r$ in this scenario increases the sender's coercion utility as well. Therefore, we can conclude that regardless of the values of the other exogenous parameters, increasing $r$ has a non-decreasing effect on the sender's expected utility from economic coercion.
4.6 Tables

Table 4.1: S’s optimal demands and expected payoffs in no-commitment cases ($s > r$).

<table>
<thead>
<tr>
<th>Demand type</th>
<th>$x &lt; \frac{s-r-ps+psr}{p}$</th>
<th>$x \geq \frac{s-r-ps+psr}{p}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$x \leq (1-\gamma)t_L$</td>
<td>S demands $x = (1-\gamma)t_L$. S’s payoff is $(1-\gamma)t_L$.</td>
<td>S demands $x = (1-\gamma)t_L$. S’s payoff is $(1-\gamma)t_L$.</td>
</tr>
<tr>
<td>$(1-\gamma)t_L &lt; x \leq t_L$</td>
<td>S demands any $x$. S’s payoff is $-r$.</td>
<td>S demands $x = t_L$. S’s payoff is $U(t_L)$.</td>
</tr>
<tr>
<td>$t_L &lt; x \leq (1-\gamma)t_H$</td>
<td>S demands any $x$. S’s payoff is $-r$.</td>
<td>S demands $x = (1-\gamma)t_H$. S’s payoff is $U((1-\gamma)t_H)$.</td>
</tr>
<tr>
<td>$(1-\gamma)t_H &lt; x$</td>
<td>S demands any $x$. S’s payoff is $-r$.</td>
<td>S demands any $x$. S’s payoff is $-r$.</td>
</tr>
</tbody>
</table>
Table 4.2: $S$'s optimal demands and expected payoffs in commitment cases ($s \leq r$).

<table>
<thead>
<tr>
<th>Demand type</th>
<th>$s \leq r$</th>
</tr>
</thead>
</table>
| $x \leq (1 - \gamma)t_L$ | $S$ demands $x = (1 - \gamma)t_L$.  
$S$'s payoff is $(1 - \gamma)t_L$. |
| $(1 - \gamma)t_L < x \leq t_L$ | $S$ demands $x = t_L$.  
$S$'s payoff is $t_L$. |
| $t_L < x \leq (1 - \gamma)t_H$ | $S$ demands $x = (1 - \gamma)t_H$.  
$S$'s payoff is $p(1 - \gamma)t_H - (1 - p)s$. |
| $(1 - \gamma)t_H < x \leq t_H$ | $S$ demands $x = t_H$.  
$S$'s payoff is $pt_H - (1 - p)s$. |
| $t_H < x$ | $S$ demands any $x$.  
$S$'s payoff is $-s$. |
Table 4.3: Perfect Bayesian equilibrium summary.

<table>
<thead>
<tr>
<th>High Commitment I</th>
<th>High Commitment II</th>
</tr>
</thead>
<tbody>
<tr>
<td>( s \leq r \land p \geq p_1 \land w &gt; pt_H - (1 - p)s )</td>
<td>( s \leq r \land p \geq p_1 \land w \leq pt_H - (1 - p)s )</td>
</tr>
<tr>
<td>( p ) high, ( w ) high</td>
<td>( p ) high, ( w ) low</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Low Commitment I</th>
<th>Low Commitment II</th>
</tr>
</thead>
<tbody>
<tr>
<td>( s \leq r \land p &lt; p_1 \land w &gt; t_L )</td>
<td>( s \leq r \land p &lt; p_1 \land w \leq t_L )</td>
</tr>
<tr>
<td>( p ) low, ( w ) high</td>
<td>( p ) low, ( w ) low</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>High No-commitment I</th>
<th>High No-commitment II</th>
</tr>
</thead>
<tbody>
<tr>
<td>( s &gt; r \land p \geq p_2 \land w &gt; U((1 - \gamma)t_H) )</td>
<td>( s &gt; r \land p \geq p_2 \land w \leq U((1 - \gamma)t_H) )</td>
</tr>
<tr>
<td>( p ) high, ( w ) high</td>
<td>( p ) high, ( w ) low</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Low No-commitment I</th>
<th>Low No-commitment II</th>
</tr>
</thead>
<tbody>
<tr>
<td>( s &gt; r \land p &lt; p_2 \land w &gt; U((1 - \gamma)t_H) )</td>
<td>( s &gt; r \land p &lt; p_2 \land w \leq U((1 - \gamma)t_H) )</td>
</tr>
<tr>
<td>( p ) low, ( w ) high</td>
<td>( p ) low, ( w ) low</td>
</tr>
</tbody>
</table>
Table 4.4: Equilibrium strategies and outcomes: demands, demand sizes, and success probabilities.

<table>
<thead>
<tr>
<th>Equilibrium type</th>
<th>Demand</th>
<th>Success probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low commitment I</td>
<td>none</td>
<td>unobserved</td>
</tr>
<tr>
<td>Low commitment II</td>
<td>$t_L$</td>
<td>1</td>
</tr>
<tr>
<td>High commitment I</td>
<td>none</td>
<td>unobserved</td>
</tr>
<tr>
<td>High commitment II</td>
<td>$t_H$</td>
<td>$p$</td>
</tr>
<tr>
<td>Low no-commitment I</td>
<td>none</td>
<td>unobserved</td>
</tr>
<tr>
<td>Low no-commitment II</td>
<td>$(1 - \gamma)t_L$</td>
<td>1</td>
</tr>
<tr>
<td>High no-commitment I</td>
<td>none</td>
<td>unobserved</td>
</tr>
<tr>
<td>High no-commitment II</td>
<td>$(1 - \gamma)t_H$</td>
<td>$p(1 - \alpha\gamma)$</td>
</tr>
</tbody>
</table>
4.7 Figures

Figure 4.1: Timeline of the economic coercion game

Nature chooses the target’s type

Sender decides whether to make a threat

Sender decides how much to demand

Target accepts or rejects

Senders backs down or carries out threat

Target acquiesces or stands firm

Payoff table

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Sender</th>
<th>Weak target</th>
<th>Strong target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status Quo</td>
<td>( w )</td>
<td>( w )</td>
<td>( w )</td>
</tr>
<tr>
<td>Target acquiescence after threat</td>
<td>( x )</td>
<td>( -x )</td>
<td>( -x )</td>
</tr>
<tr>
<td>Sender backs down</td>
<td>(-r)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Target acquiescence after sanctions</td>
<td>( x - \gamma s )</td>
<td>( -x - \gamma t_H )</td>
<td>( -x - \gamma t_L )</td>
</tr>
<tr>
<td>Stalemate after sanctions</td>
<td>(-s)</td>
<td>(-t_H)</td>
<td>(-t_L)</td>
</tr>
</tbody>
</table>
Figure 4.2: The PBE of the economic coercion game when $t_H = 0.95$, $t_L = 0.15$, $r = 0.16$, $\gamma = 0.10$, and $w = 0$. 

HIGH COMMITMENT II EQUILIBRIUM
$x^* = t_H (1 - \gamma)$

LOW COMMITMENT II EQUILIBRIUM
$x^* = t_L (1 - \gamma)$

sender costs
Figure 4.3: The PBE of the economic coercion game when $p = 0.50$, $t_H = 0.95$, $t_L = 0.15$, $\gamma = 0.10$, and $w = 0$. 
Figure 4.4: The sender’s expected utility from economic coercion in commitment equilibria when $s = 0.05$, $t_H = 0.95$, $t_L = 0.15$, $r = 0.16$, $\gamma = 0.10$ (solid line), in no-commitment equilibria when $s = 0.18$, $t_H = 0.95$, $t_L = 0.15$, $r = 0.16$, $\gamma = 0.10$ (dash-dot line) and reservation utility when $w = 0.20$ (dashed line).
Figure 4.5: The sender's expected utility from economic coercion (solid line), reservation utility (dashed line), and success probability (dash-dot line) in commitment equilibria when $s = 0.05$, $t_H = 0.95$, $t_L = 0.15$, $r = 0.16$, $\gamma = 0.10$, and $w = 0.30$. 
Figure 4.6: The sender’s expected utility from economic coercion (solid line), reservation utility (dashed line), and success probability (dash-dot line) in no-commitment equilibria when \( s = 0.18, t_H = 0.95, t_L = 0.15, r = 0.16, \gamma = 0.10, \) and \( w = 0.20. \)
Figure 4.7: The sender’s expected utility from economic coercion (solid line), reservation utility (dashed line), and success probability (dash-dot line) when $p = 0.5$, $t_H = 0.95$, $t_L = 0.15$, $r = 0.20$, $\gamma = 0.10$, and $w = 0.25$.
Figure 4.8: The sender's expected utility from economic coercion (solid line), reservation utility (dashed line), and success probability when $p = 0.5$, $s = 0.57$, $t_H = 0.95$, $t_L = 0.15$, $\gamma = 0.10$, and $w = 0.18$. 

- Censored: Low no-commitment equilibria
- Uncensored: High no-commitment equilibria

Sender reputation costs range from 0.2 to 0.8.
Figure 4.9: The sender’s expected utility from economic coercion (solid line) and reservation utility (dashed line) when $p = 0.5$, $t_H = 0.95$, $t_L = 0.15$, $r = 0.20$, $\gamma = 0.10$, and $w = 0.22$. 
Figure 4.10: The sender's expected utility from economic coercion (solid line) and reservation utility (dashed line) when $p = 0.5$, $s = 0.57$, $t_H = 0.95$, $t_L = 0.15$, $\gamma = 0.10$, and $w = 0.14$. 
Chapter 5

Strategic Demands and Economic Coercion: An Empirical Evaluation

5.1 Introduction

So far we have argued that to achieve a more complete understanding of the sanctions process, we have to take into account the sender’s strategic considerations not only during a coercion episode, but also before that, when the sender decides whether to pursue economic coercion and what concessions to demand from the target. In turn, endogenizing these decisions in a game-theoretic framework has led to the prediction of certain empirical patterns that one should observe if states are strategic in the aforementioned way, and some of these empirical patterns are also non-intuitive. In particular, we should first observe senders in stronger bargaining positions with respect to potential targets to be more likely both to initiate economic coercion and to do so over a greater demand. Paradoxically, however, the game-theoretic model analyzed in the previous chapter suggests that senders in stronger bargaining positions are not necessarily more likely to succeed in extracting the demanded concessions from the target, as they also tend to demand more concessions. Rather, improving the sender’s bargaining position should improve the sender’s success prospects only when we control for the indirect effects through the endogenous demand. And finally, the model’s last and again non-obvious result has been that empirically we should see senders
selecting themselves into coercion episodes that involve greater demands and are harder to win.

So what evidence is there regarding the existence of these empirical patterns in the real world? That is, are senders’ demands conditioned by what is possible within their international environment, or do senders apply economic coercion solely based on their dissatisfaction with the targets’ policies? One problem that arises in the search for evidence in support of the demand’s endogeneity to the sender’s international opportunities is that to discern the impact of the strategic factor, we need to identify cases in which the sender’s domestically-induced preferences would dictate the same policy with respect to two or more targets. However, dyadic interactions are typically characterized by different disputed issues, and even if the same sender disputes the same issue with two separate targets, it is not straightforward how to measure or even rank differential demands. What is more, even when policy makers might have avoided or modified a demand driven by some strategic consideration, it is still likely that they would have attempted to conceal their primary motivation behind some secondary concerns, in order to avoid the appearance of an unprincipled foreign policy. That, in turn, poses a problem for all sanctions data that rely on publicly stated policy objectives.

Even so, there still appear to be some instances in which the insight generated by the game-theoretic model might allow us to explain foreign policy behavior that would otherwise seem inconsistent. For example, the previous chapter discusses the U.S. decision in 1994 to pursue economic coercion against Taiwan over the latter’s environmental policy while avoiding action against China, allegedly a worse violator on the same environmental issue. If the previous literature is correct in treating the decision to coerce as directly driven by the sender’s domestic preferences, it might be difficult to understand why the U.S. decided
to pursue the fulfillment of its preferences in one case but not the other. In contrast, if we allow the sender to take into account its expected gains and losses when making that decision, the U.S. action, as already acknowledged, becomes easier to understand because coercing the much bigger China would have undoubtedly been both harder and more costly.

A similar instance of a sender country engaging in seemingly inconsistent foreign policies involves Russia's attempts in the early and mid-1990s to reestablish its military presence in the former Soviet space. Russia's main demand toward Ukraine was control over the Sevastopol naval base at the Crimean peninsula. However, the Russian demands toward Turkmenistan included not only the provision of similar basing rights but also control over the country's border patrol and air defense units (Drezner, 1999a). That is, although the issues were proximate and the Russian preferences likely were the same, i.e. more control, the Russian demands toward Turkmenistan were substantially greater than the corresponding demands to Ukraine. Again, while from the perspective of the sanctions literature the Russian decisions might be hard to rationalize, the endogenous demands perspective suggests as a potential explanation the fact that Russia was in a much stronger bargaining position with respect to Turkmenistan than to Ukraine.

Interestingly, the strength of Russia's bargaining position with respect to both countries was determined by the geography of natural gas pipelines. In the case of Turkmenistan, the country relied exclusively on its natural gas exports to Western Europe for earning its foreign currency revenue. However, in the early 1990s the only export route for its gas was through Russia's pipeline system. Consequently, Russia could coerce Turkmenistan by simply cutting its access to this pipeline system. While this could deprive Turkmenistan of its entire foreign currency revenue, the economic coercion would cost Russia virtually nothing. In the case of Ukraine, however, even though Ukraine actually relied on natural
gas imports from Russia, as it does not have any reserves of its own, Russia was in an inferior bargaining position because 80% of its own export pipeline routes to Western Europe passed through Ukrainian territory. When Russia tried cutting gas supplies to pressure Ukraine on the naval base issue, Ukraine simply started siphoning off gas destined to Western Europe, which made it hard for Russia to meet its contractual obligations and caused it to lose revenue itself (Drezner, 1999a).

Given this substantial disparity in the Russian bargaining advantage with respect to these two countries, the differential Russian demands agree with the game-theoretic model’s expectation that senders will make greater demands to weaker targets. Evaluating the model’s predictions through a statistical test, however, has to address the problem that sanctions data sets, and that applies to TIES as well, do not select cases based on the existence of certain disputed issues but rather do so based on the use of economic coercion, regardless of the issue. Consequently, controlling for an existing disputed issue and trying to find out how the sender’s bargaining advantage influenced its decision to initiate economic coercion is not an option. Measuring or even ranking demands on the same issues also appears much harder and less straightforward than in the two anecdotes discussed above.

Constructing a statistical test with the available data is possible, however, if we acknowledge that demands on certain types of issues, such as territory, regime, or military behavior, are in general harder for targets to accept and benefit the sender more if accepted than demands on low-salience issues such as trade or environmental policy. Dichotomizing demands in this way into demands that involve highly salient stakes of strategic importance and demands involving non-strategic stakes yields an imprecise but valid indicator. Certainly, not all issues can be disputed by all states at all times. However, if the bargaining logic identified by the model is the relevant one, even if we assume that potential issues
arise due to exogenous reasons, we should still see senders in stronger bargaining positions making more demands on average and more demands that involve strategic stakes. That is, although the model in the previous chapter theorizes about the size of the sender’s demand, what the statistical test is going to measure is whether that demand was related to some issue of strategic importance or not. Based on these premises, in the remainder of this chapter we first derive a statistical estimator that can take into account the main features of the theoretically-implied data generating process. Next, we describe the data used in the analysis and the operationalization procedures. We then report the empirical results and discuss their implications for the tested model. Finally, we evaluate the performance of the advanced bargaining theory in comparison to some of the main alternative sanctions theories in the literature.

5.2 Estimation Strategy

The main implications of the theoretical model are that whether the sender makes a threat, the size of the demand, and whether the target accepts that demand are all endogenously determined by the sender’s bargaining advantage, and, therefore, these three outcomes should be estimated simultaneously. If, given the considerations outlined above, we opt to treat the demand size as a dichotomous variable and also treat whether the target accepts that demand as a dichotomous variable, we are going to end up with three endogenous dummy variables. Their simultaneous estimation, in turn, would imply the use of some multivariate probit; that is, three probit equations linked through their error terms. There are, however, two additional issues that need to be addressed. First, if the sender opts to retain the status quo, we cannot observe what its demand would have been or whether that demand would have been accepted; these variables are censored. Second, the theoretical
model implies that the exogenous variables measuring the sender's bargaining advantage are going to influence its success prospects not only directly, but also indirectly through the endogenously determined demand.

To introduce the estimation strategy for addressing these issues, denote the sender's use of economic coercion by $y_t$ ($t$ for threat), whether the demand involves strategic stakes by $y_d$ ($d$ for demand), and whether the target grants the requested concessions by $y_s$ ($s$ for success). Each of these variables is observed as a dichotomous realization; if the latent continuous variables are $y_t^*, y_d^*$, and $y_s^*$, we can define:

$$
y_t = \begin{cases} 
1 & \text{if } y_t^* > 0; \\
0 & \text{if } y_t^* \leq 0;
\end{cases}
$$

$$
y_d = \begin{cases} 
1 & \text{if } y_d^* > 0; \\
0 & \text{if } y_d^* \leq 0;
\end{cases}
$$

$$
y_s = \begin{cases} 
1 & \text{if } y_s^* > 0; \\
0 & \text{if } y_s^* \leq 0.
\end{cases}
$$

In addition, the realizations of $y_d$ and $y_s$ are only observed if $y_t = 1$, as we do not know what the accompanying demand would have been or whether that demand would have been accepted when the sender chooses not to make a threat.

If we now denote the corresponding vectors of exogenous regressors by $x_t$, $x_d$, and $x_s$, the error terms by $u_t$, $u_d$, and $u_s$, and the effect of the demand’s realization on the sender’s success prospects by $\gamma$, we can write the following system of structural equations in terms of the latent variables:

$$
y_t^* = x_t' \beta_t + u_t
$$

$$
y_d^* = x_d' \beta_d + u_d
$$

$$
y_s^* = x_s' \beta_s + \gamma d + u_s.
$$
In addition, since the game-theoretic model also implies certain correlations between these equations, the empirical framework has to be general enough to allow those to be estimated from the data. For this reason, we assume that:
\[
\begin{pmatrix}
  u_t \\
  u_d \\
  u_s
\end{pmatrix} \sim \Phi_3 \left( \begin{pmatrix}
  0 \\
  0 \\
  0
\end{pmatrix}, \begin{pmatrix}
  1 & \rho_{td} & \rho_{ts} \\
  \rho_{td} & 1 & \rho_{ds} \\
  \rho_{ts} & \rho_{ds} & 1
\end{pmatrix} \right),
\]
that is, the error terms are jointly distributed according to a standard trivariate normal distribution. The resulting trivariate probit model with one selection equation is a generalization of both the popular Heckman probit, which models jointly one selection but just one outcome equation, and the recursive bivariate probit model discussed by Maddala (1983, 122-123) and Greene (2003, 715-718), which models jointly the last two but not the selection equation.

To derive the likelihood function for the system, it is sufficient to notice that there are five types of observations in the estimation sample: (a) no threat, that is, \( y_t = 0 \); (b) \( y_t = 1, y_d = 0, y_s = 0 \); (c) \( y_t = 1, y_d = 0, y_s = 1 \); (d) \( y_t = 1, y_d = 1, y_s = 0 \); and (e) \( y_t = 1, y_d = 1, y_s = 1 \). Therefore, the likelihood function is proportional to:
\[
\Pi \text{Prob}(y_t = 0)^{(1 - y_t)} \times \text{Prob}(y_t = 1, y_d = 0, y_s = 0)^{y_t(1 - y_d)(1 - y_s)} \times \text{Prob}(y_t = 1, y_d = 0, y_s = 1)^{y_t(1 - y_d)y_s} \times \text{Prob}(y_t = 1, y_d = 1, y_s = 0)^{y_t y_d(1 - y_s)} \times \text{Prob}(y_t = 1, y_d = 1, y_s = 1)^{y_t y_d y_s},
\]
where the multiplication is across observations. The non-selection probability is simply the marginal probability that \( y_t = 0 \), or that \( u_t \leq -x_t'\beta_t \), which equals \( \Phi(-x_t'\beta_t) \). The other four probabilities in the likelihood function can be expressed as trivariate normal integrals. In particular, define the sign variables \( k_t = 2y_t - 1, k_d = 2y_d - 1 \), and \( k_s = 2y_s - 1 \). These
take the value of +1 or −1 depending on whether the corresponding dependent variable is 1 or 0. For the general case, if \( j, l, m = \{0, 1\} \), the probability that \( y_t = j, y_d = l, y_s = m \), can be expressed as \( \Phi_3(k_t(j)x_t'\beta_t, k_d(l)x_d'\beta_d, k_s(m)(x_s'\beta_s + \gamma l); V) \), where \( V \) is the positive definite correlation matrix defined as:

\[
V(j, l, m) = \begin{pmatrix}
    k_t(j)^2 & k_t(j)k_d(l)\rho_{td} & k_t(j)k_s(m)\rho_{ts} \\
    k_t(j)k_d(l)\rho_{td} & k_d(l)^2 & k_d(l)k_s(m)\rho_{ds} \\
    k_t(j)k_s(m)\rho_{ts} & k_d(l)k_s(m)\rho_{ds} & k_s(m)^2
\end{pmatrix}.
\]

(5.2.1)

Using the general formula (1), we can define four particular matrices: \( V_{100} = V(1, 0, 0), V_{101} = V(1, 0, 1), V_{110} = V(1, 1, 0), \) and \( V_{111} = (1, 1, 1) \). In turn, this allows us to rewrite the likelihood as:

\[
L \sim \Pi \Phi(-x_t'\beta_t)^{(1-y_t)} \times \Phi_3(x_t'\beta_t, -x_d'\beta_d, -x_s'\beta_s; V_{100})^{y_t(1-y_d)(1-y_s)}
\]

\[
\times \Phi_3(x_t'\beta_t, -x_d'\beta_d, x_s'\beta_s; V_{101})^{y_t(1-y_d)y_s}
\]

\[
\times \Phi_3(x_t'\beta_t, x_d'\beta_d, -(x_s'\beta_s + \gamma); V_{110})^{y_t y_d(1-y_s)}
\]

\[
\times \Phi_3(x_t'\beta_t, x_d'\beta_d, x_s'\beta_s + \gamma; V_{111})^{y_t y_d y_s}.
\]

The corresponding log-likelihood can be written as:

\[
\log L = \Sigma(1 - y_t) \log \Phi(-x_t'\beta_t) + \Sigma y_t(1 - y_d)(1 - y_s) \log \Phi_3(x_t'\beta_t, -x_d'\beta_d, -x_s'\beta_s; V_{100})
\]

\[
+ \Sigma y_t(1 - y_d)y_s \Phi_3(x_t'\beta_t, -x_d'\beta_d, x_s'\beta_s; V_{101})
\]

\[
+ \Sigma y_t y_d(1 - y_s) \Phi_3(x_t'\beta_t, x_d'\beta_d, -(x_s'\beta_s + \gamma); V_{110})
\]

\[
+ \Sigma y_t y_d y_s \Phi_3(x_t'\beta_t, x_d'\beta_d, x_s'\beta_s + \gamma; V_{111}),
\]

where the summation is across observations.

A problem regarding the derived likelihood function arises in practice due to the fact that many success values are missing in the actual data. These missing values result both from the coders’ inability to find sufficient information to conclude how a certain sanctions dispute
was resolved and from the fact that at the time of the data collection many disputes were still ongoing. However, listwise deletion of these observations with missing success values is not desirable because that would substantially reduce the estimation sample. Although we do not know how those disputes were resolved, we do know that they occurred and what the sender’s demand was, and we can use this information to improve the estimation. We treat these observations as “incidentally truncated” and include them in the likelihood function with a contribution equal to the marginal probability of the threat being equal to one and the corresponding realization of the demand variable. That is, if for some observation $y_t = 1, y_d = l$, and $y_s$ is missing, the likelihood contribution of the corresponding observation is the marginal probability that $y_t = 1, y_d = l$ or $\Phi_2(x_t^t \beta_t, x_d^t \beta_d; k_d(l) \rho_{td})$. If we define a variable $r = 0$ if there is a threat with a missing success value and $r = 1$ in all other instances, i.e. no threat or a threat with a non-missing success value, then we can rewrite the log-likelihood as:

$$
\log L = \sum r(1 - y_t) \log \Phi(-x_t^t \beta_t) + \sum r y_t (1 - y_d)(1 - y_s) \log \Phi_3(x_t^t \beta_t, -x_d^t \beta_d, -x_s^s \beta_s; V_{100}) \\
+ \sum r y_t (1 - y_d) y_s \Phi_3(x_t^t \beta_t, -x_d^t \beta_d, x_s^s \beta_s; V_{101}) \\
+ \sum r y_t y_d (1 - y_s) \Phi_3(x_t^t \beta_t, x_d^t \beta_d, -(x_s^s \beta_s + \gamma); V_{110}) \\
+ \sum r y_t y_d y_s \Phi_3(x_t^t \beta_t, x_d^t \beta_d, x_s^s \beta_s + \gamma; V_{111}) \\
+ \sum (1 - r)(1 - y_t)(1 - y_d) \log \Phi_2(x_t^t \beta_t, -x_d^t \beta_d; V_{10}) \\
+ \sum (1 - r)(1 - y_t) y_d \log \Phi_2(x_t^t \beta_t, x_d^t \beta_d; V_{11}),
$$

where $V_{10} = \begin{pmatrix} 1 & -\rho_{td} \\ -\rho_{td} & 1 \end{pmatrix}$ and $V_{11} = \begin{pmatrix} 1 & \rho_{td} \\ \rho_{td} & 1 \end{pmatrix}$.

Evaluating the likelihood function, in turn, requires the computation of trivariate normal integrals. For this reason, we estimate the system using Maximum Simulated Likelihood
(MSL), which differs from Maximum Likelihood in that what enters the likelihood function are simulated rather than exact probabilities (Train, 2003). In particular, we simulate the trivariate normal probabilities using a program developed by Cappellari and Jenkins (2006), which relies on the Geweke-Hajivassiliou-Keane (GHK) algorithm, described, in turn, in Greene (2003, pp. 931-933). The particular implementation by Cappellari and Jenkins (2006) improves the speed and accuracy of the GHK algorithm by substituting the commonly used pseudo-random number sequences with Halton sequences, based on prime numbers; the procedures used to maximize the likelihood are described in further detail in Appendix A. Next, before reporting the results from the estimation, we discuss the operational and data choices made in the construction of the variables used in the analysis.

5.3 Operationalization Strategy

5.3.1 Dependent Variables

As before, all sanctions-related data used in the analysis is drawn from the TIES data set. There are three endogenously determined or dependent variables in the analysis: the initiation of an economic coercion attempt by the sender or threat, the size of the sender's demand or demand, and whether the target accepts the sender's demand or success. We define threat = 1 if TIES indicated a new economic coercion initiation in a directed dyad-year between 1971-2000. According to TIES, economic coercion can involve either a sanctions threat, a threat and actual sanctions, or the direct imposition of sanctions without a previous threat. Threats can be initiated through government, legislative, and bureaucratic statements, the drafting of laws directed against the target, or conditional laws stating that a target will be sanctioned given the continuation of some undesirable policy. The TIES cases are identified based on the disputed issue, and a case is considered to end when the
target accepts the sender's demands, the sender backs down short of target concessions, when some compromise is reached that results in the termination of sanctions, or when the nature of the disputed issue changes. Therefore, a new economic coercion initiation can occur in a dyad already undergoing sanctions if the coercion attempt is over a different policy issue.

Since the primary concern here is with the decision to initiate economic coercion, that is, the threat to impose sanctions, we also assume that there has been an implicit threat when TIES records sanctions as being imposed without a threat. We code $\text{threat} = 0$ if no new economic coercion attempt was present in a given directed dyad-year. However, not all new threats coded by TIES are used in the analysis. First, TIES codes not only state-initiated coercion attempts, but also attempts initiated by international institutions, as well as a handful of cases in which the European Union, an international institution, was itself the sanctions target. While nothing in the theoretical model suggests that its abstract unitary actors have to be states, it is far from clear how to measure an institution's sanctions or reputation costs or even how to fit an institution into the directed dyad-year setup. That is why we disregard all sanctions threatened or imposed by an international institution when no primary state sender could be identified; when a primary state sender existed, we code that state sender as the initiator of the episode. Similarly, we disregard cases in which the target is an international institution, that situation most often arising when the EU is targeted as a single entity. Second, while TIES codes non-COW states as senders and targets, we restrict our analysis only to COW states, mostly because the additional data used in the analysis is only available for them. This results in the omission of more TIES cases.
Third, even after eliminating the aforementioned types of cases, some directed dyad-years still involve more than one threat initiation, up to a maximum of eight in the 1992 U.S. versus Japan dyad-year. In such instances, we select one of these multiple threats randomly, together with the demand and target concessions related to the selected threat. Finally, to assure the exogeneity of the independent variables, we lag them by one year. That is, threat observations in, say, 1982 are paired with the values of the independent variables in the corresponding directed dyads for 1981. Since some dyads experience a coercion attempt in their first year of existence, the lagging process translates into the omission of these cases from the analysis due to missing values on the independent variables. After these four elimination steps, there are 593 new threats left, which are matched to the 801,642 COW directed dyad-years between 1970-1999.

Next, it is important to note that the game-theoretic model discussed in the previous chapter is quite unrestricted in some aspects. For example, it assumes that states will always have some underlying disputed policy issue on which they can make demands, as well as that, at least in theory, these demands can be unlimited. These conditions are not likely to hold true in practice, and neither is it likely that states will always have the opportunity to engage in economic coercion against each other. Of course, this is not to say that in the model states always have the opportunity to engage in successful economic coercion. However, in the model a state can always engage in unsuccessful economic coercion even though that would be an equilibrium deviation. In fact, what an empirical test of a game-theoretic model essentially does is to uncover whether states behave in accordance with the model's equilibrium, and for such a test to be valid states must also have to opportunity not to behave according to the model's equilibrium. The problem arises when the menu of actions from which states can choose is restricted due to secondary factors. If due to
such secondary factors it is practically impossible for a directed dyad to experience economic coercion, then observing that the dyad in question did not experience a coercion attempt can illegitimately translate into support for the predicted effect of the primary factors identified by the model.

In theory, any state in the world can choose to use or not to use economic coercion against any other state, and that actually implies the directed dyadic year as the proper unit of analysis (e.g. Lektzian and Souva, 2003). However, if economic sanctions are used to change a target state’s behavior rather than as some sort of symbolism (Lindsay, 1986), then in practice only dyads which have non-zero trade volumes should have the opportunity to impose them (Cox and Drury, 2007). Using only dyads that actually trade also has the benefit of reducing the units of analysis between 1970 and 1999 (as all exogenous variables are lagged by an year) from 800,000+ to half that number while retaining more than 95% of the actual uses of economic coercion. After eliminating non-trading dyads and accounting for lost observations due to missing data for the independent variables there remain 442,316 directed dyad-year observations between 1970-1999, of which 547 experienced an economic coercion attempt in the following year.

Even within the remaining trading dyads, states will have differential opportunities to engage in economic coercion or to make certain demands although none of their actions should be considered impossible. For example, states that have more substantial trade levels will have more opportunities to engage in economic coercion than states whose trade is small or negligible. Similarly, the opportunity to make a demand in general or to make a demand on a highly salient issue might be restricted by similar exogenous factors. While some IR doctrines such as realism postulate that states’ quest for power is unlimited, in practice many dyads, even dyads that trade, simply do not have enough overlapping policy interests
that can drive one state to seek changes in the other state's behavior. Similarly, even states that have minor policy differences might be precluded from making more substantial demands to each other because their policies on all major issues are already too proximate.

For example, in spite of traditional realist views of states as insatiable, it is hard to imagine that dyads such as the United States and Canada or Belgium and the Netherlands would experience demands on highly salient issues such as territory or regime change because all major differences have been resolved in these dyads. In turn, the possibility for such restrictions on the menu of states' actions necessitates that we control for the outlined secondary factors in order to assure that our inferences regarding the primary factors analyzed by the game-theoretic model are valid. While scholars sometimes advise against the inclusion in empirical specifications of variables that are not theoretically implied (e.g. Achen, 2002), there are two reasons why controlling for the "physical" opportunity to engage in economic coercion and to demand major policy changes improves rather than worsens the empirical specification used here. First, although these secondary variables do not follow from the game-theoretic model, they do follow from the meta-theoretic conditions under which the model's application to reality would be valid. Second, the fact that these secondary variables are not theoretically implied is actually desirable because if they are exogenous to the theoretical process, they can be used in the econometric identification of its different stages.

However, before proceeding with the construction of the main independent variables and the aforementioned opportunity controls, it is necessary describe the demand and success variables. The realization of demand is observed whenever threat = 1. I define demand = 1 whenever the sender's demand involves one or more of the following strategic stakes: control over territory, the change of the target's regime, including changes in human rights policy, the cessation of attempts to exert military or political influence against third parties, or the
target's alignment with respect to third parties. On the other hand, $demand = 0$ when the sender's demands involve no strategic issues and one of the following non-strategic issues: trade and economic policy, environmental policy, drug trafficking, weapons proliferation, expropriation and foreign citizen detention claims, or terrorism and support for non-state actors. This division reflects both the traditional distinction between high and low politics in international relations, and the previous coding decisions in the sanctions literature (Hufbauer, Schott and Elliott, 1990; Drezner, 1999a). Since a major implication of this project is that the findings of the sanctions literature are contingent on its omission of the strategic choices preceding economic coercion, retaining the literature's operational choices whenever possible is desirable for ensuring the comparability of the project's findings with past research.

Although the level of target concessions is potentially observable as a continuous realization since the target can make partial concessions, we still treat it as a dichotomous variable for two reasons. First, that coding decision allows a straightforward way to identify as non-successes coercion attempts that only succeeded when the sender resorted to the threat or use of military force. Second, treating the variable as a continuous realization would significantly complicate the already presented econometric specification. The TIES data set records the coercion outcome using two main variables: the outcome type and the settlement nature. The outcome type variable has five main categories, although these categories double when considered at either the threat or sanction stage of a dispute. The categories include complete target acquiesence, partial target acquiesence, negotiated settlement, stalemate, and sender capitulation. Although, as listed, the categories imply a rank ordering, ranging from outcomes that strongly favor the sender to outcomes that strongly favor the target, these categories reflect the outcome type but not necessarily the
settlement type—for instance, a negotiated settlement might leave the sender with more concessions than a partial target acquiescence. In contrast, the second variable coded by TIES, that is the settlement nature, records the extent to which the sender and target achieved their policy objectives on a zero to ten scale. We use these variables to define the settlement winner as the actor who achieved more objectives. That is, if the sender achieved 6/10 while the target achieved 3/10, the sender would be coded as the settlement winner, or \( \text{success} = 1 \). When the target did better or the sender and target did equally well, the target is coded as the winner, or \( \text{success} = 0 \).\textsuperscript{101}

The settlement winner variable seems to capture more closely the tested theoretical concept, and that is why we use it as the operational definition of coercion success. In addition, if the settlement winner variable was missing but the outcome type was present, we code the sender as the winner if the outcome type was a complete or partial target acquiescence, and the target as the winner otherwise. This procedure modestly reduces the missing success values. If both the settlement and outcome variables were missing, the observation is treated as incidentally truncated and enters the likelihood function as discussed in the previous section. Finally, when the threat or use of military force was decisive for the success of economic coercion, we treat economic coercion as a failure because the resort to military means already implies that the economic means failed. For example, the U.S. led sanctions against the military junta in Haiti between 1991 and 1994 only succeeded after the U.S. threatened military intervention to depose the junta. Although TIES treats such cases as economic coercion successes, ignoring the impact of military force would result in misleading inferences about the effectiveness of sanctions.\textsuperscript{102}

Similarly to demand, the realization of success is observed whenever \( \text{threat} = 1 \). After accounting for missing data, among the 547 cases for which \( \text{threat} = 1 \), there are 400 in
which \textit{demand} = 0 and 147 in which \textit{demand} = 1. However, because of missing settlement values, \textit{success} is actually observed in only 359 out of the 547 cases for which it can be observed theoretically.\textsuperscript{103} Out of those 359 cases, 204 are coded as \textit{success} = 1 and 155 are coded as \textit{success} = 0. The construction of the three dependent variables, as well as of all independent and control variables, is summarized in Table 5.1. In turn, Table 5.2 presents the descriptive statistics for all three types of variables.

5.3.2 Independent Variables

The previous section refers to three vectors of exogenous regressors, namely $x_t$, $x_d$, and $x_s$. In this subsection, we discuss the construction of the independent variables which are included in these vectors. In turn, the next subsection discusses the construction of the control variables, together with the justifications for their presence in the empirical specification and for the exclusion restrictions imposed in terms of those variables.

The first independent variable is \textit{GDP ratio}. This is a dummy variable equal to one if in the directed AB dyad-year A’s gross domestic product exceeds B’s gross domestic product by ten or more times, and zero otherwise.\textsuperscript{104} The GDP data is drawn from Gleditsch (2002). When the sender’s GDP is much higher than the target’s GDP, it should become easier for the sender to compensate for the termination of its economic relationship with the target, and harder for the target to do so, i.e. the sender’s bargaining position should improve. Similarly, if states are limited in their choice of economic sanctions by domestic constraints (Kaempfer and Lowenberg, 1992), senders with larger economies should find it easier on average to impose on the target costly sanctions that are going to be domestically acceptable for the sender state. Therefore, ceteris paribus, higher GDP ratio values should increase the chance the sender will use economic coercion, the sender’s demand, and the
chance that the coercion attempt succeeds, conditional on the demand. Since the GDP ratio dummy is related to all three dependent outcomes, it is included in $x_t$, $x_d$, and $x_s$. This variable has been used previously in the empirical sanctions literature by Hufbauer, Schott and Elliott (1990).

The second independent variable is trade disparity. This variable is based on the idea that if the sender is a very important trading partner to the target, but trading with the target is not that important to the sender, the interruption of the sender-target trade relationship would hurt the target disproportionately more than the sender. Alternatively, a higher disparity in the actors' trade valuations should on average make it easier for the sender to devise specific economic measures that would hurt the target while not imposing too great a cost on the sender's own economy. We operationalize the difference between the sender's and target's trade valuations based on trade volumes, drawing the trade data again from Gleditsch (2002). We create a 1-10 scale by ranking each state's trade relationships with the rest of the world into deciles for each year. Thus, a state's most important trading partners, measured by the volume of trade, would occupy the tenth decile whereas its least important trade partners, including those with which there is no trade at all, would fall into the first decile. Often, several deciles would consist only of zero trade volumes, as most states do not trade with each other. In such instances, we record the lowest decile. That is, if state A's first six deciles consist of zeroes, all of its trading partners from these deciles will receive an importance score of one, that is, as if they were in the first decile.

After we compute the decile scores for all states' trade with all other states in all years, we combine them into directed dyads, and each directed AB dyad is then characterized by state B's rank among state A's partners, or the AB score, and state A's rank among state B's partners, or the BA score. We then subtract the BA from the AB score, the difference
ranging from -9 to +9, as both scores range from 1 to 10. A higher difference indicates that
the AB trade is more important to A than to B; a lower difference indicates that the AB
trade is more important to B. I next normalize the difference between zero and one through
the formula \( \text{trade disparity}_{AB} = 1 - (\text{score}_{AB} - \text{score}_{BA} + 9)/18 \). Now, as \( \text{trade disparity} \)
increases from zero to one, the AB trade becomes less important to A and more important to
B; when \( \text{trade disparity}_{AB} = 0.5 \), the parties’ valuations are equal. Ceteris paribus, higher
\( \text{trade disparity} \) values should increase the chance the sender will use economic coercion, the
sender’s demand, and the chance that the coercion attempt succeeds, conditional on the
demand. Consequently, the variable is included in \( x^*_t \), \( x^*_d \), and \( x^*_s \). This variable serves a
function similar to the trade linkage measures used in the literature by van Bergeijk (1989),
Hufbauer, Schott and Elliott (1990), and Bonetti (1998).

The third independent variable is \( \text{target instability} \). This variable relies on the validity
of arguments and empirical claims that internally distressed targets should have a harder
time absorbing the sanctions costs (Galtung, 1967; Wallensteen, 1983; Hufbauer, Schott
and Elliott, 1990; Bolks and Al-Sowayel, 2000). The target’s instability, therefore, should
improve the sender’s bargaining position. We operationalize the concept based on eight
domestic distress indicators drawn from the Cross-National Time-Series Archive (Banks,
2003). These indicators include: (a) assassinations; (b) general strikes; (c) government
crisis; (d) purges; (e) riots; (f) revolutions; (g) anti-government demonstrations; and (h)
guerrilla warfare acts. For each indicator, we find the maximum in-sample number of events,
following which we divide all country-year values by the maximum to re-scale the indicator
between zero and one. Finally, we average the eight normalized indicators into a single
instability index. This procedure assures that each internal distress component will have
an equal weight in the total index. Ceteris paribus, higher \( \text{target instability} \) values should
increase the chance the sender will use economic coercion, the sender's demand, and the chance that the coercion attempt succeeds, conditional on the demand. Therefore, the variable is present in all of $x_t$, $x_d$, and $x_s$.

The fourth independent variable is *institution*, a dummy reflecting whether the sender acted through an international institution according to TIES. While the latter three variables are directly interpretable as measures of the economic strength of the sender's bargaining position, the *institution* dummy aims to capture the reputation cost component of that bargaining position. The logic behind the variable lies in the argument that senders, which take steps toward economic coercion through an international institution, increase their credibility, i.e. reputation costs, by spending extra resources to convince the institution to act on their behalf, as these extra costs make it harder for them to change course after that (Martin, 1993). If acting through an institution means that the sender has already spent extra resources, which increase the cost of its backing down, the presence of a sanctioning institution should also indicate that sender enjoys a stronger bargaining position. The variable is excluded from $x_t$, however, because whether the sender has acted through an institution only becomes known if there is an actual threat. The variable is included in $x_d$ and $x_s$ and, ceteris paribus, higher *institution* values should increase both the sender's demand and the chance that the coercion attempt succeeds, conditional on the demand.

The fifth independent variable is *IGO count*, and it measures the number of intergovernmental organization memberships for the potential sender state. As already acknowledged, the involvement of an international institution can not be observed before a threat is made. However, all else equal, states that participate in more international institutions should have greater opportunities to act through an institution in order to communicate their resolve. That is why $x_t$ includes the number of IGO memberships of state A in the directed AB
dyad for each analysis year. The number of IGO memberships has been computed based on
the data set compiled by Pevehouse, Nordstrom and Warnke (2004). Although the variable
is not a direct reflection of the sender’s reputation costs, ceteris paribus, higher IGO count
values should increase the chance that the sender uses economic coercion.

5.3.3 Control Variables

As already acknowledged, it is necessary to control for states’ opportunities to make de-
mands to each other and to make demands on highly salient policy issues. That is why the
first control variable included in the specification is similarity, an index based on states’
similarity scores in five policy areas (Signorino and Ritter, 1999). The first policy area is
that of international alliance commitments, the most commonly used operationalization of
foreign policy similarity. The policy dimensions, over which the S algorithm is applied, cor-
respond to each state in the world system in a given year, and each state’s policy position on
each dimension is represented by its alliance commitment to the respective state-dimension,
as recorded by the Alliance Treaty Obligations and Provisions data set (Leeds et al., 2002).
The possible levels of commitment include: 0=None, 1=Non-aggression or neutrality pact,
2=Consultation pact, 3=Offense or defense pact, and 4=Highly institutionalized offense or
defense pact.106 We assume that each state has a highly institutionalized offense or defense
pact with itself. The alliance portfolio similarity of two states is measured by Signorino’s
transformation of the Euclidean distance between the states in the policy space, each dimen-
sion being weighted by the military capabilities of the corresponding state-dimension.107

The second policy area included in the similarity index is that of international trade
flows. The policy dimensions here are again all states in the world. However, a state’s policy
position on each dimension is its trade share with the corresponding state-dimension. For
example, suppose that there are three states in the world: A, B, and C. Suppose further that the AB trade is 50 units and the AC trade is 25. Then, A’s total trade is 75 units, and its trade share with B is 50/75 = 2/3 while its trade share with C is 25/75 = 1/3. This would indicate that A has a higher commitment toward B than toward C. In addition, all policy dimensions are weighted by the total trade of the corresponding state-dimension as a proportion of the total world trade for that year. Therefore, states’ trade flows with states which control more of the world trade (e.g. the U.S.) are taken to be more revealing about their underlying preferences. Again, we assume that each state trades with itself at least as much as with any other state.\textsuperscript{108}

The third policy area included in the similarity index is voting in the U.N. General Assembly. Here each dimension is a UN General Assembly vote, with the positions being 1=No, 2=Abstain, and 3=Yes. We draw the U.N. similarity data directly from Gartzke and Jo (2002).

The fourth policy area included in the similarity index is IGO memberships. Here, each dimension is one of the 495 IGOs identified by COW, and a state’s possible positions on each dimension are 0=Not a member, and 1=Observer, associated or full member. As already acknowledged, we draw the IGO membership data from Pevehouse, Nordstrom and Warnke (2004).

The fifth and last policy area included in the similarity index is a state’s orientation to the vision of human rights endorsed by the Freedom House. Note that whether that vision is sound or not is irrelevant; what is important is that it be consistent. Neither does the fact that Freedom House changes its indicators from year to year pose additional problems, as the S score is also computed on an annual basis. The two human rights policy dimensions are the Civil Liberties and Political Rights components of the Freedom House index, and
each state’s position is marked by its 1 to 7 score on the corresponding component (Freedom House, 2006).

To make the five components of the similarity comparable, we normalize each component in each year to a standard normal distribution, with mean zero and variance one, before averaging them. Table 5.3 reports the correlation matrix of the five similarity components. Most of the correlations are quite high, which is the main justification for combining the components into a single index. The similarity variable is included in \( x_t \), to control for the opportunity of similar states to make demands to each other, and in \( x_d \), to control for their opportunity to make demands related to strategic stakes. Since the variable is excluded from \( x_s \), as there is no a priori theoretical reason that once similarity has exerted its effect on the presence and size of the sender’s demand it will affect whether the target will make concessions (cf. Drezner, 1999a), it also assists in the econometric identification of the model. Ceteris paribus, higher similarity values should increase the chance of a threat and the size of the sender’s demand.

To control for states’ opportunities to actually threaten and impose economic sanctions over their disputed policy issues, we include \( \ln(\text{dyad trade}) \), or the natural logarithm of the sum of exports and imports in a dyad measured in constant 1996 US dollars, in \( x_t \). The import and export data again comes from Gleditsch (2002). The motivation behind controlling for the volume of dyadic trade is that, even within the subset of trading dyads, dyads whose trade volumes are small or negligible might still have fewer opportunities to engage in economic coercion. Since initial increases in these trade volumes should have a larger impact than subsequent increases, the dyadic trade is logged. Finally, as \( \ln(\text{dyad trade}) \) is excluded from \( x_d \) and \( x_s \), it should again help to identify the model. Ceteris paribus, higher \( \ln(\text{dyad trade}) \) values should increase the chance of a threat.
Another control variable which is included in $x_t$ but excluded from $x_d$ and $x_s$ is major power, a dummy equal to one if either the sender or target is a major power, and equal to zero for all minor power dyads. The motivation for this variable is again, as already suggested, that states which do not have overlapping policy interests are unlikely to have the opportunity to engage in economic coercion due to the lack of feasible demands they can possibly make. For example, it is hard to imagine what policy grievances Bolivia might have with Bhutan or Burkina Faso. One way to identify these opportunities for policy conflict is to control for the major power status of a dyad. Major powers are more likely to have interests that extend beyond their immediate geographical region (Fordham, 2006), and these interests are both more likely to make them the targets of policy demands and more likely to make them the senders of such demands. Ceteris paribus, when major power = 1 the chance of a threat should be higher than when major power = 0.

The final two control variables, included only in $x_t$, are past attempts and ln(time). The ln(time) variable, which is the natural logarithm of years in a dyad without a new economic coercion attempt, serves as a control for potential temporal dependence underlying the duration process. The logarithm of no-coercion years is substituted for the more commonly used cubic splines of the non-event years because the termination hazard seems monotonic and the logarithmic parametrization facilitates the maximization of the likelihood derived above by reducing the number of parameters that have to be estimated. The past attempts variable, in turn, measures the number of new economic coercion initiations in a directed dyad year between 1971 and the year of analysis, and is designed to control for the potential propensity of dyads to experience more or less of these events. Both ln(time) and past attempts are econometric controls and there is no definite theoretical expectation about their effects.
5.4 Estimation Results

Before presenting the main estimation results, it is important to note that the occurrence of a threat in 1971-2000 directed dyad-years is a very rare event. In particular, there are 442,316 lagged trading directed dyads with only 547 new economic coercion initiations. As the majority of these observations do not contribute a lot of information, estimating the model derived in section 2 becomes especially hard, given the three correlation parameters that have to be estimated from the data. For this reason, we resort to the “case-control” sampling strategy described by King and Zeng (2001). King and Zeng suggest that when a binary event of interest is rare, including all observations in which the event occurred and a small random sample of the observations in which the event did not occur still results in consistent and efficient estimates because the “1s” in the data contain much more information.

The 547 sanctions threats in the 442,316 trading dyads are such a rare event; the main part of the analysis is based on the 547 dyads that experienced the event and a 1% random sample of the remaining non-event dyads. Although such sampling changes the baseline probability of an event, that bias is not a serious problem unless one is explicitly concerned with the absolute value of that probability. On the other hand, if the interest is in the marginal effects of the exogenous variables, as it is here, the sampling procedure should not alter the substantive interpretation. Table 5.4 reports three single-equation probit estimates for the initiation of a threat in a trading dyad, respectively using all, 5% and 1% of the non-event dyads. Although the magnitude of the coefficients increases as the sample shrinks in size, there are no sign changes.

In addition, just based on the estimation of the threat equation by itself, there seems to
be strong support for Hypothesis 8, stating that senders in a stronger bargaining position
should be more likely to initiate economic coercion. In the estimation including all 0s, all of
GDP ratio, trade disparity, and target instability are positive as predicted and significant,
whereas IGO count is also positive as predicted but marginally significant. All of the
control variables behave as expected too. Finally, we can also conclude that dyads which
have experienced more economic coercion in the past are more likely to experience it in
the future, and that the more years have elapsed without economic coercion, the less the
likelihood that a dyad will experience coercion initiation. As we start removing the zeroes,
the significance of both the independent and control variables decreases, but the main
findings remain the same. Also, as we reduce the 0s in the estimation sample the evidence
suggesting duration dependence disappears as that finding is most likely driven by the
multiple strings of 0s in the total sample.

The estimation results from the main specification itself are presented as Model 4 in
Table 5.5. Models 1-3 are more restrictive cases of Model 4 and are juxtaposed next to it
for comparison purposes. Model 1 assumes that $\rho_{td} = \rho_{ts} = \rho_{ds} = 0$, that is, the three error
terms are independent, and is equivalent to estimating the equations individually. Model
2 relaxes the restriction that $\rho_{td} = 0$, that is, it allows for selection bias in the demand
coefficients. Model 2 is in fact the Heckman probit for the threat and demand equations,
and the success equation estimated by itself. In turn, model 3 relaxes the restriction that
$\rho_{ds} = 0$, and is equivalent to the bivariate probit model with endogenous dummy, discussed
in the second section. Model 4 is the model derived in this chapter. This model is the
most general one as it relaxes all three restrictions simultaneously. All Models 1-4 have
been estimated using all dyad-years with events and the same 1% random sample of the
non-event dyad-years. In turn, Table 5.6 juxtaposes Model 4 from Table 5.5, i.e. the main
specification, to three other models, which were estimated using different 1% sub-samples of all trading dyads. These estimates are very similar, which indeed shows that the case-control strategy is a valid one, at least with respect to inferences about the direction of these variables.\textsuperscript{110}

To focus on the main specification, i.e. Model 4, which estimates all three equations jointly, inspecting the reported results shows that in the selection equation the GDP ratio, similarity, $\ln(\text{dyad trade})$, and major power variables are all statistically significant and have signs in the theoretically anticipated directions. They also have the same signs as in the single-equation probit regression including all trading dyads, reported in Table 5.4. In particular, GDP ratio has a positive and significant effect on the probability of economic coercion, similarity has a negative and significant effect, and $\ln(\text{dyad trade})$ and major power also have positive and significant effects. Finally, past attempts has a positive and significant effect as well, while the effects of trade disparity, target instability and $\ln(\text{years})$ are not statistically significant.

However, the GDP ratio and trade disparity variables are correlated at about 60% and it seems that GDP ratio absorbs a lot of the effect of trade disparity, whereas in the larger sample it is still possible to distinguish these effects. Including trade disparity on its own in the specifications generally improves its significance level too. As for target instability, although not significant at the conventional 5% level, the variable is marginally significant with its coefficient about 1.5 times the size of its standard error. The joint implication of these results is that when we take into account the correlations between the three equations, senders with a greater bargaining advantage are more likely to initiate economic coercion, even when we control for the opportunity and willingness to engage in such coercion.

Some substantive effects for the aforementioned variables are reported in Table 5.7.
Strategic Demands and Economic Coercion: An Empirical Evaluation

With respect to the estimates for the threat equation, a probability of particular interest is the marginal probability that $y_t = 1$. To derive the substantive effects of the independent and control variables, I simulate 750 times the $\text{Prob}(y_t = 1|x'_t) - \text{Prob}(y_t = 1|x_t)$ difference, where $x_t$ denotes the original set of exogenous variables and $x'_t$ the values at which the change is evaluated. Based on these simulations, the median effect when increasing GDP ratio from 0 to 1 and holding all other variables at their medians is a 165% increase in the baseline probability that the directed AB dyad will experience an economic coercion attempt. Again, this result strongly supports the hypothesis that improving the sender's bargaining position with respect to the target increases the chance that the sender will make a demand.

With respect to the control variables, increasing the volume of dyadic trade by one standard deviation from its mean increases the probability of new economic coercion initiation by almost 200% as shown by Table 5.7. Figure 5.1 shows the 95% confidence band of the effect of increasing trade from 0 to 1 billion USD in increments of 5 million USD. That the effect is positive is easy to see; what is more interesting is that the increases in the probability of coercion are declining and this supports the interpretation that some minimum trade is necessary to make economic coercion possible but after that more trade does not increase these opportunities so much. The presence of a major power in a dyad increases the probability of coercion by 332%. Finally, the median effect of increasing similarity by one standard deviation from its mean is a 50% decrease in the chance of coercion initiation, which suggests that states with closer foreign policy positions are less likely to engage in economic coercion against each other. Figure 5.2 plots the 95% confidence band of the effect of similarity on the selection probability when S increases from its in-sample minimum to its in-sample maximum. In general, based on the selection equation, there seems to be strong
support for the meta-theoretic considerations advanced earlier and fairly strong support for Hypothesis 8.

Moving on to the estimation results for the demand equation, we can see that there is very strong evidence in favor of demand endogeneity. In the demand equation in Model 4, all of GDP ratio, target instability, and institution have positive and significant coefficients whereas the similarity control is negative and significant as expected. This suggests that even when controlling for senders' willingness to engage in economic coercion over highly salient issues, senders with a greater bargaining advantage over their respective target are still much more likely to make these highly salient demands. In turn, this translates into strong support for Hypothesis 9, which states exactly that more advantaged senders will make more substantial demands.

It is also important to observe that in Models 1 and 3, which assume that the error of the threat/selection equation is not correlated with the errors of the demand and success equations, the coefficients of these explanatory variables are smaller and not always significant. On the other hand, in Model 2, which is a Heckman probit applied to the threat and demand equations, GDP ratio, target instability, institution and similarity again appear statistically significant and their coefficients are very close to those estimated in Model 4. Therefore, controlling for the non-random selection of directed dyads into economic coercion cases does make a difference, and suggests that the same factors which cause the sender to make a greater demand are also causing the sender to make a demand in the first place.

On the other hand, ignoring the selection patterns predicted by the theoretical model can lead to erroneous inferences regarding the relation between the sender’s bargaining power and the size of the demand.

The substantive effects of the variables in the demand equation are also quite strong.
In particular, with respect to that equation I look at the conditional probability of a highly salient demand given a threat, i.e. conditional on selection into the economic coercion sample. That is, I simulate the \( \text{Prob}(y_d = 1|y_t = 1, x_t') - \text{Prob}(y_d = 1|y_t = 1, x_t) \) difference to estimate the effect of changing the exogenous variables from \( x_t \) to \( x_t' \). As I consider the effects of each variable, I again hold the remaining variables fixed at their median, but rather the median for the dyads which actually experienced economic coercion. As Table 5.7 shows, the first thing which can be said regarding the demand is that dyads in which the sender’s GDP exceeded the target’s GDP by ten or more times were 66% more likely to experience a demand involving strategic stakes conditional on selection.

In turn, increasing \textit{target instability} by one standard deviation from its mean increases that probability by 29%. Figure 5.3 plots the 95% confidence band of the effect on \( \text{Prob}(y_d = 1|y_t = 1) \) when \textit{target instability} increases from its in-sample minimum to its in-sample maximum. Clearly, the plotted effect is positive throughout the variable’s range, suggesting that domestically more distressed countries are more likely to become the targets of demands involving strategic stakes. Further, according to Table 5.7 the presence of an international institution is associated with a 107% increase in the probability of a highly salient demand conditional on selection. Finally, increasing \textit{similarity} by one standard deviation from its mean decreases \( \text{Prob}(y_d = 1|y_t = 1) \) by -24%. Figure 5.4 plots the effect on the aforementioned conditional probability when \textit{similarity} increases from its in-sample minimum to its in-sample maximum. Again, the effect is a steady decrease in the probability of interest, suggesting that as states’ foreign policies become more proximate, they become less likely to experience economic coercion over highly salient issues, given they are already engaged in economic coercion.

We are next going to consider the implications of the estimated coefficients for the success
equation in Model 4. On one hand the coefficients for GDP ratio, trade disparity, and target instability are positive as expected but not statistically significant. However, on the other hand the institution dummy, which is designed to reflect the sender's reputation costs, is positive and very significant, which supports Hypothesis 10, suggesting that senders which have higher reputation costs should do better conditional on the demand. What is more, the estimated coefficient for the demand dummy in the success equation is negative and significant; that also strongly supports the tested theoretical logic. In particular, given this negative coefficient, all exogenous factors correlated with the sender's bargaining advantage that increase the size of the demand also indirectly decrease the sender's success prospects. Therefore, although the support for the direct effects of the sender's bargaining advantage is limited, the support for the negative indirect effects through the endogenously generated demand is fairly strong.

These conclusions are confirmed after considering the substantive effects of the institution dummy reported in Table 5.7. The effect of institution on the probability of success conditional on selection, i.e. \( \text{Prob}(y_s = 1|y_t = 1) \), is a 23% increase but its 95% confidence interval includes zero. On the other hand, if we look at the effect of institution on the probability of success conditional on selection and also conditional on a low-salience demand, i.e. \( \text{Prob}(y_s = 1|y_t = 1, y_d = 0) \), that effect is a 33% increase and the lower bound of its 95% confidence interval is greater than zero. The reason for these differences is that although the coefficient estimated for institution in model 4 is statistically significant, when the demand is not held at zero, its indirect effects enter the success equation through the demand dummy and the net substantive effect is not necessarily significant because the direct effects of institution work against the indirect effect. In contrast, when \( y_d = 0 \), the whole demand term in the success equation become equal to zero, so no indirect effects
enter that equation, and the direct effect itself is clearly positive.

Therefore, although the support for the direct effects of the economic cost components of the sender's bargaining advantage is weak, the overall support for Hypothesis 10 is quite fair. An additional issue of interest is again whether modeling the involved selection patterns make any difference. As the success equation estimates in Models 1-4 in Table 5.5 show, that difference is quite pronounced. For example, although GDP ratio and target instability are not significant in the unrestricted model 4, they are positive. On the other hand, in models 1-3, which restrict some of the correlations to zero, these variables appear with negative signs, that is, controlling for selection bias is clearly important. Similarly, in the restricted models the demand dummy is negative but quite insignificant whereas controlling for selection bias results in a positive and significant coefficient.

Finally, we have to see whether the estimated correlations themselves are supportive of Hypothesis 11, which states that senders should select themselves into cases with high demands and low success probabilities. The first part of that hypothesis is strongly supported by the positive and significant correlation estimated between the threat and demand equations. The positive $\rho_{td}$ suggests that senders at least select themselves into cases with higher demands. The second part of the hypothesis, however, which suggest selectivity into cases with low success probabilities is not supported as the estimated $\rho_{ts}$ is not distinguishable from zero. However, given that the main independent variables are not explaining a lot of the variance in the success equation in the first place, the insignificance of that correlation should not come as surprising because the likelihood function imposes substantial informational demands on the data. Even so, as at least intuitively greater demands should be harder for targets to accept, the positive $\rho_{td}$ can at least provide some foundation for the argument that empirically we observe so many instances of failed sanctions not because
sanctions are not driven by foreign-policy concerns but rather because it pays off for senders to select themselves into harder cases.

5.5 Discussion

So what are the implications of the outlined empirical results for the game-theoretic model advanced in the previous chapter? The first two hypotheses derived from the model stated that as the strength of the sender’s bargaining position with respect to the target increases, the sender should be both more likely to make a demand and to make a greater demand. The support for these claims emerging from the statistical analysis is fairly strong. Even when we control for states’ opportunities to use economic coercion and for their willingness to make demands and to make demands involving strategic stakes, more powerful senders are more likely both to make a demand and to make a demand on a highly salient issue. In turn, the third hypothesis, stating that the sender’s success prospects should increase in its bargaining power, but only conditional on the demand, is not fully supported. In particular, there is very strong support for the theoretical logic implying that the indirect effects of the sender’s bargaining advantage, through the endogenous demand, work against its direct effects, but only partial support for the predicted direct effects conditional on the demand. Finally, the last hypothesis, suggesting that senders will select themselves into cases with higher demands and lower success probabilities, has also been only partially supported, as the results show evidence only for the first selection pattern. In total, the support for the model is fairly strong, especially given that some its main non-intuitive predictions seem to hold, but since not all predictions are fully supported, it still makes sense to compare the explanatory power of the theory advanced here to some of the main alternatives in the literature. We discuss four such classes of alternative theories.
5.5.1 Strategic Interaction Theories with Exogenous Demands

Strategic interaction theories of economic coercion with exogenous demands (e.g. Tsebelis, 1990; Smith, 1996; Morgan and Miers, 1999; Dorussen and Mo, 2001; Lacy and Niou, 2004) have three main features, which are shared by the model advanced in the previous chapter. First, they assume two players, the sender and target of economic coercion, who have an exogenously arising disputed policy issue. Second, these theories treat sanctions as instrumental, in the sense that states do not see them as ends in themselves but as the means to achieving policy gains on a separate dimension (a.k.a the disputed policy issue). Consequently, the use of economic coercion become a classic mixed-motive game or a bargaining situation (Schelling, 1960; Muthoo, 1999). For any given outcome on the policy dimension both parties prefer less to more sanctions, but for any given level of sanctions costs that have been incurred their interests over the policy dimension are exactly opposing as the sender's gain is the target's loss. Finally, because the second feature implies that in the presence of complete information an inefficient outcome involving imposed sanctions should not be possible, the aforementioned game-theoretic models typically introduce some uncertainty about preferences or due to the use of mixed strategies to allow for sanctions in equilibrium.

In view of the empirical findings outlined here, the aforementioned strategic interaction theories with exogenous demands are clearly incapable of explaining demand endogeneity, and that should not be surprising, as they cannot explain something that they assume to be fixed. However, what is more, since these theories are essentially based on standard coercion games, they also lead to the expectation that as the sender's bargaining advantage increases or the target's bargaining advantage decreases, economic coercion should become more likely to work. Therefore, these theories do not outperform the game-theoretic model
advanced here with respect to the estimated coefficients for the success equation either, as they would also anticipate positive and significant effects of the factors associated with the sender's bargaining advantage. Moreover, these theories can not account for the indirect effects through the endogenous demand as well, although they too expect a negative effect of the exogenous demand on the sender’s success prospects. Clearly, the bargaining theory advanced here is superior as it can explain more excess content than the exogenous demand alternatives, which, in turn, can not explain any of the results incongruent with the endogenous demands theory.

5.5.2 The Conflict Expectations Theory

Daniel Drezner has proposed the conflict expectations theory of economic coercion (1997; 1998; 1999a). While this theory shares with the aforementioned strategic interaction models the assumption of an exogenous disputed issue, it does not rely on incomplete information or mixed strategies to make economic sanctions possible in equilibrium and does not treat sanctions as pure means to policy gains on an independent dimension. In addition, Drezner’s game-theoretic model also treats demands and decisions to initiate coercion as endogenous, as done here, although empirically he still treats these demands as exogenous. However, Drezner also makes the unusual assumption that the sender and target care about relative gains and inserts the target’s payoffs in the sender’s utility function and the sender’s payoffs in the target’s utility function. At the very least, this setup is equivalent to assuming that states might impose sanctions because they benefit from them, as if the sender values relative gains highly, it may impose sanctions that are more costly to the target and incur net gains. Furthermore, even so, Drezner is unable to generate the imposition of economic sanctions in equilibrium in his game, and that is an obvious empirical limitation.
These issues set aside, at a more general level Drezner's argument can be read as suggesting that the sender might pursue costly economic coercion if it cares sufficiently about inflicting damage upon the target, which is an alternative explanation for sanctions. Based on this theory, Drezner predicts that the sender will be able to extract more concessions from allied targets, because hostile targets will be more concerned about relative gains and will be unwilling to yield to the sender. However, Drezner also predicts that because senders at the same time value more damage inflicted on hostile targets, they should be more likely to initiate economic coercion against such targets. In fact, that is what Drezner calls the "paradox" of economic coercion: senders want to coerce adversaries, but are only able to get greater concessions from allies. That is, senders still select themselves into cases which are hard to win, i.e. versus adversaries, but through low rather than high demands, as suggested here. Based on these predictions, the empirical findings reported here offer only weak support for the conflict expectations theory. Not only are senders more likely to make bigger demands to adversaries, but also the selection pattern is the opposite, as senders select themselves into cases with high, not low demands.

5.5.3 Domestic Politics Theories

The most developed domestic political explanation for economic sanctions is by far the public choice theory due to Kaempfer and Lowenberg (1988, 1992, 1999). The main argument offered by the aforementioned authors is that understanding sanctions policy requires analyzing below the state level in both the sender and target countries, and finding out how economic sanctions benefit or hurt domestic constituencies. For example, the domestic producers of a foreign substitute can benefit from the imposition of sanctions against foreign producers regardless of whether the sanctioned countries change some objectionable policy
or not. Thus, in domestic theories, sanctions policy is also endogenous but it is endogenous to domestic, not international factors. Domestic theories have specific testable implications that have not been addressed here, although the weak relationship between the sender's bargaining advantage and its success prospects can possibly be interpreted as indirect support for these theories, as they do not necessarily anticipate any definite relationship between these two variables. However, while this suggests domestic theories might have some merit, they are also unable to explain the endogeneity of the demand to the outlined international factors, so they are at best incomplete explanations for the sanctions process.

5.5.4 Symbolic Utility Theories

Similarly to domestic political theories, theories that see sanctions as being driven by their symbolic utility to policy makers (e.g. Barber, 1979; Lindsay, 1986), or as a form of international punishment that appeals to moral concerns (Nossal, 1989), do not anticipate any definite relationship between the sender's bargaining advantage and success prospects, and therefore can not be contradicted by the lack of such a relationship. However, symbolic theories also can not account for the endogeneity of the sanctions demand to international factors, and are consequently at best incomplete explanations for the sanctions process.

Nevertheless, what is interesting with respect to symbolic explanations in particular is that even after eliminating all non-trading dyads from the estimation sample, about 5% of the actual economic coercion instances remain in these non-trading dyads. The use of economic sanctions in dyads which apparently do not have any economic relationship indeed suggests that some sanctions might be mostly symbolic in nature. Examining these deviant cases in greater detail confirms that conclusion, as most of these cases involve an Arab or African country calling on the international community or on an international organization
to sanction Israel or South Africa. Still, while such uses of economic coercion support symbolic theories, the fact that 95% of the coercion instances in trading dyads behave in accordance with the expectations of the theoretic model should suggest that most economic coercion instances are not driven by the need for symbolic expression but rather by material factors.

5.6 Conclusion

This chapter has presented a thorough empirical test of the game-theoretic model advanced in the previous chapter, based on 547 economic coercion initiations in the 1971-2000 period, as recorded by the TIES data set. The first two tested hypotheses, stating that senders in stronger bargaining positions with respect to their targets are more likely to initiate economic coercion and to do so over greater demands, have been strongly supported by the data analysis. First, even when controlling for states’ opportunity and willingness to engage in economic coercion, states in stronger bargaining positions were found to be more likely to do so. Second, even when controlling for states’ opportunity and willingness to make to each other demands involving strategic stakes, it was found that states in such strong bargaining positions are more likely to make highly salient demands involving such stakes. Together, these findings imply that states’ decisions to initiate economic coercion and how much concessions to demand from the target are clearly driven by strategic considerations.

The third and fourth hypotheses from the theoretical model have enjoyed partial support. The third hypothesis stated that improvements in the sender’s bargaining advantage will improve the sender’s success prospects only conditional on the demand, as the direct effects of these improvements would be mitigated or even overridden by the indirect effects through the endogenously generated demand. The support for the direct effects was partial, as
while the reputation cost component of the bargaining advantage measures was positive and significant as expected, the economic cost component had a positive but insignificant effect. On the other hand, there was strong support for the indirect effect, suggesting that factors improving the sender's bargaining position paradoxically also worsen its success prospects. In terms of the fourth hypothesis, there was strong evidence in favor of the predicted selectivity of senders into cases with high demands, whereas no support was found for the predicted selectivity into cases with low success probabilities. Even so, insofar as greater demands should be harder for targets to accept, the reported selectivity pattern should translate at least into indirect support for the rationalist explanation for the frequent failure of sanctions despite their low success rates advanced in the previous chapter. Namely, senders in stronger bargaining positions are more likely to engage in economic coercion, but not more likely to succeed because they also tend to demand greater concessions which are harder for the target to provide.

Finally, it was also demonstrated that the bargaining theory with endogenous demands clearly enjoys greater explanatory power than its alternatives in view of the reported empirical findings, and this is particularly so with respect to bargaining theories with exogenous demands and the conflict expectations theory. With respect to domestic and symbolic explanations, the reported tests do not address the specific predictions derivable from these theories. However, although these theories might have some merit and be indirectly supported based on the analysis conducted here, the fact is that they are simply unable to account for the endogeneity of the demand to the international factors characterizing the sender-target dyad. In fact, the central conclusion emerging from this analysis is that even if disputed issues arise from domestic politics or due to other exogenous reasons, states do not engage in economic coercion over these issues automatically, but rather do so strategically.
by evaluating their expected gains and adjusting the size of their demands to maximize these gains. Therefore, a complete understanding of the economic coercion process without taking into account these strategic influences on sanctions policy is not possible. At a more general level, these lessons from the use of economic sanctions might also imply that the current efforts to replace the traditional IR perspective that identifies conflict through states’ opportunities and willingness with a bargaining perspective, which complements these factors with the role of strategic foresight, might well be in place.
5.7 Appendix: Programming Code

The following code allows Stata to maximize the log-likelihood via the "ml model" and "ml maximize" commands. The GHK simulator of Cappellari and Jenkins is called with the "mvnp()" command and uses already generated Halton sequences. The "mvnp()" command also uses not the correlation matrix $V$, but rather its Cholesky decomposition, or the lower-triangular matrix $C$ for which $CC' = V$. Note that the correlations $\rho$ have been re-parameterized as a function of $\tanh^{-1} \rho = \frac{1}{2} \log \frac{1+\rho}{1-\rho}$, or $\rho = \frac{\exp(2\tanh^{-1} \rho)-1}{\exp(2\tanh^{-1} \rho)+1}$. This re-parametrization has been necessary because Stata’s ml maximizer performs an unconstrained maximization whereas the correlations $\rho$ are only defined between $-1$ and $+1$.

Estimating their inverse hyperbolic tangents instead circumvents the problem because as $\tanh^{-1} \rho$ varies between $-\infty$ and $+\infty$, $\rho$ varies between $-1$ and $+1$.

```stata
program define triprobit2
    args lnl xb1 xb2 xb3 atanhrho12 atanhrho13 atanhrho23
    tempvar sp3 sp2 k1 k2 k3
    quietly {
        gen double 'k1'=2*$ML_y1-1
        gen double 'k2'=2*$ML_y2-1
        gen double 'k3'=2*$ML_y3-1
        tempname atanhraw12 atanhraw13 atanhraw23 pf12 pf13 pf23 pf22 pf33 C1 C2
        su 'atanhrho12', meanonly
        scalar 'atanhraw12' = r(mean)
        su 'atanhrho13', meanonly
        scalar 'atanhraw13' = r(mean)
        su 'atanhrho23', meanonly
        scalar 'atanhraw23' = r(mean)
        scalar 'pf12'=(exp(2*atanhraw12')-1)/(exp(2*atanhraw12')+1)
        scalar 'pf13'=(exp(2*atanhraw13')-1)/(exp(2*atanhraw13')+1)
        scalar 'pf23'=(exp(2*atanhraw23')-1)/(exp(2*atanhraw23')+1)
        scalar 'pf22' = sqrt(1-`pf12'^2)
        scalar 'pf33' = sqrt(1-`pf13'^2 - `pf23'^2)
        mat 'C1' = (1, 0, 0 \ 'pf12', 'pf22', 0 \ 'pf13', 'pf23', 'pf33')
        mat 'C2' = (1, 0 \ 'pf12', 'pf22')
        egen 'sp3' = mvnp('xb1', 'xb2', 'xb3') if $ML_y1==1&$ML_y3==., \\n        chol('C1') dr($dr) prefix(z) signs('k1' 'k2' 'k3')
        egen 'sp2' = mvnp('xb1', 'xb2') if $ML_y1==1&$ML_y3==., \\n        chol('C2') dr($dr) prefix(z) signs('k1' 'k2')
    }
end
```
replace `lnf'=ln('sp3') if $ML_y1==1&$ML_y3!=.
replace `lnf'=ln(norm('xb1')) if $ML_y1==0
replace `lnf'=ln('sp2') if $ML_y1==1&$ML_y3==.
} end
5.8 Tables

Table 5.1: Variable construction summary.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Type</th>
<th>Operational Definition</th>
</tr>
</thead>
</table>
| Threat                | $y_t$| 1 = New initiation of economic coercion in all 1971-2000 directed AB dyad-years with a positive trade volume  
0 = No new initiation of economic coercion in the aforementioned dyads |
| Demand                | $y_d$| 1 = New economic coercion attempt to contain political influence or military behavior, change regime type or human rights policy or international alignment, or transfer territory  
0 = New economic coercion attempt on different issue |
| Success               | $y_s$| 1 = A achieved more on 0-10 scale  
0 = B achieved more on 0-10 scale |
| Trade disparity       | $x_t$, $x_d$, $x_s$| A’s decile rank (1-10) among B’s trade partners — B’s decile rank (1-10) among A’s trade partners, rescaled from -9 to 9 into 0 to 1 |
| GDP ratio             | $x_t$, $x_d$, $x_s$| 1 = GDP of A/GDP of B $\geq$ 10  
0 = GDP of A/GDP of B $< 10$ |
| Target Instability    | $x_t$, $x_d$, $x_s$| Average of number of assassinations, general strikes, government crises, purges, riots, revolutions, demonstrations, guerrilla incidents in B, on 0 to 1 scale |
| IGO count             | $x_t$| Number of IGOs to which A is a member |
| Institution           | $x_d$, $x_s$| 1 = Economic coercion through IGO, 0 = else |
| Similarity            | $x_t$, $x_d$| Average dyad similarity over five policy areas |
| ln(Dyad trade)        | $x_t$| Log of sum of dyadic exports and imports |
| Major power           | $x_t$| 1 = A or B major power, 0 = else |
| ln(Time)              | $x_t$| Log of years since last AB coercion attempt |
| Past attempts         | $x_t$| Number of AB coercion attempts since 1971 |
Table 5.2: Descriptive statistics.

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>Median</th>
<th>( \sigma )</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Threat</td>
<td>442,316</td>
<td>0.0012</td>
<td>0</td>
<td>0.0351</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Demand</td>
<td>547</td>
<td>0.2687</td>
<td>0</td>
<td>0.4437</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Success</td>
<td>359</td>
<td>0.4317</td>
<td>0</td>
<td>0.4960</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Trade disparity</td>
<td>442,316</td>
<td>0.4987</td>
<td>0.5</td>
<td>0.1943</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>GDP ratio</td>
<td>442,316</td>
<td>0.2372</td>
<td>0</td>
<td>0.4254</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Target instability</td>
<td>442,316</td>
<td>0.0175</td>
<td>0</td>
<td>0.0325</td>
<td>0</td>
<td>0.3250</td>
</tr>
<tr>
<td>IGO count</td>
<td>442,316</td>
<td>54.1788</td>
<td>52</td>
<td>21.5250</td>
<td>1</td>
<td>129</td>
</tr>
<tr>
<td>Institution</td>
<td>547</td>
<td>0.1937</td>
<td>0</td>
<td>0.3956</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Similarity</td>
<td>442,316</td>
<td>-0.1511</td>
<td>-0.1164</td>
<td>0.7206</td>
<td>-2.7457</td>
<td>1.750</td>
</tr>
<tr>
<td>ln(Dyad trade)</td>
<td>442,316</td>
<td>15.7201</td>
<td>15.7957</td>
<td>3.1364</td>
<td>6.5099</td>
<td>26.5642</td>
</tr>
<tr>
<td>Major power</td>
<td>442,316</td>
<td>0.1042</td>
<td>0</td>
<td>0.3056</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>ln(Time)</td>
<td>442,316</td>
<td>2.4175</td>
<td>2.6390</td>
<td>0.8432</td>
<td>0</td>
<td>3.4011</td>
</tr>
<tr>
<td>Past attempts</td>
<td>442,316</td>
<td>0.0128</td>
<td>0</td>
<td>0.1956</td>
<td>0</td>
<td>16</td>
</tr>
</tbody>
</table>
Table 5.3: Correlation Matrix for the Five Similarity Components.

<table>
<thead>
<tr>
<th></th>
<th>Alliance</th>
<th>Trade</th>
<th>U.N.</th>
<th>IGO</th>
<th>FH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alliance</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trade</td>
<td>0.1492</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U.N.</td>
<td>0.5804</td>
<td>0.0201</td>
<td>1.0000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IGO</td>
<td>0.6272</td>
<td>0.1798</td>
<td>0.4920</td>
<td>1.0000</td>
<td></td>
</tr>
<tr>
<td>FH</td>
<td>0.2833</td>
<td>0.0626</td>
<td>0.2894</td>
<td>0.2537</td>
<td>1.0000</td>
</tr>
</tbody>
</table>
Table 5.4: The Initiation of Economic Coercion in Trading Dyads (Probit).

<table>
<thead>
<tr>
<th>Variable</th>
<th>All dyad-years</th>
<th>5% Sample</th>
<th>1% Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP ratio</td>
<td>0.1890 (0.0481)*</td>
<td>0.2448 (0.0782)*</td>
<td>0.2405 (0.1099)*</td>
</tr>
<tr>
<td>Trade disparity</td>
<td>0.3533 (0.1706)*</td>
<td>0.4387 (0.2413)</td>
<td>0.3813 (0.3124)</td>
</tr>
<tr>
<td>Target instability</td>
<td>1.1880 (0.4450)*</td>
<td>1.8362 (0.7183)*</td>
<td>1.4838 (1.0235)</td>
</tr>
<tr>
<td>IGO count</td>
<td>0.0016 (0.0009)</td>
<td>0.0007 (0.0014)</td>
<td>0.0009 (0.0020)</td>
</tr>
<tr>
<td>Similarity</td>
<td>-0.1949 (0.0230)*</td>
<td>-0.2450 (0.0357)*</td>
<td>-0.2512 (0.0486)*</td>
</tr>
<tr>
<td>ln(Dyad trade)</td>
<td>0.2063 (0.0095)*</td>
<td>0.2536 (0.0136)*</td>
<td>0.2882 (0.0173)*</td>
</tr>
<tr>
<td>Major power</td>
<td>0.2338 (0.0410)*</td>
<td>0.3115 (0.0632)*</td>
<td>0.4349 (0.0871)*</td>
</tr>
<tr>
<td>Past attempts</td>
<td>0.2184 (0.0158)*</td>
<td>0.5420 (0.0495)*</td>
<td>0.7355 (0.0961)*</td>
</tr>
<tr>
<td>ln(Time)</td>
<td>-0.0867 (0.0208)*</td>
<td>-0.0182 (0.0345)</td>
<td>-0.0174 (0.0481)</td>
</tr>
<tr>
<td>Constant</td>
<td>-7.3064 (0.2210)*</td>
<td>-7.3742 (0.2993)*</td>
<td>-7.3224 (0.3696)*</td>
</tr>
</tbody>
</table>

Observations: 442,316 22,857 5,051
Threat=1: 547 547 547
Threat=0: 441,769 22,310 4,504

Log-likelihood: -2647.29 -1278.51 -740.02
Pseudo-R2: 0.3710 0.5049 0.5728

* indicates statistical significance at the 5% level, based on two-tailed tests. Unexponentiated coefficients reported, standard errors are in parentheses.
Table 5.5: The Initiation, Demand, and Outcome of Economic Coercion Attempts I: Individual and Joint Estimations.

<table>
<thead>
<tr>
<th>Restriction</th>
<th>Model 1 (\forall \rho_{ij} = 0)</th>
<th>Model 2 (\rho_{ts} = \rho_{ds} = 0)</th>
<th>Model 3 (\rho_{id} = \rho_{ts} = 0)</th>
<th>Model 4 none</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Threat</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GDP ratio</td>
<td>0.240 (0.109)*</td>
<td>0.234 (0.109)*</td>
<td>0.240 (0.109)*</td>
<td>0.242 (0.108)*</td>
</tr>
<tr>
<td>Trade disparity</td>
<td>0.381 (0.312)</td>
<td>0.317 (0.312)</td>
<td>0.381 (0.312)</td>
<td>0.327 (0.312)</td>
</tr>
<tr>
<td>Target instability</td>
<td>1.483 (1.023)</td>
<td>1.599 (1.009)</td>
<td>1.483 (1.023)</td>
<td>1.541 (1.010)</td>
</tr>
<tr>
<td>IGO count</td>
<td>0.000 (0.002)</td>
<td>0.002 (0.002)</td>
<td>0.000 (0.002)</td>
<td>0.002 (0.002)</td>
</tr>
<tr>
<td>Similarity</td>
<td>-0.251 (0.048)*</td>
<td>-0.256 (0.048)*</td>
<td>-0.251 (0.048)*</td>
<td>-0.259 (0.048)*</td>
</tr>
<tr>
<td>ln(Dyad trade)</td>
<td>0.288 (0.017)*</td>
<td>0.285 (0.017)*</td>
<td>0.288 (0.017)*</td>
<td>0.288 (0.017)*</td>
</tr>
<tr>
<td>Major power</td>
<td>0.434 (0.087)*</td>
<td>0.398 (0.086)*</td>
<td>0.434 (0.087)*</td>
<td>0.383 (0.086)*</td>
</tr>
<tr>
<td>Past attempts</td>
<td>0.735 (0.096)*</td>
<td>0.767 (0.094)*</td>
<td>0.735 (0.096)*</td>
<td>0.755 (0.095)*</td>
</tr>
<tr>
<td>ln(Time)</td>
<td>-0.017 (0.048)</td>
<td>0.011 (0.048)</td>
<td>-0.017 (0.048)</td>
<td>0.004 (0.048)</td>
</tr>
<tr>
<td>Constant</td>
<td>-7.322 (0.369)*</td>
<td>-7.374 (0.366)*</td>
<td>-7.322 (0.369)*</td>
<td>-7.410 (0.366)*</td>
</tr>
<tr>
<td><strong>Demand</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GDP ratio</td>
<td>0.279 (0.144)</td>
<td>0.413 (0.146)*</td>
<td>0.064 (0.168)</td>
<td>0.412 (0.144)*</td>
</tr>
<tr>
<td>Trade disparity</td>
<td>0.023 (0.545)</td>
<td>-0.254 (0.523)</td>
<td>0.158 (0.605)</td>
<td>-0.208 (0.522)*</td>
</tr>
<tr>
<td>Target instability</td>
<td>4.079 (1.434)</td>
<td>4.870 (1.408)*</td>
<td>2.990 (1.572)</td>
<td>4.955 (1.361)*</td>
</tr>
<tr>
<td>Institution</td>
<td>0.700 (0.144)*</td>
<td>0.518 (0.146)*</td>
<td>0.530 (0.160)*</td>
<td>0.528 (0.145)*</td>
</tr>
<tr>
<td>Similarity</td>
<td>-0.168 (0.079)*</td>
<td>-0.284 (0.081)*</td>
<td>-0.218 (0.093)*</td>
<td>-0.275 (0.081)*</td>
</tr>
<tr>
<td>Constant</td>
<td>-1.182 (0.272)*</td>
<td>-1.489 (0.269)*</td>
<td>-0.874 (0.308)*</td>
<td>-1.520 (0.265)*</td>
</tr>
<tr>
<td><strong>Success</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GDP ratio</td>
<td>-0.081 (0.159)</td>
<td>-0.081 (0.159)</td>
<td>-0.041 (0.166)</td>
<td>0.062 (0.180)*</td>
</tr>
<tr>
<td>Trade disparity</td>
<td>0.465 (0.613)</td>
<td>0.465 (0.613)</td>
<td>0.503 (0.602)</td>
<td>0.478 (0.590)*</td>
</tr>
<tr>
<td>Target instability</td>
<td>-1.161 (1.649)</td>
<td>-1.161 (1.649)</td>
<td>-0.365 (1.985)</td>
<td>0.432 (1.862)*</td>
</tr>
<tr>
<td>Institution</td>
<td>0.288 (0.161)</td>
<td>0.288 (0.161)</td>
<td>0.416 (0.216)</td>
<td>0.536 (0.167)*</td>
</tr>
<tr>
<td>Demand</td>
<td>-0.064 (0.142)</td>
<td>-0.064 (0.142)</td>
<td>-0.720 (0.839)</td>
<td>-1.078 (0.430)*</td>
</tr>
<tr>
<td>Constant</td>
<td>-0.405 (0.311)</td>
<td>-0.405 (0.311)</td>
<td>-0.253 (0.373)</td>
<td>-0.301 (0.298)*</td>
</tr>
<tr>
<td>(\rho_{id})</td>
<td>n.a.</td>
<td>0.248 to 0.581</td>
<td>n.a.</td>
<td>0.250 to 0.582*</td>
</tr>
<tr>
<td>(\rho_{ts})</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>-0.237 to 0.227</td>
</tr>
<tr>
<td>(\rho_{ds})</td>
<td>n.a.</td>
<td>-0.680 to 0.936</td>
<td>n.a.</td>
<td>-0.176 to 0.930</td>
</tr>
<tr>
<td>Observations</td>
<td>5051(547)359</td>
<td>5051(547)359</td>
<td>5051(547)359</td>
<td>5051(547)359</td>
</tr>
<tr>
<td>Log-likelihood</td>
<td>-242.87</td>
<td>-242.87</td>
<td>-466.71</td>
<td>-1264.80</td>
</tr>
</tbody>
</table>

* indicates statistical significance at the 5% level, based on two-tailed tests. Unexponentiated coefficients reported, standard errors in parentheses, 95% confidence intervals reported for the correlations.
Table 5.6: The Initiation, Demand, and Outcome of Economic Coercion Attempts II: Trivariate Probit with Selection.

<table>
<thead>
<tr>
<th>Restriction</th>
<th>Model 4 none</th>
<th>Model 5 none</th>
<th>Model 6 none</th>
<th>Model 7 none</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Threat</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GDP ratio</td>
<td>0.242 (0.108)*</td>
<td>0.206 (0.104)*</td>
<td>0.265 (0.108)*</td>
<td>2.496 (0.106)*</td>
</tr>
<tr>
<td>Trade disparity</td>
<td>0.327 (0.312)</td>
<td>0.361 (0.308)</td>
<td>0.506 (0.310)</td>
<td>0.467 (0.305)</td>
</tr>
<tr>
<td>Target instability</td>
<td>1.541 (1.010)</td>
<td>1.086 (0.966)</td>
<td>1.565 (0.982)</td>
<td>1.546 (1.010)</td>
</tr>
<tr>
<td>IGO count</td>
<td>0.002 (0.002)</td>
<td>0.002 (0.002)</td>
<td>0.000 (0.002)</td>
<td>0.001 (0.001)</td>
</tr>
<tr>
<td>Similarity</td>
<td>-0.259 (0.048)*</td>
<td>-0.247 (0.047)*</td>
<td>-0.247 (0.048)*</td>
<td>-0.316 (0.048)*</td>
</tr>
<tr>
<td>ln(Dyad trade)</td>
<td>0.288 (0.017)*</td>
<td>0.278 (0.016)*</td>
<td>0.285 (0.017)*</td>
<td>0.286 (0.016)*</td>
</tr>
<tr>
<td>Major power</td>
<td>0.383 (0.086)*</td>
<td>0.355 (0.086)*</td>
<td>0.319 (0.085)*</td>
<td>0.302 (0.086)*</td>
</tr>
<tr>
<td>Past attempts</td>
<td>0.755 (0.095)*</td>
<td>0.621 (0.082)*</td>
<td>0.749 (0.091)*</td>
<td>0.920 (0.109)*</td>
</tr>
<tr>
<td>ln(Time)</td>
<td>0.004 (0.048)</td>
<td>0.025 (0.048)</td>
<td>0.043 (0.049)</td>
<td>0.053 (0.049)*</td>
</tr>
<tr>
<td>Constant</td>
<td>-7.410 (0.366)*</td>
<td>-7.289 (0.361)*</td>
<td>-7.414 (0.368)*</td>
<td>-7.512 (0.365)*</td>
</tr>
<tr>
<td><strong>Demand</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GDP ratio</td>
<td>0.412 (0.144)*</td>
<td>0.410 (0.143)*</td>
<td>0.413 (0.144)*</td>
<td>0.413 (0.144)*</td>
</tr>
<tr>
<td>Trade disparity</td>
<td>-0.208 (0.522)</td>
<td>-0.216 (0.520)</td>
<td>-0.197 (0.522)</td>
<td>-0.179 (0.520)</td>
</tr>
<tr>
<td>Target instability</td>
<td>4.955 (1.361)*</td>
<td>4.865 (1.350)*</td>
<td>4.933 (1.358)*</td>
<td>4.938 (1.358)*</td>
</tr>
<tr>
<td>Institution</td>
<td>0.528 (0.145)*</td>
<td>0.517 (0.144)*</td>
<td>0.520 (0.145)*</td>
<td>0.512 (0.144)*</td>
</tr>
<tr>
<td>Similarity</td>
<td>-0.275 (0.081)*</td>
<td>-0.275 (0.080)*</td>
<td>-0.272 (0.080)*</td>
<td>-0.292 (0.081)*</td>
</tr>
<tr>
<td>Constant</td>
<td>-1.520 (0.265)*</td>
<td>-1.536 (0.264)*</td>
<td>-1.536 (0.265)*</td>
<td>-1.563 (0.265)*</td>
</tr>
<tr>
<td><strong>Success</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GDP ratio</td>
<td>0.062 (0.180)</td>
<td>0.063 (0.180)</td>
<td>0.056 (0.182)</td>
<td>0.055 (0.180)</td>
</tr>
<tr>
<td>Trade disparity</td>
<td>0.478 (0.590)</td>
<td>0.477 (0.591)</td>
<td>-0.490 (0.592)</td>
<td>0.484 (0.591)</td>
</tr>
<tr>
<td>Target instability</td>
<td>0.432 (1.862)</td>
<td>0.425 (1.856)</td>
<td>0.384 (1.878)</td>
<td>0.342 (1.858)</td>
</tr>
<tr>
<td>Institution</td>
<td>0.536 (0.167)*</td>
<td>0.534 (0.166)*</td>
<td>0.534 (0.167)*</td>
<td>0.522 (0.168)*</td>
</tr>
<tr>
<td>Demand</td>
<td>-1.078 (0.430)*</td>
<td>-1.077 (0.433)*</td>
<td>-1.060 (0.441)*</td>
<td>-1.035 (0.440)*</td>
</tr>
<tr>
<td>Constant</td>
<td>-0.301 (0.298)</td>
<td>-0.303 (0.298)</td>
<td>-0.303 (0.299)</td>
<td>-0.310 (0.300)</td>
</tr>
<tr>
<td>$\rho_{ct}$</td>
<td>0.250 to 0.552</td>
<td>0.268 to 0.605</td>
<td>0.254 to 0.591</td>
<td>0.272 to 0.604</td>
</tr>
<tr>
<td>$\rho_{cs}$</td>
<td>-0.237 to 0.227</td>
<td>-0.243 to 0.240</td>
<td>-0.250 to 0.230</td>
<td>-0.231 to 0.231</td>
</tr>
<tr>
<td>$\rho_{cd}$</td>
<td>-0.176 to 0.930</td>
<td>-0.180 to 0.928</td>
<td>-0.191 to 0.926</td>
<td>-0.175 to 0.916</td>
</tr>
<tr>
<td>Observations</td>
<td>5051(547)359</td>
<td>4900(547)359</td>
<td>4905(547)359</td>
<td>4929(547)359</td>
</tr>
<tr>
<td>Log-likelihood</td>
<td>-1264.80</td>
<td>-1287.18</td>
<td>-1284.26</td>
<td>-1258.30</td>
</tr>
</tbody>
</table>

* indicates statistical significance at the 5% level, based on two-tailed tests. Unexponentiated coefficients reported, standard errors in parentheses, 95% confidence intervals reported for the correlations.
Table 5.7: Some substantive effects.

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Variable</th>
<th>2.5th FD %</th>
<th>50th FD</th>
<th>97.5th FD %</th>
</tr>
</thead>
<tbody>
<tr>
<td>$Pr(y_t = 1)$</td>
<td>GDP ratio</td>
<td>+16.98%</td>
<td>+165.87%</td>
<td>+539.66%</td>
</tr>
<tr>
<td></td>
<td>Similarity</td>
<td>-63.31%</td>
<td>-50.20%</td>
<td>-33.62%</td>
</tr>
<tr>
<td></td>
<td>Dyad trade</td>
<td>+167.12%</td>
<td>+199.69%</td>
<td>+235.88%</td>
</tr>
<tr>
<td></td>
<td>Major power</td>
<td>+127.93%</td>
<td>+332.49%</td>
<td>+701.69%</td>
</tr>
<tr>
<td>$Pr(y_{d=1}</td>
<td>y_t = 1)$</td>
<td>GDP ratio</td>
<td>+14.82%</td>
<td>+66.33%</td>
</tr>
<tr>
<td></td>
<td>Target instability</td>
<td>+11.38%</td>
<td>+29.51%</td>
<td>+51.26%</td>
</tr>
<tr>
<td></td>
<td>Institution</td>
<td>+45.74%</td>
<td>+107.28%</td>
<td>+204.95%</td>
</tr>
<tr>
<td></td>
<td>Similarity</td>
<td>-39.34%</td>
<td>-24.08%</td>
<td>-7.33%</td>
</tr>
<tr>
<td>$Pr(y_s = 1</td>
<td>y_t = 1)$</td>
<td>Institution</td>
<td>-1.03%</td>
<td>+23.47%</td>
</tr>
<tr>
<td>$Pr(y_s = 1</td>
<td>y_t = 1, y_d = 0)$</td>
<td>Institution</td>
<td>+8.32%</td>
<td>+33.56%</td>
</tr>
<tr>
<td>$Pr(y_s = 1</td>
<td>y_t = 1, y_d = 1)$</td>
<td>Institution</td>
<td>-10.72%</td>
<td>+15.47%</td>
</tr>
<tr>
<td>$Pr(y_s = 1</td>
<td>y_t = 1, Inst = 0)$</td>
<td>Demand</td>
<td>-38.86%</td>
<td>+16.68%</td>
</tr>
<tr>
<td>$Pr(y_s = 1</td>
<td>y_t = 1, Inst = 1)$</td>
<td>Demand</td>
<td>-34.32%</td>
<td>-19.65%</td>
</tr>
</tbody>
</table>

The percentages represent the 2.5th, 50th, and 97.5th percentiles of the first differences for the relevant outcome probabilities, as percent increase in terms of the baseline probability, when the corresponding variables change, based on 750 Monte Carlo simulations. For dummy variables first differences are computed when the variables change from 0 to 1. For continuous variables the change is an increase by one standard deviation from their mean. All other variables are held at their medians; for the demand and success probabilities the variable statistics are based on the selection sample only. Only effects for the statistically significant variables are reported.
5.9 Figures

Figure 5.1: The 95% confidence band of the effect on the predicted selection probability Pr(threat = 1) when Dyadic trade (not logged) increases from 0 to 1 billion dollars in increments of five million dollars. The 95% confidence interval of Pr(threat = 1) at each incremental step is based on 750 Monte Carlo simulations. All other variables are held at their medians.
Figure 5.2: The 95% confidence band of the effect on the predicted selection probability $\Pr(\text{threat} = 1)$ when Similarity increases from its in-sample minimum to its in-sample maximum in increments of 0.05. The 95% confidence interval of $\Pr(\text{threat} = 1)$ at each incremental step is based on 750 Monte Carlo simulations. All other variables are held at their medians.
Figure 5.3: The 95% confidence band of the effect on the predicted probability of a high-salience demand conditional on selection $\Pr(\text{demand} = 1 | \text{threat} = 1)$ when Target instability increases from its in-sample minimum to its in-sample maximum in increments of 0.01. The 95% confidence interval of $\Pr(\text{demand} = 1 | \text{threat} = 1)$ at each incremental step is based on 750 Monte Carlo simulations. All other variables are held at their medians for the selected sample.
Figure 5.4: The 95% confidence band of the effect on the predicted probability of a high-salience demand conditional on selection $\Pr(\text{demand} = 1|\text{threat} = 1)$ when Similarity increases from its in-sample minimum to its in-sample maximum in increments of 0.05. The 95% confidence interval of $\Pr(\text{demand} = 1|\text{threat} = 1)$ at each incremental step is based on 750 Monte Carlo simulations. All other variables are held at their medians for the selected sample.
Chapter 6

Conclusion

This study began with two research questions. First, how do states’ opportunities to militarize an international dispute influence their decisions to use economic coercion and affect what they can achieve through it? Second, how do states’ strategic considerations in the formulation of their sanctions policy impact the coercion dynamic? That is, what are the full implications of strategic interaction for the variation we should observe in the initiation, political stakes, and outcome of economic coercion? The time has come to evaluate our efforts to resolve the aforementioned issues, to synthesize the major findings, and to identify the most productive directions for future research: these are the tasks undertaken in this last chapter.

The chapter first summarizes the main contributions of the study. It then argues that, according to the Lakatosian criteria introduced in Chapter 2, the theoretical models we have developed constitute a progressive research effort, as they can explain excess content relative to the narrower framework they aspire to supersede. Next, the chapter identifies the most important unanswered questions that logically follow from the conducted research. Finally, because one of the main themes throughout the study has been that economic sanctions are undervalued, the chapter concludes by discussing the implications of their possibly greater utility for their future as foreign policy instruments.
We have subscribed to the bargaining perspective, which sees sanctions as negative issue linkages, used by the sender to worsen the target’s disagreement payoff and to obtain a better agreement over some disputed political stakes. The bargaining perspective has been chosen as a foundation for two reasons. First, the bargaining model has dominated the literature over its course, although early research has only acknowledged that model implicitly. Using the bargaining model preserves the continuity in sanctions research and provides a comparison basis for the innovations that we have introduced. Second, even though the bargaining model has been challenged by scholars who see sanctions as useful beyond their immediate effects on the target’s behavior, the bargaining literature has been more progressive than its alternatives. It has generated multiple testable propositions, and the strategic interaction approach has even pointed to a novel fact—the finding that economic coercion is more likely to succeed at the threat than at its sanctions stage (Drezner, 2003).

Despite the plausibility of the bargaining perspective, policy makers often threaten and impose sanctions in the shadow of war, and the literature has generally ignored this military context. The bargaining between a sender and a target can be terminated instantaneously if either party opts to militarize the dispute, and we found that opportunity to affect the outcome of economic coercion even in cases in which military force itself is never observed. This result emerged from placing the economic coercion process in its proper military context, a task undertaken in Chapter 3. In particular, that chapter modeled economic coercion as a bargaining process which implements the Nash bargaining solution, but also embedded the NBS into a simple non-cooperative game that allows the disputants to substitute the coercion outcome for a military solution. The formal model showed that the effect of military options on economic coercion is quite subtle, and can develop according to five distinct
scenarios.

First, military powerful senders who do not have the economic leverage to extract full concessions from a target resort directly to military coercion. Such was the case of Turkey, which between 1997-98 repeatedly threatened Cyprus militarily to prevent the latter from acquiring a sophisticated missile defense system. We also surmised that when the effect of sanctions is uncertain, senders might impose them for a while and only resort to force if they fail, as the U.S. did against Haiti between 1991-94. Second, senders who are weak both economically and militarily were predicted to avoid challenging the status quo. The theoretical model therefore also suggests why economic coercion is typically used by greater rather than minor powers.\textsuperscript{111} Third, when the sender possesses sufficient economic leverage to extract full concessions from the target, but the latter is militarily powerful and resolved to fight, the sender might still impose only limited sanctions to avoid military escalation. The fear of escalation is a possible reason why the U.S. did not try imposing a blockade against North Korea in the early 1990s.

Fourth, when neither the sender nor the target have attractive military options and the volume of their economic exchange is rather low, the sender can only use limited sanctions to extract limited concessions. According to the theoretical model, senders facing such constraints cannot do much to extract more environmental or trade policy concessions because the low salience of these issues invalidates their military options. Fifth, the model showed that only senders that have sufficient economic leverage and are ready to back their gains through military force can carry out fully successful economic coercion. For instance, India forced Nepal between 1989-1990 to yield on a highly salient issue not only because it could impose costly sanctions, but also because it could obtain what it wanted through military force. The League of Nations, in contrast, could not stop Italy's invasion
of Ethiopia between 1935-36 because it was not ready to back militarily its prospective economic coercion gains.

We complemented the aforementioned case studies with a quantitative empirical test of some additional implications, derived from the same model. The first four of the seven tested hypotheses were related to the choice between military and economic coercion. Based on the TIES and MID cases between 1971-2000, we found that military coercion is more likely when the disputed issue involves territory or regime, when the sender is military more powerful, and when she has low militarization costs. On the other hand, economic coercion is more common when the sender has an economic advantage and its economic relationship with the target is extensive. We found less support for the three hypotheses concerning the predicted effects on the level of economic coercion. In particular, the level of economic coercion seems to increase when territorial or regime issues are present, but is not influenced by the sender's economic and military advantage. Still, overall the quantitative evidence strengthens the conclusions drawn from the qualitative analysis, which point at the dependence of economic coercion on military factors.

Sometimes economic coercion will fail for purely economic reasons: when sanctions are too costly to their senders or when trade with the target is negligible. However, its observable success rate will be even lower because on many occasions success will be prevented by an attractive military option. True, we should also not observe many economic coercion cases that fail miserably because on such occasions the sender's own military option becomes attractive. Still, especially with more salient issues, observable sanctions should most frequently lead to token or modest concessions. Scholars still undervalue sanctions, however, when they infer success rates without accounting for the military context and then predict the outcomes of cases in which that context is less relevant (e.g. Hufbauer,
Schott and Elliott, 1990). Landmark cases such as the League of Nations sanctions against Italy, in which military options caused economic coercion to fail, induce a perception of sanctions ineffectiveness, which can be inaccurate with respect to more common cases, such as sanctions in response to steel subsidies.

Sanctions effectiveness is also undervalued for one more reason: researchers usually treat the occurrence of economic coercion as an exogenously arising event, and ignore the effect of preceding strategic choices by the involved state actors. In turn, amending the latter omission requires extending the literature’s bargaining perspective in a second way, and that was the main purpose of Chapter 4. In particular, that chapter argued that the choice to engage in economic coercion does not occur in isolation from the sender’s projections of its expected utility from engaging in such coercion. Rather, this choice is driven by the sender’s strategic considerations. The chapter presented the solution and empirical implications of a formal, game-theoretic model of economic coercion that endogenizes the sender’s decision to engage in coercion, the size of its demand, and the outcome of the coercion attempt.

This model leads to a number of testable propositions that link the sender’s sanctions costs, the expected target costs, and the credibility of the sender’s threat to the aforementioned outcome variables. We synthesized the testable propositions into four empirical hypotheses. The first three hypotheses state that improving the sender’s bargaining position with respect to the target increases the chance that the sender will use economic coercion, the size of the sender’s demand, and the chance that the sender succeeds, given some demand. The fourth hypothesis implies the positive selectivity of cases involving high demands and low success probabilities into the sample of actually observed economic coercion cases. That is, the model’s surprising implication is that while economically more
powerful senders are more likely to initiate coercion against a target, they are not necessarily more likely to succeed because they tend to make bigger demands, which are harder for the target to accept.

Chapter 5 evaluated the argument advanced in Chapter 4. It presented a thorough empirical test based on the economic coercion initiations between 1971-2000. The first two hypotheses, stating that senders in stronger bargaining positions with respect to their targets are more likely to initiate economic coercion and to do so over greater demands, were strongly supported by the data analysis. Even when controlling for states’ opportunity and willingness to engage in economic coercion, states in stronger bargaining positions do so more often. Similarly, controlling for states’ opportunity and willingness to make demands involving strategic stakes still supported the claim that economically powerful senders are more likely to make highly salient demands involving such stakes. These findings imply that the decisions to initiate economic coercion and how much concessions to demand from the target are indeed driven by strategic considerations.

The empirical test granted less support to the remaining two hypotheses. The third hypothesis suggests that strengthening the sender’s bargaining advantage improves its success prospects only conditional on the demand, as the direct effects would be compensated by the indirect effects through the endogenous demand. In particular, the support for the direct effects was partial, but there was strong support for the indirect effect. This surprisingly implies that improving the sender’s bargaining position also worsens its success prospects and strongly supports the logic of the theoretical model. Testing the fourth proposition resulted in evidence in favor of the predicted selectivity of senders into cases with high demands. Even though no support was found for the predicted selectivity into cases with low success probabilities, since greater demands are harder to accept, the reported selectivity
pattern at least indirectly supports the advanced explanation for the frequent failure of sanctions.

We have so far summarized the main theoretical results and empirical findings that have emerged from this study. Yet, how successful have those been in addressing the two motivating research questions, and in making the bargaining perspective a more useful theory? First, the study has provided comprehensive theoretical answers to both research questions. The first theoretical model, introduced in Chapter 3, has specified completely how states’ military options might interfere with economic coercion, and has convincingly demonstrated the limiting effect of the military context. The theoretical answers have been substantiated empirically with both qualitative and quantitative evidence. The second theoretical model has also evaluated in depth the role of strategic interaction and has specified how it influences the coercion dynamic. It has also been substantiated empirically, with a test specifically developed to account for the data generating process implied by the model.

In answering both motivating questions, the project identifies previously unstudied facets of the economic coercion dynamic, such as the endogeneity of sanctions demands, and exposes the conditionality of results such as the positive effect of target costs on the sender’s success probability. A major theme has been that ignoring either the military context of economic coercion, or the entire sequence of strategic choices that precede it, is likely to lead one to underestimate the effectiveness of sanctions. The project therefore supports the claims that sanctions appear unsuccessful only because they are the smaller, observable part of a more extensive interaction, but, in contrast to previous research, also offers a systematic analysis of these hidden effects. Even purely empirically, the project also makes a contribution, by testing hypotheses derived from the dominant bargaining perspective
against the unprecedentedly broad and thorough TIES data.

However, despite the plausibility of the answers we have provided, the main evaluation criterion adopted here is whether our theoretical developments have been progressive in the sense suggested by Lakatos. Both parts of the study have expanded in certain ways the preexisting bargaining perspective, and at both times the expansions have subsumed previous theoretical models. For instance, the first theoretical model incorporates economic coercion as a bargaining process, as many previous studies have done. However, that bargaining process is positioned into a broader context, which not only allows the more general model to explain what previous studies could explain, but also to account for the different coercion dynamics when previously ignored factors become relevant.

The second model also subsumes the basic economic coercion game prevailing in the literature, because the latter game can be recovered when some of the endogenous parameters in the model are held fixed at particular values. Nevertheless, these extensions also lead to the discovery of new empirical patterns which cannot be accounted for by alternative theories. As an example, the baseline bargaining perspective can explain neither the effect of military power on the decision to use economic coercion, nor the endogeneity of the demand to the sender's bargaining advantage. In this sense, the conducted research is progressive. Although the study falls short of a unified theory of economic coercion, its progressive nature increases our confidence that it might be the correct way to pursue it.

New answers inevitably give rise to new questions. This study has been no exception, as at least five important research questions emerge from it. First, we have argued that the broader foreign policy context in which economic coercion unfolds influences its uses and outcomes. Although military force is central to that context, it is not the only alternative instrument available to policy makers. Foreign policy objectives can also be accomplished
through diplomacy, propaganda, and, what might be most relevant here, positive economic inducements or positive sanctions. In fact, scholars have addressed positive sanctions before (e.g. Baldwin, 1971; Drezner, 1999b), but we still need to find out what the presence of these options implies for the type of sanctions outcomes we should observe most often. Second, in modeling the military context of economic coercion, we have assumed that state actors know with certainty the exogenous parameters characterizing the bargaining situation. However, to explain events such as the U.S. actions to depose the military junta in Haiti between 1991-94, we have been forced to transcend the boundaries of the theoretical model. It now seems that enriching the first model through asymmetric information will enhance its explanatory power.

Third, we have carefully modeled the entire sequence of strategic choices preceding economic coercion to understand better its outcome and how that outcome might be correlated with its occurrence. Yet, our second theoretical model is basically a single shot interaction, which does not give us any leverage in explaining prolonged sanctions impositions or understanding why imposed sanctions are sometimes lifted short of target concessions. If sanctions are generated as an equilibrium outcome only due to the presence of asymmetric information over the actors’ costs or resolve, as it is the case in the second model, information might also be the key to understanding sender decisions to terminate sanctions. Exploring that possibility requires endogenizing sanctions termination as well. Fourth, both theoretical models have simplified the sanctions problem by assuming a single sender and a single target. Yet, sanctions are often threatened or imposed by multiple senders or under the aegis of an intergovernmental organization.

By ignoring the latter issue we have in effect opted to treat multiple senders additively, that is, simply assuming that more senders imply a greater terms-of-trade effect on the target
(Kaempfer and Lowenberg, 1992). However, we know that sender coalitions frequently suffer
due to collective action problems (e.g. Drezner, 2000), and that the presence of multiple
senders implies not only sender-target bargaining, but also bargaining within the sanctioning
coalition itself (Miers and Morgan, 2002). Since we have demonstrated the profound effects
of senders' strategic incentives on their demands, introducing the possibility of international
cooperation will reveal even further implications of that strategic interaction, and might
help us to attain a more nuanced understanding of the conditions under which coalitions
are more likely to arise.

Fifth, we have begun this study without questioning the theoretical foundations behind
the third wave result that economic coercion is more likely to work at its threat stage.
However, by introducing the sender's reputation costs as a variable in the second theoretical
model, we have shown that although the latter claim holds true under most conditions, on
some occasions when the sender's threat is not credible, a higher success rate can be expected
at the sanctions stage of a coercion episode. Indeed, if the threat lacks any credibility, why
should the target believe it will be carried out and acquiesce in the threat stage? On the
other hand, analyzing the theoretical model also suggests that as the sender's credibility
increases, eventually a threshold will be reached after which sanction threats will induce
perfect target separation. This issue merits further attention, and an empirical investigation
into the effect of the sender's credibility on the ratio between sanction and threat success
rates might well be in order.

Resolving the aforementioned research questions will enrich the bargaining perspective
even further, and might finally allow us to formulate a unified sanctions theory. In the
meantime, however, we can still exploit the results of our current research endeavor in order
to offer some guidance regarding the most prominent of the ongoing coercion cases, and to
anticipate the most likely evolution in the instrument's use. At the time of this study, the most high-profile economic coercion cases involve the U.S. led international sanctions against North Korea and Iran, imposed in response to the latter countries' effort to develop nuclear weapons. The theoretical models advanced in the study suggest that these sanctioning efforts are unlikely to succeed.

As Chapter 3 explains, despite its isolation, North Korea is not invulnerable to economic sanctions. The North Korean economy relies on the financial contributions of North Korean emigrants residing in Japan, on international humanitarian assistance, and, most importantly, on the oil supplied through China. In fact, the Chinese leverage seems to have been crucial in bringing North Korea back into the negotiations over its nuclear program, although China has denied using economic coercion. Still, comprehensive sanctions following the currently imposed limited measures are as unlikely as between 1991-94 because North Korea continues to enjoy an attractive military option. Even more, that value of that option might have increased, because North Korea apparently now has the capacity to detonate a nuclear device, an option it most likely did not have in 1994. In fact, most of the current progress in the Six-Party Talks seems to be the product of positive rather than negative inducements.

In the case of Iran, the latter's military option does not obstruct the imposition of serious sanctions as much as in the North Korean case. In fact, an Iranian provocation will probably facilitate the plans of the U.S. and Israel, who are capable of damaging the latter's nuclear program but seem to be heavily restricted by the anticipated international reputation costs. Iran, in addition, seems better prepared to defend against a military strike than to itself militarize the crisis over its nuclear program. The problem in the Iranian case, however, is that the U.S. does not have sufficient economic leverage over Iran. Trade with
Iran is practically nonexistent because the sanctions imposed in the 1980s are still in force. Even if the U.S. operating through the U.N. succeeds in passing serious sanctions, unlike the largely symbolic measures adopted now, Iran will most probably successfully dissuade the sanction costs. Oil, which is Iran's main export, is a highly liquid asset, and given the high world prices, Iran is likely to easily find customers who would be willing to bend eventual U.N. restrictions.

The costs on the sanctioners, in contrast, are bound to be huge: political restrictions on the oil supply to Western countries will increase oil prices even more, and will make Western Europe even more energy-dependent on Russia, a situation that European politicians have been trying to diffuse. Thus, any comprehensive sanctions are likely to have high costs for their senders and low costs for the target. The proposed theoretical models suggest that in such situations we should either see no economic coercion or at most economic coercion over modest demands. The continuation of Iran's nuclear program, however, seems to be a highly salient issue for the Iranians and for the U.S. alike. Therefore, if for exogenous reasons the U.S. presses a more substantial demand, such as the unconditional termination of the nuclear program, sanctions are likely to fail given the small U.S. economic leverage. We do not know what the exogenous constraints on U.S. policy from factors such as domestic audiences and bureaucratic procedures are, but both theoretical models would predict no serious sanctions effort. The U.S. military option seems unfeasible now as well, but that might change with future evaluations of the danger posed by a nuclear Iran.

Despite the fact that the sanctions against North Korea and Iran are unlikely to work, these instruments are generally undervalued and the latter cases are quite untypical. Most economic sanctions are nowadays imposed in relation to trade or environmental policy, or to drug trafficking practices. The number of interactions on the aforementioned issues
is likely to increase, as world trade and international organized crime continue rising to unprecedented heights while global warming and the depletion of natural resources increase intergovernmental support for stricter environmental treaties. While these issues become more important, they are not salient enough to justify the use of military force, so the success of economic coercion will only depend on economic factors. Since the issues are not as salient as territory or regime type, sender success should be more often, and increasing globalization also increases the availability of channels for the application of economic leverage.

With respect to salient issues such the control over territory, regime type, or the development of nuclear weapons, sanctions will most likely remain ineffective. In fact, nuclear proliferation itself makes that outcome even more likely because states such as North Korea that have acquired some nuclear capacity immensely increase the value of their military option and to a large extent invalidate the military options of potential sanctioners. While globalization provides more opportunities to use economic leverage over less salient issues, it also makes it harder to apply military leverage over the more salient ones. Even now, the potential for a U.S. military strike against Iran taxes financial markets situated thousands of miles away from the eventual battlefield. The reluctance of the U.N. to impose comprehensive sanctions against North Korea and Iran might actually mark a new trend. We might see less sanctions imposed to reclaim territory or overthrow regimes, where military options will become even more decisive, but more sanctions on lower salient “new issues” such as the environment, which are not important enough to be resolved through force but also occupy a larger percent of interstate interactions. If we indeed are in the midst of such a trend, economic coercion in the future will be used for different purposes from now, but it will likely remain in policy makers’ toolbox.
Notes

1. While some scholars see as political in the context of economic coercion only demands that concern what are traditionally considered political issues (e.g. Wallensteen, 1983), this study sides with Baldwin (1985), who also classifies as economic coercion measures such as tariffs imposed to change the target's trade policy. That is, an economic restriction is considered to constitute economic coercion whenever the removal of the restriction is conditional on some change in the target's behavior, regardless of the issue area.


3. The next chapter discusses in greater detail why this case does not necessarily constitute evidence against the effectiveness of sanctions in general.

4. The prediction and discovery of novel empirical patterns, unknown when a new theory was conceived, is seen as the landmark of progressive research from the Lakatosian perspective (Lakatos, 1970). Lakatos's philosophy of science is commonly endorsed by International Relations researchers (Elman and Elman, 2002), and Chapter 6 uses it as a criterion to evaluate this study as well.

5. The policy-making orientation of the first wave literature is exemplified by rule of thumb categorizations such as the "three important lessons" (Wallensteen, 1983) or "the ten commandments" (Hufbauer, Schott and Elliott, 1990), although the latter study is also unusual in the sense that its conclusions are based on quantitative analysis.

6. A rare and much more recent exception is the study by Marinov (2005), who uses time-series cross-country data to show that economic sanctions significantly destabilize state leaders.

7. The fact that we label as "instrumental" theoretical approaches which see economic coercion as designed to change the target's policy should not imply that alternative theories see sanctions as purposeless. Rather, the distinction lies in the fact that instrumental approaches do not attribute to sanctions any utility beyond their effect on the target's policy whereas "non-instrumental" approaches, discussed below, see sanctions as useful apart from the policy concessions they can induce, regardless of whether the purpose of sanctions is symbolic, domestic, or international.

8. Sanctions episodes against domestically unstable targets are also shorter, as the latter are more likely to concede due to the burden of the sanctions (Bolks and Al-Sowayel, 2000).
9. Interestingly, while Hoffman suggests that the imposition of economic sanctions signals the lack of resolve to use force, scholars such as Hart (2000) assert that sanctions signal the presence of such resolve. The next chapter proposes an alternative theory of the relationship between military and economic instruments.

10. Schreiber's ideas gained much more popularity with second wave sanctions research, which claims that, despite their limited coercive value, economic sanctions are attractive with their symbolic utility for internal and external publics.

11. Kaempfer and Lowenberg (1999) and Kaempfer, Lowenberg and Mertens (2004) also argue that sanctions against a dictator can be counterproductive for the outlined reasons.

12. The failure of international enforcement or "buck-passing" is a problem that arises among multiple senders. On the other hand, Morgan and Bapat (2003) investigate the conditions under which a given sender state would be able to enforce the sanctions domestically, that is, to avoid "sanctions-busting," and successfully prevent private actors from engaging in commercial exchange with the target state.

13. Smith's other major finding is that sanctions should work immediately or even before they have started, that is, at the threat stage. That, however, is a third wave argument and it is discussed below.


15. However, domestic politics in the sanctions process is insightfully incorporated as a commitment strategy by Dorussen and Mo (2001).

16. Similarly, Baldwin's (1985) assertion that sanctions are successful as long as they impose some cost on the target automatically defines the dependent variable, or sanctions effectiveness, as a constant (Lenway, 1988; Pape, 1998).

17. Unlike symbolic theories, distributional arguments do yield some testable predictions, as evidenced by a handful of studies (e.g. Jing, Kaempfer and Lowenberg, 2003; McGillivray and Stam, 2004).

18. Similarly, Marinov (2002) argues that sanctions episodes between adversaries are more prolonged, again due to relative gains concerns.

19. An entirely different critique of the basic bargaining model of sanctions has been offered by Wagner (1988). Wagner argues that the idea that economic advantages can be converted into political concessions is logically flawed because such advantages would already have been subsumed into the terms of trade between the sender and the target. However, Wagner's theory is rather static because economic interactions develop continuously, and it would be hard for the terms of trade to immediately absorb the arising changes in states' economic leverage. Therefore, focusing on the process through which such economic advantages can be converted into political concessions is not as inappropriate as Wagner suggests.

20. Nevertheless, TIES also provides data on sanction threats.
21. What classifies the models analyzed in these studies as bargaining models is the structure of the preferences, which represent the instrumentality of economic sanctions. Earlier, Morgan and Schwebach (1997) offer a probabilistic-acceptance and essentially incomplete information bargaining model which makes sanctions possible, but the axiomatic nature of the model falls short of proving that sequentially rational players cannot engage in economic sanctions under complete information. In contrast, Morgan and Miers (1999) analyze the same model under both complete and incomplete information, which leads to the validity of the cited proof, at least for the analyzed game structure.

22. In principle, there is no reason why the sender would not seek a more beneficial distribution of the policy gains associated with the disputed issue even when the status quo is already in her favor. However, as the range of feasible agreements can always be redefined in a way that would leave the entire disputed pie in possession of the target, the assumption in the main text does not lead to a loss of generality.

23. The logic behind defining some \( \bar{c} \) is that the level of sanctions cannot be increased infinitely because the economic exchange between S and T is finite.

24. Observe that the status quo distribution of the policy gains is incorporated into the disagreement payoffs. While bargaining models frequently do not allow agents to consume the pie over which they are bargaining until they reach an agreement, economic coercion is more accurately represented when the agents derive utility from their status quo share of the disputed policy gains during the bargaining process. That is, while the agents disagree, T suffers the sanctions costs, but also still enjoys his status quo benefits, which in turn increase his bargaining power. For example, it made a huge difference that, during the economic sanctions against Iraq prior to the 1991 Gulf War, Kuwait was occupied by the latter. Had the bargaining between the international community and Iraq been unfolding before the occupation, Iraq’s bargaining position would undoubtedly have been weaker.

25. Since the most the victor can obtain is \( \pi \), it also follows that \( w_s < \pi \) and \( w_t < \pi \). Observe also that the agents’ war options are negatively correlated, as increasing \( p \) decreases \( 1 - p \). Finally, one cannot avoid noticing that while military conflict decreases the size of the disputed pie, the bargaining process which involves sanctions is efficient. Requiring the latter process to destroy resources can certainly make military coercion more attractive, but the main point pursued here is that even if economic coercion were perfectly efficient, its usability would still be limited by the presence of inefficient military options.

26. Such a fixed cost can be justified by the responsiveness of private business actors to political signals.

27. In the status quo unchallenged scenario the sender cannot extract any concessions because she is disadvantaged both economically and militarily. In the economic coercion trumped scenario the sender has an economic advantage, but the degree to which she can exploit it is limited by the target’s military advantage.

28. Indeed, the harshest sanctions seem to have been imposed against minor powers such as Rhodesia, Iraq, Yugoslavia, or Haiti. On the other hand, major powers such as China have not been threatened with total embargoes or blockades.


30. Ibid.

31. Ibid.


34. Ibid.


37. Ibid.


47. Ibid.


51. Travel restrictions were eased and limited trade allowed only as late as 2003. See "Cyprus Trade Ban Lifted." BBC News, April 30, 2003 [http://news.bbc.co.uk/go/pr/fr/-/2/hi/europe/2989873.stm].

52. The trade figures are drawn from Gleditsch (2002).


59. Ibid.


63. Lee Michael Katz and Marylin Greene. "N. Korea Renews War Threats Against S. Korea, Japan." USA Today June 10, 1994, 5A.


65. Ibid.


69. Nancy Dunne. “U.S. Set To Retaliate in French Fish Trade Dispute.” Financial Times March 5, 1994, 3.


71. About two thirds of the TIES cases used for the quantitative analysis here and in subsequent chapters are such trade disputes.

72. We also exclude cases in which the sender or target was an international institution, and no primary state sender or target could be identified.

73. For instance, in the dispute that expanded into World War II Germany is coded as the revisionist state but Poland was first to cross the MID threshold.

74. The capability scores, regime variables, and geographical distances were generated using EUGene (Bennett and Stam, 2000).

75. We again include in the analysis only instances of a single sender threatening or sanctioning a single target.

76. The explanatory variables are lagged here as well.

77. All statistical analysis reported here and in the subsequent chapters has been conducted in Stata 8.2 (StataCorp, 2003).


80. For example, see “Double Standard: Punishing Taiwan; Ignoring Major Offender, China.” Houston Chronicle April 19, 1994, A16.

81. An exception is Drezner (1998, 1999a), whose conflict expectations model endogenizes the sanctions’ demand. However, Drezner’s model does not allow for failed sanctions in equilibrium, which poses an obvious empirical limitation. In turn, Nooruddin (2002) finds that the decision to impose sanctions is correlated with their failure, but he treats the demand as exogenous and does not explain the reported selection pattern.

82. Since the target essentially compares the cost of accepting the sender’s demand to the cost of terminating his economic relationship with the sender, the induced informational asymmetry can also be interpreted as the sender’s uncertainty about the target’s resolve.

83. These costs are motivated by the anticipation that even if no actual sanctions are imposed in a coercion episode, the mere threat of sanctions imposition should already
worsen the existing business climate by influencing the future conflict expectations of the private actors who carry out the economic exchange between the sender and the target. That is why, if the sender makes a demand at her initial information set, the status quo premium \( w \) is lost regardless of the subsequent moves in the game. Note that although the target’s status quo premium equals the sender’s, substituting any other value for the target’s premium would not change the game’s implications because, by the time the target has to move, his lost premium is irrecoverable.

84. The two restrictions on \( \gamma \) have the following substantive interpretations. First, the difference between the valuations of the two target types \( (t_H - t_L) \) is high enough so that if \( T_H \) finds it in his interest to reject some demand \( x \) after sanctions but not before that, \( T_L \) still prefers to reject \( x \) both before and after sanctions. Second, the cost of temporary sanctions to the sender \( \gamma_s \) is low enough for the sender to always prefer target concessions after sanctions to backing down before sanctions, that is, there is some minimum credibility cost.

85. Since both players share the incentive to avoid sanctions but have conflicting preferences over the disputed policy issue, \( \Gamma \) is a classic mixed-motive game.

86. The difference between commitment and no-commitment cases is that while in commitment cases the \( s \leq r \) condition makes carrying out failed threats a dominant strategy for the sender, when \( s > r \) such a dominant strategy does not exist, which requires additional analysis to derive the PBE.

87. Observe that \( (1 - \gamma)t_L < t_L < (1 - \gamma)t_H \) follows from \( \gamma < 1 \) and \( \frac{tu-t_L}{t_H} \Leftrightarrow \gamma t_H < t_H - t_L \Leftrightarrow t_L < t_H - \gamma t_H = t_H(1 - \gamma) \).

88. In essence, \( S \) is saying to \( T_L \), “If you reject my initial offer, I will infer that you are the high-cost target type and impose sanctions; since you prefer to accept my demand at the second node rather than reject it at the last node, you should acquiesce to my threat.” But how credibly can \( S \) commit to retaining optimistic beliefs after observing a second node rejection? One possible response for \( T_L \) might be: “If I deviate by rejecting at the second node, I will benefit from more of your conceivable responses than \( T_H \) would; that is why, you should infer from a rejection that I am the low-cost type and back down.”

89. Rationalizable strategies are simply best responses to any strategy, and in two-player games they include all strategies that remain after the iterated deletion of strictly dominated strategies. Since in No-commitment case 2.1 both imposing sanctions and backing down can be \( S \)’s best response to some target strategy, both are rationalizable responses.

90. Since we established that when \( p > \mu'(x) \) and both \( T_L \) and \( T_H \) use pure strategies, there is no equilibrium, for an equilibrium to exist, it must be that at least one of \( T_L \) and \( T_H \) uses mixed strategies.

91. Obviously, if \( x > t_L \), \( \beta' \) exceeds one, but in that subcase \( T_L \) has the dominant strategy of rejecting the demand at both of his decision nodes, which actually justifies splitting the analysis into a \( t_L(1 - \gamma) < x \leq t_L \) and a \( t_L < x \leq t_H(1 - \gamma) \) case.

92. If these constraints cannot be satisfied simultaneously for some configuration of the exogenous parameters, then \( S \) cannot achieve the \( U((1 - \gamma)t_H) \) payoff for that configuration.
93. Unless the latter two conditions are inconsistent, it is not necessary to check whether 
\((1 - \gamma)t_L < x \leq t_L\) and \(x \geq \frac{5 - \pi + \frac{\pi}{p}}{p}\) are consistent because, if given the opportunity, \(S\)
will always place the game in the \(t_L < x \leq (1 - \gamma)t_H\) case, which yields a higher expected
payoff. Appendix A7 presents the argument in greater detail.

94. Off-the-equilibrium path beliefs are not an issue in any of the commitment equilibria
because \(S\) has the dominant strategy of always carrying out her failed threats. Consequently,
any posterior belief \(\mu'(x) \in [0, 1]\) can support the derived equilibria.

95. Obviously, \(0 < p_1 < 1\)

96. The model also has implications regarding whether coercion is more likely to succeed
at its threat or sanctions stage, and, as already hinted, the main discriminating factor is the
credibility of the sender's threat. However, here I focus only on the aggregate success probabil-
ity of economic coercion; the latter implications are briefly addressed in the concluding
chapter.

97. Since \(s \to r, \alpha \to 0\) and \(p(1 - \alpha \gamma) \to p\), the success probability as a function of \(s\)
is continuous at the \(s = r\) line.

98. This is clearly not the case when we cross the \(p_1\) and \(p_2\) thresholds in Figure 2, which
results in discontinuous jumps in the success probability.

relevant dyads to identify the opportunity for economic coercion but that seems to be a less
reasonable restriction because contiguity is far from necessary for economic coercion.

100. The use of economic sanctions in dyads that do not have an economic relationship
seems puzzling at first look, but what it actually indicates is that sometimes sanctions
clearly serve symbolic purposes. A closer examination of the questionable cases supports
that explanation, as in many of them an Arab or African country called on the international
community to sanction Israel or South Africa, which is recorded as a case under the TIES
coding rules which rely on public statements by government officials.

101. It is important to note that the settlement nature is coded in terms of the sender's
stated policy goals, and it measures the extent to which the sender's demands were met
independently of the demands' salience.

102. TIES does not provide any information regarding the role of military force. However,
we have coded whether military force was decisive based on the TIES narratives and some
additional research conducted using Academic Universe. Military force seems to have been
decisive in only 20 of the TIES cases.

103. TIES does not account for the source of missing information. We cannot differentiate
between ongoing cases and closed cases with missing end dates and settlements although
the older the case, the more likely that it is of the second type.

104. Treating the variable as a continuous ratio does not change the results.

105. We use the Banks data available from Bueno de Mesquita et al. (2003).
An alliance is considered highly institutionalized if Leeds and Anac (2005) code it as highly institutionalized on their three-point institutionalization scale—high, moderate, low. Institutionalized alliances which involve expensive peacetime coordination are more likely to be revealing of states' preferences.

The weighted Euclidean distances were computed with the S-compute program for Stata (Sweeney and Keshk, 2005).

The weighted Euclidean distances for trade policy were also computed with S-compute.

That is we subtract the mean from each observation and divide the difference over the standard deviation.

An estimation based on a fifth random sample did not converge properly which resulted in missing estimates for the standard errors of some coefficients. The reported coefficient values, however, were very similar to the ones in Model 1-4 of Table 5.6.

Close to 40% of the TIES cases are initiated by the U.S. The proportion in the HSE data set is even higher.
Bibliography


