# WHEN DO (IMPOSED) ECONOMIC SANCTIONS WORK?

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## I. Introduction

DO economic sanctions work, and if so, when? This question has dominated the sanctions literature for decades. Some authors are moderately optimistic about the effectiveness of sanctions.[1] Others concur with the traditional view that only in exceptional cases are sanctions successful.[2] Still others emphasize the need to distinguish between (1) cases where sanctions have actually been imposed and (2) cases where sanctions have merely been threatened, arguing that the success rate is significantly higher for the latter category than for the former category.[3] They suggest that sanctions, to the extent that they work at all, tend to work primarily at the threat stage.

Yet occasionally sanctions do work only *after* being imposed. In this article we identify two conditions for this to happen. If a threat of sanctions fails, then the sender country must decide whether to execute the threat and actually impose sanctions.[4] For policymakers to make an informed decision in such a situation, they need to know whether

*We are indebted to Geir B. Asheim, Jeffrey Checkel, Aanund Hylland, Ronald B. Mitchell, Håvard Strand, and four anonymous reviewers for helpful comments. We also thank Frank Azevedo for excellent editorial assistance.

[1] Kimberly Ann Elliott, "The Sanctions Glass: Half Full or Completely Empty?" *International Security* 23, no. 1 (1998); Gary Clyde Hufbauer, Jeffrey J. Schott, and Kimberly Ann Elliott, *Economic Sanctions Reconsidered: History and Current Policy*, 2nd ed. (Washington, D.C.: Institute for International Economics, 1990).

[2] Johan Galtung, "On the Effects of International Economic Sanctions, with Examples from the Case of Rhodesia," *World Politics* 19 (April 1967); Robert A. Pape, "Why Economic Sanctions Do Not Work," *International Security* 22, no. 2 (1997); idem, "Why Economic Sanctions *Still* Do Not Work," *International Security* 23, no. 1 (1998).

[3] Daniel W. Drezner, "The Hidden Hand of Economic Coercion," *International Organization* 57 (Summer 2003); Dean Lacy and Emerson Niou, "A Theory of Economic Sanctions and Issue Linkage: The Roles of Preferences, Information and Threats," *Journal of Politics* 66, no. 1 (2004); Richard W. Parker, "The Problem with Scorecards: How (and How Not) to Measure the Cost-Effectiveness of Economic Sanctions," *Michigan Journal of International Law* 21, no. 235 (2000).

[4] We adopt the standard terminology whereby the country (or countries) that threatens or imposes sanctions is called "sender," while the country threatened with or suffering sanctions is called "target."

imposed sanctions can be expected to induce the target to yield.[5] We demonstrate that a target country will yield to imposed sanctions only if it initially underestimated the impact of sanctions, miscalculated the sender's determination to impose them, or wrongly believed that sanctions would be imposed and maintained whether it yielded or not. Also the target's misperception of these factors must be corrected *after* sanctions are imposed. Although these conclusions, once pointed out, are likely to appear highly intuitive, they in fact represent something entirely new in the literature on economic sanctions.

In Section II, we briefly review the relevant parts of the existing literature on sanctions, and in Section III we address our main research question: under what conditions are *imposed* sanctions likely to work? In Section IV we present a simple game-theoretical model with incomplete information that supports and enhances the informal argument put forward in Section III. Existing formal models in this field typically predict that the target complies *without* sanctions being imposed or that sanctions are imposed but result in a stalemate. Thus, these models are not particularly helpful for predicting when the target will yield *after* the imposition of sanctions. By contrast, the model presented and analyzed here clearly states the conditions under which we should expect this outcome. In Section V we discuss the model's implications and offer some guidance for policymakers. Finally, Section VI offers concluding remarks.

## II. Previous Research

The dominant view historically has been that sanctions do not work.[6] From Galtung's analysis of the sanctions against Rhodesia to Doxey's broader set of case studies, negative assessments have been numerous.[7] According to Baldwin, "[i]t would be difficult to find any proposition in the international relations literature more widely accepted than those belittling the utility of economic techniques of statecraft."[8]

The existing literature cites a number of reasons why sanctions are often ineffective. First, it is difficult to ensure that sanctions hurt where they are

[5] Of course, there are also other concerns of interest to policymakers in this situation, for example, the sender country's credibility.

[6] A divergent view is found in David A. Baldwin, *Economic Statecraft* (Princeton: Princeton University Press, 1985). It is worth noting that Baldwin takes a broader view than most writers on what constitutes success for imposed sanctions.

[7] Galtung (fn. 2); Margaret P. Doxey, *International Sanctions in Contemporary Perspective* (Basingstoke: McMillan Press, 1987). For an extensive list of negative assessments of economic sanctions, see Baldwin (fn. 6).

[8] Baldwin (fn. 6), 57.

supposed to hurt. For example, when sanctions are imposed unilaterally, the target might reduce their impact by turning to alternative customers or suppliers and by using counterstrategies such as stockpiling, import substitution, rationing, and smuggling ("sanctions busting"). Moreover, the political elite in the target country might be able to pass on the costs of sanctions to other segments of the population. Second, sanctions can be costly for the sender, too.[9] In particular, when trade sanctions are being used, the target's neighbors often suffer significantly.[10] Finally, while sanctions might cause protest against the political leadership in the target state, they might also conversely arouse defiance, patriotism, and popular support for the regime.[11] In some cases the latter effects outweigh the former, with the result that resistance is reinforced rather than reduced.[12]

A somewhat more positive view of economic sanctions is offered in the comprehensive and influential study by Hufbauer, Schott, and Elliott.[13] Basing their work on 116 cases, they found a success rate of 34 percent. However, reanalyzing the same material Pape concluded that only 4 percent of the 116 cases actually resulted in "significant political concessions" by the target country.[14]

Hufbauer, Schott, and Elliott's study is also the most influential attempt to identify the *conditions* for effective sanctions. They conclude that sanctions work best if (1) the goals of the sender are limited; (2) the target is already experiencing economic difficulties; (3) there are generally friendly relations between sender and target countries; (4) sanctions are forcefully implemented in a single step; (5) sanctions entail significant costs for the target; (6) the costs for sender countries are modest; (7) the sanctions are *not* accompanied by covert action or military operations; and (8) few countries are needed to implement the sanctions.[15] Their statistical analysis is essentially based on bivariate techniques. This makes it difficult to sustain multiple explanatory factors accounting for

[9] An extreme example is the American grain embargo against the Soviet Union in 1979. Whereas the Soviet Union lost only U.S.$225 *million* due to higher prices, the United States lost exports worth an estimated U.S.$2.3 *billion*. See Robert P. O'Quinn, "A User's Guide to Economic Sanctions," Roe Backgrounder no. 1126 (Washington, D.C.: Heritage Foundation, 1997), 9; available at http://www.heritage.org/Research/PoliticalPhilosophy/BG1126.cfm.

[10] A former British ambassador to South Africa once claimed that the sanctions against Rhodesia probably caused more damage to its neighbors than to Rhodesia itself. See G. R. Berridge, *Internatioanl Politics: States, Power and Conflict since 1945* (Hemel Hampstead: Harvester Wheatsheaf, 1997), 126.

[11] Galtung (fn. 2).

[12] For example, Castro's popularity does not appear to have been notably weakened by decades of sanctions.

[13] Hufbauer, Schott, and Elliott (fn. 1).

[14] Pape (fn. 2, 1997, 1998).

[15] Gary Clyde Hufbauer, Jeffrey J. Schott, and Kimberly Ann Elliott, *Economic Sanctions Reconsidered: History and Current Policy* (Washington, D.C.: Institute for International Economics, 1985), 81–91.

the variation in outcomes,[16] and subsequent multivariate analyses have questioned their results.[17]

Another attempt to determine the conditions under which sanctions work is a study by Blanchard and Ripsman.[18] Using a qualitative case-study approach they argue that the traditional sanctions logic—that the target will be induced to alter its policies once the economic pressure is strong enough—does not adequately define the conditions under which sanctions actually work. Instead they hold that the effectiveness of sanctions depends on the balance between the political costs associated with compliance and noncompliance. If noncompliance implies high political costs, the target is likely to yield—unless compliance is even *more* costly politically.[19]

In light of the long line of research concluding (with some exceptions) that sanctions rarely work, several scholars have asked why they are nevertheless a popular instrument in international relations. One answer is that sanctions also have domestic and symbolic dimensions.[20] For example, sanctions might be imposed or sustained primarily to satisfy a domestic interest group or simply to demonstrate that the government cares and "is doing something." Others have emphasized that one needs to distinguish between (1) cases where sanctions have actually been imposed and (2) cases where sanctions have merely been threatened.[21] Sanctions are usually threatened before they are imposed, and they are imposed only if the target refuses to comply. But if a credible threat of sanctions fails, it is usually a sign that the target does not intend to comply even if sanctions are imposed. So it is a curious fact that when sanctions are imposed, there are often good reasons to expect them to fail.[22]

[16] In the 1985 edition, Hufbauer, Schott, Elliott (fn. 15) do report the results of a multivariate regression analysis. Only two of eighteen coefficients obtain t-values larger than 2. Curiously, neither of these two variables is included on the authors' list of the main determinants of successful sanctions.

[17] A. Cooper Drury, "Revisiting Economic Sanctions Reconsidered," *Journal of Peace Research* 35, no. 4 (1998); Jaleh Dashti-Gibson, Patricia Davis, and Benjamin Radcliffe, "On the Determinants of the Success of Economic Sanctions: An Empirical Analysis," *American Journal of Political Science* 41, no. 2 (1997).

[18] Jean-Marc F. Blanchard and Norrin Ripsman, "Asking the Right Questions: *When* Do Economic Sanctions Work Best?" *Security Studies* 9, no. 1 (1999).

[19] Ibid., 225.

[20] Han Dorussen and Jongryn Mo, "Ending Economic Sanctions: Audience Costs and Rent-Seeking as Commitment Strategies," *Journal of Conflict Resolution* 45, no. 4 (2001); James M. Lindsay, "Trade Sanctions as Policy Instruments: A Re-examination," *International Studies Quarterly* 30, no. 2 (1986).

[21] Lacy and Niou (fn. 3); Parker (fn. 3).

[22] A possible objection to this argument is that, when a threat of sanctions fails, the sender will update the probability that imposed sanctions will work. An instrumentally motivated sender will impose sanctions only if the updated likelihood of success is sufficiently high. Thus, we should not expect sanctions to be imposed in *all* cases where the threat of sanctions fails. In other words, the subset of cases in which sanctions are actually imposed is not a random sample from the pool of threat failures. Rather, we should expect cases in which sanctions are imposed to have a higher than average probability of success. This selection effect is largely ignored in this article.

This suggests that Hufbauer, Schott, and Elliott's data set, which (with five exceptions) consists of cases of *imposed* sanctions, suffers from selection bias. It will thus easily lead the user to underestimate the overall ability of sanctions to make a target yield. A satisfactory data set should also include cases where sanctions were threatened but were *not* imposed. This type of data set is used by Drezner to analyze cases in which the United States threatened sanctions to achieve reduced trade barriers, compliance with labor standards, or protection of the environment.[23] He finds a considerably higher success rate in cases that ended at the threat stage than in cases where sanctions were actually imposed.

## III. Conditions for (Imposed) Sanctions to Work

As the review in Section II indicates, when behavioral change is induced, it is often at the threat stage.[24] Nevertheless, there are some cases where the threat of sanctions fails and sanctions are then actually imposed. Although cases where sanctions are imposed have a lower success rate than do cases that are settled at the threat stage, there are examples where the target yields only *after* the sanctions are imposed. The present section describes two conditions for sanctions to work only after being imposed and illustrates them by way of prominent examples. Section IV then introduces a simple game-theoretical model with incomplete information that enables us to clarify and analyze these conditions further.[25]

### Two Definitions of "Successful Sanctions"

What exactly is meant by "successful sanctions"? The definition used in this article is that sanctions are successful if—and to the extent that—they extract political concessions from the target country.[26] However,

[23] Drezner (fn. 3) reanalyzes data previously considered by Thomas O. Bayard and Kimberly Ann Elliott, *Reciprocity and Retaliation in U.S. Trade Policy* (Washington, D.C.: Institute for International Economics, 1994); Kimberly Ann Elliott and J. David Richardson, "Determinants and Effectiveness of 'Aggressively Unilateral' Trade Actions," in Robert C. Feenstra, ed., *The Effects of U.S. Trade Protection and Promotion Policies* (Chicago: University of Chicago Press, 1997); Kimberly Ann Elliott, "Preference for Workers? Worker Rights and the Generalized System of Preferences," Working Paper (Washington, D.C.: Institute for International Economics, 2000), available at http://www.iie.com/publications/papers/paper.cfm?ResearchID=313; Elizabeth R. DeSombre, *Domestic Sources of International Environmental Policy: Industry, Environmentalists, and U.S. Power* (Cambridge: MIT Press, 2000).

[24] It is not yet clear whether such a generalization can be made, because there might be qualitative differences between the unilateral sanctions in Drezner's material and broad multilateral sanctions. However, there is nothing in our argument that depends on whether such generalization is possible.

[25] To be more specific, the first of the two conditions identifies three different scenarios. Only the first two possibilities are analyzed formally. The third possibility requires a different model and is thus only considered informally in this article (see Section III).

[26] Cf. Pape (fn. 2, 1997).

we emphasize that there is also a second way in which sanctions might be successful, namely, by making noncompliance *impossible*. In a recent article, Lopez and Cortright argue—quite contrary to popular opinion—that the sanctions against Saddam Hussein's regime in Iraq actually worked.[27] Evidence supporting this conclusion includes the fact that coalition forces searched extensively and did not discover weapons of mass destruction (WMD) in Iraq.[28] According to Lopez and Cortright, the reason for the success was that the sanctions "drastically reduced the revenue available to Saddam . . . and blocked the import of vital materials and technologies for producing WMD."[29] In addition, weapons inspectors and the International Atomic Energy Agency successfully exposed and destroyed most of Iraq's nuclear, biological, and chemical potential, as well as its ballistic weapons.[30] Thus, Lopez and Cortright argue that the total pressure on the regime, including the implicit threat of force from the international community, made it infeasible for Saddam Hussein to develop new WMD or to hide existing ones. According to this view, sanctions "worked" not by inducing Saddam to give political concessions but by making noncompliance *impossible*.[31]

The line between these two ways in which sanctions might work is sometimes a very fine one. It is important to stress that the theory put forth in this article presupposes that the target does indeed have an actual *choice*. According to the argument of Lopez and Cortright, Iraq did not have a choice, because noncompliance would have demanded resources that (in the latter stages of the sanctions regime) were simply unavailable to the Iraqis.

## Conditions for Successful Sanctions

When threatened sanctions *fail* to induce compliance, the outcome depends on the *reason(s)* for their failure. Assuming that both sender and target behave rationally,[32] there are three main possibilities.[33] First, a

[27] George A. Lopez and David Cortright, "Containing Iraq: Sanctions Worked," *Foreign Affairs* (July–August 2004).

[28] See the Comprehensive Report of the Special Advisor to the DCI on Iraq's WMD (September 30, 2004), available at http://www.cia.gov/cia/reports/iraq_wmd_2004.

[29] Lopez and Cortright (fn. 27), 91.

[30] Ibid., 92.

[31] The crux of this case is that the weapons inspectors were not certain about the amount of WMD still to be destroyed prior to the onset of the second Iraq war.

[32] Our argument presupposes throughout that the parties behave rationally. Hence, it does not capture nonrational reasons that a state may have for yielding or not yielding to sanctions.

[33] A fourth possibility is that the threat is irrelevant because the target is incapable of yielding despite its desire to do so. In this case, neither threatened nor imposed sanctions will have any chance of being effective. For a discussion of conditions for a threat to be effective, see Jon Hovi, *Games, Threats and Treaties: Understanding Commitments in International Relations* (London: Pinter, 1998), chap. 2.

threat of sanctions could fail because it is not deemed *credible* by the target. Second, the threat might fail because it is not sufficiently *potent*, meaning that the target considers sanctions, however regrettable their consequences, to be a lesser evil than yielding to the sender's demands. Finally, a threat of sanctions might fail because the target expects sanctions to be imposed regardless of whether it yields to the sender's demands. In the latter case, the threat of sanctions fails because it is *noncontingent*, that is, it is not accompanied by a credible promise that sanctions will *not* be imposed (or that sanctions will be removed) if the target yields.[34]

Should we expect *imposed* sanctions to work in any of these cases where the threat of sanctions has already failed? For the time being, assume that both sides are able to assess all relevant aspects of the situation correctly (an assumption that will be relaxed subsequently). First, consider a situation where a threat of sanctions fails because the target (correctly) considers it to be an empty threat. Empty threats are just that—empty. In such cases, sanctions will simply not be imposed.

Second, consider a case where a *credible* threat (even in the eyes of the target) fails because the target does not consider the sanctions to be sufficiently potent. As a consequence, the sanctions will be imposed, but the outcome does not change: the target does not yield to the sender. This conclusion about imposed sanctions holds provided that the target's initial judgment (that the cost of sanctions is outweighed by the cost of yielding) is correct.

Third, consider the case where a threat of sanctions fails because it is *noncontingent*: the threat *is* credible and potent sanctions *are* imposed. However, even if the cost of sanctions outweighs the cost of yielding, sanctions will not work if the target knows that they will be maintained regardless of whether it submits to the sender's demands. Thus, the target has no incentive to yield.

We conclude that whenever a threat of sanctions fails, we should expect one of two things to happen: e*ither* (1) the sanctions will not be imposed because the threat to impose them is empty, *or* (2) sanctions will be imposed, but the target will not yield—either because the consequences are not sufficiently potent, or because the threat is *noncontingent*. In short, if the target does not yield to the *threat* of sanctions, then it will not yield after sanctions are imposed either.

[34] For example, this might explain Iraq's intransigence with the sanctions regime and the weapons inspectors. A second illustration—the sanctions against Libya—is discussed later in this section.

This conclusion rests on the assumption that the target has *perfect* knowledge of the consequences of ignoring the threat of sanctions, including the likelihood that sanctions will be imposed, the magnitude of the costs if they are imposed, and whether sanctions can be avoided if it yields to the sender's demands. In other words, it is assumed that the target can accurately assess the credibility and potency of the threat, as well as whether the threat is contingent. With complete information, imposed sanctions simply *cannot* work. Conversely, imposed sanctions can work only if at least one of these factors is initially *not* known with certainty. Specifically, two conditions must be fulfilled for *imposed* sanctions to work. First, the target must initially underestimate the potency of sanctions, miscalculate the sender's determination to impose them, or wrongly believe that sanctions are noncontingent. And second, the target's miscalculation must be corrected *after* sanctions are imposed. In the following, we will provide three illustrative examples, corresponding to the three types of misperception mentioned in the first of the two conditions.[35]

### MISCALCULATING THE SENDER'S DETERMINATION TO IMPOSE SANCTIONS

Consider a target that defies a threat of sanctions because it erroneously believes the threat to be empty. A target holding such beliefs might be induced to reconsider once the sender proves its resolve by imposing sanctions, provided that the threat of *continued* sanctions is both potent and contingent. The *unexpected imposition of sanctions* is the key factor in this case. There is good reason to believe that actual cases of this type will be few and far between.[36] However, events in the following incident unfolded in a manner consistent with what one would expect in such a scenario.

In October 1932 the United Kingdom renounced its bilateral trade agreement with the USSR, because the latter was reluctant to increase its imports of British goods. Later that year, six British citizens were arrested in Moscow, charged with sabotage, espionage, and bribery.[37] London threatened that unless a trial was averted, it would take action against the import of Soviet goods. The USSR, however, stood by its

[35] Please note that the illustrations provided here are meant to exemplify, rather than prove, our theoretical findings. Further research is needed to test these findings empirically.

[36] The reason is simply that it takes time to impose sanctions. If the sender really is determined to impose sanctions, then sooner or later this is likely to become clear to the target, even if it has *initially* misjudged the sender's intentions. The target is then likely to yield, provided that the threat of sanctions is also sufficiently potent and contingent. If the target yields, then sanctions will usually not be imposed.

[37] Max Beloff, *The Foreign Policy of Soviet Russia: 1929–1941* (London: Oxford University Press for Royal Institute of International Affairs, 1947), 35; William Strang, *Home and Abroad* (London: A. Deutsch, 1956), 81–89, 117.

charges.[38] In April 1933 five of the suspects were convicted and two were imprisoned.[39]

A far-reaching embargo was imposed by the U.K. a week after the trial. It was made clear that "the embargo would last only until [the prisoners] were safely returned to Britain."[40] Moscow retaliated, economically and diplomatically, but by June 1933 the British and Soviet governments commenced talks.[41] Shortly thereafter the prisoners were released and both sides withdrew economic measures.[42] In short, when the threat of the British government was put into effect, the Soviets did not take long to negotiate the prisoners' release. Although it is difficult to prove that the Soviets did in fact perceive the threat as empty, the prompt turnaround by the Soviets once sanctions were imposed seems to suggest that they did.

### UNDERESTIMATING THE POTENCY OF SANCTIONS

Next, consider a target that resists threatened sanctions because it underestimates their potency. The target anticipates the imposition of sanctions but refuses to comply with the sender's demands because it expects the cost of compliance to outweigh the cost of sanctions. However, assume that after sanctions are imposed, the target confronts their true cost, realizes that it underestimated the sanctions' potency, and therefore comes to judge them to be intolerable. Provided that the threat of *continued* sanctions is both credible and contingent, the target might then decide to yield.[43]

Consider the sanctions imposed against Rhodesia in 1965. Following the Smith government's unilateral declaration of independence, the U.K. imposed economic and financial sanctions. Other countries followed suit, including Commonwealth members and the Organization of African Unity (now replaced by the African Union), and in 1966 the UN imposed mandatory economic sanctions against Rhodesia. The stated purpose was to force

[38] Strang (fn. 37), 87.
[39] Blanchard and Ripsman (fn. 18), 232.
[40] Ibid., 233.
[41] Strang (fn. 37), 110; Beloff (fn. 37), 35.
[42] Strang (fn. 37), 35; Beloff (fn. 37), 110–14. Hufbauer, Schott, and Elliott (fn. 1) count these sanctions as successful (p. 32).
[43] There are also cases where a country violates an international norm until potent sanctions are credibly *authorized*, because this enables it to reap certain benefits in the meantime. For example, the George W. Bush government introduced protective measures for the U.S. steel sector during the 2004 reelection campaign only to remove them just before the November election because the World Trade Organization authorized the EU to impose potent sanctions. While the WTO ruling could be reasonably anticipated, the Bush government essentially reaped an electoral benefit in "battleground" states of the Midwest before it yielded.

the country to grant political rights to black Rhodesians. The sanctions were intensified in 1968. Civil warfare and withdrawal of South African support put additional pressure on the government. By 1976 Ian Smith was "ready to accept a transitional multi-racial government and majority rule within two years."[44] A final agreement was reached in December 1979.[45]

Whereas Hufbauer, Schott, and Elliott conclude that the sanctions "contributed to a negotiated settlement,"[46] others have attributed Rhodesia's yielding to factors such as guerrilla warfare, Mozambique's support of the black majority, and the loss of South African support for the white minority.[47] Yet others agree that all these factors contributed to Rhodesia's yielding but argue that these factors themselves were caused by the sanctions and the international resentment of Rhodesia.[48]

According to the latter view, the sanctions worked *indirectly*.[49] This is consistent with the possibility that the sanctions proved more potent than Rhodesia had originally anticipated. Although the Smith regime was braced for hardship, it erroneously believed that the sanctions would quickly wither away. In the words of Doxey, "Not only would economic sanctions break down . . . but international political acceptance would gradually come about."[50] However, this did not happen.

A second effect not anticipated by the regime was that the sanctions reinforced the strength and morale of the internal opposition. An indication of this effect is that the opposition *protested* whenever a relaxing of sanctions was proposed.[51] The sanctions also weakened the white minority's ability to cope with the guerrillas.[52] Even though the sanctions did increase internal support among the white minority, in the end the strengthened opposition by the black majority and the subsequent warfare made continued minority rule extremely difficult; that is, the potency of the sanctions became clear only after they had been imposed.

### MISPERCEIVING THE CONTINGENCY ASPECT

Finally, consider a target that ignores threatened sanctions because it erroneously believes they will be imposed and sustained regardless of

[44] Doxey (fn. 7), 40.
[45] Ibid., 41.
[46] Hufbauer, Schott, and Elliott (fn. 15), 416.
[47] Robin Renwick, *Economic Sanctions* (Cambridge: Harvard University Center for International Affairs, 1981), 54; Harry R. Strack, *Sanctions: The Case of Rhodesia* (Syracuse, N.Y.: Syracuse University Press, 1978), 238. Both are quoted in Baldwin (fn. 6), 197.
[48] Baldwin (fn. 6), 196–201.
[49] Ibid.
[50] Doxey (fn. 7), 46.
[51] Baldwin (fn. 6), 193–96.
[52] Ibid., 197.

whether it yields. Assume that the threat is both credible and sufficiently potent and furthermore that after the imposition of sanctions the sender makes it unequivocally clear, via negotiation or a formal decision by an international body, that sanctions will be lifted if the target reconsiders. Under these conditions, the target might be induced to yield.

The sanctions against Libya might serve to illustrate this possibility. The U.K. and the U.S. indicted and demanded the extradition of two Libyan suspects in the 1988 Pan Am–Lockerbie explosion. When Libya refused, the UN passed Security Council Resolutions 731 and 748 in January and March 1992, respectively. Resolution 731 demanded Libya's full cooperation in the Lockerbie case, while Resolution 748 imposed economic sanctions. Further sanctions were imposed in 1993. Libya challenged the legality of the resolutions before the International Court of Justice but lost.[53]

Libya had proposed that the two suspects be tried in a country not party to the case.[54] A compromise led to their extradition to The Netherlands for trial. On their arrival the UN sanctions, but not unilateral U.S. sanctions, were suspended.[55] The result of the trial was that one Libyan was convicted and the other acquitted.

Zoubir suggests that the Libyans were convinced that the real goal of the U.S. was the overthrow of Qaddafi and his regime. "[W]hat made the Libyans particularly reluctant to give in to the extradition demands was the belief that the USA would block the lifting of sanctions even if they complied."[56] It takes a unanimous vote by the permanent members of the Security Council to lift UN sanctions.[57] In light of statements by U.S. officials, such a vote seemed unlikely to the Libyans.[58]

Finally, however, negotiations were undertaken to persuade Qaddafi that UN sanctions *would* be lifted if U.S. demands were met.[59] "As part of this effort, the UN Security Council passed UN resolution 1192, which explicitly stated that UN sanctions would be suspended once Libya handed over the suspects."[60] After a decade of sanctions, this

[53] Michael Plachta, "The Lockerbie Case: The Role of the Security Council in Enforcing the Principle *Aut Dedere Aut Judicare*," *European Journal of International Law* 12, no. 1 (2001), 125–29.

[54] Yahia H. Zoubir, "Libya in U.S. Foreign Policy: From Rogue State to Good Fellow?" *Third World Quarterly* 23, no. 1 (2002), 35.

[55] The UN sanctions were not, however, permanently lifted until 2003 (Security Council Resolution 1506).

[56] Zoubir (fn. 54), 35–36; see also Meghan O'Sullivan, *Shrewd Sanctions: Statecraft and State Sponsors of Terrorism* (Washington, D.C.: Brookings Institution Press, 2003), 184.

[57] To be more precise, the lifting of sanctions requires that at least nine of the fifteen members vote in favor and that no permanent member votes against lifting them.

[58] Zoubir (fn. 54), 43.

[59] Ibid., 41.

[60] O'Sullivan (fn. 56), 184.

resolution paved the way for the compromise described above, by making it clear that the sanctions were in fact contingent.

## IV. A Formal Model of Economic Sanctions

We now present a simple game-theoretical model that allows us to consider in more detail the first two of the three possibilities that were discussed informally in Section III. The third possibility would require a different model and is therefore not analyzed further in this article.

Most formal models of sanctions predict either that the target complies without sanctions being imposed or that sanctions are imposed but result in a stalemate.[61] These models are therefore not particularly helpful for understanding when a target country will yield *after* the imposition of sanctions.[62] By contrast, the model presented and analyzed here clearly states the conditions under which one should expect compliance *after* sanctions are imposed, rather than (1) compliance *without* sanctions being imposed or (2) a stalemate.

### The Model

There are two players, Target and Sender. Target has a desire to violate an international norm that Sender wants it to respect.[63] Before the game begins, Sender threatens to impose sanctions if Target violates the norm.[64] Target makes the first move in the game and must decide whether to violate the norm or not. Sender is able to observe Target's move (see Figure 1).

If Target does not violate the norm, then Sender has no choice to make, and the game ends.[65] If Target violates the norm, Sender must choose between three options—imposing "potent" sanctions, imposing

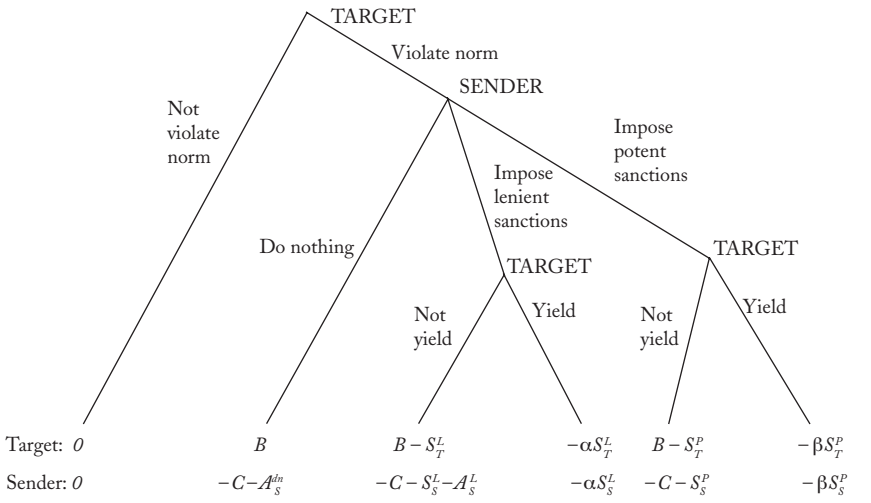
[61] An exception is the model proposed by Lacy and Niou (fn. 3), where under certain conditions imposed sanctions can induce the target to yield. However, this is only possible in a mixed strategy equilibrium (p. 37). In contrast, our model admits this outcome in a pure strategy equilibrium.

[62] For a review of the literature, see Drezner (fn. 3), 645–48.

[63] For example, the relevant violation could be the invasion of a neighboring country or the illegal development of weapons of mass destruction.

[64] In our model, an explicit threat is superfluous, because the threat of sanctions is implicit in the structure of the game, which is assumed to be common knowledge.

[65] It should be emphasized that noncompliance with international norms is not always intentional. Violations can also be the result of incapacity problems; see, for example, Abram Chayes and Antonia Handler Chayes, "On Compliance," *International Organization* 47, no. 2 (1993); idem, *The New Sovereignty: Compliance with International Regulatory Agreements* (Cambridge: Harvard University Press, 1995). Conversely, countries comply with international norms for a variety of reasons, many of which have nothing to do with sanctions; see, e.g., Jeffrey Checkel, "Why Comply? Social Learning and European Identity Change," *International Organization* 55, no. 3 (2001). Thus, many cases of compliance with international norms can *not* be counted as successes for economic sanctions. To count as a success, compliance must be *caused* by an expectation on the part of the target that it would otherwise risk sanctions. Of course, this might be difficult to convincingly demonstrate in practice.




Key:
$B$ = violation benefit to Target if it violates the norm (and does not subsequently yield)
$C$ = violation cost incurred by Sender if Target violates the norm (and does not subsequently yield)
$S_j^t$ = sanctions cost incurred by country $j$ if sanctions are of type $t$ ($j = S,T$; $t = L,P$)
$A_s^a$ = audience cost incurred by Sender if it takes action $a$ after Target has violated the norm ($a = dn,L$)
$\alpha, \beta$ = constants $(0 < (\alpha, \beta) < 1)$

FIGURE 1
A MODEL OF ECONOMIC SANCTIONS

"lenient" sanctions, or "doing nothing," that is, not imposing any sanctions. There are two reasons why we consider *three* options for Sender in this situation. First, this makes it possible to consider the credibility of the threat of sanctions and the potency of sanctions within the framework of a single model and enables us to analyze how these two issues interact in determining the outcome of disputes involving sanctions. Second, it permits us to model the idea that Target might violate an international norm and yet reconsider when it learns the true costs of sanctions. For this to occur, we assume (1) that Target is able to observe Sender's move, and (2) that Target is prepared to stand firm if Sender imposes "lenient" sanctions but prefers to yield if Sender imposes "potent" sanctions.[66]

[66] If sanctions are "potent," Target (1) prefers not to violate the norm, rather than to violate the norm *and* suffer the sanctions. Also if sanctions are "potent," Target (2) prefers to yield once sanctions are imposed. Similarly, if sanctions are "lenient," Target (3) prefers to violate the norm *and* suffer the sanctions, rather than refrain from violating the norm. Finally, if sanctions are "lenient," Target (4) prefers to stand firm even after sanctions are imposed.

If Sender chooses to do nothing, the game ends. If Sender imposes either potent or lenient sanctions, Target must choose whether to yield. To yield simply means to return to compliance with the norm. We assume that if Target yields, then Sender lifts the sanctions. If Target does *not* yield, then the sanctions remain in place indefinitely.

We consider one type of benefit (violation benefit) and three types of cost (violation costs, sanctions costs, and audience costs) for the contending parties. First, we assume that violating the norm entails certain benefits for Target and inflicts certain costs on Sender. For example, if the norm violation is that Target illegally develops weapons of mass destruction, then Target will expand its power base, while Sender will pay a price in terms of increased insecurity. Let $B > 0$ be the *violation benefit* obtained by Target and let $C > 0$ be the *violation cost* incurred by Sender if Target violates the norm and does not yield. We assume that if Target yields, the status quo will be reestablished. This assumption implies that violating the norm is beneficial for Target only if it does not subsequently yield. Another implication is that Sender incurs violation costs only if Target does not subsequently yield.

Second, we assume that sanctions entail costs for both parties. For example, trade sanctions constrain commercial exchange between Target and Sender. Let the *sanctions costs* for Target be $S_T^L$ if sanctions are lenient and $S_T^P$ if sanctions are potent, given that Target does not yield ($S_T^P > S_T^L > 0$). If Target yields, the sanctions costs for Target are $\alpha S_T^L$ and $\beta S_T^P$, respectively, where $\alpha$ and $\beta$ are two constants ($0 < (\alpha, \beta) < 1$).[67] Similarly, let the sanctions costs for Sender be $S_S^L$ if sanctions are lenient and $S_S^P$ if sanctions are potent, given that Target does not yield ($S_S^P > S_S^L > 0$). Finally, let $\alpha S_S^L$ and $\beta S_S^P$ be the sanctions costs for Sender if Target yields. From the assumption that Target prefers to yield to potent sanctions but is prepared to endure lenient sanctions, it follows that $(1 - \beta)S_T^P > B > S_T^L > (1 - \alpha)S_T^L$.

Finally, in a number of international disputes, domestic interest groups in potential sender countries lobby heavily in favor of (potent) sanctions. We incorporate such pressure into the model by assuming that unless Sender imposes potent sanctions, it will suffer "audience costs" if Target violates the norm (and does not yield). As Dorussen and Mo remind us, audience costs might cause a sender to use sanctions for purely domestic reasons.[68] Let the audience costs be $A_S^{dn}$ if Sender does nothing and $A_S^L$ if Sender imposes only lenient sanctions and Target

[67] One might think of $\alpha$ and $\beta$ as crude measures of how long it takes for Target to yield.
[68] Dorussen and Mo (fn. 20), 403.

does not yield. We assume that $A_S^{dn} > A_S^L > 0$. The underlying idea is that domestic pressure groups are prepared to accept not only a successful outcome (that is, Target yields), but even an unsuccessful outcome, provided that Sender imposes potent sanctions (that is, it "does its best" to make the Target yield).

The game structure and payoffs for Target and Sender are shown in Figure 1. Note that all benefits and costs use the status quo as a reference point, and thus both Target and Sender obtain a payoff of zero if Target does not violate the norm.

### Equilibria under Complete Information

We now turn to the game's equilibria. We begin with the complete information version of the game. If

(1) $A_S^{dn} < A_S^L + S_S^L$ *and*
(2) $A_S^{dn} < \beta S_S^P - C$,

that is, if $A_S^{dn} < Min[(A_S^L + S_S^L),(\beta S_S^P - C)]$, then Sender will do nothing if Target violates the norm. When condition 1 holds, Sender prefers to do nothing rather than impose lenient sanctions. Because neither of these two options will induce Target to yield, this simply requires that the aggregate cost of doing nothing (which consists of audience costs only) does not exceed Sender's aggregate cost of imposing lenient sanctions (which consists of a combination of audience and sanctions costs). Similarly, if condition 2 holds, then Sender will rather do nothing than impose potent sanctions. Because potent sanctions induce Target to yield, this requires that the sum of the violation cost plus the audience cost of doing nothing is outweighed by the cost of imposing potent sanctions until Target yields. Doing nothing is thus an attractive option for Sender: if it incurs only slightly smaller audience costs by doing nothing than by imposing lenient sanctions; if the violation cost is modest; and if it suffers significant sanctions costs from both lenient and potent sanctions.

If it is common knowledge that Sender's payoffs satisfy conditions 1 and 2, then the subgame perfect equilibrium of the game is that Target violates the norm and that Sender does nothing.

A second possibility is that

(3) $A_S^L < A_S^{dn} - S_S^L$ *and*
(4) $A_S^L < \beta S_S^P - (S_S^L + C)$,

that is, $A_S^L < Min[\beta S_S^P - (S_S^L + C), A_S^{dn} - S_S^L]$. This means that Sender will impose lenient sanctions if Target violates the norm. If condition 3 holds, then Sender would rather impose lenient sanctions than do nothing. Similarly, if condition 4 holds, then Sender prefers to impose lenient rather than potent sanctions. Thus, to impose lenient sanctions is the better option: if Sender incurs considerably bigger audience costs by doing nothing than by imposing lenient sanctions; if the violation cost is modest; if lenient sanctions entail small sanctions costs; and if potent sanctions entail large sanctions costs.

If conditions 3 and 4 hold, then Sender's best response is to impose lenient sanctions if Target violates the norm. Nevertheless, because $\beta > S_T^L$, Target prefers to violate the norm. Thus, if it is common knowledge that conditions 3 and 4 hold, the game's subgame perfect equilibrium is that Target violates the norm, that Sender imposes lenient sanctions, and that Target does not yield.

Finally, if

(5) $C > \beta S_S^P - A_S^{dn}$ *and*
(6) $C > \beta S_S^P - (A_S^L + S_S^L)$,

that is, if $C > \max[\beta S_S^P - (A_S^L + S_S^L), \beta S_S^P - A_S^{dn}]$, then Sender's best response is to impose potent sanctions if Target violates the norm. If condition 5 holds, then Sender prefers to impose potent sanctions rather than do nothing. And if condition 6 holds, then Sender prefers potent to lenient sanctions. It follows that potent sanctions are an attractive option to Sender if Sender incurs considerable audience costs regardless of whether it imposes lenient sanctions or simply does nothing. Potent sanctions are also an attractive option to Sender if the violation cost is significant and if lenient sanctions entail only slightly smaller sanctions costs than potent sanctions do.

If conditions 5 and 6 hold, Sender will impose potent sanctions if Target violates the norm. Foreseeing this, Target refrains from violating the norm (because $B < (1 - \beta)S_T^P < S_T^P$). Thus, if it is common knowledge that conditions 5 and 6 hold, the subgame perfect equilibrium is that Target does not violate the norm, anticipating that Sender will otherwise impose potent sanctions.

It may be noticed that the three different outcomes predicted by the various equilibria in the complete information version of this model correspond to the conclusions reached in the informal presentation in Section III. In particular, the model sustains the conclusion that with complete information, imposed sanctions *cannot* work. The threat of

sanctions might successfully deter Target from violating the norm (this happens if conditions 5 and 6 hold). But *if* Target violates the norm, then Sender will either fail to impose sanctions (if conditions 1 and 2 hold) or only impose lenient sanctions that are unable to induce Target to yield (if conditions 3 and 4 hold). These results are in line with the findings of previous formal models of sanctions, which largely conclude that the target country will either comply *without* sanctions being imposed or not comply at all (a stalemate).

### Equilibria under Incomplete Information

We now turn to the incomplete information version of the game. Assume that Sender may be one of three possible types. In particular, assume that Sender is either "weak" (meaning that conditions 1 and 2 hold), "moderate" (that is, conditions 3 and 4 hold), or "tough" (conditions 5 and 6 hold). Target does not know Sender's type when the game begins but might learn its type by observing Sender's behavior in the game. Target believes Sender to be tough with probability $p$, moderate with probability $q$, and weak with probability $1 - p - q$, where $p \geq 0$, $q \geq 0$, and $p + q \leq 1$.[69] This is modeled by letting "Nature" make the first move in the game. This is a random move, which decides Sender's type with the probabilities mentioned above. Sender—but not Target—is assumed to be able to observe Nature's move. However, Target knows the payoffs for each *type* of Sender and is thus able to foresee that violating the norm will cause Sender to do nothing if it is weak, to impose lenient sanctions if it is moderate, and to impose potent sanctions if it is tough. Of course, Target also knows that it will eventually yield if Sender imposes potent sanctions but not if Sender imposes lenient sanctions.

This means that if Target violates the norm, its expected payoff is $p(-\beta S_T^P) + q(B - S_T^L) + (1 - p - q)B = B(1 - p) - p\beta S_T^P - qS_T^L$. By contrast, if Target does not violate the norm, it receives a payoff of 0 (with certainty). This means that it is in Target's best interest not to violate the norm if

$$(7)\ p > \frac{B - S_T^L q}{B + \beta S_T^P}.$$

On the right-hand side of (7) the denominator is positive. Moreover, $B > S_T^L > 0$ and $1 > q > 0$. It follows that the right-hand side of (7) is

[69] As usual in games of incomplete information, $p$ and $q$ are assumed to be common knowledge.

always a number between zero and one. When condition 7 holds, the game has a pooling perfect Bayesian equilibrium, in which Target ends the game immediately by not violating the norm. Thus, Sender does not get to make a move, and so its type is not revealed by the course of play.

If the converse condition holds, that is, if

$$(8)\ p < \frac{B - S_T^L q}{B + \beta S_T^P},$$

the game has a separating equilibrium, where Target violates the norm. What happens next depends on Sender's type. If Sender is weak, it does nothing. If it is moderate, it imposes lenient sanctions. And if it is tough, it imposes potent sanctions. Thus, Sender's move reveals its type.[70] Finally, Target yields if Sender imposes potent sanctions, but not otherwise. In other words, this equilibrium implies that imposed sanctions *might* work, but only under particular circumstances. To be specific, the model suggests that for imposed sanctions to be successful, condition 8 must hold *and* Sender must be tough.

### Special Cases

In contrast to the formal model analyzed in the previous sections, the informal discussion in Section III never considered more than two possible options for Sender. For example, in the case where Target erroneously believes the threat of sanctions to be empty, we assumed that Sender will either impose potent sanctions or no sanctions at all. Similarly, in the case where Target underestimates the sanctions' potency, we assumed that Sender will impose either lenient or potent sanctions. While the formal model admits three options for Sender, the two scenarios discussed informally in Section III are special cases of the model. If $q = 0$, it is a certainty that Sender is either weak or tough; that is, it will either do nothing or impose potent sanctions if Target violates the norm. In this case, condition 8 reduces to

$$(9)\ p < \frac{B}{B + \beta S_T^P}.$$

[70] For example, suppose that Sender imposes potent sanctions. Then (using Bayes' rule) Target is able to update the probability distribution of Sender's possible types so that the posterior probabilities become $p = 1, q = 0, 1 - p - q = 0$.

Similarly, if 1 − p − q =0 (i.e., if q = 1 − p), Sender is either moderate or tough, meaning that it will either impose lenient or potent sanctions, respectively, if Target violates the norm. In this scenario condition 8 becomes

$$(10)\ p < \frac{B - S_T^L}{B + \beta S_T^P - S_T^L}\ .$$

## V. Discussion and Policy Implications

The model presented here offers several implications about the conditions under which imposed sanctions work. First, the model supports the conclusion obtained in the informal discussion in Section III that with complete information imposed sanctions *cannot* work. Conversely, imposed sanctions can cause the target to yield only if there is incomplete information.

Second, the model identifies the exact nature of the incomplete information that causes this outcome. Imposed sanctions work only if condition 8 holds *and* Sender is tough. This means that Target must consider it unlikely that violating the norm will cause Sender to impose potent sanctions. At the same time, Sender must in fact be prepared to impose potent sanctions. The model goes beyond the informal discussion in that it specifies the parameters determining the threshold value for $p$, that is, the probability of potent sanctions that is required to make deterrence effective.[71]

Third, the model implies that the threshold value for $p$ is a decreasing function of $q$. Thus, the larger the probability that Sender will impose *lenient* sanctions ($q$), the smaller the probability that Sender will impose *potent* sanctions ($p$) needs to be in order to deter Target from violating the norm. This might seem surprising, considering that lenient sanctions are unable to induce Target to yield. The explanation is that lenient sanctions are nevertheless costly and thus something that Target would like to avoid. Hence, a positive probability of *lenient* sanctions contributes to the overall deterrent effect, thereby making the required probability of *potent* sanctions smaller. This can also be seen by comparing the two special cases previously discussed. The right-hand side of inequality 10 is always smaller than the right-hand side of in-

[71] The model also goes beyond the informal discussion in that it admits three options for Sender. At the same time, two of the scenarios discussed informally come out as special cases of the model's equilibria. In this sense, the model offers a more general treatment than the informal discussion.

equality 9. The reason is that (9) assumes q = 0; that is, Sender will either do nothing or impose potent sanctions if Target violates the norm. By contrast, (10) assumes 1 − p − q = 0, which means that Sender will impose either lenient sanctions or potent sanctions if Target violates the norm.

Fourth, the model reminds us that, even when successful, imposed sanctions produce a suboptimal outcome. Successful imposed sanctions (which are invariably potent) give Target a payoff of $-\beta S_T^P$, and Sender a payoff of $-\beta S_S^P$. Both of these payoffs are always negative. By contrast, if Target does not violate the norm, both Sender and Target receive a payoff of zero. Even though successfully imposed sanctions restore compliance with the norm, they accomplish this only after a period of sanctions that are costly to both sides. Both sides would thus be better off if Target were not to violate the norm in the first place. The more potent the sanctions and the longer it takes before Target yields, the more inefficient the outcome produced by successfully imposed sanctions.

Fifth, the model also makes clear predictions about "noncases" of norm violations. In particular, we should expect no violation if condition 7 is fulfilled, that is, there is a high probability that Sender is tough. Assuming that it is possible to capture such noncases empirically, this might help us limit the selection bias in sanctions research mentioned in Section II. If so, we would be better able to compare cases of norms violation with those of norms adherence—as well as better able to understand the explanatory factors.

Finally, the model entails important implications for policy-making. On the basis of the argument in this article, one idea with some appeal might be that Sender could *deliberately* misinform Target about (1) Sender's determination to impose sanctions or (2) the potency of sanctions (if imposed).[72] It is true that such strategies would enhance the chances of *imposed* sanctions' achieving a successful outcome. However, despite their immediate appeal, they are not advisable. Suppose that Sender plans to impose potent sanctions but deceives the target to believe that sanctions will only be lenient. This would clearly make Target more likely to yield after sanctions have been imposed than it would otherwise have been. But the other side of the coin is that Target becomes more likely to violate the norm in the first place. Because sanctions are costly for *both* parties, Sender prefers Target to comply with the norm, rather than to violate the norm and yield after sanctions

[72] A related suggestion is that Sender might initially impose lenient sanctions (or no sanctions at all) but shift to more potent sanctions if Target does not yield.

are imposed. The lesson to learn is that if Sender is prepared to impose potent sanctions, then it should make this clear from the outset.[73]

Similarly, suppose that Sender deceives Target to erroneously consider the threat of sanctions to be empty. Catching Target off guard by imposing sanctions unexpectedly after Target has violated the norm might subsequently cause Target to yield. As in the above case, if Sender is determined to carry out the threat, the only sensible thing is to communicate this unequivocally from the beginning.[74]

In this article, we have not discussed the question of smart (or targeted) sanctions. However, our argument applies equally to both smart and traditional (comprehensive) sanctions. To the extent that Target considers smart sanctions more potent than traditional sanctions, the prospect of facing smart sanctions will make Target less likely to violate international norms.[75] However, the conditions for smart sanctions to work only after being imposed are no different from the corresponding conditions for comprehensive sanctions.

## VI. Conclusion

Recent research on economic sanctions has pointed out a need to distinguish between (1) cases where sanctions have actually been imposed and (2) cases where sanctions have only been threatened. In this article, we have provided new insights about the circumstances under which sanctions cause behavioral change only *after* being imposed. We have shown that for this to be the case, two conditions must be fulfilled. First, the target initially must miscalculate the sender's determination to implement sanctions, underestimate the impact of sanctions, or wrongly believe that sanctions will be imposed and maintained even if it yields. Second, the target's misperception of these factors must be corrected only *after* sanctions are imposed.

[73] We do not consider the possibility that Sender might exaggerate its determination to impose (potent) sanctions. The reason is that such exaggeration would not increase the likelihood of successful *imposed* sanctions (even though it might successfully deter Target from violating the norm).

[74] A third possibility, related to the discussion in Section III (but not covered by the model), is that Sender falsely signals a stern resolve in *all* contingencies, thereby deceiving Target to incorrectly assume that sanctions will be imposed even if it does not violate the norm. In such a case the target might yield *after* sanctions are imposed if Target then receives credible evidence that the sanctions will be lifted if and only if it yields. However, if Target is prepared to yield under such circumstances it would also have been deterred from violating the norm in the first place had it known the sender's true intentions at that stage. Therefore, deception is counterproductive, because it makes ineffective the *threat* of sanctions. Meanwhile, if sanctions are imposed as a result of such deception, both Sender and Target suffer.

[75] There is, however, reason to doubt that smart sanctions are more potent than comprehensive sanctions. For an instructive discussion, see Arne Tostensen and Beate Bull, "Are Smart Sanctions Feasible?" *World Politics* 54 (April 2002).