SANCTIONS AND INCENTIVES*

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Abstract

The paper presents and tests a straightforward argument for when incentives will be used alongside sanctions and, if so, why incentives increase the effectiveness of sanctions. We argue that it is important to analytically distinguish incentives from sanctions. Moreover, we suggest a possible operationalization of this idea. Our theoretical model shows that the choice between the use of incentives or sanctions alone, and their simultaneous use depends on the level of interdependence between target and sender. Incentives are particularly useful of lower levels of interdependence. Sanctions at higher levels. The combined use of sanctions and incentives takes place at intermediate levels. We further derive that incentives are more likely to be used, if the sunk cost is more important relative to the value of existing trade. Incentives are also more likely to be used if sanctions are less credible. Finally, the simultaneous use of incentives and incentives should be more effective than the use of sanctions or incentives used separately. In other words, incentives increase the effectiveness of sanctions.

The empirical evaluation of our model focuses on the choice between sanctions and incentives used together or the use of only sanctions. We mainly rely on data collected by Hufbauer, Schott, & Elliott (1990) and Dorussen & Mo (1997). The findings generally support our theoretical model. We find some evidence that incentives are more likely to be used alongside sanctions when the sender-target trade interdependence is relatively low. We find clear support for the idea that incentives should provide the sender with a leverage over the target. Moreover, democratic senders seem to use incentives to make up for their credibility deficit with respect to the implementation of sanctions. Finally, we find that incentives add to the effectiveness of sanctions. The paper presents strong theoretical and empirical argument that the effect of the ‘carrot’ and the ‘stick’ should not be studied in isolation of each other.
In the recent conflicts over Kosovo and Bosnia-Herzegovina one could observe the use of a full array of diplomatic tools: military coercion, sanctions, and incentives. Scholars of international relations, however, tend to focus on each of these instruments in isolation. There are lengthy debates on the need for military intervention and the (in)effectiveness of economic sanctions. More recently, attention is being paid to the role of incentives (Long, 1997, Cortright, 1997, Bernauer & Ruloff, 1999). Interest in incentives has emerged in part out of concern over the humanitarian costs of coercion and sanctions, for example, in the case of Iraq. Moreover, the relationship between economic interdependence and political influence has been an active area of research in international political economy.

Especially in the latter approach, incentives and sanctions are often viewed as alternative linkage strategies. The leading research question is the relative effectiveness of various methods of economic statecraft, in particular, the choice between reward and punishment in inducing desired action. This choice has been worded in several ways: for example, positive and negative sanctions (Knorr, 1977; Baldwin, 1985), threats and promises (Eaton & Engers, 1994), and sanctions and incentives (Long, 1997; Drezner, 1999). Lavin (1996) is probably most original in his distinction between ‘asphyxiation’ and ‘oxygen.’ However, we adopt Long’s terminology. The sender is promising incentives when it promises future benefits to the target in return for political concessions, whereas the sender is threatening sanctions when trade will be interrupted if no concession is made. The objective of incentives is to turn conflict into cooperation by means of collaboration.

Incentives are often considered to be merely weak sanctions. For example, Wagner (1988) argues that incentives are less powerful than sanctions. His reasoning is that the target is more likely to be swayed by sanctions because it values more highly the marginal unit of a good taken away (via sanctions) than the additional benefit of the same amount added (via incentives). Another way of thinking about this is that the reallocation costs associated with the loss of existing trade are likely to exceed those of new trade. In a classic study, Hirschman (1945/1980) starts with the observation that trade can lead to a situation of asymmetric interdependence in which (threats with) sanctions exert influence. Moreover, he argues that a state can induce another state into such an asymmetric relationship with the help of incentives. Therefore, the implicit assumption is that sanctions work better than incentives, because incentives are prior to sanctions. If incentives were more effective, the less
dependent state should try to influence the more dependent one before they begin to trade.

Long (1997) and the studies in Cortright (1997) provide several arguments in favor of incentives. Long (1997: 21) claims that total and not just marginal utility matters. Incentives represent a powerful inducement as long as the target stands to gain. The assessment of total utility should further include the long-term benefits. Moreover, the evaluation of the relative effectiveness of sanctions and incentives should not ignore the costs to the sender. Not just the effectiveness, but also the relative efficiency of incentives matters. Sanctions are by definition costly for both the sender and target. In contrast, some types of incentives, like trade and technology, provide gains for both the target and the sender. Incentives also avoid some of the well-known weaknesses of sanctions: they are less likely to lead to ‘rallying around the flag’ in the target country and, in the sender country, there is generally much less domestic opposition against incentives than sanctions.¹ Finally, incentives are less likely to engender or aggravate misperception, and convey more clearly information. Cortright reiterates many of these points, but emphasizes the impact on human psychology. “Incentives foster cooperation and goodwill, while sanctions create hostility and separation” (Cortright, 1997: 10). Incentives are less likely to lead to a “scar effect” that limits or rules out friendly relations in the future or on other matters (Knorr, 1975; Baldwin, 1985).

Recently, two studies have tried to explain under what conditions states will choose to mix “carrots and sticks.” Drezner (1999) argues that states are primarily concerned with their security. Expectations about future conflict determine the effectiveness of sanctions as well as incentives. Consequently, a state is more likely to offer an incentive to an ally than to an adversary, because of relative gains concerns in the latter case. Between adversaries, the incentives have to be cheap for the sender and, at the same time, lucrative for the target. Bernauer & Ruloff (1999) argue that incentives are called for in situations with high transaction costs, the costs of negotiating and enforcing an agreement. Asymmetric costs and benefits increase the transaction costs and can easily make them prohibitive. In order to reach an agreement, the exchange then needs to be complemented with incentives that specifically address the asymmetries in preferences and capacities.

¹ Herbst (1997) studies a notable exception to this rule, namely the vehement domestic opposition against the politics of constructive engagement of the Reagan administration versus South Africa.
When to use sanctions and incentives remains mainly an unanswered question, despite considerable scholarly and journalistic interest in the choice of the “carrot versus the stick.” We argue that the lack of progress has two main reasons. First of all, an important hindrance to advance the debate is the lack of an analytical and empirical distinction between sanctions and incentives. Threatening to withdraw an incentive is often treated as a sanction. Similarly, the lifting of a sanction is analyzed as an incentive. For example, Baldwin (1985: 183, 213) argues repeatedly that the promise to lift previously imposed sanctions is one of the most under-appreciated qualities of sanctions. However, put in this way, sanctions and incentives become analytically indistinguishable and the debate on their relative efficiency therefore meaningless.

However, there are important differences between sanctions and incentives, which become clear from a bargaining perspective. First, their cost structure is different. As long as there is no agreement, sanctions represent a cost to both the sender and target. The gain of reaching an agreement is the elimination of these costs. Without an agreement, incentives are without cost to the sender. Incentives represent a benefit for the target, after the parties have reached an agreement (Knorr, 1977: 8). Before the parties have reached an agreement, incentives are without cost. Second, sanctions affect the outcome of bargaining by altering the relative value of the disagreement point (Wagner, 1998). Incentives work because they increase the size of the bargaining space and, thus, allow for a trade that would otherwise not be available. Incentives represent much more clearly than sanctions an exchange or a ‘quid pro quo.’ It is therefore possible to distinguish between sanctions and incentives as long as one carefully defines the status quo ex ante. Accordingly, we analyze and operationalize sanctions and incentives as distinct policy instruments.

The second reason for the lack of progress actually follows from the first. Since sanctions and incentives are distinct, the dichotomy between sanctions and incentives is an example of reductionism. States have to choose among sanctions, or incentives, or both sanctions and incentives. Consequently, not just the relative effectiveness of sanctions or incentives should interest us, but also whether incentives can increase the effectiveness of sanctions (or vice versa). In this paper, we present a

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2 Incentives may represent a cost to the sender if an agreement is reached, e.g., in the case of preferential treatment or aid. Long (1997) argues that trade and technology transfers represent a gain for both parties. However, one could argue that the refusal to engage in profitable trade and technology should be viewed as a sanction. Along these lines, Chinese officials have argued that obtaining MFN-status is not an incentive, but that US refusal to grant one would constitute a sanction.
theoretical and empirical analysis of the choice between the full set of alternatives and their relative effectiveness. Unfortunately we lack general data on the use of incentives in influence attempts. However, Hufbauer, Schott, & Elliott (1990) provide us with a survey of economic sanctions, which we can use as a starting point for our empirical analysis. In this paper, we investigate two questions: (1) when will incentives be used alongside sanctions, (2) is the use of sanctions and incentives more effective than the use of sanctions alone?

We argue that the effectiveness of sanctions, incentives, and their combined use is contextual on the relationship between sender and the target. In other words, the choice between using sanctions and incentives jointly or separately depends on the existing relationship between sender and target. Incentives will be used if sanctions alone are expected to be relatively ineffective or incredible. Alternatively, we expect that incentives are used alongside sanctions when there are inequalities in the relationship between the sender and target that had remained unexplored in bargaining.

**Modeling Sanctions and Incentives**

A sender provides incentives when it promises future economic benefits to the target in return for political concessions. Examples of incentives are trade, foreign aid, or technology incentives. In a sanction strategy, a sender threatens to interrupt an ongoing exchange relation if the target does not concede. Examples of sanctions are punitive tariffs, embargoes, aid suspension, restrictions on capital movement. If we simplify the analysis by focusing on trade, the sender’s objective is to bring about policy change in the target by using trade as an instrument of incentives and sanctions. Thus, we have identified three categories of strategies:

(Scenario 1) The sender uses both incentives and sanctions to alter the target’s behavior.
(Scenario 2) The sender threatens only with sanctions.
(Scenario 3) The sender promises only incentives.
In the third case, the sender makes the following offer: “If you change your policy, I will remove all restrictions on our trade, but if you do not, I will prohibit all trade between us, existing as well as future.” In the second scenario, the sender demand reads: “If you change your policy, I will allow trade to continue at the existing level, but if you resist it will discontinue our trade.” The sender does not use a threat in the third case: “If you change your policy, I will remove all restrictions on our trade, but if you do not, you will forego the benefits of more trade, but we can continue to trade at the existing level.”

Two aspects of sanctions and incentives deserve special attention. Clearly, the value of both strategies is conditional on the definition the status quo ex ante, or the level of ‘normal’ economic exchange. Second, sanctions and incentives are both linkage strategies in which states attempt to influence the outcome of bargaining over a political issue by withholding (sanctions) or promising (incentives) economic benefits to the target. We analyze the choice for each policy instrument by focusing on both aspects in turn.

The Use of Sanctions and Incentives is Conditional

From a sender’s point of view, a strategy that yields the highest probability of success is the best. So, we want to analyze the strategic choice of the sender by examining the response of the target to each strategy.

Sanctions plus Incentives: If C is the target’s benefit of the contested policy and G_{et} its value of existing, the target’s payoff in the status quo is C + G_{et}. To obtain the benefits of free (or full) trade, G_T, the target has to concede C. If the target refuses to concede, it will lose the benefits of existing trade, leaving it with only the value of the contested policy, C. The losses of the trade interruption are the value of existing trade, G_{et}, plus the amount of sunk cost, denoted by L_{et}. Sunk cost exists because some of the resources invested to support existing trade between sender and target may not find alternative use. The amount of sunk cost increases as the level of existing trade increases. The target’s payoff of suffering sanctions on existing trade thus equal C – L_{et}.

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1 We limit our analysis to complete sanctions, ignoring incremental or partial sanctions (or incentives).
The gains from free trade, $G_T$, do not vary in the level of existing trade. As long as the contested policy is not an economic issue, it is also reasonable to assume that the costs of policy change, $C$, remain fixed. The assumption that the sunk cost increases with the level of existing trade is sufficient to conclude the higher the level of existing trade, the more likely the target is to comply if sanctions were to be imposed.

This is only part of the story, because we have assumed that the sender’s threats and promises are credible, which ignores any costs to the sender. If the sender carries out sanctions, it also will incur sunk cost, which increases in the level of existing trade. The sender’s cost and/or benefit of incentives is unrelated to the level of existing trade. In case of a trade expansion, the level of full trade depends on an efficient allocation of resources. The sender gains of the target’s policy concession are also unrelated to the level of existing trade as long as the contested policy is non-economic. Thus, the sender’s credibility in keeping the incentive promise is assumed to be independent of the level of existing trade.

The relationship between the level of existing trade and the effectiveness of sanctions is nonlinear. As the level of trade increases, the cost of sanctions increases both for the sender and the target. The net outcome of these offsetting effects depends on how sensitive the target’s decision is to the cost of sanctions and the sender’s credibility. To formalize these ideas, let $P$ denote the possibility of the sender carrying out the threat. If the target rejects the sender’s demand, its expected utility is $EU_r = P(C - L_{et}) + (1 - P)(C + G_{et})$. The expected utility of compliance is $G_T$. Thus, the target will comply if

$$G_T > EU_r = P(C - L_{et}) + (1 - P)(C + G_{et})$$  \hspace{1cm} (1)

The parameter $P$ is decreasing while $L_{et}$ and $G_{et}$ are increasing in the level of existing trade. The target’s decision problem in (1) will be compared with those it faces when the sender employs different strategies.

**Sanctions only**: Without the promise of increased trade, the target gains from compliance are $G_{et}$ (instead of $G_T$) which come at the expense of the contested policy $C$. Noncompliance allows the target to enjoy the contested policy but it will incur the loss of existing trade plus sunk cost, $L_{et}$. Sunk cost, which is associated with the
interruption of existing trade, increases in the level of existing trade. The sanctions become therefore more costly to the target as the level of existing trade increases. However, in the ‘sanctions only’-scenario, the reward of compliance, \( G_{et} \), increases as the volume of existing trade increases.

The credibility of the sender’s threat is also relevant in this case. As the level of trade increases, the sanctions become more costly to the sender, both because of the volume of trade lost and sunk cost. The probability that the sender carries out the sanction threat as a function of existing trade is the same as above, or \( P \). Once the target refuses, the costs and benefit of the sanctions are the same. The target’s decision, when threatened with a sanction, depends on the following equality:

\[
G_{et} > EU_t = P(C - L_{et}) + (1 - P)(C + G_{et})
\]  

(2)

If we compare the target’s incentive for compliance in (2) with the one in (1), it is clear that the target is more likely to comply if the threat of sanctions and the promise of new trade as (1) are employed at the same time.

**Incentives only:** If the target complies, it receives the benefit of full trade, but it has to change its policy. The payoff of compliance is therefore \( G_T \). If the target refuses, it forgoes the benefit of full trade, but it can keep its policy in place. Thus, the target will comply if and only if:

\[
G_T > C + G_{et}
\]  

(3)

If we compare (3) with (1), we again find that a combination of sanctions and incentives is better than promises alone. At any level of existing trade and regardless of the credibility of the sender’s sanctions, the target receives the same reward for compliance but a bigger penalty for rejecting if sanctions are possible (\( P > 0 \)).

It is instructive to examine the relationship between the effectiveness of sanctions and incentives and the level of existing trade further. In equations (1) and (2), the variables that depend on trade are \( P, L_{et} \), and \( G_{et} \), which are all located on the right hand side; \( P, L_{et} \), and \( G_{et} \) are decreasing, increasing, and increasing, respectively, in the level of existing trade. Since the target is most likely to comply at the highest
value of $G_T - EU_r$, the optimal level of existing trade to try an influence attempt from the sender’s point of view is the level at which $EU_r$ reaches its minimum.

In case the sender uses only sanction, we can similarly investigate the relationship between the level of existing and the effectiveness of the second scenario. It is straightforward to show that the target is most likely to comply when $G_{et} - EU_r$ is the largest. Since the right hand sides of equations (1) and (2) are the same, scenario (2) produces the same prediction as scenario (1). Solving this simple optimization problem leads to the following proposition:

**Proposition 1:** If $L_{et}$ and $G_{et}$ are monotonic in the level of existing trade and if an interior solution exists, the relationship between the level of existing trade and the effectiveness of sanctions used separately or in combination with incentives is first increasing and then decreasing in the level of existing trade.

That is, the sanctions are most effective when the sender induces the target to become economically dependent, but not so much as the interruption of trade becomes too costly to its own economy.

Furthermore, we can show that the optimal level of existing trade under scenario (2) is higher than under scenario (1).

**Proposition 2:** If the sender only threatens a sanction, the target has to be more dependent on trade than in case the sender employs a combination of sanctions and incentives.

The easiest way to demonstrate Proposition 2 is graphically, see Figure 1.

[FIGURE 1 ABOUT HERE]

When the sender only promises new trade as in scenario (3), its credibility does not depend on the level of existing trade. Therefore,

**Proposition 3:** When the sender only promises incentives, the target is more likely to comply at low levels of existing trade.

The optimal strategy for an influence attempt depends on the level of existing trade. It has been shown that scenario (2) with only sanctions required the highest
level of trade, followed by scenarios (1) and (3) respectively. In the last case, the sender should demand political concessions when the value of the incentive to the target is maximized. The ideal trade level thus equals zero, meaning that the sender should ask for political concessions before an exchange relation is established.

The discussion so far has led to two testable hypotheses. With respect to our first research question: when will incentives be used as part of sanctions?

HYPOTHESIS 1: *If the level of existing trade is lower, incentives are more likely used together with sanctions.*

Note that the sender is only expected to make an influence attempt that includes or relies on sanctions at intermediate levels of existing trade. If trade is too low, it is better off using only the incentive. If trade has become too extensive, the sanction is incredible and the incentive not valuable enough. In the last case, economic reality does not allow for a linkage with politics.

With respect to our second research question: is the use of sanctions and incentives more effective than the use of sanctions alone?

HYPOTHESIS 2: *The combined use of sanctions and incentives is more effective than the use of only sanctions.*

**The Value of Sanctions and Incentives**

The value of sanctions and incentives influences their use as strategies linking a political issue with economics. The equations (1) and (2) show that, given the threat with sanctions, the expected utility of noncompliance is a function of three parameters: P, L_{et}, and G_{et}. We have already used the information that these parameters are decreasing, increasing, and increasing, respectively, in the level of existing trade. However, the rate of change of the value of existing trade, the size of sunk cost, and the credibility of sanctions also affects the value of sanctions and incentives.

Target countries vary in their sensitivity to the threat of sanctions and the promise of incentives. (Keohane & Nye, 1977) Similarly, sender threats are not
always equally credible. We can think about relative target sensitivity and relative sender credibility as how strongly the parameters $L_{et}$, $G_{et}$, and $P$ react to changes in the level of existing trade.

First, we consider the implications when sunk costs, $L_{et}$, matters more to the target relative to existing trade, $G_{et}$. Sunk cost and existing trade both enter into the expected utility of noncompliance, $EU_r = P(C - L_{et}) + (1 - P)(C + G_{et})$. Whenever the sunk cost increases more rapidly than the value of existing trade, the expected utility function becomes steeper, i.e., the expected utility of noncompliance decreases more swiftly if the amount of exiting trade goes up. The implications of this are twofold. First, the maximum effect of sanctions and incentives takes place at a higher level of existing trade. Second, the difference decreases between the optimal level of existing trade for an influence attempt using both sanctions and incentives compared to the optimal level when only sanctions are used. In other words, sanctions are more effective relative to incentives if sunk cost outweighs the value of trade. The reverse of this statement also holds: incentives are more likely to be used if trade outweighs the value of sunk cost. Figure 2 illustrates this situation graphically.

Highly developed countries have to invest more in capital and infrastructure to maintain their international trade. In contrast, the value of existing trade is higher for developing countries. Consequently, sunk cost matters more for highly developed countries and the value of existing trade matters more for developing countries. Therefore, we examine the following hypothesis.

**HYPOTHESIS 3:** Incentives are more often used with sanctions in influence attempts versus underdeveloped countries.

The perception of sender credibility enters the target’s expected utility of noncompliance by way of the parameter $P$. If the sender’s credibility of imposing sanctions decreases for a given level of trade (i.e., sanctions are believed to be less likely), the $EU_r$ function flattens out. In other words, if sanctions are considered less likely, the existing level of trade is less important for the expected value of noncompliance. Again, the effects of changes in credibility are twofold. First, the optimal point to try an influence attempt based on sanctions and incentives is at a lower level of trade. Second, the difference increases between the optimal trade levels for an
influence attempt based on sanctions alone and incentives in combination with sanctions. To summarize, incentives gain in importance relative to sanctions if the credibility of sanctions decreases. Figure 3 illustrates this situation.

[FIGURE 3 ABOUT HERE]

It is reasonable to assume that the credibility of sanctions decreases if the sanctions are more costly to the sender. Moreover, several scholars have argued that domestic politics matter particularly for the imposition and continuation of sanctions. (Dorussen & Mo, 1997; Kaempfer & Lowenberg, 1992) The expectation is therefore that any threat to impose economic sanctions is less credible if such threat is made by more democratic country. The final two hypotheses follow.

HYPOTHESIS 4: If sanctions are more costly, then incentives are more likely to be used alongside sanctions.

HYPOTHESIS 5: Democracies are more likely to use incentives in combination with sanctions.

Testing the Use of Sanctions and Incentives

The Operationalization of Incentives

It is tempting to argue that sanctions imply incentives, because implicit in the implementation of a sanction is the promise that it will be lifted one day. Similarly, incentives can also be viewed as a potential sanction, because the sender can always take away the granted benefit. Although not unreasonable, such a position implies that it is impossible to distinguish analytically situations in which only sanctions are used from situations with sanctions and incentives. Thus, we propose a more careful distinction between sanctions and incentives. It is important that we clearly define what we consider as the ‘normal’ situation between the sender and the target.

To illustrate the idea, we suppose that the sanction and incentive take place along the same dimension, e.g., trade. We argue that with respect to the imposition sanctions, it is crucial to distinguish the status quo ex ante from the status quo ex post.
Moreover, since sanctions are generally lifted some day, we also need to distinguish between the status quo of the sanctions episode and the status quo following the lifting of sanctions (the status quo ex post, ex post). Thus, we need to consider three time points: $t$, the period before sanctions, $t+1$, the sanction period, and $t+2$, the period following the lifting of sanctions. The amount of trade in period $t$, we define as the ‘normal’ level of trade. It is reasonable to assume that sanctions decrease the amount of trade. Of course, the simultaneous use of incentives could offset the costs of sanctions. However, sanctions are meaningless without some loss of trade. Following the lifting of sanctions, the amount of trade can either stay below or return to the ‘normal’ level, or it can surpass the level of pre-sanctions trade. In the last case, we have clear evidence that incentives were part of agreement that ended the sanction episode. An important caveat is that the total amount of trade may have increased. To avoid this problem, we look at the changes in trade between sender and target as a percentage of total target trade.\(^4\)

The economic relationship between sender and target is, however, hardly one-dimensional. Trade sanctions need not affect foreign aid or foreign investments, nor need economic sanctions always target trade between sender and target. To observe the existence of incentives more generally, we basically follow the same procedure as above. There is some evidence of the use of incentives is we observe the incentive, e.g., aid, being provided in periods, $t$, $t+1$, and $t+2$. The incentive is, however, more strongly connected to the sanction, if it is withdrawn in period $t+1$ and restored in period $t+2$. Finally, the incentive may only have been provided in the period following the sanctions. We look at the existence of four different areas of incentives. The variable AID measures the presence of aid as an incentive. TRADE measures the existence of trade privileges. INVEST looks at sender provision of credits for infrastructure projects or export guarantees. MILITARY are incentives dealing with military equipment and possibly direct assistance by means of troops or military advisors. These variables take the value 1 if the incentive was provided in all three periods. The variables score the value 2 if incentives were either reinstalled or freshly

\(^4\)To be precise, we have used the dyad trade data compiled by Barbieri to determine the average dyad trade between target and senders relative to all target trade in the five year period before sanctions were implemented. We have done the same for the five year period following the lifting of sanctions. DIFF_DTS measures the change in export share after and before the sanction episode. Further information about the precise dating of the sanction episodes is described in Dorussen & Mo (1997).
implemented following the lifting of sanctions. Finally, we also use an index of these four variables, called INCENTIVE.

**Further Data and Research Design**

The study by Hufbauer, Schott, & Elliott (1990) is the main source of information on sanctions. They have collected an impressive amount of information on economic sanctions during the period 1914-1990. To update Hufbauer, Schott, & Elliott for the period 1990-1997, we have used the Keesing’s Historical Archives. Apart from a rich source of quantitative information, they also provide a case study for each episode, which we have used to extract additional information about the use of incentives. Hufbauer, Schott, & Elliott (1990) provide the source for the coding of the dependent variables AID, TRADE, INVEST, and MILITARY. Barbieri (1998) is the primary source for the dependent variable DIFF_DTS, which measures incentives as change in the share of dyad trade between sender and target as total target trade. We use the assessment of Hufbauer, Schott, & Elliott of the extent to which the outcome sought by the sender was achieved, RESULT, to measure the effectiveness of sanctions with or without incentives.

Hufbauer, Schott, & Elliott (1990) also are the primary source of several independent variables. LINKAGE measures the average of pre-sanction target-country exports to the sender country and imports from the sender country. S_COST is their assessment of sanction costs to sender. T_COST measures the costs to the target as percentage of its GNP. Cordial Prior Relation indicates whether the political relation between the sender and target was friendly before the imposition of sanctions. Population ratio is the size of the sender’s population relative to the size of the target population. This variable is a crude approximation of relative capacity. Barbieri (1998) has provided the essential information for several other independent variables. Development ratio measures the sender’s country per capita GNP to target country’s per capita GNP. We use development ratio to measure relative sender underdevelopment. Apart from the LINKAGE variable we use DYAD TRADE DEVIATION as an indication of existing trade levels relative to the optimal trade

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5 RESULT is a four point scale where 1 is failure, 2 unclear/positive, 3 positive, 4 successful. S_COST is a four point scale ranging from 1 (net gain) to 4 (major loss).
6 Normally, the ratio of sender and target total GNP is used for this purpose. However, since we use per capita GNP as a measure of (under)development. We can only use the population ratio.
levels based on estimates from a so-called gravity model (see the appendix for a detailed description of the Operationalization of this variable). We also control for any increase of the sender share in world trade. The Polity IIId-dataset (McLaughlin et al., 1998) is the source for the level of democracy of the target and sender. The level of democracy/autocracy are measured at the time point sanctions were lifted.

As we indicated above, we are restricted to examining the choice between the use of sanctions alone or in combination with incentives, because the main source of our data is a survey of sanction episodes. The preference for and effectiveness of incentives used separately falls outside the scope of the empirical analysis.

In general, our dependent variables have limited value invalidating the use of OLS regression. Thus, we use several generalized linear model and maximum likelihood estimation. Generalized linear models of y with covariates x are given by

$$g(E(y) = x\beta, y \sim F)$$

In (1) g( ) is the link function and F the distributional family. Substituting various definitions for the link function and the distributional family gives us the different models used below, namely

$$E(y) = x\beta, y \sim \text{Normal}$$

(2.1)

This gives ordinary linear regression. In the logistic regression, the link function is logit and the distributional family is the binomial:

$$\text{logit}(E(y) = x\beta, y \sim \text{Binomial})$$

(2.2)

Finally, if the link function is the logit and y is distributed Poisson (as in an event count model), the result is Poisson regression.

$$\text{logit}(E(y) = x\beta, y \sim \text{Poisson})$$

(2.3)

**When Are Incentives Used Alongside Sanctions?**

The combined use of sanctions and incentives is fairly common. We find that in about a third of the sanctions episodes, incentives and sanctions are used simultaneously. This finding strengthens our argument that the various influence instruments should not be studied in isolation from each other. However, compared with the studies in Cortright, this finding also suggests that influence attempts based on sanctions alone are more common than influence attempts based on incentives.
alone. In Cortright (1997) 15 cases are analyzed in which incentives were used. In only five of these cases, sanctions were not used as well.

Looking at the different areas in which incentives can be offered in detail, we find that in 47 of the 115 cases (41%) the sender provided economic aid to the target. In 34 cases this aid was affected because of the sanctions, and in 24 cases the aid was resumed following the ending of the economic sanctions. Excluding those cases in which sanctions have not yet been lifted, we find that in 36 cases (35%) sanctions were accompanied by incentives. In 23% of the cases studied in Hufbauer, Scott, & Elliott, the sanctions and incentives were clearly part of the influence attempt. Table 1 shows that the findings for trade and investment incentives are quite similar, but that incentives are less important if military assistance is targeted by sanctions. Finally, in 31 cases (27%) trade between target and sender trade (relative to target trade) increased following the lifting of sanctions.7

The bivariate correlations presented in Table 2 present a first test of our hypotheses. The predictions that follow from our model are that incentives are more likely if pre-sanction trade is less (H.1), the target is relatively underdeveloped (H.3), the sanctions are costly for the sender (H.4), and the sender is more democratic (H.5).

The evidence presented in Table 2 is mixed with respect to pre-sanction trade. The findings for changes in trade (DIFF_DTS) support hypothesis 1. Dyadic trade increased if there was less trade prior to the sanctions, and also is the pre-sanction trade level fell further short of the ‘optimal’ level. The findings for AID and TRADE are contrary to our hypothesis, while INVEST is again in support. The findings for the underdevelopment hypothesis are only supportive in case of AID; else the correlation is insignificant. More democratic senders are more likely to provide incentives, which supports hypothesis 5. The findings for the costs of sanctions are either insignificant or in the wrong direction. Thus, we find no support for hypothesis 4.

The different measurements of incentives are generally not highly correlated (less than .3). Somewhat disturbing is the finding that the correlation between trade incentives and change in export share is negative (−.2). However, trade incentives need not cause trade to actually increase. Companies may be hesitant to resume trade following the lifting of sanctions.
Next, we present more complete multivariate models. We use logistic regression for the variable AID, TRADE, INVEST, and MILITARY. The index INCENTIVES, based on these variables, has a scale ranging from 0 to 8. This variable is best treated as a count variable measuring the number of incentives used. Based on this argument and further diagnostics, we find Poisson regression to be the appropriate technique. In case of the change of dyadic trade, we can use OLS-regression.

The extent of trade before sanctions, LINKAGE, loses its significance in most models. The deviation from the ‘optimal’ trade level (Dyad Trade Deviation), is significant and has the correct sign in the model that looks at the difference between pre- and post-sanction dyadic trade share. Trade as an incentive is used with targets with less pre-sanction trade. However, the variable has the incorrect sign in the AID model. Aid is given as an incentive to target with which the sender has already extensive trade relations. We find only weak evidence that incentives are more used with respect to targets that are relatively underdeveloped, as predicted in H.3. Further, we find only in one model (DIFF_DTS) that more democratic states are more likely to use incentives alongside sanctions (H.5). However, in this model development ratio has the wrong sign (H.3).

The empirical evidence consistently contradicts H.4. If the sanctions are more expensive for the sender, the sender is less likely to use incentives. Two solutions are worth considering. If sanctions are more costly, they may actually be more instead of less credible, see for example Baldwin (1985). Another possible solution is that the domestic audience does not allow a sender government to offer incentives in addition to already costly sanctions.

The models in Table 3 control for several other variables, but they generally turn out to be insignificant. A common objection to incentives is that they are part of an appeasement policy. Thus, we control for the level of autocracy of the target. Only in the DIFF_DTS model, does appeasement seem to play a role in reducing the amount of incentives. The target cost of sanctions is generally insignificant. We find no evidence that a cordial relation between sender and target before the sanction

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8 The variables are recoded into dichotomies. Incentives were used if there were either pre-sanction incentives that were unaffected by the sanctions, or the incentives got restored following the ending of sanctions.
episode increases the use of incentives (contrary to Drezner, 1999). However, senders are more likely to give incentives to smaller target.

In summary, the empirical results lend some support to the ability of our model to explain when incentives are used alongside sanctions. The ex ante level of trade (and the deviation from ‘optimal’ level) influences the use of incentives. Incentives should provide the sender with a leverage over the target. We find, however, only weak support for the idea that democratic senders use incentives to make up for their credibility deficit with respect to the implementation of sanctions.

**Do Incentives Increase the Effectiveness of Sanctions?**

Critics of sanctions underscore the costs of sanctions to the sender state. Further, they emphasize that the ruling elite in the targeted state finds ways to mitigate the costs of the sanctions or that it is willing to have ordinary citizens suffer most of the costs (e.g., Kirshner, 1997). In summary, critics claim that sanctions are most of the time ineffective, because the costs fall on the wrong people. Supporters of economic sanctions emphasize the importance of the contested issue and point at the occasional success of sanctions, especially when the sanctions receive multilateral backing. Moreover, they accentuate the dearth of alternative instruments. An interesting question is whether incentives are possible alternatives to the use of sanctions alone.

The simplest test is a comparison of means. In Table 4, we show the results for the various incentive variables used in this study. We use as dependent variable RESULT, originally from Hufbauer, Schott, & Elliott.

![TABLE 4 ABOUT HERE]

We find that, in general, incentives add to the effectiveness of sanctions, but often the difference is hardly significant. The findings for the incentives index and aid lend the most support to our theoretical model. The findings for military aid and the actual difference of dyad trade share are, however, disappointing. Here, incentives seem to reduce the effectiveness of sanctions, but the differences are also clearly insignificant.

Table 5 gives the results of logistic regression with a binary recode of RESULT as the dependent variable. As independent variables, we use our measures
of the existence of incentives, as well as the costs of sanctions to the target, the ability of the target to evade the sanction costs (Target evasion), the level of cooperation with the sender (S_Cooperation), prior relation between target and sender, level of democracy of sender nation, and development ratio. We find that target sanction cost, target ability to evade these cost, as well as development ratio are significant. Contrary to what is generally found, richer countries are less (not more) able to coerce poor ones. Sender level of democracy and cooperation with the sender do not seem to matter. Prior friendly relations between target and sender are not significant either.

Focusing on the incentive measures, we find that the incentives add to the effectiveness of sanctions, as predicted by our theoretical model. The finding is strongest when we use the index variable. Here, the substantive effect of incentives is about half the size of the effect of the cost of sanctions to the target. In the second model, we split the incentives measure. We find that especially aid incentives add significantly to the effectiveness of sanctions (the trade incentives, which deal with preferred trade status, are borderline significant). But military incentives decrease their effectiveness. Finally, the actual difference in dyadic trade share was clearly insignificant and excluded from the model.

[TABLE 5 ABOUT HERE]

Conclusions

We believe that the renewed interest in incentives provides an important contribution to the study of sanctions (Long, 1997; Cortright, 1997; Drezner, 1999; Bernauer & Ruloff, 1999). This paper presents and test a straightforward argument for when incentives will be used alongside sanctions and, if so, why incentives increase the effectiveness of sanctions. In the current scholarly debate, incentives and sanctions are often convoluted. The resulting inability to analytically and empirically distinguish sanctions from incentives makes a serious evaluation of their relative effectiveness impossible. We argue that it is possible to analytically distinguish incentives from sanction. Moreover, we suggest a possible operationalization of this idea.
Our theoretical model is a relatively simple expected utility model. But it suffices to address the two main research questions. First, when will incentives be used next to sanctions? The model shows that the choice between the use of incentives or sanctions alone, and their simultaneous use depends on the level of interdependence between target and sender. Incentives are particularly useful at lower levels of interdependence. Sanctions at higher levels. The combined use of sanctions and incentives takes place at intermediate levels. We further derive that incentives are more likely to be used, if the sunk cost is less important relative to the value of existing trade. Incentives are also more likely to be used if sanctions are less credible. Finally, the simultaneous use of incentives and incentives should be more effective than the use of sanctions or incentives used separately. In other words, incentives increase the effectiveness of sanctions.

The empirical evaluation of our model focuses on the choice between sanctions and incentives used together or the use of only sanctions. We mainly rely on data collected by Hufbauer, Schott, & Elliott (1990), Barbieri (1998), and Dorussen & Mo (1997). The findings lend some support to our theoretical model. We find evidence that incentives are more likely to be used alongside sanctions when the sender-target trade interdependence is relatively low. We find some support for the idea that incentives should provide the sender with a leverage over the target. The evidence lends some support to the idea that democratic senders would use incentives to make up for their credibility deficit with respect to the implementation of sanctions. Finally, we also find that incentives add to the effectiveness of sanctions. The paper presents strong theoretical and empirical arguments that the effect of the ‘carrot’ and the ‘stick’ should not be studied in isolation of each other.

Appendix: Operationalization of Deviation from ‘Optimal’ Dyad Trade

Strictly speaking, in our theory the prior level of trade (LINKAGE) is not as important as the extent to which the prior level falls short of the trade without any trade barriers. For example, without trade barriers, trade with the US would be much more important for Cuba than North Korea simply because of geographic proximity. To operationalize the deviation from ‘optimal’ trade, we estimated a ‘gravity model’ for dyadic trade share ex ante. Gravity model are commonly used in economics and
political science (Pollins, 1989a, 1989b) to estimate the impact of economic and political factors on trade.

The basic form of the gravity model we use may be written as:

$$DTS_{ij} = \beta_0 GNP_s^{\beta_1} GNP_t^{\beta_2} B^{\beta_3} \mu_{ij}$$  \hspace{1cm} (a1)

Dyad Trade Share between sender and target is a function of sender and target GNP (total) and whether they share a common border. It is simple to express equation (a1) in linear form by taking the logs of both sides. The equation may then be rewritten as:

$$\log(DTS_{ij}) = \log(\beta_0) + \beta_1 \log(GNP_s) + \beta_2 \log(GNP_t) + \beta_3 \log(B) + \log(\mu_{ij})$$  \hspace{1cm} (a2)

Using OLS, we have estimated the second equation (a2) for the dyads with friendly or neutral relations. The results can be found in Table App. 1. Clearly, the model does very well to predict dyad trade shares. Next, we used the estimated obtained from a2 to determine the predicted dyad trade share for all dyads (including the adversaries). Finally, we determined the difference between the actual and predicted dyad trade share. The outcome of the final stage gives the deviation from ‘optimal’ dyadic trade.

References


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