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On the Determinants of the Success of Economic Sanctions: An Empirical Analysis *

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Theory: Theories predicting the success of economic sanctions are tested on the universe of sanction episodes from 1914 to 1989.

Hypotheses: The probability of success depends upon the cost to the target nation, the extent of trade linkages between target and sender, the stability of the target, the amount of time sanctions are in force, and whether financial sanctions are utilized.

Method: Data are analyzed using logistic regression.

Results: The factors affecting success depend upon the goals of the sending nations. When that goal is simply destabilization, the principal determinant of success is the initial stability of the target. For other goals, the use of financial sanctions is most effective. We also find evidence of a modest downward trend over time in the relative effectiveness of sanctions in the latter category.

Although the literature on economic sanctions is voluminous, there is a virtual absence of systematic empirical studies of the conditions that render sanctions likely to succeed. Instead, the existing literature is devoted almost entirely -to either qualitative case studies or purely theoretical, deductive models. Both approaches are surely valuable, but neither ultimately end in empirical generalizations. Indeed, the final value of case studies and formal models is precisely the generation of hypotheses to be tested empirically. While the literature is indeed rich in such hypotheses, rigorous testing has not been possible given the absence of appropriate data. In this brief paper, we attempt such an analysis using the extensive data collection on sanction episodes created by Hufbauer, Schott, and Elliott (1990).

Taking Stock

The logic of employing economic sanctions as an instrument of statecraft is well understood. Target countries suffer disutilities that result from

*Authors' names are alphabetical. We gratefully acknowledge the thoughtful comments of the anonymous reviewers and the AJPS editor. All data are from Hufbauer, Schott, and Elliott (1990). Empirical analysis was performed using PROC LOGISTIC in SAS. The SAS code and other documentation necessary to replicate our analyses are available upon request.

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the actions of countries imposing sanctions. The resulting costs, or the fear of such costs, in turn cause target states to moderate their behavior in the direction demanded by the "sending" nation(s). As a consequence, it is generally believed that the principal determinant of the success of sanctions is the extent of disutility actually experienced by the target. This, in turn, is affected by the ability or willingness of the sender to impose costs and the capability of the target to avoid or bear such costs.¹

Other factors have also been speculated to play a role. Given the largely qualitative and narrative aspect of much sanctions research, individual scholars have chosen to concentrate on different particular aspects (compare, for example, Doxey 1980; Daoudi and Dajani 1983; Nossal 1989; the various contributions to Leyton-Brown 1987; Hufbauer, Schott, and Elliott 1990; and Miyagawa 1992). Still, in broad outline, most concentrate on a handful of additional concerns.

Two of these are the degree to which the target relies on the sender for imports and exports (e.g., Hufbauer, Schott, and Elliott 1990; Miyagawa 1992) and the political and economic stability of the target (e.g., Green 1983; Rowe 1993). As a measure of the ability of the target to bear the costs of sanctions, the latter supplements the cost variable in an obvious manner. The former also compliments real costs, in that the extent of pre-sanction trade is thought to affect not only the immediate cost of sanctions, but the potential for future costs should the crisis continue (Eaton and Engers 1992).

Another, though less straightforward, issue common in the literature is the impact that the length or duration of the sanctions episode has on success. Longer sanctions are sometimes thought to increase the probability of success, in that longer duration increases the cost to the target (e.g., Brady 1987; Daoudi and Dajani 1983). In this view, sanctions may take time to take effect, and, therefore, the longer they are in force, the greater the disutility experienced by the target. Alternatively, others have argued that the longer sanctions are in place, the less effective they are. One obvious reason is that successful sanctions are imposed for a shorter period precisely because they have been effective and thus do not need to be continued. If target states do not quickly comply, they may be less likely to

¹The existence of international cooperation with the sender in the enforcement and maintenance of the sanctions, as well as the target's ability to find international assistance in avoiding them (or at least, their most deleterious aspects) are also sometimes thought to be important (Martin 1992). These concerns are relevant, however, only because they affect the costs imposed on the target. Hence, the potential impact of such matters may be safely absorbed into the general issue of cost.

do so over time, in that the passage of time may harden the resolve of the target (for a discussion, see Miyagawa 1992). Extended sanctions may also appear less successful because senders are reluctant to abandon the sanctions even after recognizing their failure (Leyton-Brown 1987). Finally, it is possible that longer sanction episodes are less successful because sending states are not capable of maintaining indefinitely the necessary international solidarity (Martin 1992; Nincic and Wallenstein 1983). Accordingly, as Hufbauer, Schott, and Elliott (1990) maintain, the duration of sanctions may contribute to "the waning prospects of success."

The type of sanction must also be considered. The most common are import/export restrictions. Another affects the finances of the target, e.g., by freezing assets (Alerassool 1993). Finance is of particular importance, given the nature of (rather than simply the extent of) costs imposed on the sender. Limiting imports and exports can devastate the local economy, but such costs often affect ordinary citizens far more than the entrenched elites who actually make policy decisions. Perhaps the most obvious examples of this are recent sanctions against Haiti, Iraq, and Serbia which imposed tremendous hardships on the general population but left elites virtually untouched. Hence, such sanctions may not only fail to have the desired effect, but could conceivably even increase nationalistic resistance to outside pressure (Galtung 1967).

Financial sanctions may be more effective, in that while they are surely capable of inflicting damage on the public, they may also have a more direct and immediate impact on ruling elites by limiting their access to foreign currency. A similar theoretical argument is offered by Kaempfer and Lowenberg (1992). Their microeconomic model suggests that sanctions are most likely to be effective when they "concentrate income losses on groups benefiting from the target government policies." In many situations, import/export restrictions are less likely than financial sanctions to affect adversely the interests of such groups, given that they may be more dependent on foreign assets. In effect, freezing foreign assets in this manner directly restricts access to resources of critical importance to elites (Morgan and Schwebach 1993).

Finally, we suggest that the success of sanctions may depend upon the goals of the sender. In the most basic sense, sanctions are of two types: those that are designed to compel the target to make some concrete change in its policies (e.g., South Africa to end apartheid), and those that are entirely punitive (e.g., United States sanctions against Cuba to destabilize the Castro regime). The former require a conscious change of policy by the target, whereas the latter do not. Hence, sanctions may be more likely to succeed when the goal is simply destabilization or punishment, in that governments clearly do not have to decide to allow themselves to be destabi-

lized. Given this difference, the determinants of success may differ depending upon the goals of the sender. One set of policy instruments might be quite useful in destabilizing countries but less effective in convincing them to change their policies.²

Data and Method

Our data are taken from Hufbauer, Schott, and Elliott (1990). While surely the most comprehensive and sophisticated data collection on sanctions available—indeed, to our knowledge the only existing data base appropriate for numeric analysis—these data suffer from two related problems. Of particular concern is the core question of whether and to what extent, sanctions have been successful. Hufbauer, Schott, and Elliott (1990, 41–2) address this matter by first creating a measure they call the “policy result,” meaning the “extent to which the outcome sought by the sender country was achieved.” This is then multiplied by a “sanction contribution” index, which is defined as “the extent to which the sanctions contributed to a positive result.” The resulting product is the “success score,” which serves as the dependent variable in their qualitative analysis.

There are two fundamental difficulties with this approach. The first is simply a matter of reliability. Both the policy result and the sanctions contribution are ordinal scales (1 to 4), so that there is of necessity a considerable degree of ambiguity in their coding. To be sure, the authors are aware of this fact. As they observe (1990, 41), “judgement plays an important role in assigning a single number to each element in the success equation.” They attempt to minimize the heavily subjective aspect of this process by relying upon the assessments of prior scholars when possible, but ambiguity will surely remain.

The second and more troubling problem is conceptual. Defining the success of a sanctions episode as the product of the two indices may be perfectly appropriate for their purposes, but it makes little sense from the perspective of quantitative analysis. There is simply no theoretical, empirical, or statistical reason for the policy outcome to be multiplied by another variable designed to assess the contribution of sanctions to the observed result. The purpose of statistical estimation is precisely to find generalizable

²Hufbauer, Schott, and Elliott (1990) use a fivefold categorization of the goals of sender states: (1) change target policies in a modest way, (2) destabilize the target, (3) disrupt a minor military adventure of the target, (4) impair the military potential of the target, and (5) change the target’s policies in a major way. We have included categories (2) and (4) in our definition of destabilization. However, the results reported below are similar if the cases in (3) are added to the destabilization category.

relationships between variables. The contribution of sanctions—or, rather, the components thereof—is precisely what is to be estimated.

This problem is easily solved by using only the Hufbauer, Schott, and Elliott (1990) policy result as the dependent variable. Doing so also greatly diminishes the problem of ambiguity, in that half of the subjective judgment is eliminated. In this way, only the comparatively simple task of measuring the policy response remains. Ambiguity can be further reduced by recoding their ordinal scale into a simple dichotomy taking the value of 1 when there is a clear positive outcome and 0 otherwise.³

Given a binary dependent variable, we utilize logistic regression, with the various independent variables discussed above operationalized with the Hufbauer, Schott, and Elliott (1990) data: (1) cost to target as a percentage of its GNP; (2) import/export “trade linkage” between target and sender, expressed as the mean “pre-sanction target-country exports to the sender (as a percentage of total target-country’s exports) and imports from the sender (as a percentage of total target-country’s imports);” (3) an ordinal variable for the health and stability of the target, coded 1 for “distressed” countries, 2 for countries with “significant problems,” and 3 for “strong and stable” countries;⁴ (4) the length of the sanctions episode, measured in years, and (5) a dummy coded 1 if sanctions are financial, and 0 otherwise. Finally, given that we analyze data over a 75 year period, we add (6) the year (coded 14 through 89) of the episode so as to control for possible secular trends in the success of sanctions over time.

Analysis

Results for the cases where the goal of the sender is destabilization of the target are provided in column (a) of Table 1. Three of the independent variables are significant and of the expected sign: cost to target, length of the episode, and the political-economic stability of the target. Trade linkage and the presence of financial sanctions do not approach conventional levels

³The policy outcome variable, per Hufbauer, Schott, and Elliott (1990, 42), initially takes four values: 1 = failed outcome, 2 = unclear outcome, 3 = at least somewhat successful result, and 4 = completely successful outcome. Our measure takes the value 1 (success) when their outcome variable equals 3 or 4, and 0 (failure) otherwise.

⁴Hufbauer, Schott, and Elliott explain their coding scheme thus (1990, 46): A country that is “distressed” is one that is suffering both severe economic dislocations and political turmoil “bordering on chaos,” e.g., Chile in the Allende period. A “strong and stable” nation is one in which the government is firmly in control (though some dissent may be present) and whose economy is within a “normal” range of performance, e.g., India during the early 1970s. States with “significant problems” form the residual category between these extremes, implying pronounced economic difficulties coupled with substantial internal unrest, e.g., Ceylon (Sri Lanka) in the 1960s.

Table 1. Success of Economic Sanctions

	Destabilization		All Other Goals	
	(a)	(b)	(c)	(d)
COST	.36* (.25)	.25* (.19)	.10 (.14)	n/a
TRADE	.00 (.03)	n/a	-.00 (.01)	n/a
HEALTH	-1.11* (.74)	-0.91* (.63)	-0.20 (.43)	n/a
LENGTH	-.05* (.03)	-.05* (.03)	-.02 (.04)	n/a
FINANCE	-2.33 (2.10)	n/a	.96* (.63)	1.11** (.58)
YEAR	.02 (.03)	n/a	-.04** (.02)	-.03** (.01)
constant	3.06 (3.67)	2.08* (1.33)	2.00 (2.03)	1.03 (1.13)
N	29	29	80	81
-2 LOG L	27.02	29.52	100.95	104.62
Chi-square	12.31	9.82	8.71	6.67
% Correct	69.0	75.9	60.0	64.2
PRE	.25	.42	.09	.19

*significant at .10 level.

**significant at .05 level.

of statistical significance (the latter being of the wrong sign in any case); nor is there a time trend, given the complete insignificance of the year variable. Substantively, the model suggests that sanctions are likely to succeed the greater the costs imposed, the shorter the sanction's episode, and the weaker or more unstable the target. Given the modest number of cases and the presence of three seemingly irrelevant variables, we also reestimated the model when retaining only the significant variables (column b). Results are substantively identical.

A rather different picture emerges for other types of goals, as column (c) of the table attests. Here, neither length of the episode, nor the health of, or costs to, the target are of any import. Instead, we find a significant and negative coefficient for year (suggesting a downward trend in success over time) and, more interestingly, a significant and positive coefficient on the finance variable (implying, of course, that the use of financial sanctions increases the probability of success). Dropping the irrelevant variables (column d) leads to much the same conclusions.

While different from the destabilization findings, these results are also intuitively appealing. Policymakers are likely to swallow national pride and

succumb to external pressure only when they themselves or the (typically elite) groups upon which they depend for their political survival suffer severe disutilities. Hence, neither the health of the target, nor even the total cost of sanctions *per se*, have much of an effect. Instead, we see the importance of finance, presumably because, as we argued above, financial sanctions are more capable than other types of specifically affecting the welfare of elite actors.

To interpret the magnitude of the results, we compute a base probability of success for a reference case using the reduced models in columns (b) and (d). The effect of a change in any given variable can thus be determined by calculating the new probability when that variable assumes a different value. For destabilization, with cost and length set at their mean values and the country assumed to be “stable” (health = 3), the probability of success is about .38. Decreasing length by 50% increases the likelihood of success to .45, while increasing the cost of sanctions by the same percentage increases the probability of success to only .47. In contrast to these fairly marginal changes, the health of the target state appears to be of enormous importance. If instead of being generally stable the target has “significant problems” (health = 2), the probability of a successful outcome increases to .61; if the target is “distressed” (health = 1), the probability soars to .80. The obvious implication is that the most important factor determining the capacity of sanctions to destabilize a country is its initial stability. Put baldly, states that are close to the precipice are more likely to be nudged over the edge by sanctions. By comparison, changes in the time sanctions are in force, or the total costs they impose, have little effect. The relatively modest impact of the latter is of particular importance, in that it is ultimately the only one of the three significant variables that is open to manipulation by the states pressing sanctions. More generally, the suggestion is that nations which are weak to begin with are easily destabilized by sanctions, while stronger states are relatively immune to even very high cost sanctions.

For goals other than destabilization, the reference case—year at the temporal midpoint of the sample and financial sanctions not invoked—has a probability of success of .37. This increases to .44 if we move backward a decade in time. The use of financial sanctions has a much stronger impact, increasing the probability of compliance almost twofold to .64. These results are rather more encouraging, suggesting as they do that policymakers can dramatically affect the probability of success (other things being equal) by the available intervention strategy of using financial sanctions.

This finding is also consistent with, and supportive of, theoretical arguments developed by Alerassool (1993), Kaempfer and Lowenberg (1992), and Morgan and Schwebach (1993). Their work implies, in somewhat different ways, that sanctions will be most profitable when they impose costs

directly on the elites that governments depend upon for political support. Our evidence on the special utility of financial sanctions is also relevant to recent work on the normative status of sanctions that target the general population (e.g., Damrosch 1993). If our conclusions are correct, questions of efficacy and morality may dovetail nicely: financial sanctions are not only more ethical, they are also more effective.

In sum, our analysis suggests that the principal determinant of success for destabilization is simply the stability of the target. Weak targets, not surprisingly, are easily destabilized by sanctions; stronger countries are seemingly quite capable of resisting the costs that sanctions impose on their economies. For other policy goals, the decision to use finance as a weapon of statecraft is most crucial.⁵ In neither case does the “common sense” approach of crippling a nation’s economy seem to be especially productive.

Discussion

Our analysis has two obvious implications for the study of economic sanctions. The first is the substantive conclusions outlined above: the factors which determine the effectiveness of sanctions depend upon the goal of the sender. If sanctions are designed simply to punish, then virtually the only matter of consequence is the target’s initial stability. If sanctions are actually designed to precipitate proactive changes in policy, then the use of financial sanctions appears to be most productive.

The second concerns the more general matter of our ability to predict the success of sanctions. Some have argued that each sanction’s episode is so unique that it is essentially impossible to derive “hard” generalizations or predictions aside from the conclusion that sanctions typically do not succeed (e.g., Doxey 1980; Hufbauer, Schott, and Elliott 1990). We

⁵In diagnosing the models, we relied upon the methods suggested by Pregibon (1981), principally the *dfbetas*. For destabilization, the coefficients of the length and cost variables are somewhat sensitive to case selection, i.e., removing some leverage points reduces them to strict insignificance (though they remain of the same sign). However, the effect of removing “suspicious” cases is uniformly to decrease the standard error of the health variable, such that it is always significant at the .05 level or better. For goals other than destabilization, the results are extremely robust, remaining unchanged when removing all questionable cases. We also attempted to assess the stability of the results vis-a-vis sample in two other ways: (a) by removing the handful of cases that took place during the two world wars and (b) removing all cases prior to 1950. In regard to (a), results are similar to what occurs when removing cases with large *dfbetas*: for goals other than destabilization, results are unchanged; for destabilization, health remains significant (at the .05 level) while cost and length do not. This is consistent with our contention that the contribution of these latter terms is small relative to the health and stability of the target. When examining only the post-1949 period, there are insufficient cases for destabilization to derive stable estimates; for other goals, results are again substantively identical to those reported above.

have demonstrated, if nothing else, that there are identifiable empirical regularities in the success of sanctions.

That fact should encourage further systematic analyses on a number of issues that our study does not address. First, our data suggest that for goals other than destabilization, there is a modest but real downward trend over time in the likelihood that sanctions will succeed. There are two plausible explanations, both of which depend upon the fact that the majority of sanction episodes in our sample were imposed by the United States (either alone or in conjunction with other states).⁶ One possibility is that the frequent use of sanctions by a single nation has produced declining credibility over time (Hufbauer, Schott, and Elliott 1990; Paarlberg 1983). Put differently, the more often the same state imposes sanctions, the less credible that country's commitment or seriousness appears to target nations. It may also be the case that sanctions have become less useful over time because of the increasing propensity of the United States to use sanctions for entirely symbolic reasons. In other words, we suspect that sanctions are not always specifically designed to succeed, or at least not to succeed in their ostensible (i.e., publicly stated) goals. If, instead, the actual goals are purely symbolic or expressive, they can hardly fail to succeed in their true goal of showing disapproval, but are nonetheless judged as unsuccessful because they did not produce the change in behavior that was the official, rhetorical goal. To understand how and when sanctions work, then, we need better data on what they are in fact meant to achieve.

Similarly, we need more detailed and precise information on financial sanctions. The concept is quite broad and the present data are incapable of distinguishing the several strategies subsumed under the rubric of finance.⁷ A more refined operationalization of this notion may contribute to our understanding of when such sanctions are likely to succeed in coercing target states.⁸

Finally, and most generally, our analysis suggests that an appreciation of both the problems and promise of economic sanctions requires a more sophisticated understanding of the costs that sanctions impose. Most prior work has typically judged cost in terms of conventional aggregate indicators such as GNP. While such measures have an obvious intuitive appeal, our results imply that it may be more rewarding to focus on the direct costs

⁶The results for the relevant models (columns c and d) are not materially affected by the inclusion of a dummy variable for the United States as imposer of sanctions.

⁷These include: barring loans from international financial institutions; tightening the conditions of debt repayment; freezing assets of the target government, its corporations, or citizens; and suspending the convertibility of the target state's currency.

⁸The importance of financial sanctions also suggests greater scholarly sensitivity to an appraisal of the factors encouraging or inhibiting their implementation (Carter 1988).

to elite actors. Devastating a nation's economy may help to destabilize it, but this kind of generalized economic punishment does not seem to be particularly helpful in compelling targets to moderate their behavior. If so, more attention might profitably be paid to the question of whom the various types of sanctions are likely to affect.

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