

**(Mis) Selection Effects and  
Sovereignty Costs: An Alternative  
Measure of the Costs of Sanctions**

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# (MIS)SELECTION EFFECTS AND SOVEREIGNTY COSTS: AN ALTERNATIVE MEASURE OF THE COSTS OF SANCTIONS

## I. INTRODUCTION

Although sanctions have been a much discussed topic in the fields of Economics and Political Science for several decades, there remain few formal frameworks<sup>1</sup> for explaining or predicting why some sanctions attempts are successful and others unsuccessful in terms of altering a target's public policies.<sup>2</sup> In one of the most widely cited studies of economic sanctions episodes, Hufbauer, Schott, and Elliott offer an arch-typical example of the vague explanations that beleaguer sanctions theory:

"Sanctions often do not succeed in changing the behavior of foreign countries. One reason for failure is plain: the sanctions imposed may simply be inadequate to the task. The goals may be too elusive, the means too gentle, or cooperation from other countries, when needed, too tepid." (1985: 10)

Although these observations are undoubtedly true, we are still left far from understanding how to estimate the relative adequacy of sanction proceedings, or the likelihood of success for any given sanction episode.<sup>3</sup>

Only negligible progress can be traced back to the use of historical case studies to determine the mechanisms that underscore decision-making processes of sender nations (Galtung 1967; Doxey 1971; Schreiber 1973; Strack 1978; Cross 1981). Nevertheless, according to Lopez and Cortright (1985: 7), a "conventional view" has developed; namely, that sanctions, even "costly" ones, are ineffective. Though

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<sup>1</sup> In an analytical approach that parallels ours, Selden (1999, p.17) uses a model of tariff-distorted production to explain welfare loss to consumers and producer gain under sanction. This research and several others take their inspiration from classical economic studies on optimum tariffs. For a classical model on optimum tariffs, see Harry G. Johnson (1953-54:142-53).

<sup>2</sup> In this analysis, we assume that the goal is to initiate change in the target's policy. While states may use economic sanctions to pursue other goals or to achieve several objectives simultaneously (Baldwin 1985: 167), we are attempting to understand the conditions under which target states are likely to alter their policies in response to sanctions. If a sender's objective is less ambitious than a change in target policy, one could nevertheless conclude that a change in policy is still desirable. It is therefore appropriate to study the cost of sanctions by the yardstick of whether or not change has followed.

<sup>3</sup> This is certainly not due to a lack of previous attempts to solve the sanction puzzle. See, *inter alia*, Galtung (1967), Doxey (1971), Dashti-Gibson et al. (1977), Baldwin (1985), Nossal (1989), Eaton and Engers (1992, 1999), Morgan and Schwebach (1995), Simon (1995), Smith (1995), Pape (1997), Drezner (1998, 1999, 2000), Drury (1998), Morgan and Miers (1999), Selden (1999), Hart (2000), Bolks and Al-Sowayel (2000).

supported by many, including Doxey (1971), and Nincic, and Wallenstein (1983), this view belies frustration more than fact. Occasionally, targets do acquiesce.<sup>4</sup> Though the relationship is tenuous, cost as traditionally measured is perceived by most to be the main variable explaining the effectiveness of economic punishment (Dashti-Gibson et al. 1997; Drury 1998; Hart 2000).

Attempts to explain the frequent disconnect between “cost” and success have led some to introduce explanations that seem logically inconsistent. For instance, some have argued that the cost of sanctions might be unrelated to their effectiveness because the credibility of a sender’s commitment can be enough to sway a target’s policy regardless of the costs associated with the sanctions themselves (Eaton and Engers 1992). Using similar reasoning, Kaempfer and Lowenberg (1988) assert that the cost of sanctions might not be directly related to their efficacy because even low cost sanctions can exacerbate unrest in the domestic arena of a target country (Kaempfer and Lowenberg 1988: 786).<sup>5</sup> These theories may explain why some relatively low-cost sanctions induce change, but they do not address the question of why some “costly” sanctions do not lead to change.

Alternatively, some suggest that countries that use repeated sanctions *lack* credibility, because they impose sanctions too often and therefore lack “seriousness” (Dashti-Gibson et al. 1997: 616; see also Paarlberg 1983; Hufbauer, Schott and Elliott 1985). However, to the extent that the sanctions are really “imposed” (i.e. they lead to an actual interruption of trade), repeat users of sanctions should present a more credible threat. If the frequent use of sanctions by a particular sender nation prompts potential targets to avoid trade with the sender altogether, then the supposed sanctions are in name only – imposing little or no cost and telling us little or nothing about the relationship between cost and success.

Hufbauer et al. (1985: 12) have hypothesized that anomalous outcomes are explained by the “resolve” of target decision makers – a sudden increase in nationalistic fervor and social willingness to

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<sup>4</sup> The consideration of a “successful” sanction episode is in itself a controversial topic. See, for instance, criticisms of Hufbauer, Schott, and Elliott’s empirical analysis (1985, 1990) by Pape (1997) and Drury (1998). Pape is especially caustic in his re-evaluation of their results by arguing that only 5 of their 40 alleged successes can actually be labeled as such (p. 93).

<sup>5</sup> The counter-argument is the possibility that sanctions create the incentive for a patriotic “rally around the flag” effect in the target nation (Galtung 1967, Hufbauer, Schott and Elliott 1985).

sacrifice for the sake of saving face internationally.<sup>6</sup> However, if lost trade is the *relevant* cost measure, then evidence of “resolve” should *decrease* as lost trade (i.e. cost) increases. Stated differently, increasing cost should be associated with increasing success for senders. If it is not, then we must consider the possibility that the wrong estimate of cost is being used. Sanctions episodes that do not work cannot, at the same time, be appropriately labeled “costly.”

Finally, arguments which suggest that the objective of sanctions might not be to prod changes in a target, but rather to “serve the interests of pressure groups within the sender country” (Kaempfer and Lowenberg 1988: 786. See also Smith 1995: 230). This view does not address the connection between the measured cost of sanctions and likelihood of a change in the targeted policies. Instead, they articulate why nations continue to employ sanctions when a change in targeted policies is not guaranteed.

One way to explain the increase in domestic “resolve” is to identify benefits to domestic groups that increase with reduced trade and offset traditionally measured GDP losses. Selden (1999: 20-21) astutely points out that if sanctions can create groups of gainers, such as import-competing industries, who benefit from limited international competition, they can also harm the interests of group who rely on international supply of goods, as well as export-oriented producers. As these groups organize, they will lobby key lawmakers for the end or the maintenance of the sanctions.<sup>7</sup> For reasons that we explain below, groups that benefit from import-restricting sanctions will increase their political leverage and, in turn, decrease the likelihood of a successful sanctions episode. On the other hand, financial sanctions are unlikely to lead to gainers in the recipient country and groups will organize to pressure their government to comply with the demands of the sender.

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<sup>6</sup> Drezner (1998: 711) presents an argument on resolve that is closer to our views. According to him, states are concerned that concessions made in the present can be utilized later to threaten their security. Our position is that these fears are embedded in more general sovereignty costs that a target state perceives it must pay for its compliance with a sender nation.

<sup>7</sup> In the United States, the most powerful lobbying group in favor of scaling back sanctions is represented by USAengage (<http://www.usaengage.org>). USAengage, a group that has received the endorsement of Dick Cheney and Colin Powell, represents the interests of American farmers. The Israel Public Affairs Committee (<http://www.aipac.org/>) and the Cuban American National Foundation (<http://www.canfnct.org/>) are the most vocal groups supporting the continuation of sanctions.

Another possibility, which we explore here, is that the effectiveness of a sanction episode is unrelated to how we currently perceive the cost of such sanctions. We have no contention with the claim that, just like any other foreign policy tool, economic sanctions are more likely to be successful if a sender nation can exert significant leverage on a target country. Indeed, bargaining leverage is an adequate measure of the value of using economic punishment to resolve disagreements among states (Morgan and Schwebach 1997; Drury 1998; Hart 2000). We are more dubious of the suggestion that such leverage should be measured in terms of pre-sanction trade linkages (Hufbauer, Schott, and Elliott 1990; Miyagawa 1992; Dashti-Gibson; Drury; 1998; Hart 2000) or on the basis of a nation's economic power loss.<sup>8</sup> Misapprehension by policy-makers of the true cost of sanctions may explain the United States' frequent use of economic coercion, but it may also provide a strong explanation for "why sanctions don't work." In part, our position is that if sanctions targets are "selected" on the basis of how a sender can hurt the trade prospects of a target, leaders may choose their targets on the basis of a fallacious measure of the cost of sanctions.

It is a straightforward matter to identify the relevant cost facing individuals, but costs internalized by national governments are not nearly as obvious. If we cling to a meaningful notion of "cost" (where an increase in cost leads to a decrease in demand), the task of sanctions research should be to uncover an appropriate measure of the cost of sanctions – one that is more consistent with empirical observation. In order to identify the *instrumental* cost for target nations, we will begin with the premise that the relevant cost of sanctions is revealed by the empirical world. Sanctions that were "costly" were more often successful, while sanctions that were "not costly" were less successful. Sanctions research should endeavor to discover an *ex ante* theoretical foundation that accommodates "more costly" being synonymous with "more likely to succeed in exacting change".

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<sup>8</sup> For instance, Pape (1997) indicates that despite facing the most extreme sanctions in history (48% of its GNP being eliminated by sanctions over a period of five years), Iraq has not buckled.

## II. OVERVIEW

This article has two basic objectives. First, we suggest an alternative theoretical framework for assessing the cost of sanctions. Second, we propose a concrete method for measuring the cost of sanctions based on our alternative framework.

In Section III, we argue that the principal-agent problem that characterizes the relationship between governments and their societies makes the traditional methods for estimating the cost of sanctions misleading in terms of anticipating a target's policy response. After identifying weaknesses in the existing paradigm, we propose an alternative theoretical framework for measuring sanctions that depends on the axiom that governments have a unique set of preferences centered on the desire for unabated sovereignty.

In Section IV, we propose a measure of the cost of sanctions that reflects the proposed theoretical framework. In addition to accurately capturing the scope of the theory as initially defined, the functional form chosen extends the scope of the theory by implying unexpected and intriguing conclusions. Finally, the cost model will provide a useful guide for indirect empirical tests that may ensue.

Using the alternative cost measure, we attempt to generate theoretically grounded insights into two important observations that have emerged from sanctions literature: 1) sanctions that are imposed quickly are relatively more effective than sanctions that are imposed slowly, and 2) financial sanctions are more effective than trade sanctions in terms of exacting changes in target policy. More interestingly, our alternative measure of sanctions costs lead us to believe that sanctions are more likely to work when used against a developed economic power than against a developing country. This may provide an indication of 'why sanctions don't work' given that such sanctions are traditionally imposed on small economic powers.<sup>9</sup>

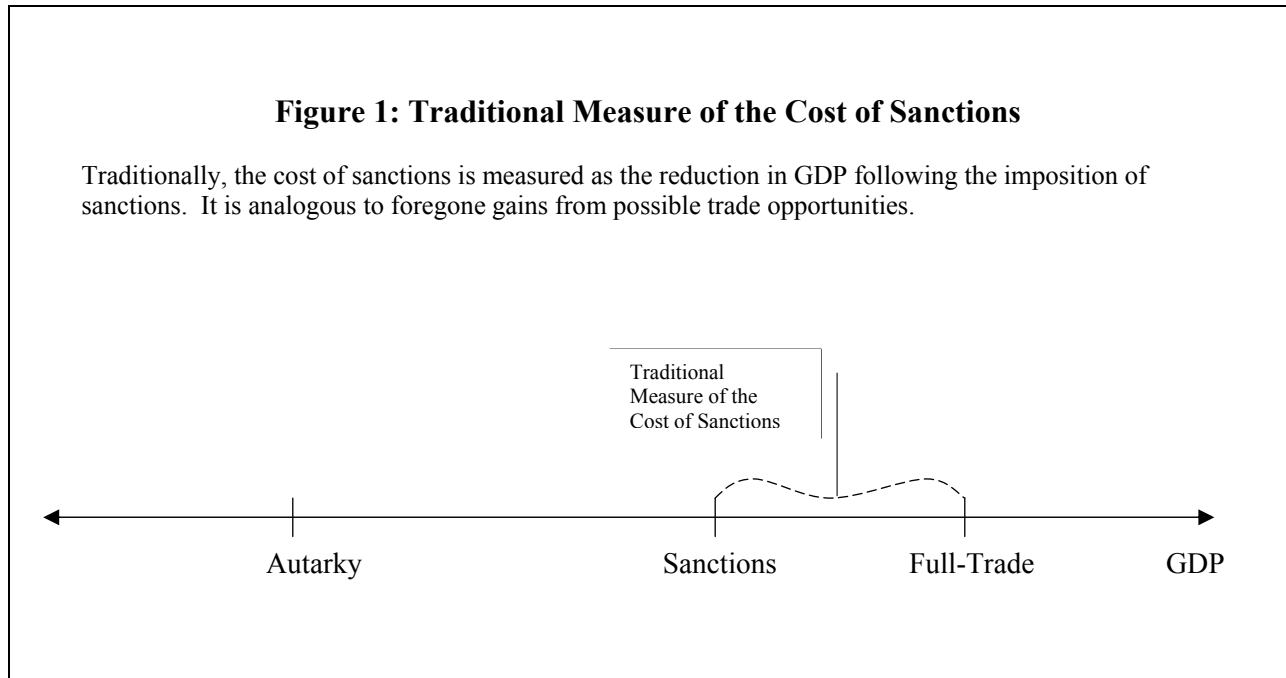
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<sup>9</sup> From our account of sanction episodes indexed in Hufbauer, Schott and Elliott (1990) for the period 1914-1989, only 16.5% of all cases (18 out of 109) are imposed on developed economies. In a recent study updating their original data, Elliott and Hufbauer (1999: 405) indicate that only 11% (6 out of 56) of sanctions during the 1990's were targeting European countries. None of them were imposed on North American states. Another source indicates that unilateral American economic sanctions target more than 75 of the world's nearly 200 countries, with only a handful targets being highly industrialized countries (Canada, Italy, Japan and Taiwan. See USA Engage 2000). Furthermore, the current targets of the most comprehensive American unilateral sanctions under the Trading

### III. RATIONAL BEHAVIOR OF NATIONS

“There is neither logical reason nor historical evidence that political or psychological collapse inevitably follows economic hardship.” (Porter, 1979: 581)

Traditionally, the cost of a sanctions episode has been estimated as lost trade, as illustrated in Figure 1 (Pape 1997: 96). There are a variety of sound reasons for using this measure when studying sanctions. First, lost trade constitutes a reduction in social welfare for a target nation, and therefore is appropriately viewed as the cost incurred by society. In addition, lost trade is tractable – easily identifiable and easily measured (relatively speaking). Finally, there are no immediately apparent alternatives.



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with the Enemies Act or the International Economic Emergency Powers Act are all from the developing world: Cuba, Iraq, Iran, Libya, North Korea, Yugoslavia, and Angola.

However, the shortcomings in aggregate measures of lost trade for the purpose of understanding sanctions have been recognized in previous studies. Dashti-Gibson, Davis, and Radcliff point out that their “analysis suggests that an appreciation of both the problems and promise of economic sanctions requires a more sophisticated understanding of the cost that sanctions impose.” (1997: 616)

One problem with our comprehension of the cost of sanctions as it exists today is that it is an application of consumer rationalism to government decision-makers. In effect, this approach suggests that when faced with sanctions government decision-makers perfectly reflect the aggregate interests of society, and seek primarily to maximize national economic welfare.<sup>10</sup> Although one would hope that governments behave with these goals in mind, there is ample evidence to believe otherwise. If authorities were only interested in maximizing economic welfare, then *there would be no barriers to trade*. (Furthermore, income taxes would be the only form of government taxation and individual subsidies would be of the block-grant/cash form). In the current era of increasingly unfettered international trade, it is also easy to forget that the vast majority of government actions still serve to reinforce or enhance the integrity of national boundaries and domestic sovereignty at the expense of economic gain. The exceptions are noteworthy, and can be itemized quite neatly during the evening news. Hence, a better way to conceptualize the impact of sanctions is to think about how they affect directly or indirectly the political elite in a target country (Kaempfer and Lowenberg 1992; Alerassool 1993; Morgan and Schwebach 1995; Smith 1995; Dasti-Gibson et al. 1997).

Public choice theorists have attempted to address this problem by incorporating state-level interest groups into the decision-making process of target nations (Kaempfer and Lowenberg 1988). However, in so doing, they seem to suggest that the foreign policy choices of target governments are largely an epiphenomenon of the distribution of the costs of sanctions and interest group pressure: “State

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<sup>10</sup> Economists have perhaps been the most egregious in their failure to recognize this principle-agent relationship, and have generally ignored the possibility that anything other than maximization of social welfare is at issue with trade. The entirety of international economics analysis depends on changes in social welfare realized through trade. In the area of sanctions, an enormous volume of economics research published during the late 1970’s and early 1980’s following the oil crisis used lost GDP, lost trade, and lost social welfare in attempts to quantify the impact of sanctions and to proscribe policy choices under the threat of sanctions.

Policy – including foreign economic policy – is therefore comprehensible only if viewed as the consequence of competing influences exerted by interest groups” (Kaempfer and Lowenberg 1990: 180). This tells part of the story. Yet, it also appears to trivialize the power of national leaders to an extent that contradicts intuition, especially with respect to foreign policy decisions. Although officials everywhere must answer to the demands of various domestic actors, it seems excessive to create a model that relegates government to handmaiden of special interests.

As an alternative to traditional measures, in this article we propose a model of cost that is based on the hypothesis that the most fundamental goal of any government is the desire to exercise control and demonstrate or reinforce its position of self-rule, and that in the international arena other government objectives are secondary.<sup>11</sup> This cost assessment views national governments as unitary actors pursuing their own, narrow interests when faced with sanctions – namely, self-perpetuation and validation - through their international status as sovereign with respect to internal policy matters. Therefore, while not being categorically opposed to marginal improvements in the well being of citizens, a government would, **ex ante**, enter into trade only if it believes trade will not interfere with their legitimacy as sovereign. If forced to choose between sovereignty and additional social welfare through trade, the government will choose sovereignty.<sup>12</sup> This hypothesis is consistent with the observation by Willett and Jalalighajar that “increased cost to the target government of continuing its policies seldom outweighs the political cost of appearing to give in to foreign influences” (1983: 724).<sup>13</sup> In our view, for government leaders, the decision to enter into trade (subsequently referred to as the “entry decision”) requires that the gains from trade be an economic “windfall”.

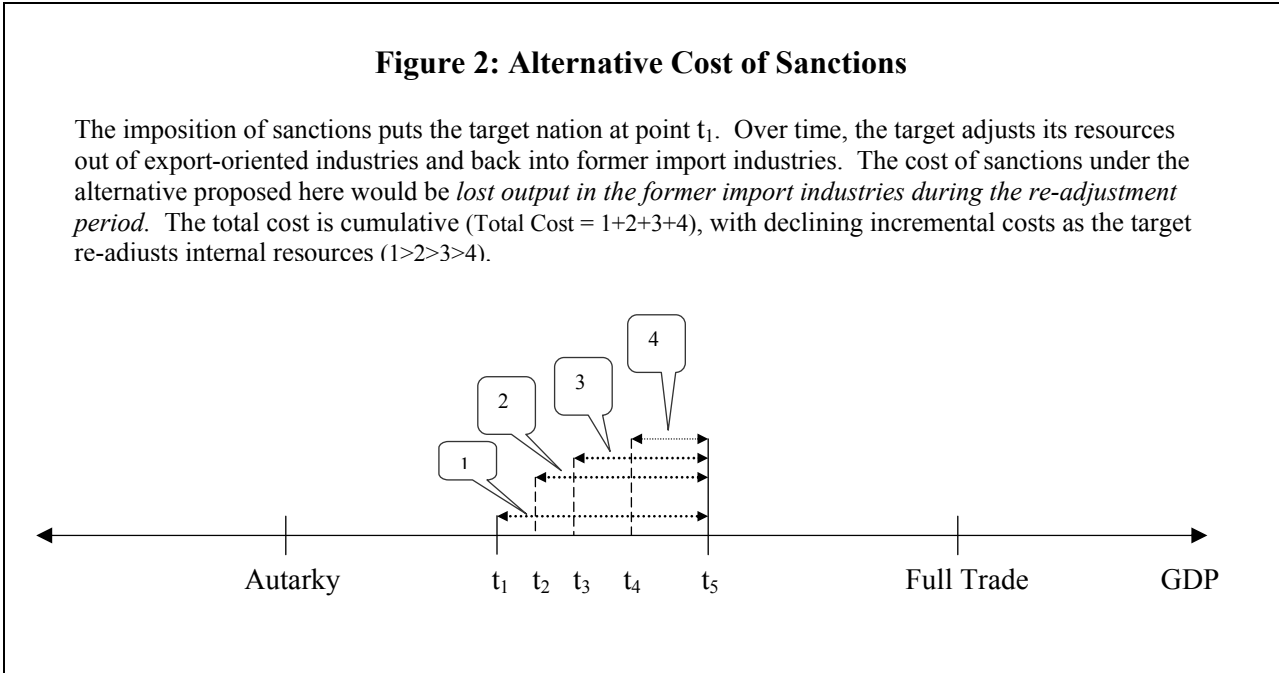
Critically, we feel it is important to point out that states may initiate policy changes to facilitate trade; but changes, as such, do not constitute a loss of sovereignty. Sovereignty is not a necessarily a

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<sup>11</sup> Much in the same way that physical safety is the “highest” goal of an individual, and that it must be met before any others can be pursued.

<sup>12</sup> This argument assumes autarkic self-sufficiency, which can be considered a *very minimal* requirement. Citizens, furthermore, are sympathetic to the primacy of sovereignty as a goal. The “rally-around-the flag” effect could be interpreted as evidence that citizens are also willing to forgo additional consumption in order to “consume” national sovereignty.

function of the circumstances that prompt change, the nature of policy changes initiated, or the extent to which policy changes are consistent with the preferences of second-parties. Rather, any policy action can be consistent with sovereignty if it is entered into willingly and without coercion. It is simply the difference between willing contracts and extortion, a distinction which is generally familiar and well-accepted at the level of individual actors.



For a nation that commits to trade and is subsequently threatened with sanctions, the trade contract has changed from one in which the economic gain is a “windfall” to one in which gains from trade must be exchanged for sovereignty. Having an absolute preference for sovereignty, the nation’s highest preference would be to exit the trade contract and exchange the gains from trade for the sovereignty that it finds more valuable.<sup>14</sup> However, in the same way that firms face exit costs because

<sup>13</sup> Pape adopts similar views: “Pervasive nationalism often makes states and societies willing to endure considerable punishment rather than abandon what are seen as the interests of the nation” (1997: 93).

<sup>14</sup> The preference for exit assumes that the nation faces one dichotomous choice: resist (exit) and endure sanctions, or acquiesce. This view is compatible with the notion that “even high economic costs can be outweighed by political benefits” (Simon 1995: 214).

resources and obligations are fixed in the short-run, the “exit decision” is not entirely free. Following the cessation of trade, market disequilibria will exist in the target nation as internal resources are shifted away from export-led industries and into former import-competing industries.<sup>15</sup> This reallocation process constitutes a negative payoff stemming from the decision to trade, since reallocation would not have been necessary if the government had chosen to rely on its own productive capacity.<sup>16</sup> The diminished ability to meet internal needs in a coercive international relations environment constitutes the risk of trade (See Figure 2). When facing sanctions, the trade risk is incurred and becomes an exit cost. As with firms, exit costs for trading nations will differ depending on the flexibility of resources and the level of losses that are incurred while resources are inefficiently employed. In the event of sanctions, the target government will weigh the cost of adjusting internal resources (the exit cost) against the sovereign value of the policy in question, and will resist sanctions if the cost of adjustment is less than the value of the policy and acquiesce to sanctions if the cost of adjustment exceeds the value of the policy. The *instrumental* cost of sanctions using this analysis is foregone autarkic production during the re-establishment of sovereignty – and not lost trade.

This formulation of the rationalism of nations may explain why, as cited earlier, threats from repeat sanctioner lack credibility. Vulnerable trading partners may know when engaged in trade with such countries that the benefits are not a “windfall” and insulate themselves against potential costs of

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<sup>15</sup> Selden adopts the traditional notion of trade dependence to evaluate the impact of economic coercion (1999:3), but makes the important distinction between export sanctions (those that block or slow the flow of goods to a target state) and import sanctions (those that block or slow the flow of goods from a target state). This distinction is important because export sanctions have a function that is equivalent to a protective tariff for those producers capable of supplying a substitute (1999:4). Import sanctions are deemed potentially more effective because they don’t provide such benefits to producers of substitute goods. Since Selden is interested in constructing a model that explains why some sanctions don’t work, he does not account for import sanctions. That constitutes where his model differs greatly from ours. By concentrating on reallocation of resources towards a situation of autarky or semi-autarky, we consider the possibility that not only producers of embargoed and substitute goods may be advantaged by the imposition of sanctions, but also that some of the forsaken resources will spill over to import-competing industries.

<sup>16</sup> The trade “gamble”: a government engages in trade where the expected value = (probability of no interference x the value of trade) – (probability of interference x the opportunity cost of trade), where the opportunity cost of trade is the goods/services that could have been produced internally but *weren’t*. The European Union is engaged in a very high-risk gamble in this regard, and members appear to believe that the economic benefits of an integrated market will outweigh the potential costs (with low probability attached to “catastrophic” outcomes) associated with lost *political* autonomy. One could also make a similar argument in regards to China’s decision to join the World Trade Organization.

interrupted trade through measures that support domestic producers, essentially maintaining a ready platform for ramping up production if necessary, or by maintaining multiple source channels at the expense of maximum social welfare. In fact, just about every nation with the means to do so follows such a policy with regard to agriculture, with the whole-hearted support of citizenry, in spite of the obvious long-term economic benefits that could be realized from less protected markets.

One of the unintended consequences of sanctions is that gradually create a protected market for domestic producers of import substitutes. This insulation from foreign competition encourages rent-seeking behavior by the protected industries that have a strong preference for upholding the sanctions. This course of action is similar to domestic rent-seeking created by external tariffs (Rogowski 1989; Alt and Gilligan 2000).<sup>17</sup> The aggregate economic impact of the sanctions on society are more than likely negative, but according to the logic of collective action (Olson 1971) a relatively small group that gains from economic isolation have some advantages over a much larger group of consumers. Smaller groups are easier to organize and can more easily solve the free rider problem. More fundamentally, smallness provides greater personal incentives through higher returns to individual members. The costs created by an inefficient allocation of resources are passed on to the entire society. Interestingly, as society adjusts over time to its semi-autarkic level of production aggregate welfare increases, the benefits of which accrue to the entire population. Under these circumstances, one would expect that, *ceteris paribus*, citizens in the target country would be increasingly satisfied with the performance of their government. Consequently, sanctions that endure long enough for such adjustment to take place are unlikely to be ended at the satisfaction of the sender country.

Under this formulation, government officials would work to maximize the productive efficiency of internal resources for every particular level of international trade. "Costs" from sanctions are only incurred to the extent that they cause deviation from the efficient allocation at the new, lower level of trade. Deviations occur when a government has chosen to trade (under the belief that its sovereignty

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<sup>17</sup> Alt and Gilligan (2000) contrast Rogowski's (1989) factor-based approach (Stolper and Samuelson 1941) to political coalitions with a sectoral (or "specific factors") approach drawn from Richardo-Viner model of international trade.

would remain intact) but shouldn't have.<sup>18</sup> The deviations will be larger (i.e. more costly) for societies that chose to import scarce resources, for societies that engage in large absolute levels of trade, and for societies who have high labor and capital productivity.

To restate, the sovereign state would order its preferences as follows:

- 1) Uninterrupted trade and continued political autonomy (vis-à-vis the public policy in question.)
- 2) Ending (or reducing) trade without costs and continued political autonomy (vis-à-vis the public policy in question.) [Note that using the traditional measures a reduction in trade is inconsistent with being "costless".]
- 3) Ending (or reducing) trade at an exit cost that is lower than the value of the policy.
- 4) Acquiescing to sanctions.

If the cost of *adjustment* to the lower level of trade is expected to exceed the value of the policy, the policy is abandoned and the target acquiesces to sanctions. If the cost of adjusting back to autarkic production or the new, lower level of trade are not excessive (not greater than the value of the policy) then the nation rebuffs the threat of sanctions. Under these circumstances, the target will simply adjust its internal economy to the lower level of trade.

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<sup>18</sup> Selden takes our argument one step further when implying that "in the long run, sanctions can actually aid in the development of domestic industries capable of satisfying national needs, reducing the target's economic interdependence with the rest of the world and, in turn, the ability of other nations or international organizations to influence the target's behavior through economic channels. Therefore, not only can the imposition of sanctions fail to produce the desired short-term effects, *they may also have serious long-term consequences*" (Our emphasis, 1999: 15).

Galtung (1967) also contends that sanctions can be counterproductive by generating new elite that benefit from international isolation.

#### IV. MODEL OF SOVEREIGN COST

$$\text{Sovereign Cost Index} = \sum_{t=0}^N \left[ \left( \frac{\tilde{L} - L_t}{\tilde{L}} \right) a_{lm} + \left( \frac{\tilde{K} - K_t}{\tilde{K}} \right) a_{km} \right]$$

$$\text{Where: } L_t = \alpha * L_{t-1} \quad K_t = \beta * K_{t-1} \quad a_l = \frac{a_{TL}}{\bar{a}_L}$$

$$\alpha = \left( \frac{\tilde{L}}{L_{t-1}} \right)^{ve^{-i(r_T - r_S)}} \quad \beta = \left( \frac{\tilde{K}}{K_{t-1}} \right)^{we^{-i(r_T - r_S)}} \quad a_k = \frac{a_{TK}}{\bar{a}_K}$$

$\tilde{L}$  = Autarkic allocation of labor in sanctioned industry.

$\tilde{K}$  = Autarkic allocation of capital in sanctioned industry.

v, w = structural mobility of labor, capital

i = structural development of financial markets

$a_{TL}$  = Target labor productivity

$a_{TK}$  = Target capital productivity

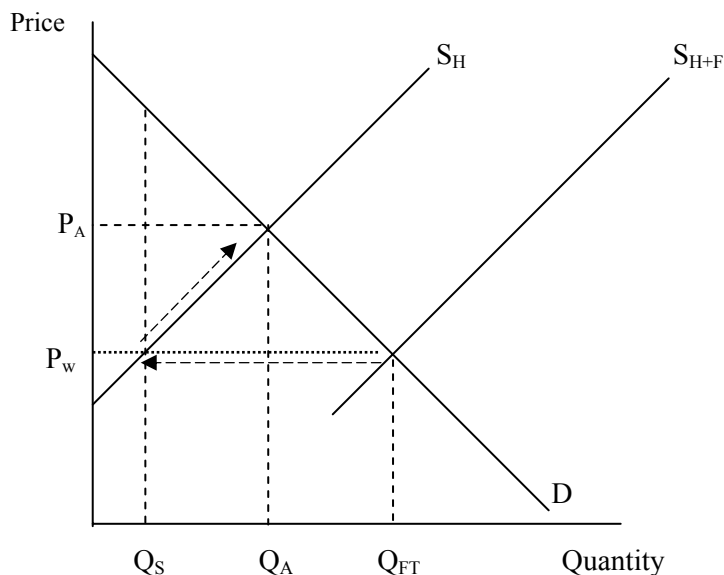
$\bar{a}_K, \bar{a}_L$  = World average capital and labor productivity

The above equation represents an index of the cost of sanctions, where cost is measured as the deviation of resources from the autarkic optimal allocation following the imposition of sanctions. The variables  $a_{TL}$  and  $a_{TK}$  scale the cost index upward or downward based on the target's relative productivity, for reasons explained shortly. The cost index increases over time until the target's economy has adjusted back to autarky, while the speed of adjustment, and therefore the cost of sanctions measured using the cost index, depends on the adjustment factors  $\alpha$  and  $\beta$ . The "ideal" adjustment values, representing complete adjustment to autarky, during any given adjustment period, t, equal the ratios  $\tilde{L}/L_{t-1}$  and  $\tilde{K}/K_{t-1}$ . The actual adjustment values will be reduced by an amount determined by the structural mobility of labor, capital, and financial resources (v, w, i) and the liquidity of financial resources as measured by the change in interest rates following the imposition of sanctions ( $r_T - r_S$ ).

### A. Deviation of Resources from Autarkic Optimum

In the above equation, the deviation of resources from the optimum autarkic allocation is captured by the expressions  $\left[\frac{\tilde{L} - L_t}{\tilde{L}}\right]$  and  $\left[\frac{\tilde{K} - K_t}{\tilde{K}}\right]$ , where  $L_t$  and  $K_t$  represent the levels of labor and capital in the targeted industry at time  $t$ , and  $\tilde{L}$  and  $\tilde{K}$  represent the (fixed) levels of labor and capital devoted to the target industry in autarkic equilibrium. The deviation ratio will be highest at  $t = 0$  and will decrease as  $L_t$  and  $K_t$  increase as  $t \rightarrow \infty$ , until  $\tilde{L} = L_t$  and  $\tilde{K} = K_t$ , at which point the target nation can be considered to have regained internal efficiency (and possibly but not necessarily self-sufficiency) in the sanctioned industry. (The rate by which  $L_t$  and  $K_t$  increase will be explained shortly.)

**Figure 3: Sub-Optimal Allocation of Resources Following Sanctions**



In an international goods market, an individual trading nation takes the world price,  $P_w$ . Consumers in the target nation consume  $Q_{FT}$  at this price, of which  $Q_S$  is produced domestically (determined by the domestic supply curve,  $S_H$ ) and the remainder ( $Q_{FT} - Q_S$ ) is imported (determined by international supply curve,  $S_{H+F}$ ). Upon the imposition of sanctions, the goods market is no longer in equilibrium. The cost of sanctions in this case is the misallocation of resources evidenced by the supply shortage ( $Q_A - Q_S$ ), which is optimal domestic production under autarky minus post-sanctions domestic production.

The extent of deviation from autarkic optimum at  $t = 0$  depends on several things. Figure 3 explains the basic logic of the potential misallocation of resources following the imposition of sanctions, but further explanation is necessary. First and foremost, it should be pointed out that if the target is able to redirect trade toward other nations, then there may be little misallocation. Such changes in trade patterns are consistent with the idea of mis-selection by senders, in that costly sanctions imposed are not necessarily costly sanctions incurred. Further, if we assume that the target was pursuing the most economically beneficial (and therefore efficient) trade relationship prior to the onset of sanctions. (Such trade opportunities will inevitably have been present, if latent, prior to sanctions, but untapped in favor of trade with the sanctioner.) We may also surmise that the re-directed trade will make the nation marginally worse off, which implicitly speaks to the targets' readiness to forego economic welfare in order to avoid coercion and protect sovereignty.

Therefore, *to the extent that the target's trade volumes and patterns are actually interrupted*, there are several variables which will determine the resulting resource misallocation. First, the more scarce or specialized the sanctioned items the higher the initial misallocation. Second, the higher is the demand for the sanctioned good(s), the higher is the deviation from optimum autarkic allocation. Third, a higher ratio of imports to total demand will also lead to higher initial misallocations. Finally, although the cost index does not capture this effect directly, the sanctioning of intermediate goods will lead to a higher deviation of resources than the sanctioning of consumer goods by disrupting production, and therefore adjustment to autarky, in multiple goods markets.

***1) The deviation from autarkic optimum will be greater for the import of "scarce" resources.***

One of the intriguing conundrums facing policy markets and international economists since the oil embargo of the 1970s and 80's is the problem of coming to depend on the importation of a scarce resource. Because it is difficult to mobilize the resources needed to regain self-sufficiency in the production of scarce items, a nation facing the threat of sanctions must weigh the immediate benefits of increased social welfare (through trade) against the possible long-term costs of a sudden reduction in supply. In keeping with the theory underlying the model of cost proposed here, the solution

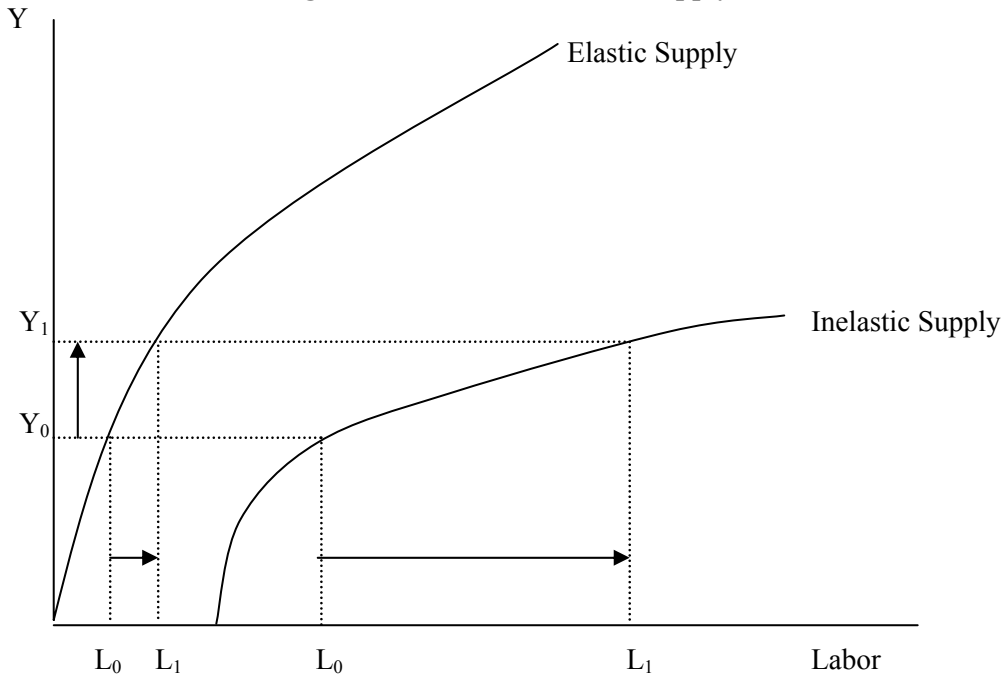
recommended by economists has been to maintain a moderate level of internal production in spite of potential gains from trade. Fundamentally, this is a strategy of “semi-autarky”, reflecting the fact that for scarce resources the opportunity cost of engaging in full trade is high. This is, in fact, the key to the theory of the sovereign cost of trade. In an international environment where sanctions are used, engaging in trade in order to increase current consumption requires a nation to forgo what it would be able to produce itself. Thus, specializing out of the production of highly scarce or critical goods leads to a potentially high sovereign cost in the event of sanctions because internal production cannot be quickly and easily resumed. Policies of semi-autarky reveal that for some goods the sovereign cost of trade is too high, *irrespective of the potential gains from trade*.

Within the model of sovereign cost, this problem is captured as a large deviation from the autarkic allocation of resources. If an industrialized nation were required to meet its own (inelastic) demand for energy, for instance, a comparatively large amount of labor and capital inputs would be required in the short run to compensate for each small reduction in imported oil (See Figure 4). For scarce resources such as energy, part of the deviation in resources would be attributable not to lost production of the sanctioned item, but lost production of substitutes, because in autarky an economy naturally shifts out of the production of goods that have inelastic supply through innovation and substitution (See Figure 5 below).<sup>19</sup> By engaging in trade a nation diverts resources from the lengthy substitution process and, in the event of sanctions, incurs large short-run costs. For instance, it took nearly a decade for the United States and other dependent nations to begin using alternative sources of fuels following the oil crisis.

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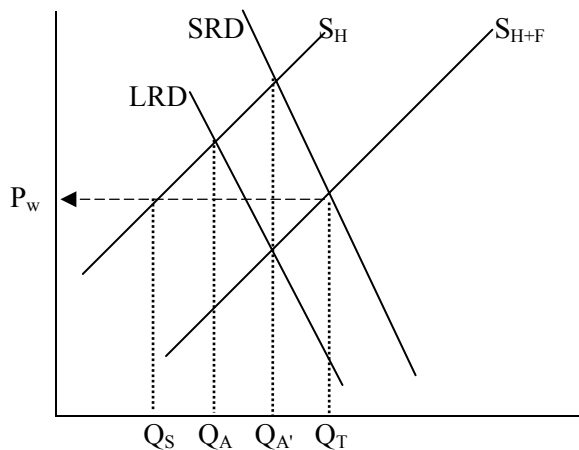
<sup>19</sup> Interestingly, the existence of a “black knight” providing assistance to a target nation (Hufbauer, Schott, and Elliott 1985; Drury 1998) can only provide short-term relief and affect long-term productivity by preventing difficult political decisions related to the development of substitute goods and the support for innovative production techniques.

**Figure 4: Inelastic Domestic Supply and the Cost of Sanctions**



For a given increase in production,  $Y_1 - Y_0$ , a good characterized by inelastic supply requires a substantial increase in labor allocation relative to a good characterized by elastic supply.

**Figure 5: Lost Innovation and the Cost of Sanctions**



The sanctioning of scarce products leads to high levels of lost production in the short run ( $Q_A' - Q_S$ ). In autarky, substitution would have led to a decrease in demand for the sanctioned item (represented by the long run demand curve, LRD) and a lower quantity demanded ( $Q_A$ ). The sovereign cost of sanctions should capture the lost opportunity for innovation and substitution, and can be approximated by measuring deviation of resources under the assumption that demand does not shift from the import industry (i.e. use  $Q_A'$  instead of  $Q_A$  in order to measure the cost of sanctions).

<sup>21</sup> Productivity here is used in the strict economic sense: output per unit of labor or capital input.

**2) *Ceteris paribus, the deviation below optimal resource allocation, measured as a percentage of optimal, will be lower for the sanctioning of goods for which there is high demand.***

Figure 6 demonstrates the peculiarity of this result. It shows that for a particular import (i.e. for a particular supply schedule), irrespective of the *level* of demand, sanctions lead to identical reductions in supply (compare AB to A' B'). However, because production functions are characterized by declining marginal productivity, the absolute level of resource misallocation will be higher for the high-demand schedule. Also because of declining marginal productivity, resource misallocation will be a smaller *percentage* of optimal for the high-demand schedule, suggesting that even though it leads to higher levels of resource misallocation the sovereign cost index, as constructed, will assign it a lower value.

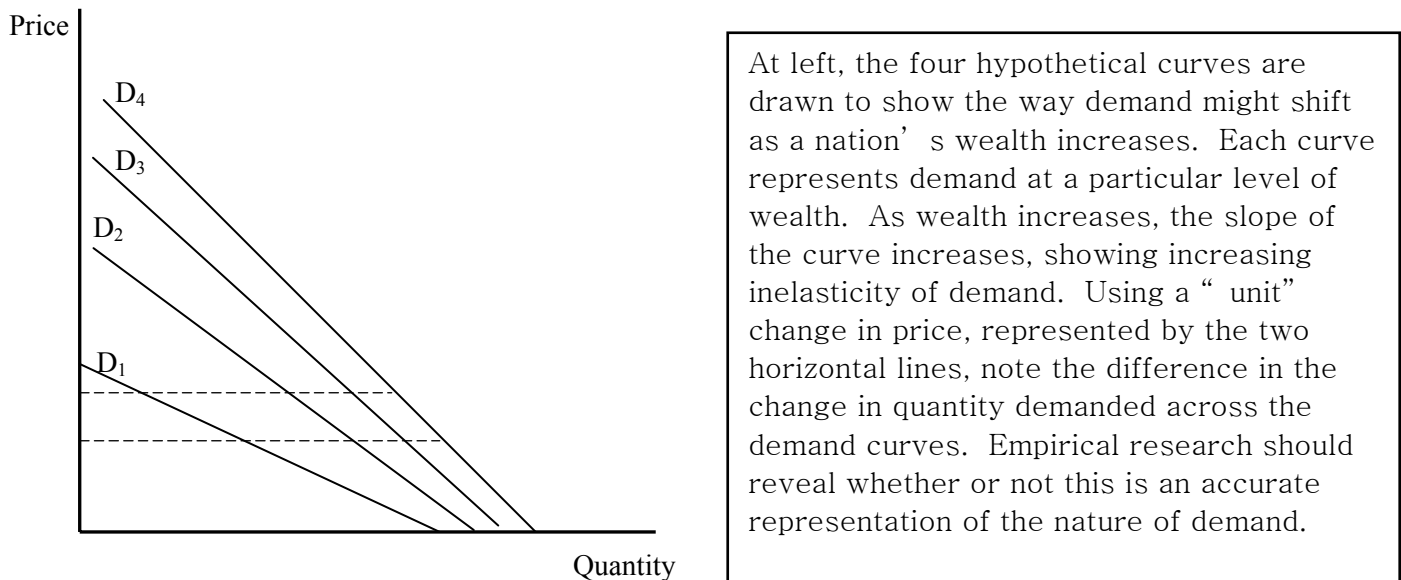
It is not clear whether this mathematical effect on the cost index is consistent with the theory underlying the creation of the sovereign cost index, nor is it apparent whether the effect is consistent with empirical evidence. However, the question will need to be explored because the effect of the level of demand on the cost of sanctions and the proposed cost index is more than trivial. An effective theory should be able to generalize the effect of sanctions on a nation based on population and total GNP. Since a nation's overall level of demand for goods and services depends on these structural features, a comprehensive theory must incorporate the effect of the level of demand. It will also be instructive to compare the effect of sanctions on rich versus poor nations through the effect of wealth, elasticity of demand, and post-sanctions levels of demand. In fact, theoretically, the total cost of a sanction episode can turn critically on whether or not the sanctioned items are "necessities" or "luxuries" (See Figure 7). By definition, necessities are items that have low income-elasticity, while luxuries have high income-elasticity. For necessities, we can expect relatively high initial deviation of resources in both rich and poor countries, reflecting the fact that if supply is suspended demand will nevertheless remain largely unchanged. In other words, demand for the sanctioned item is price inelastic, and the autarkic equilibrium level of consumption will be close to the level of pre-sanctions consumption.



However, the elasticity of demand for a good or service might change with the overall wealth of a nation's consumers. Specifically, a single item might be considered a necessity in a wealthy country yet a luxury in a poor country. If this is the case, the sanctioning of goods to wealthy countries should be more costly because, *ceteris paribus*, wealthy countries are more likely to have inelastic demand (See Figure 8).

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**Figure 8: Increasing Inelasticity of Demand with Increasing Wealth**



**3) *The sanctioning of widely used intermediate inputs will lead to higher initial deviation of resources from autarkic optimum than the sanctioning of consumption goods.***

This observation recognizes the notion that sanctioning intermediate goods used in a wide variety of applications necessitates adjustment in multiple markets. In terms of calculating the actual cost of sanctions, traditional measures would capture the dollar value of disrupted supply. The alternative proposed here would *not* measure the value of lost imports, but *should* measure lost internal production of the sanctioned item and the lost internal production of goods requiring the sanctioned item as an input. In a general sense, sanctioning goods with a large, inelastic post-sanctions market demand increases the sovereign cost of sanctions. One way to accomplish this is to sanction items that are used in a wide variety of production processes as well as at the level of individual consumption.

## B. Target Productivity in the Sanctioned Industry

After deciding to engage in trade, we have suggested that a nation threatened with sanctions will calculate the cost of sanctions based on the production they could achieve if they return to autarky. When deciding whether or not to acquiesce to sanctions, the target considers the cost of the transition back to self-sufficiency based on *their own* lost productive capacity, and not the loss of imports. In the model of sovereign cost, the terms  $a_{lm}$  and  $a_{km}$  are indexes of productivity relative to average world productivity.<sup>21</sup> The values of  $a_{lm}$  and  $a_{km}$  are calculated as the ratio of the targeted nation's labor and capital productivity relative to average world productivities.

Because productivity plays an important role in the shape of a supply curve, we should point out that in this article we are drawing a distinction between elasticity of supply and productivity. Elasticity of supply, discussed earlier, can be viewed as goods that require a proportionally large increase in inputs for a given increase in production, holding the productivity of labor and capital constant. Productivity refers to the overall marginal productivity of labor and capital as these differ across nations, not across different goods or services.

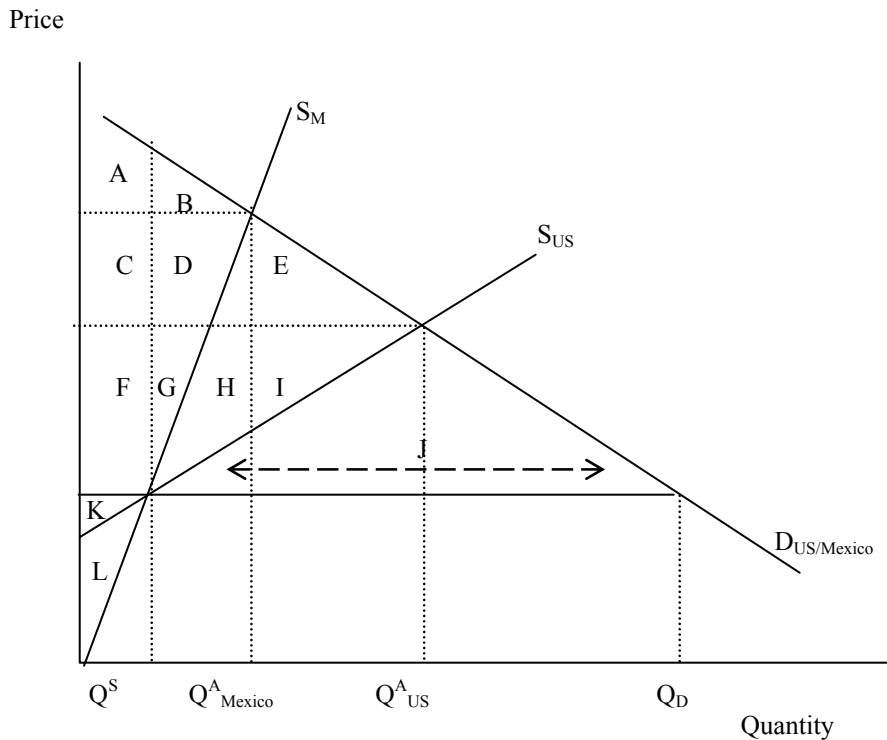
The model suggests the following regularities with respect to the target productivity and the cost of sanctions.

- 1) For any given deviation from optimum, over a fixed amount of time at a given rate of adjustment, nations characterized by high productivity will face higher "sovereign cost" than low-productivity nations***

This is perhaps the most surprising implication of the cost formula, as it is starkly counter-intuitive based on the conventional wisdom. Typically, industrialized nations are expected to be relatively immune from sanctions since any given sanctions episode would reduce trade by an apparently inconsequential amount. However, we have hypothesized that a nation determines whether or not to acquiesce to sanctions by considering how costly it would be to adjust back to autarky *in terms of its own ability to produce the imported item*. Highly productive nations could have been producing more if they

had remained in autarky; therefore, the cost of sanctions is higher. In other words, the opportunity cost of choosing to trade is higher for a highly productive country.

Figure 9: Productivity and the Cost of Trade Sanctions



In the Figure 9 above, Mexico's production function, with a steeper slope, suggests lower productivity. Prior to sanctions, both the United States and Mexico produce the same amount domestically ( $Q^S$ ) and import the same amount from the world market ( $Q_D - Q^S$ ). *Following sanctions, before domestic resources are adjusted to the new closed market, the United States loses more social welfare than Mexico because of its higher productivity level.*

During the period immediately following the imposition of sanctions, social welfare for Mexico is the area (ACFKL). Had Mexico never chosen to trade, social welfare during the same period would have been (ACFKL BDG). Thus, it loses social welfare represented by areas BDG during the initial period of

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## Figure 9: Productivity and the Cost of Trade Sanctions

Social Welfare = [Consumer Surplus]+[Producer Surplus]

Prior to sanctions (free trade):

Mexico's SW = [ACF BDG EHI J] + [K L]

United States' SW = [ACF BDG EHI J] + [K ]

Following sanctions, the first period cost of sanctions is social welfare at *optimal autarkic* production minus social welfare at *sub-optimal* (post-sanctions) production:

$Cost_{\text{Mexico}} = B + D + G$

$Cost_{\text{u.s.}} = B + D + G + E + H + I$

adjustment. As price increases reflecting the sudden shortage of supply, producers move into the sanctioned market, moving up the supply curve. During each period of this adjustment process, social welfare loss is between BDG (maximum loss following sanctions) and zero (when production reaches the level  $Q^A_{\text{Mexico}}$ ).

For the United States, social welfare following the imposition of sanctions is (ACFK). Had the US never engaged in trade, social welfare would have been (ACFK BDG EHI). Therefore, because sanctions were imposed, the decision to trade costs the United States social welfare of (BDG EHI). This adjustment loss can be avoided, but only at the expense of ceding sovereignty to the foreign aggressor.

Considering this in terms of trade theory, it is widely recognized that opportunities for trade exist through comparative advantage even when one nation enjoys an absolute advantage for all goods. Thus, both highly and less productive nations will engage in trade to increase social welfare. However, highly productive nations have the capacity for higher absolute levels of autarkic production, meaning that for these nations the opportunity cost of trade in terms of forgone production is higher.

This is slightly different than the impact of wealth on the elasticity of demand discussed above. *Ceteris paribus*, market demand for normal goods will be higher in wealthy nations than in poor nations, suggesting that after sanctions more resources will need to be shifted into the affected industry. However, a highly productive nation loses more in terms of output during every period of adjustment – for any given level of resource misallocation (that is, holding market demand constant).

As an illustration of this nuance, consider two car/driver pairs: one car is able to travel at a constant speed of 45 miles per hour (low productivity) while the other drives at a constant speed of 65 miles per hour (high productivity). Holding the demand for car travel constant (market demand for distance), it should be apparent that for every hour the slow car can't be driven (i.e. the car resource has not “adjusted” to autarky), the driver loses 45 miles of travel, while the driver of the fast car loses 65 miles of distance for the same misallocation.

**2) *High-productivity nations will be likely to find the embargo of labor-intensive goods as costly as capital-intensive goods. Conversely, the cost of sanctions in capital-intensive goods would likely be low for low-productivity countries.***

We learn from traditional trade theory that countries with a comparative advantage in producing capital-intensive goods will export these and import labor-intensive goods (Heckscher and Ohlin 1991). Conversely, countries with a comparative advantage in producing labor-intensive goods will export these and import capital-intensive items. What is important is relative advantage. However, under the theory of sovereign cost it is also important to consider absolute advantage.

Typically, the countries that export capital-intensive goods do so because they possess a larger asset base, better education, and advanced technological development relative to poor countries. This is not to say, however, that their labor is not productive in an absolute sense. Rather, they have high productivity in both labor and capital, but have a relative advantage in capital-intensive goods because of generations of investment. On the other hand, countries that export labor-intensive goods do so because they have an abundance of low-skilled labor that can be employed at very low cost. Typically, a poor country's ability to produce capital-intensive goods is low by both relative and absolute measures.

When the decision to trade is viewed as the foregone opportunity to maximize one's autarkic production, relatively speaking a low-productivity country has not given up much when they engage in trade for goods they might not otherwise be able to produce. The opportunity cost of trade (lost production of capital intensive goods) is low. Wealthy nations such as the United States, in contrast, have the capacity to meet their internal need for labor-intensive goods. Therefore, the opportunity cost of engaging in trade is much higher.

### C. Speed of Adjustment to Autarky

Over time, we can expect a sanctions target to adjust its resources away from the pre-sanctions export industries and into the pre-sanctions import industries until the allocations reach the optimum levels,  $\tilde{L}, \tilde{K}$ .<sup>22</sup> In the above cost model,  $L_t$  increases in every period by an adjustment factor  $\alpha_t$ , where

$$\alpha_t = \left(\tilde{L}/L_{t-1}\right)^{\nu e^{-i|\tilde{r}-r_{t-1}|}}.^{23}$$

When  $\nu e^{-i|\tilde{r}-r_{t-1}|} = 1$ ,  $\alpha_t = \left(\tilde{L}/L_{t-1}\right)$  and  $L_t = \left(\frac{\tilde{L}}{L_{t-1}}\right)L_{t-1} = \tilde{L}$ , meaning that in

time  $t$  (i.e. within one time period) labor allocation increases to the optimum level. Since  $0 \leq \nu \leq 1$  and  $0 \leq e^{-i|\tilde{r}-r_t|} \leq 1$ ,  $\alpha_t$  will tend to be less than is necessary for full adjustment; specifically,  $1 \leq \alpha_t \leq \left(\tilde{L}/L_{t-1}\right)$ . At the opposite extreme, when  $\alpha_t = 1$  then  $L_t = (1)L_{t-1} = L_{t-1}$ , meaning that the amount of labor in the previously imported sector has not increased since the previous period. During every period of adjustment,  $\alpha_t$  will fall somewhere between these two extremes.

How fast  $L_t$  increases, and by extension the speed with which  $(\tilde{L} - L_t) \rightarrow 0$ , depends on the adjustment factor, which is equal to its maximum (or ideal) value,  $\alpha_t = \left(\tilde{L}/L_{t-1}\right)$ , reduced by a fraction less than one:  $\nu e^{-i(r_S - r_{FT})}$ .<sup>24</sup> The term  $(r_S - r_{FT})$  measures the change in interest rates before and after sanctions are imposed and reflects the availability of financial capital in the target's economy while the structural liquidity factor,  $i$ , measures the level of financial market development in the target economy, and will be a value greater than one. For instance, suppose  $(r_S - r_{FT}) = .50$ , indicating that interest rates increased by .50% after sanctions. If  $i = 1$  and  $\nu = 1$ , then  $\nu e^{-i(.50)} = e^{-.50} = .61$  and  $\alpha_t = \left(\tilde{L}/L_{t-1}\right)^{.61}$ . However, if  $i = 1.5$  then  $\nu e^{-i(.50)} = e^{-(1.5)(.50)} = e^{-.75} = .47$  and  $\alpha_t = \left(\tilde{L}/L_{t-1}\right)^{.47}$ . As financial market

<sup>22</sup> Our formal demonstration differs from Renwick's (1981: 81) claim that sanctions don't work because they take too long to take effect, thereby allowing recipients enough time to find alternative markets and substitute goods before they bear the full weight of boycotts and embargoes. While Renwick proposes a reason why "sanctions don't work," we introduce a formal model that shows under which conditions sanctions may or may not succeed.

<sup>23</sup> We will only explain the adjustment of labor in detail, since physical capital adjustment follows the same process.

<sup>24</sup> For now, we will assign a range of fixed values for  $\nu$  and assume  $i = 1$ , because proxy measures for these variables are not immediately evident.

development declines, the adjustment factor,  $\alpha$ , approaches 1 and the time required for the target to regain equilibrium increases.

The structural mobility of labor is measured by the value  $\nu$ , such that mobility is greatest when  $\nu = 1$  and lowest when  $\nu = 0$ . A nation's labor mobility will depend on education levels, labor market demand and supply conditions and transportation infrastructure, among other things. Although structural features of labor supply are important, it is important to note here that even when  $\nu = 1$  (perfect labor mobility)  $\alpha_t \neq (\tilde{L}/L_{t-1})$ ; *a nation's ability to mobilize labor resources depends not only on characteristics of the labor markets, but also on access to efficient financial markets.*

This formalization of the speed of adjustment back to autarky leads to the following propositions.

**1) *Sanctions that are imposed quickly will be more costly than sanctions that achieve the same ultimate level of trade retraction but are imposed slowly.***

Sanctions that are imposed slowly lead to minimal resource dislocation and therefore facilitate low-cost (i.e. rapid) adjustment to the new, lower level of trade. More importantly, slowly applied sanctions might not produce costs that exceed the critical threshold while sanctions that are applied quickly and achieve the same level of trade retraction might lead to costs that exceed the critical threshold. This is consistent with empirical observations that “drawn-out” sanctions have lower probabilities of sender success.<sup>25</sup>

**2) *A nation that is able to adjust its resource allocation quickly will be relatively “immune” to sanctions; conversely, rigidities in the labor and physical capital markets will make sanctions more costly.***

Perhaps the most intuitively productive insight resulting from this analysis is the idea that sovereign nations are less concerned with lost welfare from reduced trade (the traditional measure of the

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<sup>25</sup> Others suggest the passage of time may harden the resolve of the target (Miyagawa 1992; Bolks and Al-Sowayel 2000) or “crack” the solidarity of international coalitions imposing the sanctions (Nincic and Wallenstein 1983; Martin 1992). As mentioned earlier in the paper, these explanations speak to the success or failure of sanctions episodes, generally, but do not address the relationship of cost to success. Another interpretation of the failure of long drawn sanctions to exact change in a target comes from Leyton Brown's (1987) suggestion that senders are reluctant to abandon their economic coercion after recognizing their fiasco. Conversely, those who clasp to the traditional notion of the cost of sanctions affirm that costs are cumulative and that the longer the sanctions are in effect the most likely they are to succeed (Daoudi and Dajani 1983; Brady 1987).

cost of sanctions) and more concerned with getting back on their own two autarkic feet. Barriers to the mobilization of labor and capital will increase the time needed to adjust internal production, and therefore increase the cost of sanctions. In addition to traditional economic measures of labor and capital mobility, it might also be useful to examine sociopolitical elements of ownership and control that inhibit or promote the rapid movement of resources. For instance, are highly regulated countries or autocratic governments able to respond quickly because of centralized decision-making, or does government control lead to political patronage and the resistance to change? If democratic leaders were motivated primarily by the prospect of reelection, would they disrupt the structural adjustment back to “semi-autarky?” If the answer to the previous question is no, we would consequently expect democratic targets to comply with senders’ economic pressure more often than autocratic regimes.<sup>26</sup> We are not aware of any studies that test empirically for the impact of state labor or financial regulation on a target’s ability to resist economic sanctions, but we found at least two statistical analyses that reach the conclusion that sanctions against democracies are more likely to succeed (Bolks and Al-Sowayel 2000; Nooruddin 2002).<sup>27</sup>

**3) *Rigidity in financial markets, or a lack of access to financial capital, slows the adjustment of labor and capital allocation, and makes sanctions more costly.***

This observation may help to explain why Hufbauer, Schott, and Elliott (1985) found financial sanctions to be more effective in prompting policy change than trade sanctions (See also Alerassool 1993; Dashti-Gibson, Davis and Radcliff 1997; Selden 1999).<sup>28</sup> It highlights the fact that financial capital is required for the smooth functioning of the entire economy, so that financial sanctions have implications that are more far-reaching. In fact, depending on the financial state of the target country, financial sanctions might be considered the ultimate intermediate input – being necessary for every industry and at

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<sup>26</sup> Of course, one could reply that democratic regimes are more legitimate and more likely to rally its citizens behind the flag in resistance to the pressure of the sender countries (Galtung 1967).

<sup>27</sup> Pape challenges the importance of the regime variable by arguing that even where “ruling elites [sic] are unpopular, they can still often protect themselves and their supporters by shifting the economic burden of sanctions onto opponents or disenfranchised groups” (1997: 93).

<sup>28</sup> Lawmakers are catching up to the idea that financial sanctions are more effective by extolling the virtues of “smart sanctions,” like those imposed on Serbia that froze the foreign bank accounts of government officials and their cronies. Strong supporters of scaling back economic sanctions include Vice President Dick Cheney, Secretary of State Colin Powell and powerful congressmen Richard Lugar, Trent Lott, and Chuck Hagel, among others.

every level of production. Like the potential effects of sociopolitical elements on the speed of resource adjustment, financial illiquidity might cripple a nation, and especially its elite (Kaempfer and Lowenberg 1992; Morgan and Schwebach 1995; Alerassool 1993), with otherwise mobile resources (Selden 1999).

## V. CONCLUSION

In this article, we present a logical argument to demonstrate that the reason that economic sanctions appear to be ineffective is due to a mis-selection on the part of the senders.<sup>29</sup> They rationally “pick” fights they believe they can win, but they are misguided in their choices of targets due to a misreading of the costs they can impose on their foes. To remedy the situation, we propose an alternative measure of the costs of sanctions that focuses on structural features of a target’s economy and political elements that distort economic adjustment. Our framework uncovers some counter-intuitive findings, for instance that developed economies are more likely to be affected by economic sanctions than less developed economies, but it also supports previous research indicating that financial sanctions are more likely to succeed and that sanctions that are imposed quickly are more efficient. Our next task is to provide a unified model of economic sanctions by adding empirical testing to our formal framework.

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<sup>29</sup> Our theoretical framework goes beyond a mere demonstration of “why sanctions don’t work,” and provide an explanation of under which circumstances sanctions “can” work.

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