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Understanding Economic Sanctions as a Strategic Move

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Recently, the United States issued a broad set of prohibitions on exports to China of semiconductor chips and other high-technology equipment due to concern of the idea that China is hoping to dominate the global supply chain, and use civilian companies to directly increase Chinese military capabilities.[1] In 2019, Japan strengthened restrictions on exports to South Korea, following the South Korean Supreme Court's decision on historical issues between the two countries.[2] However, the imposition of economic sanctions was bound to inflict mutual harm from disrupted economic exchanges. The U.S.'s measures against China ran the risk of creating uncertainty in dealing with China, increasing the costs of doing business with, while Japan's trade restrictive measures largely backfired after

1 Bluhm, Michael, "Biden's hugely consequential high-tech export ban on China, explained by an expert," *Vox*, November 5, 2022, https://www.vox.com/world/2022/11/5/23440525/biden-administration-semiconductor-export-ban-china (accessed November 30, 2022).

2 Dooley, Ben and Sang-Hun Choe, "Japan Imposes Broad New Trade Restrictions on South Korea," *New York Times*, August 1, 2019, https://www.nytimes.com/2019/08/01/business/japan-south-korea-trade.html (accessed November 30, 2022).

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Japanese companies shifted production to South Korea and Europe to supply the Korean market.[3] Then, why did they deploy these coercive economic measures? In this short article, I explain economic sanctions through the lens of game theory.

The Coase theorem indicates that, in any bargaining situation, people will be able to assess what would make themselves better off, and will never pass up an opportunity to cooperate by means of mutually advantageous exchange. In such a Coasian world, peaceful cooperation and settlements would be (almost) always possible without any major disputes. On the other hand, Vilfredo Pareto stated, “The efforts of men are utilized in two different ways: they are directed to the production or transformation of economic goods, or else to the appropriation of goods produced by others.” The latter, seizing what others have produced (or defending against such invasions), is the dark side of economic activity, which is consistent with Machiavelli’s golden rule: *he who gets to rule, will get the gold* (Hirshleifer 1994).

The world lies in tension between the Coasian world, where legal protection of property rights and enforcement of contracts are easily available, and the world of Machiavelli, where “might makes right”: if someone is too weak to protect his possessions, others may take them from him forcibly. In international relations, the enforcement of contracts cannot be easily achieved (Baliga and Sjöström 2013). Within such an anarchic international system, rules that are strictly enforced by an outside authority hardly exist. Therefore, each sovereign state may have an incentive to manipulate rules to produce an outcome that is more favorable to themselves. Game theorists call such devices *strategic moves*. Economic sanctions, which are measures that one party uses to influence another, can be considered such a strategic move.

To illustrate economic sanctions as a strategic move, consider a simplified version of the U.S-China conflict (Table 1).

Table 1: The U.S.-China Conflict

		China	
		Cooperate	Confront
United States	Export	4, 3	3, 4
	Ban export	2, 1	1, 2

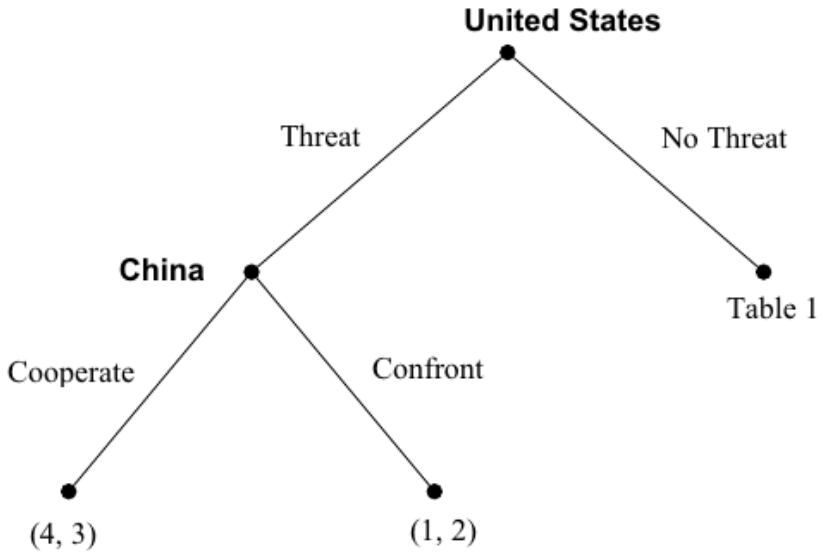
[3] “Japanese Suppliers of Semiconductor Materials Shift Production to South Korea,” *Japan Chemical Daily*, March 4, 2020, https://www.japanchemicaldaily.com/2020/03/04/japanese-suppliers-of-semiconductor-materials-shift-production-to-south-korea/ (accessed November 30, 2022).

Let us assume that the U.S. prefers to export high-tech products to China, and that it prefers China to cooperate (a payoff of 4 to the U.S.). The least preferred outcome for the U.S. is when the U.S. bans exports of high-tech products but China confronts to the U.S. (a payoff of 1 to the U.S.). For China, its best outcome is when the U.S. exports high-tech products and China confronts to the U.S, and its worst outcome is when matters are the other way around.

In this game, both countries have dominant strategies – regardless of the opponent's choice, the U.S. will choose to export high-tech products to China, and China will choose to confront to the U.S. Therefore, the U.S. exports high-tech products to China and China will confronts to the U.S. in equilibrium (payoffs are 3 for the U.S. and 4 for China). This equilibrium outcome is the most preferred by China, and thereby China does not have any incentive to make a strategic move. However, the U.S. can try one – a *threat* of economic sanctions – to achieve a better outcome (a payoff of 4).

Let us assume that the U.S. can make a threat of economic sanctions against China as follows: "The U.S. will issue prohibitions on exports of high-tech products to China, if China does not cooperate with the U.S."[4] The situation with the U.S.'s threat of economic sanctions is illustrated in Figure 1.

Figure 1: Threat of Economic Sanctions



[4] The difficulty of observing threats that never need to be executed, particularly threats made behind closed doors, raises the possibility that selection bias has seriously affected empirical studies of economic statecraft. If this is true, then the sanctions literature has grossly underestimated the utility of economic diplomacy (Drezner 2003).

Suppose that the U.S. issues the threat of economic sanctions. If China chooses to confront and the U.S. carries out the threat, then the payoffs are 1 for the U.S. and 2 for China. If China chooses to cooperate, then the threat has worked, and the U.S. would not have to carry out the threat. In this case, the payoffs are 4 for the U.S. and 3 for China. Once the U.S. issues the threat, the latter case is better for China. Therefore, the U.S. is better off deploying the threat of economic sanctions.

However, how does the U.S. make the threat credible? If China maintains confrontation to the U.S., the U.S. would be tempted to refrain from carrying out the threat, as a payoff of 3 is better than 1. In fact, if the U.S.'s threatened action (ban export) was the best response to China's confrontation, then the U.S. would have no incentive to issue the threat in the first place. Here exactly is where the role of a strategic move (threat of economic sanctions) comes into play – it locks the U.S. into doing something other than what it would have wanted to do after the fact. Therefore, a threat of economic sanctions is necessarily costly for the threatener to carry out. That is, the threatened action would inflict mutual harm.

The use of strategic moves and gaining credibility in practice lie in the realm of art. Game theory can provide some general principles of strategic moves, but actually making them work depends on specific contexts and artful tactics. Lastly, let me conclude this article by citing Avinash Dixit's disclaimer of strategic moves – "You can have success as well as fun trying to put these ideas into practice, but note our disclaimer and warning: Use such strategies at your own risk."[5]

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[5] Dixit, Avinash, Susan Skeath, and David H. Reiley, Jr. 2009. *Games of Strategy*. W.W. Norton Company, Inc.