



DESPERATE MEASURES: THE EFFECTS OF ECONOMIC ISOLATION ON WARRING POWERS

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Scholars and strategists have long debated whether cutting off an opponent's trade is an effective strategy in war. In this debate, success or failure has usually been judged based on whether the state subjected to economic isolation surrenders without being defeated on the battlefield. This approach, however, has missed a more important way in which economic isolation affects its target: strategy. Economic isolation constrains a state's strategic choices and leaves its leaders to choose from the remaining options, which are almost always riskier. As analyses of German decision-making in World Wars I and II demonstrate, these riskier strategies often involve escalating the conflict at hand.

How does a state's access to the international economy affect its strategy to prevail in war? This question bears on some of the most important international challenges facing the United States today. Economic sanctions have become a frequent tool in American foreign policy — witness the current campaigns of “maximum pressure” against Iran, North Korea, and Venezuela as well as increased economic sanctions against Russia and the return of the embargo against Cuba.¹ The United States would almost certainly expand such measures as part of its strategy were one of these disputes to escalate into open conflict. More importantly, perhaps, a strategy of economic isolation is already being explicitly discussed as an option in the event of a war between the United States and China. China is highly integrated into the international economy, and some U.S. strategists argue that blocking the Strait of Malacca to disrupt China's supply of oil would be a good alternative to the “AirSea Battle” concept, whose advocates call for strikes against sensors and long-range weapons located in mainland China to reduce threats to U.S. forces in the

region at the start of a conflict.² On the other hand, not all potential U.S. adversaries are so well connected to the international economy. North Korea, for example, maintains a national ideology of self-sufficiency and does its best to isolate itself from the world, to avoid being vulnerable to such maneuverings. If the United States found itself at war with either of these countries, what would a strategy of economic isolation accomplish? Would it lead to victory?

The traditional scholarly answer is “no”: Industrial economies are sufficiently robust and economic isolation is sufficiently difficult such that states facing economic isolation can easily adapt, except in extraordinary circumstances.³ This article challenges that claim. While economic isolation alone may not lead directly to defeat, it places important constraints on a power's strategic decision-making by limiting the options that are available. Economically isolated powers tend to pursue riskier strategies, often launching attacks that expand the conflict at hand. These broader conflicts then frequently end in defeat. Moreover, this effect holds regardless of a state's prewar level of economic integration.

1 Adam Taylor, “What Coronavirus? With Indictment of Venezuela's Maduro and Sanctions on Iran, U.S. Doubles down on ‘Maximum Pressure,’” *Washington Post*, March 27, 2020, https://www.washingtonpost.com/world/the_americas/maduro-indictment-maximum-pressure-coronavirus-trump-venezuela/2020/03/26/82809364-6f86-11ea-a156-0048b62cdb51_story.html; Kenneth Rapoza, “Russia's Latest Sanctions a Year in the Making but Surprise Everyone,” *Forbes*, Aug. 2, 2019, <https://www.forbes.com/sites/kenrapoza/2019/08/02/russias-latest-sanctions-a-year-in-the-making-but-surprises-everyone/>; and Nora Gámez Torres, “Trump Readies New Sanctions on Cuba; Immigration Policies Likely to Remain Same in 2020,” *Miami Herald*, Dec. 30, 2019, <https://www.miamiherald.com/news/nation-world/world/americas/cuba/article238826998.html>.

2 T. X. Hammes, “Strategy for an Unthinkable Conflict,” *The Diplomat*, July 27, 2012, <https://thediplomat.com/2012/07/military-strategy-for-an-unthinkable-conflict/>.

3 Mancur Olson, Jr., *The Economics of the Wartime Shortage: A History of British Food Supplies in the Napoleonic War and in World Wars I and II* (Durham, N.C.: Duke University Press, 1963); and John J. Mearsheimer, *The Tragedy of Great Power Politics*, Updated ed. (New York: W.W. Norton & Company, 2014).

In the first section of this article, I begin by reviewing the debate surrounding the potential U.S. strategies in the event of a conflict with China, before discussing the principal existing arguments about how prewar economic integration affects wars and the effects of economic isolation during war. In section two, I develop a theory of how economic isolation leads to risky decision-making, identifying two ways in which economic isolation impacts a country's decision-makers as well as two types of obviously risky strategies. I briefly discuss case selection before exploring two critical examples of economic isolation in sections three and four: Germany in World Wars I and II. I conclude the article with a discussion of the relevance of these two cases today and the implications of my analysis.

War and Economic Isolation

For more than a decade, policymakers, scholars, and pundits have debated how the United States should respond to the rise of China. A key component of this debate has been what strategy the United States should adopt if it finds itself in a conflict with China, given China's growing investment in anti-access/area denial (A₂/AD) systems. There are three basic opinions: Most aggressive are the advocates of the AirSea Battle concept, which proposes striking deep into China to roll back the A₂/AD envelope and allow American forces to approach.⁴ A second group argues that A₂/AD systems will enhance the defensive abilities of American allies in the region, thus potentially allowing the United States to achieve its objectives with minimal direct military commitment.⁵ The final group contends that the United States should adopt a strategy of economic isolation through either a distant or

close blockade of the Chinese economy to achieve American goals coercively.

A significant portion of the debate concerning the economic isolation approach has focused on the feasibility of a blockade strategy. China does appear to be vulnerable to isolation: In 2018, China imported 69.8 percent of its oil consumption, a number that is expected to rise to 80 percent by 2030.⁶ While China is roughly self-sufficient when it comes to grain production, food imports by value increased significantly between 2005 and 2015 and are a key source of animal fodder.⁷ Douglas Peifer and Sean Mirski have both argued that a blockade would be feasible and less escalatory than an AirSea Battle campaign,⁸ with Mirski providing a detailed plan for how such a blockade might occur. However, other scholars, such as Gabriel Collins and William Murray, and Evan Montgomery, have countered that a strategy of economic escalation would not only be unlikely to succeed but could provide the illusion of taking a less escalatory approach while drawing the United States deeper into a conflict.⁹ Discussion in media outlets has mirrored this scholarly divide, focusing on whether it would be possible to isolate China economically, and how best to execute such a campaign.¹⁰ Both sets of thinkers are largely in agreement as to how isolation would affect China if successfully implemented. Should violent conflict occur, they see economic isolation as a means either to coerce Chinese surrender or to reduce China's military capabilities, the traditional consequences by which policymakers and scholars have judged the effectiveness of economic isolation. None, however, have assessed how a campaign of economic isolation might affect Chinese strategy.

Moreover, economic isolation is among the most common tools in the U.S. coercive toolbox today.

4 Jan van Tol et al., *AirSea Battle: A Point-of-Departure Operational Concept*, Center for Strategic and Budgetary Assessments, May 18, 2010, <https://csbaonline.org/research/publications/airsea-battle-concept/publication/1>.

5 Stephen Biddle and Ivan Oelrich, "Future Warfare in the Western Pacific: Chinese Antiaccess/Area Denial, U.S. AirSea Battle, and Command of the Commons in East Asia," *International Security* 41, no. 1 (Summer 2016): 7–48, https://doi.org/10.1162/ISEC_a_00249; and Michael Beckley, "The Emerging Military Balance in East Asia: How China's Neighbors Can Check Chinese Naval Expansion," *International Security* 42, no. 2 (Fall 2017): 78–119, https://doi.org/10.1162/ISEC_a_00294.

6 "China Commercial Guide," International Trade Administration, accessed Jan. 14, 2020, <https://www.export.gov/article?id=China-Oil-and-Gas>.

7 "How Is China Feeding Its Population of 1.4 Billion?" Center for Strategic and International Studies, China Power Team, accessed Jan. 14, 2020, <https://chinapower.csis.org/china-food-security/>.

8 Douglas C. Peifer, "China, the German Analogy, and the New AirSea Operational Concept," *Orbis* 55, no. 1 (January 2011): 114–31, <https://doi.org/10.1016/j.orbis.2010.10.009>; and Sean Mirski, "Stranglehold: The Context, Conduct and Consequences of an American Naval Blockade of China," *Journal of Strategic Studies* 36, no. 3 (2013): 385–421, <https://doi.org/10.1080/01402390.2012.743885>.

9 Gabriel B. Collins and William S. Murray, "No Oil for the Lamps of China?" *Naval War College Review* 61, no. 2 (2008): 79–95, <https://digital-commons.usnwc.edu/nwc-review/vol61/iss2/10>; and Evan Braden Montgomery, "Reconsidering a Naval Blockade of China: A Response to Mirski," *Journal of Strategic Studies* 36, no. 4 (August 2013): 615–23, <https://doi.org/10.1080/01402390.2013.790811>.

10 Jason Glab, "Blockading China: A Guide," *War on the Rocks*, Oct. 1, 2013, <https://warontherocks.com/2013/10/blockading-china-a-guide/>; Sean Mirski, "How a Massive Naval Blockade Could Bring China to Its Knees in a War," *National Interest*, April 6, 2019, <https://nationalinterest.org/blog/buzz/how-massive-naval-blockade-could-bring-china-its-knees-war-50957>; David Lague and Benjamin Kang Lim, "China's Fear of an American Blockade," *Reuters*, April 30, 2019, <https://www.reuters.com/article/us-china-army-blockade/chinas-fear-of-an-american-blockade-idUSKCN1S6140>; Matthew Conners, "Blockade the First Island Chain," U.S. Naval Institute, June 2019, <https://www.usni.org/magazines/proceedings/2019/june/blockade-first-island-chain>; and Peifer, "China, the German Analogy, and the New AirSea Operational Concept."

Using economic and financial sanctions, the United States is actively engaging in campaigns of “maximum pressure” against both Iran and North Korea. If tensions with either of those countries were to escalate into open hostilities, economic isolation would almost certainly remain part of U.S. strategy. Thus, understanding how economic isolation would impact an opponent’s strategy, especially during a war, is crucial.

A discussion of how economic isolation affects strategy must be based in an understanding of how scholars have viewed the interaction between international economic integration, isolation, and war. In general, scholars have approached this interaction from two directions. First, scholars have examined the role that economic integration and interdependence play in making war less likely. One infamous example is Norman Angell, who argued that economic integration made war unthinkable on the eve of World War I.¹¹ Most modern scholarship on the effect of bilateral trade between individual pairs of trading states has indeed found a modest deterrent effect between trading partners, attributed to the costs of states losing access to their trading partner if they go to war.¹² This finding, however, is hotly debated,¹³ because warring states often continue trading with each other.¹⁴ Other scholarship maintains that capital and monetary interdependence can provide effective mechanisms for costly signaling,¹⁵ allowing states to bargain more credibly, and that current trade levels and expectations of future trade interact to encourage or discourage war. Whether the deterrent effect of bilateral trade arises simply from the general economic cost of war or because economic costs could impair the warfighting effort is unclear.

While there has been significant examination of the deterrent effects of bilateral trading partnerships, little modern scholarship has investigated how a single state’s broad economic integration affects its security and what happens when a state loses access to the global economy in wartime. This article seeks, in part, to fill this gap.

The second approach examines the strategic value of isolating states from the global economy during war. Scholars have found that economic isolation is generally ineffective at coercing states to surrender. Mancur Olson’s study of the submarine blockades of Great Britain during World Wars I and II finds that substitution and trade reorientation can help minimize the impact of leaky blockades.¹⁶ While Robert Pape argues that economic isolation was principally responsible for coercing Japan’s surrender in 1945, John Mearsheimer, who conducted the only thorough evaluation of blockades against great powers, takes the position that this case is an outlier.¹⁷ He finds no other examples of economic isolation via blockade winning a war. Mearsheimer asserts that blockades fail because they are difficult to implement and become porous over time, and because great powers adapt through substitution, stockpiling, and conquest.¹⁸

At first glance, it might seem economically isolated states ought to be less likely to win wars — after all, these states would not be able to access resources beyond their borders — while well-resourced states ought to be more likely to win wars, especially wars of attrition. Traditionally, advocates of economic isolation have argued either that economic warfare alone can directly coerce a surrender or that economic isolation will stress an opponent’s armed forces and make them less effective.

11 Norman Angell, *The Great Illusion: A Study of the Relation of Military Power to National Advantage* (New York: Putnam, 1910).

12 John R. Oneal and Bruce M. Russett, “The Classical Liberals Were Right: Democracy, Interdependence, and Conflict, 1950–1985,” *International Studies Quarterly* 41, no. 2 (June 1997): 267–93, <https://doi.org/10.1111/1468-2478.00042>; John R. Oneal and Bruce Russett, “Assessing the Liberal Peace with Alternative Specifications: Trade Still Reduces Conflict,” *Journal of Peace Research* 36, no. 4 (July 1999): 423–42, <https://doi.org/10.1177/022343399036004003>; Solomon William Polachek, “Conflict and Trade,” *Journal of Conflict Resolution* 24, no. 1 (1980): 55, <https://doi.org/10.1177/02200278002400103>; and Solomon W. Polachek, John Robst, and Yuan-Ching Chang, “Liberalism and Interdependence: Extending the Trade-Conflict Model,” *Journal of Peace Research* 36, no. 4 (1999): 405–22, <https://doi.org/10.1177/0022343399036004002>.

13 Katherine Barbieri, “Economic Interdependence: A Path to Peace or a Source of Interstate Conflict?” *Journal of Peace Research* 33, no. 1 (1996): 29–49, <https://doi.org/10.1177/022343396033001003>; and Erik Gartzke, Quan Li, and Charles Boehmer, “Investing in the Peace: Economic Interdependence and International Conflict,” *International Organization* 55, no. 2 (Spring 2001): 391–438, <https://doi.org/10.1162/00208180151140612>.

14 Jack S. Levy and Katherine Barbieri, “Trading with the Enemy During Wartime,” *Security Studies* 13, no. 3 (2004): 1–47, <https://doi.org/10.1080/09636410490914059>.

15 “Costly signaling” is a counter to “cheap talk.” Audiences take messages more seriously when their senders must commit resources or forego opportunities to send them. Senders would not bear the costs of sending these messages if they were not serious about following through. For the application of costly signaling to economic interdependence and war, see, Gartzke, Li, and Boehmer, “Investing in the Peace.” For the interaction of current and expected trade, see, Dale C. Copeland, “Economic Interdependence and War: A Theory of Trade Expectations,” *International Security* 20, no. 4 (Spring 1996): 5–41, <https://doi.org/10.1162/isec.20.4.5>.

16 Olson, *The Economics of the Wartime Shortage*.

17 Robert Anthony Pape, *Bombing to Win: Air Power and Coercion in War* (Ithaca, NY: Cornell University Press, 1996). Mearsheimer, *The Tragedy of Great Power Politics*.

18 Mearsheimer, *The Tragedy of Great Power Politics*, 93–96.



tive in battle.¹⁹ However, this logic is flawed in two important ways. First, it assumes that an economically isolated state has fewer resources within its own borders than the state (or states) it opposes. Second, it ignores the efficiency with which that state uses its resources and the strategy it adopts. Empirically, resources alone are a poor predictor of war outcomes. One must also evaluate a state's strategy.²⁰ In short, economic isolation is an essential tool in the U.S. toolbox, but scholars have neither investigated how a state's broad economic integration affects its security nor how economic isolation in war can affect a state's strategy.

Evaluating the Theory: Economic Isolation and Strategy

I argue that wartime economic isolation makes states more likely to pursue risky strategy, and that this effect holds even when states have low prewar levels of integration into the global economy. Lack of economic access can affect a state's strategy in two ways: It can have a direct impact or a political impact. Effective economic isolation induces or exacerbates shortages of critical resources. When those shortages have a direct impact, economically isolated states experience a reduction in the resources that can be put toward their war effort. These reductions may constrain leaders, eliminating some of their strategic options. Some leaders may simply accept these reductions and choose from among their reduced set of options. Alternately, some leaders may choose to adapt, adjusting their strategy to attempt to gain additional resources rather than accept the constraints of economic isolation.²¹ This approach usually involves greater risk as conquering territory to gain more resources frequently escalates the war, increasing its geographic spread and swelling the opposing coalition.

The canonical case of a country choosing to

adapt to economic isolation with aggression is Japan prior to Pearl Harbor. When the United States embargoed oil after the Japanese occupied French Indochina, Japan seized oil fields in the Dutch East Indies in order to continue its war in China.²² To secure the transportation route from the East Indies to Japan, it was necessary to neutralize British and American positions in the Western Pacific. Seeking to maximize the element of surprise, Japan attacked Pearl Harbor. Thus, to secure a new oil supply after the U.S. embargo, Japan went to war with Britain, Australia and New Zealand, the Netherlands, and the United States.

The second mechanism by which economic isolation can affect strategy is political impact. Shortages that have a political impact interact with existing political pathologies to make leaders feel constrained. In these circumstances, leaders fear that the hardships of economic isolation will cause the civilian population to withdraw support from the government unless it can eventually provide gains that compensate for those hardships. In these circumstances, governments have an incentive to "gamble for resurrection."²³ Just as with direct impact, these governments may decide to operate within the constraints that economic isolation imposes, for example, by forestalling consideration of a negotiated solution, or they may choose to adapt and seek additional resources to alleviate those constraints. Again, the strategies that remain possible for the leaders of an economically isolated state to choose are likely riskier. This mechanism is similar to that which underlies the coercive use of economic isolation against governments. Scholars who have claimed that economic isolation can coerce target governments into changing their behavior have claimed that the target governments choose to comply with the demands of the states imposing the isolation because the isolation causes economic hardship that, were it to continue, might cause

19 For an example of the argument that shortages can make enemy forces less effective, see, W. N. Medlicott, *The Economic Blockade*, Vol. 2 (London: H. M. Stationery Off, 1952), 630.

20 John J. Mearsheimer, *Conventional Deterrence* (Ithaca, NY: Cornell University Press, 1983); and Allan C. Stam III, *Win, Lose, or Draw: Domestic Politics and the Crucible of War* (Ann Arbor: University of Michigan Press, 1996).

21 Similarly, Rosemary Kelanic argues that, in the special case of oil, states attempt to mitigate their assessed vulnerabilities prior to conflict to minimize the potential effect of economic isolation, though she also notes that in some cases states adapt by seeking to conquer reliable oil supplies. Rosemary A. Kelanic, "The Petroleum Paradox: Oil, Coercive Vulnerability, and Great Power Behavior," *Security Studies* 25, no. 2 (April 2016): 181–213, <https://doi.org/10.1080/09636412.2016.1171966>.

22 Scott D. Sagan, "The Origins of the Pacific War," *Journal of Interdisciplinary History* 18, no. 4 (Spring 1988): 893–922, <https://doi.org/10.2307/204828>; and Dale C. Copeland, "A Tragic Choice: Japanese Preventive Motivations and the Origins of the Pacific War," *International Interactions* 37, no. 1 (2011): 116–26, <https://doi.org/10.1080/03050629.2011.546722>.

23 "Gambling for resurrection" is a political science theory that claims that when leaders begin losing a war they are more likely to "double down" and seek to win rather than pursue a negotiated settlement — thus gaining the political benefits of winning and avoiding the political costs of a settlement short of "victory" — even if the negotiated settlement would be more likely to leave the country as a whole better off. George W. Downs and David M. Rocke, "Conflict, Agency, and Gambling for Resurrection: The Principal-Agent Problem Goes to War," *American Journal of Political Science* 38, no. 2 (May 1994): 362–80, <https://www.jstor.org/stable/2111408>.

the target state's population to try to overthrow its government.²⁴ The political impact mechanism identified here is the same except that rather than the isolation causing the target state's government to accept the demands of the state imposing isolation — usually surrender — it causes it to adopt riskier strategies.

To evaluate this theory, we must understand how to identify when states are economically isolated and when they are pursuing risky strategies. To identify when a state is economically isolated, we must first understand what a state needs in order to have access to the international economy. For a state to have effective access to the international economy it must meet three requirements. First, surplus goods (either raw materials or finished products) must exist in a state that is willing to trade. Second, a state must be able to transport imported goods to a location where it can use them. Third, a state must have hard currency or credit as well as a means of transmitting payment to be able to pay for the goods it imports, unless it finds a partner willing to donate the goods as aid. Removing any one of these three requirements will limit a state's access to the international economy. Strategies of economic isolation often target more than one of these. Regardless of which requirements are targeted, a state's ability to access the international economy is best assessed by looking at two factors: imports and shortages. The more severely a state's imports are reduced — in particular imports of critical goods — the more effective the strategy of economic isolation. Shortages can also shed light on whether economic isolation is having an impact. If a state makes adjustments to its economy during wartime, it could mean that that state is no longer self-sufficient in producing a good it previously was. For example, a state which produced enough chemical fertilizer to meet domestic demand, could in wartime use the nitrates it previously used to make fertilizer to make explosives instead and find that it was no longer self-sufficient in fertilizer. If that state had access to the international economy, it could import fertilizer to make up for its shortage (as long as there was no absolute global shortage). Thus, shortages may indicate an inability to import goods and imply that a strategy of economic isolation has been effective.

Evaluating the riskiness of a strategy is difficult. Traditional risk analysis focuses on the potential for negative outcomes in the course of a given

undertaking, including both their probability and their severity. However, two challenges arise when attempting to assess risk. First, and most obviously, making an accurate prediction of outcomes in real time is difficult, while evaluating the accuracy of a prediction after the fact is often hampered by outcome bias. Second, and more importantly, effective wartime strategy usually requires the use of "calculated risk" as Adm. Chester Nimitz defined it before the Battle of Midway. Nimitz instructed his commanders to "[avoid] ... exposure of [their] force to attack by superior enemy forces without good prospect of inflicting, as a result of such exposure, greater damage to the enemy."²⁵ The essence of Nimitz's instruction is that strategists must weigh the probability and "severity" of success against the probability and severity of the attendant hazards, and that greater risks should sometimes be accepted in the pursuit of greater gains. Thus, the best option for a decision-maker to choose may not always be the least risky one. In combination, these two factors make risk assessment both complicated and subjective.

To minimize debates over the appropriate balancing of relative risk, I define two types of obviously and especially risky strategies. By obviously risky, I mean that these strategies have characteristics that should be identifiable *a priori* to decision-makers with imperfect information, if they choose to look for them. By especially risky, I mean that these strategies are outliers on the distribution of risky strategies and most observers would agree that they are indeed risky. Other types of risky strategies exist, but because the types of strategies presented below are both obviously and especially risky they are more self-evident than others. I call these two types of strategies the "Hail Mary" and the "Shoot the Moon." While these strategies are not mutually exclusive and indeed often overlap, they each have unique characteristics.

Hail Mary strategies are defined by their extremely low probability of success. Success is remote while the possible costs of failure are real. Decision-makers choosing a Hail Mary strategy may believe themselves in a bad or worsening situation and feel that because things are already so bad, they have little to lose by trying an idea that probably will not work. Because forecasting is difficult and pathologies sometimes lead to overly optimistic risk assessments, leaders may choose a Hail Mary strategy believing their chances of success are higher than

24 Nikolay Marinov, "Do Economic Sanctions Destabilize Country Leaders?" *American Journal of Political Science* 49, no. 3 (July 2005): 564–76, <https://www.jstor.org/stable/3647732>.

25 Quoted in, Robert C. Rubel, "Deconstructing Nimitz's Principle of Calculated Risk," *Naval War College Review* 68, no. 1 (Winter 2015): 1, <https://digital-commons.usnwc.edu/nwc-review/vol68/iss1/4/>.



they actually are. While such cases provide evidence for the argument that economic isolation increases the likelihood of a state adopting risky strategies, Hail Mary strategies provide even stronger support for my claims when the decision-makers choosing those strategies have been presented with accurate assessments of their probability of success prior to making their decision. For example, after the United States imposed its oil embargo against Japan in August 1941, Japan decided to attack the United States despite knowing that it would almost certainly lose the war. In the summer of 1941, Japan's new Total War Research Institute, staffed with the most promising mid-grade officers with access to the most accurate information Japan possessed, wargamed a conflict between Japan and the United States if Japan were to seek to secure oil in Southeast Asia. The analysis reached the "unequivocal conclusion that the war was unwinnable" and briefed that opinion directly to the Japanese cabinet.²⁶ War Minister (and soon Prime Minister) Hideki Tojo was reported to have paid close attention. And yet, less than four months later, he started the war he had been told was unwinnable to resolve the problems created by the American effort at economic isolation. He followed a Hail Mary strategy.

[B]ecause both Hail Mary and Shoot the Moon strategies are easily identifiable and especially risky, if states choose to follow them, their choice leaves little doubt they are pursuing risky strategies.

Shoot the Moon strategies — like the strategy in the card game "Hearts" — leave the states that employ them better off if completely successful but worse off even if mostly, but not completely, successful. These strategies have severely negative outcomes that will occur with only a small disturbance to the planned sequence of actions or if the strategy is not successful within a certain period of time. These characteristics make Shoot the Moon strategies easy to identify *a priori* because they do not include probability assessments. Thus, in theory, a decision-maker without accurate probability forecasts could still identify a Shoot the Moon strat-

egy. These strategies are inherently risky because a small disruption can lead to catastrophe. A quintessential Shoot the Moon strategy is a nuclear counterforce first strike. In theory (and setting aside second-order effects), if the attacking state successfully destroys all of its target's nuclear weapons in one initial blow, it gains a great advantage. If, however, it misses even one of its target's nuclear weapons — a small disturbance from the planned course of events — it invites almost certain nuclear retaliation with potentially catastrophic effects.

If a state faces a choice between a Hail Mary and a Shoot the Moon strategy, it is likely to choose the Shoot the Moon strategy because it has a higher probability of success. Moreover, once implemented, Shoot the Moon strategies may appear to succeed at first before a small disruption causes them to fail or time runs out. Because Hail Mary strategies have low absolute probabilities of success, they often appear as an obviously bad choice. Only especially desperate states are likely to choose them. Either way, because both Hail Mary and Shoot the Moon strategies are easily identifiable and *especially* risky, if states choose to follow them, their choice leaves little doubt they are pursuing risky strategies.

In the following sections, I examine Germany's behavior in World Wars I and II in depth to evaluate this article's claims — that effective economic isolation makes the target state more likely to pursue risky strategies and that prewar levels of international economic integration have little effect on this likelihood. Germany provides an appropriate but challenging test for whether economic isolation influences strategy regardless of a state's level of prewar economic integration. On the one hand, the efforts to blockade Germany in both world wars form key

cases for claims that isolation is generally ineffective.²⁷ On the other hand, some recent scholars have used analogies to Germany in pushing the argument for pursuing an isolation strategy toward China.²⁸

In both periods I examine, Germany was an industrialized, continental power that bordered many states — exactly the sort of state that conventional wisdom says should be able to cope with wartime economic isolation. Prior to World War I, Germany was deeply integrated into the international economy. Once the war began, economic isolation formed a key part of the Allied strategy. Operating through the political impact mechanism, economic isolation

26 Eri Hotta, *Japan 1941: Countdown to Infamy* (New York: Alfred A. Knopf, 2013), 167.

27 Mearsheimer, *The Tragedy of Great Power Politics*, 90.

28 Peifer, "China, the German Analogy, and the New AirSea Operational Concept."

spurred Germany to embrace a risky strategy, which ultimately helped bring about its defeat. Influenced by its experience in World War I, the Nazis attempted to create an autarkic Germany to prepare for what would be World War II. The war's conquests should have provided the country with additional security: By 1941, Germany controlled most of the European continent and was ruthless in its willingness to sacrifice occupied populations to the needs of its war economy. These characteristics make it a particularly hard test for the argument that economic isolation leads to risky strategies, yet Allied economic warfare still shaped Germany's decisions through the direct impact mechanism, causing it once again to embrace a risky strategy.²⁹

In both cases, wartime Germany became economically isolated, and in both cases that isolation led the German government to make disastrous strategic choices: In World War I that took the form of adopting unrestricted submarine warfare; in World War II it was the decision to invade the Soviet Union.

Political Impact: **Germany in World War I**

When World War I began, the Entente powers imposed a blockade on Germany, which had become deeply embedded in the international economy over the previous 40 years. This economic isolation caused Germany to suffer severe food and raw material shortages, which in turn affected German decision-making through the political impact mechanism. The shortages undermined the fragile political relationship between the elite and the working population, and the elites came to believe that only an overwhelming vic-

tory would maintain their status. This belief led them to make large gambles, including deciding to restart unrestricted submarine warfare in late 1916, which brought the United States into the war. Pursuing this risky Shoot the Moon strategy ensured Germany's ultimate defeat.

From Germany's unification in 1871 to 1913, the German economy more than tripled in size while its population increased by only about 50 percent.³⁰ International trade was a key part of this growth. Between 1872 and 1913, German exports (excluding re-exports) more than quadrupled and imports more than tripled. In 1913, the country took a larger share of world trade than any power except Britain.³¹ Food and raw materials to feed Germany's population and industry made up 27 percent and 46 percent of German imports, respectively, by value.³² By the early 1900s, German iron ore no longer met the needs of the Ruhr's blast furnaces.³³ German industrialists invested in French mines and signed long-term contracts with the Swedes.³⁴ By 1913, Germany was importing 25 percent of its iron and lead and 78 percent of its copper consumption.³⁵ Germany also depended on imports for asphalt, hides, timber, tanning chemicals, resins, phosphates, tin, nickel, mercury, manganese, oil, and sulfur.³⁶

Although it would rely heavily on imported raw materials until the start of World War I, the German government sought to reduce the country's dependence on imported food through agricultural protection. Beginning in 1880, the imperial government imposed tariffs to counter cheap grain from the United States, Russia, and Hungary. While the initial tariffs were modest, the German government increased them repeatedly over the following 25 years.³⁷ It also facilitated investment in new intensive agricultural methods. German

29 This article does not consider the effect of selecting into war. In particular, states that are vulnerable to economic isolation may be deterred from war when led by leaders of "normal" aggressiveness. If vulnerability to economic isolation had this effect, the only states vulnerable to economic isolation that would actually initiate wars would be those led by unusually aggressive leaders. These aggressive leaders would then be more likely to expand a war in response to the pressures of economic isolation. Leaders of average aggression, on the other hand, would be deterred from initiating a war in the first place by their state's vulnerability to economic isolation. Even if this selection effect exists, however, the pattern observed in the two case studies presented here should hold across the set of observed wars both past and future, making it an important consideration for decision-makers. Future research should investigate how vulnerability to economic isolation and leader aggressiveness interact to affect the likelihood of war breaking out.

30 Angus Maddison, "Historical GDP Data," University of Groningen, accessed April 18, 2020, <https://www.rug.nl/ggdc/historicaldevelopment/maddison/releases/maddison-database-2010>.

31 Katherine Barbieri and Omar Keshk, "Trade Data Set Codebook, Version 4.0." Correlates of War Project, 2016, <https://correlatesofwar.org/data-sets/bilateral-trade>.

32 Gustav Stolper, Karl Häuser, and Knut Borchardt, *The German Economy, 1870 to the Present* (New York: Harcourt, Brace & World, 1967), 30.

33 Martin Kitchen, *The Political Economy of Germany, 1815–1914* (London: Croom Helm, 1978), 274.

34 Kitchen, *The Political Economy of Germany*, 275.

35 Robert B. Armeson, *Total Warfare and Compulsory Labor: A Study of the Military-Industrial Complex in Germany During World War I* (The Hague: MNIjhoff, 1964), 4.

36 Armeson, *Total Warfare and Compulsory Labor*, 4.

37 Stolper, Häuser, and Borchardt, *The German Economy*, 37.



grain and potato production rose dramatically between the late 1870s and the first decade of the 20th century. Average wheat yields increased by 38 percent, rye yields by 53 percent, and potato yields by 90 percent. The amount of land being cultivated rose, and total grain and potato production roughly doubled.³⁸ And yet, it was not enough to feed the German people. In the 10 years before the war began, domestic production varied between 75 and 80 percent of consumption. If one includes animal fodder, Germany only produced two-thirds of the total food it consumed.³⁹ For some foods, like vegetables, Germany imported three-fifths of its consumption.⁴⁰

Nonetheless, German agriculture remained embedded in the world market. Germany exported grain surpluses in the fall, which meant it needed to import more food at other times of the year than simple production-to-consumption ratios would suggest.⁴¹ Some of the increases in German agricultural production were attributable to changes in world markets. German farmers specialized in agricultural sectors where they held competitive advantage in international markets. As British mills replaced German wool with cheaper sources, German farmers took to raising veal, which commanded a higher price and kept more acreage available for crops.⁴²

Integration with the world economy had come with both benefits and risks. Considering Germany's dependence on imported raw materials and the vibrancy of its export markets, it is difficult to think that Germany could have sustained its rapid industrialization had it been economically independent. There was not enough domestic demand to sustain German growth, and even if there had been, domestic supply, both of labor and of raw materials, would not have been able to keep up.⁴³ Even if it had been free of both of these constraints, German economic efficiency would have suffered had it not been engaged in the world economy because it would have

been less able to specialize. In short, an autarkic Germany would have been left behind.

However, integration also carried with it the risk that, should Germany lose access to the international market, the German economy would struggle. Prior to World War I, Germany imported a third of its food and animal fodder requirements. Three-quarters of all German imports during this time traveled by sea (if one includes goods transshipped through ports in neighboring states).⁴⁴ An effective blockade would quickly cause shortages. Industrial dependence on raw materials posed a similar problem. These risks would place important constraints on German decision-makers in the event of a conflict.

Whether Germany's leaders recognized these risks is unclear. During the July Crisis in 1914, German leaders cared greatly about whether the British would enter the conflict, but they did little to hedge against a blockade.⁴⁵ While Germany had built a first-rate navy in the years before the war, the "risk theory" — first proposed by Adm. Alfred von Tirpitz and used as the strategic rationale behind the naval construction program — saw the High Seas Fleet as a means to deter the British from going to war with Germany, rather than as a way to break a British blockade. Instead, Tirpitz's goal had been to build a fleet large enough that even if the Royal Navy defeated the Germans in battle, it would be a pyrrhic victory — the British fleet would be so heavily damaged that it could no longer maintain the rest of its worldwide commitments.⁴⁶ In the end, his fleet had the opposite of a deterrent effect, triggering a naval arms race that pushed the British to align with the French.

Overall, the German government saw economic planning as unimportant. The Ministry of War believed in the Schlieffen plan — designed to defeat France and then Russia swiftly. Internal logistics plans assumed the war would last nine months at most.⁴⁷ The General Staff dismissed the importance of economic planning, delegating the matter to ci-

38 Stolper, Häuser, and Borchart, *The German Economy*, 21.

39 Stolper, Häuser, and Borchart, *The German Economy*, 62.

40 Armeson, *Total Warfare and Compulsory Labor*, 4.

41 Kitchen, *The Political Economy of Germany*, 248.

42 Kitchen, *The Political Economy of Germany*, 205.

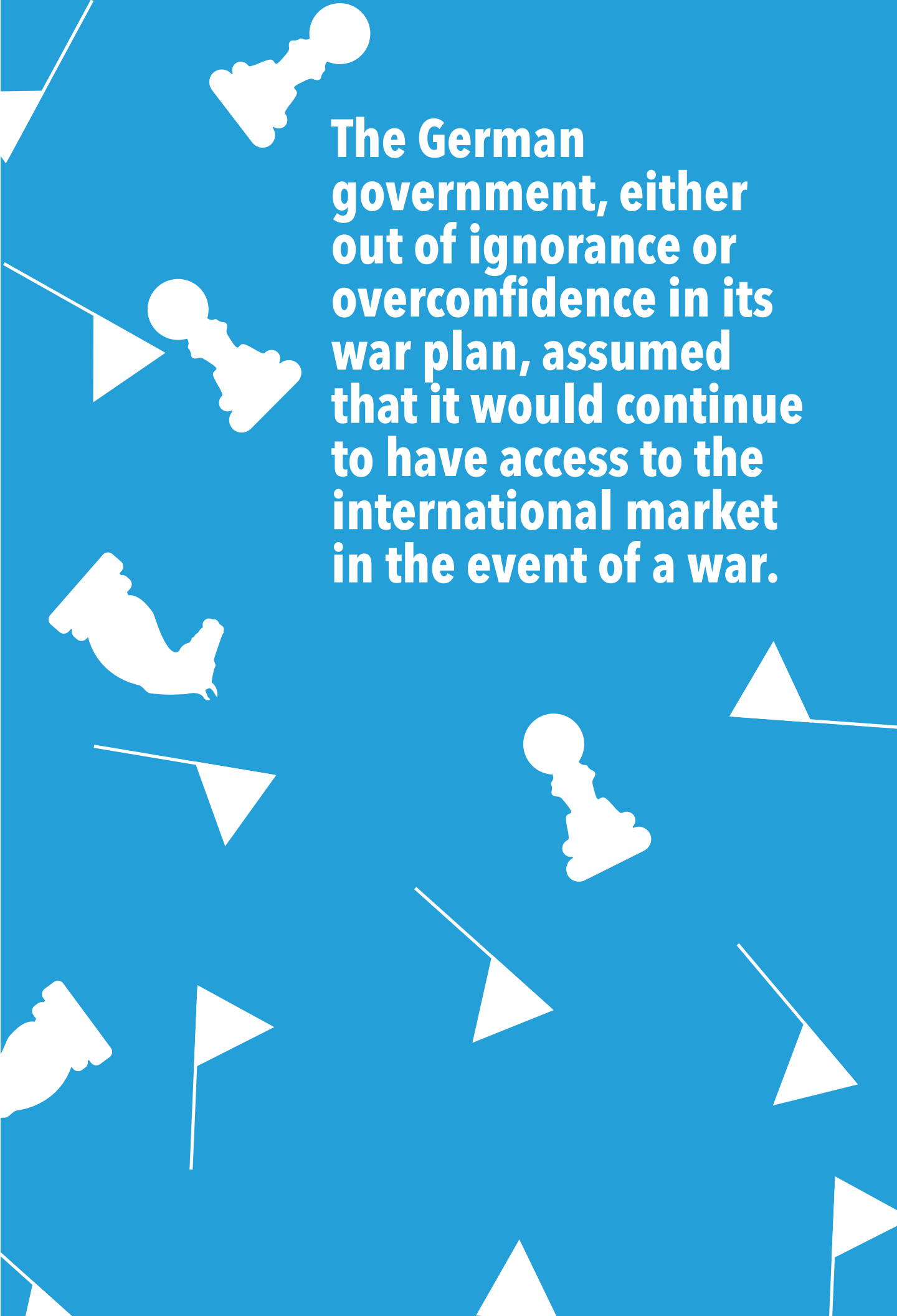
43 German agriculture relied on foreign labor, needing almost a million foreign workers in the years before the war. Armeson, *Total Warfare and Compulsory Labor*, 4.

44 Avner Offer, *The First World War: An Agrarian Interpretation* (Oxford: Clarendon Press, 1989), 335.

45 Offer argues that German leaders sought a quick victory war plan, which the Schlieffen Plan fulfilled, not only because of the threat of a two-front war, but also because of the threat of a naval blockade and Germany's economic vulnerability. If this hypothesis is true, it only re-enforces the central argument of this article that economic isolation constrains leaders to choose risky strategies. Offer, *The First World War*, 348.

46 Paul M. Kennedy, *The Rise and Fall of British Naval Mastery*, 2nd ed. (Amherst, NY: Humanity Books, 1983), 215.

47 Armeson, *Total Warfare and Compulsory Labor*, 3.



The German government, either out of ignorance or overconfidence in its war plan, assumed that it would continue to have access to the international market in the event of a war.



vilians in the Ministry of War, who in turn passed it on to the Ministry of Interior.⁴⁸ The economic planning that did occur was minimal and ignored the risk of economic isolation. The government made no specific preparations to feed the population or ensure access to raw materials for war production. Instead, it stockpiled cash.⁴⁹ Cash reserves, however, were only useful if Germany retained access to the international market. Plans also existed to prohibit exports and eliminate import controls in wartime.⁵⁰ So poor was the planning for any kind of economic disruption that, during the July Crisis, Imperial Chancellor Theobald von Bethmann-Hollweg rejected his interior secretary's recommendation to purchase extra grain supplies, fearing it would give the appearance of economic mobilization.⁵¹ Historian Martin Kitchen argued that, had the war come a month later, Germany's food situation would have been far worse as it would have already exported most of its fall harvest.⁵² The German government, either out of ignorance or overconfidence in its war plan, assumed that it would continue to have access to the international market in the event of a war.

Unsurprisingly, the war brought severe economic consequences for the unprepared German state. The British imposed a blockade that isolated Germany from the international market.⁵³ The combination of the naval blockade and facing enemies on most of its land frontiers limited Germany to trading with its Austrian ally and the adjacent neutral countries: the Netherlands, Switzerland, Denmark,

and Sweden. While multiple problems bedeviled British attempts to enforce the blockade in the first part of the war, in 1916, the British government reorganized its effort.⁵⁴ The blockade's "bite" worsened. By late 1916, the blockade expanded to severely limit transshipment to Germany via adjacent neutral countries.⁵⁵ Conquests in Romania and the Ukraine would provide Germany some oil and grain, but "Germany soon found herself in the position of a beleaguered fortress."⁵⁶

Within two weeks of the war's outbreak, shortages of industrial raw materials caused production problems.⁵⁷ Scarcity led to the end of the market economy. The government instituted price controls and directed raw materials to prioritized war industries.⁵⁸ Shortages of rubber, oil, and some metals persisted throughout the war.⁵⁹ In 1916, under the Hindenburg Plan's "War Socialism," the government took total command of the economy. Workers could not change jobs without government permission and could be conscripted for specific factories. The government closed industries whose products were insufficiently valuable for war, repurposed their machinery, and redirected their workers.⁶⁰

While extreme measures allowed industrial production to keep up with war demands, the burden fell heavily on the population. By the third winter of the war, coal stocks were insufficient to heat homes and maintain production. By the last year of the war, shortages of raw material made clothing, shoes, and soap scarce. Miners could not wash away coal dust. Lice spread. As the gov-

48 Armeson, *Total Warfare and Compulsory Labor*, 3.

49 Stolper, Häuser, and Borchardt, *The German Economy*, 154.

50 Karl Hardach, *The Political Economy of Germany in the Twentieth Century* (Berkeley: University of California Press, 1980), 12.

51 Armeson, *Total Warfare and Compulsory Labor*, 3.

52 Kitchen, *The Political Economy of Germany*, 248.

53 It took time for the British to make the blockade effective. Nicholas Lambert documents the challenges the British faced in the first half of the war. Nicholas A. Lambert, *Planning Armageddon: British Economic Warfare and the First World War* (Cambridge, MA: Harvard University Press, 2012). Eric Osborne examines the blockade's increasing effectiveness over the entire course of the war. Eric W. Osborne, *Britain's Economic Blockade of Germany, 1914–1919* (London; New York: Frank Cass, 2004). Historians differ on the blockade's eventual degree of effectiveness. According to Maurice Parmelee, both German and British contemporary statistics showed that, by late 1916 and early 1917, German imports had fallen by over 90 percent. Later research reported by Lance Davis and Stanley Engerman indicates that, overall, German imports had fallen by 61 percent from prewar levels by 1917. Regardless, the drop was substantial. Maurice Parmelee, *Blockade and Sea Power: The Blockade, 1914–1919, and Its Significance for a World State* (New York: Thomas Y. Crowell Co., 1924), 190–232; and Lance E. Davis and Stanley L. Engerman, *Naval Blockades in Peace and War: An Economic History since 1750* (Cambridge; New York: Cambridge University Press, 2006), 164.

54 Lambert, *Planning Armageddon*.

55 For discussion of British efforts to disrupt transshipment, see, "Memorandum in Regard to the Present Position of the Blockade," United Kingdom War Cabinet, Jan. 1, 1917, U.K. National Archives, CAB 1/22, http://www.nationalarchives.gov.uk/pathways/firstworldwar/spotlights/p_memo_blockade.htm. For evidence of the impressive effectiveness of these efforts, see, Louis Guichard, *The Naval Blockade, 1914–1918*, (New York: D. Appleton & Company, 1930), 77.

56 Hardach, *The Political Economy of Germany in the Twentieth Century*, 12.

57 Stolper, Häuser, and Borchardt, *The German Economy*, 65.

58 Stolper, Häuser, and Borchardt, *The German Economy*, 66.

59 Hardach, *The Political Economy of Germany in the Twentieth Century*, 12.

60 Stolper, Häuser, and Borchardt, *The German Economy*, 67.

ernment redistributed workers to factory towns, housing ran short.⁶¹

The food shortage had the most pronounced effect. The German government instituted food rationing in January 1915. Physical and social characteristics determined an individual's ration. Soldiers, farmers, hard laborers, children, and pregnant women had special rations above the base amount.⁶² The base ration, which not all Germans could always get, was shockingly low. Though it varied throughout the war, from late 1916 onward, 225 grams of bread or flour per person per day and 56–68 grams of fat (butter, lard, oil, or margarine) per person per week was typical.⁶³ This ration amounted to about 1,000 calories a day.⁶⁴

However, actual caloric consumption was probably higher, although it is more difficult to assess. Since fruits and vegetables were usually available and not included in the ration, total caloric intake was somewhat higher than the ration even before considering food available through the black market. While often cited figures from 1916 suggest 86–90 percent of the food Germans consumed came from rations, one survey of actual calories consumed by families in Leipzig conducted during the war, which was forgotten for 70 years, recorded actual intake at almost 50 percent higher on average than the base ration, except during times of real shortages like the winter of 1916–17 (the critical time period for my argument).⁶⁵ According to economic historian Avner Offer, the higher Leipzig estimate of actual calories consumed — about 1900 — just reached “base energy needs once people had lost sufficient weight and limited their exertions somewhat.”⁶⁶ But, as Offer summarizes,

It would be wrong to infer from these data that Germans suffered no hunger. After all these were only *averages*. Evened out, the food was sufficient, more or less, to maintain weight. But rations fluctuated a great deal from week to week. If the average just matched the food norm, then it is likely that half the time the people ate less than the norm. Many people ate less *all* the time. And there must have been a great deal of hunger from week to week.⁶⁷

The shortages would not have starved Germany even if that war had continued longer than it did, but they were more than enough to cause significant discontent.

These shortages were largely due to the blockade, but other problems worsened them. Undoubtedly, mismanagement of food stocks played a role — even the German army eventually had to resort to the black market to secure food supplies.⁶⁸ More importantly, a domestic supply problem aggravated the shortages. During the war, agricultural production collapsed, exacerbating food problems in an economy that previously produced only two-thirds of its annual needs. By the end of the war, grain production was half its prewar level. The collapse had several immediate causes, including redistribution of manpower from farms to industry and the army, shortages and attrition of farm equipment, and the redirection of nitrates from fertilizer to the munitions industry.⁶⁹ These problems, too, were related to the blockade.⁷⁰ In 1913, for example, Germany had imported 210,000 tons of fertilizer. By 1916, it could only obtain 38 percent of that amount.⁷¹ Had Germany had access to inter-

61 Gerald D. Feldman, *Army, Industry, and Labor in Germany, 1914–1918* (Princeton, N.J.: Princeton University Press, 1966), 459.

62 Stolper, Häuser, and Borchardt, *The German Economy*, 63.

63 Stolper, Häuser, and Borchardt, *The German Economy*, 63. Hardach provides a daily ration for a “city dweller” in the final year of the war as 440 grams of potatoes, 200 grams of bread, 50 grams of sugar, 35 grams of meat, and 9 grams of fat, though he too notes that it was not always available. Hardach, *The Political Economy of Germany in the Twentieth Century*, 13, n. 7. This ration amounts to 2,981 calories, substantially more than Stolper et al.’s number, though Hardach’s numbers for bread and fat are slightly lower. It may be that Stolper et al.’s research missed the inclusion of items other than flour and bread. More likely, however, it seems that, since many city dwellers were industrial workers and Hardach provides the ration for a typical city dweller, his number is a laborer’s ration rather than the base ration. As is discussed later, inequality in rations was, in itself, a source of political discontent.

64 The caloric total of the ration described is 970 if calculated using U.S. Department of Agriculture standard calorie conversion of four calories per gram of protein and carbohydrates and nine calories per gram of fat. Davis and Engerman suggest that rations had fallen to 1,344 calories by late 1916 and 1,100 by summer 1917 with only about 1,000 calories actually being consumed after accounting for waste in cooking. Davis and Engerman, *Naval Blockades in Peace and War*, 204.

65 Offer, *The First World War*, 52–53. This estimate also roughly coincides with the report that a third of civilian food consumption was distributed via black market by the end of the war. Jürgen Kocka, *Facing Total War: German Society 1914–1918* (Cambridge, MA: Harvard University Press, 1984), 24.

66 Offer, *The First World War*, 53.

67 Offer, *The First World War*, 53.

68 Feldman, *Army, Industry, and Labor in Germany, 1914–1918*, 462.

69 Hardach, *The Political Economy of Germany in the Twentieth Century*, 12.

70 Parmelee, *Blockade and Sea Power*, 236.

71 Osborne, *Britain’s Economic Blockade of Germany, 1914–1919*, 147.

Table 1: Number of German Cities Experiencing Food Riots by Month in 1916⁷⁵

| Jan. | Feb. | March | April | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. |
|--|------|-------|-------|-----|------|------|------|-------|------|----------------|------|
| 3 | 4 | 5 | 3 | 0 | 17 | 0 | 5 | 5 | 6* | 3 [^] | 6 |
| *One of these cities experienced five separate riots. [^] One of these cities experienced continuous small riots. | | | | | | | | | | | |

national markets, it might have imported new farm equipment or increased its supply of nitrates. With the blockade in place, these options did not exist.

While post-unification German politics had always featured a struggle between conservative elites and liberalizers, the blockade-induced food shortages undermined social solidarity. The poor felt that the rich, who could afford to augment their rations through the black market, were unwilling to shoulder the burdens of the war.⁷² Meanwhile, the rich felt their social position was being challenged as the government allotted industrial workers greater rations.⁷³ German leaders recognized the risk to their political power. In 1915, Tirpitz noted the blockade could induce a revolution, writing, “Gradually the blockade of Germany must affect the whole temper of the nation and one can never know whether a section of the proletariat may not break out like a carrion vulture.”⁷⁴

By 1916, this hardship broke the unwritten compromise that had sustained German politics since 1890 in which elite interest groups relied on the support of the votes of nationalist mass political groups to defeat socialist politicians.⁷⁶ Food riots started to occur, and by 1917, food shortages had sparked repeated waves of strikes across Germany. Multiple historians have tied this unrest directly to the food shortages and the blockade. Robert Armeson called the blockade “a basic underlying cause” of the unrest,⁷⁷ and Gustav Stolper argued that the strikes “were sufficiently explained by the dis-

treasing food shortages.”⁷⁸ Alfred Rosenberg saw a connection between the war’s hardship and a shift in the politics of the working classes. According to him, “the experience of war awoke the masses to a consciousness that many things could no longer be endured that had formerly been tolerated.”⁷⁹ He tied this shift directly to the food shortage.⁸⁰

The German elite understood this growing challenge to their authority. Armeson explains that German conservatives

feared that an unsuccessful war would lead to the overthrow of the domestic *status quo*. They were apprehensive of reforms which should alter the Prussian franchise system or would introduce true parliamentarism into German political life. Any new orientation in the domestic sphere after the war ... would mean, as Heinrich Class so well expressed it, “that the war had been lost domestically.”⁸¹

Historian Gerald Feldman agrees, writing that “neither the leaders of heavy industry nor the leaders of the army ... were willing to create the basis for a permanent integration of the workers into the state.”⁸² In her history of life in Germany during World War I, Belinda Davis documents how the German government repeatedly tried to respond to its population’s concerns about food and economic hardship, but never achieved lasting success.⁸³ Jürgen Kocka linked the breakdown of the state’s

72 Stolper, Häuser, and Borchardt, *The German Economy*, 70–71; and Arthur Rosenberg, *The Birth of the German Republic, 1871–1918*, trans. Ian F.D. Morrow (New York: Oxford University Press, 1931), 90.

73 Feldman, *Army, Industry, and Labor in Germany, 1914–1918*, 467.

74 Alfred von Tirpitz, *My Memoirs* (New York: Dodd, Mead, & Company, 1919), 306.

75 Archibald Colquhoun Bell, *A History of the Blockade of Germany and of the Countries Associated with Her in the Great War, Austria-Hungary, Bulgaria, and Turkey, 1914–1918* (London: H. M. Stationery Office, 1961), 572.

76 For a discussion of how cartelized politics lead to the politics of imperial expansion in Germany, see, Jack Snyder, *Myths of Empire: Domestic Politics and International Ambition* (Ithaca, NY: Cornell University Press, 1991), 109.

77 Armeson, *Total Warfare and Compulsory Labor*, 110.

78 Stolper, Häuser, and Borchardt, *The German Economy*, 71.

79 Rosenberg, *The Birth of the German Republic, 1871–1918*, 90.

80 Rosenberg, *The Birth of the German Republic, 1871–1918*, 91.

81 Armeson, *Total Warfare and Compulsory Labor*, 21.

82 Feldman, *Army, Industry, and Labor in Germany, 1914–1918*, 456.

83 Belinda J. Davis, *Home Fires Burning: Food, Politics, and Everyday Life in World War I Berlin* (Chapel Hill: University of North Carolina Press, 2000).

ability to manage class conflict to the pressures of the war and blockade.⁸⁴ German leaders concluded that only a quickly settled “victorious war” would preserve their authority.⁸⁵ The blockade had affected German decision-making through the political impact mechanism.

Had there been no blockade, in January 1917 the German government would have had at least three options: 1) Continue the land campaigns on the eastern and western fronts, both of which were at a stalemate, and hope for a breakthrough; 2) attempt to negotiate peace with the Allied Powers (Woodrow Wilson had recently made a peace initiative); or 3) recommence unrestricted submarine warfare. However, through the political impact mechanism, the blockade eliminated all but the riskiest option. Ironically, with hindsight, the first option — sitting tight — might have led to the best outcome for Germany. The Russian government would soon collapse and Britain and France were barely able to repulse the German offensive in the spring of 1918. Indeed, the western Allied armies came so close to breaking under the spring offensive that the Allies needed to radically increase the size of the American army bound for Europe in response.⁸⁶ Without America’s entry into the war, a direct response to Germany’s pursuit of unrestricted submarine warfare, the Allies may have buckled. In January 1917, however, maintaining the course appeared a recipe for stalemate and attrition.

Chancellor Bethmann-Hollweg argued for option 2 — negotiating peace. However, the growing divisions at home convinced most German elites that only a great military victory would preserve their position, thus foreclosing any serious consideration of a negotiated settlement.⁸⁷ The military leaders believed a negotiated peace would “cheat” Germany of the war’s gains.⁸⁸ By late 1916, German conservatives feared time was running out domestically.⁸⁹ They seemed out of options. In his memoirs, Gen. Erich

Ludendorff noted that “what General Headquarters could achieve by patriotic education ... amounted only to giving crumbs to the hungry.”⁹⁰ The political situation that the blockade had induced eliminated all routes that promised anything short of victory.

As a result, the German leadership was left with option 3 — a return to unrestricted submarine warfare. Despite clear warnings that the United States would enter the war if Germany recommenced unrestricted submarine warfare, Germany did so anyway. Its military leaders did not dispute that unrestricted submarine warfare would bring the United States into the war, but the German naval leadership believed the submarine blockade would break the British within six months and lead to victory before the United States could mobilize. This combination made the unrestricted submarine warfare decision a classic example of a Shoot the Moon strategy — a strategy in which anything less than complete success would lead to a bad outcome.

Both German leaders and outside observers tied the decision for unrestricted submarine warfare to the blockade. In 1916, the British blockade was beginning to have a much greater impact. In fact, the German U-boat campaign was launched at the time of Germany’s greatest food shortages during the war.⁹¹ Though out of government in 1916, Adm. Tirpitz later remembered that in the discussions of submarine warfare in 1915 he felt the appropriate concession for restraining his submarines would be a relaxation of the blockade.⁹² When the German government did limit submarine warfare in response to American demands in May 1916, it reserved the right to recommence unrestricted submarine warfare if the United States could not pressure Britain to lift the blockade.⁹³ In his memoirs, Gen. Paul von Hindenburg opened the chapter in which he discussed the decision to engage in unrestricted submarine warfare by describing German suffering under the blockade.⁹⁴ Numerous postwar Allied observers and later his-

84 Kocka, *Facing Total War*, 160.

85 Armeson, *Total Warfare and Compulsory Labor*, 22.

86 Bell, *A History of the Blockade of Germany*, 15–16.

87 For detailed evidence that German elites felt constrained from pursuing a negotiated settlement because of concerns about the working class’s likely political demands, see, H. E. Goemans and Mark Fey, “Risky but Rational: War as an Institutionally Induced Gamble,” *Journal of Politics* 71, no. 1 (January 2009): 35–54, <https://doi.org/10.1017/S0022381608090038>; and Rosenberg, *The Birth of the German Republic, 1871–1918*.

88 David C. Gompert, Hans Binnendijk, and Bonny Lin, *Blinders, Blunders, and Wars: What America and China Can Learn* (Santa Monica, CA: RAND Corporation, 2014), 64, https://www.rand.org/pubs/research_reports/RR768.html.

89 Armeson, *Total Warfare and Compulsory Labor*, 98–99.

90 Erich Ludendorff, *My War Memories, 1914–1918* (London: Hutchinson, 1920), 438.

91 Offer, *The First World War*, 47, 77.

92 Tirpitz, *My Memoirs*, 148.

93 “Reply of May 4th, by the German Secretary of Foreign Affairs, to the Ultimatum of April 18th,” in *Source Records of the Great War*, Vol. IV, ed. Charles F. Horne (New York: National Alumni, 1923), 101.

94 Paul von Hindenburg, *Out of My Life* (London: Cassell and co., ltd., 1920), 250.



torians also connected the tightening blockade to the decision for unrestricted submarine warfare.⁹⁵ Historian Avner Offer suggested that Germany may not have initiated the U-boat campaign without the Allied blockade.⁹⁶ Absent the blockade, it is hard to imagine German leaders would have made the risky decision to unleash their U-boats, given that their decision brought the United States into the war and greatly increased their likelihood of defeat.

Before World War I, Germany was deeply integrated into the world economy. This integration allowed for specialization and dramatic industrial growth. Germany became a leading European power, but it could not secure wartime sea control. When it found itself at war with the leading sea power as well as most of its neighbors, it became isolated from the global economy. The blockade devastated the German economy and undermined the stability of German politics. Having induced the breakdown of German politics, the blockade operated through the political impact mechanism to restrict the strategic options available to German leaders to only those that were the most risky.⁹⁷ Facing limited options, German leaders chose the highly risky Shoot the Moon strategy of unrestricted submarine warfare. This decision ensured Germany's ultimate defeat. The point is not that the blockade itself cost the Germans the war, but rather that it constrained and shaped the strategic choices the German leadership felt it had. The options that remained were highly risky, and their selection expanded the war and led to Germany's eventual defeat.

Direct Impact: **Germany and World War II**

The German experience in World War II flows from Germany's experience in World War I. The British blockade in World War I profoundly shaped the Nazi leadership's world view. As historian Robert Cecil would later write, "It was clear to all [in the German leadership] ... that the Reich, in order

to fight a major war, must either be free of the British Blockade ... or must have access to Russian raw materials and transit trade."⁹⁸ Adolf Hitler believed that Germany needed to be self-sufficient and attempted to make it so. His government's efforts reduced Germany's dependence on external supplies, but only partially and at significant cost. Once the war began, a renewed blockade re-imposed complete isolation on the country. Even after conquering most of Europe, Germany struggled to find food and raw materials. These shortages drove Hitler's decision to invade the Soviet Union in mid-1941 while Germany was still at war in the west — an example of the direct impact of the blockade — a decision that doomed his empire.

Hitler believed that Germany should be independent from global markets in both food and industrial production. His call for *lebensraum* — land to be used as "living space" for German settlers in Eastern Europe — grew from his obsession with food supplies. In the 1930s, Germans blamed the World War I blockade for the deaths of more than 424,000.⁹⁹ At the 1936 party convention, Hitler set a goal of being independent in raw materials by 1940. But rather than pursuing these goals to increase the standard of living in the country, his economic plan attempted to "make Germany invincible" — a goal it would fail to meet.¹⁰⁰

The Nazi government's attempt to achieve food independence began as soon as it came to power. In 1933, Hitler created the Reichsnährstand (RNS) to regulate food production and the food supply. This government body supervised German agriculture and food markets, directly controlling 6 million independent agricultural producers in addition to the 40 percent of the German workforce employed in occupations under RNS regulation. It also set the price of food and drink throughout the Reich.¹⁰¹ In 1936, the RNS restarted grain imports to meet German demand, which amounted to more than a million tons that year. Imports rose in 1937 to 1.6 million tons and continued until the war began, although, beginning in 1937, German

95 W. Arnold-Forster, *The Blockade, 1914–1919: Before the Armistice—and After*, Oxford Pamphlets on World Affairs, no. 17 (Oxford: Clarendon Press, 1939), 25; Guichard, *The Naval Blockade, 1914–1918*, 25, 79–80; Nigel Hawkins, *The Starvation Blockades: Naval Blockades of WWI* (Barnsley, UK: Leo Cooper, 2002), 192; Lawrence Sondhaus, *The Great War at Sea: A Naval History of the First World War* (Cambridge, UK: Cambridge University Press, 2014), 246; and C. Paul Vincent, *The Politics of Hunger: The Allied Blockade of Germany, 1915–1919* (Athens: Ohio University Press, 1985), 46.

96 Offer, *The First World War*, 76.

97 While the particular circumstances of German politics that led to these decisions were unique, the phenomenon of wartime leaders taking big risks when wars go poorly to head off domestic opposition is not. Indeed, the problem may be worse in democracies with better accountability. See, Downs and Rocke, "Conflict, Agency, and Gambling for Resurrection"; and Goemans and Fey, "Risky but Rational."

98 Robert Cecil, *Hitler's Decision to Invade Russia, 1941* (London: Davis-Poynter, 1975), 137.

99 Franz Bumm, ed., *Deutschlands Gesundheitsverhältnisse unter dem Einfluss des Weltkrieges* (Stuttgart, Berlin, and Leipzig: Deutsche Verlags-Anstalt; New Haven, CT: Yale University Press, 1928), 22–61.

100 Stolper, Häuser, and Borchardt, *The German Economy*, 135.

101 Adam Tooze, *The Wages of Destruction: The Making and Breaking of the Nazi Economy* (London: Allen Lane, 2006), 188.

domestic production was able to satisfy demand. The imports were used to build up Germany's grain stocks. By 1939, Germany had enough grain stockpiled to provide a year's worth of bread.¹⁰² However, Germany never reached self-sufficiency in animal fodder, fruit, eggs, or fats, importing 40 percent of the latter before the war began.¹⁰³

As the war approached, German food reserves were less than RNS planners had hoped. Herbert Backe, a top RNS leader in 1939 and later Reich food and agriculture minister, wanted to have stocks to last for three years of fighting. He knew the war would disrupt production as men left the fields for the army. The loss of workforce would reduce the production of labor-intensive crops like potatoes and root vegetables, which, in turn, would reduce the supplies of meat and milk as crops were diverted from fodder to food.¹⁰⁴

Germany never achieved autarky in raw materials either. In 1934, Germany established administrative bureaus similar to the RNS to manage raw materials.¹⁰⁵ And yet, on the eve of the war, Germany was still importing 65 percent of its iron ore and oil. Only half of its oil imports came from Europe, leaving open the possibility that a blockade could interrupt its supply.¹⁰⁶ The situation for other strategic raw materials was similar. Germany imported substantial portions of industrial metals: 25 percent of its zinc, 50 percent of its lead, 70 percent of its copper, and more than 90 percent of its tin and nickel.¹⁰⁷ Germany also imported 90 percent of its bauxite (though mostly from Eastern Europe) and 80 percent of its textiles. German investments in synthetic rubber and synthetic oil helped it meet demand, but it was not enough. When the war began, Germany had less than six months' worth of bauxite, iron, and copper on hand. Tires and aviation gas stocks were enough to last only one and five months, respectively, at peacetime consumption rates.¹⁰⁸

These meager returns on German efforts at self-sufficiency came with high costs to efficiency. German consumers paid prices much higher than

the world market prices for their food. When Germany imported food, it frequently did so in the context of arrangements negotiated for reasons that were more political than economic, and it paid premium prices to ensure loyalty.¹⁰⁹ Moreover, the domestic development of synthetic oil and rubber were costly. These industries required new capital-intensive industrial plants. The 1939 war preparation plan to increase German oil production would have required as much steel for synthetic oil plant construction as it would take to build a fleet 3.5 times the size of the British navy.¹¹⁰ Synthetic rubber production proved very costly: seven times the production of its natural equivalent.¹¹¹

With this stunning success, it would seem that Germany would achieve its autarkic goal — but it did not. By the second half of 1940, Germany controlled the entire European continent but still faced significant shortages of strategic materials.

On the eve of World War II, Germany's attempt at economic independence had failed. Hitler had reduced trade to just above 10 percent of GDP, lower than almost any point since unification.¹¹² The country remained dependent on imported raw materials for industrial production and key parts of its food supply. Unlike before World War I, however, Germany had thought carefully about its vulnerabilities and stockpiled some resources in preparation for the war, but these preparations had come with a cost. Germany's economy was less efficient and

102 Tooze, *The Wages of Destruction*, 193.

103 Hardach, *The Political Economy of Germany in the Twentieth Century*, 77.

104 Tooze, *The Wages of Destruction*, 361.

105 Avraham Barkai, *Nazi Economics: Ideology, Theory, and Policy* (New Haven, CT: Yale University Press, 1990), 230.

106 Hardach, *The Political Economy of Germany in the Twentieth Century*, 77.

107 Berenice Anita Carroll, *Design for Total War: Arms and Economics in the Third Reich* (The Hague and Paris: Mouton & Co., 1968), 177.

108 Hardach, *The Political Economy of Germany in the Twentieth Century*, 77–78.

109 Tooze, *The Wages of Destruction*, 266.

110 W. Victor Madej, *German War Economy: The Motorization Myth* (Allentown, PA: Game PubCo, 1984), 17.

111 Stolper, Häuser, and Borchardt, *The German Economy*, 136.

112 Trade as a percentage of GDP was calculated using trade data from Barbieri and Keshk, "Trade Data Set Codebook, Version 4.0."; and GDP data from Maddison, "Historical GDP Data."



its standard of living lower than it would have been with a more internationally engaged economy.

When war began with Britain and France in September 1939, the western blockade was imposed again. Economically, it disconnected Germany from the outside world. The blockade reduced oil supplies by more than 50 percent and imports in general by 84.9 percent. Specific raw material supplies fell even more: manganese by 96 percent, molybdenum by 93 percent, tungsten by 85 percent, and nickel by 77 percent.¹¹³ By early 1940 — only 10 months into the war — Germany’s rapid conquests meant that almost all of Europe lay under German control. With this stunning success, it would seem that Germany would achieve its autarkic goal — but it did not. By the second half of 1940, Germany controlled the entire European continent but still faced significant shortages of strategic materials.

Germany did gain some advantages from its conquests. It annexed Poland’s most fertile land and “recruited” Polish workers for use as slave labor. French coal and iron fell under German control as did France’s oil reserves while access to Romanian oil initially appeared assured. These gains, however, proved not to be as great as anticipated. The

new territories exacerbated Germany’s problems as occupation and the blockade took their toll on the rest of Europe. Interlinked shortages of food and raw materials combined to create new problems that would eventually compel Hitler to invade the Soviet Union when he did.

Soon after the German invasion of Western Europe, agriculture in that part of the continent collapsed. Grain yields fell across Denmark, Holland, France, and Germany. In France, which had been a major grain producer, the 1940 harvest was half that of 1938. As in Germany, France’s high yield farms relied on large amounts of nitrate fertilizer. Nitrates were also a key ingredient in explosives and the limited stocks disappeared into the German war machine. Western European farms also depended on the labor of millions of horses, oxen, and humans. The Germans redirected fodder, animals, and labor across occupied Europe to support the war, and a Europe-wide agricultural crisis ensued.¹¹⁴

While Germany removed itself from the world agricultural market in the years before the war, Western Europe had continued importing food, making it vulnerable to blockade. In the late 1930s, Western European countries imported more than 7 million

113 Medicott, *The Economic Blockade*, Vol. 2, 633.

114 Tooze, *The Wages of Destruction*, 418–19.

tons of grain a year from places like Argentina and Canada as well as more than 700,000 tons of oil seed. The highly productive dairy farms of France, the Netherlands, and Denmark relied on imported fodder.¹¹⁵ After Germany's conquest of Western Europe, it had no quick way to replace these losses when the blockade severed Western Europe's access to imports. The result was food shortages across Europe. In late September 1939, the RNS set German food rations at 2,570 calories per day, with soldiers receiving up to 4,000 calories per day. For poor Germans, these allotments increased their caloric intake.¹¹⁶ The harvests, however, did not support such generosity, requiring the RNS to dip into its stocks. The RNS began the war with 8.8 million tons of grain. By the fall of 1940, only 1.3 million tons remained.¹¹⁷ The Nazis were already prioritizing Germans over residents of occupied territories: In late 1940, the ration for Poles was a paltry 938 calories while that for Jews in Poland was 369 calories.¹¹⁸ The base ration in France and Belgium in 1941 dropped to as low as 1,300 calories a day.¹¹⁹ The poor harvest of 1940–41 assured continuing problems. At the RNS, Backe recognized that unless Germany could find millions of tons of additional grain, ration cuts would be inevitable. Such cuts would begin with the large-scale slaughter of livestock so that animal fodder could be used to feed people. This action would permanently reduce the availability of protein and fat, and would dredge up memories of the 1916 “pig massacre” — when German authorities ordered the killing of 9 million pigs because they believed the pigs were competing with human food consumption.¹²⁰ At the time, the sudden loss of animals, and farmers' decisions to hide some of the remaining livestock, caused a jump in food prices and, in some places, food riots.¹²¹ Memories of the event conjured hard times,

mismanagement, and social discontent. Despite their police state, the Nazis remained sensitive throughout the war to how food shortages might affect civilian morale.¹²²

Raw material shortages continued as well. Europe faced a major coal shortage the second winter of the war. In 1940, French coal production, the third highest in Europe after Britain and Germany, fell 18 percent and never recovered. In the spring of 1940, German-controlled Europe faced an annual coal deficit of 36.4 million tons.¹²³ Making matters worse, in 1941, French and Belgian coal miners went on strike to protest food shortages.¹²⁴ Coal shortages created both domestic discontent and industrial problems. In the spring of 1941, the Wehrmacht discharged soldiers who had previously been trained as mine workers to head off criticism should another coal shortage materialize.¹²⁵ Steel production in Lorraine — France's major steel producing region — collapsed as local coal availability dropped to half its prewar level.¹²⁶ Germany had already increased steel production in January 1940, cutting into its iron ore stockpiles to meet the army's needs on the assumption that the conquest of France and the Low Countries would provide additional resources to make up the shortfall.¹²⁷

Oil posed another problem. Germany's economy and armed forces could not operate without it. From 1940 to 1943, Germany imported 1.5 million tons of oil from Romania. At the beginning of the same period, Germany produced 4 million tons of synthetic oil, increasing production to 6.5 million tons by 1943.¹²⁸ Thus, total German oil consumption was capped at between 5.5 million and 8 million tons per year for that three-year period of the war. In contrast, Britain imported 10.2 million tons during the darkest days of the Battle of the Atlantic in 1942 and more than 20 million tons in 1944.¹²⁹ When

115 Tooze, *The Wages of Destruction*, 418.

116 Tooze, *The Wages of Destruction*, 361.

117 Tooze, *The Wages of Destruction*, 419; Medicott, *The Economic Blockade*, Vol. 2, 643. Medicott reports a slightly smaller reserve of 7 million metric (7.7 million short) tons but a similar consumption rate.

118 Tooze, *The Wages of Destruction*, 366.

119 Tooze, *The Wages of Destruction*, 419.

120 Tooze, *The Wages of Destruction*, 419.

121 Ian Passingham, *All the Kaiser's Men: The Life and Death of the German Army on the Western Front 1914–1918* (Cheltenham, UK: The History Press, 2011), chap. 7.

122 Barkai, *Nazi Economics*, 238–39.

123 John R. Gillingham, *Industry and Politics in the Third Reich: Ruhr Coal, Hitler and Europe* (New York: Columbia University Press, 1985), 122.

124 Tooze, *The Wages of Destruction*, 414.

125 Tooze, *The Wages of Destruction*, 418.

126 Tooze, *The Wages of Destruction*, 415.

127 Carroll, *Design for Total War*, 199–200; and Tooze, *The Wages of Destruction*, 357.

128 Tooze, *The Wages of Destruction*, 411.

129 Tooze, *The Wages of Destruction*, 412.



British intelligence estimated German oil supplies (accurately, as it would later prove), they revised them upward because they could not believe Germany would start a war with such a small supply.¹³⁰ In the short run, the conquest of Western Europe helped: The one-time use of captured Western European oil stocks made up 44 percent of German oil consumption in 1940.¹³¹ In the long run, however, the European conquests simply increased the oil consumers under German rule without increasing production. Additionally, the Germans had to worry about more than their own consumption: Their Italian allies depended entirely on German and Romanian oil sources.¹³²

These shortages of both food and raw materials meant that Germany could not sustain a long war. In November 1939, the German army's economic staff estimated that with careful management of domestic stocks *and a secure flow of imports* Germany could hold out for two years — twice what it had previously estimated.¹³³ Just a month later, however, Hitler gave orders to make up for shortages that were affecting production by using the stockpiles, resulting in reports that his decisions would limit Germany's resources for a long war.¹³⁴ These reports demonstrated a paradox in the effects of economic isolation: The more Germany mobilized its industrial base to increase war production, the more quickly it burned through its stockpiled resources and the greater the shortages Germany would face down the road. Investigating the economic facets of Blitzkrieg, historian Alan Milward concluded, "There can be little doubt that the Allied policy of blockade was fully justified. In fact, the Blitzkrieg drove stocks of vital raw materials down to dangerously low levels."¹³⁵ By late 1940, looming shortages of food and raw materials constrained German options and forced Germany to seek quick solutions.

Given this situation, what options did Hitler have in late 1940 and early 1941 to pursue the war against Britain or otherwise improve Germany's position? At least four existed. First, Hitler could invade Britain in late 1940, something he briefly considered. Second, he could intensify the U-boat

counter-blockade and seek to starve Britain into a surrender. Third, he could pursue the peripheral "Mediterranean strategy," which Grand-Admiral Erich Raeder proposed, to challenge the British Empire and secure even more U-boat bases. And finally, Hitler could invade the Soviet Union. Given Germany's economic isolation, however, not all of these options were feasible.

The primary effect of the blockade, and the Germans' fear of it, was to limit the time Germany had to win the war if it was not able to find other sources of food and raw materials. By the fall of 1940, it became clear to Hitler that the bombing campaign alone would not force Britain's surrender. Moreover, Germany had failed to gain control of the English Channel for German transports, without which any invasion attempt would expose German landing barges to Royal Navy interdiction, dramatically lowering the chances of successfully crossing the channel for an invasion. Such a plan would have been a highly risky Hail Mary strategy. A less risky invasion of Britain might still have been possible, but only with significant investment in naval ships and shipping, and constructing such a fleet would take time.

Similar problems plagued the second and third options — to use U-boats to starve Britain out or to pursue the Mediterranean strategy. Both had a similar primary goal — to economically isolate Britain — and both suffered from the same problem — economic strangulation would only affect Britain slowly.¹³⁶ A more robust U-boat campaign would have required time to build more U-boats. After Germany built those boats, it would have taken still more time to train their crews and then for those boats to go to sea and actually sink British ships.

Hitler also briefly considered the Mediterranean strategy, which would have emphasized a combined land and sea campaign in the Mediterranean basin and northern Africa to isolate Britain from its empire in the Middle East and India while simultaneously improving Germany's position in the Atlantic should the United States choose to enter the war.¹³⁷ Hitler even met with both Francisco Franco and Philippe Pétain in fall 1940 in an attempt to gain Spanish and French entry into the war as German allies to ena-

130 W. N. Medlicott, *The Economic Blockade*, Vol. 1 (London: H. M. Stationery Off, 1952), 51.

131 Medlicott, *The Economic Blockade*, Vol. 2, 652.

132 Tooze, *The Wages of Destruction*, 411.

133 Carroll, *Design for Total War*, 199.

134 Carroll, *Design for Total War*, 209.

135 Alan S. Milward, *The German Economy at War* (London: Athlone Press, 1965), 48.

136 Barry A. Leach, *German Strategy Against Russia, 1939–1941* (Oxford: Clarendon Press, 1973), 51.

137 Ian Kershaw, *Hitler 1936–45: Nemesis* (New York: W. W. Norton, 2000), 326.

ble the Mediterranean strategy — neither expressed much interest.¹³⁸ Even had the Spanish or French decided to join him — and Hitler did not try very hard to get them on board — attacking Britain's empire would have weakened the British but not defeated them, at least in the short run. As with the other options, the Mediterranean strategy would have taken time to force Britain's surrender— something the blockade ensured Germany did not have.

Invading the Soviet Union appeared the best option. Economically, Hitler was sure he could acquire the needed food and raw materials in the Soviet Union. He already had a taste of the Russian resources because the Soviet Union had been the critical hole in the British blockade. Under the 1940 Soviet-German commercial pact, the Soviet Union exported millions of tons of supplies to Germany. In 1940 alone, it provided Germany with almost 900,000 metric tons of grain, almost a million metric tons of timber products, more than 650,000 metric tons of oil, as well as textiles, metals, and raw and finished materials of all types.¹³⁹ So important were these resources to the German war effort that Germany continued to supply the Soviets with machine tools, of which there were a critical shortage in Russia, right up to the German invasion. Hitler even placed their production priority on par with the Wehrmacht's production requirements to ensure continued Soviet supplies.¹⁴⁰

German economic planners thought conquering western Russia would resolve the rest of Germany's economic problems. Historian Adam Tooze summarizes the German situation perfectly:

In the short term the only way to sustain Germany's Western European *Grossraum* at anything like its pre-war level of economic activity was to secure a vast increase in fuel and raw material deliveries from the Soviet Union. Only the Ukraine produced the net agricultural surpluses necessary to support the densely packed animal populations of Western Europe. Only in the Soviet Union were

there the coal, iron, and metal ores needed to sustain the military-industrial complex. Only in the Caucasus was there the oil necessary to make Europe independent of overseas supply. Only with access to these resources could Germany face a long war against Britain and America with any confidence.¹⁴¹

Only an invasion of the Soviet Union could alleviate the economic problems imposed by the British blockade and lead to true autarky.

Indeed, the Nazi planners themselves held this view. In November 1940, Hermann Göring commissioned a report from the Economic and Armaments Section of the Wehrmacht High Command that called for quickly taking control of Russian territory, especially Ukraine and the Caucasus, to alleviate economic shortages in Germany.¹⁴² In early 1941, German war economists determined that if the Wehrmacht could conquer the portion of the Soviet Union that lay to the west of the line that runs from Archangel to Astrakhan, the resulting surplus would make up for almost all German shortages.¹⁴³ The Economic Policy Directive of May 23, 1941, specifically called for exporting Russian grain to Germany after the invasion even though such a policy would result in starvation for the Russian population. The planners wrote that feeding the Russian population would “undermine Germany's ability to hold on in the war and to withstand the blockade.”¹⁴⁴ In his 1942 book, *Backe* (of the RNS) argued that Germany needed *lebensraum* to make itself immune to blockade.¹⁴⁵

This approach was yet another risky Shoot the Moon strategy. The German plans premised success against the Soviet Union on a quick victory. Both Hitler and the German High Command believed the Russian army would crumble under an assault. German planners estimated they could complete their campaign against Russia in just six to eight weeks.¹⁴⁶ The entire German campaign plan was based on the need to destroy the Russian army within 500 kilometers of the border, before it had a

138 Kershaw, *Hitler 1936–45*, 328–33.

139 Medicott, *The Economic Blockade*, Vol. 1, 668–69.

140 Tooze, *The Wages of Destruction*, 423.

141 Tooze, *The Wages of Destruction*, 420.

142 Bryan I. Fugate, *Operation Barbarossa: Strategy and Tactics on the Eastern Front, 1941* (Novato, CA: Presidio Press, 1984), 71.

143 Alexander Dallin, *German Rule in Russia, 1941–1945: A Study of Occupation Policies* (London: Macmillan; New York: St. Martin's Press, 1957), 307.

144 Quoted in Medicott, *The Economic Blockade*, Vol. 2, 643.

145 Herbert Backe, *Um die Nahrungsfreiheit Europas, Weltwirtschaft oder Grossraum* (Leipzig: Goldmann, 1942) quoted in Medicott, *The Economic Blockade*, Vol. 2, 644.

146 Gerd Niepold, “Plan Barbarossa,” in *The Initial Period of War on the Eastern Front, 22 June – August 1941: Proceedings of the Fourth “Art of War Symposium,” Garmisch, October, 1987*, ed. David M. Glantz (Portland, OR: Frank Cass, 1993), 70.



chance to retreat. German logistics could not support a deeper offensive.¹⁴⁷ Estimates that Germany could use Russian agriculture and raw materials to make up for its shortages similarly assumed a quick victory — the Germans lacked the fuel and rubber to be confident of victory in a longer campaign.¹⁴⁸ If the Germans could quickly and completely defeat the Soviet Union, they would be in an unassailable position. But, if their estimates proved wrong, they would lose Russian aid, and find themselves embroiled in a larger two-front war, potentially without the raw materials they needed to succeed.

Of course, other arguments exist as to why Hitler invaded the Soviet Union in June of 1941, including ideology, preventative war, military strategy, and economics.¹⁴⁹ Teasing apart these rationales is particularly difficult as Hitler used portions of all these arguments to make his case, depending on the audience he was addressing, and doubtless all of them affected his thinking.¹⁵⁰ But which were most important? Ideology alone is unpersuasive. Hitler's ideology required eastward expansion, but it did not require a two-front fight. The Molotov-Ribbentrop pact had already demonstrated Hitler could accommodate the Soviets when he needed to. The central question one must ask is why Hitler chose to invade the Soviet Union when he did — in 1941 before finishing the fight in the west. Indeed, Ian Kershaw, Hitler's modern biographer, argues convincingly against the role of ideology in motivating the attack in 1941.¹⁵¹

Dale Copeland argues that Hitler and his generals feared a rising Russia, and that preventative thinking — the idea that Germany needed to defeat Russia before Russia became too strong — motivated the decision to attack.¹⁵² Undoubtedly, many in the German High Command supported a preventative war with Russia, but this support was still shaped by the blockade: A key motivation for taking preventative action in the German High Command was fear of a Soviet attack on Romania's oil fields — after 1939, the only source of non-synthetic pe-

troleum available to Germany.¹⁵³

Copeland's argument is premised on the belief that Hitler saw Britain as a sideshow and Russia as the main threat, a claim recent historians dispute. Both Kershaw and Tooze argue that the threat Hitler feared most was a continued war with the British Empire, which he believed would eventually be backed by the United States. Hitler's generals shared this concern.¹⁵⁴ Indeed, Hitler came to believe the only reason Britain continued to refuse to negotiate was because of the hope that the Soviet Union would enter the war. Kershaw argues that the desire to remove this British hope along with the growing economic shortages, which Russian food and raw materials would solve, determined Hitler's decision to invade the Soviet Union before finishing off Britain.¹⁵⁵ Tooze agrees that Britain was the top threat, but prioritizes the economic rationale for Germany's invasion of the Soviet Union.¹⁵⁶

These two concerns — the fear of a long war with Britain and the United States and the shortages caused by the blockade — are linked. In 1941, the principal means by which Britain applied pressure to Germany was through economic warfare. If Hitler and his generals expected Germany to weaken as the war in the west continued, the primary explanation was the blockade.¹⁵⁷ Quickly conquering Russia held the potential of both bringing Britain to the negotiating table and, if that failed, securing the raw materials Germany needed. Thus, these strategic and economic rationales are intertwined and serve as evidence that the fear of blockade drove the timing of the invasion of the Soviet Union.

Perhaps the best evidence that shortages motivated the decision to invade the Soviet Union lies in the plans and execution of the invasion itself. During the planning of Operation Barbarossa, Hitler repeatedly pushed the Wehrmacht High Command to consider economic factors. In the 1980s, Gerd Niepold, who had been responsible for planning Operation Barbarossa, recalled that by December 1940, "It also became manifest that Hitler regarded

147 Tooze, *The Wages of Destruction*, 452–53.

148 Leach, *German Strategy Against Russia, 1939–1941*, 143–44.

149 For a succinct discussion of all four, see, Richard J. Evans, *The Third Reich at War* (New York: Penguin Press, 2009), 160–62.

150 Kershaw, *Hitler 1936–45*, 343.

151 Kershaw, *Hitler 1936–45*, 388.

152 Dale C. Copeland, *The Origins of Major War* (Ithaca, NY: Cornell University Press, 2000), 131–43.

153 Fugate, *Operation Barbarossa*, 91. Copeland's argument, however, suffers from other problems as well, as Robert Kaufman documents. Robert G. Kaufman, "On the Uses and Abuses of History in International Relations Theory: Dale Copeland's *The Origins of Major War*," *Security Studies* 10, no. 4 (2001): 179–211, <https://doi.org/10.1080/09636410108429448>.

154 Kershaw, *Hitler 1936–45*, 341.

155 Kershaw, *Hitler 1936–45*, 388.

156 Tooze, *The Wages of Destruction*, 424–25.

157 Fugate, *Operation Barbarossa*, 91.

the seizure of war-essential economic centers as the main objective of the campaign.”¹⁵⁸ In January and February of 1941, Hitler included “seizure of the most important industrial regions” among his top goals of the operation.¹⁵⁹ Hitler’s influence ensured, as the Wehrmacht High Command drafted a series of plans, that Ukraine, with its fertile steppe and industrial Donets region, remained a critical objective. Even Bryan Fugate, who generally argues for the primacy of strategic military factors in the planning for Operation Barbarossa, acknowledges that Hitler pushed the High Command’s plan to account for economic requirements, when earlier army plans did not.¹⁶⁰

Moreover, while German optimism had meant that strategic and economic requirements could coexist in the planning phase, once the campaign began, this coexistence was no longer possible: When faced with a choice between pressing the assault on Moscow or reinforcing the effort to capture Ukraine, Hitler chose to focus on Ukraine. Against the advice of his field commanders, in August 1941, Hitler diverted all of Army Group Center’s Panzer formations to support Army Group North and Army Group South. In particular, he shifted Heinz Guderian’s Panzer Group II to the offensive encircling Kiev. He did so because he needed Ukraine’s resources. Hitler was explicit about his reasons. In Führer Directive 33 he wrote:

I am not in agreement with the proposals submitted by the Army for the prosecution of the war in the East and dated August 18th. I therefore order as follows: 1. Of primary importance before the outbreak of winter is not the capture of Moscow but rather the occupation of the Crimea, of the industrial and coalmining area of the Donetz basin, the cutting of the Russian supply route from the Caucasian oilfields, and in the north, the investment of Leningrad and the establishment of contact with the Finns.¹⁶¹

Hitler’s focus was clearly on the economic resources in the south, but did he seek primarily to cut the Soviets off from their economic supply or to gain that supply for Germany? Two days after Hitler issued this directive, he met with his generals, including Guderian, who had returned from the front for the conference, on August 23. Guderian sought to convince Hitler to attack Moscow, and recorded Hitler’s response, in which Hitler explained his rationale:

He [Hitler] then began to talk and described in detail the considerations which led him to make a different decision [the attack on Kiev]. *He said that the raw materials and agriculture of the Ukraine were vitally necessary for the future prosecution of the war.* He spoke once again of the need of neutralizing the Crimea, ‘that Soviet aircraft carrier for attacking the Rumanian oilfields.’ For the first time I heard him use the phrase: ‘My generals know nothing about the economic aspects of war.’ [Italics added]¹⁶²

Hitler made it clear to his generals that he sought to gain Ukraine’s supply to strengthen Germany. Even the reasons for Hitler’s emphasis on Crimea were to protect the supply of Romanian oil. This reasoning is in sync with Hitler’s thoughts from an earlier meeting on August 4 at which he discussed the importance of both the industrial areas around Leningrad and Ukraine.¹⁶³ Guderian’s recollection generally matches Niepold’s and has been used by multiple historians as the primary record of both meetings.¹⁶⁴ Hitler’s emphasis on economics also matches the emphasis of Hermann Göring, the number two man in the Reich (whose portfolio included economic planning), Gen. Alfred Jodl, and, at times, Gen. Franz Halder.¹⁶⁵

The importance of economic factors and the blockade continued into the second — and last — year of Germany’s offensive campaign in Russia. German operations in 1942 would focus substan-

158 Gerd Niepold, “Plan Barbarossa,” 66.

159 Gerd Niepold, “Plan Barbarossa,” 70.

160 Fugate, *Operation Barbarossa*, 90.

161 Heinz Guderian, *Panzer Leader* (New York: Dutton, 1952), 202–03.

162 Guderian, *Panzer Leader*, 200.

163 Guderian, *Panzer Leader*, 189–90.

164 Niepold, “Plan Barbarossa,” 71; Fugate, *Operation Barbarossa*; David Stahel, *Operation Barbarossa and Germany’s Defeat in the East* (Cambridge, UK: Cambridge University Press, 2009), 432–44; and Leach, *German Strategy Against Russia*, 221. Even historians who focus on military reasons for shifting the offensive to the south, like David Glantz, focus on the reasons why an offensive against Moscow in August and September would have been more difficult than is usually thought because of heavy German losses around Smolensk — an argument that fits with the economic importance of the Ukraine as it portended a longer war. (Glantz does not directly address economics.) David Glantz, *Barbarossa Derailed: The Battle for Smolensk, 10 July–10 September 1941*, Vol. 2 (Solihull, UK: Helion & Company, 2010), 512–15.

165 Fugate, *Operation Barbarossa*, 205–43.



tially on securing Russian oil for Germany.¹⁶⁶ Even as late as August 1942, Adm. Raeder still argued, “It is urgently necessary to defeat Russia and thus create a *Lebensraum* which is blockade-proof and easy to defend.” Hitler is reported to have agreed.¹⁶⁷ Could international economic access have made

requirements of the German economy and the blockade-induced shortages shaped German strategy after the invasion. Indeed, the official historian of the blockade would write that one key achievement of the blockade was “the creation of an encirclement neurosis with marked effect on German political and military strategy.”¹⁶⁹

The German government had tried hard to reduce the country’s reliance on imports in the 1930s as much as it could, but even after this effort and conquering most of Europe, the economic isolation still affected Germany.

Invading Russia, however, was a risky Shoot the Moon strategy. Though it was not foreordained, the Red Army would destroy the German army. Nine out of 10 German soldiers killed in the war died on the Eastern Front. If Hitler’s defeat was determined in any single place it was on the Russian steppe, but this great clash of land armies was sub-

a difference in Germany’s strategic choices? To imagine away Allied sea control is a highly speculative counterfactual exercise. Nonetheless, both oil and grain surpluses and Nazi sympathizers existed in Latin America. Venezuelan oil exports to Germany peaked in 1939 and ceased only because of the blockade.¹⁶⁸ Argentina possessed large grain surpluses, and its regime proved sufficiently sympathetic to allow many Nazis to immigrate after the war. Without the blockade, Hitler may very well have had access to these resources. By preventing this access, British economic warfare constrained Hitler’s strategic decision-making such that invading Russia seemed to be his best option.

stantially shaped and driven by the economic blockade of Germany. Working through the direct impact mechanism, economic isolation constrained Hitler’s decision-making leading him to accept a risky and escalatory strategy of Shooting the Moon.

Assessing the Effects of Economic Isolation Today

Just as the pressure of a blockade had driven Germany’s leaders to make risky decisions in World War I, Hitler faced the same conundrum in late 1940 and early 1941. Hitler worked to avoid this situation. The German government had tried hard to reduce the country’s reliance on imports in the 1930s as much as it could, but even after this effort *and* conquering most of Europe, the economic isolation still affected Germany. Considering the industrial and food shortages in Europe and the industrial capacity of Britain and the United States, Hitler could not be certain of victory in a long war. Operating through the direct impact mechanism, the blockade constricted Hitler’s options. Conquering Russia in 1941 looked like it would solve Hitler’s economic problems. As one would expect, the re-

The cases discussed above make clear that economic isolation can significantly impact a state’s decision-making, even when that state has done all it can to become self-sufficient. But how much do these two precedents for the effects of economic isolation on strategy from the first half of the 20th century matter for today’s international economy? Despite many changes in the international economy since 1914, crucial similarities exist between the pre-World War I economy and the modern international economy that make the two periods of economic integration comparable for the purposes of this article and make Germany’s experience before World War I of continuing relevance today — especially when considering a potential blockade of China. Economists broadly consider three categories in which economic integration occurs: flows of financial capital, of goods, and of people. The first two are relevant here as wartime flows of people between states are less important in determining whether shortages of goods occur. Integration of

166 Daniel Yergin, *The Prize: The Epic Quest for Oil, Money & Power* (New York: Free Press, 1992), 336–37. Medicott, *The Economic Blockade*, Vol. 2, 646.

167 Medicott, *The Economic Blockade*, Vol. 2, 646.

168 Thomas M. Leonard and John F. Bratzel, eds., *Latin America During World War II* (Lanham, MD: Rowman & Littlefield, 2007).

169 Medicott, *The Economic Blockade*, Vol. 2, 659.

financial flows and trade in goods reached a peak in the wave of globalization that preceded World War I, something that has only been surpassed in the modern waves of globalization.¹⁷⁰ All else being equal, because the extent of international economic integration is greater today than before World War I, if economic isolation proved effective after the period of globalization that ended in 1914, the impacts of losing access to the international economy should also be greater today.

However, three key differences exist between the present and the first half of the 20th century that could potentially make it more difficult to impose economic isolation on an adversary. First, more independent trading states exist today than in that time period. Second, facilitated by dramatic improvements in communications technologies, trade in services (a non-tangible subset of goods) is much higher today than it ever has been.¹⁷¹ Third, internationalized production — global supply chains that require trade in components — is much more prevalent today relative to trade in finished goods than it was prior to 1914.¹⁷² Each of these changes could affect the ability to isolate a state from the international economy in one of two ways. First, they could alter the intensity of the effect of a state's isolation. That is, the changes could make present-day economic isolation “bite” less or more than its historical equivalent. For example, interference with the shipment of physical goods today may have an effect on a wider range of finished products than in the past because all their manufacturers require the same sub-component, which is usually imported. Second, the changes could make it harder or easier for a state to isolate an adversary from the global economy. For example, services that do not require the actual physical movement of goods (like banking) are more common and may be more difficult to disrupt than the transfer of physical goods.

The increase in the number of trading states means that, in general, more potential suppliers exist than in the past. Because many strategies of economic isolation rely on pressuring third-party states not to trade with the target state, the increase in the number of states may make it more difficult to isolate states today than it was in the first half of the 20th century. However, states can

also impose economic isolation through the physical interdiction of goods and by interrupting the financing of trade. More importantly, the increased use of secondary sanctions, which directly target international firms, suggests that the increased number of trading states is not a major impediment to imposing economic isolation today, especially since most financial flows must still pass through the United States.

The shift to services poses different technical challenges to isolating a state's economy than in the past. The trade of services usually does not require the movement of physical items. As a result, interrupting it requires different techniques than interrupting the flows of goods. As discussed below, however, even in World Wars I and II, the Allies' strategy of economic isolation relied heavily on controls other than physical interdiction. These types of controls should be equally effective at interfering with services today as they were at interfering with physical goods. In addition, in the past 20 years, the United States has developed extensive methods to control services — primarily financial services — to support various programs of economic sanctions. In short, the blockades of the world wars required coercive measures against the target state's potential trading partners to be effective. Similar modern measures should work to disrupt the trade in services.

The globalization of production increases the intensity of the effect of economic isolation without substantially changing the technical difficulty of isolating an adversary. Stephen Brooks argues that the internationalization of weapons production, for example, makes war less likely because states will not be able to acquire the weapons they need to fight wars if their potential adversaries are part of their munition supply chain.¹⁷³ If, however, a war did break out under such circumstances, the conditions Brooks describes would make access to the international economy more important today than it was in 1914. Assuming the belligerents mustered the will to impose a strategy of economic isolation from the global economy, that action would increase the dislocation to production lines that Brooks foresees and increase the intensity of the effects of the isolation. Moreover, the internationalization of supply chains has increased the spe-

170 Richard E. Baldwin and Philippe Martin, “Two Waves of Globalization: Superficial Similarities, Fundamental Differences,” National Bureau of Economic Research Working Paper Series, no. 6904 (1999); and Stephen G. Brooks, *Producing Security: Multinational Corporations, Globalization, and the Changing Calculus of Conflict* (Princeton, NJ: Princeton University Press, 2005), 4.

171 Esteban Ortiz-Ospina and Diana Beltekian, “Trade and Globalization,” Our World in Data, Revised October 2018, <https://ourworldindata.org/trade-and-globalization>.

172 Brooks, *Producing Security*, 4; and Ortiz-Ospina and Beltekian, “Trade and Globalization.”

173 Brooks, *Producing Security*.



cialization in production. Rather than importing a small number of raw materials, states must import a large number of intermediate components. The more individual components a state must import, the more opportunities exist for disrupting the supply chain, and the costlier it becomes to construct alternative domestic production facilities.

Internationalized production still relies on shipping goods from place to place, and the problems of seeking to evade controls by transshipping through neutral countries or reselling cargos at sea and shifting their destinations existed in the early 20th century as it does today. Techniques used in the past to stop the flows of raw materials or finished goods will still be effective in disrupting flows of intermediate products.

Indeed, the complex methods required to interdict German access to the international economy during both wars were strikingly similar to their modern equivalents. Upon hearing the word “blockade,” most people envision ships turning back or sinking all commercial shipping seeking to enter a port. While this picture may accurately describe blockades of the 18th and 19th centuries, by the first half of the 20th century, such methods no longer sufficed. The challenge in economically isolating Germany was not in stopping German shipping. German ships were quickly identified and impounded at the start of World War I. The challenge was in stopping neutrally flagged commerce bound for Germany either directly or through Germany’s neutral neighbors. To achieve these ends, the British, and then the Allies, implemented a system called “Control at the Source” that appears far more like modern economic sanctions than any 18th-century blockade. British agents deployed around the world pre-cleared cargos bound for Europe, often with eyes to pre-approved quotas for various goods. Royal Navy ships on blockade duty served as a monitoring mechanism for enforcement. The British government even employed what are now called secondary sanctions. Possessing near dominance in its control of repair yards, refueling stations, and maritime shipping insurance, Britain leveraged its market power and threatened to cut off any shipping firm that refused to comply with its pre-clearance mechanisms.¹⁷⁴

These techniques were a preview of modern techniques for enforcing economic sanctions. For example, from 1991 to 2003, the U.S. and Royal Na-

vies, together with support from a rotation of other navies, maintained the Multinational Interception Force, which patrolled the northern Persian Gulf and stopped and inspected the paperwork and cargo of ships bound for Iraq to verify their compliance with U.N. resolutions — in essence the same “pre-clearance” and enforcement technique the Royal Navy used in World War I.¹⁷⁵ Similarly, the Proliferation Security Initiative relies on intelligence collection and clearance of cargos backed with the threat of maritime intercepts and inspections.¹⁷⁶ And of course, the United States has made significant use of secondary sanctions in its efforts to isolate the Iranian economy.

In summary, while this article used two cases of blockade from the first half of the 20th century as examples of economic isolation, they are still surprisingly relevant. The differences in the modern international economy that existed in the years before 1914 are not such that they undermine the applicability of the earlier cases. Moreover, the methods the Allies employed in executing those blockades were more modern than they initially appear. A state targeted by effective economic isolation today would still likely find itself constrained to only risky strategic options.

Conclusion

As the two cases above demonstrate, a state’s wartime access to the world economy affects its strategy, regardless of its level of prewar economic integration. Economic access, or lack thereof, can reduce or impose constraints on a state’s strategy, with more constraints leading to riskier decisions. In the most constrained situations, only bad decisions remain. Ironically, strenuous efforts to achieve self-sufficiency only reduce the flexibility states have to adapt to externally imposed restrictions. In the cases examined in this article, economic isolation drove Germany to risky strategies in which Germany expanded its wars in ways that swelled enemy coalitions, and ultimately brought about its defeat.

Although economic isolation effectively constrains the strategies available to the target state, that does not mean it is always wise to impose it. Economically isolated states are frequently defeated because they *respond to economic isolation with*

174 Medicott, *The Economic Blockade*, Vol. 1, 422.

175 George A. Lopez and David Cortright, “Containing Iraq: Sanctions Worked,” *Foreign Affairs* (July/August 2004), <https://www.foreignaffairs.com/articles/iraq/2004-07-01/containing-iraq-sanctions-worked>.

176 “About the Proliferation Security Initiative,” United States Department of State, March 19, 2019, <https://www.state.gov/about-the-proliferation-security-initiative/>.

escalation. In both world wars, German leaders expanded their wars under the pressure of economic isolation — in one case as a gamble for resurrection and in the other to gain resources to continue the war. Economic isolation, whether in the form of peacetime sanctions or a wartime blockade, is often seen as a less escalatory alternative to more direct military action. The analysis in this article, however, suggests that effective economic isolation leads affected states to attempt to escalate their way out before they succumb to the isolation. Assuming the isolated state is unsuccessful in gaining additional resources militarily, its economic isolation may cause a war to end sooner (if the isolated state faces a stronger coalition due to its escalation) but it may also increase the intensity and geographic spread of the violence until it does. In an extreme case, a nuclear-armed state could threaten to use its nuclear weapons rather than surrender to the blockade. Indeed, if the ultimate coercive leverage of economic isolation stems from the possibility that hardship will drive populations to revolt against their leaders, economic isolation is, at the extreme, a regime-change strategy. In this circumstance, we should expect that the leadership of the targeted state may pursue *any* remaining options before succumbing, especially if domestic political pathologies exist.

These implications are relevant to the ongoing debate as to the best strategy to pursue in a potential conflict between the United States and China. If a strategy of economic isolation, regardless of whether it uses kinetic means or not, is effective at creating shortages and hardships for China, it may lead Chinese leaders to pursue riskier strategies to either gain additional resources or provide a perceived reward to their people. Rather than being a low-cost means of gaining leverage, an effective blockade could cause the conflict to spread or escalate. These possibilities do not eliminate economic isolation as a viable wartime strategy, but U.S. decision-makers ought to weigh them when considering their options. In summary, economic isolation is not necessarily the de-escalatory option it is usually considered to be.

The analysis presented in this article has two implications for grand strategy that go beyond the issue of economic isolation. First, strategists must consider multiple levels of effects. That states rarely appear to surrender due to the direct effects of wartime blockades does not mean those efforts do not play a critical role in determining the outcome of a war. The state with the strongest army will be unable to take maximum advantage of that strength if the strategic constraints imposed by economic isolation require that army to be employed in a

highly risky manner. Approaches that dismiss considering seapower, airpower, and non-military capabilities — like the ability to effectively implement sanctions — when assessing the relative power of states fall into this trap. Second, grand strategists must integrate *all* aspects of national power into their analysis. While each state's national power is the combination of its various types of constituent power (economic, financial, diplomatic, military, naval, air, etc.), they do not aggregate linearly. As the two cases discussed above demonstrate, interactions between these various types of power can occur in seemingly counterintuitive ways. One must consider how using particular types of power may affect what battles are fought as well as what happens in those battles. As technology proliferates and with the increased focus on space and the development of cyber weapons, these considerations will only become more important. ¹

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