

# Wartime Commercial Policy and Trade between Enemies

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Conventional wisdom suggests that trade is the first casualty of war.<sup>1</sup> Because the gains from trade can be converted into military capabilities, trading with the enemy is akin to selling the opponent the gun they will use to shoot you. The empirical record of wartime trade, however, suggests otherwise. For example, World War I, a total war in which the majority of the states involved fought for their very survival, saw extensive trade between enemy belligerents. Britain continued to trade with its enemies until October 1, 1918—one month and eleven days before the Armistice. In fact, Britain started the war with restrictions on the export of only 20 percent of the goods that it ultimately prohibited from reaching the enemy. Even after a year of fighting, by the end of August 1915, around half of the products that would eventually be prohibited were still allowed to be legally traded with enemy states.

World War I is hardly unique in that trade occurred and varied during the war. Some enemies continue to trade throughout the war—for example, India and Pakistan in the First Kashmir War (1947–49) and Yugoslavia and Croatia in the War of Bosnian Independence (1992).<sup>2</sup> Other states sever trade immedi-

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1. Dale C. Copeland, *Economic Interdependence and War* (Princeton, N.J.: Princeton University Press, 2015); Ronald Findlay and Kevin H. O'Rourke, *Power and Plenty: Trade, War, and the World Economy in the Second Millennium* (Princeton, N.J.: Princeton University Press, 2007); Reuven Glick and Alan M. Taylor, "Collateral Damage: Trade Disruption and the Economic Impact of War," Working Paper (Cambridge, Mass.: National Bureau of Economic Research, May 2008 [August 2005]), <http://www.nber.org/papers/w11565>; Charles H. Anderton and John R. Carter, "The Impact of War on Trade: An Interrupted Times-Series Study," *Journal of Peace Research*, Vol. 38, No. 4 (July 2001), pp. 445–457, [doi.org/10.1177/0022343301038004003](https://doi.org/10.1177/0022343301038004003); Katherine Barbieri and Jack S. Levy, "Sleeping with the Enemy: The Impact of War on Trade," *Journal of Peace Research*, Vol. 36, No. 4 (July 1999), pp. 463–479, [doi.org/10.1177/0022343399036004005](https://doi.org/10.1177/0022343399036004005); Joanne Gowa, *Allies, Adversaries, and International Trade* (Princeton, N.J.: Princeton University Press, 1995); Richard N. Rosecrance, *The Rise of the Trading State: Commerce and Conquest in the Modern World* (New York: Basic Books, 1987); Solomon William Polachek, "Conflict and Trade," *Journal of Conflict Resolution*, Vol. 24, No. 1 (March 1980), pp. 55–78, [doi.org/10.1177/002200278002400103](https://doi.org/10.1177/002200278002400103); and Kenneth N. Waltz, *Theory of International Politics* (Long Grove, Ill.: Waveland, 1979).

2. On the First Kashmir War, see Syed Mansoob Murshed, Hugh Ward, and Han Dorussen, "Any

ately at the start of the war—for example, England and Argentina in the Falkland Islands War (1982) and India and Pakistan in the Kargil War (1999).<sup>3</sup> Yet, other states start off trading with the enemy, only to change course during the war, as occurred, for example, between Ethiopia and Somalia in the Second Ogaden War (1977–78).<sup>4</sup> There is remarkable variation in wartime trading patterns between adversaries.

Why do states trade with their enemies in wartime? In this article, I argue that states make deliberate choices when setting their wartime commercial policies and that these policies are tailored to the type of war the state expects to fight. Specifically, states seek to balance two goals—maximizing revenue from continued trade during the war and minimizing the opponent’s ability to benefit militarily from trade.

As a result, states have two reasons to continue trading with their enemies during war. First, states continue to trade in products that their opponents take a long time to convert into military capabilities, because the security consequences from this trade will not accrue in time to help the opponent win the war. Second, states continue to trade in products that are essential to the domestic economy but that can be obtained only from the opponent, because sacrificing this trade would impair the state’s long-term security. Furthermore, states revise their wartime commercial policies based on how well they perform on the battlefield. As the expected length of a war increases, the number of prohibited products will increase, because the opponent will have more

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Ties that Bind? Economic Diplomacy on the South Asian Subcontinent,” *Hague Journal of Diplomacy*, Vol. 6, Nos. 1–2 (2011), pp. 149–169, doi.org/10.1163/187119111X569046; and Zareen Fatima Naqvi, Philip Schuler, and Kaspar Richter, “Pakistan-India Trade: Overview and Key Issues,” in Naqvi and Schuler, eds., *The Challenges and Potential of Pakistan-India Trade* (Washington, D.C.: World Bank, 2007), pp. 1–28, <http://documents1.worldbank.org/curated/en/990861468074627673/pdf/402730P07493901India1Trade01PUBLIC1.pdf>. On the War of Bosnian Independence, see Peter Andreas, “The Clandestine Political Economy of War and Peace in Bosnia,” *International Studies Quarterly*, Vol. 48, No. 1 (March 2004), pp. 29–51, <https://www.jstor.org/stable/3693562>; and John Mueller, *The Remnants of War* (Ithaca, N.Y.: Cornell University Press, 2013).

3. On the Falkland War, see Lisa L. Martin, “Institutions and Cooperation: Sanctions during the Falkland Islands Conflict,” *International Security*, Vol. 16, No. 4 (Spring 1992), pp. 143–178, doi.org/10.2307/2539190; and M.S. Daoudi and M.S. Dajani, “Sanctions: The Falklands Episode,” *World Today*, Vol. 39, No. 4 (April 1983), pp. 150–160, <https://www.jstor.org/stable/40395502>. On the Kargil War, see Rashid Amjad and Shahid Javed Burki, eds., *Pakistan: Moving the Economy Forward* (Cambridge: Cambridge University Press, 2015); and Michael Kugelman and Robert M. Hathaway, eds., *Pakistan-India Trade: What Needs to Be Done? What Does It Matter?* (Washington, D.C.: Woodrow Wilson International Center for Scholars, Asia Program, 2013).

4. This can be seen in the dyadic trade data from Cow Trade v 4. Katherine Barbieri, Omar M.G. Keshk, and Brian M. Pollins, “Trading Data: Evaluating Our Assumptions and Coding Rules,” *Conflict Management and Peace Science*, Vol. 26, No. 5 (November 2009), pp. 471–491, doi.org/10.1177/0738894209343887.

time to benefit militarily from the gains of trade. Similarly, the closer the war is to becoming an existential threat, the greater the portion of wartime trade with the enemy that the state will sever.

The article makes two major theoretical contributions. First, it shows that temporality is key to understanding the security externalities of trade—that is, the military consequences of a state benefiting from trade. Existing scholarship focuses on the idea that trading with the enemy increases the adversary’s military capabilities,<sup>5</sup> but it omits the temporal dimension, in which economic gains may be converted into military power. Although all gains from trade are ultimately convertible into military capabilities, the amount of time this process takes varies by product. A similar temporal distinction can be applied to all wartime policy tools to determine if, and to what extent, they carry security externalities.

Second, the article challenges a central conclusion of economic interdependence theory—that significantly interdependent states are least likely to fight each other. According to that theory, trade between states is severed in war, which incentivizes states to avoid war to prevent losing the benefits of trade.<sup>6</sup> So long as trade is lost during war, trade deters conflict. As my research shows, however, under the right circumstances, states have ample reason to trade with their enemies during war. Additionally, the more interdependent two economies are, the greater their incentives for wartime trade. Contrary to the predictions of economic interdependence theory, trade is unlikely to serve as a deterrent to war between highly interdependent states. This finding is particularly salient given the heightened possibility of conflict between the United States and China. Although they share significant economic ties, these ties could not be used to prevent the escalation of a potential U.S.-China conflict.

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5. Gowa, *Allies, Adversaries, and International Trade*; Joanne Gowa and Edward D. Mansfield, “Power Politics and International Trade,” *American Political Science Review*, Vol. 87, No. 2 (June 1993), pp. 408–420, doi.org/10.2307/2939050; and Thomas C. Schelling, *International Economics* (Boston: Allyn and Bacon, 1958).

6. For an excellent review of this literature, see Copeland, *Economic Interdependence and War*; Edward D. Mansfield and Brian M. Pollins, “The Study of Interdependence and Conflict: Recent Advances, Open Questions, and Directions for Future Research,” *Journal of Conflict Resolution*, Vol. 45, No. 6 (December 2001), pp. 834–859, https://www.jstor.org/stable/3176160; and Susan M. McMillan, “Interdependence and Conflict,” *Mershon International Studies Review*, Vol. 41, No. 1 (May 1997), pp. 33–58, doi.org/10.2307/222802. For an alternative point of view, see Waltz, *Theory of International Politics*; and Robert Gilpin, “Economic Interdependence and National Security in Historical Perspective,” in Klaus Knorr and Frank N. Trager, eds., *Economic Issues and National Security* (Lawrence: University Press of Kansas, 1978), pp. 19–66.

The article proceeds in five sections. The first section explains what constitutes trading with the enemy. The second describes the existing literature that deals with the phenomenon. The third provides a theory explaining why warring states continue to trade with each other. In the fourth section, I discuss the research design. The fifth section tests the theory by drawing evidence from Britain's wartime commercial policy throughout World War I. The conclusion offers some policy implications for possible wartime trade in future wars.

### *What Is Wartime Commercial Policy?*

The main outcome of interest in this article is a state's wartime commercial policy toward an enemy belligerent. It is defined as the collection of decisions that a state makes about which products of enemy origin the state allows to be imported during a given war, and which products it permits to be exported to the enemy during that war. As the term suggests, a wartime commercial policy is applicable only during war. Once a country enters a state of war, the existing level of trade between the two enemy belligerents becomes governed by the country's wartime commercial policy. Unlike peacetime, when a state can afford to include a wide range of concerns and interests in its commercial decisions, during war, every decision about the enemy state has to be judged based on its potential impact on a battlefield victory. The security motivations for severing trade with the enemy are highest during war, thus presenting the hardest conditions for trade with the enemy to exist.

Wartime commercial policy refers to economic cooperation between enemy belligerents. It excludes trade between belligerents and their allies. Likewise, it excludes trade between neutral states and the belligerents in products of neutral origin. For example, trade between the United States and Germany in 1940 is not trade with the enemy, as the two countries were not yet enemy belligerents. In contrast, trade in 1940 between Sweden and Germany in products of British origin was part of the Anglo-German trade with the enemy. Lastly, wartime commercial policy distinguishes between legal and prohibited trade. For instance, it excludes contraband trade, as such trade stands in direct opposition to the preferences of the state.

Trade between enemy belligerents can be direct or indirect. Direct trade refers to an exchange of merchandise in which ownership of the products is transferred from a merchant in state A directly to a merchant in state B. When the ownership of a product switches to an intermediary before being de-

livered to its final destination, the trade is considered indirect. Indirect trade requires the participation of neutral states; however, only trade in products of belligerent origin is relevant. The simplest form of this is the sale of goods from a merchant in state A to a merchant in a neutral state, which then sells the same goods to a merchant in state B. Indirect trade also includes cases of domestic substitution in a neutral country. For example, a merchant in a neutral state imports a product from state A, then sells an identical product that was manufactured in the neutral state to a merchant in state B. Another form of indirect trade is minimal manufacturing, which requires a merchant in a neutral country to import a raw material or an intermediate good from state A, process this good in some minimal manner, then export the finished product to state B.

When states are making wartime commercial policies, they set limitations on both direct and indirect trade with the enemy. Thus, there is variation in wartime commercial policies between allowing all direct and indirect trade, various restrictions on direct trade and various restrictions on indirect trade, and no direct or indirect trade with the enemy.

To isolate the reasons why a state would trade with the enemy, I theorize a state's preferences for wartime trade. The theory does not deal with the ultimate level of bilateral trade between enemy belligerents. First, bilateral trade frequently excludes indirect trade. Second, and more importantly, the bilateral level of trade is affected by multiple processes beyond the preferences of belligerents for wartime trade—for example, the progress of war destroying certain trade routes, the increased risk of trade and availability of insurance affecting merchants' willingness to engage in trade, and the infrastructural logistics of open ports limiting the amount of trade that can be processed. Looking at a state's wartime commercial policy, as opposed to bilateral trade, therefore focuses the analysis on the maximum amount of trade a state allows during a war, isolating how a state resolves the dilemma between economic and security incentives without confusing the analysis with other factors that affect the observed level of bilateral trade.

Similarly, the analysis does not focus on the decisions of individual firms to engage in trade with the enemy during war. While in many economies it is the firms that make decisions about what to trade in, with whom, and how much, it is the state that sets the limits within which the firms are bound to operate. To the extent that the firms operate within these boundaries, they are driven mostly by profit maximization, making a firm-level decision to trade with the enemy less surprising. The state does not have the same luxury, espe-

cially in wartime. States have to balance economic motivations with security concerns, which makes the decision to trade with the enemy considerably more puzzling.

### *Existing Explanations of Wartime Trade*

There are very few attempts in the literature to explain why belligerents continue to trade with their enemies during war. Possible explanations for wartime trade can be drawn from three bodies of literature that seek to connect security and economic concerns: economic interdependence, relative gains, and domestic political economy. The arguments made in these fields do not, however, directly deal with wartime commercial policy, focusing instead on peacetime.<sup>7</sup> Problematically, when these theories are expanded to wartime, they tend to provide an absolute prediction for all wars—either trade with the enemy should never occur, or it should always occur.

Economic interdependence theory argues that the more states trade with each other, the less likely they are to fight. Three causal mechanisms could explain this pattern; all three depend on the assumption that trade between belligerents is severed during war. By far the most prevalent causal mechanism is opportunity cost.<sup>8</sup> The opportunity cost of fighting is the value of trade

7. The notable exception is the 2004 work of Jack S. Levy and Katherine Barbieri. They explicitly do not claim to offer a theory to explain wartime trade, but provide numerous insightful hypotheses that are discussed later in the article. Levy and Barbieri, "Trading with the Enemy during Wartime," *Security Studies*, Vol. 13, No. 3 (2004), pp. 1–47, doi.org/10.1080/09636410490914059. See also Barbieri and Levy, "The Trade-Disruption Hypothesis and the Liberal Economic Theory of Peace," in Gerald Schneider, Barbieri, and Nils Petter Gleditsch, eds., *Globalization and Armed Conflict* (Lanham, Md.: Rowman and Littlefield, 2003), pp. 277–298; and Barbieri and Levy, "Sleeping with the Enemy."

8. John R. Oneal and Bruce M. Russett, "The Classical Liberals Were Right: Democracy, Interdependence, and Conflict, 1950–1985," *International Studies Quarterly*, Vol. 41, No. 2 (June 1997), pp. 267–293, <https://www.jstor.org/stable/3013934>; Katherine Barbieri, *The Liberal Illusion: Does Trade Promote Peace?* (Ann Arbor: University of Michigan Press, 2002); Omar M.G. Keshk, Brian M. Pollins, and Rafael Reuveny, "Trade Still Follows the Flag: The Primacy of Politics in a Simultaneous Model of Interdependence and Armed Conflict," *Journal of Politics*, Vol. 66, No. 4 (November 2004), pp. 1155–1179, doi.org/10.1111/j.0022-3816.2004.00294.x; Valentin L. Krustev, "Interdependence and the Duration of Militarized Conflict," *Journal of Peace Research*, Vol. 43, No. 3 (May 2006), pp. 243–260, doi.org/10.1177/0022343306063930; Brett V. Benson and Emerson M.S. Niou, "Economic Interdependence and Peace: A Game-Theoretic Analysis," *Journal of East Asian Studies*, Vol. 7, No. 1 (January–April 2007), pp. 35–59, doi.org/10.1017/S159824080004847; Aysegul Aydin, "The Deterrent Effects of Economic Integration," *Journal of Peace Research*, Vol. 47, No. 5 (September 2010), pp. 523–533, doi.org/10.1177/0022343310370290; Håvard Hegre, John R. Oneal, and Bruce Russett, "Trade Does Promote Peace: New Simultaneous Estimates of the Reciprocal Effects of Trade and Conflict," *Journal of Peace Research*, Vol. 47, No. 6 (November 2010), pp. 763–774, doi.org/10.1177/0022343310385995; Solomon Polachek and Jun Xiang, "How Opportunity Costs Decrease the Probability of War in an Incomplete Information Game," *International Organization*,

lost as a result of war. The higher the opportunity cost, the less likely a state is to resort to war. Generally, this opportunity cost is operationalized with the full volume of trade between two states, which implies that all bilateral trade is forfeited during war. Some research has focused on determining which portion of lost trade actually constitutes a cost to the state. Mark Crescenzi models economic interdependence based on the cost of switching to the next-best trading alternative; thus, the opportunity cost is the “exit cost” from a market, not the entire volume of bilateral trade.<sup>9</sup> Han Dorussen disaggregates trade to the industry level to assess in which industries loss of trade leads to higher opportunity costs.<sup>10</sup> Cullen Goenner focuses on strategic resources as producing the greatest opportunity costs, defining “strategic resources” as energy, nonferrous metals, chemicals, electronics, nuclear materials, and arms.<sup>11</sup> While such studies refine scholars’ understanding of which portion of trade is more important for the state, they still assume that trade is severed during war, but that only a part of this severed trade constitutes an opportunity cost.

Jack Levy and Katherine Barbieri hypothesize that the opportunity-cost mechanism can work as political leverage in wartime.<sup>12</sup> The state could threaten to sever trade with the enemy in the midst of the war, knowing that the enemy would have to pay a domestic cost for lost trade and therefore be forced into suing for peace. This hypothesis is problematic. If severing trade with the enemy constitutes enough leverage to coerce the opponent into suing for peace, then it should also be enough leverage to prevent the opponent from starting the war in the first place.<sup>13</sup> Because war is a costly enterprise, states would use existing leverage to avoid war, not wait to use the leverage during war. Conversely, if the leverage is insufficient to coerce the enemy into negotiations before the war started, it is unlikely to do so during war, when the outcome of the conflict is decided by armies on the battlefield.

The second causal mechanism of economic interdependence focuses on pro-

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Vol. 64, No. 1 (2010), pp. 133–144, doi.org/10.1017/S002081830999018X; and Copeland, *Economic Interdependence and War*.

9. Mark J.C. Crescenzi, “Economic Exit, Interdependence, and Conflict,” *Journal of Politics*, Vol. 65, No. 3 (August 2003), pp. 809–832, doi.org/10.1111/1468-2508.00213.

10. Han Dorussen, “Heterogeneous Trade Interests and Conflict: What You Trade Matters,” *Journal of Conflict Resolution*, Vol. 50, No. 1 (February 2006), pp. 87–107, doi.org/10.1177/0022002705283013.

11. Cullen F. Goenner, “From Toys to Warships: Interdependence and the Effects of Disaggregated Trade on Militarized Disputes,” *Journal of Peace Research*, Vol. 47, No. 5 (September 2010), pp. 547–559, doi.org/10.1177/0022343310371881.

12. Levy and Barbieri, “Trading with the Enemy during Wartime,” pp. 13–14.

13. During the war, the enemy might be more desperate for the goods supplied by the enemy, thereby increasing the leverage. On the other hand, during the war, the enemy already could have restructured its trade to deal with different partners, thus reducing any potential leverage.

trade interest groups that seek to preserve their welfare gains by pressuring public officials not to take any action that would sever trade, including military confrontation.<sup>14</sup> This mechanism explains how the costs of cutting off trade enter the war calculus, something the opportunity cost logic takes for granted. The assumption that war severs trade still remains, however.

The third causal mechanism deals with credible signaling, where ending trade with an enemy sends a costly signal of resolve that a state is willing to endure the high costs of war.<sup>15</sup> Even here, if two states have started fighting, it is assumed that trade has already been severed as a signal to the other side. Across these three causal mechanisms, economic interdependence makes the absolute prediction that there should not be trade between belligerents in war.

The second body of literature that links economic gains to security concerns focuses on relative gains.<sup>16</sup> In this context, relative gains refers to how much more beneficial a trading relationship is to one trade partner compared to the other. Because the gains from trade are convertible into military capabilities, a state with greater relative gains can ultimately develop greater military capabilities than its trade partner. The more important relative gains are to a state, the more likely the state is to cut trading ties. Scholars generally agree that

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14. Polachek, "Conflict and Trade"; Paul A. Papayoanou, "Interdependence, Institutions, and the Balance of Power: Britain, Germany, and World War I," *International Security*, Vol. 20, No. 4 (Spring 1996), pp. 42–76, doi.org/10.2307/2539042; Paul A. Papayoanou, *Power Ties: Economic Interdependence, Balancing, and War* (Ann Arbor: University of Michigan Press, 1999); Christopher Gelpi and Joseph M. Grieco, "Economic Interdependence, the Democratic State, and the Liberal Peace," in Edward D. Mansfield and Brian M. Pollins, eds., *Economic Interdependence and International Conflict: New Perspectives on an Enduring Debate* (Ann Arbor: University of Michigan Press, 2003), pp. 44–59; and Etel Solingen, "Internationalization, Coalitions, and Regional Conflict and Cooperation," in Mansfield and Pollins, *Economic Interdependence and International Conflict*, pp. 60–86.

15. James D. Morrow, "How Could Trade Affect Conflict?" *Journal of Peace Research*, Vol. 36, No. 4 (July 1999), pp. 481–489, doi.org/10.1177/0022343399036004006; Erik Gartzke, Quan Li, and Charles Boehmer, "Investing in the Peace: Economic Interdependence and International Conflict," *International Organization*, Vol. 55, No. 2 (April 2001), pp. 391–438, doi.org/10.1162/00208180151140612; Arthur A. Stein, "Trade and Conflict: Uncertainty, Strategic Signaling, and Interstate Disputes," in Mansfield and Pollins, *Economic Interdependence and International Conflict*, pp. 111–126; and Nam Kyu Kim, "Testing Two Explanations of the Liberal Peace: The Opportunity Cost and Signaling Arguments," *Journal of Conflict Resolution*, Vol. 58, No. 5 (2013), pp. 894–919, doi.org/10.1177/0022002713484280.

16. Joseph M. Grieco, "Anarchy and the Limits of Cooperation: A Realist Critique of the Newest Liberal Institutionalism," *International Organization*, Vol. 42, No. 3 (Summer 1988), pp. 485–507, doi.org/10.1017/S0020818300027715; Michael Mastanduno, "Do Relative Gains Matter? America's Response to Japanese Industrial Policy," *International Security*, Vol. 16, No. 1 (Summer 1991), pp. 73–113, doi.org/10.2307/2539052; Duncan Snidal, "Relative Gains and the Pattern of International Cooperation," *American Political Science Review*, Vol. 85, No. 3 (1991), pp. 701–726, doi.org/10.2307/1963847; and Robert Powell, "Absolute and Relative Gains in International Relations Theory," *American Political Science Review*, Vol. 85, No. 4 (1991), pp. 1303–1320, doi.org/10.2307/1963947.

wartime substantially increases the state's focus on relative gains; therefore, if relative gains concerns were extrapolated to wartime, they would predict no trade with the enemy in all wars.

Linking relative gains to trading with the enemy in peacetime, Peter Liberman claims that states are more concerned with relative gains vis-à-vis states that are near, powerful, offensively armed, and hostile.<sup>17</sup> In wartime, states will be highly sensitive to relative gains, because the opponent is both armed and hostile, leading to the prediction that all trade with the enemy should be severed. James Morrow takes the argument a step further to argue that relative gains are inconsequential in peacetime, unless they are highly unequal or can be converted into military advantage in secret.<sup>18</sup> Whichever state gains less from trade can use alternate sources of funding to maintain the military balance of power. The same logic, however, cannot apply to wartime, especially to an unlimited war, as the majority of a state's resources are dedicated to the war effort, so even a small relative disadvantage can significantly influence the ultimate battlefield outcome.<sup>19</sup>

Arguing that relative gains considerations affect military technology more strongly than they do non-security goods, Levy and Barbieri hypothesize that trade with the enemy in the latter category is more likely than in the former. Aside from the empirical examples of weapons sold across enemy lines,<sup>20</sup> there are two reasons to question this explanation of wartime trade. First, it is almost impossible to find a clear definition of what counts as a military technology, especially in a world where dual-use technology is prevalent. Second, and compounding the previous problem, trade in all products can ultimately be useful for a state's security. Any product traded to the enemy allows the enemy economy to free up domestic production from making those goods and instead focus resources on the war effort.<sup>21</sup>

Finally, the domestic political economy literature also suggests hypotheses on trade with the enemy. At a very basic level, states receive absolute gains from engaging in free trade with each other.<sup>22</sup> Given purely economic motives, trade with the enemy should continue—another absolute prediction. On the

17. Peter Liberman, "Trading with the Enemy: Security and Relative Economic Gains," *International Security*, Vol. 21, No. 1 (Summer 1996), pp. 147–175, doi.org/10.2307/2539111.

18. James D. Morrow, "When Do 'Relative Gains' Impede Trade?" *Journal of Conflict Resolution*, Vol. 41, No. 1 (1997), pp. 12–37, doi.org/10.1177/0022002797041001002.

19. Levy and Barbieri, "Trading with the Enemy during Wartime," p. 10.

20. *Ibid.*, pp. 10–12.

21. Schelling, *International Economics*.

22. David Ricardo, *On the Principles of Political Economy and Taxation* (London: John Murray, 1817).

other hand, the decision to open the economy to free trade creates winners and losers in domestic politics.<sup>23</sup> The beginning of a war could function as a focal point, which domestic groups could use to change the state's existing trading policies to their preferred ones. If protectionist forces prevail in a state, trade will be cut off during war. If free trade forces prevail in a state, trade will be allowed to continue.

Additionally, severing trade with the enemy could do considerable damage to a state's domestic economy by creating food shortages, decreasing the revenue from trade, increasing the costs of fighting, or lowering foreign reserve levels. This proposition coheres with the vulnerability argument made by scholars arguing against the economic interdependence thesis.<sup>24</sup> Kenneth Waltz claims that depending on another state for the supply of vital resources opens a state to threat if the supplier ever severs the trading relationship.<sup>25</sup> For Waltz, such potential dependency provides reason for great powers to pursue policies of autarky. John Mearsheimer argues that such vulnerability explains why states conquer others to ensure adequate supply.<sup>26</sup> Regardless of the effect on foreign policy, the relevant aspect for trade with the enemy is that states might be compelled to continue trading during war to ensure an adequate supply of necessary goods. I draw on similar ideas and explain how states determine which products merit such protection during the war.

Levy and Barbieri propose that the nature of the war can affect the decision to trade with the enemy; they are ambivalent, however, on whether it increases or decreases wartime trade.<sup>27</sup> For example, they hypothesize that the longer wars last, the more important relative gains from the early part of war become, which provides incentives to sever trade. On the other hand, the longer the war lasts, the greater the cost of severing trade to the domestic economy and private actors within the state, which incentivizes states to allow trade with the enemy. Long wars also make restoring prewar trade ties harder, likely leading to more trade with the enemy. Total wars have a greater impact on the economy than do limited wars; thus, out of relative gains considerations, Levy and Barbieri propose that there should be less wartime trade during total wars. My theory incorporates the length and intensity of war; however, these two variables alone cannot provide information about wartime trade. Both fac-

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23. Wolfgang F. Stolper and Paul A. Samuelson, "Protection and Real Wages," *Review of Economic Studies*, Vol. 9, No. 1 (1941), pp. 58–73, doi.org/10.2307/2967638.

24. Copeland, *Economic Interdependence and War*.

25. Waltz, *Theory of International Politics*.

26. John J. Mearsheimer, *The Tragedy of Great Power Politics* (New York: W.W. Norton, 2001).

27. Levy and Barbieri, "Trading with the Enemy during Wartime," pp. 28–30.

tors work as thresholds against which states judge which products should be allowed for trade with the enemy.

Overall, the hypotheses about wartime trade with the enemy drawn from the existing literatures provide absolute predictions: either states should always trade with their enemies during war, or they should never trade. Some individual variables taken from these literatures—the nature of the war, the security nature of the product, and domestic lobby groups—do allow for variation; however, these variables lack a causal logic to explain when and how they affect wartime trade. What is missing is a unifying theory that explains which products states trade with their enemies, when during the war they trade them, and for what reason.

### *Theory: Why States Trade with Their Enemies*

A state allows trade with the enemy during wartime if either one of two conditions is met: (1) when it does not help the enemy win the current war, or (2) when ending trade would damage the state's long-term security. Conversely, trade is prohibited when both conditions are not met: trade aids the enemy in the ongoing war, and it can be severed without damaging the state's future security.

To determine when a product meets these conditions, a state assesses the characteristics of that product relative to the expected nature of the war. To judge if a product helps the enemy in the course of the current war, a state compares how long it takes the adversary to convert the item into military capabilities to the expected length of the conflict. Products that are convertible to military capabilities only after the war ends can be safely traded with the enemy. Regarding the second condition, the expected intensity of the war largely determines which revenue-generating products need to be traded with the enemy to ensure the long-term security of the state. The more intense the war, the more revenue a state will be willing to give up by cutting trade to guarantee its survival in the current war. In this section, I start by delineating what is most puzzling about wartime trade. Then I explain the product characteristics and the war characteristics necessary for solving that puzzle, before turning to an explanation of how these factors are combined to make a wartime commercial policy. The last two sections address likely concerns with the theory.

#### THE PUZZLE OF WARTIME TRADE

Trading with the enemy during war can be dangerous. All trade carries security externalities: the gains from trade can be converted by the opponent into

military capabilities.<sup>28</sup> During war, the last thing a state wants to do is help the enemy increase its warfighting capacity. Thus, to increase the chances of winning the current war, a state wants to sever all trade that carries security externalities.

At the same time, severing trade entails economic costs that affect the state both during and after the war.<sup>29</sup> First, the state loses access to the gains from trade—the product being traded or the funds received from the trade. Second, the state loses the income from taxing the circulation of the product within the domestic economy. Moreover, some economic costs persist after the war. The state loses its market share in the enemy state if such trade can be replaced by neutral states. Additionally, there is the relative loss vis-à-vis these neutral states, as they are now gaining from trade given up by the state.<sup>30</sup> These costs matter because they affect the ability of the state to fund its long-term security. A disruption in the stream of revenue into state coffers stemming from severing trade—especially a permanent disruption—affects what the state can invest in its own military capabilities.<sup>31</sup> It would impede not only the ability of the state to prosecute the current war, but also the state's preparedness for future wars. To ensure its ability to invest in long-term security, a state wants to keep as much trade open as possible.

#### PRODUCT-LEVEL CHARACTERISTICS

Wartime commercial policy seeks to reconcile these conflicting preferences—minimizing security externalities by prohibiting trade that is counterproductive to the war effort, while maximizing revenue by allowing as much trade as possible. To understand how states reconcile these incentives, two theoretical insights are necessary.

First, security externalities are not instantaneous. It takes time for a state to convert the gains from trade, whether from imports or exports, into military capabilities. More important, this conversion time varies considerably by product. The shortest practical conversion time is selling a gun to the enemy across the battlefield. Although incredibly rare, such situations have occurred throughout history. At the beginning of the Siege of Grave in the Wars of

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28. Gowa and Mansfield, "Power Politics and International Trade"; and Gowa, *Allies, Adversaries, and International Trade*.

29. Ricardo, *On the Principles of Political Economy and Taxation*.

30. Eugene Gholz and Daryl G. Press, "The Effects of Wars on Neutral Countries: Why It Doesn't Pay to Preserve the Peace," *Security Studies*, Vol. 10, No. 4 (June 2001), pp. 1–57, doi.org/10.1080/09636410108429444.

31. Schelling, *International Economics*.

Louis XIV, the French commander of Grave, at the instruction of the secretary of state for war, sold gunpowder to the Dutch forces that were besieging the town.<sup>32</sup>

A particularly long conversion time would stem from the import of a raw material that is processed domestically for export. For example, a state imports raw gems, converts them into fine jewelry, then sells the jewelry abroad. The conversion time includes the time it takes to make the deal for purchasing and delivering the gems, the time to transport the gems to the factory, the time to refine and set them into the jewelry pieces, the time to transport the jewelry to the buyer, and the time to receive payment for the sale. And at the end of this process, the state would still have to convert the revenue from taxing this domestic manufacturing process into military capabilities, which necessitates additional time to purchase guns or food rations and deliver them to the battlefield. Thus, although trade in raw gems can ultimately aid the war effort, converting them to military capabilities takes a long time.

The different products traded between two states can be ranked based on their approximate conversion times into military capabilities. A product closer to the end of a supply chain has a shorter conversion time than a product at the beginning of the same supply chain. A finished good that is of immediate use on the battlefield (guns, ammunition, tanks, fighter jets, etc.) should have a faster conversion time than finished goods that are not. It is not necessarily the case, however, that products at the beginning of supply chains in military production will have faster conversion times than products at the beginning of supply chains in nonmilitary production. This depends on how long it takes to get through the entire supply chain. It takes less than a day to turn wheat into bread, whereas it takes about twenty-two months to go from a bolt to an F-35.<sup>33</sup> Even if the process of sowing grain and reaping the wheat is considered, it still takes longer to manufacture an F-35 than to make a loaf of bread.

Second, not all trade is equally important to the economy. The amount of income lost to the state from severing trade, in either imports or exports,

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32. The reason for this, no matter how counterintuitive, was to increase their chances of survival. The quantity of gunpowder within their walls was too high, and just one accident would have leveled the entire town. Dutch bombardment of the fortification—even using the French gunpowder—caused considerably less damage. Camille Rousset, *Histoire de Louvois et de Son Administration Politique et Militaire* [History of Louvois and his political and military administration] (Paris: Didier et cie, 1862), p. 65.

33. Evan Hoopfer, “Lockheed Martin Gears Up for Increased Production of F-35 in Fort Worth,” *Dallas Business Journal*, June 7, 2017, <https://www.bizjournals.com/dallas/news/2017/06/07/lockheed-martin-f-35-fort-worth.html>.

also varies by product. Severing trade in products with close substitutes or sources of supply other than the enemy, regardless of how important these products are to the economy, would not have a large impact on the continuity of funds available to the state.<sup>34</sup> There is a one-time switching cost required to adjust the industry to working with the substitute product; the industry will continue to function and produce revenue, however. Compared to severing trade in the product outright, here the income of the state is only slightly affected.

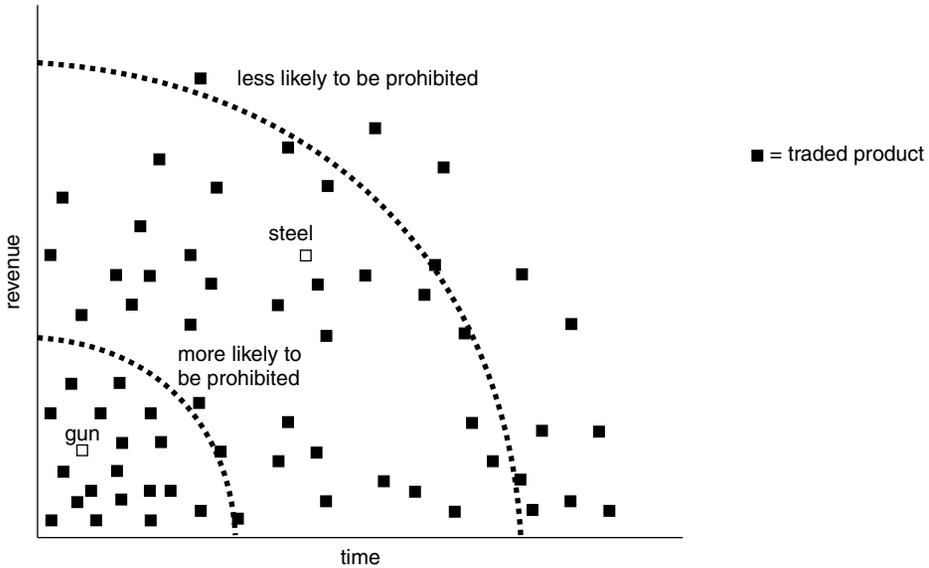
If a product is neither substitutable nor has alternative sources of trade, prohibiting trade will mean a loss of all tax revenue generated through the circulation of this product in the economy. The amount of revenue lost can be ranked based on the number of points at which a specific product can be taxed—import tax, corporation tax if the item is involved in a domestic production chain, export tax, personal tax if it is imported and sold by individual merchants, sales tax if sold domestically after import, and so on. The relative rates of taxation at each of these points influence which products contribute more to the revenue of the state; in general, however, the more taxation points, the more revenue a product can bring to a state. The import of a motorcycle (finished good) should bring in less revenue than the import of steel (raw material) involved in the domestic car industry. Whereas the motorcycle can be taxed only at the moment of importation, the steel also can be taxed through each step of the manufacturing process and when it is ultimately sold as a finished car. Similarly, the export of raw materials should bring in less revenue to a state than the export of finished goods. If the export of a product that is manufactured domestically but for which there is no domestic demand is prohibited, in the long term, the production of this product would stop, depriving the state of revenue from this industry. Overall, products that require domestic production contribute more to state revenue than products that do not (see figure 1).

These two theoretical insights help reconcile the two incentives facing the state. Some products take a long time to be converted into military capabilities. In general, these products are more likely to be traded with an enemy during war. The security concern is to prevent the enemy from increasing its capabilities for the current conflict; if the opponent never has a chance to do that, trade can continue. Some products can be easily substituted or diversified away

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34. Katja B. Kleinberg, Gregory Robinson, and Stewart L. French, "Trade Concentration and Interstate Conflict," *Journal of Politics*, Vol. 74, No. 2 (April 2012), pp. 529–540, doi.org/10.1017/s0022381611001745; and Goenner, "From Toys to Warships."

Figure 1. Distribution of Traded Products Based on Enemy's Conversion Time and a State's Loss of Revenue



from the enemy. If security concerns dictate that trade in these products is dangerous in the current conflict, severing this trade would not create too much disturbance in the state's long-term security. For example, in considering trade with Japan during the Russo-Japanese War (1904–05), Russia was very likely to have prohibited trade in guns with the enemy. Japan could convert guns to military capabilities very quickly—it simply had to transport them to the battlefield, and the export of guns was not a very important industry for the Russian economy. Steel, on the other hand, was more likely to have been traded with the enemy. It would have taken longer to process steel into military capabilities, and Russia was a steel-exporting country at the time.<sup>35</sup>

#### WAR-LEVEL CHARACTERISTICS

Although product characteristics can be used to rank products based on their likelihood of being traded with an enemy, they are not sufficient to explain a state's wartime commercial policy. Both of the factors that determine a wartime commercial policy—whether the trade helps the enemy win and

35. Malcolm R. Hill, "Russian Iron Production from the Repeal of Serfdom to the First World War," *Icon*, Vol. 22 (2016), pp. 115–138, <https://www.jstor.org/stable/44242743>.

whether the state can withstand the loss of the trade—depend on the conditions of the war being fought. Just as states choose different military strategies for different kinds of wars, states choose different wartime commercial policies to match the specific conflict they are expecting to fight. The two dimensions of war relevant to trade with the enemy are the expected length and the expected intensity.<sup>36</sup>

War conditions allow the state to make threshold decisions about which products should be traded. For example, what if a product contributes little to the income of the state, but has a very long conversion time? The state can withstand the loss of trade, but this is not likely to lead to military benefits. This decision is made with respect to the expected length of the war. What if a product contributes greatly to state revenue but has a short conversion time? Continuing trade will assist the enemy, but severing trade will damage the state's long-term security. This decision is made with respect to the expected intensity of the war.

The expected length of the war is the decisionmakers' estimate about how long the current war will last—is the state expected to win a quick victory or to face a prolonged struggle? This estimate can be based on the balance of capabilities between major belligerents,<sup>37</sup> the development of new war-winning technologies or strategies,<sup>38</sup> analogy or learning from previous conflicts, and so forth. Empirically, states frequently fall prey to the "allure of battle" and assume they will win a quick victory, even though most wars fought in human history have been won by attrition.<sup>39</sup> States preparing for war tend to start with the expectation of a short struggle ended by a decisive battlefield victory.<sup>40</sup> As the war reveals more information, states update their expectations about its expected length. Optimism for the success of a new offensive can decrease the expected duration of a war; failure of the offensive or a successful counteroffensive by the enemy can increase it.

To decide if a specific product can help the enemy change battlefield outcomes, a state compares the expected length of the war to how quickly the op-

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36. This is similar to the typology of war used by Alex Weisiger; however, his work classifies wars after the fact, whereas this project focuses on decisionmakers' assumptions about a war before it happens. Weisiger, *Logics of War: Explanations for Limited and Unlimited Conflicts* (Ithaca, N.Y.: Cornell University Press, 2013).

37. Ivan Arreguín-Toft, "How the Weak Win Wars: A Theory of Asymmetric Conflict," *International Security*, Vol. 26, No. 1 (Summer 2001), pp. 93–128, doi.org/10.1162/016228801753212868.

38. John J. Mearsheimer, *Conventional Deterrence* (Ithaca, N.Y.: Cornell University Press, 1985).

39. Cathal J. Nolan, *The Allure of Battle: A History of How Wars Have Been Won and Lost* (Oxford: Oxford University Press, 2017).

40. Jack Snyder, *The Ideology of the Offensive: Military Decision Making and the Disasters of 1914* (Ithaca, N.Y.: Cornell University Press, 1984).

ponent can convert this product into military capabilities. Products with conversion times longer than the expected length of a war are allowed to be traded. Simply put, if the state plans to win before the opponent can benefit militarily from trade, there is no reason to sever trade. As the war progresses, a state updates its expectations about the length of the war, which leads to a recalibration of its wartime commercial policy. Each time a state is forced to extend its assessment of the length of the war, more products should be prohibited from trade. The newly prohibited products would have conversion times shorter than the new expectation of the length of the war. Conversely, when a state once again expects to quickly win the war, it may remove some products from the prohibited trade lists.

The expected intensity of war refers to how existentially threatening the decisionmakers expect the war to be. Is state death a possible outcome? Does the war involve the invasion of a state's homeland or a fight in a distant region? Is the war over a vital national security interest or a matter of less strategic importance?<sup>41</sup> The more existentially threatening war becomes, the more the state will sacrifice its future security to ensure its immediate survival. Translated into economic terms, the more intense the war, the more the state will be willing to lose income from key industries—which decreases investment in its future security—to prevent the opponent from benefiting militarily from trade—which increases the state's chances of winning the war. The intensity of a war can change during the course of the conflict. Factors that mark a war's increasing intensity include the fighting shifting closer to the state's capital, increasing fears of decisive defeat on the battlefield, and the opponent adopting maximalist war aims or exhibiting ideological fanaticism. All these factors would make a state more willing to sacrifice its future security to guarantee its survival in the present war. On the other hand, when additional allies join the fight, each member of the expanding alliance might think that the intensity of the war has lessened, making them less willing to sacrifice various aspects of their trade.

The intensity of the war helps a state navigate the trade-off between dedicating all its effort to winning the current war at the cost of undermining its future security and dedicating all its efforts to long-term security at the cost of potentially losing the current war. To judge whether it can afford to sever trade

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41. Robert Endicott Osgood, *Limited War: The Challenge to American Strategy* (Chicago: University of Chicago Press, 1970); Nordal Åkerman, *On the Doctrine of Limited War* (Lund, Sweden: Berlingska Boktryckeriet, 1972); and Stephen Peter Rosen, "Vietnam and the American Theory of Limited War," *International Security*, Vol. 7, No. 2 (Fall 1982), pp. 83–113, doi.org/10.2307/2538434.

in a specific product in an ongoing war, the state compares the expected intensity of the war—that is, the level of investment the state deems necessary to ensure its long-term security—to how much income the product generates by circulating in the economy. Products that generate more income than the state is willing to sacrifice are allowed to be traded. Furthermore, to ensure its long-term security, the state will continue trading such products, even if the enemy can convert them into military capabilities that can be employed in the present conflict. Still, as the expected intensity of war increases and the very survival of the state is threatened, the state will bear greater losses of income to win. In such cases, the state will cease trading even products that are essential to key industries, prioritizing immediate survival over long-term security.<sup>42</sup>

For example, in a state with an economy dependent on the textile industry, the import of raw cotton would contribute greatly to the state's revenue. In a limited war with the supplier of this cotton, the state would prefer to continue importing the cotton. The income generated from the textile industry is necessary for the economy and thus for the continued investment in military capabilities. If the war becomes existentially threatening, however, the state would be willing to sever trade in cotton—thus damaging its long-term security—to deprive the enemy of funds it receives from trade in cotton—thus damaging the opponent's ability to wage the current war and increasing the state's chances of survival.

#### THE FORMATION OF A WARTIME COMMERCIAL POLICY

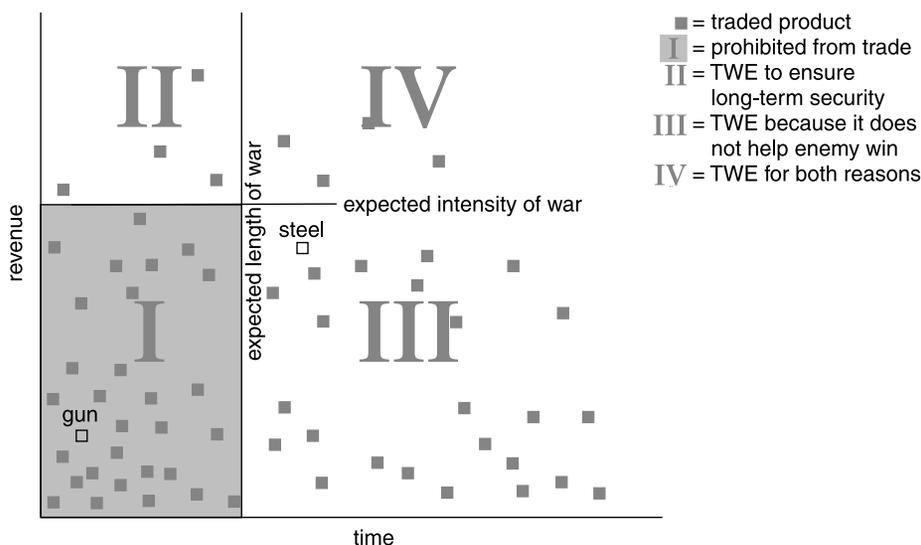
Figure 2 brings together the two factors affecting a state's wartime commercial policy. The axes of the chart denote product characteristics. The plot points represent individual products. When a state is formulating a wartime commercial policy, the decision to continue trading is made separately for each product. Each product that is traded between enemies before the war starts can be mapped, based on how fast the enemy can convert the gains from trade into military capabilities and how important the product is to the state's domestic economy.

The thresholds on the chart are characteristics of the war. The same state in the same year can create different wartime commercial policies, depending on how long and how intense it expects a specific war to be. Based on these expectations about the war, all products that fall within the bottom left quadrant (I) should be prohibited from trade during war. These are the products in

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42. Survival is the primary goal of the state inasmuch as without it, no other goal is achievable.

Figure 2. A State's Wartime Commercial Policy (TWE = trade with the enemy)



which the state can afford to lose trade and that would contribute to the opponent's military capabilities in the current conflict.

The state can afford to lose trade in products in the bottom right quadrant (III), but does not have any military incentives to sever the trade. As the opponent will not have time to convert these products into military capabilities, they can be safely traded. Trade in products in the top left quadrant (II) is too important for the state to lose. Even though the opponent benefits militarily from the trade, the state has to maintain trade in these products to ensure its long-term security. Products in the top right quadrant (IV) should be allowed for trade for both reasons.

Additionally, figure 2 facilitates visualization of changes to a state's wartime commercial policy. If the expected length of the war increases, the vertical threshold moves to the right. Based on this, the state would increase the number of products that are prohibited from trade. Some of those products that were previously in the bottom right quadrant (trade allowed) would become part of the bottom left quadrant (trade prohibited). Similarly, if the intensity of war increases, the horizontal threshold moves up. This would also lead the state to increase the number of products that are prohibited from trade. Some products that were previously in the top left quadrant (trade allowed) would become part of the bottom left quadrant (trade prohibited).

IS IT NOT ENDOGENOUS?

Some observers might raise concerns over endogeneity, as the prohibitions on trade could plausibly affect the expected length of a war. This is not a problem for this theory for two reasons.

First, a prohibition on trade with the enemy is a long-term policy instrument. The effects of the policy are felt only after it has been enforced for some substantial period of time. After the effects are felt by the enemy, the economic pressure increases proportionally with the length of time the policy is enforced. In the short term, however, a prohibition on trade does not have an effect. The enemy can have strategic stockpiles of prohibited products, and thereby not feel the effects of severed trade. Likewise, states have alternative sources of income, so a lack of profit from prohibited trade can, in the short term, be made up with alternative methods of war funding. It is only once the initial stockpiles of products (or profits) are exhausted and the supply of additional trade is severely reduced that the economic pain of trade sanctions can be felt.<sup>43</sup> Thus, an initial expectation of a short war cannot stem from the chosen wartime commercial policy.

Second, if the expectation of the length of the war and the prohibitions on trade influence each other, no decisions on wartime trade could ever be reached. Consider one traded product that is on the threshold of a war-length expectation. If there were an endogeneity problem, prohibiting trade in this product would shorten the expected length of the war. Lowering the expected length of the war, however, also means that the product in question should now be allowed to be traded with the enemy. If it is traded with the enemy, the war-length expectation rises again, and so the product should not be traded with the enemy. This cycle continues indefinitely. The very fact that decisions on wartime trade are made shows that the judgments about the length of the war and the prohibitions on products are made separately.

OVERLAP BETWEEN BELLIGERENT WARTIME COMMERCIAL POLICIES

My theory explains how a state forms a wartime commercial policy toward an enemy belligerent. A state weighs the benefit of severing trade in products that

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43. It took almost four years to starve Germany in World War I—from March 1915 through 1919. Alexander B. Downes, *Targeting Civilians in War* (Ithaca, N.Y.: Cornell University Press, 2011), pp. 83–114. Likewise, it required nearly four years to starve Japan in World War II. Sheldon Garon, “The Home Front and Food Insecurity in Wartime Japan: A Transnational Perspective,” in Hartmut Berghoff, Jan Logemann, and Felix Römer, eds., *The Consumer on the Home Front: Second World War Civilian Consumption in Comparative Perspective* (Oxford: Oxford University Press, 2017), pp. 29–54; and Christopher Clary, “The Starvation Myth: The U.S. Blockade of Japan in World War II,” *Fairmount Folio: Journal of History*, Vol. 4 (2000), pp. 125–137, <https://journals.wichita.edu/index.php/ff/article/view/62/69>.

can be converted by the opponent into military capabilities against the cost of losing the income from this trade. Ultimately, it divides all products into those allowed to be traded with the enemy and those that are prohibited. At the same time, the opponent is making a similar calculation to determine its preferred wartime commercial policy. Because trade requires at least two willing participants, what trade will actually exist between two belligerents during war depends on where their preferences overlap.

At first glance, it might seem that the commercial policies of two belligerents should be polar opposites—every product that one state would want to continue to trade in, the opponent would have reason to sever. My theory provides ample opportunity, however, for two states to retain the same portion of their trade.

First, there are two different reasons why a state might trade with the enemy. State preferences for allowed trade can overlap, because the two states' reasons for trading are different. State A might continue importing product X because it is a raw material necessary for a key domestic industry—it is too important to the state economy to prohibit trade. State B might continue exporting product X because it does not expect State A to benefit militarily from the trade in the current war—the trade does not affect battlefield outcomes.

Second, both states might continue trading with each other in a certain product for the same reason. Both belligerents can be convinced that the war will be short. They can, therefore, allow considerable portions of trade to continue as the security externalities would not affect the battlefield outcome. Similarly, both belligerents can consider their opponent to be inefficient in converting the gains from trade into military capabilities, allowing much trade to continue. One or both of the states are likely mistaken in their assessment; nevertheless, trade can continue.

Finally, both belligerents could find trade in the same product indispensable. For example, during the Crimean War, Britain's economy depended, among other things, on importing flax, hemp, linseed, and tallow, for which Britain could not find an alternative supply other than Russia.<sup>44</sup> Russia could not find an alternative market to sell these goods, as Britain absorbed nearly half of Russia's European exports.<sup>45</sup> Both states were unwilling to sever trade in these products, even as the war dragged on.

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44. Olive Anderson, "Economic Warfare in the Crimean War," *Economic History Review*, Vol. 14, No. 1 (January 1961), pp. 34–47, doi.org/10.2307/2591352.

45. Olive Anderson, *A Liberal State at War: English Politics and Economics during the Crimean War* (New York: Macmillan, 1967); and J.L. Ricardo, *The War Policy of Commerce* (London: Effingham Wilson, 1855).

## *Research Design*

I test the theory with archival evidence from World War I, using the formation and changes in British wartime commercial policy throughout the conflict. World War I is a crucial case based on a least likely case design. The conventional wisdom on trade with the enemy states that when concerns over the security of the state are high, trade with the enemy is least likely to occur. World War I was a global, total war where the full might of each nation was used in the war effort; it was a long war fought for the survival of the state. Showing that trade with the enemy can occur even under such unlikely conditions lends support to the argument that wartime trade is quite prevalent.

Focusing on Britain allows me to take advantage of the temporal variation in how decisionmakers reassessed the expected length and intensity of the war. The availability of uniquely granular, product-level data in the British case allows me to test the product-level predictions of the theory as well as the war-level predictions about a state's wartime commercial policy.

To test the theory, I examine Britain's wartime commercial policy at two stages. First, the state grappled with the question of whether trade with the enemy should be allowed during a hypothetical future war and then adapted this general strategy to the expected war with Germany. By process tracing committee discussions, I identify Britain's reasons for and against trade with the enemy, noting which arguments prevailed. Additionally, after the general policy was formed, I examine how it developed into a specific policy toward Germany for the coming war. Second, I look at how this policy was amended during the war. As the theory predicts that a state should change its wartime commercial policy in response to battlefield realities, I search for periods when decisionmakers reassessed their wartime commercial policy and what changes they implemented. Specifically, was the policy becoming more lax or more restrictive, and were licenses granted to legally circumvent the existing prohibitions?

As the discussions in committee about the contents of a wartime commercial policy are necessarily general, they cannot help test the theory at the product level. The goal at this level of decisionmaking is to set a guiding policy, as opposed to determining the fate of each traded product.<sup>46</sup> To test the product-

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46. A new bureaucracy is ultimately set up to determine whether each product should be traded during the war. Unfortunately, the written record from these committees was not deemed important enough to be preserved, with only a few "stereotypical" cases left in the historical record for posterity.

level predictions of the theory, I collected the official proclamations, publicized to domestic merchants through the *London Gazette*, a government journal that details the products prohibited from trade during war. The full collection of these proclamations throughout the war forms Britain's implemented wartime commercial policy, allowing me to see how the policy changed at the product level.

These data have some limitations. First, I do not have access to a list of all products that were traded by British merchants. Trade records and tariff documents have only aggregated categories, not specific products. The dataset includes all products that were at some point prohibited from trade. For products prohibited later in the war, I know they were allowed to be traded before that prohibition. If a product was never specifically prohibited from trade, I would be unable to account for it. In essence, I would be undercounting the extent to which trade with the enemy was permitted. Additionally, some level of aggregation still exists in the data. Sometimes prohibitions occur by category. For example, "accessories for use in connection with aircraft" is a line item prohibited from trade, but it refers to a category of traded goods. Through other prohibitions, it is possible to tell that "barographs" and "revolution indicators" are types of such accessories, but it is impossible to determine the other products that would also fall into this category. Whenever possible, categories are disaggregated to the lowest possible level.

Finally, the proclamations list both prohibitions on exports and prohibitions on imports of products. It is only possible, however, to disaggregate which products were specifically prohibited from trade with the enemy on the export side. Britain prohibited products with three types of geographic scopes: cannot be exported from Britain (to prevent shortages in the British war effort), can be exported only to the colonies, and cannot be exported to countries adjacent to the enemy (to prevent products from reaching the enemy). The geographic scope of the prohibitions on some products changed throughout the war. Although there could be multiple reasons to ban products from leaving Britain, I can be most confident that the reason for prohibiting export to countries adjacent to the enemy was to sever enemy trade. Similar geographic distinctions do not exist for prohibitions on imports, which were always prohibited from all sources. As such, it is impossible to distinguish imports prohibited to stop trade with the enemy and imports banned for other reasons. To keep the analysis cleanly focused on trade with the enemy, the product-level predictions of the theory are tested only with export trade. Nevertheless, the case analysis presents some product-level information on imports from the enemy focused on licenses granted to trade during the war.

The conversion time of each product is operationalized by its relative position in the manufacturing process: finished goods, intermediate goods, raw materials, or substitute goods. Substitute goods are those used in manufacturing after the goods they are replacing are no longer available. Products at the beginning of a supply chain have longer conversion times than products at the end of the same supply chain. Substitute goods should have the longest conversion times relative to other products in the supply chain. It is impossible to get a temporal measure of products' conversion times, as this would require industry knowledge of production processes of World War I-era technology as well as the transportation routes for individual companies' supply chains. The British government itself received only approximate estimates of such information from industry representatives.<sup>47</sup> An individual product's contribution to state revenue is likewise an elusive target. As such, testing this aspect of the theory at the product level is left for future research.

The expected length of the war is based on how long the state expected to keep troops on the battlefield. If decisionmakers anticipated that fighting would take less than one campaign season without troops having to winter near the battlefield, the war is considered short. Alternatively, if they expected fighting to require more than one campaign season, the war is considered long. To code this expectation, I gathered month-by-month information from two sources. The first is the expectations of British decisionmakers about the length of the war, collected from secondary literature. What sort of war were these leaders preparing to fight? How long of a campaign were they expecting? How optimistic were they about achieving their goals in the set time frame? Did they think about the necessity of calling up reservists? The second source of information is the actual arrangements made for the war effort: Were costly investments made in the war that might suggest preparations for a long conflict? For example, the construction of extensive fortifications, the preparation of trenches, and the construction of field railroads to solidify supply lines would indicate a state preparing for a long war. All these actions would be a waste of resources and effort if the war was expected to be short. On the other hand, sending troops to a location with a cold climate without winter clothes would suggest a state preparing for a short struggle.

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47. The lack of timely information experienced during World War I was used to justify a request for more personnel with industry expertise for the Ministry of Economic Warfare. "C.R.T. War Work," April 6, 1938, BT 11/966, British National Archives (BNA), pp. 21–28.

### *British Wartime Commercial Policy in World War I*

Britain's initial wartime commercial policy in World War I carefully balanced economic and military concerns about trade. Whereas direct trade with the enemy was prohibited for practical and nationalistic reasons, indirect trade was almost entirely permitted. Trade in some products—specifically coal tar dyes, sugar, and metal manufactures—was identified as being too important to the British economy to sever. These goods were key to keeping domestic manufacturing running and, as such, contributed greatly to the income of the state. Other products were deemed “innocent” goods used exclusively in civilian manufacturing. Because Germany, Britain's primary expected enemy, would be unable to benefit from trade in “innocent” goods militarily, Britain could continue to supply them. On the other hand, products including guns, ammunition, gunpowder, airplanes, and surgical bandages were deemed too dangerous to trade with the enemy, as they could be converted into military capabilities quickly. Not all military equipment, however, was on the initial list of prohibited trade with the enemy, as trade in machine guns, shipbuilding materials, and implements for digging trenches was initially permitted.

Britain made this policy with a quick war in mind and significantly amended it when this assessment proved faulty. The longer the war was expected to last, the more products were added to the list of prohibited trade. The more existentially threatening the war became, the more Britain was willing to give up trade in products important to its own economy. Around February/March 1915, after British leaders realized that fighting on the Western Front was stalled and that an injection of new men and new supplies would not break this stalemate, food, raw materials, and a number of items that were previously deemed “innocent” were added to the prohibition list. By the end of 1916, with the end of war nowhere in sight and the hopes of victory starting to dwindle, Britain severed trade in the majority of the products that it previously had deemed were too important to the economy.

#### ASSESSMENT OF THE COMMERCIAL SITUATION

In 1911, in preparation for a potential war with Germany, the British government created the Standing Subcommittee of the Committee of Imperial Defence on Trading with the Enemy (hereafter Committee on Trading with the Enemy). Its purpose was to examine “the subject of trade between British subjects and the enemy in time of war, the extent to which it should be allowed and the means and method of carrying out the policy recommenda-

tions.”<sup>48</sup> After developing the general guidelines for wartime trade, the Committee was instructed to create the wartime commercial policy that Britain would use in the looming war with Germany. One of the necessary pieces of information for this examination was the importance of trade between Britain and Germany. The Board of Trade provided such an assessment.<sup>49</sup> In 1910, German goods imported into and retained in the UK were valued at £58 million, slightly less than one-tenth of the total imports into the United Kingdom.<sup>50</sup> At the same time, Britain exported £37 million of its produce and manufacturing to Germany, which amounted to about one-twelfth of its total exports.<sup>51</sup>

Of the goods that Britain imported from Germany, around 44 percent were products for which Germany was the predominant supplier.<sup>52</sup> These included unrefined beetroot sugar, coal tar dyes, cotton piece goods, cotton hosiery, mixed silk goods, furs, toys and games, iron and steel manufactures, steel sheet bars, and tinplate bars.<sup>53</sup> Three of these categories—sugar, coal tar dyes, and metal manufactures—were important raw materials in British manufacturing. The rest were primarily finished goods that required little processing in the UK. While the Board of Trade believed that domestic manufacturing could have filled the domestic demand for clothing, rubber, and earthenware products, it would have been insufficient to fill the demand for clocks, coal-tar dyes, electrical glow lamps, mixed silk goods, and sugar.<sup>54</sup> In the case of sugar, the situation was most dire, as the Board of Trade believed that if Germany was effectively prevented from exporting sugar, there would not be enough global supply left to cover British needs.

The Board of Trade assessed trade in products flowing from Germany to Britain as being mutually dependent—Germany needed Britain as a market, and Britain needed Germany as a source of goods. Trade in the opposite

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48. “Terms of Reference,” 1912, *Report and Proceedings of the Standing Subcommittee of the Committee of Imperial Defence on Trading with the Enemy*, CAB 16/18A, BNA, p. vi. (Hereafter, this report is referred to as *Report*.)

49. This case study relies solely on information gathered by the Board of Trade for the Committee of Trading with the Enemy, as this was the information that the committee used to make its policy recommendations. The accuracy of either the statistical information or the conclusions drawn by the Board of Trade is largely irrelevant, as it was the only expert information provided to the committee.

50. “Memorandum by the Board of Trade on the Probable Effects of a War with Germany on British Trade, No. 8,” December 1911, *Standing Sub-Committee of the Committee of Imperial Defence (SSCID)*, WO 106/45, BNA, p. 2.

51. *Ibid.*

52. “Predominant” refers to more than 50 percent. *Ibid.*, p. 13.

53. *Ibid.*

54. *Ibid.*

direction, from Britain to Germany, however, was assessed differently. For Germany, imports from the UK accounted for around 8.5 percent of its total imports; for nearly two-thirds of the products it received from the UK, however, the UK was the predominant supplier.<sup>55</sup> These items included salted herring, yarn of wool and hair, heavy woolen tissue, cotton yarn, cotton tulle, cotton tissues, sheep and lambskins, tinsplate, and cotton-spinning and preparing machinery.<sup>56</sup> Although this trade would have been difficult for Germany to replace, severing it would not have applied maximum pressure on Germany, as none of these products were raw materials indispensable to industry or essential food items.

It was also assumed, by the Board of Trade, that Germany was not entirely necessary to Britain as a market for British goods. Less than one-sixth of the value of exports from Britain to Germany consisted of products for which Germany was the predominant market.<sup>57</sup> These items were maize meal, sharps and middlings, fresh and cured herring, painters' colors (barites), thrown silk, slates for roofing, wool flocks, worsted yarns, alpaca and mohair yarns, and yarn of wool or hair.<sup>58</sup> Although specific groups of merchants in Britain would have been adversely affected by the loss of this trade, overall, Britain would not have suffered much.

The Board of Trade conducted a more thorough investigation of the wool (main German import from Britain) and sugar trades (main British import from Germany). It was found that, in addition to the wool imported into Germany from the UK, most German wool came from British colonies. Although South American wool could possibly have been used as a substitute, it would have required considerable upfront costs, as Germany did not yet have the machinery necessary to process that type of wool.<sup>59</sup> A thorough assessment of the sugar trade led to the conclusion that only Britain was dependent on the import of sugar. The position of sugar manufacturing in Germany was of minor importance, and Germany could easily use the sugar it produced to satisfy domestic demand.<sup>60</sup> Thus, Germany required British wool, and Britain required German sugar.

In making its assessments, the Board of Trade fully recognized that neutral

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55. *Ibid.*, p. 9.

56. *Ibid.*, p. 10.

57. *Ibid.*, p. 11.

58. *Ibid.*

59. "The Wool Trade and Germany", February 7, 1912, *Report*, p. 394.

60. "The German Sugar Trade and the Effect of Prohibiting the Importation of German Sugar," February 15, 1912, *Report*, p. 415.

states would pick up the trade that would be forbidden to British and German ships. If trade with the enemy was allowed, it was assumed that trade would continue between the two countries directly using neutral ships; if it was prohibited, trade would continue indirectly through neutral ports.<sup>61</sup>

#### ASSESSMENT OF THE LENGTH OF THE WAR

Another significant piece of information that the Committee on Trading with the Enemy wanted to have, to make appropriate policy recommendations, was the probable duration of war between the Triple Entente and the Triple Alliance. A note from March 12, 1912, from the General Staff, while refusing to go into any particular details on the subject, stated that “it would not be safe to calculate on the war lasting less than six months.”<sup>62</sup> The War Office did not want to give a point prediction for the end of the war to avoid being blamed later for a mistaken prognosis. Additionally, the expected length of the war influenced the extent of military stockpiles to be kept in the country. Preparing for a shorter war would have assured the military access to fewer resources than a longer war. Given this incentive structure for the War Office, the Committee on Trading with the Enemy assumed that the conflict would not be especially prolonged.

#### SETTING THE INITIAL WARTIME COMMERCIAL POLICY

The members of the Committee on Trading with the Enemy, who came from various branches of government, interpreted the information presented by the experts differently and reached different conclusions about the optimal British wartime commercial policy. There were two significant points of agreement, however. First, the selected policy had to match the type of war. Second, different types of products had to be treated differently.

All members of the Committee on Trading with the Enemy understood that economic pressure was a time-dependent policy instrument. Lord Desart, the chairman of the Committee, pointed out that “a short period of extreme commercial pressure must affect the permanent commercial interests of the nation less than a prolonged period during which that pressure, which must in any case be heavy, was reduced to its lowest possible proportion.”<sup>63</sup> Even if the Committee had resolved to sever all trade with the enemy and picked the most stringent method of enforcing this policy, in the short term, it would have no effect on helping Britain win the war. Only if the war were to become pro-

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61. “Memorandum by the Board of Trade,” December 1911, pp. 3–8.

62. “Note by the General Staff,” March 12, 1912, *Report*, p. 424.

63. “Note by the Chairman,” February 21, 1912, *Report*, p. 419.

longed would commercial policy be able to contribute to battlefield outcomes. Sir R. Chalmers, a representative from the Treasury, emphasized that “if the war were brought to a rapid conclusion by the success of the German armies over France, it would not be worthwhile for us to exercise the weapon of economic pressure, which must necessarily require time to produce effect.”<sup>64</sup> Similarly, if allies were to defeat Germany quickly, most of the economic pressure that came from regulating trade with the enemy would not even begin to be felt.

At the same time, the Committee on Trading with the Enemy was planning for a short struggle. In fact, the secretary of the Committee, summarizing the scope and ground to be covered, stated: “It is of course utterly impossible to foresee what developments of the policy to be adopted may become necessary during the course of a protracted war. Probably all that can be done now is to consider the most suitable policy for adoption at the outset of a war.”<sup>65</sup> The Committee recognized that the policy it created had to match the type of war Britain expected to fight. And if the type of war changed, the policy had to change with it.

In addition to agreeing that the wartime commercial policy must suit the specific war, the members of the Committee on Trading with the Enemy decided that different types of products should be treated differently by that policy. They divided trade into three conceptual categories: arms, food and raw materials, and “innocent” goods. Regardless of how open or restricted a member of the Committee wanted the ultimate wartime commercial policy to be, everyone agreed that arms, ammunition, and military and naval stores would be prohibited from trade with the enemy.<sup>66</sup> The opponent could quickly increase its military capabilities with such products even in a fairly short conflict. “Innocent” goods, likewise, did not pose any difficulty for policymakers. As noted earlier, goods classified as “innocent” were those used exclusively in civilian manufacturing.<sup>67</sup> They were assumed not to assist the enemy in prosecuting the war, and as such could be safely traded with the enemy.<sup>68</sup>

Raw materials were the contentious category. While it was agreed that these products could not benefit the enemy militarily in a short period of time, they

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64. “Minutes of Sixth Meeting,” February 23, 1912, *Report*, p. 86.

65. “Note by the Secretary, No. 1,” February 6, 1911, *SSCID*, WO 106/45, BNA, p. 1.

66. Not everyone agreed on which products fit this description, and several meetings were held to discuss precisely this question. Ultimately, the products were a compilation of finished goods that were of immediate use on the battlefield.

67. “Draft Report,” February 21, 1915, *Interdepartmental Committee on Trading with the Enemy*, CAB 42/1/46, BNA, p. 1.

68. “Report,” July 30, 1912, *SSCID*, CAB 38/21/31, BNA, p. 5.

were assumed to increase the revenue of the enemy substantially.<sup>69</sup> The debate was over whether the enemy's revenue from trade should be a relevant factor in making wartime commercial decisions. In its final report, the Committee on Trading with the Enemy settled on recommending a policy of prohibiting raw materials from trade.<sup>70</sup> This part of its recommendation was not accepted by the Cabinet, however. Although prohibiting the enemy from gaining raw materials could exert great pressure, as the Committee on Trade with the Enemy pointed out, such pressure would take time to have an effect. In a short war, there simply would not be any time for that to happen. By rejecting this portion of the recommendation, the Cabinet corrected the one logical inconsistency in the wartime commercial policy.

The rest of the recommendations of the Committee on Trading with the Enemy were approved by the Cabinet. As a result, Britain's initial wartime commercial policy for World War I was to (1) prohibit direct trade with the enemy, and (2) allow indirect trade with the enemy, except in a few items that were not permitted to leave the country because they were necessary for military and naval means, and a few items that were not allowed to be transferred to the neighbors of enemy countries, as these were determined to increase the military capabilities of the enemy. No restrictions were placed on the raw materials Germany needed for its industry.

Britain's decision to prohibit direct trade with the enemy was based on concerns about public outrage at wartime trade. Using the Boer War as an analogy, Lord Esher, a permanent member of the Committee on Imperial Defense, suggested that the domestic public, and possibly allies as well, would expect maximum pressure to be brought to bear against Germany and would therefore be greatly opposed to trade with the enemy: "This expectation might be formulated in a demand by public opinion, voiced by the press, in such an overwhelming force that no Government would be able to resist it."<sup>71</sup> To forestall such an outcry, and the corresponding crippling pressure on the government, the Committee proposed that, for the first few weeks of war, direct trade with the enemy be prohibited. This period of most restrictive wartime commercial policy was meant to coincide with the period when the entire transportation infrastructure was overloaded with transferring military personnel and supplies to the front lines—that is, when there would have been little op-

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69. "Memorandum by the Admiralty on the Economic Effect of War on German Trade," December 12, 1908, *Report*, p. 388.

70. "Report," July 30, 1912, p. 5.

71. "Note by Lord Esher," May 2, 1912, *Report*, p. 427.

portunity for trade to occur. So, in fact, the prohibition was not meant to actually prohibit any trade. Later in the war, after the practical barriers to trade were removed, the government was meant to switch to the general policy preferred by the Committee, where direct trade would be allowed. If no public outcry materialized at the beginning of the war, the government was, likewise, to rescind the prohibition on direct trade.<sup>72</sup>

With the exception of the prohibition on direct trade with the enemy, Britain's wartime commercial policy was based on weighing the economic benefits of trade against the military costs of potentially helping the enemy. Trade in products that the enemy could convert into military capabilities by the end of 1914, when the war was expected to end, was severed. At the same time, none of the products that were of great importance to the British economy were prohibited from trade. In fact, despite the prohibition on direct trade with Germany, the Board of Trade gave out numerous licenses to individual merchants for the direct purchase of German raw materials. Such licenses were granted for the import of enemy goods, "which are essential for the maintenance and development of industries in this country and cannot be supplied to anything approaching an adequate extent from other than enemy sources."<sup>73</sup> Specifically, a large proportion of the licenses were granted for import of aniline dyes used in textile and leather industries; also prominent was the import of various potash compounds used in the manufacture of explosives, glassware, and dye-making.<sup>74</sup>

#### UPDATING THE WARTIME COMMERCIAL POLICY

Britain's initial wartime commercial policy was implemented at the start of the war. But having been created for a short war, the policy quickly outlived its usefulness. With the estimated length of the war growing, and with its intensity also increasing, the commercial policy grew more stringent. The first change in policy occurred in February/March 1915, as the trench lines in Western Europe stabilized and the expected length of the war was extended to the end of 1915. The second change occurred at the end of 1916 and reflected the general belief that the war could no longer be anything but exceedingly long and bloody.

As the effective use-by date of the initial policy passed, the Committee on

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72. *Ibid.*

73. Hubert Llewellyn Smith, "Licenses to Import Goods from Germany while the New Order in Council Is in Force," March 8, 1915, FO 382/186, BNA.

74. *Ibid.*

Trading with the Enemy needed to reassess the entire strategy. In a report printed on February 25, 1915, the Interdepartmental Committee on Trading with the Enemy described the British policy up to that point as “concentrating efforts mainly on preventing the enemy from receiving those articles which affect his ability to prosecute the war, and to allow greater relaxation in the case of articles of value for the civilian production alone.”<sup>75</sup> The policy for the short war was to prevent trade in products that were quickly converted into military capabilities by the enemy and to allow trade in products that could not help the enemy on the battlefield. The report continued, “The same principle does not apply as regards the offense of trading with the enemy at the present time.”<sup>76</sup> Given that the war was going to last at least another full year, the Committee decided that it now made sense to prevent certain raw materials and food items from reaching the enemy. In February, numerous provisions and victual, which may be used as food for men, were prohibited from export, as was a wide range of metals and ores.<sup>77</sup>

By the end of 1916, all the Allied strategies that the British government was relying on to win the war had been tried and had failed. Despite Britain’s victory in the Battle of Jutland, the public perception that the war posed an existential threat to Britain did not dissipate.<sup>78</sup> Furthermore, after two and a half years of financing the Allied war effort, Britain finally had to start borrowing heavily from the United States. With the expected length and intensity of the war growing, British decisionmakers further restricted their wartime commercial policy. Import restrictions appeared and started to increase in number at a rapid rate.<sup>79</sup> Given the strains of war, the shipping situation became dire, forcing Britain to ration tonnage on ships to ensure that products necessary for the war economy made it to the country.<sup>80</sup> Additionally, all licenses granted to individual merchants to trade with the enemy, regardless of the official prohibitions, were suspended. After August 1916, only hosiery needles—which were essential to the textile industry—and the occasional enemy publication were allowed to be imported from the enemy.

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75. “Draft Report,” February 21, 1915.

76. *Ibid.*

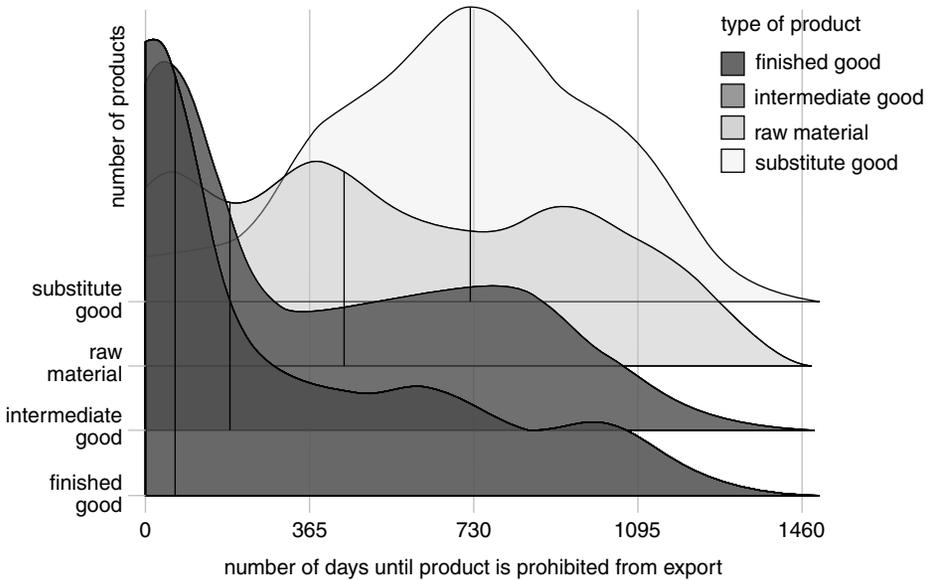
77. More measures were added to further regulate trade with the enemy, such as certificates of origin and consolidated blacklists. They are not described here in the interest of conserving space.

78. Daniel Allen Butler, *Distant Victory: The Battle of Jutland and the Allied Triumph in the First World War* (Portsmouth, N.H.: Greenwood, 2006), p. 94.

79. Sir Nathaniel Highmore, “Full Record of the Department,” 1919, BT 11/1022, BNA, p. 34.

80. “Notes by Lord Emmott on How the Department Came into Being,” 1919, BT 11/1022, BNA, p. 4.

Figure 3. Density Plot of the Distribution of Days before a Product in Each Category Was Prohibited from Trade With the Enemy



The vertical line on each density curve represents the median.

TRENDS IN INCREMENTAL CHANGES IN ITEMS PROHIBITED FROM TRADE

To trace the changes discussed above in a more nuanced manner, I use my novel dataset of all products that Britain prohibited from export during World War I. It covers 2,714 product descriptions. For each product, the initial date of prohibition and geographic scope of prohibition is recorded, as well as any changes that occurred during the war. Nine hundred sixty-six products were specifically prohibited from trade with the enemy at some point during the war. Additionally, I divided all products into four categories based on their relative positions in the manufacturing process—finished goods, intermediate goods, raw materials, and substitute goods.

Figure 3 shows the distribution of products across the four categories. Products in all four categories are distributed across the full duration of the war, which logically coheres with conversion time. Some supply chains are short and very useful to the war, so those raw materials and finished goods should be prohibited early on. Other supply chains are short but take a long time to convert into military capabilities, so those raw materials and finished goods should be prohibited further into the war.

A number of interesting patterns emerge from this dataset. First, British decisionmakers adapted the wartime commercial policy to changes on the battlefield. As the trenches on the Western Front solidified by November 1914, and Britain saw that attrition was going to be a major feature of the current war,<sup>81</sup> “entrenching tools and implements,” such as pickaxes, shovels, and spades, were prohibited from export to the enemy on November 10, 1914.<sup>82</sup> “Machinery for trenching and digging” was not prohibited until February 3, 1915,<sup>83</sup> when most hopes of returning to mobile warfare had faded.<sup>84</sup> On the same date, and following the same intuition that a war of movement was not likely to recur, machine guns were also prohibited from trade.<sup>85</sup> Interestingly, machine guns were not prohibited from trade at the beginning of the war, as there was a wide consensus that they were useful only in wars of attrition, not in maneuver warfare.<sup>86</sup> Thus, carriages and mountings for machine guns were forbidden from export at the start of the war, but not machine guns themselves.<sup>87</sup> The same pattern of adapting to the changing nature of warfare can be seen in the British understanding of a German innovation—poison gas. As the British identified the compounds being used by the Germans, these chemicals were prohibited from trade. Chlorine was first used against the British and French forces on April 22, 1915, and it was banned from trade on July 28, 1915.<sup>88</sup> Phosgene was prohibited on October 19, 1915.<sup>89</sup>

Second, prohibitions were made based on products’ conversion times. For example, harnesses and saddles used for military purposes were prohibited from trade at the start of the war.<sup>90</sup> The leather used to make such saddles,

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81. John Turner, ed., *Britain and the First World War* (Crows Nest, New South Wales: Unwin Hyman, 1988), p. 5; Ian F.W. Beckett, *Ypres: The First Battle, 1914* (London: Pearson/Education, 2004); and Jeremy Black, *The Great War and the Making of the Modern World* (London: Continuum, 2011), p. 46.

82. *London Gazette*, Supplement, November 10, 1914, 28970, pp. 9225–9228, <https://www.thegazette.co.uk/London/issue/28970/data.pdf>.

83. *London Gazette*, Second Supplement, February 3, 1915, 29057, pp. 1165–1169, <https://www.thegazette.co.uk/London/issue/29057/data.pdf>.

84. Philip Warner, *World War One: A Chronological Narrative* (Leicester, UK: Brockhampton, 1999), p. 57.

85. *London Gazette*, Second Supplement, February 3, 1915.

86. Frederick Victor Longstaff and Andrew Hilliard Atteridge, *The Book of the Machine Gun* (London: Hugh Rees, 1917).

87. Alexander Pulling, ed., *Manual of Emergency Legislation: Comprising All the Acts of Parliament, Proclamations, Orders, Passed and Made in Consequence of the War, Supplement No. 2 to December 5th, 1914, Laws, Etc.* (London: Her Majesty’s Stationery Office, 1914), pp. 162–164.

88. *London Gazette*, Second Supplement, July 28, 1915, 29244, pp. 7427–7432, <https://www.thegazette.co.uk/London/issue/29244/data.pdf>.

89. *Edinburgh Gazette*, October 22, 1915, 12864, pp. 1595–1596, <https://www.thegazette.co.uk/Edinburgh/issue/12864/data.pdf>.

90. *London Gazette*, Second Supplement, August 5, 1914, 28862, pp. 6168–6169, <https://www.thegazette.co.uk/London/issue/28862/data.pdf>.

however, was prohibited later on October 6, 1914.<sup>91</sup> Metal fittings for the harnesses were banned on July 28, 1915.<sup>92</sup> Harness-making machines could be traded with the enemy all the way up to December 18, 1917.<sup>93</sup> Britain's wartime commercial policy prevented the enemy from having access to products of immediate use on the battlefield first, then tightened progressively to prevent the enemy from gaining the supplies necessary to make war-ready finished goods. The same pattern can be traced through uniform clothing, which was prohibited from trade with the enemy at the start of the war.<sup>94</sup> "Cloth, woolen or worsted, if suitable for uniform clothing" was not prohibited until October 19, 1914.<sup>95</sup> "Leather, dressed or undressed, suitable for military clothing," was prohibited on February 3, 1915.<sup>96</sup> "Uniform clothing, second-hand military," which had to be taken apart and its components reused to make new uniforms, was prohibited only on May 10, 1916.<sup>97</sup>

Figure 4 generalizes this pattern across all the products that Britain prohibited from trade with the enemy. For this analysis, only those products that, at some point during the war, were specifically prevented from reaching the enemy are considered. A product could be barred from leaving Britain because of a domestic shortage, as well as for reasons of reducing enemy capabilities. It is possible to be confident about the reason for the prohibition only for those products that, at some point, were prevented from being traded with countries adjacent to the enemy.

As can be seen from figure 4, on average, it took about nine months for finished goods to be prohibited from export, a year for intermediate goods, a year and a half for raw materials, and about two years for substitute goods.<sup>98</sup> This pattern suggests that conversion times dictated the timing of prohibitions, as trade in products at the beginning of the supply chain was prohibited earlier than products at the end of it.

Finally, when the data are spatially distributed, one can see that Britain's wartime commercial policy varies with the decisionmakers' expectations

91. *London Gazette*, Supplement, October 7, 1914, 28927, p. 7999, <https://www.thegazette.co.uk/London/issue/28927/data.pdf>.

92. *London Gazette*, Supplement, October 13, 1915, 29324, pp. 10095–10096, <https://www.thegazette.co.uk/London/issue/29324/data.pdf>.

93. *London Gazette*, December 18, 1917, 30435, pp. 13241–13242, <https://www.thegazette.co.uk/London/issue/30435/data.pdf>.

94. *London Gazette*, Second Supplement, August 5, 1914.

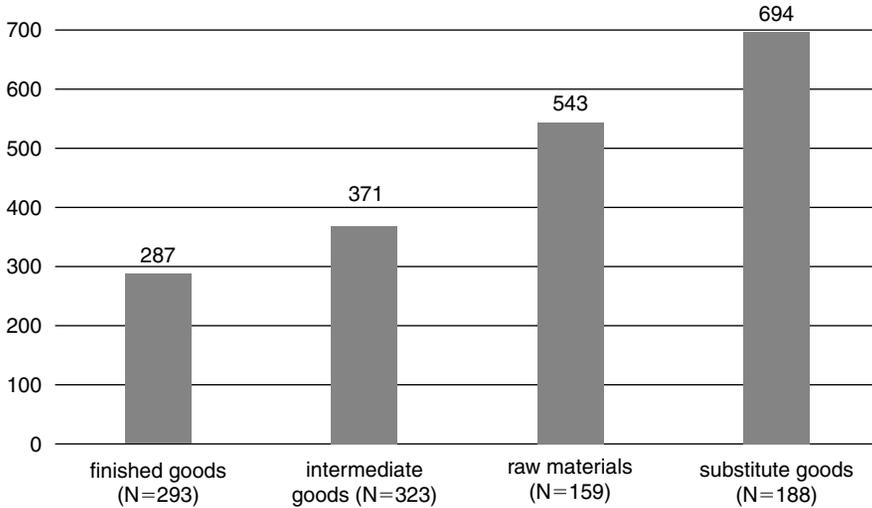
95. *London Gazette*, October 20, 1914, 28945, p. 8390, <https://www.thegazette.co.uk/London/issue/28945/data.pdf>.

96. *London Gazette*, Second Supplement, February 3, 1915.

97. *London Gazette*, Supplement, May 10, 1916, 29574, pp. 4633–4641, <https://www.thegazette.co.uk/London/issue/29574/data.pdf>.

98. All differences in means are statistically significant at the .01 level.

Figure 4. Average Number of Days before a Product in Each Category Was Prohibited from Export to the Enemy



about the length of war. Figure 5 shows the number of products that Britain prohibited from being exported to countries adjacent to the enemy at each month of the war through the end of 1917. While Britain was still changing its wartime commercial policy in 1918, prohibitions in that year prevented products from leaving the country and were not necessarily associated with trade with the enemy. The number of products prohibited specifically from trade with the enemy remained stable after 1917.

The shaded columns in figure 5 represent periods when British leaders expected a long war. The dashed line shows what a constant rate increase in product prohibitions would have looked like. Large increases in the number of prohibited goods tend to correlate with moments when British decisionmakers lengthened their expectations of the duration of the war. On the other hand, moments of stasis, when the prohibition lists were not expanded, tend to correlate with moments when the expected length of the war was fairly short. This pattern is summarized in table 1, which shows the average number of new prohibitions in each period of war-length expectation. Even though periods of long war expectation cover more months, the average number of products prohibited per month is greater than the average number prohibited when a short war was expected. The average number of prohibitions is rather high in the first period, despite expectations of a short war, because it includes the initial prohibitions made at the start of the conflict.

Figure 5. Total Number of Products Prohibited from Export to the Enemy over Time

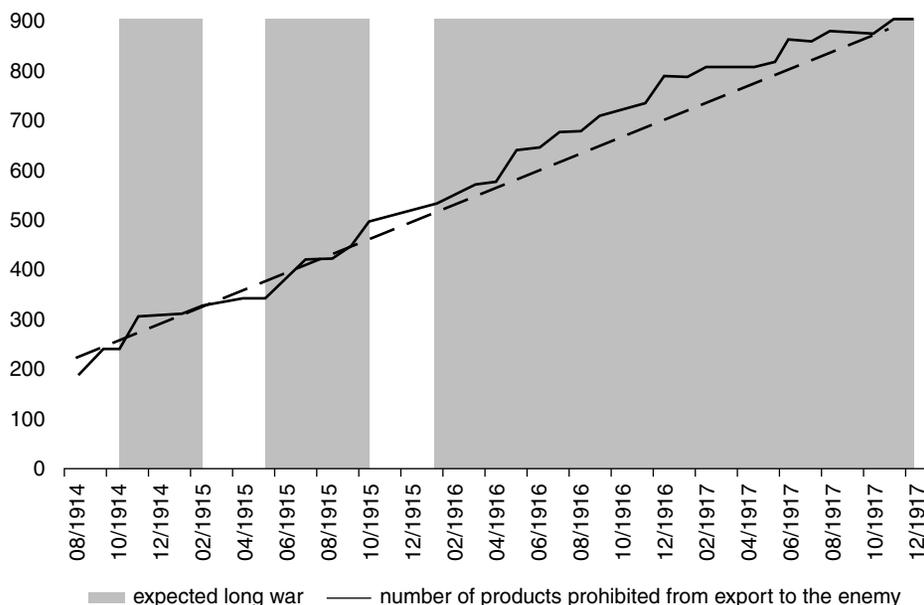


Table 1. Average Number of New British Prohibitions on Trade with the Enemy, per Period of War

8/14–10/14	11/14–2/15	3/15–5/15	6/15–10/15	11/15–1/16	2/16–12/17
short	long	short	long	short	long
27.0	20.8	6.3	30.0	12.0	16.8

By October 20, 1914, it was clear in London that neither side had managed to outflank the other in the Race to the Sea, and that the war of movement was over.<sup>99</sup> The British prime minister instituted an official war council, a step that was not deemed necessary to conduct the war earlier in the conflict. The expected end of the war was reassessed to be the end of 1915.<sup>100</sup> As the expected length of the war increased, so did the number of products that were prohibited from trade with the enemy. The prohibited products were mostly manufactured metals—iron, brass, and copper.

Failing to restart a war of movement, Britain turned its attention to other

99. Turner, *Britain and the First World War*, p. 5; Beckett, *Ypres*; and Black, *The Great War and the Making of the Modern World*, p. 46.

100. Warner, *World War One*, p. 39.

theaters, searching for a way to win the war without breaking the stalemate on the Western Front. On March 30, Prime Minister Herbert Asquith predicted that Allied success in the Dardanelles would bring the war to an end by June 1915.<sup>101</sup> While this expectation held, Britain's wartime commercial policy was not much changed. By the end of May, however, the Dardanelles campaign had failed; no breakthroughs appeared on the Western Front; the Germans had significant successes on the Eastern Front; and the so-called shell scandal—the shortage of artillery shells on the front lines—was in full rage in Britain. Asquith was forced to update his expectation of the length of the war to go past the end of 1915.<sup>102</sup> The Cabinet seemed a bit more pessimistic, making the assessment in mid-June that the Allies would be unable to mount a combined major offensive on all fronts until 1916, which meant that the war could not end until the end of 1916, maybe even 1917.<sup>103</sup> The pessimistic outlook was accompanied by a corresponding restriction in Britain's wartime commercial policy. Food and forage for animals as well as cotton manufactures featured among newly prohibited items.

At the end of 1915, the Allies started planning a major offensive, which the commander in chief of the French Armies, Joseph Joffre, had convinced them would win the war in 1916.<sup>104</sup> This time period is again marked largely by stasis in Britain's wartime commercial policy. The Germans seized the initiative, however, and attacked first at Verdun in February. By April 1916, the British government had to reevaluate their expectations of what became the Battle of the Somme from a war-winning campaign to a diversionary battle to relieve the pressure on the French at Verdun.<sup>105</sup> The realization compelled the British government to prohibit trade in tools and instruments for fixing telegraphs, metal-working machinery, and petroleum products not already prohibited.

In September 1916, there was some hope in Britain that the war of movement would be restarted with the introduction of the tank; however, the early models had numerous technological problems that prevented a large portion of them from even reaching the assault point.<sup>106</sup> In August, Romania joined the war effort against the Central Powers; by December 6, however, Bucharest had fallen, opening a new supply of grain to Germany. By the end of 1916, all strategies to turn the war toward a swift conclusion had failed. Through the follow-

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101. David French, *British Strategy and War Aims, 1914–1916* (London: Routledge, 2014), p. 87.

102. *Ibid.*, p. 78.

103. *Ibid.*, p. 105.

104. *Ibid.*, p. 112.

105. Warner, *World War One*, p. 95.

106. Black, *The Great War and the Making of the Modern World*, p. 155.

ing two years of warfare, Britain's commercial policy became increasingly restrictive, and no moments of optimism served to decrease the expected length of war.

In fact, it was not until October 5, 1918, when the Allied armies started to break through the Hindenburg Line, the German defensive position on the Western Front, that Britain entertained any thoughts of victory.<sup>107</sup> Of course, this was four days after it had finally severed all trade with the enemy.

#### THE ROLE OF DOMESTIC POLITICS

A possible alternative explanation for a state's wartime commercial policy focuses on domestic lobbying. According to this explanation, the decisions about which products were prohibited from trade and which were allowed would stem from the strength of the lobbying efforts of individual industries relying on trade in those products. When making decisions about which items were to be prohibited from indirect trade with Germany throughout the war, however, the British government was largely unaffected by domestic lobbying. Although such lobbying was strong, Britain's wartime commercial policy continued to be made for security and economic reasons, not because of pressure from domestic commercial interests. This is not to say that British business interests had no effect at all on policy. On occasion, when industry representatives could prove that a specific product description could be used to separate products that had military applications from those that did not, the prohibition lists were amended with the more targeted product descriptions.<sup>108</sup>

An illustrative example is the effort made by Britain's domestic firms to remove "lead, in all forms" from the list of items prohibited from export from the country. In a letter dated August 14, 1914, the director of Locke Lancaster, a prominent lead merchant, argued that the product description was too inclusive.<sup>109</sup> It prohibited, for instance, the export of tea lead linings for tea chests and white lead, neither of which has a military application, but both of which are necessary to sustain exports of certain industries. It was also advocated that pig lead, which was acknowledged as having military applications,

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107. Spencer C. Tucker, *The Great War, 1914–18* (Bloomington: Indiana University Press, 1998), p. 171.

108. John McDermott, "'A Needless Sacrifice': British Businessmen and Business As Usual in the First World War," *Albion: A Quarterly Journal Concerned with British Studies*, Vol. 21, No. 2 (1989), p. 270, doi.org/10.2307/4049929.

109. Letter from Director of Locke Lancaster to Assistant Secretary, Commercial Department, Board of Trade, August 14, 1914, HO 45/10728/254895, no. 49, BNA. See also follow-up conversation, "Re. Prohibition of the Export of Pig Lead, Sheet and Pipe," HO 45/10728/254895, no. 279, BNA.

should be prohibited from export to the enemy, not restricted from leaving the country altogether. This request was justified by the claim that both France and Russia had previously obtained their pig lead from Germany, and if Britain was not available to supply it, the allies would be forced to turn toward purchasing this necessary article from the enemy. In response, on August 20, 1914, the prohibition on “lead, in all forms” was replaced with “lead, pig, sheet, or pipe”; despite pressure from lead exporters, however, this item was still prohibited from leaving the country.<sup>110</sup>

The only clear case of success for domestic lobbying was a delegation representing 70 percent of London’s confectionary trade, which was able to convince the Board of Trade to remove “confections, all kinds” from the list of items prohibited from export. Trade in confections was prohibited from August 5 to August 20, 1914.<sup>111</sup> This product did not reappear on the list of prohibited items until March 12, 1917; it was removed again on May 11, 1917.<sup>112</sup> Such leniency was given to the group of conferences because its members were able to show convincingly that there was zero home demand for their products and that their exclusive clientele were British colonies.<sup>113</sup>

On the other hand, rather unsurprisingly, merchant requests to allow the export of ammunition, even to African countries, were denied by the government.<sup>114</sup>

## Conclusion

A state’s decision to prohibit or allow trade with the enemy in wartime is effectively a balancing act between military and economic considerations. On the one hand, the state seeks to avoid helping opponents increase their military capabilities. On the other hand, severing trade reduces that state’s revenue, which influences its long-term security. The goal of wartime commercial policy is to maximize a state’s revenue from trade while minimizing the negative military consequences of that trade. States navigate that trade-off with the help of two calculations. First, to determine whether continued trade will help the en-

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110. Pulling, *Manual of Emergency Legislation*, pp. 168–170.

111. *London Gazette*, Second Supplement, August 5; and *London Gazette*, August 21, 1914, 28876, pp. 6583–6584, <https://www.thegazette.co.uk/London/issue/28876/data.pdf>.

112. *London Gazette*, March 13, 1917, 29982, pp. 2510–2511, <https://www.thegazette.co.uk/London/issue/29982/data.pdf>.

113. “Papers Relating to the Proclamation of August 20<sup>th</sup> Concerning the Prohibition of Exportation of Certain Articles,” August 20, 1914, BT 11/7, BNA, p. 7397.

114. Letter from African Lakes Corporation Limited to Privy Council Office, November 18, 1914, PC 8/789, no. 114676, BNA.

enemy in the current war, the state compares the amount of time it takes the enemy to convert each traded product into some military capability with the expected length of the war. Second, to establish if trade can be safely severed in wartime, the state compares the revenue generated by each product to what it needs to invest to guarantee its long-term security. Trade that can be cut off based on revenue considerations and that also can help improve the adversary's military capabilities is likely to be prohibited in wartime.

This theory has important implications for contemporary international politics—specifically, the question of whether China can rise peacefully. Given the return of great power politics with the recent transition from unipolarity to multipolarity, the central question concerning policymakers and scholars alike is whether China's impressive economic growth will lead to military conflict with its neighbors, or, more importantly, war with the United States.

One of the most prominent arguments for optimism regarding China's rise is based on economic interdependence theory.<sup>115</sup> Given the extensive trade links between China and its neighbors as well as with the United States, all those states have a powerful incentive not to fight with each other, because war would put an end to trade between the combatants, thus undermining their prosperity at home. All else being equal, trade acts as a deterrent to war. Of course, this deterrent exists only if trade relations between wartime enemies are severed. Wartime trade between adversaries is not only possible, however; it is quite prevalent in the historical record, as states have good reasons to keep trading with their enemies even during war. But if specific circumstances cause states to trade during wartime, trade cannot deter such a military conflict.

Turning to the case of a rising China, there are three types of wars that it could fight: war with another nuclear-armed power; war with a close ally of the United States; or an asymmetric war, where it engages against a much weaker country without a strong patron. Only with regard to an asymmetric war is trade likely to act as a deterrent, although, even then, its impact on war initiation is questionable.

There are two main scenarios where China might become involved in a war with another nuclear-armed power: a conflict between China and the United

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115. Michael Mousseau, "The End of War: How a Robust Marketplace and Liberal Hegemony Are Leading to Perpetual World Peace," *International Security*, Vol. 44, No. 1 (Summer 2019), pp. 160–196, doi.org/10.1162/isec\_a\_00352; and Aaron L. Friedberg, "The Future of U.S.–China Relations: Is Conflict Inevitable?" *International Security*, Vol. 30, No. 2 (Fall 2005), pp. 7–45, doi.org/10.1162/016228805775124589.

States caused mainly by geopolitical competition,<sup>116</sup> and a war between China and India that grows out of their long-standing border dispute.<sup>117</sup> A war between two nuclear-armed states is likely to be short and limited. They cannot fight a conventional, total war such as World War I or World War II given the presence of nuclear weapons. After all, an attack that threatens the survival of a nuclear state is likely to trigger nuclear retaliation.<sup>118</sup> Thus, wars of conquest or unconditional surrender are not viable options. Even a limited war between two nuclear-armed powers is unlikely to last long, because of the risk of nuclear escalation. Both sides would face powerful incentives to negotiate a settlement to end the conflict. In limited wars of short duration, however, all belligerents are likely to permit considerable amounts of trade, mainly because the enemy would not have sufficient time to convert the gains from trade into military capabilities. Thus, there would be no benefit from severing trade. Given the expectation of continued trade in a war between two nuclear-armed powers, trade is unlikely to deter such a conflict in the first place. These dynamics were at play, albeit on a smaller scale, in the recent border skirmishes between China and India. Despite their extensive economic relations, China did not hesitate to engage in aggressive behavior toward India. Moreover, neither side seriously restricted trade during their conflict.<sup>119</sup>

The second type of war that a rising China might fight is with a close ally of the United States, such as Japan, Taiwan, or South Korea. If a war broke out between China and a close U.S. ally, it is highly likely that the United States would become directly involved in that conflict. The United States has a large

116. Graham Allison, *Destined for War: Can America and China Escape Thucydides's Trap?* (New York: Houghton Mifflin Harcourt, 2017); Adam P. Liff and G. John Ikenberry, "Racing toward Tragedy? China's Rise, Military Competition in the Asia Pacific, and the Security Dilemma," *International Security*, Vol. 39, No. 2 (Fall 2014), pp. 52–91, doi.org/10.1162/ISEC\_a\_00176; Thomas J. Christensen, "Fostering Stability or Creating a Monster? The Rise of China and U.S. Policy toward East Asia," *International Security*, Vol. 31, No. 1 (2006), pp. 81–126, doi.org/10.1162/isec.2006.31.1.81; and Mearsheimer, *The Tragedy of Great Power Politics*.

117. Sumit Ganguly and Manjeet S. Pardesi, "Why We Should Worry about China and India's Border Skirmishes," *Foreign Policy*, May 23, 2020, <https://foreignpolicy.com/2020/05/23/india-china-border-skirmishes/>; Ameya Pratap Singh, "Why Another Sino-Indian War Is Unlikely," *Diplomat*, June 1, 2020, <https://thediplomat.com/2020/06/why-another-sino-indian-war-is-unlikely/>; and Kevin Brown, "Who Would Be Favored in a China-India Conflict in the Himalayas?" *National Interest*, October 23, 2018, <https://nationalinterest.org/feature/who-would-be-favored-china-india-conflict-himalayas-34167>.

118. Robert Jervis, *The Meaning of the Nuclear Revolution: Statecraft and the Prospect of Armageddon* (Ithaca, N.Y.: Cornell University Press, 1989); and Caitlin Talmadge, "Would China Go Nuclear? Assessing the Risk of Chinese Nuclear Escalation in a Conventional War with the United States," *International Security*, Vol. 41, No. 4 (Spring 2017), pp. 50–92, doi.org/10.1162/ISEC\_a\_00274.

119. Banikinkar Pattanayak, "Border Clash Fails to Dampen India-China Trade," *Financial Express*, September 9, 2020, <https://www.financialexpress.com/economy/border-clash-fails-to-dampen-india-china-trade/2078240/>.

military presence in both Japan and South Korea and is committed to defending them if they are attacked by China.<sup>120</sup> U.S. policymakers also have made it clear that they would defend Taiwan if China attacked. In essence, the prospect of direct and immediate U.S. involvement in this second type of conflict makes its dynamics similar to a war between two nuclear-armed great powers. Given the dangers of nuclear escalation in such a war, it would likely be short and limited, which means that wartime trade would be allowed. Thus, trade is not likely to deter a war between China and a close U.S. ally.

China could also get involved in an asymmetric war where it fights a militarily inferior country that is not closely allied with the United States. Vietnam and Indonesia are possible examples. It is only in this type of war that trade would likely act as a deterrent to the start of a war; although its ultimate impact would be questionable. Specifically, from the weaker state's perspective, an asymmetric war against a much stronger opponent would likely be a protracted guerrilla war.<sup>121</sup> The weaker state would have strong incentives to sever trade to increase the costs of war imposed on its opponent. With no wartime trade between the belligerents, the conditions for economic interdependence theory hold. The prospect of losing trade with China could dissuade a weaker opponent from starting such a war. At the same time, however, there are many other reasons why the weaker state might be deterred from initiating such a conflict—for example, the superior capabilities of the opponent.

From China's perspective, an asymmetric war against a weaker opponent would likely be quick and easy. China would have little reason to sever trade during the war, but it would be aware that its opponent would have strong incentives to cut off trade with China. The prospect of losing trade with the weaker state could theoretically dissuade China from starting the war. But, given the trade asymmetries between China and its much weaker neighbors, it is unlikely that the costs of losing such trade would be particularly high. In short, it is only with the prospect of an asymmetric war that trade might serve as a deterrent to conflict, although its ability to actually accomplish this goal is suspect.

Overall, the expectation that significant economic ties will help prevent conflict between a rising China and its neighbors or the United States is misguided. Moreover, the greater the economic interdependence between China and any of its potential foes, the more likely it is that they will trade during a

120. Victor D. Cha, "Powerplay: Origins of the U.S. Alliance System in Asia," *International Security*, Vol. 34, No. 3 (Winter 2009/10), pp. 158–196, doi.org/10.1162/isec.2010.34.3.158.

121. Arreguín-Toft, "How the Weak Win Wars."

war, thus eliminating trade considerations as a deterrent to military conflict. When two economies are tightly integrated, certain inputs from each state are necessary to the value-added manufacturing supply chains of the other state. If a product is essential to a state's economy and only the enemy belligerent can provide it, the state is more likely to continue trade in that product even if this trade helps the enemy fight the war. Thus, closer integration of two economies does not deter conflict; indeed, that interdependence makes continued trade in the event of war more likely.

Finally, my theory has implications for the policy of decoupling, which has attracted much attention in part because of the fear that the United States is too dependent on raw materials from China. Some U.S. policymakers have recently advocated severing strategic trade with China to reduce the potential risks to the United States. They argue that relying on China for raw materials gives Beijing significant leverage over Washington, especially because China could sever this trade at a crucial moment in a war and put the United States at a significant disadvantage.<sup>122</sup> Such fears, however, are unfounded. Raw materials tend to have long conversion times, as they must be shipped from China to the United States, go through an entire production chain to be converted into something militarily useful, and shipped to the battlefield. Because raw materials tend to have lengthy conversion times and a potential U.S.-China war would likely be short, trade in raw materials is likely to continue during conflict. Neither side would want to bear the costs of severing trade when such a move would have hardly any military benefits.

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122. Jonathan D. Pollack and Jeffrey A. Bader, *Looking before We Leap: Weighing the Risks of US-China Disengagement* (Washington, D.C.: Brookings Institution Press, July 2019), [https://www.brookings.edu/wp-content/uploads/2019/07/FP\\_20190716\\_us\\_china\\_pollack\\_bader.pdf](https://www.brookings.edu/wp-content/uploads/2019/07/FP_20190716_us_china_pollack_bader.pdf).