THE EFFECTS OF WARS ON NEUTRAL COUNTRIES:

WHY IT DOESN'T PAY TO PRESERVE THE PEACE

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SINCE THE END of the cold war, Americans have struggled to understand the new threats and opportunities created by the changed international environment. The threat that captivated the United States for half a century—that a hostile great power would conquer most of the industrialized world—is now gone. Not only has the Soviet Union disappeared, but no new peer competitor is on the horizon.[1] Furthermore, while the nuclear revolution does not guarantee peace, it does guarantee that great powers can no longer be conquered.[2] What are the remaining international threats to the United States? If they are small, can the United States reduce its overseas commitments, cut its defense budget dramatically, and enjoy its enormous security and prosperity?[3]

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1. The lead that the United States enjoys over the next plausible peer competitor is great along many dimensions. See William C. Wohlforth "The Stability of a Unipolar World," *International Security* 24, no. 1 (summer 1999): 5–41.

2. Robert Jervis, *The Meaning of the Nuclear Revolution: Statecraft and the Prospect of Armageddon* (Ithaca: Cornell University Press, 1990), 5–6, 28.

3. For an estimate of the potential savings (c. $150 billion in 2001 dollars) if the United States adopted a militarily isolationist foreign policy, see Eugene Gholz, Daryl G. Press, and Harvey M. Sapolsky, "Come Home, America: The Strategy of Restraint in the Face of Temptation," *International Security* 21, no. 4 (spring 1997): 13–15, and n. 19. Other analysts suggest that savings would be lower, in the $70–100 billion range. See Barry R. Posen and Andrew L. Ross, "Competing Visions for U.S. Grand Strategy," *International Security* 21, no. 3 (winter 1996/97): 14–15, and Table 2.

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These questions have been posed many times in the past decade, and they have always been answered with a resounding "no."[4] One of the most powerful arguments against military restraint is that the world's growing economic interdependence makes military retrenchment too costly. U.S. prosperity is now more dependent than ever before on the global economy. While U.S. military power and overseas presence do not cause the world economy to flourish, the absence of U.S. forces might allow an increase in international tension and even wars, which many presume would disrupt the global economy and harm us all.[5]

The U.S. economy is more connected to the rest of the world than ever before, but is it true that overseas instability and war would likely cause the United States economic harm? If so, how do the plausible economic costs of increased overseas instability compare to the economic costs that the United States pays every year to

4. Opponents of U.S. military retrenchment span the political spectrum. For notable examples, see Stephen Van Evera, "Primed for Peace: Europe After the Cold War," *International Security* 15, no. 3 (winter 1990/91): 7–57; Robert J. Art, *Selective Engagement: An American Grand Strategy* (forthcoming); Art, "Geopolitics Updated: The Strategy of Selective Engagement," in *America's Strategic Choices*, revised ed., ed. Michael E. Brown et al. (Cambridge: MIT Press, 2000), 141–75; William Kristol and Robert Kagan, "Toward a Neo-Reaganite Foreign Policy," *Foreign Affairs* 75, no. 4 (July/August 1996): 18–32; Joshua Muravchik, *The Imperative of American Leadership: A Challenge to Neo-Isolationism* (Washington, D.C.: AEI, 1996); Charles A. Kupchan and Clifford A. Kupchan, "Concerts, Collective Security, and the Future of Europe," in Brown et al., *America's Strategic Choices*, 218–65, esp. 255. Several key national security policy documents generated by the U.S. government have reached the same conclusion. See, for example, United States Commission on National Security/21st Century (Hart-Rudman Commission), *Seeking a National Strategy: A Concert for Preserving Security and Promoting Freedom* (Washington, D.C.: U.S. Government Printing Office [GPO], 15 April 2000); National Defense Panel, *Transforming Defense: National Security in the 21st Century* (Washington, D.C.: U.S. GPO, December, 1997); and William S. Cohen, *Report of the Quadrennial Defense Review* (Washington, D.C.: U.S. GPO, May, 1997).

5. For this emphasis, see Art, "Geopolitics Updated," 157–59, 162; Joseph S. Nye Jr., "The Case for Deep Engagement," *Foreign Affairs* 74, no. 4 (July–August 1995): 90–103; Joseph S. Nye Jr., "Redefining the National Interest," *Foreign Affairs* 78, no. 4 (July–August 1999): 27–29. In U.S. defense policy documents, see Hart-Rudman Commission, *Seeking a National Strategy*, 6–7; National Defense Panel, *Transforming Defense*, 19–20. For views from the U.S. military services, see Michael Kilian, "Navy Uses Economy as Ammunition for Funds," *Chicago Tribune*, 6 May 1997, A1; General Charles C. Krulak, "Facing Westward to the Future," *Proceedings of the U.S. Naval Institute* 123, no. 3 (March 1997): 12, 17. For journalists' arguments, see Thomas L. Friedman, "Double Duty," *New York Times*, 22 December 2000, A33; George Melloan, "NATO Is Still a Good Bargain for American Taxpayers," *Wall Street Journal*, 27 June 2000, A31; Stephan-Gotz Richter, "Why We Got Sick from the Asian 'Flu'," *Washington Post Weekly Edition*, 17 November 1997, 21. Reports published by the major international financial institutions also presume that wars impose economic costs on neutrals. See, for example, International Monetary Fund [IMF], *The Economic Consequences of the Kosovo Crisis: An Updated Assessment* (Washington, D.C.: IMF, 25 May 1999). For a partial retraction (still written from the premise that wars should be expected to impose costs on neutrals, even if the IMF could not find large costs in the case of the Kosovo War), see IMF, *Economic Prospects for the Countries of Southeast Europe in the Aftermath of the Kosovo Crisis* (Washington, D.C.: IMF, 22 September 1999).

prevent instability?[6] On a broader, theoretical level, how do wars affect the economies of neutral states?

In this article, we make two major arguments. First, the costs that wars impose on neutral countries are usually greatly exaggerated; in fact many neutrals profit slightly from the economic changes caused by war.[7] Neutrals fare well during wars because the economy—especially in this era of increased globalization—is inherently flexible and resilient. Scholars and policymakers tend to overstate countries' reliance on particular trading partners, trade routes, and suppliers of natural resources, because they conflate *interdependence* with *vulnerability*. They implicitly neglect the fact that the costs of disruptions to peacetime economic behavior are greatly mitigated because states and other economic actors react to shocks by switching to the new best way of doing business, given the new international circumstances. The cost of any disruption, therefore, is not the loss of a valuable economic relationship but the *marginal* decrease in efficiency between the "old best" and the "new best" way of doing business.[8] In fact, neutrals can often find ways to profit from instability and war by selling to the belligerents, by expanding sales to markets formerly served by the belligerents, by lending money at lucrative rates, and by buying up overseas assets that belligerents liquidate to raise money for the war.

Second, we argue that the United States in particular pays many times more dollars to increase global economic stability than it would stand to lose if there were more conflicts. The U.S. economy is ideally suited to adjust to foreign economic disruptions. At the same time, the costs that the United States pays every year to reduce foreign instability are high. Putting these two facts together, even with *highly* pessimistic assumptions about the amount of fighting that would break out in the absence of U.S. overseas military presence and about U.S. economic vul-

6. In this paper we only look at economic costs and benefits. Overseas instability and wars impose other costs as well, including, for example, human costs and environmental costs. We justify our focus on the economic costs on the grounds that the arguments for continued U.S. military engagement after the cold war have largely been made on the basis of potential economic threats to the U.S. economy. Although many Americans—including the authors—favor a humanitarian element in U.S. foreign policy, no one that we know of advocates devoting hundreds of billions of dollars every year to preventing humanitarian abuses or the environmental effects of conflicts. Given America's great security, the need for costly overseas military engagement is defended by arguing that the United States faces economic costs if it withdraws. In this article, therefore, we address the argument for engagement on its own terms.

7. Throughout this article, costs are assessed in terms of reductions in national wealth—for example, if global interest rates rose as a result of a foreign war, the U.S. federal government and indebted private citizens would have to pay higher rates on new debt issues. Only the higher interest payments to foreign lenders would reduce U.S. national wealth. No attempt is made to consider redistribution of wealth within neutral economies that may occur during foreign wars.

8. For a clear enunciation of this point, see Robert O. Keohane and Joseph S. Nye Jr., *Power and Interdependence*, 2nd ed. (Boston: Scott, Foresman, 1989), 11–15.

nerability to wartime disruption, the cost of U.S. disengagement is very unlikely to approach the cost of America's current policy.[9]

These arguments have important implications for international relations theory beyond understanding the effects of wars on neutral economies. Seminal works in liberal international relations theory argue that the growing web of international economic relations constrains states' behavior and, specifically, raises the costs of conflict. According to this school of thought, the global economy involves numerous relationships of mutual *vulnerability*; military force is, therefore, becoming a less useful way for countries to settle disputes, because military action will trigger costly economic disruptions throughout the global economy.[10] Furthermore, as economic ties proliferate, one's political enemies are increasingly likely to be one's economic partners. Economic interdependence is argued, therefore, to be an increasingly important cause of peace.

While our central argument is about the effects of wars on neutrals, its logic suggests that economic interdependence does not significantly raise the costs of wars to the combatants either. First, our argument suggests that expansion of peacetime economic relations between two countries should not substantially raise the costs of a war between them, because economic relationships can adjust, at low cost, to wartime circumstances. In fact, as the economy becomes more global and more efficient, more alternatives arise that can inexpensively replace any of the combatants' disrupted economic relationships. The effects of wars, therefore, are not likely to reverberate around the world economy and impose extra costs on the belligerents. Second, the wartime trade and financial flows that are facilitated by globalization are likely to reduce the direct costs of fighting wars: belligerents can buy supplies from relatively efficient neutral producers at lower prices than they would have had to pay in a less-globalized economy.[11] Economic interdependence,

9. Our conclusion directly contradicts the position of a major, high profile study sponsored by the Carnegie Commission on Preventing Deadly Conflict. See Michael E. Brown and Richard N. Rosecrance, eds., *The Costs of Conflict: Prevention and Cure in the Global Arena* (Lanham, Md.: Rowman & Littlefield, 1999). That study, however, suffers from two major errors. First, they generally fail to account for neutrals' ability to adapt their economies to the wartime conditions. This point is detailed below in the theory section. Second, the majority of the costs that the Brown and Rosecrance study tries to estimate are not really the costs of conflict but instead are the costs of postconflict peace making and nation building. In other words, the study compares the costs of "preventive" intervention to the costs of postconflict intervention. The result is that the case studies in the volume tell us little about the effects of foreign wars on truly neutral countries—countries that choose to stay out of the conflict in all of its phases.

10. Keohane and Nye, *Power and Interdependence*, 29; Richard Rosecrance, *The Rise of the Trading State: Commerce and Conquest in the Modern World* (New York: Basic Books, 1986), 31, 41, 133, 145; Carl Kaysen, "Is War Obsolete? A Review Essay," in *The Cold War and After: Prospects for Peace*, ed. Sean M. Lynn-Jones (Cambridge: MIT Press, 1991), 92–93.

11. In this article we do not directly measure the costs of fighting to belligerents, but our evidence on the substantial trade and financial flows between belligerents and neu-

therefore, places weaker constraints on state actions than liberal international relations theory suggests.

The remainder of this paper is divided into four main sections. First we argue that the worst kind of overseas instability—war—has much smaller effects on the economies of neutrals than is commonly believed. Wars disrupt peacetime economic relationships, but economies adapt to the new circumstances, mitigating the potential costs of wars. On net, neutral countries may even profit from wars at the expense of the belligerents. Furthermore, there are good reasons to believe that all the economic effects of wars on neutrals, both the potential costs and benefits, are small.

Second, we offer empirical evidence to supports these claims. We examine in detail the economic experience of the United States during its neutral years of the First World War.[12] We also look briefly at the economic effects of the Iran-Iraq War to see whether our theory still applies given modern military technology, modern forms of trade and finance, and attacks specifically targeted at the globally vital oil trade.[13]

In the third section we estimate the costs of possible future overseas wars to the contemporary U.S. economy. We then compare these costs to the amount that the United States spends each year to prevent foreign conflicts. The final section recaps and expands the implications of the argument.

THE EXAGGERATED EFFECTS OF WARS ON NEUTRAL ECONOMIES

International trade, capital flows, and foreign direct investment increase global wealth. International trade allows countries to specialize in producing those goods and services at which they are most adept; they trade some of their output for the other goods and services they want, which are produced efficiently somewhere else. International capital flows allow money to find the most lucrative (risk-adjusted) investment anywhere in the world, increasing average returns. For-

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trals provides indirect support for the argument that globalization reduces the cost of fighting—by revealed preference, if in no other way. The direct evidence in this paper shows that the international economy is much more resilient in the face of wartime disruption than the liberal paradigm would suggest.

12. We have also studied the economic effects of the First World War on other neutrals—Sweden and Japan—as part of our overall research project. The evidence from those cases reinforces the evidence on the United States presented here. We hope to publish a book-length version of this article that will include these other cases in significant detail.

13. In a book-length study of the strategic adaptation theory, we will divide the Iran-Iraq War discussion into separate cases of the effects of the war on the United States (a neutral oil consumer) and on Venezuela (a neutral oil producer).

eign direct investment (FDI), in which companies own fixed assets (like factories) in foreign countries, is another mechanism by which those with capital can employ underused land or labor around the world to create goods and services more efficiently. The social and political consequences of globalization are hotly debated,[14] but there is a strong presumption that it increases economic efficiency and global wealth.

DISRUPTIONS AND COUNTERVAILING EFFECTS: DEVELOPING THE STRATEGIC ADAPTATION THEORY

Wars threaten to disrupt international economic exchange and, therefore, reduce global wealth. There are four primary transmission mechanisms by which wars disrupt the economy. First, wars may disrupt trade between the belligerents and their peacetime trade partners. Second, wars may disrupt trade among neutral countries. Third, wars may disrupt global capital flows by making investment in whole regions of the world too risky and by raising interest rates around the world. Finally, wars may disrupt FDI, because factories located in the belligerent countries may be destroyed in the war or nationalized by the home nation.

Each of these disruptions could occur, but each transmission mechanism suggests an adjustment that the neutral country's economy would make to mitigate costs and increase profits from the wartime economic environment. The disruptions and adjustments are described below. We call the overall framework for considering the economic effects of wars on neutrals—the theory that suggests that neutrals adapt their economies to wartime conditions—the strategic adaptation theory.

Neutral-belligerent trade. Wars threaten to disrupt profitable trade between neutrals and the belligerents. During war, belligerents temporarily do not want to buy or produce many of the things they imported and exported during peacetime.[15] For example, consumers in belligerent countries tend to reduce their purchases of luxury goods during wars, including imported luxury goods. Neutral exporters, therefore, may lose valuable customers. At the same time, belligerent countries may stop producing the export goods that they made during peacetime. The labor employed

14. For debates about some possible negative consequences of globalization, see Dani Rodrik, "Sense and Nonsense in the Globalization Debate," *Foreign Policy*, no. 107 (summer 1997): 19–36; Maurice Obstfeld, "The Global Capital Market: Benefactor or Menace?" *Journal of Economic Perspectives* 12, no. 4 (fall 1998): 9–30; Adrian Wood, "How Trade Hurt Unskilled Workers," *Journal of Economic Perspectives* 9, no. 3 (summer 1995): 57–80. For a popular (not analytically rigorous) critique of globalization, see William Greider, *One World, Ready or Not: The Manic Logic of Global Capitalism* (New York: Touchstone Books, 1997).

15. Edward D. Mansfield, *Power, Trade, and War* (Princeton: Princeton University Press, 1994), 28, 164.

in these sectors may be needed to man army divisions at the front, or the factories themselves may switch—sometimes involuntarily—to produce goods for the war effort. The result is that neutrals that previously imported goods from the belligerents will now be worse off, because they must forego these goods or acquire them from a less efficient producer.

Although wars are likely to disrupt prewar neutral-belligerent trade patterns, they also create lucrative new neutral-belligerent trade opportunities. During wars, the belligerents' consumption surges, and they cannot efficiently produce everything they need. Autarky is always an expensive option, and countries at war can least afford to ignore more efficient international sources of supply. International markets are also likely to provide belligerents with faster access to supplies than the creation of domestic war-related industries would: the munitions industry may already be established overseas, and geographic diversification of supply may prevent production bottlenecks. Furthermore, there may even be strategic advantages to importing war matériel, because factories in faraway neutrals may be more reliable suppliers than vulnerable factories at home. Finally, belligerents may even increase imports of essential consumer goods (for example, foodstuffs) if their domestic producers of these goods have been diverted to the defense sector.[16] The food, steel, textiles, munitions, and other goods that neutrals manufacture will rise in value as demand increases; the higher price that the combatants are willing to pay is a direct transfer of wealth to the neutrals.[17]

16. Alan Milward writes about the Second World War: "The growing demand [for food] resulted from the higher level of employment, longer hours of work, higher earnings, the fact that numerous members of the armed forces were usually better fed than they had been as civilians, and, in some cases, the severe restrictions on availability of most other forms of consumption. These effects were not restricted to combatants; in neutral countries and in countries which were only nominally combatant, higher incomes arising from increased world demand for goods had the same effect of increasing the demand for food." Alan Milward, *War, Economy , and Society, 1939–1945* (Berkeley: University of California Press, 1977), 247. Agricultural trade during the First World War followed a similar pattern. See Paul M. Kennedy, *The Rise and Fall of the Great Powers: Economic Change and Military Conflict from 1500 to 2000* (New York: Vintage Books, 1987), 280.

17. Many people wonder whether neutrals might be drawn into conflicts by trading with combatants. Neutral-belligerent trade is one widely believed transmission mechanism of the "magnet theory," whereby neutral great powers are drawn into great power wars. If neutral-belligerent trade really were to require neutrals to pay the costs of fighting a war, then it would certainly be a bad financial proposition. Neutrals, however, can trade with belligerents without being dragged into the fighting. A full specification and testing of the magnet effect would require another article; for now, we can briefly consider the specific transmission mechanism of neutral-belligerent trade. The magnet theory argues that neutral-belligerent trade raises the prospect of attacks on the high seas against neutral-owned cargo ships, and neutrals may then face pressure to retaliate and join the war. Neutrals, however, can avoid this problem by insisting that goods exchanged with the belligerents be carried on cargo ships operated and owned by the belligerents and manned by the belligerents' sailors. Neutrals can force belligerents to absorb the costs and risks of moving goods into a war zone, because the trade is so important to the belligerents. For example, Iran paid the insurance for oil tankers that picked up oil at the

On the other hand, neutrals do face obvious downsides to international instability. First, profits from wartime trade will only begin to arrive after a period of adjustment costs.[18] Goods previously manufactured for export in neutral countries may no longer be desired by the originally intended customer, if that customer is now involved in a war. Some fraction of the value of those goods will be lost—they will spoil, or they will be sold to another customer at a reduced price.[19] Similarly, after the period of more profitable wartime exports, there will probably be a second adjustment when demand returns to its peacetime pattern. The net effect of war on neutral-belligerent trade is the benefit of profitable wartime trade minus the cost incurred during the adjustments. During short wars, the profitable period will mitigate the costs of adjustment, but the net effect on neutral economies may be negative. If, however, the belligerents are wealthy and the war lasts for more than a few months, neutrals can do very well.

The second downside for some neutrals is that not every neutral country will capitalize on the wartime export opportunities. Those neutrals whose economies make them best equipped to adjust quickly at the least cost will prosper most during wars. Countries with large, diverse economies, whose factor endowments suit them to produce war-related goods—and especially countries that produced those goods prior to the war—will face the smallest adjustment costs. For example, of all the countries that export textiles, the ones that can cheaply and quickly ramp up production of uniforms will be the most likely to sell to the belligerents. In general, of all the countries with factor endowments suited to producing war-related goods,[20] those countries that can expand production at lower cost than their competitors will profit.[21]

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often-bombed Al Kharg oil terminal during the Iran-Iraq War and even paid the ship owners a bonus for Kharg Island movements. Iran had no difficulty finding tanker captains who would take this lucrative gamble. Other aspects of the magnet effect argument will be considered below in the case study on the U.S. neutrality during the early years of the First World War.

18. Richard D. Farmer, "Costs of Economic Sanctions to the Sender," *World Economy* 23, no. 1 (January 2000): 99.

19. If the other customer had been willing to pay a higher price, it would have been the preferred customer before the war.

20. Factor endowments are usually divided into the broad categories of land, labor, and capital. These three elements are combined in different proportions to create all products. According to comparative advantage trade theory, described below, countries will tend to produce those products that intensively use the particular factor endowments that country has in relative abundance. Consequently, neutral countries whose factor endowments lead them to produce transport-intensive, price-elastic, or luxury goods should, according to this part of the strategic adaptation theory, suffer the most during war.

21. This analysis of the effects of wars on international trade presumes that trade is caused by comparative advantage—a Heckscher-Ohlin approach. The application of this approach to the modern world economy has been strongly criticized, because countries with similar factor endowments are often observed to trade with each other, even though

The outbreak of conflict is likely to cause disruptions in neutral-belligerent trade. Neutrals will then adjust to provide the new basket of goods and services that belligerents need during war.[22] After the adjustment period, there is opportunity for renewed profitable exchange between belligerents and neutrals.[23]

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the logic of comparative advantage suggests that they should primarily be competitors for trade opportunities in the markets of dissimilar countries. That is, the fact that a substantial portion of trade actually takes place among the relatively similar developed economies (North-North trade) and involves the exchange of similar goods (intra-industry trade) has led some analysts to question whether the Heckscher-Ohlin model is valid. Davis and Weinstein report that "it now borders on the disreputable to believe that endowments matter much at all for intra-OECD trade." Donald R. Davis and David E. Weinstein, "Empirical Tests of the Factor Abundance Theory: What Do They Tell Us?" *Eastern Economic Journal* 22, no. 4 (fall 1996): 434. The alternative explanation offered by the critics is that trade between similar economies tends to be based on differentiated products, economies of scale, and imperfect competition rather than on the familiar logic of comparative advantage outlined in the text. For a theoretical treatment, see Paul Krugman, *Rethinking International Trade* (Cambridge: MIT Press, 1991), chap. 5.

It is quite likely that intra-industry trade in some small number of high technology products does occur as a result of economies of scale (for example, trade in aircraft, advanced telecommunications equipment, etc.), but Davis argues that the empirical correlation between scale economies and intra-industry trade is quite low. See Donald R. Davis, "Intra-Industry Trade: A Heckscher-Ohlin-Ricardo Approach," *Journal of International Economics* 39, nos. 3-4 (November 1995): 202. According to Davis, most intra-industry trade stems from differences in production technologies—an explanation that is consistent with the Heckscher-Ohlin logic (see Davis, "Critical Evidence on Comparative Advantage?: North-North Trade in a Multilateral World," *Journal of Political Economy* 105, no. 5 [October 1997]: 1051-60). Moreover, the most careful empirical testing methodologies directly support the Heckscher-Ohlin approach. See, for example, Daniel Trefler, "International Factor Price Differences: Leontief Was Right!" *Journal of Political Economy* 101, no. 6 (December 1993): 961-87; Trefler, "The Case of the Missing Trade and Other Mysteries," *American Economic Review* 85, no. 5 (December 1995): 1029-46; Edward E. Leamer, *The Heckscher-Ohlin Model in Theory and Practice* (Princeton: Princeton University Press, 1995). Finally, the basic logic of the economies of scale explanation for intra-industry trade has always been intended as a supplement to rather than a replacement for the theory of comparative advantage, so the discussion in the text actually is consistent with the modern theory of international trade. Elhanan Helpman and Paul Krugman, *Market Structure and Foreign Trade* (Cambridge: MIT Press, 1985), chap. 7. In the context of a great power war-induced disruption to the international economy, any negative effects on neutral great powers from reduced intra-industry trade with belligerent great powers are likely to be compensated by an increase in comparative advantage-based trade with other (developing country) neutrals.

22. During the Boer War, for example, French export of luxury goods to the United Kingdom (cognac, gloves, etc.) diminished, but the export of military horses (Percherons) increased. François Crouzet, "The Core and the Periphery of the Core: Franco-British Trade in the *Belle Époque*," in François Crouzet, *Britain Ascendant: Comparative Studies in Franco-British Economic History*, trans. Martin Thom (Cambridge: Cambridge University Press, 1990), 447.

23. It is precisely the failure to account for this adjustment that leads some authors to overstate the costs of war for neutrals. Brown and Rosecrance only mention in passing that "lost export markets … in some but not all cases can be replaced in the long run…," and they do not mention any other economic adjustment. Michael E. Brown and Richard N. Rosecrance, "Comparing Costs of Prevention and Costs of Conflict: Toward a New Methodology," in *The Costs of Conflict: Prevention and Cure in the Global Arena*, ed. Michael E. Brown and Richard N. Rosecrance (Lanham, Md.: Rowman & Littlefield, 1999),

Neutral-neutral trade. Not only might wars disrupt trade with the belligerents, they might also affect trade among neutrals. If wars occur near important shipping lanes, trade may be caught in the crossfire. Furthermore, cargo ships heading toward neutrals located near the belligerents may be difficult to distinguish from those heading to the belligerents, leading to attacks that disrupt neutral-neutral trade. Just the risk of these incidents will increase shipping insurance rates, and if merchant ships are destroyed faster in the conflict than they can be built, all shipping prices will rise. Higher transport costs may squeeze out profitable trade in some transport-intensive or price-elastic products.[24] Neutrals would then lose some wealth due to wars' disruption of efficient, prewar patterns of neutral-neutral trade.

The magnitude of this transport cost effect on neutral-neutral trade is unlikely to be very large. Analysts who emphasize the vulnerability of trade through so called choke points implicitly assume that profitable peacetime trade will be lost entirely if the choke point is closed. Instead, disruptions in trade routes will cost only the marginal decrease in efficiency of shifting from the peacetime trade routes to alternate wartime routes. The Straits of Malacca present a good example. Many analysts write about the importance of these Straits because most oil heading from the Persian Gulf to East Asia is shipped through these narrow waters.[25] The assumption is that disruption in the Straits could choke the oil supply to one of the world's most important economic regions; however cheap alternative routes exist. If the Straits of Malacca were closed, tankers could use the Straits of Lombok and Makassar, thereby adding only about 0.5 percent onto oil prices in East Asia.[26] Because of adaptation, the total effect of increased transport costs on neutrals' wealth will be negative but small.[27]

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19. The case studies in *The Costs of Conflict*, following the Brown and Rosecrance methodology, naturally make the same mistake, leading to a substantial overestimation of the costs to neutrals. See, for example, Andrea Kathryn Talentino, "Bosnia," in Brown and Rosecrance, *Costs of Conflict*, 45–46.

24. Price-elastic goods are those for which demand changes substantially in response to a small change in price.

25. Several prominent academic analysts, uncountable U.S. Government documents, and many journalists make this argument. See, for example, Richard Betts, "Wealth, Power, and Instability: East Asia and the United States after the Cold War," *International Security* 18, no. 3 (winter 1993): 41; William S. Cohen, *The United States Security Strategy for the East Asia-Pacific Region 1998* (Washington: GPO, 1998), 38, 56; Gregg K. Kakesako, "Cold War to Hot Water," *Honolulu Star-Bulletin*, 13 October 1997, 1.

26. John H. Noer and David Gregory, *Chokepoints: Maritime Economic Concerns in Southeast Asia* (Washington, D.C.: National Defense University Press, 1996), 81. These price changes are so small because shipping costs only constitute a small percentage of total oil prices (approximately 10 percent), so even a 5 percent increase in shipping costs would only increase total costs by about a half-percent.

27. The most significant actual choke point in the world is probably the Strait of Hormuz. There is no alternative shipping route to get oil from terminals located on the Persian Gulf out to the rest of the world. Pipelines across land do not offer the ability to

While higher transport costs should reduce the volume and efficiency of neutral-neutral trade somewhat, wars have a second major effect that should expand neutral-neutral trade. Neutrals will buy from each other some of the products that they used to import from the belligerents. Demand for belligerents' peacetime exports still exists, even if belligerents are no longer producing as many export goods to satisfy that demand; hence new opportunities will arise for the neutral suppliers that had been the second-best producers of belligerents' export goods in the prewar period.[28] The neutrals that had previously imported from the belligerents will pay a cost for switching to the second-best suppliers, but that cost will be smaller than the cost of total denial of access to the goods previously supplied by the belligerents.[29] On the other hand, the neutrals that can most efficiently expand their supply of the belligerents' prewar export goods stand to profit from the wartime disruption, after they pay an adjustment cost to retool production and develop new customer relationships.[30]

On balance, wars are likely to increase the volume of neutral-neutral trade, accounting for both transport costs and adjustment opportunities. Although the average neutral will not profit from the expanded neutral-neutral trade, because even the profitable part is a replacement of a first-best supplier by a second-best one, the opportunity for neutral-neutral trade adjustment substantially reduces the total economic costs of wars.

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circumvent a blockade of the Strait, because pipelines tend to operate near capacity during peacetime. Adjustment to blockages in shipping through the Strait of Hormuz would be difficult, but that scenario is unlikely for reasons described below. See Michael C. Lynch, "The Wolf at the Door or Crying Wolf? Fears about the Next Oil Crisis" (paper presented at the Council on Foreign Relations, New York, October 1997).

28. The wartime price for these neutrals' exports will be higher than the prewar price of belligerents' exports for two reasons: the neutrals' higher production cost will be included in the price, and fewer competitors will produce the goods. That price increase constitutes a transfer of wealth from neutral importers to neutral exporters, but it still reduces aggregate neutral wealth because it is a less efficient pattern of trade than the prewar pattern with belligerent export suppliers. A similar effect occurs in markets in which belligerent imports previously accounted for a significant fraction of total demand. When belligerent demand for non-war goods drops, prices in those markets will drop—a transfer of wealth from neutral exporters, who lose revenue, to neutral importers, who benefit from the lower prices.

29. In most cases we expect prewar suppliers to have been the most efficient ones; the cost of alternative wartime sources will then necessarily be higher. In some cases, however, prewar suppliers are not the most efficient because of artificial restraints on free trade. For example, if the neutrals were captive to a preferential trade arrangement previously enforced (but now unenforceable) by one or more of the belligerents, the new, wartime pattern of trade might cause a net gain in global wealth. Members of the British Commonwealth benefited from this effect during the First World War, as will be shown below.

30. As with neutral-belligerent trade, neutral suppliers will also pay a second adjustment cost after the war, when first-best belligerent suppliers return to their peacetime pattern of trade.

In sum, neutral-neutral trade is an important transmission mechanism for the adaptation of world markets to wartime conditions, mitigating the total economic costs of wars. All neutrals will pay an adjustment cost at the beginning of a major war as their economies adapt to the new worldwide preferences (that is, the belligerents' newfound demand for war matériel). All neutrals will also lose a small amount of wealth due to the marginal increase in wartime transport costs. After the adjustment, however, neutral second-best suppliers of the belligerents' exports—the neutrals whose factor endowments are the most similar to the belligerents' and whose economies are the most flexible—will profit from neutral-neutral trade possibilities, while neutrals whose endowments are very different from the belligerents are likely to pay further costs. The expansion of neutral-neutral trade will substantially mitigate the effect of interruptions to the normal pattern of neutral-belligerent trade.

International financial flows. Disruptions to international capital flows are a third mechanism by which wars may affect the economies of neutrals. During wars belligerents value current consumption much more than future consumption. They need weapons, munitions, and raw materials for the war effort, and they need them immediately. As a result, belligerents save less and borrow more during a war. This increase in demand for money causes interest rates to rise around the world, increasing the cost to any neutral that wishes to borrow.[31]

Interest rates rise in war for two separate reasons. First, during wars the total demand for money increases, and belligerents will take on loans even if the interest rate is high. Second, belligerents pay an additional risk premium—separate from the higher prices resulting from increased demand—to compensate lenders for the greater than normal chance that the loan will not be repaid. Because belligerents do not use the money that they borrow for productive investments, and because their production capacity may be badly damaged by war, belligerents present a higher than normal probability of default. Lenders make borrowers pay for this higher risk by charging a higher interest rate.

For three reasons, the prospect of higher wartime interest rates should not worry neutrals. First, real interest rates (adjusted for inflation) are not likely to increase much. There is a limit on how much the belligerent countries can borrow—each one has a national credit limit, in a sense—which puts a cap on the extent to which demand for money will increase. The total supply of global capital is so large that even a big war involving great powers may not increase demand enough, relative to supply, to cause interest rates to surge. Even the biggest wars in

31. Daniel K. Benjamin and Levis A. Kochin, "War, Prices, and Interest Rates: A Martial Solution to Gibson's Paradox," in *A Retrospective on the Classical Gold Standard, 1821–1931*, ed. Michael D. Bordo and Anna J. Schwartz (Chicago: University of Chicago Press, 1984), 593.

history—wars that have substantially raised interest rates in the belligerent economies—have not triggered huge increases in average worldwide interest rates.[32]

Second, small increases that do occur in global interest rates will be unequally distributed around the world. Belligerents will bear the brunt of the increase, paying the higher rates plus a risk premium. Neutrals, particularly those with large stable economies far from the battlefield, will be safe havens for investors seeking to minimize risk.[33] Interest rates in safe havens may remain steady or even drop if the war involves belligerents who used to offer stable destinations for investment. In other words, if there is a reduction in supply of safe locations for investment (because the formerly safe belligerents become high-risk destinations for capital), wars may place downward pressure on interest rates in stable neutral economies.

Finally, neutrals with significant liquidity will benefit from the higher rates. As interest rates rise, those who have money to lend can profit, while those who need to borrow pay the cost. For example, a neutral net creditor with loans coming due during the war can re-lend, at the higher wartime rate, the money that it receives from the earlier borrowers' payments. On the other hand, neutral net debtors are more vulnerable during wars. Any portion of their debt that comes due during the war and must be rolled over will be reissued at higher wartime rates. If the creditors are foreign,[34] these higher rates will impose a real cost on the neutral's economy.[35]

In sum, global interest rates do not rise much as a result of wars, and the small increases may be compensated by a safe-haven effect. Moreover, neutrals with money to invest can invest it at higher rates. Only those with significant liquidity problems will pay the costs of wartime rate hikes.

32. Interest rates have tended to increase measurably during wars, but other, longer-term trends in interest rates dominate the discussion in the leading comprehensive source on the history of interest rates. It does not read like a series of war-related episodes. See Sidney Homer and Richard Sylla, *A History of Interest Rates*, 3rd ed. (New Brunswick: Rutgers University Press, 1991). For the point about the link between wars and interest rate hikes—and the rare exceptions to that pattern—see p. 336.

33. Jeffrey A. Frankel, "Still the *Lingua Franca*: The Exaggerated Death of the Dollar," *Foreign Affairs* 74, no. 4 (July–August 1995): 9–16. For examples of war-induced capital flight from Austria in 1859 (Austro-Sardinian War) and from Italy in 1866 (Seven Weeks War) to surrounding nonbelligerents, see Marcello de Cecco, "European Monetary Union and Financial Cooperation Before the First World War," *Rivista di Storia Economica* 9, nos. 1-2 (June 1992): 59, 65. Note also the flight of capital from East Asia to the safe haven of the United States during the 1997-98 East Asian financial crisis.

34. Debts to domestic lenders are not costs to neutral countries—they merely result in a transfer within the neutral country from debtors to creditors. As we explained earlier, we focus here on the effects on national wealth and not on redistribution within neutral economies.

35. Hans Binnendijk specifically considers the potential cost of an East Asian war to the U.S. economy given U.S. dependence on imports of Japanese capital to finance its trade and budget deficits. See Hans Binnendijk, "U.S. Strategic Objectives in East Asia," *National Defense University Strategic Forum*, no. 68 (March 1996): 2–3.

Foreign direct investment. Wars may affect the economic fortunes of neutral countries through a fourth mechanism: reducing the value of the foreign direct investments of neutral countries.[36] Any neutral that owns factories or other facilities in a belligerent country risks their nationalization or destruction during the war.[37] One of the key changes in the modern trend toward globalization of the economy is that the total amount of FDI is increasing dramatically.[38]

The effect of wars on FDI is, in broad terms, the same as it is for the other transmission mechanisms: wars create new risks but also new opportunities. Neutrals can adjust to the temporary disruptions of wars in ways that greatly mitigate the costs. First, some of the risks that wars seem to pose for FDI are probably overstated. For example, combatants are unlikely to nationalize the investments in their countries that are owned by neutrals. Nationalization is often unnecessary, because factory owners can be persuaded to shift production to war-related goods. Adapting production to wartime demand is likely to be highly profitable—and therefore it is good business even without the threat of nationalization. Furthermore, belligerents cannot afford to steal from neutrals: they want the neutrals to provide them with desperately needed imports during the war, and they will undoubtedly need new investment to rebuild after the war. Nevertheless, some FDI may be lost: some factories may be nationalized despite the rational incentives, and other factories may be destroyed by the fighting.

Any losses, however, will be offset by wartime opportunities to scoop up cheap investments in other neutral countries or at home. As discussed earlier, combatants need to raise money during war to pay for the war effort. One way that they raise this money is by borrowing, but another way is by selling investments abroad. As combatants liquidate their overseas assets, neutrals can buy these investments at fire-sale prices.

Not all neutrals will be able to buy up these underpriced assets. The key in this transmission mechanism, as in the discussion of interest rates, is liquidity: those neutrals that have money to invest can take advantage of the belligerents' desperation.

36. Foreign direct investments "consist of the purchase by residents of one country of a sufficient level (10 percent or more) of the publicly traded shares…of an enterprise in another country, or the establishment by a firm of a new enterprise in a foreign country." Joseph M. Grieco, "The International Political Economy Since World War II" (unpub. ms., October 2000). FDI is often argued to tie the fortunes of nations together more than portfolio investments, because FDI is less liquid.

37. Brown and Rosecrance, "Comparing Costs," 18.

38. Thomas L. Friedman, *The Lexus and the Olive Tree*, exp. paperback ed. (New York: Anchor Books, 2000), 112–39; Robert C. Feenstra, "Integration of Trade and Disintegration of Production in the Global Economy," *Journal of Economic Perspectives* 12, no. 4 (fall 1998): 31–50.

DISAGGREGATING THE NEUTRALS: WHO WINS AND WHO LOSES?

Analysis of each of these transmission mechanisms suggests that the negative effects of wars on neutral economies can easily be exaggerated. Wars change economic activity—trade relationships, capital flows, and patterns of foreign direct investment—but in each of these cases neutral economies can adjust to the new circumstances, minimize their losses, and in some cases increase their wealth.

Although neutrals as a group are not very vulnerable to the effects of wars, some neutrals will fare better than others. Two primary characteristics distinguish the prospective winners from the likely losers: adaptability to the wartime economic conditions and financial liquidity. On the first count, neutrals with large, diverse, flexible economies will tend to do well, especially in the case of a great power war.[39] This bodes well for great power neutrals, which tend to have large, diverse economies. On the second count, major creditors and countries running large trade surpluses will be well positioned.

Great power neutrals have four advantages that help them adjust to wartime economic conditions and therefore make them more likely to win rather than lose economically during wars.[40] First, adjustment costs are a smaller percentage of GDP for larger economies, which makes the liquidity necessary to finance the adjustment easier to find.[41] Second, larger economies tend to encompass a more diversified production profile, so even war-related goods that were not previously produced at all are more likely to be similar to something for which the neutral has skills and tooling available. That similarity should improve the efficiency of shifting specific assets to their new, wartime uses.[42] Third, because all great powers tend to have similar production profiles, with comparative advantage in capital- and skilled-labor-intensive products, the neutral great powers are best situated to break into markets previously supplied by the belligerents. Finally, many great power neutrals are also the countries that are most likely to offer attractive safe havens for risk-averse capi-

39. Great power wars are the ones most likely to matter to neutrals, because minor power wars tend not to involve enough spending relative to the size of the world economy—or even relative to the sizes of the economies of key trading partners—to substantially affect prices and production profiles.

40. For a comparison between great powers' and developing countries' abilities to adjust to economic shocks, see Stephen D. Krasner, *Structural Conflict: The Third World against Global Liberalism* (Berkeley: University of California Press, 1985), 5, 28, 39–40, 51.

41. Drusilla K. Brown, Alan V. Deardorff, and Robert M. Stern, "Computational Analysis of the Accession of Chile to the NAFTA and Western Hemisphere Integration," *World Economy* 23, no. 2 (February 2000): 156.

42. For a discussion of the consequences of asset specificity and adjustment costs, see James E. Alt and Michael Gilligan, "The Political Economy of Trading States: Collective Action Problems and Domestic Political Institutions," *Journal of Political Philosophy* 2, no. 2 (June 1994): 165–92; Michael J. Gilligan, "Lobbying as a Private Good with Intra-Industry Trade," *International Studies Quarterly* 41, no. 3 (September 1997): 460, 462–64.

tal during wars, because great powers tend to have well-established currencies and reputations for relatively solid financial performance.[43]

The second criterion that identifies those neutrals that are most likely to do well despite overseas wars relates to their liquidity. Neutrals that generate liquidity during wars will do relatively well; neutrals that demand liquidity, on the other hand, will pay a price if global interest rates rise.[44]

Two key factors determine whether a neutral generates liquidity or consumes it during wars: (1) debt status;[45] and (2) the trade balance.[46] First, net creditors will obtain liquidity during wartime to the extent that their loans come due during that period. They can then use that liquidity profitably by offering new loans at higher wartime rates. Large creditors will profit more than small creditors because, all else equal, they will receive larger payments from their outstanding loans during the war. Debtors, on the other hand, will pay a premium to borrow at the wartime rates if they need to roll over their loans or borrow additional capital during the conflict. Along these lines, larger debtors will suffer more than smaller debtors.

Second, the trade balance contributes to a country's liquidity. Neutrals that run trade surpluses during wars will generate liquidity, while those with trade deficits will demand it. If a country runs a trade surplus, then its customers must pay for their excess imports using currency. Those payments provide liquidity to the surplus country and consume liquidity from the deficit country. Surplus countries can then invest the liquid currency at high wartime interest rates or use it to purchase discounted assets from the belligerents. Neutrals with wartime trade deficits, on the other hand, need to find a way to pay the suppliers of its imports, which may involve borrowing currency (or gold during the gold standard era) at the high wartime rates.

43. This argument presumes that investors know that the neutral great power is unlikely to be drawn into the war. See below for a brief, critical assessment of the "magnet effect" argument concerning great power wars.

44. For a similar argument about the key role of liquidity in companies' ability to adapt to economic shocks, see Robert G. Atkins and Adrian J. Slywotzky, "You Can Profit from a Recession," *Wall Street Journal*, 5 February 2001, A22.

45. By debt status we mean whether a country is a net creditor or a net debtor and in either case the magnitude of its outstanding credit/debt. Great Britain before the First World War is the archetypal example of a country that benefited from favorable debt status: it maintained its external balance using profits earned on money that it had lent and invested overseas in earlier periods. See Aaron Friedberg, *The Weary Titan: Britain and the Experience of Relative Decline 1895–1905* (Princeton: Princeton University Press, 1988).

46. The link between the current account balance and the flow of finance capital is discussed in Jeffry Frieden, "Capital Politics: Creditors and the International Political Economy," *Journal of Public Policy* 8, nos. 3/4 (July–December 1988): 265–86. In recent times, China has parlayed a long-running trade surplus into a substantial net creditor position. Craig S. Smith, "China, of All Places, Sends Capital to U.S.," *Wall Street Journal*, 30 March 1998, A1.

Regardless of the source of its liquidity, a neutral with cash on hand is likely to benefit from wartime conditions, while a neutral that owes money that must be paid out during the war is likely to suffer. Likewise, a neutral with a large, diversified economy with specific assets invested in the manufacture of goods for which there is substantial wartime demand is likely to benefit from wartime conditions, while a neutral that is dependent on the production of a particular good or service that may not be needed for the duration of the war is likely to suffer.

The neutral best-equipped to profit from an overseas war should be a great power with a large, diversified economy, with factor endowments similar to the belligerents', and with a substantial trade surplus and net creditor status. The neutral most likely to suffer during a war is one with a small economy that is dependent on the production of a particular good, with factor endowments unlike the belligerents', and with large outstanding debts and a big trade deficit.

WHY NEUTRALS ON AVERAGE BENEFIT FROM WARS

As described above, wars cause trade patterns to shift; the net effect of these shifts on neutrals' wealth depends on a comparison of countervailing effects. At the start of a war, prices for neutrals' war-related exports rise, and belligerents buy an increased quantity of those exports relative to their peacetime demand. This shift favors the neutrals. At the same time, however, prices rise for the goods that the neutrals had formerly imported from the belligerents, because those products must be purchased from second-best suppliers during the war. The net effect will leave a given neutral better off if the increased value of its wartime exports exceeds the increased cost of its wartime imports. This section argues that we should expect this net effect to be positive on average for the neutrals.[47]

The effect of changes in the pattern of trade on the welfare of exporters and importers depends on both the price and quantity of goods traded. Normally, when prices rise, demand drops, because consumers substitute purchases of other products or defer their consumption entirely (that is, consumers may increase their savings rate). The total change in the value of a country's exports for a given price increase is the price increment times the total quantity sold at the new price; the size of the effect depends on the size of the price increase and on the elasticity of

47. A more technical treatment of the welfare effects of terms of trade adjustments can be found in any standard international economics textbook. The basic gist of the argument presented in the text is that the net effect of the war is to shift the belligerents' import demand curve outward (increasing the total value of belligerent consumption) and rotate it clockwise (reducing demand elasticity). Both of those effects tend to improve neutrals' terms of trade, thereby increasing neutrals' welfare. See, for example, Wilfred J. Ethier, *Modern International Economics*, 3rd ed. (New York: Norton, 1995), chap. 4, esp. 103–5, A12–A13.

demand. In the context of wartime price changes, the increase in neutrals' profit from exports depends on their export price increment and on belligerents' demand elasticity for war-related purchases. Neutrals, however, also face an increase in costs on imports that depends on the import price increment that they face and on their import demand elasticity. The net effect on neutral wealth depends on a comparison of (1) the price increase for products that belligerents import relative to the price increase on neutrals' imports; and (2) belligerents' elasticity of import demand relative to the neutrals' elasticity of import demand.

Both of those comparisons tend to favor the neutrals, so the average neutral should, on net, profit more from the additional value of war-related exports than it will suffer from the higher costs of wartime imports. First, price changes in markets for neutrals' exports of war-related goods are likely to be greater than price changes in markets for goods that neutrals import (more or less the same goods that they imported in peacetime). The start of a major war will tend to spur a relatively large increase in the demand for war matériel, because the baseline level of demand during peacetime is presumably low. That should have a major effect on prices of war-related goods. By comparison, the percentage reduction in supply of the products that the belligerents had exported during peacetime is likely to be much smaller, because production of most goods is diversified among multiple suppliers, not all of which will be involved in the war. That diversification increases the baseline level of nonbelligerent supply that will for the most part continue even after the belligerents withdraw from the market.[48] Furthermore, belligerents' exports do not cease entirely during the war, mitigating the reduction of total global supply of the goods that the belligerents exported during peacetime. The net result will be that prices for war-related goods will increase by more than prices for the goods that the belligerents used to export before the wartime disruption.

Second, the comparison of belligerent and neutral elasticities of import demand clearly suggests that wartime trade will increase neutral wealth. Belligerent demand for war supplies is less elastic than neutral demand for imports. Belligerents want to buy a lot of war matériel, even if it is expensive; few close substitutes exist, and levels of demand are strongly influenced by factors other than price (notably by military strategy). Meanwhile, neutrals' demand for imports should be nearly as

48. It might seem possible that this supply diversification could actually work against the neutrals, because any price increase caused by the belligerents' withdrawal of supply will be spread across sales of many units produced by the neutral suppliers that maintain (or expand) production during the war. The presence of neutral suppliers of the belligerents' former exports has two countervailing effects: it reduces the size of the price increment but it increases the quantity by which that price increment must be multiplied to calculate the total value of the wartime market disruption. Whether those two effects will actually cancel out depends on the supply elasticity in the disrupted markets, but the general intuition with two effects pointing in opposite directions should be that the net effect is likely to be small.

elastic as it was prior to the war. Neutrals still desire to import goods, but as prices increase, their demand will drop. Neutrals can shift to alternate products, including products produced at home. In sum, neutrals will charge belligerents a large premium for the goods that the belligerents need, but the neutrals will not have to pay the same size premium themselves when they import goods from each other.

Overall, the positive export opportunities and the negative import costs that neutrals encounter during wars are related; large effects on one side of the ledger will tend to occur when there are large effects on the other side of the ledger. Only a large war, involving rich countries, will create substantial reductions in the supply of the goods that neutrals want to import, so only a big war will significantly raise the costs of neutral imports. At the same time, these large wars are the ones that present the greatest opportunities for neutrals to export large quantities of war supplies at high profits. The critical point is that neutrals will, on average, profit on the trade account from wartime disruptions, because the belligerents' preferences are rigid and their desperation is high. Belligerents will pay a lot more to buy wartime necessities than neutrals will pay for civilian goods. On average, therefore, neutrals will benefit from wars, profiting more from the expansion of wartime exports than they suffer from the inflated costs of wartime imports.

COUNTING THE ECONOMIC EFFECTS OF WAR ON NEUTRALS: WHY THE NET EFFECT IS SMALL

Major wars sometimes produce massive changes in the international economy relative to the prewar peacetime equilibrium, but big changes do not necessarily create big profits or losses. Wars can cause significant changes in global trade patterns: different types of goods are produced and traded, different countries become the major importers and suppliers of goods, former trade surplus countries may become deficit countries and vice versa, the direction of capital flows may reverse, and major debtors may become creditors and vice versa. Smaller wars yield similar adjustments, naturally on a smaller scale. Such significant changes in flows of goods, services, and capital, however, do not necessarily have major wealth effects on the neutrals. The big changes described above are changes in gross revenues rather than changes in net income; net income may be only a small fraction of revenue.

The difference between revenue and income may be most clear with respect to trade flows. If a neutral runs a large trade surplus during a war (as is quite possible), it will necessarily be compensated by an inflow of capital equal to the size of

the surplus.[49] That capital flow amounts to "money in the bank" for the neutral. It is not, however, free money, because the neutral had to transfer goods and services to foreigners that otherwise could have been saved or consumed at home. The size of the profit derived from the wartime trade surplus is a function of two things: the higher wartime prices that the exports fetch during the conflict minus the (probably) higher wartime costs of producing the goods.[50] Neutrals are making profits as they export to belligerents—otherwise they would not do it—but their profits are substantially smaller than their revenue.[51]

The same sort of accounting applies to measurements of the benefit to neutrals of purchasing foreign assets (changes in the pattern of FDI). Neutral investors take control of valuable foreign assets during the war, as belligerents liquidate their investments to raise money to pay for combat. The neutrals, however, still have to pay to buy these assets at the price of foregoing consumption and alternative investments. The only real increase in wealth that accrues to the neutral is the difference in the long-run "real" price of the asset purchased and its wartime price, which is discounted because the belligerent owner is in a hurry to sell.

A slightly more technical financial approach to asset pricing should give a better feel for the true size of the neutral's profit. One measure of the "correct" price for any asset is the net present value of the stream of returns that the asset will generate in the future. That net present value calculation is strongly influenced by the owner's discount rate. If belligerents have higher discount rates than neutrals, then asset prices calculated by the belligerents will be lower than the prices for the same assets calculated by neutrals. The actual price at which a neutral investor would be able to buy a belligerent-owned asset will depend on the outcome of a negotiating process, but the neutral should be able to earn a profit by driving the contract price down toward the belligerent's wartime valuation of the asset. The neutral's profit—and the increase in the neutral country's national wealth—would then sim-

49. The source of that capital inflow will be capital exports from countries with trade deficits. In reality, a buyer might pay for its excess of imports over exports by borrowing money from a trade surplus country rather than transferring reserves. Regardless of the ultimate source of the capital flow, the immediate effect of the neutral's trade surplus will be a capital inflow to the neutral country that gives it claims on other countries' future production.

50. The costs that a neutral must pay to produce the extra goods it exports to a belligerent during a war rise for two reasons. First, production costs increase, because marginal production facilities are activated to expand output for export. Second, the opportunity costs to the domestic society of selling products overseas rather than retaining those resources at home rise.

51. The marginal profit derived from the war through the trade surplus can also be seen as follows:

$$\Delta = (\text{wartime export price} - \text{peacetime export price}) - (\text{wartime production cost} - \text{peacetime production cost})$$

ply be the difference between the contract price and the net present value of the property when its future returns are discounted by the rate prevailing in the neutral country. That profit, however, is unlikely to be very large, because differences in the discount rate between developed countries tend to be small: a few points of spread would constitute a substantial arbitrage opportunity.[52] Even though wars widen the spread between interest rates in belligerent and neutral capital markets (due to the risk premium / safe haven effect), the total difference, when multiplied by the prices of assets liquidated by the belligerents, is unlikely to be big enough to generate huge windfall profits.

The bottom line is that neither trade flows nor capital account transactions during wartime are likely to yield pure profits that are more than a few percent of the nominal value of the transactions. Only that pure profit should be counted as a change in real national wealth.

SUMMARY OF THE STRATEGIC ADAPTATION THEORY

This section has developed the strategic adaptation theory, which argues that the normal economic decisions of neutral investors and merchants will compensate for the wartime disruptions to neutral economies. Wars disrupt the global economy, but the economy is flexible. Through *strategic adaptation*, neutrals can largely avoid the costs, and the negative effects of wars on neutrals are frequently exaggerated. In fact the average neutral will profit from war. The global benefits of international economic exchange will not cease. Neutrals will happily sell their wares to the belligerents at wartime prices. They will steal the belligerents' markets abroad. They will lend money at elevated rates and offer safe havens for risk-averse capital. Finally, they will happily scoop up the foreign assets offered for sale by belligerents that need to finance their war efforts. War is expensive, but the belligerents are the ones who pay the cost.[53]

TESTING THE STRATEGIC ADAPTATION THEORY: CASE STUDIES

52. For evidence on international interest rate parity, see Barry P. Bosworth, *Saving and Investment in a Global Economy* (Washington, D.C.: Brookings Institution, 1993), 49–50.

53. Organski and Kugler offer evidence that supports this argument. A. F. K. Organski and Jacek Kugler, *The War Ledger* (Chicago: University of Chicago Press, 1980). They find that the GNP of neutral countries was not substantially affected in the medium- or long-term by the two World Wars (104–46). Neutrals quickly returned to levels of economic output that are consistent with their prewar economic patterns (132–46). This finding is consistent with our argument, but Organski and Kugler address a slightly different question than the one we raise here. They examined how long it takes a neutral country's *income* (GNP) to recover to the level that would have been expected had prewar growth rates continued. We examine the amount of *wealth* lost before that recovery is complete.

IN THIS SECTION we use case studies to evaluate the strategic adaptation theory. The case studies have two purposes. First, they should verify that the theory's four transmission mechanisms operate the way we expect, thereby increasing our confidence that our approach to assessing the economic effects of wars is sound. Second, each case offers an opportunity to measure the net impact of a war on a neutral's economy. Do the neutrals that do well make a lot of money or just a little? Are the negative consequences for neutrals that suffer large or small?

We select two cases for this study: the effect of the First World War on the U.S. economy during the period of American neutrality, and the effect of the Iran-Iraq War on neutral oil importers.[54] These cases allow us to conduct a careful test of the strategic adaptation theory because they satisfy three key criteria: high quality data are available for each case, each case occurs during a period of high economic interdependence, and each case occurs during a particularly long and destructive war. These criteria, for the reasons described below, allow us to draw stronger inferences from the cases than we would be able to draw from two cases selected at random.

The cases that we present here are especially useful first because they involve wars and neutral powers for which there are abundant, reliable data. The better the data quality in a particular case study, the more effective it can be as a test of a theory. Moreover, the ability to distinguish confidently between war-related changes in trade and investment flows and background changes in the international economy—the normal year-to-year variation in trade and investment patterns—increases the value of a case. That distinction should be easier to draw for cases of very large wars like the First World War—applying the well-known recommendation to choose cases with large values for the independent variables.[55]

Second, both cases occur during a period of high economic interdependence, which is critical because interdependence is a necessary underlying condition for the theory to operate.[56] The late-nineteenth century wave of globalization peaked just before the First World War started.[57] Specifically, the First World War belligerents were the world's leaders in trade. At the outset of the war, the United Kingdom

54. This article is part of a larger project that tests the strategic adaptation theory using several additional case studies. The additional cases include Japan and Sweden in the First World War and Venezuela, a neutral oil exporter, during the Iran-Iraq War. The evidence in those cases also supports the strategic adaptation theory and confirms the findings of the two cases that we present here.

55. Stephen Van Evera, *Guide to Methods for Students of Political Science* (Ithaca: Cornell University Press, 1997), 24–25, 52–53, 79–81.

56. Van Evera, *Guide to Methods*, 34.

57. Michael D. Bordo, Barry Eichengreen, and Douglas A. Irwin, "Is Globalization Today Really Different than Globalization a Hundred Years Ago?" NBER Working Paper no. 7195, June 1999.

and Germany were first and second on the list of the world's top traders.[58] The United Kingdom was also the center of the world financial system, meaning that the disruption to British financial markets caused by the war was spread globally.[59] The Iran-Iraq War, in the 1980s, also occurred during a period of great increase in global interdependence. Choosing highly interdependent cases has an additional benefit: a highly interdependent world might be considered an easy case for the conventional wisdom hypothesis that wars are very costly to neutrals. Consequently, if economic effects on neutrals prove negligible in that case, the case should be interpreted as strong evidence against the conventional wisdom.[60]

The third reason that these cases provide good tests of the strategic adaptation theory is that they involve very large wars, through which we can establish an upper bound for the magnitude of wartime effects on neutrals. The First World War case is particularly strong on this criterion, because almost everything about the First World War was greater than in previous wars: the number of countries involved, the size of the armies, the number of casualties, and the level to which the societies mobilized for conflict. From the beginning, the war involved all of the major economic powers except the United States. In 1913, the six major European powers produced 49 percent of the world's manufactured goods.[61] The Iran-Iraq War fares well on this criterion for a different reason: it involved sustained combat between two major oil exporters, and the combatants specifically targeted their adversaries' oil exporting capabilities—intending to cause a major disruption to the worldwide economy. In sum, the size and importance of the war in each case makes it useful for estimating an upper bound for wars' economic effects on neutrals.

Intentional selection of easy or hard cases can increase the level of confidence that each test adds to the judgement about a theory's veracity, but it remains possible that the results observed in each of the small number of cases examined were caused by random chance. A large-N research strategy could mitigate that risk, because even though there are few instances of major wars, especially in recent history, and even fewer for which reliable economic statistics are available, each war

58. David M. Kennedy, *Over Here: The First World War and American Society* (New York: Oxford University Press, 1980), 298.

59. Teresa Seabourne, "The Summer of 1914," in *Financial Crises and the World Banking System*, ed. Forrest Capie and Geoffrey E. Wood (London: MacMillan, 1986), 77, 85–87.

60. Van Evera, *Guide to Methods*, 31, would call this result a failed "hoop test," which should lead to the rejection of the hypothesis.

61. Paul M. Kennedy, "The First World War and the International Power System," in *Military Strategy and the Origins of the First World War*, ed. Steven E. Miller (Princeton: Princeton University Press, 1985), 12, and Table 4. Kennedy's figure reflects the combined shares of world manufactured products of Britain, France, Germany, Russia, Austria-Hungary and Italy. The European great powers controlled 73 percent of non-U.S. productive might in 1913.

includes information on many neutrals. The variables that one needs to measure to assess changes in national wealth are difficult to observe. Case studies may offer somewhat more valid measures of these variables than a large-N statistical database would. Nevertheless, in future work we expect to supplement the case studies presented here with quantitative investigation of the strategic adaptation theory.

THE U.S. EXPERIENCE AS A NEUTRAL DURING THE FIRST WORLD WAR

If wars tend to affect the economic well being of neutrals, it should be readily apparent in the economic fortunes of the United States from 1914 to 1917. First, when war broke out in Europe, 11 percent of the U.S. economy was involved with foreign trade; this level is not an extraordinarily high, but it is high enough to create observable economic effects.[62] Second and more importantly, the First World War engulfed the four leading trade partners of the United States in conflict, and U.S. trade with the belligerents accounted for 58 percent of all U.S. trade. [63] In short, this case should provide an excellent study of the effect of war on neutral-belligerent trade. Third, U.S. capital flows—both inward and outward—were large before the war, and the magnitudes of those flows had been increasing substantially each year, exposing the U.S. capital account to the financial transmission mechanisms of the strategic adaptation theory.[64]

If the strategic adaptation theory is correct, the United States should have been in a strong position to profit from the First World War. In 1914 the United States was rich in land, labor, and capital, but it was relatively well endowed with land and capital—a favorable situation because the goods demanded in war are mostly land- and capital-intensive. The U.S. economy also shared similar factor endowments with the belligerents, so the United States should have been well positioned to move into markets previously served by belligerent exports. Moreover, the United States should have faced relatively small adjustment costs in 1914. The U.S. economy was the world's biggest when the war erupted (more than twice as big as its closest competitor), and its sheer size meant that large increases in production would require relatively small adjustments as a percentage of GDP. It also meant that the United States could more easily take advantage of any economies of

62. Total U.S. exports and imports in 1913 are from U.S. Bureau of the Census, *Historical Statistics of the United States, Colonial Times to 1970* (Washington, D.C.: U.S. GPO, 1975), Series U-190, U-193. Henceforth referred to as "Historical Statistics." U.S. GNP is from "Historical Statistics," Series F-1.

63. America's most important trade partners in 1913 were the United Kingdom, Canada, Germany, and France. See U.S. Department of Treasury, Bureau of Statistics, *Statistical Abstract of the United States, 1914* (Washington, D.C.: U.S. GPO, 1915), 688-89. Henceforth referred to as "Statistical Abstract 1914."

64. John T. Madden, Marcus Nadler, and Harry C. Sauvain, *America's Experience as a Creditor Nation* (New York: Prentice-Hall, 1937), 34–40.

scale in the production of war-related goods. Finally, the diverse production profile of the U.S. economy (partially due to America's size) meant that adjustment to produce new, war-related products required relatively small deviations from the ideal uses for which existing fixed capital investments had been created.

On the financial side of the strategic adaptation theory, the United States was a minor debtor when the First World War started. The net stock of debt had dwindled to about $965 million by 1913, and the debt was being reduced each year due to the U.S. trade surplus (around $500 million in 1913).[65] The prewar trade surplus, and the enormous surplus that erupted with the wartime pattern of trade, should have given the United States enough liquidity to take advantage of wartime investment opportunities. All of the transmission mechanisms of the strategic adaptation theory predict that the United States should have done well during its period of neutrality during the First World War—contrary to the conventional wisdom hypothesis about wartime economic disruption.

The next four subsections review the evidence concerning each transmission mechanism in turn. The section on the economic performance of the United States as a neutral during the First World War then concludes with subsections assessing the net cost/benefit of the war to the United States and rebutting some counterarguments to our assessment.

U.S. trade with the belligerents. The immediate effect of the war on U.S. trade was strongly negative, imposing high adjustment costs on the 1914 economy. The early disruption in the summer of 1914 was primarily logistical. Foreign exchange rates, especially in Sterling, fluctuated wildly, which greatly increased the risk of foreign transactions.[66] Shipping costs skyrocketed, because German ships were bottled up in ports around the world and the large British merchant marine was diverted for the war effort.[67] For the first six months of the war, the price of commercial shipping was seven times the prewar level.[68]

In August flows of short-term financing, which provided liquidity to enable foreign shipments of goods, were disrupted by a financial crisis in London that spread to other exchanges around the world.[69] Chaos in financial markets and short-term gold and payments embargoes declared by the belligerents made import-

65. Homer and Sylla, *History of Interest Rates*, 341. Including net foreign direct investment, Madden et al. *America's Experience as a Creditor*, 40, estimate that the United States was a net debtor of $2–3 billion in 1914.

66. David Kennedy, *Over Here*, 301.

67. Daniel M. Smith, *The Great Departure: The United States and World War I, 1914–1920* (New York: Wiley, 1965), 6; David Kennedy, *Over Here*, 301.

68. Stuart D. Brandes, *Warhogs: A History of War Profits in America* (Lexington: University of Kentucky Press, 1997), 128.

69. Seabourne, "Summer of 1914," 86–87.

export financing houses illiquid and threatened to drive them into insolvency. [70] Without those specialist providers of trade finance, imports and exports rapidly stopped flowing. Planned shipments of many products could not be completed, despite the rapacious consumption of war matériel in Europe. As a result, the price of American wheat, cotton, steel, copper, meats, and oil fell as prewar markets were temporarily cut off; food perished in warehouses, and manufacturers shifted production to meet new global economic demands.[71] This immediate financial crisis, however, was mostly over by the end of August; smooth financing operations began again by late November, and trade flows rebounded.[72]

Currency speculation, high transport costs, and financial crisis were not the only problems for American exporters. Virtually overnight, the demands of their customers, particularly in Europe, changed. Demand rose for military-related goods at the expense of consumer products. For example, cotton exports were particularly hard hit, since German and Austrian textile mills had been the primary buyers of cotton exports before the war started. In 1914 traditional exporters were uncertain whether trade with continental belligerents would be feasible during the war.[73] The overall effect was to reduce U.S. exports by 6 percent in 1914 relative to the previous year.[74]

Table 1

U.S. TRADE WITH BELLIGERENTS DURING THE FIRST WORLD WAR (MILLIONS OF 1913 DOLLARS).

	Germany		United Kingdom		France	
	Imports	Exports	Imports	Exports	Imports	Exports
1913	190	332	296	597	137	146
1914	194	352	294	606	144	163
1915	90	29	256	903	76	365

70. Import-export finance houses give short-term loans to importers and exporters to cover the gaps in time between the writing of import-export contracts, the delivery of the goods to the customer, and the arrival of final payment to the exporter.

71. John Maurice Clark, *The Costs of the World War to the American People* (New Haven: Yale University Press, 1931), 22–24; David Kennedy, *Over Here*, 301.

72. Seabourne, "Summer of 1914," 105–8.

73. Smith, *The Great Departure*, 6.

74. "Historical Statistics," 884, series U-191. All statistics given in the text refer to *real* changes, rather than nominal changes, unless otherwise noted.

1916	11	0.24	308	1202	80	495
1917	1	1.24	307	1156	61	572

Source: Edgar Turlington, *Neutrality: Its History, Economics, and Law*, vol. 3, *The World War Period* (New York: Columbia University Press, 1936), 210–11.[75]

Cotton and other U.S. exports later rebounded, in part because trade with all of the belligerents proved possible in 1914–15.[76] Shipping costs could be passed through to the belligerent consumers, and adequate insurance was made available to indemnify American producers and exporters from war damage.[77] In fact, the insurance business itself proved a hugely profitable service export to the belligerent markets.[78] Even when the British gradually tightened their blockade of the Central Powers in 1915–16, reducing neutrals' trade with Germany, the British bought American cotton to compensate producers for the cut-off German market—mitigating the political effects of the blockade in the United States. The British in fact adopted a policy to compensate U.S. interests harmed by the blockade to reduce American political hostility to the Entente.[79] From 1914 to 1916, U.S. exports to Europe increased by 99 percent.[80] Specifically, trade with the Allies increased by 184 percent over peacetime flows.[81]

U.S. trade with the belligerents soured in 1917, apparently as a result of Germany's January 1917 announcement of unrestricted submarine warfare. The U.S. economy again had to adjust to new wartime conditions. Some U.S. merchant shippers refused to carry contraband into the war zone and began, instead, to carry more trade to the nonbelligerents. As in 1914, goods produced in the United States

75. These data should be read with a strong note of caution: it is not clear what price index was used to adjust the nominal figures into real dollars, and old compilations such as these may not be reliable or valid by modern statistical standards. The figures do seem comparable, however, to what other data we have found on country-specific trade during the First World War, and they very likely provide at least the right order of magnitude of the flows in question.

76. The British blockade of the Central Powers substantially reduced German trade flows, but it did not prevent the Germans from importing a substantial amount of matériel to aid the war effort, especially in the early years of the war. Niall Ferguson, *The Pity of War: Explaining World War I* (New York: Basic Books, 1999), 252–53.

77. Turlington, *Neutrality*, 4.

78. Turlington, *Neutrality*, 100.

79. Smith, *The Great Departure*, 44–45. In a large number of industries, the British made informal special arrangements with American firms to facilitate trade. Turlington, *Neutrality*, 145-46.

80. "Historical Statistics," 884, series U-191; U.S. Department of Treasury, Bureau of Statistics, *Statistical Abstract of the United States, 1920* (Washington, D.C.: U.S. GPO, 1920), 425. Henceforth referred to as "Statistical Abstract 1920."

81. Smith, *The Great Departure*, 6.

stacked up in warehouses and "the U.S. economy seemed imperiled."[82] It is impossible to determine whether exports would have rebounded after a period of adjustment, because the United States entered the war in April. U.S. exports again dropped during 1918, because the United States started to consume a large share of its war-related products rather than exporting them to the Allies. It is certainly plausible, however, that a new, profitable pattern of U.S. exports might have evolved after unrestricted U-boat warfare was declared. Norway, for example, was highly dependent on neutral-belligerent trade during the war, remained neutral throughout, and profited greatly from high-risk shipping during the period of unrestricted U-boat warfare.[83] Other neutrals like Denmark and the Netherlands opted to lease their merchant fleets to the British after 1917, shifting the risk to the belligerent. They made less money than the Norwegian shippers, but they were not ruined by the post-1917 situation, either.[84]

The history of U.S. trade with the First World War belligerents is summarized in Table 1. The overall pattern of trade—and the detailed evidence of adjustment costs and strategic adaptation by exporters and shippers—strongly matches the predictions of the strategic adaptation theory.

U.S. trade with other neutrals. When the war started in July 1914, trade with other neutrals was disrupted by some of the same problems that hampered neutral-belligerent trade, including fluctuations in currency markets and lack of liquidity for export-import finance. On the other hand, the basket of goods demanded by neutrals for consumption did not immediately change; planned exports from the United States to other neutrals were not necessarily stopped. In addition to those exports, however, new opportunities opened up to replace the exports formerly supplied by the belligerents to other neutrals. Developing countries in Latin America, for example, needed manufactured and capital goods, and the United States was able to supply those products after a period of adjustment.[85]

By 1915 U.S. firms were exploiting the opportunities created by the war in Europe. They worked to supplant the belligerents as the dominant exporters to

82. Thomas G. Patterson, J. Garry Clifford, and Kenneth J. Hagan, *American Foreign Relations: A History Since 1895* (Lexington, Mass.: D.C. Heath, 1995), 96. Interestingly, Braun and McGrattan suggest that the economic downturn of 1917 was the result of U.S. entry into the war, primarily due to the labor force disruption of mass conscription rather than unrestricted submarine warfare. If this is true, then the years of neutrality should be judged as even more profitable for the United States than we portray them here. See R. Anton Braun and Ellen R. McGrattan, "The Macroeconomics of War and Peace," in *NBER Macroeconomics Annual, 1993*, ed. Olivier Jean Blanchard and Stanley Fischer (Cambridge: MIT Press, 1993), 207.

83. Nils Ørvik, *The Decline of Neutrality 1914–1941*, 2d ed. (London: Frank Cass, 1971), 58.

84. Ørvik, *Decline of Neutrality*, 59.

85. Madden et al., *America's Experience as a Creditor*, 62–63.

Asia and South America.[86] From 1914 to 1916, U.S. exports to Asia and South America grew by 170 percent and 93 percent, respectively, though this growth was building on a relatively small base.[87] During the same period U.S. imports from Latin America expanded even faster than the export growth: as the United States increased its manufactured exports to both belligerents and to other neutrals, it imported more raw materials from developing countries and ran bilateral trade deficits with them.[88] Trade with Northern European neutrals also increased, partly as a substitute for prewar ties with the belligerents and partly as a conduit for trade with the Central Powers, circumventing the British blockade.[89] The expansion of neutral-neutral trade provided an important underpinning for the success of the United States at adapting to wartime economic conditions.

As part of Britain's strategic commitment to mitigating the cost to the United States of its blockade of the Central Powers, the UK also loosened restrictions on trade between the United States and the British colonies.[90] This change in trade policy not only supported the expansion of U.S. neutral-neutral trade,[91] but it eliminated prewar distortions from free trade. In this case, neutral-neutral trade not only allowed strategic adaptation to supply markets from second-best sources, but it may have allowed first-best trade relationships to develop that had previously been blocked. The predominant effect of shifting trade patterns during wartime is to allow second-best sources of supply to reduce the negative impact of wars relative to the complete cutoff of trading. When prewar trade barriers such as colonial preferences were changed as a result of the war, however, the effect may have contributed to an overall increase in the efficiency of world production.

In summary, the absolute magnitude of the growth in neutral-neutral trade involving the United States between 1914 and 1917 was smaller than the amount of growth in U.S. neutral-belligerent trade, but trade with other neutrals increased substantially in percentage terms. Trade was more difficult with neutrals located close to the fighting, but despite choke points and crossfire effects such trade was possible both for consumption by the European neutrals and for re-export to blockaded continental belligerents. The types of goods traded with the various

86. David Greasley and Les Oxley, "Discontinuities in Competitiveness: The Impact of the First World War on British Industry," *Economic History Review*, 2nd ser. 49, no. 1 (February 1996): 95; David Kennedy, *Over Here*, 302; Brandes, *Warhogs*, 132.

87. "Historical Statistics," 884, series U-191; "Statistical Abstract 1920," 425.

88. Madden et al., *America's Experience as a Creditor*, 46.

89. Ørvik, *Decline of Neutrality*, 43–44, 51; Ferguson, *Pity of War*, 252–53. When the United States joined the war in 1917, it stopped supporting the re-export component of this neutral-neutral trade.

90. Smith, *The Great Departure*, 39.

91. Of course. the removal of Imperial preferences was also attractive to the British because it indirectly expanded U.S. trade in war matériel with Great Britain as the colonies supplied the United States with raw materials.

other neutrals—substituting for prewar belligerent suppliers and exchanging raw materials as part of the supply chain for neutral-belligerent trade—also seem to match the predictions of the strategic adaptation theory.

The U.S. role in international lending. The U.S. export surge of 1915–16 led to a huge, unanticipated expansion in the American trade surplus.[92] The trade surplus netted the United States more than $4 billion dollars in about three years—equal to 10 percent of U.S. GDP in 1915.[93] By 1917 the United States had shifted from net debtor to net creditor status by using the liquidity provided by the trade surplus to pay off its stock of debt and to lend to foreign borrowers at attractive wartime interest rates. Nearly a billion dollars of gold had flowed into the U.S. reserves. During its neutrality the United States was able "to lend Europe [its] products (in effect), to restore [its] flow of home investments to a satisfactory normal level (or possibly more) and to have more left for consumption than ever before, even on a per capita basis."[94] The overall result was that by 1917 American lenders in private business held $2.5 billion in foreign obligations, $1.9 billion of which was owed by debtors in the Entente countries.[95]

Financial markets had not anticipated the major reversal in the direction of capital flows before the outbreak of the war—neither had they anticipated the effect of the war on the demand for loans.[96] Bond prices dropped substantially in London and New York (meaning that interest rates rose), and trading on the exchanges was suspended throughout the autumn.[97] In New York, however, interest rates returned very nearly to their July level by the time the Stock Exchange reopened on 12 December 1914. Over the course of 1915–16, interest rates in the United States tended to decline; they then surged when the United States entered the war in April 1917 (see Table 2).[98]

This pattern of changes in U.S. interest rates between 1914 and 1918 is consistent with the safe-haven story. Interest rates should be higher for combatants than

92. Madden et al., *America's Experience as a Creditor*, 41, 45.

93. Clark, *The Costs of the World War*, 23–24; David Kennedy, *Over Here*, 298.

94. Clark, *The Costs of the World War*, 27; David Kennedy, *Over Here*, 302–6.

95. Private foreign lending from the United States was a negligible fraction of total lending during the U.S. belligerent period (April 1917 through November 1918). As will be discussed below in the section on repayment of the Allies' war debt, the Allies had borrowed to the market limit by 1917. The huge post-1917 capital flows were lent by the U.S. government for political and military reasons rather than by private actors for financial and economic reasons. Capital outflows to fund reconstruction in 1919, for example, amounted to $3.369 billion, of which $3.362 billion came from U.S. government loans. The stock of private foreign lending on 1 June 1921, consisted of $2.396 billion distributed to governments and corporations in twenty-six different countries. Robert W. Dunn, *American Foreign Investments* (New York: B. W. Huebsch and Viking, 1926), 4–6.

96. Seabourne, "Summer of 1914," 83, 85, 87–88; Homer and Sylla, *History of Interest Rates*, 344.

97. Homer and Sylla, *History of Interest Rates*, 344, 438–39.

98. Ibid., 344.

for neutral countries, and when the United States converted from neutrality to belligerency, interest rates rose as expected. Moreover, throughout the war, interest rates on French and British bonds were at least 3 percent higher than rates on comparable U.S. bonds, reflecting the higher risk of lending to the primary combatants, whose economies (and armies) mobilized and fought on a sustained basis, diverting and destroying substantial productive capacity.[99]

America's wartime loans to the belligerents were not used to make productivity-enhancing investments—the preferred (and more frequent) reason for international lending. Instead, the loans paid for the consumption of war matériel, and repaying the loans would require extended belt-tightening in belligerent countries even after the end of the war.[100] Postwar restrictions on consumption were not expected to be popular (and in the event, they were not popular), so the default risk assessed to war loans was high, which drove up the interest rates required from belligerent borrowers. That risk adjustment effect on wartime interest rates came in addition to the basic interest rate boost due to the increased demand for money to fund the war effort.[101]

Changes in U.S. foreign direct investment. Only a small fraction of U.S.-owned overseas assets were located in Europe during the First World War, but enough direct investments were exposed to the war that it had the potential for profound effects on American investors. U.S. citizens and corporations owned somewhere in the range from $1.5 billion to $2.6 billion of foreign securities in 1914. Three quarters of that amount were direct investments, mostly targeted at raw materials suppliers and infrastructure developments.[102] While no 1914 snapshot of the precise geographic distribution of the stock of U.S. outward FDI is available, data summarizing the flow from 1900 to 1914 show that U.S. overseas assets were not concentrated

99. Ferguson, *Pity of War*, 333, and Figure 16 at 335.

100. Madden et al., *America's Experience as a Creditor*, 42.

101. The explanation for the rise in wartime interest rates given in Benjamin and Kochin, "War, Prices, and Interest Rates," 593–96, is the baseline effect of the increased demand for money. The risk adjustment effect is strictly additive on top of the war-induced change in belligerents' discount rates.

102. For the estimates of the total stock of FDI, see Madden et al., *America's Experience as a Creditor*, 39. For the target sectors, see Dunn, *American Foreign Investments*, p. 179; Bordo et al., "Is Globalization Today Really Different," 28–30. Modern usage requires ownership / control of a foreign asset (that is, stock purchases) to qualify as FDI; bond purchases are excluded from FDI and are usually classified as a kind of portfolio investment. In the estimates given in the text, direct investment seems to include both ownership of physical plant overseas and subscription to loans floated by specific foreign companies—that is, direct investment is only used here to differentiate flows to specific companies from loans to governments. Even so, the figures are helpful for purposes of studying the FDI transmission mechanism, because they help to measure the value of investment exposed to direct battlefield destruction or wartime expropriation. Holders of corporate bonds hoping to be repaid by a company whose productive stock was lost in the war would be unlikely to receive their money, whether they held control rights to the destroyed assets or not.

in Europe. Most of the foreign capital issues sold to Americans during the early twentieth century related to assets located in neighboring countries: Latin America (mostly Mexico, Cuba, and Central America) and Canada accounted for $548.7 million of the $1 billion in outward flows from the United States Another $310 million went to the Far East, leaving only $228 million for all of Europe (including neutrals).[103] Naturally, the war most threatened those U.S. overseas assets that were located within the European belligerents' territory.

Table 2 here

103. Madden et al., *America's Experience as a Creditor*, 39.

Specific evidence on the fate of U.S.-owned factories in Europe during the war is scant, but the available evidence shows that the fighting did little harm to prewar American FDI. Hundreds of U.S. companies had factories in France by the mid-1920s, some of which had been American-owned for a long time,[104] but it is not known how many were American-owned during the war (or how many were located near the front). U.S. companies owned manufacturing facilities in many sectors of the British economy (goods and services), valued at about $300 million in 1920, but again the dates of acquisition and the specific firms' wartime histories are unknown.[105] It would be surprising if a significant portion of those facilities were not acquired during the course of the war (see below).

The biggest loss suffered by the United States on foreign investment between 1914 and 1919 seems to have come from Russian properties: some $58 million in assets were expropriated and written off at the time of the Russian revolution.[106] Combined with defaults on U.S.-supplied loans, U.S. investors lost a total of $75 million in Russia during the First World War.[107]

Finally, many U.S. companies had longstanding investments in factories and other properties in Germany, valued at perhaps $192 million when the United States entered the fighting. Those investments "easily weathered the war."[108] The German investments are perhaps the strongest support for the proposition that the war did little harm to U.S. FDI.

As predicted by the strategic adaptation theory, the war risk to U.S. overseas assets was counterbalanced by the opportunity for American investors to buy foreign holdings at significant discounts. The British especially, but also the other belligerents, paid for most of their imports from the United States by borrowing money from American investors, by exporting gold to the United States, and by

104. Dunn, *American Foreign Investments*, 143.
105. Ibid., 151.
106. Ibid., 156.
107. Madden et al., *America's Experience as a Creditor*, 53.
108. Dunn, *American Foreign Investments*, 145–46.

selling securities that they held, specifically including U.S. securities. More than $2 billion in foreign-owned U.S. assets were sold back to American investors between 1914 and 1919.[109]

Because the belligerents were in urgent need of liquidity, they accepted particularly low prices on asset sales to American investors: their high wartime discount rates reduced their view of the net present value of the securities relative to the long-term, peacetime value, allowing American purchasers to earn substantial profits.[110] Furthermore, the belligerents' sale of their capital stock (both foreign and domestic) was not limited to U.S. securities: American investors were able to acquire other international assets previously owned by the belligerents at fire-sale wartime prices. The British, for example, sold £236 million in worldwide foreign assets during the war, which at the wartime exchange rate of $4.746/£ amounts to $1124.3 million.[111] Similarly, in 1914 Germany owned foreign assets worth between £980 million and £1.37 billion ($4.65–$6.5 billion). Germany borrowed only a small amount on international currency markets during the war and paid for its trade deficit largely through asset sales and drawing down foreign exchange reserves.[112] The total value of these German transactions, however, is not known. Nevertheless, it is not difficult to reach the conclusion that American investors profited from German foreign investment activity during the war, contributing to the overall net U.S. profit from FDI.

Assessing the net cost/benefit to the United States. The bluntest aggregate measure of the effect of the First World War on U.S. wealth is simply the trajectory of America's GNP during the war years: adding up the changes in the flow of national income gives the net effect on national wealth. Figure 1 shows U.S. national product during the early part of the twentieth century. When the First World War began in 1914, the United States was already in the midst of a severe recession. The U.S. economy showed no signs of growth in 1913 and contracted in the early months

109. Madden et al.. *America's Experience as a Creditor*, 48, estimate $2.2 billion. Other estimates range from $2 billion to as high as $3 billion. See Dunn, *American Foreign Investments*, 4.

110. Ferguson, *Pity of War*, 328–29.

111. Ibid., 252.

112. Ibid., 252–53. A great deal of German war finance came from monetization, which commanded domestic production and paid for imports at devalued exchange rates. T. Balderston, "War Finance and Inflation in Britain and Germany, 1914–1918," *Economic History Review*, 2nd ser. 42, no. 2 (May 1989): 237. Ferguson disputes Balderston's estimate of the extent to which Germany was cut off from foreign markets during the war, although even Ferguson's numbers for German borrowing are quite small. Yet the important point is that Ferguson argues that asset sales and currency manipulation were successful German wartime policy tools for funding its trade deficit. For a discussion of the importance of currency manipulation to the German war effort, see Jonathan Kirshner, *Currency and Coercion: The Political Economy of International Monetary Power* (Princeton: Princeton University Press, 1995), 87–89.

of 1914.[113] The adjustment costs imposed on the U.S. economy in the second half of 1914 made that situation temporarily even worse. By the end of 1914, U.S. GNP had dropped 4 percent from its 1913 level, but as the economy adjusted to the new wartime conditions, GNP growth surged. Aside from a hiccup in 1917 when the United States mobilized to fight, wartime income growth was strong, including 8 percent real growth in 1916. After the war, however, from 1919 to 1921, the United States suffered a sharp economic contraction. The economy shrank by 4 percent per year for the first two years and then by 9 percent in 1921—a substantial postwar adjustment cost perhaps partly attributable to the experience of the United States as a neutral and partly (probably mostly) attributable to its experience as a belligerent.

One way to isolate the net economic effect of the war relative to expected U.S. GNP growth is to compare actual GNP figures with long-term U.S. growth trends.[114] Figure 1 suggests a consistent upward trend in U.S. GNP from 1900 to 1925. The U.S. economy began to dip before the war erupted and dipped more harshly after the war ended, but it returned to the same general trend line by the mid-1920s. There is little reason to believe that U.S. growth would have exceeded this trend if the war had never occurred.[115] The British economy, on the other hand, was unable to catch up to a similar extension of the British economy's prewar output trend until 1937—reflecting the costs of actually fighting a major war.[116] In the case of the United States, the data show a postwar GNP reduction *relative to the war years*, but not a reduction below the otherwise expected levels. After the war, production fell back to where it "should" have been all along, while America's wartime profits were already in the bank; U.S. national income returned to a "normal" level, but its stock of wealth had expanded.

Making a more detailed estimate of America's increase in wealth between 1914 and 1917 is deceptively difficult. What we know is that when the First World War

113. Clark, *Costs of the War*, 22; "Historical Statistics," 224, series F-3.

114. For a similar methodology, see A. F. K. Organski and Jacek Kugler, "The Costs of Major Wars: The Phoenix Factor," *American Political Science Review* 71, no. 4 (December 1977): 1347–66. They focus on the effect of wars on combatants (and study a small selection of neutrals as controls without providing much detail on them).

115. For a similar assessment of trends in U.S. foreign direct investment, see Madden et al., *America's Experience as a Creditor*, 41. For comparison, Japan, another neutral great power, also enjoyed accelerated economic growth during the war and then quickly returned to its expected postwar GNP level. See Organski and Kugler, *The War Leger*, Table 3.2 at 130, and Figure 3.7 at. 137. Organski and Kugler also found that non-great power neutrals suffered small war-time economic costs, but that they, too, quickly returned to normal economic performance. Their results are consistent with our expectation that the countries best positioned to benefit from overseas wars are those with diversified production profiles similar to those of the combatants. Organski and Kugler do not disaggregate the U.S. wartime experience into neutral and belligerent years.

116. Greasley and Oxley, "Discontinuities in Competitiveness," 94.

began, the United States was a net debtor, with nearly a billion dollars in net foreign debt. We also know that by 1917, through the transmission mechanisms we described above (principally the trade surplus) the United States had paid off its debt, gained a billion dollars worth of gold, and purchased about $2.5 billion of foreign obligations. So by 1917, the United States appeared to have nearly $4.5 billion of additional assets.

This figure overstates the war's effect on America's wealth, however, for two reasons. First, some of the increase in U.S. assets would have occurred even had there been no war. The United States was running a $500 million annual trade surplus before the war erupted. In the three years of neutrality (August 1914–April 1917), the United States would likely have earned approximately $1.5 billion in trade surplus even if there had been no war. The war, therefore, only added approximately $3 billion to U.S. assets. Second, because U.S. producers gave the Europeans billions of dollars of merchandise in exchange for those extra $3 billion of assets, we need to subtract the cost of that merchandise from the total revenue figure to estimate profits. In other words, the United States gave the Europeans billions of dollars worth of cotton, food, munitions, and other products in exchange for their money.[117] The increase in U.S. wealth during this period is the additional assets ($3 billion) minus the cost of the items that the United States sold during the war.

One way to estimate how much the United States profited from its neutral economic activities is to look at prices in the home market of America's largest customer, Britain. If the United States charged higher wartime prices for its exports (as the strategic adaptation theory predicts) we should see higher prices in the United Kingdom.[118] In fact, British prices rose dramatically during the years that the United States was neutral. On average, British prices were 60 percent higher from 1914 to 1917 than they were before the war.[119] We can make two simplifying assumptions to estimate the maximum profit from America's neutral trade. If we assume that 1) at prewar prices in Britain the price of goods and the cost to produce those goods were nearly equal (because of market competition), and 2)

117. For one accounting of the list of products that the United States exported to the British, see Kathleen Burk, *Britain, America and the Sinews of War, 1914–1918* (London: George Allen & Unwin, 1985), 266.

118. Note that while wartime expansion of the money supply in Britain also caused some of the inflation there, the United Kingdom very nearly retained its gold parity and dollar exchange rate throughout the war and the postwar period. As a result, whatever the source of British inflation, British imports were fully paid for at the inflated price. United States exporters did not receive payment for their products in devalued currency.

119. This number is estimated using data on wholesale prices in Britain, 1914–1918, and data on British consumer prices during the same time. By 1918 wholesale prices rose 130 percent and consumer prices rose 110 percent. Averaging these two gives 120 percent. Because prices rose steadily during the period, the average price increase from 1914 to 1918 is half the total by 1918, which equals 60 percent. See Ferguson, *Pity of War*, 330–31.

U.S. production costs (the cost of the inputs) did not rise much during the war, then the entire increase in prices in Britain for average goods can be attributed to increased profits for American exporters.[120] In this maximum case, given that prices in Britain averaged 160 percent of prewar levels, 38 percent of the price of additional wartime sales can be counted as excess American profit.[121] Based on these figures, U.S. companies charged approximately an extra 38 percent on the goods they sent to Britain during the war over the peacetime costs. 38 percent of the $3 billion increase in net exports is $1.15 billion. The maximum that the United States profited during the neutral years of the First World War is, therefore, a little over $1 billion.

In order to earn those profits, however, U.S. businesses had to pay adjustment costs. As companies switched to produce the new goods demanded during the war, they needed to buy new equipment, retrain workers, and develop new manufacturing procedures. In any transition, some equipment and workers are underused. Economists' efforts to quantify adjustment costs are in their early stages,[122] but one good study estimates the transitional loss of production to be equal to about 30 cents per dollar of new investment.[123]

120. The U.S. producers probably did pay higher input costs during the war, so these estimates of total U.S. profit somewhat overstate American gains. We have reason to believe, however, that the "maximum" figure derived in the text is not too large an overstatement. First, a nontrivial proportion of the additional input costs for U.S. producers were paid to import materials and partially finished goods from other neutrals (especially in Latin America) at wartime prices. That increase in input costs, however, is already factored into the calculation in the text, because the revenue figure used is America's trade *surplus* during the period of neutrality—that is, the value of imports has already been subtracted out. Second, a substantial proportion of the rise in input costs for U.S. producers simply reflects the distribution within the U.S. economy of the gains from the improved wartime terms of trade. Notably, increased wages, while an increase in input costs from a business' perspective, are just a mechanism for transmitting labor's share of the wartime prosperity to workers. The only real increase in input costs that is simply a loss—the only amount by which the maximum estimate of U.S. profit from wartime trade is biased upward—comes from the entry of marginally efficient (or downright inefficient) producers into both the production of inputs and, perhaps, into the production of final goods for export. It is almost certain, for example, that marginal farmland was cultivated during the First World War, because demand for grain and processed foods exports surged; similarly, marginal mines were probably reopened, raising average production costs in the mining sector. On the other hand, to the extent that the United States was in recession in 1913 and the first part of 1914 and probably had excess capacity available in many sectors—specifically, potentially efficient excess capacity—this increase in input costs was likely to be small. For speculation about the role of marginal producers in the First World War U.S. economy, see Curtis P. Nettels, "Costs of Production," *Journal of Economic History* 3, issue supplement: *The Tasks of Economic History* (December 1943): 1–8.

121. For every $160 sold, $60 was excess profit. 60 divided by 160 is 38 percent.

122. For a good survey of the theoretical and empirical literature on adjustment costs, see Daniel S. Hamermesh and Gerard A. Pfann, "Adjustment Costs in Factor Demand," *Journal of Economic Literature* 34, no. 3 (September 1996): 1264-92.

123. For the "30 percent" estimate, see Frank Lichtenberg, "Estimation of the Internal Adjustment Costs Model Using Longitudinal Establishment Data," *Review of Economics and*

An estimate of the adjustment costs during the First World War should be subtracted from the wartime trade-related profits to yield the net wealth effect of the war on the United States. Counting both the cost of adapting to the outbreak of war and also the cost of adjusting back to the peacetime pattern of demand, the United States paid between $250 million and $450 million in exchange for its profitable trade as a neutral.[124]

On balance the United States appears to have earned more than $500 million during its neutrality. This is only an estimate. Perhaps the United States only broke even. While the neutral years of the First World War did not make the United States rich, some extra money was earned. Most importantly, the U.S. economy certainly did not take a beating.

Rebutting counterarguments about the U.S. economy in the First World War. Some people argue that the neutral period of the First World War was less profitable than we suggest. In their view, the losses incurred when the Allies defaulted on most of their wartime debt in 1931 should be counted against the profits from neutrality. Only 16 percent of U.S. wartime loans to the Allies were repaid, so nearly $11 billion of loan defaults might belong on the negative side of the war's balance sheet. A second set of critics focus on the costs that the United States paid once it entered the war. They argue that trade with the belligerents caused the U.S. intervention, so an accounting of the benefits of that trade should also include the costs of involvement in the fighting.

While it is true that the United States was never paid for most of the goods that were given to the Allies during the war, it is not true that the Allies did not pay for the goods that they purchased *during the period of U.S. neutrality*. The reason the Allies defaulted on 84 percent of their American loans is that these govern-

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Statistics 70, no. 3 (August 1988): 421-30. Other studies suggest that adjustment costs may be lower, although Lichtenberg argues that his estimate should be interpreted as a lower bound. See, for example, Douglas R. Bohi, *Energy Price Shocks and Macroeconomic Performance* (Washington, D.C.: Resources for the Future, 1989). The theoretical models of adjustment costs are particularly unclear on the issue of scaling up from firm-level costs to economy-wide effects of adjustment. See Hammermesh and Pfann, "Adjustment Costs," 1265, 1285-87. Furthermore, Lichtenberg's data are from the 1970s, so there may be problems applying his result to adjustments in 1914. For all of these reasons, the margin of error in the estimate of First World War adjustment costs is quite large, but it should at least offer an order of magnitude approximation.

124. This total was obtained by multiplying 30 percent (the loss rate, from Lichtenberg) by the share of U.S. gross national investment affected by trade with the First World War belligerents. U.S. gross investment numbers were not collected by the Department of Commerce until 1929, so total investment during the First World War was estimated to be 15 percent of GNP—the average level for the years 1946-70 (reported in "Historical Statistics 1975," Series F 47 and 52). We focused on war-related investment by multiplying gross investment by the fraction of the U.S. economy involved in trade with the belligerents. The upper range of the estimate reflects the intuition that firms directly engaged in war-related trade should account for a disproportionate share of the total national investment compared to businesses that had less contact with the belligerents.

ment-to-government loans were extended for political, not economic, reasons after the United States entered the war. The cost of this default, therefore, should not be counted against the profits that accrued to the United States during its neutrality. By April 1917, J. P. Morgan and other American financial center banks had cut off the European Allies from additional loans, because an increase in the Allies' debt burden—already nearly $2.5 billion—was not considered sustainable.[125] After entering the war the U.S. government ignored the credit risk and lent the Allies an additional $10.4 billion. Including the effects of compound interest, by the end of the war the Allies owed American lenders $13.2 billion. Ironically, $2.456 billion of this total debt was eventually repaid—almost the exact amount that the private lenders had considered sustainable.[126] It appears that the default should be charged against the cost of fighting the war rather than against the profits of the neutral period.[127]

The second group of critics argues that the costs of U.S. participation in the First World War must be counted against the profits from the neutral years, because they think that trade with the combatants dragged the United States into the war—an example of the magnet effect of great power wars.[128] The general argument is that attempts to remain neutral will at most buy a few extra months of peace.[129] In the case of the First World War, the costs for the United States of

125. Benjamin D. Rhodes, "Reassessing Uncle Shylock: The United States and the French War Debt, 1917–1929," *Journal of American History* 55, no. 4 (March 1969): 788.

126. Stephen A. Schuker, *American "Reparations" to Germany, 1919–33: Implications for the Third-World Debt Crisis* (Princeton: International Finance Section, Department of Economics, Princeton University, 1988), 91, Table 11. Even the default that did occur cannot be blamed entirely on the entry of the United States into the First World War. U.S. postwar financial institutions were particularly poorly organized to pressure borrowers to repay their loans, as revealed by the German preference for repayment of British rather than American creditors on their Dawes Plan loans. The British lending institutions pressured the Germans for repayment more effectively than the diffuse, disorganized individual American bondholders. Kenneth A. Oye, *Economic Discrimination and Political Exchange* (Princeton: Princeton University Press, 1992), 114–16.

127. There is another reason to count the default as part of the cost of fighting: U.S. entry into the war also gave the Europeans political cover in the postwar period to argue that they should not have to repay the loans. The Europeans argued that the war was a shared struggle, and one in which the French in particular felt that they had paid a disproportionate share of the blood price. As a result, they argued, they should only have to pay a small share of the financial cost. The U.S. Government's World War Foreign Debt Commission, in charge of negotiating repayment terms, never accepted this argument, but it was repeatedly raised as the French National Assembly resisted funding of the debt. See Rhodes, "Reassessing Uncle Shylock."

128. We thank Bob Art for bringing this argument to our attention.

129. Posen and Ross, "U.S. Grand Strategy," 23; Stephen Van Evera, "Why Europe Matters, Why the Third World Doesn't: American Grand Strategy After the Cold War," *Journal of Strategic Studies* 13, no. 2 (June 1990): 9.

intervening amounted to some 116,000 deaths and $100 billion spent fighting in 1917–18.[130]

It is clear, however, that the magnet effect does not always operate. Many great powers have remained neutral during distant great power wars. Britain and France both stayed out of the Russo-Japanese War despite close financial ties to the combatants.[131] All the European powers stayed out of the long, bloody, and expensive American Civil War, despite the hopes of Confederate leaders. Much more elaboration of the transmission mechanism for the general magnet theory is needed for it to be credible.

The specific form of the argument on the First World War offers one such transmission mechanism: great powers may be drawn into overseas wars when they maintain economic ties to the belligerents. This version operates in two ways. First, trade in a combat zone may lead to attacks on the property and citizens of neutral countries, leading to retaliation and war. Second, investment by neutral countries in the economies of the combatants may give them such an economic interest in the outcome of the war that they intervene on behalf of debtors who owe them money.

Neither of these arguments linking economic ties with belligerents to the spread of war makes much sense. Neutrals can trade with belligerents without running undue risk if they insist that the belligerents transport their purchases on their own ships or rail cars. The U.S. Congress understood this solution in 1916; a resolution was introduced to prohibit Americans from sailing on the ships of any belligerent country. President Woodrow Wilson killed the resolution, arguing that it would infringe on Americans' rights as neutrals to travel where they please.[132] Rather than prohibit U.S. ships from sailing through the war zone, the Wilson administration's policy was to increase the proportion of American products that would be carried on U.S. ships. Soon after war erupted the United States seized 163 British merchant ships currently being built in U.S. shipyards and added them to the U.S. merchant fleet.[133] By allowing the British to take delivery of the ships they had ordered, and perhaps even selling or leasing other U.S. merchant ships to the United King-

130. Harvey M. Sapolsky, "War Without Killing," in *U.S. Domestic and National Security Agendas*, ed. S. Sarkesian and J. Flanagin (Westport: Greenwood Press, 1994), 34, and Table 2.2; Charles A. Beard, *The Devil Theory of War: An Inquiry into the Nature of History and the Possibility of Keeping Out of War* (New York: Vanguard, 1936), 104.

131. James Long, "Franco-Russian Relations during the Russo-Japanese War," *Slavonic and East European Review* 52, no. 127 (April 1974): 213–33.

132. Lloyd E. Ambrosius, *Wilsonian Statecraft: Theory and Practice of Liberal Internationalism During World War I* (Wilmington, Del.: Scholarly Resources, 1991), 58; Walter A. McDougall, *Promised Land, Crusader State: The American Encounter with the World Since 1776* (New York: Houghton Mifflin, 1997), 133.

133. David Kennedy, *Over Here*, 326.

dom for the duration of the war, the United States would have been able to trade with the British without putting American sailors and ships in harm's way.

The link between investment and intervention is even more tenuous. Some influential economic historians argue that pressure from New York bankers who faced default on about $2.5 billion in loans to the Allies compelled the Wilson administration to declare war.[134] The cost that American lenders would bear in such a debt default, however, does not come close to the cost of U.S. participation in the First World War. If the Wilson administration really wanted to cover the losses of this powerful political interest group, it could have found many less costly ways to do so.[135]

Overall, the magnet effect theory applied to the U.S. role in the First World War is not convincing. Other American policies may have drawn the United States into war—such as the refusal to require belligerent trade to be carried on foreign cargo ships—but neither trade nor financial relations with belligerents required the United States to fight. Hence the costs of the war should not be counted in the assessment of the costs and benefits of the U.S. neutrality from 1914 to 1917.

REBUTTAL CASE: THE IRAN-IRAQ TANKER WAR

The Iran-Iraq War is a good case to evaluate the strategic adaptation theory because it helps to answer three key questions that may be raised about the First World War case. First, has the world economy changed dramatically since the First World War, and if so, what does the above analysis tell us about U.S. foreign policy today? Second, many analysts believe that oil is different from any other commodity, and any military instability in or around the Persian Gulf would seriously jeopardize the U.S. economy. Some analysts in the 1970s even went so far as to warn

134. See, for example, Beard, *The Devil Theory of War*, 89–90, 91–92, and 102.

135. Actually the Wilson administration did not need to find any money to compensate the bankers in 1917. Even if the government fully intended to cover the bankers' losses, a better policy would have been to wait and see 1) whether the Allies lost the war; and 2) if, once defeated, the Allies defaulted on their debt. Even losers of wars often repay their debts, because countries need capital to rebuild their societies. Defaulting on loans is a bad way to encourage new investment. For example, the financially strapped Russians did not default on their debt to French banks immediately after losing the Russo-Japanese War, and the French banks continued to engage in normal, profitable commerce with the Russians. See Dietrich Geyer, *Russian Imperialism: The Interaction of Domestic and Foreign Policy, 1860–1914* (New Haven: Yale University Press, 1987), 230–34, 255; René Girault, *Emprunts Russes et Investissements Français en Russie, 1887–1914* (Paris: Librarie Armand Colin, 1973), 448–49. Default seems much more likely when the loser's system of government is overthrown, as in the case of the Confederacy's debts after the American Civil War or Russian debts after the revolution in 1917. In the First World War case, most U.S. loans to the Allies prior to 1917 were to the British, and the United Kingdom was very unlikely to be conquered regardless of the outcome of the First World War on the European continent.

that a war between major oil producers was one of the biggest threats to the global economy, and "then, in September 1980, the doomsday scenario became nightmarish reality. Iraq attacked Iran."[136] Is there something unique about oil that makes the modern world economy especially vulnerable to foreign wars in the Persian Gulf? Third, while attacks on cargo ships were difficult during the First World War, hasn't modern technology (for example, high-tech antiship cruise missiles) made trade interdiction much more effective?

The Iran-Iraq war addresses all three of these questions. First, it occurred in the 1980s, when the precursors of the current reports on the global New Economy were starting to appear. Second, the belligerents explicitly targeted the oil trade. Iraq sought to compensate for setbacks in the land war by using its air force to attack Iranian oil port facilities and shipping. Iran responded with attacks on tankers and cargo ships, punishing Iraq and also the Gulf Monarchies that were providing financial support to the Iraqi war effort.[137] Third, Iran and Iraq used relatively modern antiship weapons in their efforts to interdict the flow of oil, including the famous Exocet missile deployed on Iraqi helicopters and jet aircraft.[138] Even in these conditions, however, the strategic adaptation theory still captures the market dynamics within neutral economies, and in the world oil industry in particular.

Despite the efforts of Iran and Iraq to disrupt each other's oil exports, the world economy adapted and oil prices dropped to only slightly above their prewar level within months of the outbreak of the war.[139] Four main factors prevented the Tanker War from imposing a substantial cost on neutral countries. First, other oil suppliers, in the Middle East and elsewhere, increased production to compensate for interdicted oil supplies.[140] The flow of oil substantially increased through ports in Oman and the United Arab Emirates.[141] Second, the Gulf states took steps to reduce the vulnerability of their exports to attacks against Gulf shipping. Iraq built major new pipelines to the Mediterranean Sea through Turkey and to the

136. David E. Long, "Oil and the Iran-Iraq War," in *The Iran-Iraq War: An Historical, Economic, and Political Analysis*, ed. M. S. El Azhary (New York: St. Martin's, 1984), 38.

137. Martin S. Navias and E. R. Hooton, *Tanker Wars: The Assault on Merchant Shipping during the Iran-Iraq Crisis, 1980–1988* (London: Tauris Academic Studies, 1996), 70–72, 112, 130–31.

138. The Iranians used relatively few dedicated antiship weapons. Most of their attacks on ships used machine guns and Hellfire antitank missiles, but toward the end of the war, the Iranians did fire quite a few Chinese-made Silkworm antiship cruise missiles.

139. Lynch, "The Wolf at the Door or Crying Wolf?" Figure 16; Eliyahu Kanovsky, "Economic Implications for the Region and World Oil Market," in *The Iran-Iraq War: Impact and Implications*, ed. Efraim Karsh (London: Macmillan, 1989), 243.

140 For example, both the Saudis and Venezuelans increased production. Navias and Hooton, *Tanker Wars*, 43, 194.

141. Ibid., 42.

Red Sea through Saudi Arabia. Iran expanded its non-Gulf port facilities including Chah Bahar.[142]

Third, the volume of oil-related shipping in the Persian Gulf is simply so high that the missile, bomber, and mine attacks used during the war were unable to influence the oil industry's transport costs substantially or to reduce the supply of Persian Gulf oil on world markets. Less than one percent of Gulf tanker movements were attacked.[143] Fourth, oil is a vital export for Iran and Iraq, so the belligerents took steps to get their oil to market in order to fund their war efforts. Iran repeatedly increased production and lowered prices to expand its market share during the war. It also reduced the risk to shipping companies by establishing a tanker-shuttle service that brought Iranian oil away from the war zone on Iranian tankers and then off-loaded it to international ships out of harm's way. Iran even offered low-premium insurance to international merchants willing to serve the frequently targeted Kharg oil terminal.[144] The result of these factors was a general production glut that drove the world price of oil steadily downward throughout the period.[145]

Modern missile technology used in the Iran-Iraq War specifically failed to increase the scale of the economic effect of the war. By 1988, Iraq had obtained approximately 750 Exocet antiship cruise missiles—the most effective and modern weapons used in the war[146]—but these weapons did not give Iraq the ability to sever Iran's oil trade. Many Exocet warheads failed to explode when they hit their targets. Even those that did explode frequently failed to cause serious damage to the tankers. Tanker hulls, it turns out, provide more armor protection than is standard on the warship designs that the Exocet was intended to target. Furthermore, the tankers' compartmentalized construction, fire-inert reservoirs of crude oil, and advanced fire-suppression systems all limited damage from missile strikes.[147] These

142. Ibid., 89, 177, 179.

143. Ibid., 98 and 130.

144. Ibid., 42, 61, 95, and 97.

145. Kanovsky, "Economic Implications."

146. Many Iranian attacks used strafing and Hellfire antitank missiles against tankers' superstructures, giving them little hope of sinking the ships. Expanded Iranian use of Silkworms might have made some difference in the effectiveness of their antitanker attacks, but it is unlikely that they would have profoundly changed the course of the tanker war. The Silkworm's warhead is roughly three times as large as the Exocet's warhead, so Silkworm attacks, were they able to hit their targets, might be expected to threaten tanker traffic more than the Exocet attacks did. Silkworms, however, have a history of malfunctions, and even their 445 kg warheads might not be powerful enough to sink an oil tanker. In fact, while the few Iranian Silkworm hits did a lot of damage, they did not automatically sink tankers, either. See *Jane's Naval Weapons Systems*, issue 22 (August 1996); and Navias and Hooton, *Tanker Wars*, passim.

147. Michael Eisenstadt, *Iranian Military Power: Capabilities and Intentions* (Washington, D.C.: Washington Institute for Near East Policy, 1996), 58; Navias and Hooton, *Tanker Wars*, 85–88.

features of tankers will probably continue to protect commercial shipping from at least the next generation of antiship cruise missiles.[148]

If a country could actually block the flow of oil out of the Persian Gulf the United States would have an interest in keeping this sea lane open. The mouth of the Persian Gulf—the Strait of Hormuz—may be the world's only so-called maritime choke point that could not be circumvented at acceptable costs.[149] As the Iran-Iraq war demonstrates, however, severing oil traffic in the Persian Gulf would be extremely difficult, even in the age of antiship cruise missiles.

SUMMARY OF THE CASE STUDY RESULTS

The historical evidence does not support the fear that overseas wars will seriously damage the U.S. economy. The United States either benefited or broke even during the period of the First World War when it was neutral, and the Iran-Iraq tanker war shows that even attacks on oil using modern weapons will not necessarily impose large costs on the United States. Specific predictions of the strategic adaptation theory were also borne out with respect to each of the four transmission mechanisms in both cases, adding to our confidence in the theory's veracity.

IMPLICATIONS FOR THE UNITED STATES TODAY

WHAT DOES THE strategic adaptation theory tell us about the vulnerability of the U.S. economy today? Would a war in East Asia or Europe inflict large costs on the contemporary U.S. economy? How does the range of plausible costs

148. The main advancement offered by the Russian-manufactured SS-N-22 "Sunburn," which many analysts are touting as the next missile proliferation threat, is its supersonic speed. Speed contributes to antiship cruise missile effectiveness, because it makes the missiles less vulnerable to the defenses and countermeasures of their targets. Speed also helps the missile reach its target before the ship has time to move from the original point of observation—an important consideration when attacking fast-moving warships at long range. Commercial ship traffic, however, does not deploy defenses, move quickly, or frequently change course to hide from missile attacks. The attacks on oil tankers during the Iran-Iraq War did not fail because the tankers were able to employ electronic countermeasures or shoot down the missiles, but because the tankers proved resilient targets. Several tankers survived five or even six missile strikes without sinking. Navias and Hooton, *Tanker Wars*, 88, 133–35, and Table 6.1 and other tables. *Jane's Naval Weapons Systems*, issue 15 (1994), reports that even the Sunburn manufacturer's advertisements only maintain that it can severely damage a 20,000 tonne merchantman with 1–5 missile strikes; oil supertankers are more than ten times that big, which suggests that they are likely to prove very survivable against attacks with the SS-N-22.

149. The only other way to get oil from Persian Gulf terminals to the rest of the world is through pipelines, but there is not nearly enough slack in pipeline capacity to compensate for the complete closure of the Strait of Hormuz. Lynch, "The Wolf at the Door or Crying Wolf?"

of such a war compare to the costs that the United States pays every year to prevent overseas conflict? In this section we make two arguments. First, we argue that on the basis of the key independent variables of the strategic adaptation theory, the United States appears to be positioned to ride out foreign wars—even large ones—at moderate cost. Second, we calculate the costs that the United States spends every year to preserve global stability and show that these costs are very large compared with the plausible costs of instability.

APPLYING THE STRATEGIC ADAPTATION THEORY: ASSESSING AMERICA'S CURRENT VULNERABILITY

In this section we compare current U.S. economic vulnerability to U.S. vulnerability prior to the First World War. The U.S. economy did well during the period of neutrality from 1914 to 1917. Does it look like the United States would do similarly well today if there were a major war in Europe or Asia? The answer is that the United States is somewhat worse off than it was prior to the First World War, but the likely economic cost of future foreign wars is still relatively small. On the basis of the trade transmission mechanism—comparing potential wartime opportunities against likely adjustment costs—America's position today is probably better than it was prior to the First World War. On the other hand, the United States is now more vulnerable than it was in 1914 to foreign disruptions of international lending and FDI because of the large U.S. foreign debt and trade deficit.

Trade. When a war erupts neutrals enter a costly adjustment period. During this period neutrals suffer because their previous economic plans had been based on peacetime conditions. Belligerents no longer want to buy the things they had routinely purchased during peacetime. Equally important, the belligerents no longer want to produce and export things that neutrals had expected to buy from them. Once neutrals adjust to the new conditions, however, they can reap the benefits of highly profitable wartime trade with belligerents and expand their sales to some of the belligerents' prewar export markets. The questions to ask about current U.S. vulnerability to trade disruptions during overseas war are: (1) is the United States likely to pay large adjustment costs?; and (2) will the United States be in position to exploit the new wartime opportunities once the adjustment period is over?

The United States is in a better position to weather the adjustment period today than it was at the beginning of the First World War. First, although trade now accounts for substantially more of the U.S. economy than it did before the First World War (25.8 percent versus 10.8 percent),[150] it is no longer concentrated in

150. The percentages are the sum of exports and imports divided by GNP (1913) and GDP (2000). The 1913 number is calculated from data in "Historical Statistics 1975," Series F-1 and U-190; the 2000 number is calculated from data in U.S. Federal Reserve Board,

any single region of the world. In 1913, 44.3 percent of U.S. trade was with the European great powers; today U.S. trade with these countries accounts for only 10.5 percent of the total. A higher fraction of U.S. trade involves the leading economies of East Asia, but it is still only 18.0 percent.[151] Combining the previous two points, trade with East Asia in 2000 accounted for 4.6 percent of U.S. GDP, while trade with Europe in 1913 accounted for 4.8 percent of GNP. The net effect is that the U.S. economy is slightly less vulnerable today to a great power war than it was to the First World War, even if the modern war broke out in the region in which the United States is most vulnerable.

There is a second, related, trend that reduces U.S. vulnerability to trade disruptions: the global decentralization of world production and wealth. At the beginning of the First World War, the European powers controlled nearly 50 percent of the world's productive might.[152] Today, the European great powers produce 21.5 percent of gross world product, while the four large East Asian economies combine for 19.1 percent.[153] The more balanced distribution of world production suggests that the effects of trade disruptions in any region would be smaller than they were in the First World War, because strong economies on the other side of the world would serve as alternatives to disrupted belligerent markets.

Not only is the contemporary United States in a better position to weather the adjustment period, it is also well suited to increase exports during a war to profit from the belligerents' accelerated consumption and to move into belligerents' overseas markets. The U.S. economy is probably more adaptable today than it was prior to the First World War. First, its enormous size means that adjustments are likely to represent only small fractions of total U.S. GDP. Second, the United States has a very diverse production profile, so some U.S. firms are likely already to produce the goods and services demanded by the belligerents—or at least make products very similar to the wartime demand. Furthermore, the United States is currently a leading producer of goods usually sought by belligerents, including munitions, grains,

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Flow of Funds Accounts of the United States: Flows and Outstandings First Quarter 2001 (Washington, D.C.: Board of Governors of the Federal Reserve System, 8 June 2001), 58, Table L.1, and US International Trade Administration, "U.S. Foreign Trade Highlights," U.S. Department of Commerce [www.ita.doc.gov/td/industry/otea/usfth/top80cty/top80cty.html].

151. Data on U.S. trade with Europe's current list of great powers (the United Kingdom, France, Germany, Italy, and Russia) and the economic leaders in Asia (Japan, China, South Korea, and Taiwan) are from U.S. International Trade Administration, "U.S. Foreign Trade Highlights."

152. Paul M. Kennedy, "The First World War," 12, and Table 4.

153. For 1999 GDP and gross world product numbers, see International Bank for Reconstruction and Development, *World Development Indicators 2001* (Washington, D.C.: The World Bank Group, 11 April 2001), 10-12. Because the World Bank does not collect statistics for Taiwan, for its GDP see International Institute for Strategic Studies (IISS), *The Military Balance, 2000-2001* (London: Oxford University Press, 2000), 214.

and manufactures. Third, U.S. factor endowments are very similar to the factor endowments of the other great powers. This means that during any great power conflict, the United States should be in good position to move into the belligerents' overseas markets, because it can produce the belligerents' normal peacetime exports relatively efficiently. Finally, the U.S. economy is structured for rapid adaptation. The United States enjoys efficient capital markets stocked with venture capital and waves of consultants who make their livings helping companies restructure to adapt to changing market conditions. With computerized inventories and just-in-time delivery, it is less likely that a war will leave U.S. companies with large warehouses full of produced—but no longer demanded—goods. The United States is more capable of rapid adaptations than the other large economies today, and it is even more capable of quick adaptation than it was during the First World War.

Given this generally favorable description of the current U.S. economic situation, what is a plausible estimate for the trade-related costs of an overseas great power war? Two steps are required. First, we must estimate the profits that U.S. firms would earn from war-related export opportunities. If the big countries in either Europe or Asia began consuming war matériel at a rate typical of great power conflicts, U.S. exports would surge. For example, French and British imports increased by more than 10 percent of national income during the First World War.[154] A war today that required a proportionate increase of Japanese, or British and French, consumption each year would create an additional $250–400 billion of demand for the products of the rest of the world. While U.S. firms would not supply all of that demand, they would surely win a large portion of it.[155] Of course, the money paid to the exporters cannot all be counted as profit, because goods and services would be exchanged for the payments, but wartime sales should garner some excess profit for U.S. producers due to the inelasticity of belligerents' demand. At the high end, the profit margin might match the 38 percent increase that was earned on First World War sales to the British; alternatively, modern exporters might earn less. Extrapolating from the First World War figures and accounting for the diversification of world production, the gross profits that might be earned by a neutral

154. Wartime imports from the United States alone accounted for more than 10 percent of the Europeans' national incomes. See "Statistical Abstract 1920," Tables 288 and 462.

155. U.S. exporters supplied a very high percentage of the belligerents' demand for imports for the first three years of the First World War, because the United States was the only major developed country that was not involved in the fighting. A neutral United States would now face competition from exporters on the other side of the world if there were a regional great power war: East Asian producers would compete for sales during a European war, and vice versa.

United States through exports to great power combatants might be near $50 billion each year.[156]

Second, we need to subtract an estimate of adjustment costs from that profit figure to calculate the net economic effect of the trade transmission mechanism. Remember that a plausible estimate of the magnitude of adjustment costs is that they reduce the value of output during the adjustment period by 30 cents for each dollar of investment. If all U.S. firms associated with trade in East Asia were forced to adjust, and if those firms had to increase their investment by 50 percent over their regular peacetime rate to adapt rapidly to wartime conditions, then the total adjustment cost of a war involving all four of the largest economies in East Asia would be approximately $60 billion.[157]

In sum, a short great power war might cost the United States $10 billion on the trade account ($50 billion of extra trade profits minus $60 billion of adjustment costs). If a war lasted longer than a year, as many great power wars have in the past, then trade profits might exceed adjustment costs and the United States might earn a net profit.[158]

International finance and FDI. In terms of international finance and FDI, the United States is in a worse position today than it was prior to the First World War, but the costs from this exposure will likely be small. The key question to ask here is about liquidity: is the United States a net consumer of liquidity or a net supplier of it? Consumers of liquidity suffer during wars when global interest rates rise, because they must borrow money at the higher wartime rates. They are also less able to buy up the discounted assets of belligerents. Neutrals with substantial liquidity, on the other hand, are able to lend out money at the higher rates and buy the belligerents' assets at favorable prices. Today, the United States is a net consumer of liquidity because of its national debt and trade deficit.

156. The $50 billion figure assumes the midpoint of the range of expanded belligerent import demand ($325 billion), that U.S. exporters supply only 50 percent of that demand, and that the exports earn a profit margin of only 30 percent.

157. The total adjustment cost is composed of $30 billion during the transition period at the start of the war and $30 billion during the postwar "return to normalcy." The adjustment cost is calculated by augmenting 2000 U.S. nonresidential investment of $1.4 trillion by the 50 percent factor mentioned in the text, then multiplying by the fraction of U.S. economic activity concerned with East Asian trade in 2000 (4.63 percent), and then multiplying by the 30 percent adjustment cost fraction estimated by Lichtenberg, "Estimation of the Internal Adjustment Costs Model." Figures for 2000 U.S. nonresidential investment are from U.S. Federal Reserve Board, *Flow of Funds Accounts of the United States*, 12, Table F.6.

158. Note that firms choose to adjust based on their expectation of profitable wartime trade. If managers know that a war will be very short, they may choose not to invest in adjustment. That choice would decrease their wartime profits, but it would also save them from paying the double adjustment costs. The net cost of short wars may therefore be smaller than the $10 billion suggested in the text.

America's very large debt enlarges its economic vulnerability to increases in interest rates. In 1914, the debt was small relative to the size of the U.S. economy.[159] Today the debt is much bigger, and the foreign-held component amounts to 22 percent of GDP.[160] Each year the United States must sink some of its capital into either rolling over or retiring the portion of the debt that comes due. The fraction of these payments that goes to foreign lenders constitutes a capital outflow that must be met each year with liquid assets.[161]

Additionally, the United States runs a very large trade deficit today, which is a liquidity sink. Before the First World War, the United States had a $470 million trade surplus, which was whittling down the debt each year. The war-related surge in exports multiplied this surplus and quickly erased the debt altogether. Today, America's annual trade deficit of roughly $315 billion adds to the national debt each year instead of reducing it.[162]

The large debt and huge trade deficit mean that the United States is unlikely to profit by lending money out at high wartime rates or by buying up cheap foreign assets. In fact, if U.S. interest rates rise, the United States will need to finance its debt and trade deficit by borrowing money at the higher interest rates. That increased cost would reduce national wealth.

Although the U.S. liquidity position is not as favorable as it was prior to the First World War, the costs that this situation would impose on the U.S. economy during a war are not likely to be large. First, interest rates are not likely to rise much in the United States, even if there is a major war overseas. More global capital is available for investment today than prior to the First World War, so increases in consumption by the belligerents will be a smaller percentage of total capital than they were in the earlier case. Furthermore, the fact that none of the European or East Asian great powers have as great a share of the world's production today as the European belligerents commanded prior to the First World War suggests that they will be unable to borrow as large a fraction of global capital. Their national "credit limits" should be lower as a proportion of total world capital than the credit limits of the European belligerents in the First World War. Finally, if there were a major war in Europe or East Asia, the United States would be an ideal safe haven for investments. Notice that during the recent East Asian financial crisis capital flowed from the plummeting East Asian economies and the moribund European

159. David Kennedy, *Over Here*, 305.

160. U.S. Federal Reserve Board, *Flow of Funds Accounts of the United States*, 12, 58, Tables F.6 and L.1.

161. Any extra payments to domestic lenders are a transfer from U.S. borrowers to U.S. lenders; they do not result in a loss of national wealth.

162. The U.S. trade deficit fluctuates substantially year to year. $315 billion is a two-year average, covering 1999–2000. See "U.S. Trade Deficit is Down, But Only a Bit," *New York Times*, 20 December 2000, C3.

economies to the United States. While the East Asians struggled to raise capital, interest rates dropped in the United States.[163]

Second, U.S. consumption of liquidity would shrink substantially if there were a major war that opened new export opportunities for the United States. The additional $150–200 billion of U.S. exports each year that might be sold to great power belligerents would substantially reduce the trade deficit. In addition, new opportunities to export to other neutrals and reduced imports from the belligerents would also cut into the trade deficit. These factors, when combined, might even be sufficient to eliminate the U.S. trade deficit entirely, although that outcome would be surprising.

Although a major overseas war might reduce the trade deficit, the trillions of dollars of outstanding U.S. debt would not go away. If U.S. interest rates rise because of the war, how much would this cost the United States in additional interest payments?

A simple calculation demonstrates that the increased wartime costs of servicing U.S. debts would be very small. Total U.S. debt owed to foreigners—including both government and private borrowing—is approximately $2.2 trillion.[164] A wartime increase in interest rates would not increase the interest that the United States must pay for all existing bonds; the higher rates would only increase the costs for any new bonds that are issued during the war (including old bonds that come due and must be rolled over). Approximately 37 percent of outstanding U.S. debt rolls over every year, plus the United States must borrow additional funds to cover the current trade deficit. Those two sources of U.S. demand for foreign capital comprise the total principal to which any wartime interest rate premium would apply. If U.S. interest rates rose by 1 percent during an overseas war, the United States would lose $9-11 billion each year in higher interest payments for as long as the war lasted.[165]

163. Robert Hurtado, "Bonds Up 5th Time in 6 Sessions as Foreign Money Seeks Refuge," *New York Times*, 9 January 1998, D6; Fareed Zakaria, "Still the Best in the World," *Washington Post*, 24 July 2001, A21.

164. U.S. Federal Reserve Board, *Flow of Funds Accounts of the United States*, 58, Table L.1.

165. Each year the United States has to roll over about 37 percent of the $2.2 trillion that it borrows from foreigners. A 1 percent premium on interest rates (a larger increase than the historical data supports) would increase the cost of servicing this foreign-held debt by $8.1 billion. In addition, the United States would have to service the new debt created by the yearly trade deficit. In reality, the trade deficit would probably shrink dramatically because U.S. exports would likely surge during an overseas war. Even if the trade deficit remained constant, the higher wartime interest rate would only increase servicing costs by 1 percent of $315 billion, or $3.1 billion. Adding these two figures together produces a high-end estimate for total U.S. costs due to interest rate increases: $11 billion per year during the war. The fraction of U.S. debt that rolls over each year is calculated using data from U.S. Office of Public Debt Management, *Monthly Statement of the Public Debt of the United States* (Washington, D.C.: Bureau of the Public Debt, 30 June 1999, 30 June 2000, and 30 June 2001). The relevant table in each of these reports is Table III.

On balance, the United States today is more likely to suffer small costs from a major overseas war than it was immediately prior to the First World War. On the positive side, the United States is in a better position to weather the trade-related adjustment costs at the outset of a war, and it is ideally suited to expand profitable trade during a war. Depending on the length of the war, wartime export profits might exceed adjustment costs, yielding a small increase in national wealth from trade. On the negative side, the large national debt might expose the United States to the loss of a few billion dollars in overseas interest payments. The sum of these trade and financial effects of a foreign war, though, would likely be very small.

THE COSTS OF STABILITY: HOW MUCH DOES THE UNITED STATES PAY TO PRESERVE THE PEACE?

The previous section suggests that the plausible costs of wars to a neutral United States are very small. In fact, based on the comparison with the U.S. economy in the early years of the First World War, the United States might profit slightly from overseas wars, because the beneficial trade effects counterbalance the costs of increased interest rates. This assessment, however, only tell us one side of the public policy equation: the economic costs of large-scale instability. We also need to estimate the price that the United States pays each year to prevent that instability before we can assess the wisdom of U.S. efforts to keep the worldwide peace. How much does the United States pay to prevent war and instability?

Measuring the costs that the United States incurs to increase international stability involves two key estimates. First, we need to estimate the extra military spending that the United States undertakes every year to fulfill this mission. Second, we need to assess the toll on national wealth that this extra spending entails.

This article began with the observation that the traditional threats to U.S. national security have all nearly vanished. America's primary cold war concern was that a hostile power would take over the other wealthy, powerful parts of the world (that is, Western Europe and Japan). Now the Western Europeans and Japanese—America's key allies—are far stronger than any potential threats. Furthermore, because all of these countries could easily deploy a secure second-strike nuclear force, they can protect themselves from conquest into the foreseeable future. Only in the Persian Gulf are U.S. allies weak and are U.S. interests, therefore, vulnerable. With the exception of defending Persian Gulf oil from conquest, the United States does not need to do much to protect its traditional security inter-

ests.[166] A much smaller military could meet this national security challenge, provide considerable insurance against the unforeseen, and still save $150 billion per year.[167]

If the United States could achieve its military policy goals, other than promoting global stability, with a $150 billion defense budget—that is, if the United States only requires the rest of the force to maintain the alliances and sustain the operations that enhance stability—then the budgetary cost of the stability mission is $150 billion. What, however, is the annual drain on national wealth of this extra defense spending? Since much of the defense bill is paid to American defense contractors, military personnel (salaries), and civilian and military research laboratories, the payments cycle through the U.S. economy and produce some wealth. Does this not mean that the extra $150 billion of defense spending actually reduces U.S. wealth by less than $150 billion per year?

166. The United States faces other possible security threats besides the conquest of its allies. For example, hostile nations are now so weak relative to the United States and its key allies that terrorism is a greater short-term threat to the United States than attack from an enemy country. While terrorism is a security threat, it is best combated through intelligence agencies and domestic police, not through conventional military forces. The United States also has foreign policy interests other than reducing security threats. For example, most Americans—including the authors—would like U.S. foreign policy to promote American values abroad, reduce human suffering, and protect the environment. None of these worthy goals, however, can be pursued efficiently with military forces. If the United States abandoned the military mission of preserving global stability and fielded a force designed primarily to protect vulnerable oil assets in the Persian Gulf, the savings could total approximately $150 billion per year. Also, the United States would *still* spend more on defense than any other country in the world.

167. This total reflects $150 billion of savings out of a current defense budget of approximately $300 billion; a reduction of 50 percent. The proposed budget reflects the authors' estimates of the size of a military force to 1) maintain a robust nuclear deterrence; 2) continue with substantial military research and development (but not procurement); 3) continue to field enough military forces and force projection assets to prevent violent consolidation of Persian Gulf oil. Even with these dramatic cuts, the United States would still spend more on defense than any other country in the world. In other words, the United States could cut defense spending in half and still lead the world in defense spending—allowing for a substantial "cushion" in national security to deal with unforeseen events.

These cuts would leave the United States with a $150 billion military force structure. We used several methods to estimate necessary levels of spending for the above missions, and each method led us to the $150 billion ballpark. First, the Clinton Bottom-Up Review (BUR) force, designed to conduct two nearly simultaneous Major Regional Contingencies (MRCs), was estimated to cost approximately $250 billion in 1997 dollars. See Les Aspin, *The Bottom-Up Review: Forces For A New Era* (Washington, D.C.: U.S. GPO, 1993). We estimate that a 1 MRC force would cost approximately half that. See Gholz, Press, and Sapolsky, "Come Home America," n. 19. In 2001 dollars that would approach $150 billion. A second way of thinking about a $150 billion force is that it would equal roughly *four times* the British defense budget; Britain fields one of the most powerful militaries in the world after the United States. See IISS, *The Military Balance*, 80-83.

Other analysts who have estimated the costs of a U.S. military force with similarly reduced missions estimate that the United States could only save $70–100 billion. See Posen and Ross, "U.S. Grand Strategy," 14-15, n. 11, and Table 2.

The answer to this question is "no." If the United States spends an additional $150 billion on defense above its foreign policy needs, then the cost to U.S. net wealth is exactly $150 billion. It is true that defense spending, like all government spending, creates a Keynesian multiplier effect in which government outlays stimulate additional economic activity, but all spending—by the government or the private sector—puts money into circulation and stimulates further activity. In other words, the extra $150 billion of spending comes at the expense of either private sector spending (if the alternative to the extra spending were tax cuts) or government spending on other projects. There is little reason to believe that the multiplier is greater for defense spending than for other forms of government spending.[168] The general presumption, in fact, is that private sector spending is more efficient than government spending, meaning that the U.S. economic growth (and especially productivity growth) might accelerate if the money freed up through defense cuts were returned to the public to spend as individual American citizens and corporations wish.

Since the Keynesian stimulus effect cancels out whether the government spends the $150 billion on extra defense or extra domestic infrastructure, for example, then measuring the wealth effect of the extra defense spending is simple. Each year the United States buys $150 billion worth of military hardware, training, and research and development that it needs to provide global stability, but that it does not need simply to defend America's traditional security interests. The fulfillment of the stability mission is what the United States buys in exchange for its $150 billion in spending.

At that level of spending, the United States is paying far more to prevent instability than instability could plausibly cost the U.S. economy. Each decade the United States spends about $1.2 trillion to enhance international stability.[169] An overseas war during that period, however, would probably not cost the United States one-

168. There is actually a vigorous debate in the defense economics literature about the size of the defense spending multiplier, but the macroeconomic debate mostly is between advocates of the position that defense spending *harms* the economy by diverting otherwise-productive investment and those who argue that defense spending is equivalent to other types of government spending. For one example of a macroeconomic study of the effects of defense spending on the economy that does not find a significant accelerator effect, see Mark A. Hooker, "How Do Changes in Military Spending Affect the Economy? Evidence from State-Level Data" *New England Economic Review* (March/April 1996): 3–15. Another key defense economics debate on this point takes place at the microeconomic level, with many advocates of the "spin-off" hypothesis arguing that U.S. defense spending has led to crucial technological advances that have substantially increased productivity and GNP. Others argue that technological progress could be more efficiently pursued by private or at least nondefense governmental spending. For a critical analysis of the spin-off literature, see Eugene Gholz, "Getting Subsidies Right: Government Support to High-Tech Industries" (Ph.D. diss., MIT, February 2000, chaps. 2–3).

169. This total is the net present value of ten years of spending $150 billion per year calculated with a 6 percent discount rate.

tenth of that total. It makes no sense to pay $1.2 trillion for an insurance policy to protect the U.S. economy from a feared loss of significantly less than $100 billion. Looked at another way, the cost to the neutral United States of a preventable war would have to be almost 12 percent of a year's U.S. GDP in order to equal the cost of ten years of stability forces. Nevertheless, the strategic adaptation theory and the cases presented here suggest that foreign wars would not hurt the U.S. economy much at all. It is almost inconceivable that they could impose enough damage to justify U.S. military activism on an economic basis.

War and the Global Economy

One of the primary reasons offered for America's expensive global military presence is the vulnerability of the U.S. economy to disruptions from overseas conflicts. The analysis in this article, however, suggests that the costs of maintaining overseas stability are an order of magnitude higher than the plausible costs of distant turmoil. Each year the United States spends approximately $150 billion on the military beyond the requirements of protecting core U.S. national security interests, and this extra spending prevents at most a few billion dollars of cost to the United States from overseas instability and economic disruption. Protecting the U.S. economy from disruptions is not a sound reason for high levels of defense spending or global military activism.

On a more theoretical level, the analysis in this article undermines the implication of some celebrated liberal theories of international relations that economic interdependence will be a key cause of future peace. One set of liberal arguments focuses on the direct, immediate costs of war, which might increase as countries trade more and invest more in each other's economies. Bombing a political enemy might be a poor way to settle a dispute if that same enemy were a major trading partner. Another liberal theory holds that the indirect economic costs of conflict have risen with globalization: the global economy is now an intertwined web of complex relationships. Shaking the web in one area may create reverberations throughout the international system whose costs, though difficult to foresee in detail, could be very large. According to liberals, both the fear of direct economic loss from bombing one's trade partners and the fear of indirect economic consequences will dissuade countries from using military force to settle their disputes.

The central idea behind the strategic adaptation theory challenges the notion that economic interdependence increases the costs of wars. If the strategic adaptation theory is correct, the indirect consequences of conflicts will not be severe. Economic disruptions will generally not create costly global reverberations because the international economy is inherently flexible; states and other economic actors are

always adjusting to mitigate new costs and to exploit new opportunities. The sinews of the international economy do not propagate disruptions around the world. They dampen them instead.

More obliquely, this paper also suggests that globalization will not increase the direct costs of war, either. First, the marginal benefit of conducting business with one's first choice partner versus one's second choice may be shrinking as a result of globalization. If war temporarily inhibits trade with a particular country, alternative customers and suppliers on the other side of the world are now more likely to be available and happy to trade. If one's favored location for investment is temporarily unattractive because of war or instability nearby, a second-best location, accessible because of globalization, may be nearly as attractive as the first. Second, globalization should reduce the direct costs of wars to combatants, because efficient global trade makes war matériel and other vital wartime imports available at lower prices. Everything is expensive under autarky, and war is no exception. The more global and efficient the international economy becomes, the less expensive it will become to buy the goods one needs in order to fight. The high level of neutral-belligerent trade revealed in the empirical sections of this article is a mechanism by which belligerents limit the costs of conflict. In sum, fighting a trade partner today may be less costly than it was in the less globalized past.

If the global economy were rigid and fragile, then it would probably make sense to invest substantial sums of money to prevent overseas stability. The evidence, however, suggests otherwise. The bad news is that economic interdependence is not the powerful force for international peace that some liberal theories suggest. Contrary to these theories, economic globalization may even reduce the costs of wars somewhat. The good news is that the flexibility of the global economy largely insulates neutrals from the economic disruptions that may ensue. The best way for the United States and its allies to minimize the economic costs of overseas conflicts is to build their economic strength at home.