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Global Trade, WTO, Labor Arbitrage, American Workers and National Security—The Need for a U.S. Industrial Policy

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SUMMARY

The COVID-19 pandemic has exposed some of the problems in the current pattern of global trade, particularly with respect to supply chain disruptions. To understand the current status of global trade, it is helpful to understand the confluence of four seemingly disparate developments: (1) Ricardo's theory of comparative advantage in the early 1800s; (2) the rebuilding in the late 40s and 50s of our former adversaries—Japan and Germany—into export based economies; (3) the modification of capitalism in the 1980s to focus upon maximizing shareholder value; and (4) the rise of China as an economic and military powerhouse, facilitated initially by a low-wage manufacturing base.

Ricardo's concept of comparative advantage discusses: (1) how each country would be in a more advantageous position if it manufactured products that it is most efficient at producing, and (2) that allowing each country to specialize in the products it efficiently manufactures would be mutually beneficial to all countries involved when it comes to trade. However, disciples of Ricardo paid little attention to the two conditions that he articulated in order for his theory to work, both of which are no longer true today. Namely, that capital is loyal to the country of origin, and that currencies move to balance out trade deficits.

With respect to maximizing shareholder value, this focus, coupled with cheap labor in China and other nations, led to American companies to outsource our manufacturing sector. The interests of other stakeholders, such as employees, customers, suppliers, and communities, were minimized. During the Bush 43 administration, the U.S. economy lost about 5 million manufacturing jobs, or about one third of the previous total.

However, the major impetus for this blow to American workers came from President Clinton and his "free trade" philosophy, which led to the "most favored nation" status for China and, ultimately, the admission of China to the World Trade Organization. Unfortunately, China has never observed WTO principles regarding state-sponsored enterprises or policies against direct or indirect piracy of other countries' technology.

Today, the United States has lost its dominance in manufacturing, private sector labor unions have been greatly diminished, the economic situation of the middle class has stagnated for 40 years, and America's free-market economic and political philosophy has led to governmental

impasse and rising inequality. China is now expected to supersede the United States as the world's number one economic power.

This article asserts that, in order to provide high quality jobs for American workers, to protect American businesses against supply chain disruptions, and to ensure national security, the United States needs to adopt an industrial policy. Creating an industrial policy is something that many other advanced economies have already accomplished, as opposed to relying on the blind hand of the market to determine public policy.

The mantra of free trade in the United States has hinged on giving away low-tech jobs and diverting our resources and workers into high-tech jobs. Conversely, China does have an industrial policy, and it is determined to be a leader, not just in low-tech manufacturing, but also in high-tech industrial and military activities. Unless we focus our attention on maintaining a manufacturing base, we are going to be second to China in many high-tech industries, and from a military standpoint, will lose much of our leverage to ensure peace in the world.

I. INTRODUCTION

The COVID-19 pandemic has exposed various problems in the current pattern of global trade, particularly with respect to supply chain disruptions. To understand the current state of global trade, it is helpful to understand the confluence of four seemingly disparate developments: (1) Ricardo's theory of comparative advantage in the early 1800s,[1] (2) the rebuilding of Japan and Germany, after the end of World War II in the late 1940s and 1950s,[2] (3) the modification of capitalism to maximize shareholder value in the 1980s, and (4) the rise of China as an economic and military powerhouse.

Ricardo's concept of comparative advantage argues that each country is better off producing their relatively best products, and that global trade, enabling each country to specialize in products it manufactures most efficiently, will be mutually beneficial to all the

1. DAVID RICARDO, ON THE PRINCIPLES OF POLITICAL ECONOMY AND TAXATION (Library of Economics and Liberty 3d ed. 1999), https://www.econlib.org/library/Ricardo/ricP.html?chapter_num=8 - book-reader.

2. JAMES DOBBINS ET AL., AFTER THE WAR: NATION-BUILDING FROM FDR TO GEORGE W. BUSH, 11-36 (RAND Corporation, 2008) [hereinafter *Post-WWII Nation-Building*].

countries.[3]However, disciples of Ricardo pay little attention to the conditions he articulated in order for his theory to work.[4]

As opposed to the conduct of the allies in World War I toward their defeated rivals,[5] the United States, after World War II, helped rebuild the economies of Germany and Japan.[6] These two countries then developed an export-focused economy.[7] The path of Japan is particularly instructive with respect to the focus of this article upon China, since Japan initially produced lower-quality products but morphed its manufacturing sector into the high-tech area.[8]

With respect to maximizing shareholder value, this focus, coupled with cheap labor in China and other nations,[9] led American companies to outsource their manufacturing sector.[10] The interests of other stakeholders such as employees, customers, suppliers, and communities, were minimized.[11] The focus upon maximizing shareholder value was also facilitated, beginning with the Reagan presidency, by lack of antitrust

3. GARY E. CLAYTON, ECONOMICS: PRINCIPLES & PRACTICES 469-470 (2003).

4. RICARDO, *supra* note 1, at 150.

5. Following World War I, the victorious U.S. imposed severe economic reparations on Germany and its allies under the Treaty of Versailles. *See, e.g.*, Peace Treaty of Versailles, art. 231-247 and Annexes, June 28, 1919, https://net.lib.byu.edu/~rdh7/wwi/versa/versa7.html.

6. DOBBINS ET AL., *supra* note 2, at 11-36.

7. *Id*.

8. *The History of Quality*, AM. SOC'Y QUALITY, https://www.asq.org/quality-resources/history-of-quality (last visited Mar. 17, 2023).

9. *See infra* notes 105-117.

10. *See infra* notes 125-148.

11. Revlon v. McAndrews & Forbes Holdings, Inc., 506 A.2d 173, 182 (Del. 1986). (The Revlon board argued that it acted in good faith in protecting the noteholders because *Unocal* permits consideration of other corporate constituencies. Although such considerations may be permissible, there are fundamental limitations upon that prerogative. A board may have regard for various constituencies in discharging its responsibilities, provided there are rationally related benefits accruing to the stockholders. *See* Unocal Corp. v. Mesa Petroleum Co., 493 A.2d 946, 955 ((Del. 1985)). However, such concern for non-stockholder interests is inappropriate when an auction among active bidders is in progress, and the object no longer is to protect or maintain the corporate enterprise but to sell it to the highest bidder.) To stem the takeover movement, many potential targets put pressure on state legislatures to enact any takeover legislation, one piece of which was a stick over statute. *See, e.g.*, 805 ILCS 5/8.85 (West 2022). (In discharging the duties of their respective positions, the board of directors, committees of the board, individual directors and individual officers may, in considering the best long-term and short-term interests of the corporation, consider the effects of any action ((including, without limitation, action which may involve or relate to a change or potential change in control of the corporation)) upon employees, suppliers and customers of the corporation or its subsidiaries, communities in which offices or other establishments of the corporation or its subsidiaries are located, and all other pertinent factors.).

enforcement,[12] which facilitated the takeover movement,[13] oligopoly,[14] and the desire to maintain high stock prices to avoid being a takeover target.[15]

This article asserts that, in order to provide high quality jobs for American workers, to protect American businesses against supply chain disruptions, and to ensure national security, the United States needs to adopt an industrial policy, something that most other advanced economies have already done, instead of relying upon the blind hand of the market to determine public policy.

During the Bush 43 administration, the U.S. economy lost about 5 million manufacturing jobs, or about one third of the previous total.[16] However, this loss cannot be completely attributed to the Bush administration. The major impetus for this blow to American workers came from President Clinton and his "free-trade" philosophy, which led to the "most favored nation" status for China and, ultimately, to the Chinese admission to the World Trade Organization.[17] As a result of the free-trade policy advocated by Clinton and Bush, our trade deficit grew sharply, particularly because of trade with China, and was fueled by the outsourcing manufacturing activity of American business.[18]

For the most part, the focus of this article is upon China, because even Chinese researchers acknowledge that the industrial policy of China was initially intended to create a low-wage, export-driven industrial base, which would eventually expand into high-tech areas.[19] As Appendix I at the end of this article illustrates, the U.S. trade deficit with China has steadily risen from just over $33 billion in 1995 to over $418 billion in

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12. Ira M. Millstein & Jeffrey L. Kessler, *The Antitrust Legacy of the Reagan Administration*, 33 ANTITRUST BILL. 505, 506-509 (1998).

13. William L. Baldwin, *Efficiency and Competition: The Reagan Administration's Legacy in Merger Policy*, 5 REV. INDUS. ORG. 159-65 (1990).

14. *Firm Concentration is Rising, Particularly in Retail and Finance*, HAMILTON PROJECT (2018), https://www.hamiltonproject.org/charts/firm_concentration_is_rising_particularly_in_retail_and_finance.

15. Baldwin, *supra* note 13, at 168-69.

16. Justin R. Pierce & Peter K. Schott, *The Surprisingly Swift Decline of US Manufacturing Employment*, 106 AM. ECON. REV. 1632, 1639 (2016). *See also* Bill Foster, *Reviving American Manufacturing*, https://www.billfoster.com/issue/reviving-american-manufacturing/.

17. Nicholas R. Lardy, *Issues in China's WTO Accession*, BROOKINGS (May 9, 2001), https://www.brookings.edu/testimonies/issues-in-chinas-wto-accession/.

18. Will Kimball & Robert E. Scott, *China Trade, Outsourcing and Jobs*, ECON. POL'Y INST. (Dec 11, 2014), https://www.epi.org/publication/china-trade-outsourcing-and-jobs/.

19. Jici Wang & Lixia Mei, *Dynamics of Labour-Intensive Clusters in China: Relying on Low Labour Costs or Cultivating Innovation?*, INT'L INST. FOR LAB. STUD., 1, 4, 11 (2009).

2018, and then has dropped to $353,493 in 2021.[20] The trade deficit with China has dwarfed the deficits with other nations.[21] Moreover, these other countries observe the rule of law, do not manipulate their currencies, and embody labor rates that, except for Mexico, are comparable to those of the United States.[22]

What was the driver of this dramatic expansion of our trade deficit? Advocates of "free- trade" rely, at least in part, upon Ricardo's theory of comparative advantage. According to this theory, trade always benefits both countries.[23] Even if one country could make two products more efficiently than another (in Ricardo's example, wine and cloth), one country should specialize in the product that it produces more efficiently, and the other country should make the product that it produces more efficiently. According to Ricardo, the total amount of both products will be increased, and each country will be better off.[24]

The notion of comparative advantage seems somewhat perplexing; consequently, Ricardo used a concrete example of wine and cloth, which is set forth in Appendix II. However, Ricardo's theory is predicated upon the basic proposition that capital in each country will gravitate towards manufacturing products which that country makes more efficiently than other products.[25]

This paper asserts that Ricardo's theory is not valid in today's global economy. It is based upon two under-recognized premises, neither of which are true today. Namely, that capital is loyal to the country of origin, and currencies move to balance out trade deficits.[26] In reality, what has happened as a result of global trade, in many instances, is nothing

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20. The trade deficit declined in 2019 and 2020, in part due to the COVID-19 pandemic which originated in China in late 2019. For this reason, and comparative purposes, I am using 2018 data rather than later data available in appendix I.

21. The deficits with Germany and Mexico rose from about $15 billion in 1995 to around $70 billion and $108 billion, respectively, in 2021. The deficit with Japan rose from about $60 billion in 1995 to around $70 billion through 2021. The trade deficit with Canada rose from about $17 billion in 1995 to almost $80 billion in 2008, and dropped back to about $18 billion in 2018, before rising to about $50 billion in 2021, primarily because of energy costs.

22. Brad W. Setser. & Dylan Yalbir, *Tracking Currency Manipulation*, COUNCIL ON FOREIGN RELATIONS, https://www.cfr.org/article/tracking-currency-manipulation. (last updated Oct. 7, 2020, 8:00 AM).

23. Robert G. Gilpin, *No One Loves a Political Realist*, 5 SEC. STUD. 1, 9 (1996).

24. Renita D'Souza, *Free trade a win-win for all: Making comparative advantage work*, OBSERVER RESEARCH FOUNDATION: RAISINA DEBATES 1, 5 (Jun. 8, 2018), https://www.orfonline.org/expert-speak/41455-free-trade-a-win-win-for-all-making-comparative-advantage-work/.

25. *Id.*

26. RICARDO, *supra* note 1, at 20-30, 150.

more than labor arbitrage. U.S. businesses have shipped U.S. jobs to China and other countries, supposedly to benefit our citizens through lower prices.[27] But, the focus on consumer prices fails to take into account the negative effect upon wages of U.S. workers and the significant impact of other adverse effects, such as upon national health and national security, which Ricardo never considered.[28]

Labor unions were once a powerful force. Harvard economist Kenneth Galbraith argued that the interaction of big business, big government, and big labor would provide benefits for all in his book, *American Capitalism: The Concept of Countervailing Power*.[29]

The view of government as a player in ensuring prosperity has come under attack since 1980. President Reagan stated that "government is not the solution; government is the problem."[30] He also began the assault upon labor unions[31] which, except in the public sector, have steadily declined in influence and power.[32] While the primary responsibility of government has always been to protect its citizens, this is not true of business. Over time, there has been a decline in corporate responsibility, whereby a corporation has a responsibility, not just to its shareholders, but to other stakeholders such as customers, suppliers, employees, and communities in which it is located.[33]

Today, America has lost its dominance in manufacturing, private sector labor unions have been greatly diminished,[34] the economic situation of the middle class has stagnated for 40 years, and America's free-market economic and political philosophy has led to governmental

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27. Kimball & Scott, *supra* note 18, at 1.

28. RICARDO, *supra* note 1, at 150.

29. JOHN KENNETH GALBRAITH, AMERICAN CAPITALISM: THE CONCEPT OF COUNTERVAILING POWER (1952).

30. Ronald Reagan, President, United States of America, Inaugural Address 1, 2 (Jan. 20, 1981).

31. Bryan Craig, *Reagan vs. Air Traffic Controllers*, UVA MILLER CENTER 1, 5 (Aug. 3, 1981), https://www.millercenter.org/reagan-vs-air-traffic-controllers.

32. (Labor union membership has declined from roughly 20.1% of all employed wage and salary workers in 1983 to merely 10.4% of all such workers in 2018). *See Union Membership Rate 10.5 Percent in 2018, Down from 20.1 Percent in 1983*, BUREAU LAB. STAT., U.S. DEP'T. OF LAB. (2019), https://www.bls.gov/opub/ted/2019/union-membership-rate-10-point-5-percent-in-2018-down-from-20-point-1-percent-in-1983.htm?view_full.

33. To slow down the Takeover movement, which often resulted in the movement of manufacturing facilities out of the state of the target corporation, many states adopted "stakeholder" statutes, authorizing boards of directors to take the impact upon employees, customer, suppliers, and communities when making decisions. *See, e.g.,* 805 ILCS 5/8.85 (West 2022).

34. *Id.*

impasse and rising inequality.[35] China is now expected to supersede the United States as the world's number one economic power.[36]

It would be overly simplistic to suggest that one factor is responsible for all this change. What is clear is that, while America has held tight to the free market ideology, other countries have largely used governmental power to alter the economic landscape. This was illustrated in the 1970s with the Arab oil embargo and the formation of OPEC to control the supply and price of oil.[37]

It was followed in the 1980s by the rise of Japanese manufacturing in automobile and electronics sectors.[38] Japan relinquished profitability in its search for market share.[39] While the focus of American business was on maximizing shareholder value and quarterly profits,[40] rationalized on the basis that this would benefit the American consumer, the Japanese focus was on employment, and subsidizing the export market to the detriment of Japanese consumers.[41] For instance, Japanese consumers were traveling to Hawaii to buy electronics at the world price, rather than staying at home and buying at the domestic price.[42]

The Chinese government was a keen student of the foregoing and sought to develop an export-based economy.[43] American business seemingly did not look with alarm at the foregoing; after all, the Japanese export-driven economy did not lead to lower standards for Americans. But Japan was seeking to employ a workforce supporting a population of something over 100 million people, whereas China's population was over

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35. Lawrence Mishel et al., Wage Stagnation in Nine Charts, ECON. POL'Y INST. (2015), https://www.epi.org/publication/charting-wage-stagnation/.

36. *Chinese economy to overtake US 'by 2028' due to Covid*, BBC NEWS, (Dec. 26, 2020), https://www.bbc.com/news/world-asia-china-55454146.

37. *Brief History*, ORG. PETROLEUM EXPORTING COUNTRIES, https://www.opec.org/opec_web/en/about_us/24.htm.

38. Catherine C. Langlois, *For Profit or for Market Share? The Pricing Strategy of Japanese Automakers on the U.S. Market*, J. JAPANESE AND INT'L ECON. 55-57 (1997).

39. *Id*. at 57.

40. Jia Lynn Yang, *Maximizing shareholder value: The goal that changed corporate America*, WASH. POST (Aug. 26, 2013), https://www.washingtonpost.com/business/economy/maximizing-shareholder-value-the-goal-that-changed-corporate-america/2013/08/26/26e9ca8e-ed74-11e2-9008-61e94a7ea20d_story.html.

41. Charles F. Keown, *A Model of Tourists' Propensity to Buy: The Case of Japanese Visitors to Hawaii*, J. TRAVEL RESEARCH 31, 31-34 (1989).

42. *Id*. at 32-34

43. Virginia Harrison & Daniele Palumbo, *China anniversary: How the country became the world's 'economic miracle*,*'* BBC NEWS (Oct. 1, 2019), https://www.bbc.com/news/business-49806247.

a billion people.[44] Moreover, China was not a democratic country, but rather a command-and-control state. But none of this affected American ideology. Professor Easterbrook led the conservative position that predatory pricing was irrational, and that companies or countries would never engage in it.[45]

Part II of this article first examines Ricardo's theory of comparative advantage and identifies two conditions for it to work: loyalty of capital, and adjustment of currencies to even-out trade imbalances. Part III examines the current reality of international trade, in which investment flows to countries with low labor costs, and where the Chinese manipulate their currency to maintain their exporting edge. It also examines the impact of the foregoing on what was once a vibrant furniture industry in Appalachia. Part IV traces the history of China's admission to the World Trade Organization and China's failure to live up to its WTO obligations. The impact upon American workers of activities by American businesses to maximize shareholder value by trading American jobs to obtain greater market share is examined in part V. Part VI examines the supply chain issues which, though always existing, were magnified by the COVID-19 pandemic. The national security implications of building up China's industrial strength is discussed in Part VII.

Part VIII is a critical part of the article and focuses upon the necessity of the United States to adopt an industrial policy to ensure our manufacturing base and good wages for American workers. The U.S. is probably the only major country in the world that does not have an industrial policy. "No decision" is actually a decision. The mantra of free trade in the United States has been to give away low-tech jobs and divert resources and workers into high-tech jobs. But China does have an industrial policy and it is determined to be a leader, not just in low-tech manufacturing, but also in high-tech industrial and military activities. Unless the U.S. focuses its attention upon maintaining a manufacturing base, the U.S. will be second to China in not just solar energy, but many other industries as well. Additionally, from a military standpoint, the United States will likely lose much of its leverage to ensure peace in the world.

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44. *Labor force in Japan from 1973 to 2022*, STATISTA RESEARCH DEPARTMENT, https://www.statista.com/statistics/612396/japan-total-labor-force/.

45. Frank H. Easterbrook, *Predatory Strategies and Counterstrategies*, 48 U. CHI. L. REV. 263, 264, 282-88 (1981).

II. DAVID RICARDO, COMPARATIVE ADVANTAGE, AND THE SUPPOSED BENEFITS OF FREE TRADE

One of the primary justifications for global trade is Ricardo's theory of comparative advantage. However, embodied in Ricardo's theory are two conditions that are generally ignored: (1) Ricardo assumed that capital is loyal to the country of origin and that, in effect, (2) currencies will fluctuate to even-out trade imbalances. As result, there will not be long standing transfers of wealth for the importing country to the exporting country.

This part of the article will briefly analyze Ricardo's theory of comparative advantage and demonstrate that capital is not loyal to the country of origin, nor do currencies fluctuate to even-out trade imbalances. Conversely, U.S. corporations have invested billions of dollars in China over recent decades, and outsourced much production to take advantage of cheap, Chinese labor.[46] With respect to currencies, China has manipulated its currency so that it would not strengthen against the U.S. dollar, as the U.S.–China trade deficits continued to grow.[47]

While wages in China have been rising, they are still well below U.S. wage rates.[48] When Chinese wages were abysmally low, such low wage rates enabled China to capture entire segments of various industries, such as furniture manufacturing. [49] This, in turn, sparked the creation of a low-tech manufacturing base that enabled China to eventually transition to develop high-tech manufacturing.[50]

David Ricardo was the first "economist"[51] to articulate the theory of comparative advantage in his 1817 work On the Principles of Political

46. *Direct investment position of the United States in China from 2000 to 2021*, STATISTA RESEARCH DEPARTMENT, https://www.statista.com/statistics/188629/united-states-direct-investments-in-china-since-2000/.

47. WAYNE M. MORRISON & MARK LABONTE, CONG. RSCH. SERV., RS21625, CHINA'S CURRENCY POLICY: AN ANALYSIS OF THE ECONOMIC ISSUES (2013), https://sgp.fas.org/crs/row/RS21625.pdf.

48. *China Average Yearly Wages in Manufacturing Chart*, TRADINGECONOMICS.COM, https://www.tradingeconomics.com/china/wages-in-manufacturing.; *U.S. Average Yearly Wages in Manufacturing Chart*, TRADINGECONOMICS.COM, https://www.tradingeconomics.com/united-states/wages-in-manufacturing.

49. Wang & Mei, *supra* note 19, at 21.

50. *Id.*

51. While Ricardo was not formally trained as an economist, experience in business gave him insight about the functioning of England's economic system, and he wrote prodigiously about these matters.

Economy and Taxation.[52] Paul Samuelson, a leader in economic thought in the 20th century, has argued that "the principle of comparative advantage is the most beautiful idea in economics."[53] According to one current academic, "during the past two centuries, no one has proposed a legitimate counterargument to comparative advantage as the basis for mutually beneficial exchange."[54] The principle of comparative advantage "is the stated logic for negotiating, drafting, implementing, and enforcing rules to liberalize trade on a multilateral, regional, or bilateral basis."[55] It is "a shattering insight that continues to form the basis of conventional international trade theory today."[56]

What is comparative advantage and why is this principle so important? Consider an illustration used by an expert in the legal profession:

> When the world's champion typist goes to law school and receives a law degree, he has time to handle his new law business and type his own briefs. As he becomes also the best lawyer in town, he finds it impossible to accept all the legal business offered and at the same time continue to do his own typing. He decides that he is better off specializing in legal work, which is more profitable to him, and hires a secretary to type his briefs, even though her typing may not be nearly so good as his.[57]

To understand the principle of comparative advantage, one must first contrast this principle with the principle of absolute, or competitive advantage. In the foregoing example, if our typist, after establishing his law practice, found a typist whose skill exceeded his own, he would hire her because she had an absolute advantage in typing and he had an

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52. RICARDO, *supra* note 1.

53. BENJAMIN FRANKEL, REALISM: RESTATEMENTS AND RENEWAL (Frank Cass ed. 1996). ("As Nobel laureate in economics Paul Samuelson has argued, the principle of comparative advantage is the most beautiful idea in economics since it supports the crucial liberal belief in a harmony of interests uniting all people."). *See also* Robert G. Gilpin, *No One Loves a Political Realist*, 5 SEC. STUD. (1996). (Mr. Gilpin was a professor at Princeton University where he focused upon international political economy.)

54. ROGER WHITE, MAKING SENSE OF ANTI-TRADE SENTIMENT 3 (2014).

55. RAJ BHALA, INTERNATIONAL TRADE LAW: INTERDISCIPLINARY THEORY AND PRACTICE 207 (3d ed. 2008).

56. MICHAEL TREBILCOCK ET AL., THE REGULATION OF INTERNATIONAL TRADE 3 (4th ed. 2012).

57. RUDOLPH W. TRENTON, BASIC ECONOMICS 416 (4th ed. 1978).

absolute advantage in legal work. Prior to Ricardo, absolute advantage was thought to be the basis for trade.[58]

Under the concept of comparative advantage, however, the assumption is "everyone will be better off producing products they produce relatively best."[59] This is illustrated in the above example by the fact that, even if the lawyer could type faster than any secretary he could hire, he is better off doing legal work rather than deferring legal work to type his own briefs. A summary of Ricardo's example of English cloth and Portuguese wine is set forth in Appendix II.

Advocates of free trade, in a somewhat Pollyannish manner, utilize this principle as an argument that free trade will be beneficial to both countries involved in the trade:

> When free trade is allowed to occur, the trading countries will find incentives in speciali[z]ing in the production of those commodities in which they enjoy comparative advantage – that is, commodities in the production of which they incur the least opportunity cost vis-a-vis other nations. Lowest opportunity cost implies maximum productivity and cost-efficiency. When nations undertake production and export activity on the basis of their comparative advantage, they choose to operate on the most optimum path of economic growth and scarce resources owned by them get allocated most efficiently. This maximi[z]es global output, economic prosperity and welfare. In short, free trade maximi[z]es economic gains through efficient allocation of resources.[60]

However, those who assume that the doctrine of comparative advantage assures mutual benefits to both countries are often unaware of some of the limitations that Ricardo himself placed upon his doctrine. These are considered below.

58. *See* CLAYTON, *supra* note 3, at 469.

59. *Id*. at 470.

60. D'Souza, *supra* note 24, at 2. The author recognizes that, "in the short run, adjustment costs will have to be incurred by some stakeholders." However, "increased competitiveness and efficiency will increase the profits of these stakeholders in the long run." As discussed later in the article, free trade is not a win-win situation, there are losers.

A. Ricardo's Limitations on His Model – Loyalty of Capital

Ricardo assumed that production in England could be transferred from producing wine to producing cloth. Why then would not the owners of capital in England, instead of switching resources in England, simply move their capital to Portugal, which was more efficient in producing both wine and cloth?

One response to this, from a commonsense standpoint, could be that Ricardo was working at a time when production was constrained, among other factors, by geography and climate. It could be that the sheep-growing area in Portugal was elevated and there was a limited amount of elevated land on which to raise sheep for cloth.

However, Ricardo explicitly addressed the possibility that capital could move to Portugal where both cloth and wine could be produced more efficiently:

> It would undoubtedly be advantageous to the capitalists of England, and to the consumers in both countries, that under such circumstances, the wine and the cloth should both be made in Portugal, and therefore that the capital of England employed in making cloth should be removed to Portugal for that purpose.[61]

Ricardo, however, rejected this possibility on the basis that capitalists, namely, men of property, are loyal to their country of birth, even though a greater profit might be made elsewhere:

> Experience however [shows] that the fancied or real insecurity of capital, when not under the immediate control of its owner, together with the natural disinclination which every man has to quit the country of his birth and [connections], and [entrust] himself with all his habits fixed, to a strange government and new laws, check the emigration of capital.
>
> These feelings, which I should be sorry to see weakened, induce most men of property to be satisfied with a low rate of profits in their own country, rather than seek a more advantageous employment for their wealth in foreign nations.[62]

It goes without saying that Ricardo's view of the loyalty of capital is not only utterly incorrect today but would be regarded as foolishness by most business managers and business academics.

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61. RICARDO, *supra* note 1, at 161.
62. *Id.* at 162.

One comparative advantage that the United States once had was its supply of capital but, as discussed below, such advantage has been squandered by the investment of capital by American bankers and American businesses in low-wage countries.

B. Ricardo's Analysis of the Impact of Unbalanced Trade on the Respective Wealth of Countries

At the time Ricardo was writing, gold and silver were the medium of exchange in international trade:

> Gold and silver having been chosen for the general medium of circulation, they are, by the competition of commerce, distributed in such proportions amongst the different countries of the world, as to accommodate themselves to the natural traffic which would take place if no such metals existed, and the trade between countries was purely a trade of barter.[63]

When trade is balanced, that is, exports and imports are equal in value, Ricardo's analogy of the situation to barter works well, and there is no change in the relative wealth of the two countries.[64] But when one country stops exporting, say Portugal, there is a transfer of wealth from that country to the other country, England.[65]What Ricardo and other

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63. *Id*. at 163-64.

64. *Id*. 166 "If the markets [are] favorable for the exportation of wine from Portugal to England [and of cloth from England to Portugal], the exporter of the wine will be a seller of a bill, which will be purchased either by the importer of the cloth, or by the person who sold him his bill; and thus without the necessity of money passing from either country, the exporters in each country will be paid for their goods. Without having any direct transaction with each other, the money paid in Portugal by the importer of cloth will be paid to the Portuguese exporter of wine; and in England by the negotiation of the same bill the exporter of the cloth will be authorized to receive its value from the importer of wine."

65. *Id*. at 167. Ricardo assumed that, if there were an improvement in the process of making wine in England such that the price of wine in England fell from £50 pounds to £45, England would no longer import wine from Portugal. Thus:

> "… if the prices of wine were such that no wine could be exported to England, the importer of cloth would equally purchase a bill; but the price of that bill would be higher, from the knowledge which the seller of it would possess, that there was no counter bill in the market by which you could ultimately settle the transactions between the two countries; he might know that the gold or silver money which he received in exchange for his bill must be actually exported to his correspondent in England, to enable him to pay the demand which he authorized to be made upon him, and he might therefore charge in the price of his bill all the expenses to be incurred, together with his fair and usual profit."

Ricardo then concludes:

advocates of free-trade assert is that comparative advantage means that any trade is always desirable. But this proposition fails to recognize that when one country is a net exporter and another country is a net importer, there is a transfer of wealth from the importing country to the exporting country. That is what is happening in the China/U.S. trade situation. As Ricardo states:

> "Estimated in money, the whole revenue of Portugal would be diminished; estimated in the same medium, the whole revenue of England would be increased."[66]

We no longer have gold or silver as the medium of exchange in foreign trade and transactions. Rather, we have a system of floating currencies that supposedly reflect the market demand for particular currencies. Again, taking the China/U.S. trade situation as an example, since the U.S. has a substantial trade deficit with China, there should be a great demand for the Chinese yuan to enable U.S. companies and individuals to purchase Chinese goods, which should increase the value of the yuan vis-à-vis the U.S. dollar. As the yuan increases in value and the dollar decreases in value, the cost of Chinese exports would increase, and the cost of U.S. exports would decrease, thereby bringing the China/U.S. trade into balance.

But, if the Chinese government manipulates the yuan's value vis-a-vis the U.S. dollar, there will be no self-regulating mechanism to restore the trade balance between the two countries. This, and the fact that capital is not loyal to the country of origin, will be more fully developed in the next Part.

III. Foreign Trade Today Does Not Meet Ricardo's Conditions

> "If then this premium for a bill on England should be equal to the profit on imported cloth, then the importation would of course ease; but if the premium on the bill were only 2 per cent, if to be enabled to pay a debt in England of £100, £102 to should be paid in Portugal, whilst cloth which cost £45 would sell for £50, cloth would be imported, bills would be bought, and money would be exported, till the diminution of money in Portugal, and its accumulation in England, have produced such a state of prices as would make it no longer profitable to continue these transactions."

66. *Id.* at 170.

FOR COMPARATIVE ADVANTAGE

A. Since Capital Is Not Loyal, Investment by U.S. Companies in China Leads to Labor Arbitrage

At one time, in the aftermath of World War II, the United States was the leading exporter of goods in the world.[67] From the 70s until the 90s, the United States basically shared that status with Germany and Japan, partly due to U.S. efforts to rebuild their economies after the war.[68] However, after China achieved the most favored nation status with the United States and was admitted to the World Trade Organization in 2001, Chinese exports rose rapidly, and U.S. exports dropped as a percentage of total world exports.[69] By 2009, China had surpassed the United States and Germany as the leading exporter (see Appendix III).[70]Recall that Ricardo, in arguing that trade was always beneficial, even if one country had an absolute advantage (could produce both hypothetical products more efficiently than the other country), assumed that capital was loyal and would not flee to the low-cost producer.[71] That assumption does not hold true today.

While, from 1978 to the early 1990s, foreign direct investment in China was relatively modest, it began to grow exponentially and had reached about $40 billion by the mid-1990s.[72] After the admission of China to the World Trade Organization in 2001, foreign direct investment grew rapidly once again, reaching $168 billion in 2008, according to one source.[73]

According to another source, the Rhodium Group,[74] U.S. companies had already invested about $50 billion into the Chinese economy by the

67. Sarah Pruitt, *The Post World War II Boom: How America Got Into Gear*, HISTORY (May 14, 2020), https://www.history.com/news/post-world-war-ii-boom-economy.

68. *Id.*

69. *Hearing on Chinese State Owned Enterprises and U.S.-China Bilateral Investment Before the U.S.-China Economic Security Review Commission*, 112th Cong., 71 (2011), https://www.uscc.gov/sites/default/files/transcripts/3.30.11HearingTranscript.pdf [hereinafter *China Hearings*].

70. *Id.*

71. Kimball & Scott, *supra* note 18, at 1.

72. *China Hearings*, *supra* note 69, at 60.

73. *Id*. at 49.

74. According to its website, the Rhodium group "has the most highly respected independent China research team in the private sector. For more than twenty years our principals and staff have used a multidisciplinary approach to produce path-breaking analyses and insights on China." Thilo

time China was admitted to the World Trade Organization, and subsequent thereto, U.S. companies have invested about another $200 billion.

Another study by Yuqing Xing sets forth somewhat different figures – the value of foreign direct investment in China from 1985-2008 as $854.3 billion.[75] He estimated there was $15.9 billion from 1985-1990, $327.7 billion from 1991-2000 and $510.7 billion from 2001-2008.[76]

Yet another expert on China Trade, Dr. Robert E. Scott of the Economic Policy Institute at the China hearings, asserted that the U.S. foreign direct investment in China "reached $162 billion in 2008, about 16.6% of total FDI in China."[77] Total cumulative foreign direct investment in China by 2010 was about $1 trillion.[78]

What the above data illustrates is the variance of opinion on a very fundamental and politically and economically significant fact, namely the amount of direct foreign investment in China and who the sources are. Part of the uncertainty likely arises from the fact that much money flows through financial intermediaries. For example, Luxembourg is one of the leading countries in foreign direct investment, as is Hong Kong.[79] Much of this money is seemingly redirected to other countries, since these jurisdictions cannot internally absorb all the foreign direct investment that is made to them. In addition, "[f]unding for construction of a new factory in China can flow directly from the home company in the United States, from retained earnings abroad, and from borrowed capital [from Chinese banks]."[80] Moreover, capital can indirectly come from guaranteed orders from a "parent" company in the United States that is outsourcing its manufacturing.[81]

Be that as it may, the foregoing conclusively demonstrates that capital is not loyal to the country of origin but will flow wherever costs are low and returns are high, which basically is labor arbitrage.

Hanemann & Daniel H. Rosen, *New Realities in the US-China Relationship*, RHODIUM GROUP (Apr. 29, 2014), https://www.rhg.com/research/new-realities-in-the-us-china-investment-relationship/.

75. Yuqing Xing, *Facts About and Impacts of FDI on China and the World Economy*, 8 CHINA: INT. J. 309-327 (2010).

76. *Id*.

77. *China Hearings*, *supra* note 69, at 59.

78. *Id*. at 60.

79. *Id*.

80. *Id*. at 59.

81. *Id*. at 53, 59.

B. Yuan Manipulation

1. Chinese Intervention to Stem the Rise in the Value of the Yuan

Since 1985, the United States has consistently and continually run a trade deficit with China.[82] This means that U.S. importers would need to purchase Chinese yuan in order to pay for the Chinese goods and that China would build up a huge store of U.S. dollars. This, in turn, has resulted in a huge transfer of dollar reserves to China and should have, over time, caused a relative increase in the value of the yuan and a decrease in the value of the dollar.

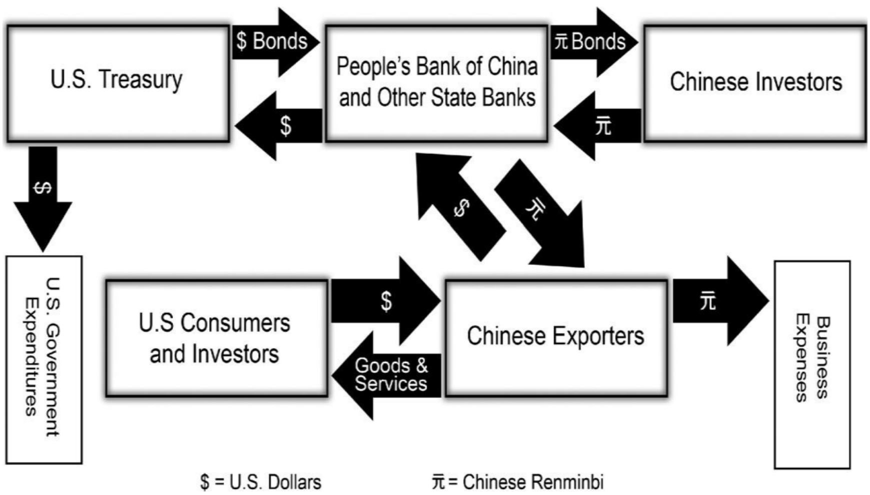
The flow of American dollars and Chinese yuan is illustrated below:[83]

82. Felix Richter, *A Longterm View On U.S. Trade With China*, STATISTA (Feb. 6, 2020), https://www.statista.com/chart/17982/us-trade-in-goods-with-china-since-1985/.

83. U.S.-CHINA ECON. AND SEC. REV. COMM'N, REP. TO CONG. at 27 (2008), https://www.uscc.gov/sites/default/files/annual_reports/2008-Report-to-Congress-_0.pdf. [hereinafter 2008 REP. TO CONG.].

Chart 9

Currency Sterilization by the People's Bank of China



As of 2008, even though the yuan had appreciated over 18% since July 2005, it was still estimated to be undervalued against the dollar by about 40%.[84] This is a huge export subsidy.[85]The value of the yuan from

84. Gordon Chang, *G-20 in Seoul: Global Currency Was Is Inevitable*, THE DAILY BEAST, (Nov. 10, 2010), http://www.thedailybeast.com/g-20-in-seoul-global-currency-war-is-inevitable.

85. *Id.* One expert in international trade, Prasad Eswer, summarized the situation as follows:

> China's exports began to pick up soon thereafter [becoming a member of the World Trade Organization], which meant more foreign currency coming into the country. As the economy started registering strong growth and also began opening up its capital account, foreign capital flowed in increasingly, putting further upward pressure on the RMB. China did not want its export machine to lose momentum, so it started intervening in foreign exchange markets to prevent the value of the RMB from rising. With China's manufacturing sector registering strong productivity growth, the RMB should have appreciated markedly. The PBC's [People's Bank of China] intervention made the RMB increasingly undervalued – in other words, kept it at a level that was lower than it would have been had it been subjected to unfettered market forces. The increase in manufacturing sector productivity, in tandem with low domestic wages and an undervalued exchange rate, made Chinese exports very competitive in world markets. Consequently, the trade surplus grew by leaps and bounds, forcing the PBC to intervene even more aggressively, buying up dollars, euros, yen, and other currencies that were flooding into China as payments for its exports. This maneuver was intended to offset the rising demand for RMB in exchange for those currencies that would otherwise have driven up the price of the RMB (i.e., the exchange rate).

PRESAD ESWER, GAINING CURRENCY: THE RISE OF THE RENMINBI 77 (2017) (Prof. Presad Eswer, is the Tolani Senior Prof. of Trade Policy at Cornell University and a fellow at the

1985 until November 1993 decreased in a fairly regular pattern from about 3.2 yuan to the dollar at the end of 1985 to about 5.8 yuan to the dollar in November 1993.[86] Then, in November 1993, it decreased dramatically from about 5.8 yuan to the dollar to about 8.7 yuan to the dollar.[87] In May 1995, it rose to about 8.3 yuan to the dollar and remained constant at that level until July 2005.[88] From 2005 to 2014, the yuan slowly and gradually appreciated to approximately 6 yuan to the dollar and then decreased to about 7 yuan to the dollar at year-end 2016.[89]

During this period of time, the U.S. trade deficit with China increased from over $33 billion in 1995, to over $200 billion in 2005, and to over $375 billion in 2017.[90] Clearly, the value of the yuan has not increased to even out trade surpluses with the United States.

A study by the Congressional Research Service summarized the issue of China's manipulation of the yuan as follows:

> China's policy of intervention to limit the appreciation of its currency, the renminbi (RMB) against the dollar and other currencies has become a major source of tension with many of its trading partners, especially the United States. Some analysts contend that China deliberately "manipulates" its currency in order to gain unfair trade advantages over its trading partners. They further argue that China's undervalued currency has been a major factor in the large annual U.S. trade deficits with China and has contributed to widespread job losses in the United States, especially in manufacturing. President Obama stated in February 2010 that China's undervalued currency puts U.S. firms at a "huge competitive disadvantage," and he pledged to make addressing China's currency policy a top priority. At a news conference in November 2011, President Obama stated that China needed to "go ahead and move towards a market-

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Brookings Institution he was formerly the head of the International Monetary Fund's China division.)

86. *Dollar Yuan Exchange Rate – 35 Year Historical Chart*, MACROTRENDS, https://www.macrotrends.net/2575/us-dollar-yuan-exchange-rate-historical-chart (last visited Jan. 20, 2023). *See* chart, Appendix IV.

87. *Id.*

88. *Id.*

89. *Id.*

90. The trade deficit declined in 2019 and 2020, in part due to the COVID-19 pandemic which originated in China in late 2019. For this reason, and comparative purposes, I am using 2018 data rather than later data available in appendix I.

> based system for their currency" and that the United States and other countries felt that "enough is enough."[91]

However, President Obama's bark was worse than his bite and little was done, likely in part, due to the worldwide economic turmoil at that time, and partly due to the leverage China enjoyed due to its huge buildup of dollar reserves as a result of the U.S. growing trade deficit with China. This, in turn, has led to huge investments in U.S. Treasury bonds, with the result that China now holds more than $1 trillion of U.S. debt. Consequently, there was a fear that China would begin selling its U.S. treasury investments. Were China to sell, rather than buy, U.S. debt, this could raise interest rates and negatively impact the American economy.

2. Recognition of the Relation of Trade Deficits to National Wealth

Ricardo's theory of comparative advantage contemplated that relative currency values would move in the direction that would smooth out imbalances in trade over time. One author acknowledged that Ricardo's theory recognized that the value of a country's imports could exceed the value of such country's exports, and thus result in a decrease in national wealth:

> To return to the Ricardian example of the exchange of wine and cloth between England and Portugal, what if England's wine imports yield Portugal £100 a year, yet the English cloth it requires cost £200? In this example, to maximize the gains from trade, Portugal must draw down its national reserves of wealth (e.g., gold) in order to obtain the additional £100 it needs to purchase English cloth. It thus seems that the mercantilist objection that liberal trade could reduce accumulated national wealth has not really been met by the theory of comparative advantage.[92]

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91. MORRISON & LABONTE, *supra* note 47, at 1.

92. TREBILCOCK ET. AL., *supra* note 56, at 227. The author then credits Hume with identifying the possibility that a rebalancing of exchange rates could reduce this problem:

> The philosopher David Hume is thought to be the first to have developed a theory of the balance of payments that could meet this objection. In essence, the theory suggests that since the demand for a country's currency depends on demand for its exports, where the latter rises, so will the former. Where a country has a trade surplus, the extra demand for its exports would increase the value of its currency and therefore make its exports more expensive and its imports cheaper. This, in turn, will reduce the surplus, as demand for exports goes down in response to their relatively higher cost, whereas demand for imports goes up owing to their relatively lower cost. In theory, an

One authority characterizes this as the "market equilibrium" view of exchange rates and asserts that a version of this was adopted in connection with the post-Second World War Bretton Woods agreement.[93]The United States has certainly run a persistent imbalance in its trade with China and, were the above system in effect, the United States would have needed to devalue its currency vis-á-vis China, i.e., the value of the yuan would increase vis-á-vis the U.S. dollar.[94]

However, the above system did not remain in place very long, partly because, while the U.S. enjoyed a substantial trade surplus immediately following the Second World War, the U.S. surplus trade declined after the economies of Europe and Japan began to recover. However, the Johnson and Nixon administrations declined to revalue the dollar and, in 1971, the U.S. unilaterally refused to back the dollar with gold any longer and proposed a new system of floating exchange rates.[95]

3. The Current System for Valuing Currency

> equilibrium will eventually be reached where trade and payments are balanced at a given exchange rate.

As discussed earlier in this article, I submit that Ricardo himself did recognize that the impact of unbalanced trade would result in a flow of wealth from the importing country to the exporting country. Ricardo's analysis was predicated upon the existence of something akin to what we might consider the "gold standard.

93. *Id*. at 227-228:

> This "market equilibrium" view of exchange rates and the balance of payments is fundamental to understanding the interface between the legal order of international trade and the international monetary system. The post-Second World War Bretton Woods arrangements contemplated a system of fixed exchange rates tied to the gold standard. Under this system, a country would in theory be required to hold sufficient reserves of gold to back the quantity of its currency in circulation. Where a temporary imbalance of payments occurred (i.e., where a country could not meet payments for imports with its receipts of foreign currency from export sales without selling gold for foreign currency), this would be financed by a country borrowing from the International Monetary Fund. In the case of a structural or persistent imbalance, a country would devalue its currency under the supervision of the IMF, which might recommend domestic policy adjustments to ensure that further devaluations are not required in order to maintain the balance of payments. In the case of a country running a persistent trade surplus, foreign demand for its currency, i.e., by purchasers of its exports, would eventually exceed the amount of its currency that could be backed by gold reserves, therefore calling for a revaluation of the exchange rate and/or domestic policy changes to dampen exports/or boost imports.

94. *Id*. at 228.

95. *Id*.

Under the current system of free capital flows, the value of the currency is affected, not just by government intervention, but also by the activity of speculators who make their own assessment as to the appropriate respective values of the Chinese yuan and American dollar.[96] Balance of trade is not the sole factor upon which a currency speculator would focus. Relative interest rates and relative inflation, and an overall view of the stability of the economy, would also be taken into consideration. Consider one analysis expressing concern about whether the yuan will weaken to more than seven yuan to the dollar:

> While China hasn't raised interest rates, the Federal Reserve in Washington has. That makes it attractive for many people to sell their renminbi and buy dollars. Would you rather have a one-year renminbi certificate of deposit that pays 1.5 percent interest now, or a one-year dollar C.D. that pays out 2.6 percent or more?[97]

Today, there is no agreed international standard against which a currency can be viewed as either over or under valued.[98] As one authority recounts: "Economists have attempted various estimates of the 'correct' exchange rate between the Renminbi and the US Dollar, but these estimates vary considerably depending on the methodology used."[99]

One of the organizations that sought to assess whether a country was manipulating its exchange rate is the Economic Policy Institute.[100] It suggested a three-fold test for determining whether a country is manipulating the value of its currency for competitive advantage:

> First, does it have a high and rising bilateral trade surplus with the United States? Second, is its *global* current account surplus (the broadest measure of its trade and income flows) high and rising? Third, does it possess a high and rising accumulation of international reserves?[101]

It then analyzed nine situations in which currency manipulation has been found[102] and concluded that, in 2006, China was manipulating the

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96. *Id.* at 230. *See also* Mico Loretan, *Indexes of the Foreign Exchange Value of the Dollar*, FED. RES. BULL. (2005), https://www.federalreserve.gov/pubs/bulletin/2005/winter05_index.pdf.

97. Keith Bradsher, *The Number 7 Could Make China's Currency a Trade-War Weapon*, N. Y. TIMES (Oct. 30, 2018), https://www.nytimes.com/2018/10/30/business/china-renminbi-currency-trade-war.html.

98. TREBILCOCK ET. AL., *supra* note 56, at 231.

99. *Id*. at 234.

100. Robert E. Scott & Josh Bivens, *China Manipulates Its Currency – A Response Is Needed*, ECON. POL'Y INST., (Sep. 25, 2006), https://www.epi.org/publication/pm116/.

101. *Id*.

102. *Id.* at 2.

value of the yuan to assist in maintaining its trade surplus with the United States.[103]

However, neither the Bush administration nor the succeeding Obama administration moved aggressively to challenge the Chinese manipulation. The situation is reminiscent of that in banking: if you borrow $1 million, the bank will foreclose, but, if you borrow $1 billion, the bank will not seek foreclosure but rather attempt to work something out.[104] So long as the economies of the Asian nations were small viz-a-viz, the United States could take a tough stand. But, as the Chinese economy grew, we became too dependent upon China's exports, and too concerned about China's leverage resulting from its accumulation of U.S. dollars, to take a hard stand.

C. Labor Arbitrage as Reflected in Low Chinese Wages Driving an Export Oriented Economy

As asserted in the previous Parts, if capital is free to move from one country to another, then global trade may become nothing more than

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103. *Id.* at 6.

The Institute set forth the following supporting data:

> The bilateral U.S.-China surplus (as measured by the U.S. government) was $203 billion for 2005. This bilateral surplus has risen by $119 billion over the past five years and represents over 9% of China's total GDP. In seven of the nine cases where damaging currency manipulation was found, the U.S. bilateral trade deficit was lower than 9%, and in May 1992—the first time China was found guilty of currency manipulation—its surplus with the United States was only 3.4% of China's GDP.
>
> China's *global* current account surplus is now over 7% of its GDP, up 5 percentage points in five years. China's reported current account surplus exceeds levels reached in four of the nine previous cases.
>
> Furthermore, there is evidence that demonstrates that China's own trade data may substantially under- estimate its global trade and current account surpluses.[3] Using data on Chinese imports and exports from its top 40 trading partners (covering 88-95% of China's total trade), the China Currency Coalition estimated that China's total trade surplus in 2003 was $203 billion, 341% more than China's officially reported trade surplus of only $46 billion.
>
> China's international reserves increased by $207 billion in 2005, ending the year at $821 billion. The best estimates are that 70% of these are dollar reserves and that this share has remained stable over time. These international reserves constitute 36% of China's total GDP and are sufficient to finance over a year of Chinese imports. China's purchase of reserves in the form of dollar-denominated assets has propped up the value of the dollar, keeping the Chinese currency from gaining value. In short, these reserve purchases act as a *de facto* subsidy for Chinese exports into the U.S. market.

104. Brendan Murphy, *Trump Obtains $20 Million Bridge Loan, Pays Bonds*, UNITED PRESS INT'L, (Jun. 26, 1990), https://www.upi.com/Archives/1990/06/26/Trump-obtains-20-million-bridge-loan-pays-bonds/5513646372800/.

labor arbitrage, if there are significant differences in labor costs from country to country. In the case of China, its explosive export growth initially had been driven by low-wage manufacturing of consumer goods.[105]

According to a study that was jointly funded by the International Labour Organization and the National Natural Science Foundation of China:[106]

> China's rapid growth in industrial output has owed much to the impacts of globalization, in particular, influx of foreign capital. Exploiting low-cost labour has been described in the literature as one of the key motivations for foreign direct investment (FDI) into China. The primary objective behind the early FDI that came from overseas Chinese in the 1980s was to exploit China's low-cost labour in the manufacture of consumer products for export. Later on, in the late 1990s, the major Japanese and Western MNCs [multinational corporations] entered China with significant FDI for the same cost-based reasons. Surveys regarding the motivation of MNCs to establish R & D facilities in China also confirm that most of the FDI has pursued cost reduction by using more local raw materials as well as labour.[107]

As with much information about China, data about wages is often inconsistent and of questionable validity. The more recent data, to the extent reliable, suggests that wages in China have been rising substantially in the last decade, increasing from about $3,500 a year or $300 a month in 2008 to about $9,000 a year or $750 a month in 2017.[108] Nevertheless, manufacturing wages before 2008 were markedly lower. Annual wages approximately ranged from $1,000 per year in 1995 to $1,700 in 2005, or from about $80 per month in 1995 to $140 per month in 2005.[109] By comparison, the same source reports U.S. manufacturing wages as slightly over $21/hour or over $42,000/year for a 2,000-hour year in 2017.[110]

105. Wang & Mei, *supra* note 19, at 1, 4.

106. The funding by this latter organization should give credibility to the conclusions and data incorporated in the study.

107. Wang & Mei, *supra* note 19, at 1.

108. *China Average Yearly Wages in Manufacturing Chart*, *supra* note 48.

109. *Id.*

110. *U.S. Average Yearly Wages in Manufacturing Chart*, TRADINGECONOMICS.COM, https://www.tradingeconomics.com/united-states/wages-in-manufacturing.

Another source, China Labor Watch, confirms the low wages and dismal working conditions. In a 2007 report by this organization which discussed labor violations at a furniture manufacturer employing 3,000 workers, the report set forth monthly wage rates of 1,700 yuan (a little over $200) during the busy season – about half the year – and 900 yuan (about $125) during the slow season.[111] Nevertheless, the workers were required to work 12-hour days, six days a week, during the busy season, and 9-hour days, six days a week, during the slow season.[112] Migrant workers resided in a factory dormitory room which usually housed about ten workers with one toilet.[113]

Another recent source, The Conference Board, setting forth its data in terms of unit labor costs, also supports the difference in wages between China and other industrialized countries:[114] Although the Chinese labor costs were substantially lower than in the United States, unit labor costs in Japan and Germany were actually higher than in the United States, while those in South Korea were comparable.[115]

Low monthly wages are only one part of the labor arbitrage issue concerning investment in China.[116] William Grieder, an investigative reporter, extensively reported on poor working conditions as a long-standing problem in China.[117]

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111. Ju Qian, *Furniture Factory Report* CHINA LABOR WATCH 1, 3-4 (April 20, 2007), https://www.chinalaborwatch.org/ju-qian-capable-furniture-factory-report/.

112. *Id.*

113. *Id.* at 10. The long and arduous hours are not limited to blue-collar workers. White-collar workers are also often subject to the 9-9-6 work pattern (9 AM to 9 PM, six days a week). The exhaustion and depression that arises from this can also result in suicide. *See also* Vivian Wang, *Worker Deaths Put Big Tech in China Under Scrutiny*, N.Y. TIMES, https://www.nytimes.com/2021/02/01/business/china-technology-worker-deaths.html (last updated Feb. 5, 2021).

114. The Conference Board data indicates that unit labor costs from 2005 to 2007 in China were 32% to 39% of those in the U.S. But the wage data discussed above indicates that Chinese wages were less than 5% of U.S. wages. Conceivably, the difference could be attributable to higher worker productivity in the U.S. and exchange rate differences, but such a large variation is difficult to reconcile. *See* Siqi Zhou, *Rising Unit Labor Costs Threaten China's Export Competitiveness*, THE CONF. BD. CHINA CTR. 1, 6 (Aug. 7, 2018), https://www.conference-board.org/publications/China-Competitiveness-Rising-Labor-Unit-Costs.

115. *Id.*

116. Wang & Mei, *supra* note 19, at 19. The International Labour Organization report noted:

> Delayed wage payment had become so widespread in many locations and sectors, that the Premier Wen Jiabao signed a series of official documents in 2004 designed to protect rural migrants' basic right to receive their wages on time. This central government intervention helped large numbers of rural migrant workers in China to receive their earned wages.

117. WILLIAM GREIDER, ONE WORLD, READY OR NOT: THE MANIC LOGIC OF GLOBAL CAPITALISM 406 (Simon & Schuster, 1st ed. 1997). ([L]abor exploitation and oppression have

In commenting upon the plight of workers in developing nations and the lack of institutional concern by those who argue for the benefits of international trade[118], William Greider stated:

> The lawyerly contradiction in this is profound: global commerce insists on a legal system that will protect the contractual rights of capital but treats the same rights for individual workers as an impediment to economic progress or a luxury that is reserved only for the wealthy nations. The same opinion leaders who celebrate the virtues of free competition among firms are strangely silent on the subject of free labor. The trade lawyers who lobby for liberalizing terms of trade are oblivious to the repressive, manipulative terms in which people are employed in many markets. The lawyers might insist that there is no contradiction since they are serving the interests of their clients, the multinational producers. Whatever the rationale, a barbaric transaction is still barbaric, regardless of local culture and political realities.[119]

This pattern hardly reflects a level playing field against which American workers should be expected to compete.

D. Labor Arbitrage as It Has Played Out in One Low-Tech Industry

While it might seem paradoxical to the American reader that there could be a problem of labor shortages in China giving rise to increases in wages, this was one of the themes of the joint report of the International Labour Organization and the National Natural Science Foundation of China. Consider the furniture industry as an example. Around 2005, one of the case studies in the report discussed the fact that Lecong, a town of

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progressively worsened over the past 15 years. Long working hours, unreasonable wage cuts and remuneration, poor living conditions, a dangerous working environment, lack of health provisions, arbitrary dismissals, and harsh and abusive treatment are the common problems.) *See also* Vivian Wang, *12-Hour Days, Six Days a Week*, N.Y. TIMES (Aug. 2, 2021), https://www.nytimes.com/2021/08/02/briefing/china-economy-gig-workers.html. ("Dismal working conditions in China are not limited to unskilled workers. White collar workers are expected to work 9 a.m. to 9 p.m., six days a week, known as the 996 culture.").

118. Chris King-Chi Chan, *Contesting Class Organization: Migrant Workers' Strikes in China's Pearl River Delta, 1978-2010*, 83 INT'L LAB. AND WORKING-CLASS HIS. 112-136 (2013), https://www.cambridge.org/core/journals/international-labor-and-working-class-history/article/contesting-class-organization-migrant-workers-strikes-in-chinas-pearl-river-delta-197820101/A00EEFC54483FA8C7B2444FE94CCA4F8.

119. GREIDER, *supra* note 117, at 408.

100,000 and the "capital of the furniture trade of China," which is located in one of the industrial sectors along the eastern area of China, needed to import over 110,000 migrant workers, nearly half of whom worked in the furniture industry.[120] At that time, workers were paid 1000 Yuan, or about $125 a month.[121] However, governmental policies with regard to the western provinces encouraged many of these migrant workers to stay home. As one worker from the Sichuan province stated:

> I have to work for more than 12 hours a day and very adverse conditions, only to get about 1000 Yuan in Lecong; however, now the Central Government, [sic] and I can earn almost 1000 Yuan in my hometown without any transportation fee, and what's more, I can stay with my family more often. Of course, I prefer to work locally.[122]

This caused employers to raise wages, and some sought to relocate to inland China to reduce costs.[123] However, the inland location, though cheaper, did not have the synergies available from the cluster style industrial network along the coast.[124]

Consider now the impact of the foregoing "problem" encountered by employers in the furniture industry in China. Wages of $125 a month in the Chinese furniture industry were considered problematic. How could American manufacturers and American workers compete with foreign companies that employed such cheap labor? Additionally, labor was even cheaper in the preceding 10-year period.[125]

Now, consider the impact the foregoing Chinese competition had upon the furniture industry in the United States during a comparable 10-year period, 1995-2005. To understand the impact, start by looking back a decade earlier:

> Back in the early 1980s, most of the Taiwanese exporters were novices at furniture- making, especially where the finishing process was concerned. But how long it would last was anybody's guess. U.S. furniture workers were averaging $5.25 an hour, while the Taiwanese made $1.40 an hour, and the Chinese labored for $.35. The Far East may not have had the machinery or the lightning-fast conveyor belts that the Bassett Speed Lines did, but when it came to throwing labor at a

120. Wang & Mei, *supra* note 19, at 1.
121. *Id.*
122. *Id.* at 22.
123. *Id.*
124. *Id.*
125. *China Average Yearly Wages in Manufacturing Chart*, *supra* note 48.

> problem, no one worked harder, longer, or cheaper than the Chinese.[126]

Smaller items, like coffee tables[127] and chairs, were the first to be impacted by Chinese imports in the late 1980s. A Queen Anne dining chair made by an American company was selling for $220.[128] An Asian import first sold for $50, and $39.[129]

During this period of time, many furniture manufacturers sold off, often in leveraged buyouts, with the result that cash generated by profits was used to pay off debt, rather than modernize the equipment.[130] The unhappy aftermath was chronicled as follows:

> From their faraway corporate perches, these executives aim to teach the slow-drawling Southerners new ways of merchandising and marketing, reaping giant profits for all.
>
> They bought out family owners of profitable businesses in an industry they knew nothing about, promising to leave the local management alone except when they felt their financial expertise was required. The honeymoon ended when the profits had been milked to meet a corporation's earnings targets, and usually after management had demeaned the local guys and sapped initiative on the factory floor. When the conglomerates sold or spun off their acquisitions, citing "poor performance" or "failure to meet profit goals," the businesses parted ways for good.[131]

Takeovers, even when unsuccessful, were problematic from a financial perspective. One furniture executive, who asked how much it would cost to ward off the takeover, was told: "At least two million, came the reply, and worse: Goldman Sachs needed him to pay a retainer of $465,000 by the next day."[132]

By 1998, imports of wood furniture accounted for 30% of the market and concern was raised for the future of North Carolina's number two industry and its 70,000 jobs.[133] However, at that time, the

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126. BETH MACY, FACTORY MAN: HOW ONE FURNITURE MAKER BATTLED OFFSHORING, STAYED LOCAL – AND HELPED SAVE AN AMERICAN TOWN 148 (Little, Brown & Co. ed., 2014).

127. Scott Andron, *Furniture Imports the Talk of Market*, GREENSBORO NEWS AND REC. (May 2, 1998), https://www.greensboro.com/furniture-imports-the-talk-of-market/article_122649b4-7c89-5eaa-8127-e421eeffe97e.html.

128. MACY, *supra* note 126, at 168.

129. *Id*.

130. *Id*. at 166.

131. *Id*.

132. *Id*. at 167.

133. Andron, *supra* note 127, at 1.

manufacturers of bulky items, such as bedroom furniture, were less threatened because of the expense and time delay in shipping such bulky items from China to the U.S., notwithstanding cheap Asian labor, negligible environmental regulations, and foreign governmental support. Moreover, high-end products manufacturers did not believe the Chinese could match their quality.[134]

This assumption was gravely mistaken. By 2001, China was admitted to the World Trade Organization and was selling high-quality bedroom suites for $400, whereas one of the cheapest American versions cost twice that amount to produce, without factoring in any profit.[135] This led some domestic manufacturers to pursue an anti-dumping claim against the Chinese and the imposition of tariffs.[136] The American manufacturers claimed that since the "wave of Chinese-made wooden furniture swamped the U.S. market beginning in 2000 about 35,000 employees or 27% of the total workforce at U.S. woodworking factories have lost their jobs."[137]

But not every American company favored the imposition of tariffs. Large retailers, such as Crate & Barrel, JCPenney Co., and Berkshire Hathaway's Nebraska Furniture Mart campaigned against the tariffs because it was profitable to sell the Chinese imports.[138] Furthermore, some American manufacturers also imported Chinese furniture to take advantage of what they anticipated to be higher profit margins.[139]

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134. *Id*. (The Thomasville president stated that, "Not every factory over there is capable of doing what we can do.")

135. *Chinese Furniture Faces U.S. Tariffs*, WALL ST. J. (June 17, 2004), https://www.wsj.com/articles/SB108741306783238979?reflink=desktopwebshare_permalink.

136. *Id.*

137. *Id*.

138. *Id*. (Furniture stores that buy heavily from China have waged a counterattack against U.S. furniture makers that support the trade duties. At least 15 retailers across the U.S. have removed Mr. Bassett's products from their stores or have stopped ordering new styles from Mr. Bassett, essentially wiping out $8 million in orders. "Why support anyone who is trying to hurt me?" said Jake Jabs, owner of American Furniture Warehouse, a nine-store chain based in Englewood Colo., that has banished products from four U.S. suppliers that are pushing for the tariffs. About two-thirds of the wooden furniture he sells is imported. Of those imports, two-thirds comes from China.")

139. *See* MACY, *supra* note 126, at 246:

> As American furniture makers flew to check out the possibilities of ordering from the Taiwanese, the fledging Asian companies flattered them, asking them constantly for advice. Once the Americans became customers, the advice morphed into full-bore instruction, far beyond helping convert inches to centimeters on design sketches. 'It just snowballed,' Tothill said, 'it wasn't that the Asians came over to take our business. We went over there, and, before we knew it, we had *given* it to them.'

One Taiwanese businessman told John Bassett III, the owner of a family business in the industry, that "[i]f the price is right, you [Americans] will do *anything*. We have never seen people before you who are this greedy – or this naïve …[w]hen we get on top … don't expect us to be dumb enough to do for you what you've been dumb enough to do for us."[140]

Not all furniture manufacturers were "this greedy."[141] John Bassett was told by a Communist Party official, He YunFeng, that the Chinese would be happy to provide Bassett with the dressers he was manufacturing at a fraction of the cost that Bassett incurred.[142] Instead of taking the offer, Bassett instituted an investigation into the Chinese selling furniture below cost,[143] which ultimately led to the imposition of tariffs[144] and the Byrd amendment,[145] which directed the tariffs to the affected manufacturers. The following sets forth Bassett's motivation:

> Close his factories? John Bassett pictured the whole lot of his hard-charging forbearers turning en masse in their graves. He thought of his 1730 workers – plainspoken mountain types, many of whom had followed their parents and grandparents into the factories – standing in unemployment lines instead of assembly lines. He thought of the smokestacks that for a century had borne his family's name and of the legacy he wanted to leave his kids.[146]

As another furniture manufacturer located in Mississippi reported:

> … I may not be the brightest bulb, but I know that when my people don't have a job in Columbus, Mississippi, they're out of work forever," he told me. "There's nothing here for them to retrain for.[147]

It is hard for the one-percenters—who run large corporations, engage in financial engineering, live in gated communities, and who grasped at cheap Chinese imports to improve margins—to understand the effect of offshoring manufacturing on communities and the people who live in them. Consider the example of Galax, Virginia[148]:

140. *Id.* at 4.
141. *Id.*
142. *Id.* at 5.
143. *Id.* at 254-265.
144. *Id.* at 296.
145. MACY, *supra* note 126, at 274.
146. *Id*. at 5.
147. *Id*. at 311.
148. *Id.*

> Among the displaced thirteen hundred furniture workers in Galax, those in their fifties and sixties had the toughest time recovering from the closings. Luper [a sawmiller] has friends his age who mow grass, clean homes, wash cars, and make crafts and foodstuffs—anything to manage until their Social Security kicks in. A minister and food bank operator told me she's counseled a handful of folks who are camping out in the woods.
>
> A Facebook yard-sale page … gets visited by nearly everyone in the town of seven thousand. In January 2013, it had more than eleven thousand members, counting residents of surrounding counties, and featured house-cleaning and clothes-washing services for as little as four dollars an hour. One continuing controversy involves members who try to resell drink mixes, power bars, and canned goods that have been donated to them by a local charity. "Is that right or wrong? It's not for me to say," moderator Jessy Shrewsbury told me. "Some people are just very desperate for money to pay their bills."[149]

In Galax "40 percent of Galax residents qualify for food stamps; two-thirds of the town's schoolchildren are on free or reduced-rate lunches; and nearly a quarter of the population lives in poverty."[150]

Beth Macy, the author of Factory Man, in another book, *Dopesick*, discussed the opioid drug addiction which has been spreading through rural communities and arguably began in theAppalachian area near Galax.[151] One contributing factor to the drug crisis was a lack of hope and the loss of self-respect that was triggered by the loss of jobs. She recounted the importance of even a poor paying job in stating that even though the pay wasn't great, the production jobs gave two things to her communities: (1) families on the margin didn't always have to be on the brink of not having food on the table or money for utilities. And (2) the more important thing was the behavior it modeled for families, where people got up in the morning and went to work.[152]

One resident of the area summed it up in stating that "I guess we traded our jobs for somebody somewhere else in the world to have a better life, I don't know."[153]

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149. *Id*. at 372-373.
150. *Id*. at 373.
151. *Id*.
152. MACY, *supra* note 126, at 372-273
153. *Id*. at 374.

The purpose of government is to act in the best interests of all its people, not to buy into an unrealistic theory of trade that benefits some but results in the deprivation of others.

IV. CHINA'S "FREE TRADE" VIOLATIONS OF WTO PRINCIPLES TO ACQUIRE TECHNOLOGY AND KNOW-HOW TO SUPPLANT THE AMERICAN MANUFACTURING BASE

As can be seen thus far, circumstances have greatly changed since Ricardo posited his theory of comparative advantage. Capital is no longer loyal to the country of origin, and something akin to the gold standard, which would adjust currencies to even out imbalance in trade flows, does not exist. Moreover, Ricardo also did not contemplate the development of state-owned enterprises and the extensive industrial espionage sanctioned and even participated in by the government of one trading partner.

A. The Consequences of a Naïve Approach to Global Trade

At the low-end of the technological scale, consider T-shirts and wood furniture industries.

When I went to China in 1992, you could purchase five cheap T-shirts for a dollar and a better- quality T-shirt for about one dollar. Comparable T-shirts in this country would cost about three dollars. China clearly had a competitive advantage. On the other hand, through technology and skilled workmanship, the United States could produce quality wooden furniture that China could not begin to meet.[154] There, we had a competitive advantage.

At the time, China could produce cheap wooden furniture, which did not require the same degree of skilled workmanship or technological input, more efficiently than we could.[155] Therefore, under a comparative advantage approach, if we could produce cheap wooden furniture more efficiently than we could produce T-shirts, then China should make the

154. U.S.-CHINA ECON. AND SEC. REV. COMM'N. REP. TO CONG. at 179 (2004), https://www.uscc.gov/sites/default/files/annual_reports/2004-Report-to-Congress.pdf. [hereinafter 2004 REP. TO CONG.].

155. *Id.*

T-shirts and the U.S. should make the cheap wooden furniture. Soon, however, China not only made T-shirts, but also cheap wooden furniture because capital, including some from U.S. sources, flowed into China to fund the Chinese furniture industry.In the process of making cheap wooden furniture, China's workplace skills increased and undoubtedly found American manufacturers willing to sell woodworking equipment.

Representatives of the Chinese wood furniture industry visited American factories and gleaned our know-how, bought the necessary technological equipment, and began to undercut our quality wooden furniture industry. The American wholesalers and retailers, to obtain the greater margins possible through buying Chinese quality wooden furniture, further funded the development of a quality wooden furniture industry in China. America ended up producing neither T-shirts, nor cheap wooden furniture, nor quality wooden furniture.

According to the advocates of free trade, America would simply adjust by then producing more high technology goods. Even if this were possible, there is no assurance that such high technology goods would be produced in the same communities or by the same workers that were laid low by the loss of the American high-quality wooden furniture market. The loss of jobs, and attendant devastation of communities, in part, accounts for the attractiveness of President Trump's "Make America Great Again" spiel.

However, China has never been content to be a low-tech producer. In 2004, the U.S.- China Commission stated that the Chinese government "has a coordinated, sustainable vision for science and technology development." In 2017, the U.S.-China Commission reported:

> The Chinese government has laid out industrial plans where the government – not market forces – plays a central role in developing Chinese firms into the global leaders in cutting-edge, dual-use technologies. These industrial plans establish the government strategy for sector development at the national and local government levels, and set targets for localization, market creation, and productivity. To meet these objectives and cultivate local and national market leaders (the so-called "national champions"), central and local governments implement comprehensive industrial policies such as strong state funding, a protected domestic market, selective

> recruitment of foreign investment, imports, and talent, and, in some cases, industrial espionage.[156]

China's "Made in China 2025" and "Internet Plus" initiatives target 10 key sectors for additional government support: (1) new energy vehicles, (2) next-generation of information technology, (3) biotechnology, (4) new materials, (5) aerospace, (6) ocean engineering and high-tech ships, (7) railway, (8) robotics, (9) power equipment, and (10) agricultural machinery.[157]

B. China's WTO Obligations

Admitting China to the World Trade Organization was a great experiment, founded on unbridled optimism. The focus in the United States was on opening up markets of over 1 billion Chinese customers; little thought was given to the productive capability of China and its impact on United States manufacturing and employment. Optimists, such as President Clinton, who advocated for China's admission to the WTO, did not understand the difficulties, and likely lack of success, in integrating a command & control economic system into a world trade organization based upon market economics and the rule of law. The US-China Commission reported:

> Because China is a huge country, with a very rapidly expanding economic base and an economy which continues to reflect significant state involvement in decisions of resource allocation, there was no certainty at the time of accession that China's economic system would mesh well with the World Trade Organization rules and other trading partners' generally market-oriented economies.
>
> Indeed, in the history of the GATT, and now [the] World Trade Organization, never has a country of such trading importance been admitted with a system that was still so far from conformance with GATT/WTO norms.[158]

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156. U.S.-CHINA ECON. AND SEC. REV. COMM'N. REP. TO CONG. at 553 (2017), https://www.uscc.gov/sites/default/files/2019-09/2017_Annual_Report_to_Congress.pdf. [hereinafter 2017 REP. TO CONG.].

157. *Id*. at 513.

158. Terence P. Stewart, *China's Compliance with WTO Obligations: A Review of China's First Two Years of*

The rules of the World Trade Organization, but often in general terms, preclude domination of the economy by state owned enterprises, subsidies to local industry, forced technology transfers, and piracy of technology and intellectual property. By entering the WTO and agreeing to the Protocol on the Accession of the People's Republic of China,[159] China agreed to abide by these rules. But it is one thing to agree to rules and another to observe and enforce them. From the outset, China has avoided compliance in order to facilitate the development of its export driven economy.

The expectation of the WTO is that its members will have a market-oriented economy, not a command-and-control economy. XVII of the General Agreement on Tariffs and Trade ("GATT") provides:

> Each contracting party undertakes that if it establishes or maintains a State enterprise, wherever located, or grants to any enterprise, formally or in effect, exclusive or special privileges, such enterprise shall in its purchases or sales involving either imports or exports, act in a manner consistent with the general principles of non-discriminatory treatment prescribed in this agreement for governmental measures affecting imports or exports by private traders.

With respect to subsidies, Article XVI of the GATT recognizes that governmental subsidies are inconsistent with the policy of GATT.[160] More particularly, the Agreement on Subsidies and Countervailing Measures treats "subsidies [that favor] the use of domestic over imported goods" as prohibited subsidies,[161] while such matters as covering operating losses, forgiveness of debt, impeding the imports of a product,

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Membership 1 (2004), https://www.uscc.gov/sites/default/files/Research/TLAG%20Report%20-%20China%27s%20WTO%20Compliance%20and%20Commitments%202005-2007%20Update.pdf
(The report recounts how China has sought to undermine the utility of provisions added to its Accession Protocol to ensure timely compliance with its agreements and to permit other countries to limit imports from China, as well as how China lobbied the US to delay addressing import surges from China, thus adversely impacting the US textile industry. *See* executive summary at 4, 6-7. In a market economy, the delay of a couple of years in responding to unfair competition can devastate a company or an industry; contrariwise, and a command-and-control economy, the government can carry a company or industry as long as it believes it is in the best interest of the country.).

159. U.S.-CHINA ECON. AND SEC. REV. COMM'N. REP. TO CONG. at 159 (2021), https://www.uscc.gov/sites/default/files/2021-11/2021_Annual_Report_to_Congress.pdf. [hereinafter 2021 REP. TO CONG.].

160. General Agreement on Tariffs and Trades art. III, Oct. 30, 1947, 61 Stat. pt. 5, 55 U.N.T.S. 194.

161. Agreement on Subsidies and Countervailing Measures, Dec. 31, 1999, art. 3.1(b), 1869 U.N.T.S. 14.

displacing exports, significant price undercutting, or other actions that result in an increase in the world market share that constitutes a consistent trend are treated as matters of serious prejudice.[162] A member is under an obligation not to cause serious prejudice to the interests of another member.[163]

The Chinese Accession Protocol provided that state trading enterprises will comply with the WTO agreement and that China "shall refrain from taking any measure to influence or direct state trading enterprises as to the quantity, value, or country of origin of goods purchased or sold, except in accordance with the WTO Agreement.[164] The Accession Protocol also provides that China shall ensure that the distribution of import licenses or any other means of approval for importation or investment shall not be conditioned on:

> Whether competing domestic suppliers of such products exist; or performance requirements of any kind, such as local content, offsets, the transfer of technology, export performance for the conduct of research and development in China.[165]

There is general agreement that China has not observed its obligations under either WTO rules or its Accession Agreement.[166] Charlene Barshefsky, the U.S. trade representative at the time of China's admission, blames the administrations of former presidents Bush and Obama for failing to address China's violations by temporarily restricting imports through targeted tariffs.[167] However, this then becomes a political football, with companies who benefit from cheaper goods opposing tariffs which interfere with the "free" market.

In many respects, WTO and its rules are ineffective. In many circumstances, if a country games the system and evades the rules, the violations will not be challenged. Even if the violations are challenged and the result is successful, China will have won while other countries and their manufacturing enterprises will have lost because of time delays and the advantages that China obtains in the interim.[168]

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162. *Id*. at 233-34.

163. *Id*. at 233.

164. Protocol on the Accession of the People's Republic of China, WTO Doc. WT/L/432 (Nov. 23, 2001) [hereinafter Accession Protocol].

165. *Id.* at 5.

166. Phelim Kine, China Joined Rules-Based Trading System - Then Broke the Rules, POLITICO (Dec. 9, 2021), https://www.politico.com/news/2021/12/09/china-wto-20-years-524050.

167. *Id*.

168. U.S. CHINA ECON. & SEC. REV. COMM'N, 111TH CONG., REP. TO CONG. at 20 (2010) https://www.uscc.gov/sites/default/files/annual_reports/2010-Report-to-Congress.pdf. [hereinafter 2010 REP. TO CONG.]:

C. China's Failure to Comply with Its WTO Obligations

As stated above, Ricardo's notion of comparative advantage did not contemplate an export-oriented government that would eliminate other countries' competitive advantage through theft and conditioning entrance to its markers on technological transfer, nor one that would subsidize exports at the expense of its own citizens. Peter Navarro, former President Trump's Director of Trade and Industrial Policy, summarized China's policies, somewhat pejoratively, as follows:

1. An elaborate web of illegal export subsidies.
2. A cleverly manipulated and grossly undervalued currency.
3. The blatant counterfeiting, piracy, and outright theft of America's intellectual property treasures.
4. An incredibly short-sighted willingness by the Chinese Communist Party to trade massive environmental damage for a few more pennies of production cost advantage.
5. Ultra-lax worker health and safety standards so far below international norms that they make brown lung, butchered limbs, and a dizzying array of cancers not just occupational hazards but virtual certainties.
6. Unlawful tariffs, quotas, and other export restrictions on key raw materials from A to Z – antimony to zinc – as a strategic ploy to gain greater control over the world's metallurgy and heavy industry.
7. Predatory pricing and "dumping" practices designed to push foreign rivals out of key resource markets and to then gouge consumers with monopoly pricing.

But there is only one sure way to judge whether a dispute is satisfactorily concluded, and that is the effect on sales of products or services to which the complained-of restriction applied. In the case of auto parts, where the U.S. won its case, it would be interesting to ask whether China's restrictions may have served their purpose, with the favorable WTO result coming too late to reverse the damage to U.S. commercial interests. The same is true of local content or technology transfer requirements or applied to investments. The requirements may be lifted after they have had the desired effect. Even then, the case may have resolved only part of the problems faced. The United States has had some 'wins' in the area of IP [intellectual property] enforcement, but the Chinese market is still saturated with pirated software and DVDs.

8. China's vaunted "Great Walls of Protectionism – to keep all foreign competitors from setting up shop on Chinese soil.[169]

While Mr. Navarro often uses hyperbolic language, the various objections he raised to the unfair trading practices by China have been supported down through the years by the U.S.-China Commission.

China's use of cheap labor, toiling in deplorable conditions, and its currency manipulations have previously been discussed. The following focuses upon the various subsidies that China has provided to its export sector and its forced transfer of technology and know-how and piracy of intellectual property. The U.S. – China Commission, in 2009, summarized this issue as follows:

> To accelerate the growth of the information technology sector, the Chinese government has used direct and indirect subsidies, including low- or no-cost loans, tax concessions, grants of land and infrastructure, and government support for graduate education and for research and development. At the same time, the Chinese government has fostered the development of Chinese manufacturers through requirements that foreign suppliers establish joint ventures with Chinese partners, build manufacturing plants in China, transfer technology, and offset their imports of component parts through domestic purchases.[170]

In its 2009 report, the Commission also stated:

> China has long provided subsidized energy and water to many manufacturers, despite the fact that China must import large quantities of oil and gas and already has very limited supplies of water for agricultural purposes. Also, many manufacturers have been offered free or discounted land, particularly in the vast, government-run industrial parks. Today, China's subsidies still include free land and discounted electricity, but support for business is also growing more subtle and harder to detect. This support includes tax incentives for investment, funding for research and development, refunds of value added taxes (VAT) on exports, and the construction of strategically planned industrial parks in favored locations.[171]

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169. PETER NAVARRO & GREG AUTRY, DEATH BY CHINA: CONFRONTING THE DRAGON - A GLOBAL CALL TO ACTION 50 (2011).

170. U.S. CHINA ECON. & SEC. REV. COMM'N, 111TH CONG., REP. TO CONG. (2009), https://www.uscc.gov/sites/default/files/annual_reports/2009-Report-to-Congress.pdf. [hereinafter 2009 REP. TO CONG.].

171. *Id*. at 58.

Subsidization of Chinese industry continues today and has, in fact, accelerated as a result of the industrial policies that the Chinese government has been implementing. In 2017, the U.S.- China Commission reported:

> The Chinese government has laid out industrial plans where the government – not market forces – plays a central role in developing Chinese firms into the global leaders and cutting-edge, dual-use technologies. These industrial plans establish the government strategy for sector development at the national and local government levels, and set targets for localization, market creation, and productivity. To meet these objectives and cultivate local and national market leaders (the so-called "national champions"), central and local governments implement comprehensive industrial policies such as strong state funding, a protected domestic market, selective recruitment of foreign investment, imports and talent, and, in some cases, industrial espionage.[172]

With respect to forced technology transfer and industrial espionage, the Office of the U.S. Trade Representative conducted a recent investigation into the status of China's practice of forcing technology transfer by U.S. companies. The investigation found that the Chinese used two different approaches, one before and one after admission to the WTO. Prior to admission, the government was more explicit in requiring technology transfers. After admission, "China's technology transfer policies and practices have become more implicit, often carried out through oral instructions and 'behind closed doors.'"[173]

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172. 2017 REP. TO CONG, *supra* note, 156 at 509.

173. OFF. OF THE U.S. TRADE REPRESENTATIVE, FINDINGS OF THE INVESTIGATION INTO CHINA'S ACTS, POL'Y, & PRAC. RELATED TO TECH. TRANSFER, INTELL. PROP., & INNOVATION UNDER SECTION 301 OF THE TRADE ACT OF 1974 (2018), https://www.ustr.gov/sites/default/files/Section%20301%20FINAL.PDF [hereinafter FINDINGS OF THE INVESTIGATION INTO CHINA].

> The evidence collected in this investigation from witnesses, written submissions, public reports, journal articles, and other reliable sources indicates there are two key aspects of China's technology transfer regime for inbound foreign investment.
>
> First, the Chinese government uses foreign ownership restrictions, such as formal and informal JV requirements, and other foreign investment restrictions to require or pressure technology transfer from U.S. companies to Chinese entities. These requirements prohibit foreign investors from operating in certain industries unless they partner with a Chinese company in some cases, unless the Chinese partner is the controlling shareholder. Second, the Chinese government uses its administrative licensing and approvals processes to force technology transfer in exchange for the

D. Piracy and Industrial Espionage

In addition to requiring American and other companies to transfer technology and know- how, directly or indirectly, to Chinese companies, the Chinese government, its companies, and individuals sympathetic to China have engaged in industrial espionage and theft of intellectual property. Industrial espionage, as practiced by China, was beyond imagination at the time Ricardo developed his theory.

Industrial espionage has been a long-standing problem with China. The International Intellectual Property Alliance reported that, in 2002, intellectual property theft translated to a $1.8 billion loss to the pirated industries, and the Motion Picture Association of America reported that 95% of video discs in China were pirated.[174] The U.S.-China Commission estimated that unauthorized copying of business software applications alone led to a loss of over $2.7 billion in U.S. trade.[175]

In 2011, the Office of the National Counterintelligence Executive reported on the increased pace of theft of U.S. technologies and trade secrets:

> The pace of foreign economic collection and industrial espionage activities and U.S. government agencies is accelerating. Foreign intelligence services, corporations, and private individuals increased their efforts in 2009-2011 to steal proprietary technologies, which cost millions of dollars to develop and represented tens or hundreds of millions of dollars in potential profits. The computer networks of a broad array of U.S. government agencies, private companies, universities, and

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> numerous administrative approvals needed to establish and operate a business in China.
>
> These two aspects of China's technology transfer regime are furthered by the non-transparent and discretionary nature of China's foreign investment approvals system. Prior to 2001, China often explicitly mandated technology transfer, requiring the transfer of technology as a quid pro quo for market access. In 2001, China joined the WTO and agreed to not condition the approval of investment or importation on technology transfer. Since then, according to numerous sources, China's technology transfer policies and practices have become more implicit, often carried out through oral instructions and "behind closed doors."

174. U.S. CHINA ECON. & SEC. REV. COMM'N, 111TH CONG., REP. TO CONG. At 184 (2004), https://www.uscc.gov/sites/default/files/annual_reports/2004-Report-to-Congress.pdf. [hereinafter 2004 REP. TO CONG.].

175. *Id*. at 185.

> other institutions – all holding large volumes of sensitive economic information – were targeted by cyber espionage; much of this activity appears to have originated in China.[176]

In 2019, the Department of Justice indicted a Chinese company, Huawei Device Co. Ltd., and its U.S. subsidiary with the theft of trade secrets, wire fraud, and obstruction of justice.[177] The facts underlying the indictment were summarized by the Department of Justice release:

> According to the indictment, in 2012 Huawei began a concerted effort to steal information on a T-Mobile phone-testing robot dubbed "Tappy." In an effort to build their own robot to test phones before they were shipped to T-Mobile and other wireless carriers, Huawei engineers violated confidentiality and non-disclosure agreements with T-Mobile by secretly taking photos of "Tappy," taking measurements of parts of the robot, and in one instance, stealing a piece of the robot so that the Huawei engineers in China could try to replicate it. After T-Mobile discovered and interrupted these criminal activities, and then threatened to sue, Huawei produced a report falsely claiming that the theft was the work of rogue actors within the company and not a concerted effort by Huawei corporate entities in the United States and China. As emails obtained in the course of the investigation reveal, the conspiracy to steal secrets from T-Mobile was a company-wide effort involving many engineers and employees within the two charged companies.[178]

The indictment also charged that the Chinese company offered bonuses to employees, based on the value of the information that they stole from other companies around the world.

This wrongful conduct clearly is an ongoing problem. According to the U.S. Trade Representative:

> For over a decade, the Chinese government has conducted and supported cyber intrusions into U.S. commercial networks targeting confidential business information held by U.S. firms.

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176. OFF. OF THE NAT'L COUNTERINTELLIGENCE EXEC., FOREIGN SPIES STEALING US ECONOMIC SECRETS IN CYBERSPACE 1 (2011) [hereinafter FOREIGN SPIES] at 1.

177. United States v. Huawei Device Co., No. CR19-10RSM, 2019 U.S. Dist. LEXIS 86334* (W.D. Wash. 2019).

178. Press Release, U.S. Dep't of Just., Chinese Telecommunications Device Manufacturer and its U.S. Affiliate Indicted for Theft of Trade Secrets, Wire Fraud, and Obstruction Of Justice (Jan. 28, 2019), https://www.justice.gov/opa/pr/north-korean-regime-backed-programmer-charged-conspiracy-conduct-multiple-cyber-attacks-and [hereinafter DOJ Press Release Chinese Telecommunications].

> Through these cyber intrusions, China's government has gained unauthorized access to a wide range of commercially valuable business information, including trade secrets, technical data, negotiating positions, and sensitive and proprietary internal communications. These acts, policies, or practices by the Chinese government are unreasonable or discriminatory and burden or restrict U.S. commerce.[179]

The foregoing is a consistent pattern, but not a pattern that is consistent with the principles of free trade. Rather, it is consistent with industrial warfare with serious national security implications.

In view of the foregoing, what does the future hold? The U.S. China Commission recently opined:

> The CCP [Chinese Communist Party] sees itself as engaged in a systemic struggle with the United States and other democratic countries over the future of the world order.
>
> Beijing seeks to use its growing power to transform the international order, ultimately legitimizing its repressive governance system; expanding its economic, security, and political interests; and restoring China to what it views as its rightful place at the center of the world … The CCP hopes to remold global governance, ultimately enabling China to act unconstrained by the current rules-based order.[180]

V. THE LACK OF LOYALTY BY AMERICAN BUSINESS TO AMERICAN TAXPAYERS AND WORKERS

A. The Illusion that Global Trade Predicated Upon Labor Arbitrage Would Benefit American Workers

Consider now the high technology sectors to which our industrial base was supposed to turn, which required innovation and intellectual property, and which would provide the jobs for our supposedly retrained workers. The high-tech advantage, which American workers and manufacturers at one time enjoyed, unfortunately has been traded away to other countries.

179. FINDINGS OF THE INVESTIGATION INTO CHINA, *supra* note 173, at 153.
180. *Id.*

American businesses, which now consider themselves global enterprises, not American enterprises, have traded away such advantage in exchange for market access in other countries which, in the short run, increases the profitability of American businesses at the expense of American jobs, but which in the long run may ultimately result in loss of business by the companies that gave away their know-how and technology.

Based upon their unfettered view of the benefits of free trade, naïveté would seem to be a critical characteristic of conservative Republicans and free-trade Democrats, such as former President Bill Clinton, who believes that free trade is the norm in our global economy and that it is a win-win proposition for all concerned. According to the free traders:

> Expanding global trade would advance the well-being of all nations, it was said, because free markets rewarded price efficiency. Therefore, over time, the sales would gravitate to nations that each produced what they did best and at the lowest cost, whether it was textiles or automobiles.[181]

The same people believe that the notion – that the United States should have an industrial policy – is anathema to our capitalistic system.

With regard to whether unfettered "free" trade is a win-win proposition for all concerned, try telling the highly skilled craftsmen in the wood furniture industry, described earlier in this article. Or try telling that to a highly skilled machinist in the aerospace industry, as described below.

Once we adopt the notion that the purpose of a corporation is to maximize shareholder value, since shareholder value is a function of earnings, which in turn are a function of sales, the primary focus of a multinational corporation is market access so as to generate sales, irrespective of where the product is actually produced. If a product needs to be produced in another country so as to generate sales, then so be it. This then creates a benefit for the shareholders (and for management whose compensation is a function of profitability), but certainly not for the workers, if the jobs they formerly performed are outsourced to another country. And, if the price of access to a market in another country is the transfer, not just of jobs but of technology whose development was funded by the American taxpayer, so be it.

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181. GREIDER, *supra* note 117, at 126.

This certainly works in the short run – at least from the standpoint of shareholders and management. But what of the long run? If we outsource the jobs to another country and train their workers, and then transfer our technology and manufacturing know-how, what is to stop governments, businesses, and investors in said other country from setting up a competing business and appropriating the market for themselves?

President Clinton advocated for most favored nation status for China because he was enthralled with the possibility of opening up a market of 1.2 billion potential customers. But, putting to one side barriers to entry imposed by the host government, you can only sell to people who can afford to buy. If the policy of the host government is to create an industrial base for export and not necessarily to raise the standard of living of its citizens, instead of opening up a huge market into which American companies can sell, we have instead created a massive production machine which can sell into our affluent economy.

Now, if other countries can extract concessions as the price of accessing their market, could not the United States also extract concessions as a condition of other countries accessing our market? To do so would be to have a so-called "industrial policy." But this would violate our notions of a free enterprise, capitalistic economy which, supposedly, works best for everyone.

B. A Case Study of Voluntary Transfer of Technology – The Aircraft Industry

The aircraft industry is a good case study in regard to voluntary transfer of technology by American companies. With respect to aircraft technology, the technology and manufacturing know-how were clearly paid for by the American taxpayer in connection with funding the military budget from the start of World War II until today. It also exemplifies the reality that business does not unnecessarily go to the highly efficient, low-cost manufacturer.

Other countries desire to get into the high-tech business and to short-circuit the time and expense involved in developing the technology themselves. Consequently, they use the availability of their markets to extract technology and know-how from American companies that seek to enter their markets.

In the mid-1990s, Boeing was the world's preeminent manufacturer of large-body commercial aircraft:

> Boeing was already, without dispute, the best. It was the world's most efficient low-cost producer, even with the $20-an-hour wages for machinists. Boeing products and especially its design capabilities were without peer. If the economists' logic of comparative advantage ruled the world, then Boeing could be making all of the world's jet airliners.[182]

Boeing's massive assembly plant in Everett, Washington, had achieved the "act of bringing everything together perfectly."[183] However, Boeing had overcapacity and sought to increase its export business. To get sales, it outsourced various sections of its aircraft:

> The 777s entire fuselage traveled in quarter sections from Japan, shipped by Mitsubishi from Nagoya to Puget Sound, where the pieces were barged from Tacoma to the Port of Everett, then hauled by railcars of the steep grade to the factory. Wingtip assembly came from Korea. Rudders from Australia. Dorsal fins from Brazil. Main landing gears from Canada and France. Flight computers from the United Kingdom. And so on.[184]

In connection with a package of $5 billion in future sales from China, the company announced that "complete tail sections for Boeing's most popular model, the mid-range 737, usually produced at Boeing's Wichita, Kansas, plant, would soon also be fashioned in China."[185] Since a picture is worth a thousand words, the diagram below illustrates the scope of outsourcing Boeing engaged in:[186]

182. *Id*. at 127.
183. *Id*. at 129.
184. *Id*.
185. *Id*. at 124.
186. GREIDER, *supra* note 117, at 124-25.

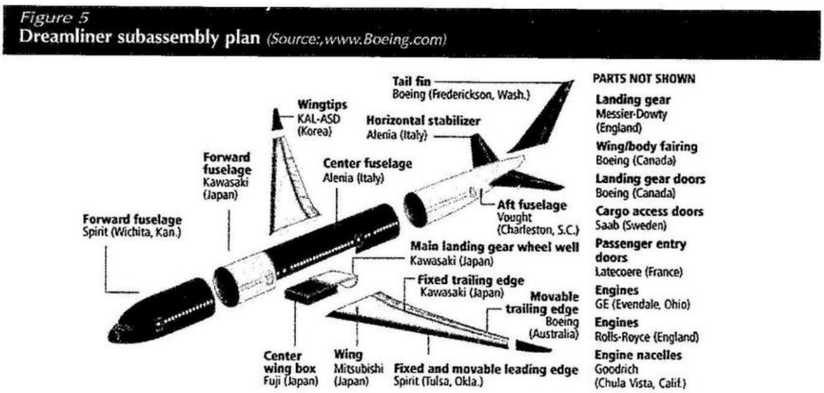

Figure 5
Dreamliner subassembly plan *(Source:,www.Boeing.com)*

The reason for foregoing outsourcing was not based on manufacturing efficiency, but rather upon a combination of labor arbitrage and the desire to increase sales. One Boeing middle manager stated: "[Y]ou've got to maintain the tit-for-tat if you expect to keep selling airplanes."[187] According to Greider, "[a]ssembly parts were disbursed to the foreign producers because the market demanded that, not because these things could be made better or cheaper somewhere else."[188] A senior vice president of Boeing stated:

> I am scratching their itch [other countries' desires for outsourced work]. I have to create some jobs in those countries to get those markets. But what we're trying to do in the net equation is to protect the jobs here. I think I can show that happened with China or with Japan.
>
> But, overall it's a tougher problem as I look down the future. Will I have a lot of U.S. suppliers or will I have more international suppliers? I don't know the answer, but it is clear that the U.S. suppliers don't bring me any market.[189]

The problems with outsourcing as a business model were raised in an internal Boeing symposium in 2001,[190] some of which came to light in

187. *Id.* at 129.

188. *Id.*

189. *Id. See also* RANDY BARBER & ROBERT E. SCOTT, JOBS ON THE WING – TRADING AWAY THE FUTURE OF THE U.S. AEROSPACE INDUSTRY (Econ. Policy Inst., 1995).

190. Dr. L. J. Hart-Smith, *Out-Sourced Profits – The Cornerstone of Successful Subcontracting*, Boeing paper MDC 00K0096 (2001), http://seattletimes.nwsource.com/ABPub/2011/02/04/2014130646.pdf#_ga=2.112611264.532496093.1546385394-

connection with the electrical problems Boeing experienced in connection with its 787 Dreamliner. Company engineers blamed the 787s outsourced supply chain, saying that poor quality components are coming from subcontractors that have operated largely out of Boeing's view.[191]

C. Chinese Financing of American Companies as a Tool to Acquire Technology

Over the last few years, China has embarked upon another strategy to obtain technology and know-how – through acquisition of American and other companies and through providing venture capital to start-up companies in promising industries. This has been possible through China's huge aggregation of foreign currency reserves and has enabled the Chinese government to control foreign investments through its control of such reserves.

The Office of the United States Trade Representative reported:

> [The] Chinese government continues to direct and/or unfairly facilitate the systemic investment in, and/or acquisition of, U.S. companies and assets by Chinese companies to obtain cutting-edge technologies and intellectual property and generate large-scale technology transfer and industries deemed important by Chinese government industrial plans.[192]

The Chinese government has instituted an outbound investment approvals system which applies to all enterprises, not just state-owned enterprises "SOEs," which gives the state a decisive role in determining which industry sectors should be targeted or closed for overseas investment. "As a result, any enterprise seeking to receive government support for such acquisitions are incentivized to invest in sectors favored by the government, including those classified as 'encouraged' in outbound investment measures and those identified in major S&T plans such as the *Made in China 2025 Notice*."[193]

80545396.1546385394.

191. Dominic Gates, *Boeing 787's Problems Blamed on Outsourcing, Lack of* Oversight, SEATTLE TIMES (Feb. 2, 2013), https://www.seattletimes.com/business/boeing-787rsquos-problems-blamed-on-outsourcing-lack-of-oversight.

192. OFF. OF THE U.S. TRADE REP., UPDATE CONCERNING CHINA'S ACTS, POLICIES, AND PRACTICES RELATED TO TECHNOLOGY TRANSFER, INTELLECTUAL PROPERTY, AND INNOVATION 31 (2018) [hereinafter UPDATE CONCERNING CHINA'S ACTS].

193. FINDINGS OF THE INVESTIGATION INTO CHINA, *supra* note 173, at 87. "Encouraged-type overseas investment projects" include:

The Section 301 Report by the Office of the United States Trade Representative, which was updated above, noted that:

> investments that are "encouraged" receive several forms of government support, including: subsidies for fees incurred, and bank loans at government-subsidized interest rates; policy bank loan support; priority administrative approval; priority support for the use of foreign exchange; export tax rebates on exports of equipment and other materials relating to the overseas investment project; priority access to services relating to overseas financing, investment consultation, risk evaluation, risk control, and investment insurance; and coordinated support from several government departments with respect to information exchange, diplomatic protections, the travel of personnel abroad, and registration of import and export rights.[194]

Annual Chinese foreign direct investment in the United States prior to 2011 was less than $5 billion; by 2016, it had risen to over $45 billion.[195] In addition, Chinese investors have increased their participation in venture capital deals. In 2011, such participation was less than $1 billion; it rose to over $6 billion in 2015 and about $9 billion in 2018.[196]

When the Senate considered a bill that would make it more difficult for foreign firms to make investments in U.S. technology companies on the basis that providing access to developing U.S. technology could produce a national security threat, venture capital advocates asserted that a minority interest in a high-tech firm cannot provide access to technology.[197] This illustrates that individual firms or individual

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> (1) investments that enable the acquisition of resources and raw materials that are in short supply domestically and which are "in urgent demand for national economic and social development;" (2) investments that support the export of products, equipment, technology, and labor for which China has a comparative advantage; and, (3) investments that "are able to clearly enhance China's technology research and development capacity, including an ability to use international leading technology and advanced management experience and professional talent." Thus, the acquisition and subsequent use of technology is a central feature of "encouraged" outbound investments.

Id. at 77.

"Control over the use of foreign exchange is a crucial tool for the government to influence outbound investment. China operates a closed capital account that restricts currency convertibility, as well as monetary inflows and outflows." *Id.* at 75.

194. *Id*. at 78.

195. *Id*. at 99.

196. *Id*. at 41.

197. Sarah McBride & David McLaughlin, *Venture Capitalists Fret over U.S. Bill Targeting Chinese Investors*, BLOOMBERG, https://www.bloomberg.com/news/articles/2018-05-16/venture-capitalists-fret-over-u-s-bill-targeting-chinese-investors#xj4y7vzkg (last updated May 16, 2018).

industries cannot be expected to forgo their self-interests in light of what may or may not be a national security problem.

A commissioner at the United States-China Economic and Security Review Commission differed with the venture capital advocates, stating that "insights into the underlying technology can be a condition of participation in venture capital deals" and "participating Chinese firms might well ask to confirm patents, which provides access to underlying technology."[198] In response, the Foreign Investment Risk Review Modernization Act of 2018 was enacted, which would strengthen the Committee on Foreign Investment in the United States.[199]

According to Alan Rappeport of the New York Times, the former Trump administration announced that it would utilize the expanded review system to more aggressively police foreign investment so as to prevent China from gaining access to sensitive American technology. "The investment restrictions will allow the United States to block a far wider array of foreign transactions that are deemed a threat to national security, including minority stakes and joint ventures in technology, telecommunications and other cutting-edge companies."[200]

VI. Global Trade and Supply Chain Issues

The current high rate of inflation the United States is experiencing is also bedeviling other industrialized countries in Europe and Great Britain.[201] This is because such inflation is primarily driven by the increase in oil prices,[202] and the severe global supply chain disruptions that the world has experienced due to the pandemic.[203]

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198. *Id*.

199. U.S. Dep't of the Treasury, *Treasury Secretary Mnuchin Statement on Signing of FIRRMA to Strengthen CFIUS*, U.S. DEP'T OF THE TREASURY (Aug. 13, 2018), https://home.treasury.gov/news/press-releases/sm457.

200. Alan Rappeport, *In a New Slap at China, U.S. Expands Power to Block Foreign Investments*, N. Y. TIMES (Oct. 10, 2018), https://www.nytimes.com/2018/10/10/business/us-china-investment-cfius.html?smid=url-share.

201. Luke Hurst, *Record inflation: Which country in Europe has been worst hit and how do they compare?*, EURONEWS (June 1, 2022), https://www.euronews.com/next/2023/03/22/uk-record-inflation-which-country-in-europe-has-been-worst-hit-and-how-do-they-compare.

202. *Id*. Oil prices have surged because production was cut back during the pandemic, due to decreased demand, and production has not yet increased to meet the increased demand, coupled with the Russian invasion of Ukraine and sanctions on Russian oil.

203. U.S. Int'l Trade Comm'n, Pub. No. 5145, COVID-19 Related Goods: The U.S. Industry, Market, Trade, and Supply Chain Challenges (2020) [hereinafter COVID-19 Related Goods].

This Part will first examine the supply chain disruption that COVID-19 initially triggered, which illustrates the need for a governmental policy in the health supplies area. Next, it will address the more far-reaching global supply chain issues caused by COVID-19. A related supply chain issue, namely that of critical minerals, will also be considered.

Supply chain disruption is not a new phenomenon. The Japanese tsunami in 2011 had far-reaching effects on global trade.[204] Automobile production in the United States was directly impacted by the lack of parts caused by the disruptions triggered by the tsunami.[205] At that time, Professor Willy Shih of the Harvard Business School summarized the risk of cost driven, just-in-time, supply chain strategies: "In the race to provide better quality at lower prices, manufacturers picked very narrow, optimized supply chains [. . .] They put all of their eggs with one supplier that had the best product at the lowest price."[206] But the answer, such as using redundant suppliers in various parts of the world, can be expensive: "Would customers be willing to absorb some increase in cost if it meant that there would be fewer shortages or production delays?"[207]

The COVID-19 pandemic created much more serious global supply chain problems than in the past. This is, in part, because countries like the United States have outsourced entire industries,[208] and, in part, because of the sequential, multi-country production model that Professor Shih described above. This production model is illustrated by Boeing's outsourcing of the Dreamliner, pictured above.[209]

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204. Dennis Fisher, *Japan Disaster Shakes up Supply-Chain Strategies*, HARV. BUS. SCHOOL (May 31, 2011), https://hbswk.hbs.edu/item/japan-disaster-shakes-up-supply-chain-strategies.

205. Naomi Tajitsu, *Five Years After Japan Quake, Rewiring of Auto Supply Chain Hits Limits*, REUTERS (Mar. 29, 2016, 10:37 PM), https://www.reuters.com/article/us-japan-quake-supplychain/five-years-after-japan-quake-rewiring-of-auto-supply-chain-hits-limits-idUSKCN0WW09N.

206. Fisher, *supra* note 204, at 1. Prof. Shih further explained:

> The sequential, multi-country production model is what dominates now, and it's a model where little bits of value get added here or there and it's hard to see country of origin. It can be a very costly process to figure it out," Shih says. "For example, if you really wanted to trace conflict minerals, you would turn off the valve at the Congo border and see who screams. It's the same structural problem as in Japan. A Wii has a chip designed by IBM, which may have been fabbed in New York, tested in Taiwan, stored in Hong Kong, aggregated in parts, and sent in kits to China for assembly.

207. *Id*.

208. David Wei & Marshall Chase, *Climate + Supply Chain: The Business Case For Action*, BSR, (September 2018), https://www.bsr.org/reports/BSR_Climate_and_Supply_Chain_Management.pdf.

209. GREIDER, *supra* note 117, at 124.

A. Healthcare Supply Chain Problems

From the standpoint of the United States, the current COVID-19 crisis has demonstrated the dangers of relying upon foreign countries, particularly China, for critical healthcare needs. While former President Trump initially downplayed the risks of the virus,[210] by March 2020, it was becoming apparent that the United States had substantial shortages in many essential healthcare materials, such as ventilators, personal protective equipment, and testing components.

While Former President Trump did mobilize American manufacturers to provide ventilators[211] throughout the course of 2020, adequate personal protective equipment had been lacking in many areas, and our COVID-19 testing has lagged far behind most other industrial nations.[212] While some of this problem may be attributable to the indifference that former President Trump demonstrated in connection with the crisis,[213] there is no question that supply chain problems were responsible for the bulk of the problem.[214]At one point in time, American healthcare suppliers had outsourced production of many items to Puerto Rico.[215] However, even these low wages were not satisfactory to

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210. Philip Bump, *Yet Again, Trump Pledges That the Coronavirus Will Simply Go Away*, WASH. POST (Apr. 28, 2020, 5:08 PM), https://www.washingtonpost.com/politics/2020/04/28/yet-again-trump-pledges-that-coronavirus-will-simply-go-away/; *See also* Noah Weiland, *Deborah Birx Says Trump White House Asked Her to Weaken Covid Guidance*, N.Y. TIMES (June 24, 2020), https://www.nytimes.com/2022/06/23/us/birx-trump-covid-guidance.html.

211. Maegan Vazquez et al., *Trump Invokes Defense Production Act to Require GM to Make Ventilators*, CNN (March. 27, 2020), https://www.cnn.com/2020/03/27/politics/general-motors-ventilators-defense-production-act.

212. *Daily COVID-19 tests per thousand people*, OUR WORLD IN DATA, https://www.ourworldindata.org/grapher/daily-tests-per-thousand-people-smoothed-7-day?tab=chart&stackMode=absolute&time=earliest..latest&region=World. (last visited Jan. 31, 2021).

213. Bump *supra* note 210, at 1. Apparently, President Trump hoped that by downplaying the seriousness of the virus, a robust economy could be sustained which would carry him to a second term.

214. *See infra* text at notes 216-231.

215. Luis G. Rivera-Marin et al., Editorial, *The Island that Can Save America*, THE HILL, (May 29, 2020), https://thehill.com/opinion/finance/500067-the-island-that-can-save-america. Considerable pharmaceutical manufacturing was once located in Puerto Rico. That began to change in 1996, when federal tax policy spurred manufacturers to move out of Puerto Rico to foreign countries with cheap labor and low taxes, like China and India.

> Before 1996, the tax code gave makers of drugs and medical devices favorable treatment for manufacturing products in U.S. territories, such as Puerto Rico. At that time, Puerto Rico was the American engine of pharmaceutical and medical device manufacturing. Many, if not most, domestic companies had a presence there. In an effort to curb 'corporate welfare' however, the Republican Congress passed, and

American business, and these materials were then outsourced to Asia, particularly China.

On March 21, 2020, the American Medical Association and the American Nurses Association sent a letter to the White House indicating the critical need for medical supplies in connection with the COVID-19 crisis. In part, the letter stated:

> The American Hospital Association, the American Medical Association and the American Nurses Association have concerns that increasingly there are dwindling supplies of N95 respirators, isolation gowns, isolation masks, surgical masks, eye protection, intensive care unit equipment and diagnostic testing supplies in areas that had the first community outbreaks and in many other areas of the country. Even with an infusion of supplies from the strategic stockpile and other federal resources, there will not be enough medical supplies, including ventilators, to respond to the projected COVID-19 outbreak. We have heard of health care providers reusing masks or resorting to makeshift alternatives for masks.[216]

The lack of adequate PPE equipment was a problem that persisted throughout the year 2020. Healthcare workers had been reusing equipment multiple times. In June, a nurse stated: "There truly was a supply chain crisis in March …. But that was March, and this is June, and me and my co-workers are still working in substandard equipment that we're using multiple times that were supposed to be used only once."[217] At some hospitals, the unreliable supplies prompted staffers to purchase their own reusable goggles and N95 masks that were marketed for

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> President Clinton signed the Small Business Job Protection Act of 1996, which phased out the tax exemption. The results were predictable.

The manufacturers reduced or eliminated their operations in Puerto Rico, moving them to China, India and Ireland, which welcomed their presence with favorable economic policies.

216. Letter from American Medical Association (AMA), American Hospital Association (AHA), and American Nurses Association (ANA), to President Donald Trump (Mar. 21, 2020), https://searchlf.ama-assn.org/undefined/documentDownload ?uri=%2Funstructured%2Fbinary%2Fletter%2FLETTERS%2F2020-3-21-FINAL-AHA-AMA-ANA-Defense-Letter.pdf, [hereinafter Letter to President Donald Trump].

217. Naomi Martin, *It's like pulling teeth: there is still a PPE shortage – and a second wave could send medical workers into crisis mode*, BOS. GLOBE, June 21, 2020, https://www.bostonglobe.com/2020/06/21/nation/dangerous-shortages-protective-gear-persist-mass-hospitals-clinicians-say/.

construction work at a substantial cost.[218] In other situations, the AMA president pointed out that N95 masks were rationed.[219]

The AMA president has also pointed out that the lack of personal protective equipment is particularly vexing for individual doctors and small practices. These physicians, in the past, have not needed to store large quantities of PPE and have no existing vendor relationships.[220] The quantities they require are dwarfed by the amounts sought by institutional buyers, and they end up at the end of the line.[221]

According to the U.S. International Trade Commission:

> The U.S. market relies heavily on PPE imports from a few foreign suppliers to meet demand for certain products, and this import reliance has continued during the pandemic. Imports supply an estimated 80 to 90 percent of the U.S. PPE market directed toward healthcare applications, with imports primarily originating in China for certain major PPE products, including surgical masks and surgical and isolation gowns.[222]

This reliance on products manufactured outside the United States has been very problematic. According to the president of the American Medical Association, "[b]ecause the greatest quantity [of] PPE is produced outside of the U.S., the procurement process can be complex, time-consuming, and prone to disruption, price-gouging and other perils."[223] One purchasing agent for a hospital stated that the hospital had "literally scoured the world," to find equipment; a hospital vice president stated that "no penny ha[d] been spared," but supply lines were still fragile.[224]

When demand for a product markedly accelerates because of a pandemic and the product is produced in a foreign country, price gouging often results. Tedros Adhanom Ghebreyesus,director general of the

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218. *Id*. One physician spent $80 on a washable N95 mask with a replaceable filter.

219. Susan R. Bailey, MD, *Recurring PPE shortages must be resolved now*, AMA, Aug. 26, 2020, https://www.ama-assn.org/about/leadership/recurring-ppe-shortages-must-be-resolved-now. In August 2020, the president of the American Medical Association stated:

> On one level, it is hard to believe that our nation finds itself dealing with the same shortfalls in PPE witnessed during the first few weeks that SARS-CoV-2 began its unrelenting spread. Back in March, when the supply chain for PPE, disinfectants and other needed supplies was first placed under tremendous pressure, critical equipment such as N95 masks were carefully rationed and routinely reused. But that same situation exists today, and in many ways things have only gotten worse.

220. *Id*. at 2.

221. *Id*.

222. COVID-19 Related Goods, *supra* note 203, at 1.

223. Bailey, *supra* note 219, at 1.

224. Martin, *supra* note 217, at 1.

World Health Organization, said that, in 2020, demand was 100 times higher than normal for the protective gear and that prices were up to 20 times higher.[225]

Mike Bowen, the Executive Vice President of Prestige Ameritech, one of the few American manufacturers of surgical masks, has warned the last three administrations of the risks of an insecure U.S. mask supply.[226] American manufacturers are very hesitant to ramp up production because of the concern that, once the demand caused by the crisis ebbs, they will be left with overcapacity and additional employees.[227] This concern is exacerbated when foreign manufacturers, such as those in China, have also ramped up capacity and are prepared to undercut world prices to maintain employment when the crisis is over.[228] Prestige Ameritech has already experienced ramping up production to meet one crisis, only to have customers - and even United States government, go to other, cheaper sources once the crisis is over.[229]

The Congressional Research Service confirmed much of the foregoing in its December 2020 report: it reported that, in early 2020, the Chinese government nationalized control of the production and distribution of medical supplies in China and directed all production toward domestic use.[230] When exports resumed, they were directed to serve the political interests of China.[231]

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225. *Concerns Rise for PPE Shortages With Coronavirus*, AM. HOSPITAL ASS'N, (Feb. 7, 2020, 2:05 PM) https://www.aha.org/news/headline/2020-02-07-concerns-rise-ppe-shortages-coronavirus.

226. Lena H. Sun & Rachel Siegel, *As Demand Spikes for Medical Equipment, this Texas Manufacturer is Caught in Coronarvirus's Supply Chain Panic*, THE WASH. POST (Feb. 15, 2020, 12:53 PM), https://www.washingtonpost.com/business/2020/02/15/coronavirus-mask-shortage-texas-manufacturing/.

227. CONG. RESEARCH SERV., COVID-19: CHINA MEDICAL SUPPLY CHAINS AND BROADER TRADES ISSUES, R46304 (2020).

228. *Id.*

229. Sun & Siegel, *supra* note 226, at 2. Bowen stated: "Everybody said they'd stay with us. The day after the [former] pandemic they forgot who we were. We nearly went out of business."

230. COVID-19: CHINA MEDICAL SUPPLY CHAINS AND BROADER TRADES ISSUES, *supra* note 227, at 2.

231. *Id.*

> An area of particular concern to Congress has been U.S. shortages in medical supplies— including personal protective equipment (PPE) and pharmaceuticals—as the United States stepped up efforts to contain the COVID-19 pandemic with limited domestic stockpiles and insufficient U.S. industrial capacity. Because of China's role as a global supplier of PPE, medical devices, antibiotics, and active pharmaceutical ingredients, reduced exports from China led to shortages of critical medical supplies in the United States.
>
> Exacerbating the situation, in early February 2020, the Chinese government nationalized control of the production and distribution of medical supplies in China—

Situations, such as the foregoing, require an industrial policy that will ensure the existence of an American manufacturing base capable of ramping up to meet extraordinary need in a crisis.

B. The More Pervasive Supply Chain Problems from the Multi-Country Production Model

Although global supply chain issues initially manifested in the healthcare equipment sector, these problems were minimal when compared to the massive supply chain problems that developed thereafter, both from manufacturing shutdowns because of the spread of the COVID-19 virus, the need for isolation, and the ensuing backlogs in shipping backlogs.

Henry Ford, early on, sought to minimize any potential supply chain disruptions by vertically integrating, leading to the landmark case of *Dodge v. Ford Motor Co.*[232] According to one commentator, Henry Ford

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> directing all production for domestic use—and directed the bureaucracy and Chinese industry to secure supplies from the global market. Once past the initial peak of its COVID-19 outbreak, the Chinese government appears to have prioritized certain countries and selectively released some medical supplies for overseas delivery.

232. Dodge v. Ford Motor Co., 170 N.W. 668 (Mich. 1919). Mr. Ford had announced that he would not increase the dividend but rather would retain the company's profits to vertically expand the business. According to the complaint:

> [The company would] invest millions of dollars of the company's money in the purchase of iron ore mines in the Northern Peninsula of Michigan or state of Minnesota; to acquire by purchase or have built ships for the purpose of transporting such ore to smelters to be erected on the River Rouge adjacent to Detroit in the county of Wayne and state of Michigan; and to construct and install steel manufacturing plants to produce steel products to be used in the manufacture of cars at the factory of said company; and by this means to deprive the stockholders of the company of the fair and reasonable returns upon their investment by way of dividends to be declared upon their stockholding interest in said company.

Id. at 671.

Mr. Ford also asserted that his goal was to increase the wages and improve the lives of working men:

> My ambition,' said Mr. Ford, 'is to employ still more men, to spread the benefits of this industrial system to the greatest possible number, to help them build up their lives and their homes. To do this we are putting the greatest share of our profits back in the business.

"was especially distrustful of his suppliers.[233] He was consumed with stockpiling enough materials to ensure that his assembly lines could continue operating without debilitating shortages."[234] Today, Ford Motor company is an exponent of just-in-time inventory control which, in the past, has helped to maximize profits by limiting capital costs. However, as a result of supply chain disruptions, Ford now has thousands of basically finished vehicles stashed away because of the unavailability of the necessary computer chips.[235]

The shortage of computer chips has had a serious effect upon the economy. One estimate is that it has cost the U.S. economy $240 billion in 2021.[236] Computer chips, however, impact not just the auto industry but many other industries. One company that builds everything from virtual reality headsets to the brains of barbecue grills was impacted because it did not have the necessary chips for these products to work.[237] Another company that makes recumbent bikes was "sitting on $2 million in inventory for [the lack of] one $30 part."[238]

When the COVID-19 crisis hit in early 2020, factories across the globe were shut down or production curtailed because workers were sick or were quarantining.[239] As production opened up, a new problem developed. As discussed in the preceding Part, China was a primary source of personal protective equipment and shipped such supplies

Id. at 683.

However, his true goal may have been to deny the Dodge brothers a substantial dividend, which would enable them to form a competing car company. In mandating a dividend, the court articulated a forerunner of the maxim that the purpose of a corporation is to maximize shareholder value by stating that a "business corporation is organized and carried on primarily for the profit of the stockholders." *Id*. at 684.

233. Peter S. Goodman, *Lessons from Henry Ford about Today's Supply Chain Mess*, N.Y. TIMES (June 10, 2022), https://www.nytimes.com/2022/06/10/business/henry-ford-supply-chain.html#:~:text=and%20product%20shortages.-,Mr.,could%20threaten%20longer%2Dterm%20resilience.

234. *Id*.

235. *Id*. at 3.

236. Omar Villafranca, *Chip Shortage Caused U.S. Economy Billions in 2021*, CBS NEWS (Jan. 28, 2022), https://www.cbsnews.com/news/chip-shortage-cost-us-economy-billions-in-2021/.

237. *Id*.

238. Jeanna Smialek & Madeleine Ngo, *What an Adult Tricycle Says About the World's Bottleneck Problems*, N.Y. TIMES (Aug. 23, 2021), https://www.nytimes.com/2021/08/23/business/economy/supply-chain-bottlenecks-coronavirus-inflation.html.

239. Peter S. Goodman, *How the Supply Chain Broke, and Why It Won't Be Fixed Anytime Soon*, N.Y. TIMES (Oct. 31, 2021), https://www.nytimes.com/2021/10/22/business/shortages-supply-chain.html.

around the world in container ships. However, in some of the countries where PPE was shipped, the locals had nothing to export in return, and containers piled up when they were once again needed in China and other countries.[240] This, in turn, created warehousing problems.[241]

The critical pieces affecting supply chain efficiency are "factory capacity, vessel availability, container availability, trucking capacity, port productivity, vessel transit time and rail capacity."[242] All of these have been adversely affected by the pandemic. Ships stuck at sea, warehouses overflowing, trucks without drivers were becoming the new normal.[243] Goods piled up at the ports of exporters and, when finally shipped, the ships often could not unload because of the congestion at the ports of entry, warehousing problems at the port of entry, and the unavailability of truck drivers to deliver the goods to the ultimate consumer.[244]

Part of the supply chain problem was occasioned by the huge increase in the size of container ships. By 2006, they reached the point where they could carry 15,000 containers.[245] However, today, they can carry up to 24,000 containers, each container of which could hold two SUVs.[246] Such ships are more costly, leading to industry consolidation.[247]

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240. Lazario Gamio & Peter S. Goodman, *How the Supply Chain Crisis Unfolded*, N.Y. TIMES (Dec. 5, 2021), https://www.nytimes.com/interactive/2021/12/05/business/economy/supply-chain.html. "The turmoil has revealed the need to ship surgical masks to West Africa from China can have a cascading effect on Ford's ability to back-up cameras on its cars in factories in Ohio" when there are insufficient containers available.

241. *Id.* at 5.

242. Lori Ann LaRocco, *These Ports Are Causing the Most Congestion in the Global Supply Chain, New CNBC Charts Show*, CNBC (updated June 14, 2022), https://www.cnbc.com/2022/05/24/these-ports-are-causing-the-most-congestion-in-supply-chain.html.

243. Gamio & Goodman, *supra* note 240, at 1.

244. LaRocco, *supra* note 242, at 1.

> According to Marine Traffic and Blume Global data, the Port of Oakland tops the list of congestion with vessels taking six days to unload and load. Import containers are lingering almost 11 eleven days in the port before they are transported. The Port of Los Angeles is the second highest in wait times, clocking in almost 12 days containers to leave the port and five and a half days for vessels to be processed. Rail delays of 6.2 days are also plaguing the port's productivity… 'Today, rail boxes are waiting more than six days to get on a train,' said Gene Seroka, Port of Los Angeles executive director. 'That's triple the dwell time compared to pre-pandemic days.'

245. *Id.*

246. Niraj Chokshi, *Why the World's Container Ships Grew So Big*, N.Y. Times (updated Oct. 10, 2021), https://www.nytimes.com/2021/03/30/business/economy/container-ships-suez-canal.html#:~:text=To%20the%20container %20lines%2C%20building,on%20construction%2C%20fuel%20and%20staffing.

247. *Id.* at 5.

They have also led to longer shipping times because they are slower; they are more difficult to unload without specialized equipment, and they have led to costly infrastructure changes, such as expanding thePanama Canal and dredging harbors and raising bridges to accommodate their size.[248] In many cases, it is the taxpayer who bears the cost.[249]

Supply chain problems and inflationary costs were compounded by the 10-fold or greater increase in shipping costs. Sending a container from Shanghai to Los Angeles before the pandemic cost about $2,000; by 2021, the cost had risen to $25,000.[250] Moreover, small and medium-sized American businesses, which import goods from abroad, have charged that carriers have refused "to honor their contracts, denying them space on vessels and prioritizing shipments for larger and more lucrative customers like Amazon and Walmart."[251] The three major shipping alliances increased their share of the market from 29% to 80% between 2011 and 2018.[252] On some trans-Pacific routes, these alliances controlled 95% of the market.[253] In 2021, the five largest container-shipping companies collectively tripled their yearly profits to $64 billion, compared to the previous year.[254]

Granted that the problems discussed in this Part and the prior one were triggered by the COVID-19 pandemic. While we do not expect that a pandemic will arise every year, we have been cautioned that more such episodes will occur in the future.[255] We also know that unforeseen events periodically occur, such as the Japanese tsunami,[256] with the potential to upset the efficiency of supply chains. Other events, such as hurricanes,

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248. *Id.* at 3.

249. *Id*. A new problem arose when one of these massive ships went aground in the Suez Canal, thus tying up the canal for almost a week.

250. Goodman, *supra* note 239, At 1. (An industry source acknowledged that prices have increased at least sevenfold); *See* Michael D. Shear & Ana Swanson, *Biden Casts Inflation as a Global Problem During a Visit to the Port of Los Angeles*, N.Y. TIMES (June 10, 2022), https://www.nytimes.com/2022/06/10/us/politics/biden-inflation.html#:~:text=the%20main%20story-,Biden%20Casts%20Inflation%2.

251. Peter S. Goodman, *American Importers Accuse Shipping Giants of Profiteering*, N.Y. TIMES (May 4, 2022), https://www.nytimes.com/2022/05/04/business/shipping-container-shortage.html.

252. *Id.* at 5.

253. *Id.*

254. *Id*.

255. Eleni Smitham & Amanda Glassman, *The Next Pandemic Could Come Soon and Be Deadlier*, CENTER FOR GLOBAL DEVELOPMENT (Aug. 25, 2021), https://www.cgdev.org/blog/the-next-pandemic-could-come-soon-and-be-deadlier.

256. *See* Tajitsu, *supra* note 205, at 1.

floods and wildfires also have the potential to disrupt the supply chain.[257] We also know that global warming and carbon dioxide are problematic, and that one approach to mitigating the effects of climate change is to reduce transportation distances.[258] All of the foregoing argue in favor of simplifying the supply chain and providing some redundancy. In other words, they argue in favor of the United States adopting some form of industrial policy, as will be discussed later.

C. Supply Chain Problems in the Raw Materials Area

One supply chain problem that had nothing to do with the pandemic is the problem of access to critical minerals. China, often under the guise of providing assistance to poor nations, has attempted to lock up the supply of critical minerals throughout the globe.

Consider China's Belt and Road Initiative (BRI), publicly released in 2013 and formerly named "One Belt, One Road."[259] On the surface, this program would seem to be a force for positive good. The Initiative aims to expand economic and commercial ties to China by financing, constructing, and developing transportation infrastructure, natural gas pipelines, hydropower projects, technology and industrial parks throughout the Indo-Pacific, Africa, the Middle East, Europe, and the Americas.[260]

But there is a darker side to this picture as well. There is some perception that the Belt and Road Initiative is a form of colonialism, whereby China will exploit Africa and other areas for its own benefit.[261]

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257. Jacques Leslie, *How Climate Change Is Disrupting the Global Supply Chain*, GREENBIZ (Apr. 18, 2022), https://www.greenbiz.com/article/how-climate-change-disrupting-global-supply-chain; *See also* Wei et. al., *supra* note 208, at 9.

258. Maria Aspan, *Shorter Supply Chains and Higher Wages Will Be Key to Better Green Technology, CEOs Say*, FORTUNE (Dec. 8, 2021), https://www.fortune.com/2021/12/08/supply-chain-wages-green-tech-climate-change/ ("So how can we shorten our supply chains, stop moving stuff all over the globe unnecessarily—and just take the sheer amount of energy required to drive the economy way, way down?" Brereton added. "I think that's what ends up making some of these other objectives much more achievable.").

259. U.S.-CHINA ECON. & SEC. REV. COMM'N, REP. TO CONGRESS 261 (2018) [hereinafter 2018 REP. TO CONG.]

260. *Id*.

261. Pano Mourdoukoutas, *What Is China Doing in Africa*, FORBES (Aug. 4, 2018), https://www.forbes.com/sites/panosmourdoukoutas/2018/08/04/china-is-treating-africa-the-same-way-european-colonists-did/#1041c83e298b; *See also* Luke Daniel, *Debt Colonialism: Is China Trying to Africa's Resources?*, THE SOUTH AFRICAN, (Sept. 3, 2018), https://www.thesouthafrican.com/debt-colonialism-china-africa-resources/.

By providing development, such as in energy or infrastructure, financed by loans, ownership of such developments will pass to China if the African countries, overextended with debt, cannot service the loans.[262]

But, arguably, the bigger concern from the Belt and Road Initiative is not what China gains but what the United States loses. A less publicized activity of China in Africa is its attempt to lock up the supply of critical minerals, such as cobalt and the rare earth metals. In 2010, a study commissioned by the Peterson Institute of International Economics, a pro-trade group, concluded that China's attempt to "lock-up" minerals in Africa was not anti-competitive, except that "Chinese attempts to exercise control over "rare earth elements" mining may constitute a significant exception."[263] The report stated:

> The U. S. was self-sufficient in rare earth production until the mid-1980s, now more than 90% is imported from China…. Rare earth minerals are crucial for a growing array of civilian and military products. Historically the rare earth mining industry has been characterized by excess capacity, and oversupply. In August 2009 China's Ministry of Industry and Information Technology issued a draft policy to set an annual export quota of 35,000 tons, a potential ban on exports of at least five types of rare earth elements, and a series of steps to control mining and improve environmental practices. These actions may be directed at securing control over international markets; at the same time, they are being deployed as a tool to compel more foreign investment and more value-added …in industries in inland China.[264]

This "significant exception" has become the rule. In 2020, the U.S.-China Commission reported that China had sought to lock up control over critical minerals through direct investment, as well as through resource-backed loans that called for in-kind payments of commodities.[265] The following year, the Commission focused on China's "Two Markets, Two Resources" policy by which Chinese policymakers seek to access and to control commodities produced in areas such as Africa and Latin

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262. *Id*.

263. Theodore Moran, *Is China Trying To "Lock up" Natural Resources around the World?*, CTR. FOR ECON. POL'Y RSCH. (Feb. 27, 2010), https://www.voxeu.org/article/china-trying-lock-world-s-natural-resources.

264. *Id*.

265. U.S.-CHINA ECON. AND SEC. REVIEW COMM'N, REPORT TO CONGRESS 136 (2020) [hereinafter 2020 REP. TO CONGRESS].

America.[266] This will give China not only pricing power for commodities but also the potential to restrict the access of other consumers of these commodities. One witness characterized this policy as "the ability to obtain without sharing and shape without being shaped." [267]

U.S. Geological Survey data confirms that, for the past decade, China has accounted for more than 90% of global production of rare earths; and that China's restrictions on the supply of rare earth metals, beginning in 2010, have spurred efforts to explore these metals outside of China.[268] While China dominates production, the same is not true of deposits, and, outside North America and Australia, "southern and eastern Africa offer the greatest potential for rare earth production."[269] Based on China's pattern of seeking to lock up African mineral deposits, discussed below, it is likely that China will seek to do the same to rare earth elements.

Closer to home, Molycorp's Mountain Pass Mine, the only rare earth producer in North America, was shut down in 2016 and filed for bankruptcy. In 2010, Molycorp went public at $14 per share and reached a high of almost $80 per share in 2011. However, when rare earth prices became depressed, arguably as a result of Chinese dumping of rare earths, the stock crashed, and bankruptcy ensued. In 2017, it was sold to an American consortium with a Chinese minority partner for $20.5 million, $500,000 over a bid made by an American, Australian, and Swiss consortium.[270]

A CEO of an advanced materials manufacturer met with former President Trump's chief strategist to persuade him that the U.S. should nationalize the country's only rare earth mine because of its military implications.[271]The availability of rare-earth minerals is critical for the development of electric cars, manned and unmanned aircraft, batteries

266. *Id*. at 130.

267. *Id*. at 170

268. Bradley S. Van Gosen et. al., *Rare-Earth Elements*, U.S. GEOLOGICAL SURV. PRO. PAPER 1802, at 1 (2017).

269. Ian Coles & Mayer Brown, *Africa Holds Promise of Rare-Earth Riches*, FINANCIAL TIMES (March 6, 2017), https://www.ft.com/content/88abbe52-0261-11e7-aa5b-6bb07f5c8e12.

270. Andrew Topf, *Mountain Pass Sells for $20.5 Million*, MINING.COM (June 16, 2017), https://www.mining.com/mountain-pass-sells-20-5-million/; *See also* In the Matter of MP Mine Operations LLC; Order Approving Direct Transfer of Control of Licenses, 82 Fed. Reg. 58455 (Nov. 27, 2017), https://www.federalregister.gov/documents/2017/12/12/2017-26748/in-the-matter-of-mp-mine-operations-llc-order-approving-direct-transfers-of-control-of-licenses.

271. Sally Bakewell & Steven Church, *This CEO Wants Trump to Nationalize the Only Rare-Earth Mine in America*, BLOOMBERG NEWS (Jul. 18, 2017), https://www.bloomberg.com/news/articles/2017-07-18/trump-urged-by-ceo-to-nationalize-the-only-u-s-rare-earths-mine?leadSource=uverify%20wall.

that power guided missiles, and lightweight materials used to make jet engines and rocket noses. "Without a domestic supply, the Americans must rely on Chinese sources of rare earths to build 'made in America' military and space equipment."[272] It makes little sense to rely upon a military competitor to access materials essential for national security.

Rare earths are not the only strategic metal. Lithium, copper, chromium, cobalt, manganese, and platinum are also essential for industrial and military purposes. For example, manganese, aside from iron ore, is the most essential mineral in steel production. But most of our electrolytic manganese comes from China. This is clearly a supply chain vulnerability. But while the United States has not been aggressive in locking up sources of these metals, relying instead on market forces, China has been very aggressive in locking up needed resources.

Latin America also has some of the world's largest deposits of critical minerals–including copper, iron ore, silver, lithium, and niobium, which are used to make electronic components such as rechargeable batteries and semiconductors.[273] According to the U.S.-China Commission, "[c]ontrolling the supply chain for these technologies drives China's investments in Latin America's mining sector."[274]

Because of China's dominance in the production and processing of the critical metals[275] necessary to produce electric batteries for cars, concern has been raised "that Detroit could someday be rendered obsolete, and that Beijing could control American driving in the 21st century the way that oil-producing nations sometimes did in the 20th."[276] China presently has fourteen times the electric car battery-making capacity of the United States, and even after electric battery capacity in the United States is expanded by Toyota, GM, Ford, and other companies, China will still have seven times the United States' car battery production capacity.[277]

272. Rick Mills, *How China Is Locking Up Critical Resources In the U.S.'s Own Backyard*, MINING.COM (Jan. 12, 2018), https://www.mining.com/web/china-locking-critical-resources-uss-backyard/.

273. *Id.*

274. 2021 REP. TO CONG. *supra* note 159, at 89.

275. Ana Swanson & Chris Buckley, *Red Flags for Forced Labor Found in China's Car Battery Supply Chain*, N.Y. TIMES (Nov. 4, 2022) https://www.nytimes.com/2022/06/20/business/economy/forced-labor-china-supply-chain.html.

276. Keith Bradsher & Michael Forsythe, *Why a Chinese Company Dominates Electric Car Batteries,* N.Y. TIMES (Dec. 22, 2021), https://www.nytimes.com/2021/12/22/business/china-catl-electric-car-batteries.html.

277. *Id.*; *See also* Jack Ewing & Eric Lipton, *Carmakers Race to Control Next-Generation Battery Technology*, N.Y. TIMES (Mar. 7, 2022),

However, battery production is dependent upon the availability of raw materials. The Democratic Republic of the Congo is one the world's largest producer of cobalt, and Chinese firms own many of the cobalt mining companies.[278] On the other hand, American companies sold their Congolese operations to Chinese companies, and the U.S. government did nothing to intervene.[279]

Although China is the world's largest producer of minerals, its "burn rate" has caused concern to Chinese authorities, and consequently, China has adopted the previously referenced "Two Resources, Two Markets" policy to encourage SOEs (state owned enterprises) and private enterprises to actively pursue mining deals throughout the world.[280] The "Two Resources, Two Markets" policy was adopted in 2006, and in the subsequent decade, the number of mining/mineral processing assets in Africa in which China has an interest in has increased from "a handful in 2006 to more than [one hundred and twenty] in 2015." The interests range from direct investment and ownership to production lockups.[281]

American companies have been somewhat reluctant to invest heavily in Africa because of the corruption and unrest in that part of the world.[282] On the other hand, China has no scruples in dealing with dictatorships or corruption—hence, its heavy investment in African mining.[283]

Consequently, we need an industrial policy that will assure a supply of essential materials necessary to feed our industrial and national defense systems. To let American operations be sold to companies with Chinese ownership makes little sense.

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https://www.nytimes.com/2022/03/07/business/energy-environment/next-generation-auto-battery.html.

278. 2021 REP. TO CONG. *supra* note 159, at 1.

279. Eric Lipton & Dionne Searcey, *How the U.S. Lost Ground to China in the Contest for Clean Energy*, N.Y. TIMES (Dec. 7, 2021), https://www.nytimes.com/2021/11/21/world/us-china-energy.html?searchResultPosition=1; *See also* Dionne Searcey et al., *A Power Struggle Over Cobalt Rattles the Clean Energy Revolution*, N.Y. TIMES, (Dec. 7, 2021) https://www.nytimes.com/2021/11/20/world/china-congo-cobalt.html.

280. *Insights into China's Recent Investments in Mineral Resources Globally*, SAI INDUSTRIAL, (Jan. 26, 2023, 1:15 PM) https://www.saiindustrial.com/insights-into-chinas-recent-investments-in-mineral-resources-globally/.

281. Vladimir Basov, *The Chinese Scramble to Mine Africa*, MINING.COM (Dec. 15, 2015), https://www.mining.com/feature-chinas-scramble-for-africa/.

282. Swanson & Buckley, *supra* note 275, at 1.

283. Basov, *supra* note 281, at 3. (South Africa produces 52% of the world's chromium, is the world's leader in manganese, and controls about 95% of the platinum group metals reserves. The Democratic Republic of the Congo produces 50% of global cobalt Zimbabwe is the fifth largest producer of lithium and in the top five for platinum group materials. Rwanda is a leader in the production of tantalum.).

VII. THE NATIONAL SECURITY ASPECT OF CEDING MANUFACTURING TO CHINA

The focus of global trade supposedly is upon commercial goods and services. However, many technologies have both an industrial and military use. Early on, after the admission of China to the World Trade Organization, concern was raised by other countries belonging to the WTO over the export of dual-use technology [technology that has both an industrial and a military use] to China.[284] In 2002, the US- China Commission conducted a hearing on exporting dual-use technology to China.[285] Dr. Paul Godwin, a retired professor at the National War College, testified about China's military capability and its interest in acquiring dual-use technology. According to Dr. Godwin:

> The major change [in China's military thinking from the 1950s until 2002] was . . . Beijing's recognition of the close interdependence now between civil and military technologies; further, that the design and production of advanced weaponry and supporting systems is dependent on components and processes that are essentially dual- use.[286]

Dr. Godwin also testified that, "what China wants to do with its defense R and D and production, what it wants to have is as close as possible an autarkic [self-sufficient] military-industrial capability."[287] He continued by noting "the PLA's [People's Liberation Army] recognition that the traditional three-dimensional battlefield has been transformed into a battle space where cyberspace and space join the land, sea, and air realms of military operations."[288]

A 2018 Worldwide Threat Assessment of the U. S. intelligence community reported:

> Persistent trade imbalances, trade barriers, and a lack of market-friendly policies in some countries [read China] probably will continue to challenge U.S. economic security. Some countries almost certainly will continue to acquire U.S. intellectual

284. 2020 REP. TO CONGRESS., *supra* note 265, at 10.

285. U.S.-CHINA ECON. & SEC. REVIEW COMM'N, U.S.-CHINA COMM'N EXP. CONTROLS AND CHINA, at 1079 (Jan. 17, 2002), https://www.uscc.gov/sites/default/files/transcripts/1.17.02HT.pdf. [hereinafter Godwin Testimony].

286. *Id*. at 1079.

287. *Id*.

288. *Id*.

> property and proprietary information illicitly to advance their own economic and national security objectives.[289]

The report added that "China, for example, has acquired proprietary technology and early-stage ideas through cyber-enabled means. At the same time, some actors use largely legitimate, legal transfers and relationships to gain access to research fields, experts, and key enabling industrial processes that could, over time, erode America's long-term competitive advantages."[290] Thus, it is not just industrial espionage that poses a threat to our national security. Transfers of technology and know-how, voluntary or involuntary, by American companies seeking to get market share also have the potential to threaten national security. China has developed sophisticated weaponry, including those space-based, at least in part as a result of technology gleaned from the United States, whether legally or illegally.[291]

As shown above, Dr. Goodwin has predicted China's actions. China has developed space-age military alternatives, in addition to conventional weapons and military capability, because of the capital and know-how provided by American businesses and China's industrial espionage:

> China is pursuing a range of advanced weapons with disruptive military potential. Six types that China's leaders have prioritized are maneuverable reentry vehicles, hypersonic weapons, directed energy weapons, electromagnetic railguns,

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289. OFF. OF THE DIR. OF NAT'L INTEL., STATEMENT FOR THE RECORD, WORLDWIDE THREAT ASSESSMENT OF THE U.S. INTELLIGENCE COMMUNITY, at 12 (Feb. 13, 2018), https://www.dni.gov/files/documents/Newsroom/Testimonies/2018-ATA—-Unclassified-SSCI.pdf [hereinafter National Intelligence].

290. *Id*. at 12-13.

291. *Id*. at 13. With respect to the military threat, the Assessment further stated:

> Foreign countries – particularly China and Russia – will continue to expand their space-based reconnaissance, communications, and navigation systems in terms of the numbers of satellites, the breadth of their capability, and the applications for use.
>
> Both Russia and China continue to pursue anti-satellite (ASAT) weapons as a means to reduce U. S. and allied military effectiveness. Russia and China aim to have nondestructive and destructive counter space weapons available for use during a potential future conflict.
>
> China's PLAs military units have begun initial operational training with counterspace capabilities that it has been developing, such as ground-launched ASAT missiles. Russia probably has a similar class of systems in development. Both countries are also advancing directed-energy weapons technologies for the purpose of fielding ASAT weapons that could blind or damage sensitive space-based optical sensors, such as those used for remote sensing or missile defense.

counterspace weapons, and unmanned and artificial intelligence-equipped weapons.[292]

While the United States currently appears to have an edge in the development of these weapons, "the United States cannot assume it will have an enduring advantage in developing next frontier military technology."[293] According to experts in this area, "a breakthrough that outpaces current predictions could magnify the military challenge and "change [U.S.] strategic calculations in the Asia Pacific and beyond."[294] For example, China has long anticipated the possibility of a military conflict with the United States over Taiwan.[295] The U.S.-China Commission has reported that China has been engaged in an unprecedented buildup of its nuclear forces which casts "nuclear shadows" over China's disputes with Taiwan and other neighbors.[296]

As the U. S.-China Commission stated in 2017, "China tightened its effective control over the South China Sea by continuing to militarize the artificial islands it occupies there and pressuring other claimants such as Vietnam and the Philippines to accept its dominance."[297] China has rejected the decision by the Permanent Court of Arbitration in the Hague in favor of the Philippines and the "free seas" tradition. The president of

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292. 2017 REP. TO CONG. *supra* note 156, at 574. (A comparison between U.S. activities and those of China is set forth at 574-576 of the report. A maneuverable reentry vehicle is a ballistic missile reentry vehicle that is capable of maneuvering after reentering Earth's atmosphere; a hypersonic weapon is one That Can exceed five times the speed of sound (3836 mph); directed energy weapons are those that use focused energy to destroy a target; electromagnetic railguns use electromagnetic force rather than an explosive propellant; counterspace weapons include striking a satellite directly, using lasers or microwave devices to degrade a satellite, using electromagnetic attacks to jam radio communications, or using cyber-attacks upon the transmitted data or the systems that use this data; and unmanned and artificial intelligence-equipped weapons are those in which a computer system performs the tasks normally requiring human intelligence, such as choosing between different courses of action and self-correction. *Id*. at 557-571.)

293. *Id*. at 582-583.

294. *Id*. at 582.

295. Godwin Testimony, *supra* note 285, at 1079. (in discussing the motivation for China's acquisition of advanced technology, Dr. Godwin stated that China's advanced technology acquisitions are motivated by its "need to prepare for a potential military conflict with the United States over Taiwan. And finally, it is also likely that Beijing's long-term defense industrial objectives include preparing for an extended military confrontation with the United States in the West Pacific.").

296. 2021 REP. TO CONG. *supra* note 159, at 341.; *See also* Brad Lendon, *Never Mind China's New Aircraft Carrier, These Are the Ships the US Should Worry About*, CNN, (Jun. 26, 2022), https://www.cnn.com/2022/06/25/asia/china-navy-aircraft-carrier-analysis-intl-hnk-ml-dst/index.html.

297. 2017 REP. TO CONG., *supra* note 156, at 154.; *See also* Andrew Browne, *China Throws out South China Sea Rulebook*, WALL ST. J. (Dec. 20, 2016), https://www.wsj.com/articles/china-throws-out-south-china-sea-rule-book-1482226667.

Taiwan has recently warned that the military threat posed by China is growing daily and poses a threat to the rest of the world, particularly the Southeast Asian nations.[298]

By seeking to make profits through global trade and failing to recognize the dangers of providing dual use technology to China, American businesses have contributed to the national security threat posed by China.

VIII. THE UNITED STATES MUST DEVELOP ITS OWN INDUSTRIAL POLICY BECAUSE A "FREE MARKET" APPROACH RESULTING IN A LOSS OF MANUFACTURED JOBS HAS EVISCERATED THE MIDDLE CLASS

A. What is an Industrial Policy?

At one time, Republicans were the party of Wall Street, and Democrats were the party of labor.[299] But that changed along the way.[300] In the 2016 election, a Democrat, Hillary Clinton, was seen as having ties too close to Wall Street,[301] whereas Donald Trump, a Republican, was seen as the advocate for working people.[302]

However, with respect to having an "industrial policy," Republicans have traditionally been seen as opposed to such a policy:

> Republicans oppose any policies that are seen as interventionist, and that give the federal government control of industry. They feel that these policies allow the government to pick the winners

298. Matt Rivers et al., *Facing an Aggressive Beijing, Taiwan's President Issues a Warning to the World*, CNN (Feb. 21, 2019), https://www.cnn.com/2019/02/19/asia/tsai-ing-wen-china-us-interview-intl/index.html.

299. Contrast the policy of presidents Hoover and Roosevelt. *See* DORIS KEARNS GOODWIN, LEADERSHIP IN TURBULENT TIMES 273-74, 294-96, 302-04 (2018).

300. Natalie Walchover, *When did Democrats and Republicans switch platforms?*, LIVE SCIENCE (Oct. 17, 2022) https://www.livescience.com/34241-democratic-republican-parties-switch-platforms.html.

301. Amy Chozick et. al., *Leaked Speech Excerpts Show a Hillary Clinton at Ease With Wall Street*, N.Y. TIMES (Oct. 7, 2016), https://www.nytimes.com/2016/10/08/us/politics/hillary-clinton-speeches-wikileaks.html.

302. *Id.*

and losers of the marketplace, rather than letting economics and business practices speak for themselves.[303]

Arguably, the last Republican president, Donald Trump, advocated for an industrial policy in his Make America Great Again mantra. However, Trump's policies were not consistent with generally accepted Republican thinking, at least in certain areas such as foreign relations and trade.[304] While Trump recognized the problem of offshoring jobs to China, he eviscerated his ability to make meaningful change by relying upon tariffs and challenging Canada and the European Union at the same time.[305] While he campaigned on bringing manufacturing jobs home to the United States, the increase in manufacturing jobs in the first three years of the Trump administration was modest.[306] Moreover, the tariff policies of President Trump are said to have cost an estimated 0.3 percentage point in U.S. real GDP and almost 300,000 jobs,[307] and to have had the effect of increasing prices for U.S. consumers.[308]

One of the reasons that Wall Street has been favored over manufacturing is due to the simplicity of the notion of supply and

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303. David Coates, *Taking Republicans to Task: (5) An Industrial Policy*, DAVID COATES BLOG (Apr. 24, 2012, 3:22 PM), https://www.davidcoates.net/2012/04/24/taking-the-republicans-to-task-5-on-industrial-policy/ ("Democrats over- tax, over-spend and over-regulate. Republicans, by contrast, do none of those things. They get government out of the economy. They set the private sector free. They reward rather than penalize initiative, innovation and success. They do not pick winners and losers. And let market forces do that. They do not put their trust in bureaucrats. They put their trust instead in the ingenuity and genius of the American people.").

304. Jacob Pramuk, *It's not just China: Trump's trade war is raging on several fronts*, CNBC (May 13, 2019), https://www.cnbc.com/2019/05/13/trump-carries-out-tariff-trade-wars-with-china-eu-canada-and-mexico.html.

305. *Id*.

306. In the first three years of the Trump administration, 475,000 jobs were added. By way of comparison, during the second Obama administration, 486,000 manufacturing jobs were added. Approximately 500,000 jobs were lost in the fourth year of the Trump administration. While comparing the two administrations might seem unfair because President Trump was not responsible for the start of the COVID-19 crisis, and the foregoing comparison uses four years of Obama versus three years of Trump, in the third year of the Trump presidency, manufacturing job increases had already leveled out with only 19,000 new manufacturing jobs added. *Current Employment Statistics – Manufacturing*, FED. RESERVE BANK ST. LOUIS (Jan. 8, 2021), https://fred.stlouisfed.org/series/MANEMP.; *See also Number of private sector manufacturing employees in the United States from 1985 to 2020*, STATISTA RESEARCH DEPARTMENT, https://www.statista.com/statistics/664993/private-sector-manufacturing-employment-in-the-us/.

307. Mark Zandi et al., *Trade War Chicken: The Tariffs and the Damage Done*, MOODY'S ANALYTICS (Sept. 2019, 2018), https://www.nytimes.com/2018/09/21/business/economy/tariffs-rebuilding-hurricane-florence.html.

308. For example, the tariffs on Canadian lumber have driven prices up 40% from the prior year. Nelson D. Schwartz, *Tariffs to Raise Cost of Rebuilding After Hurricane Florence,* N.Y. TIMES (Sept. 21, 2018), https://www.nytimes.com/2018/09/21/business/economy/tariffs-rebuilding-hurricane-florence.html.

demand, as well as the idea that markets are the best determinants of policy - which is a superficially easy concept to accept.[309]Additionally, Wall Street has been able to attract the STEM[310] oriented graduates with higher compensation than academia and manufacturing can offer.

What Republicans fail to realize is that how the government taxes and spends are themselves indirect forms of industrial policy.[311] When hedge fund managers' compensations are taxed at capital gains rates, rather than ordinary income tax rates under the carried interest theory, this is a form of industrial policy. And when the federal government's budget is dominated by military expenditures, this is a form of industrial policy. Defense expenditures have subsidized the aircraft and technology area. While this is essential for national defense, it is also an industrial policy. And when President Kennedy decided to send a man to the moon, these expenditures were a form of industrial policy and in fact spawned many industries.[312]

Arguably, we have had elements of industrial policy dating back to our founding. One of our founders, Alexander Hamilton, in his third report to Congress in 1791, *Report on the Subjectof Manufactures*,[313] advocated for an industrial policy to expand and improve industry. Later, government support and funding was necessary to build the intercontinental railway system.[314] In addition, the creation of the

309. Jeff Faux, *Industrial Policy: The Road Not Taken*, THE AMERICAN PROSPECT (Dec. 20, 2009), https://www.prospect.org/special-report/industrial-policy-road-taken/. (The industrial-policy debate consummated the marriage of Wall Street in the mainstream economics profession that continues today. For believers in the neoclassical synthesis, financial markets are easy to romanticize; buyers and sellers reacting almost instantaneously to mildew price changes that are supposed to reflect all of the available information on businesses, about which neither buyer nor seller has to know anything at all. This simulated perfect market let itself to the mathematical models needed to gain tenure and win Nobel Prizes in economics. And global investors, like neoclassical economists, are free-traders, indifferent to where exactly investment goals, so long as it maximizes what economists call the efficiency – and financiers call profit.)

310. STEM is the acronym for science, technology, engineering and mathematics.

311. William B. Bonvillian, *Emerging Industrial Policy Approaches in the United States*, INFORMATION TECHNOLOGY & INNOVATION FOUNDATION (Oct. 4, 2021), https://www.itif.org/publications/2021/10/04/emerging-industrial-policy-approaches-united-states.

312. *Id*.

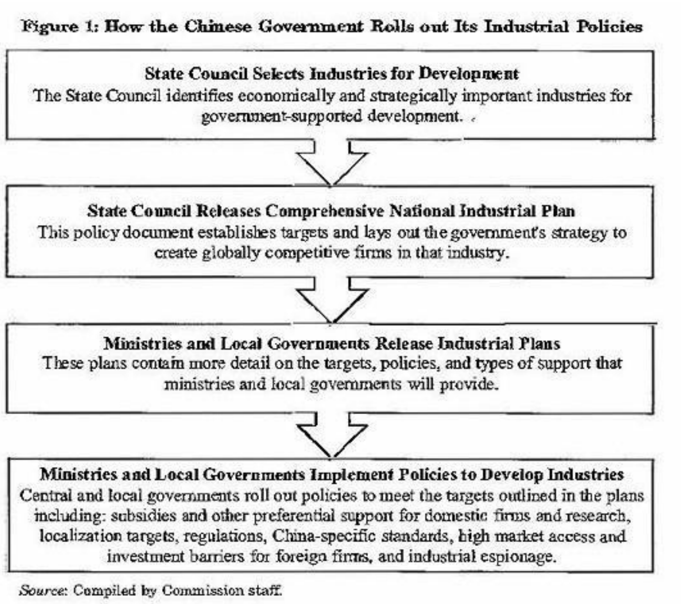
313. Alexander Hamilton, Alexander Hamilton's Final Version of the Report on the Subject of Manufactures, [5 December 1791], NAT'L ARCHIVES, https://founders.archives.gov/documents/Hamilton/01-10-02-0001-0007.

314. *Railroad Maps 1828 to 1900: The Transcontinental Railway*, LIBR. OF CONG., https://www.loc.gov/collections/railroad-maps-1828-to-1900/articles-and-essays/history-of-railroads-and-maps/the-transcontinental-railroad/.

interstate highway system in 1956 was the largest public works project undertaken by the federal government.[315]

At the other end of the spectrum, consider how a command-and-control economy, such as that of China, creates an industrial policy. The chart below illustrates the process by which the Chinese government establishes its industrial policy:

Chart 14



Robert D. Atkinson, the president of the Information Technology and Innovation Foundation has warned that Chinese policymakers use industrial policies "to autarkically [autarkically is an economic system and an ideology based on implementing policies in a manner that supports national economic self-sufficiency and independence] supply Chinese markets for advanced technology products with their own production while still benefiting from unfettered access to global markets for their technology exports and foreign direct investment."[316] In other words, China has an industrial policy.The U.S.-China Commission, in 2017, set

315. Press Release, U.S. Senate, *Congress Approves the Federal-Aid Highway Act*, June 26, 1956, https://www.senate.gov/artandhistory/history/minute/Federal_Highway_Act.htm.

316. 2017 REP. TO CONG., *supra* note 156, at 511.

forth a two-page table illustrating the scope of China's industrial policy and setting forth nine items in China's "Industrial Policy Toolbox:"[317]

1. Localization targets, i.e., setting targets for domestic and international market share that should be held by local technology and production;
2. State funding for industry development – subsidies, tax breaks and other forms of financial support for national champions;
3. R & D funding for strategic sectors;
4. Government procurement favoring domestic suppliers;
5. Technology standards that favor domestic companies;
6. Governmental regulations that create high thresholds for market entry and that are often vague so as to permit discretionary interpretation and enforcement;
7. Governmental direction of foreign investment and technological imports to fund or discourage certain industries;
8. Recruitment of foreign talent, including both Chinese and foreign individuals with desired expertise; and
9. Industrial espionage to gain access to cutting-edge technologies and intellectual property and strategic sectors.

Recognition of the foregoing is not to suggest that the United States should follow suit. However, the United States does need an industrial policy, not only to ensure the health of U.S. manufacturing to create direct jobs and spinoff employment, but also to ensure, from a national security perspective, that we are not dependent upon other nations in having access to materials and products for national defense.

B. Why We Need an Industrial Policy

It is gullible to realistically suggest that United States manufacturers and labor can compete with subsidized Chinese manufacturing and harsh labor policies, or that the United States economy can maintain a decent standard of living for American workers without a manufacturing base. It is all the more foolish to jeopardize national security by undercutting our industrial base through outsourcing manufacturing to China. One of the reasons that the entry of the United States into World War II was decisive was not just the skill and bravery of American fighting men and

317. *Id.*

women, but also the might of the U.S. industrial base, which quickly moved from a domestic focus to the production of military needs.[318]

Solyndra is often used as an example of why an industrial policy is a failed enterprise. A Department of Energy loan guarantee provided critical funding for Solyndra's manufacturing growth which, unfortunately, ended in bankruptcy.[319] But the situation is more complex than is often recounted. The price of silicon in the 2000s had risen dramatically from $30 a kilogram in 2001 to $450 a kilogram in early 2008.[320] Solyndra's idea was to produce a solar panel that did not need expensive silicon.[321] At the time, it seemed like a good idea.

The rise in the price of silicon was sparked both by higher demand and a production base that could not keep up. However, in late 2008, the price of silicon started falling rapidly, "owing partly to better manufacturing technology, economy of scale and the entry of fully integrated Chinese manufacturers."[322] With the fall in the price of silicon, the business plan of Solyndra was undercut.

This does not mean that the development of a solar panel that did not need silicon was not a prudent concept. However, it was a concept that was destined to fail in a market-oriented economy. Conversely, in a command-and-control economy like China, a company like Solyndra may be kept alive as a precautionary matter until its product becomes economically feasible.

The staying power provided by China's subsidization of the solar panel industry illustrates both the good and bad effects of governmental intervention. As a result of China's decision to dominate the solar panel industry, prices dropped 80% from 2008 until 2013.[323] Making solar panels is difficult. To make them efficiently, a business requires large, semiautomated factories. Donald Chung, of the Department of Energy, stated:

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318. David Vergun, *During WWII, Industries Transitioned From Peacetime to Wartime Production*, U.S. DEPARTMENT OF DEFENSE (Mar. 27, 2020), https://www.defense.gov/News/Feature-Stories/story/Article/2128446/during-wwii-industries-transitioned-from-peacetime-to-wartime-production/.

319. Fortune Editors, *What Went Wrong at Solyndra*, FORTUNE (Aug. 31, 2011, 4:03 PM), http://www.fortune.com/2011/08/31/what-went-wrong-at-solyndra/.

320. Jonas Hamberg, *Falling Silicone Prices Shakes up Solar Manufacturing Industry* (Sept. 19, 2011), https://www.downtoearth.org.in/news/falling-silicon-prices-shakes-up-solar-manufacturing-industry-34045.

321. Fortune Editors, *supra* note 319, at 11.

322. Hamberg, *supra* note 320, at 1.

323. John Fialka, *Why China Is Dominating the Solar Industry*, SCI. AM. (Dec. 19, 2016), https://www.scientificamerican.com/article/why-china-is-dominating-the-solar-industry/.

> It is not easy to add small bits of capacity to meet growing demands; you have to add it in big chunks. [This creates] a "yo-yo effect" that tends to create more and more capacity.That made solar still more attractive to China.[324]

But this also created a worldwide glut with the resultant drop in prices. While the shareholders of Chinese companies may have wanted profits, the Chinese government wanted jobs and wanted them long-term.[325] Thus, from the Chinese perspective, the drop in price from dumping excess capacity on the market "[led] to 86 bankruptcies and closures (largely at U.S. and EU competitors) from 2009 to 2015.[326] This ensured long-term Chinese dominance of industry in which the United States invented the technology and still holds many of the patents. As another energy expert stated:

> If there was ever a situation where the Chinese have put their whole governmental system behind manufacturing, it's got to be solar modules. I think they think they can wipe out all the competition in the world. It makes all kinds of sense if you have the staying power.[327]

A recent Department of Energy study concluded that, if the United States innovates, cuts costs, and nurtures newer technologies, it could emerge as the world's second largest solar panel manufacturer.[328] But that will require innovation and nurturing of new technologies – in other words, an industrial policy. It also requires an awareness that not all new technologies play out, and that the failure of one should not be used as a political tool to thwart continued investment in new technology and support for critical industries.

Those who use Solyndra as an example of why an industrial policy is a failed enterprise fail to acknowledge a similar loan to Tesla in 2010.[329] This helped to make Elon Musk one of the richest persons in the world and led, not only to a viable electric car, but also other high-tech

324. *Id*.

325. *Id*.

326. 2017 REP. TO CONG, *supra* note 156, at 511.

327. Fialka, *supra* note 323, at 1.

328. DONALD CHUNG ET AL., ON THE PATH TO SUNSHOT: EMERGING OPPORTUNITIES AND CHALLENGES IN U.S. SOLAR MANUFACTURING, NAT'L RENEWABLE ENERGY LAB'Y (2016).

329. Jason Lalljee, *Elon Musk is speaking out against government subsidies Here's a list of the billions of dollars his businesses have received*, BUSINESS INSIDER (Dec. 15, 2021, 5:30 AM), https://www.businessinsider.com/elon-musk-list-government-subsidies-tesla-billions-spacex-solarcity-2021-12#the-energy-department-loans-tesla-465-million-in-2010-9.

businesses as well. Musk has received billions in governmental subsidies, but now opposes subsidies.[330]

C. Marco Rubio and an American Response to "Made in China 2025"

In a surprising twist, Marco Rubio, as chairman of the Senate Small Business and Entrepreneurship Committee, published a recent report responding to the industrial policy embodied in China's "Made in China 2025" policy.[331] This policy sought to boost China's economic competitiveness "by advancing China's position in the global manufacturing value chain, leapfrogging into emerging technologies, and reducing reliance on foreign firms."[332]

The Rubio report, "Made in China 2025 And the Future of American Industry" ("Rubio Report") [333] "turn[ed] heads in the conservative policy world" because, although it did not use the phrase "industrial policy," he asserted the need for a national innovation strategy.[334] The Rubio Report recognized that markets cannot function without rules, and therefore, government should ensure the rules that are in place provide for "strong families and decent wages for average people." [335]The Rubio Report asserted that the logic of the market and the drive to maximize shareholder value (at least in the short run) can lead to results that are inconsistent with a policy to provide for "strong families and decent wages for average people:"

> For example, increasing profit margins by developing new products to outcompete others takes risk, but saving on labor costs by offshoring employment is more often safe.

330. *Id*.

331. KAREN M. SUTTER, CONG. RSCH. SERV., IF10964, "MADE IN CHINA 2025" INDUSTRIAL POLICIES: ISSUES FOR CONGRESS (Dec. 22, 2022), https://crsreports.congress.gov/product/pdf/IF/IF10964.

332. *Id*.

333. MADE IN CHINA 2025 AND THE FUTURE OF AMERICAN INDUSTRY, U.S. SENATE COMM. ON SMALL BUS. AND ENTREPRENEURSHIP, 72 (2019). ("Rubio Report"), https://www.rubio.senate.gov/public/_cache/files/0acec42a-d4a8-43bd-8608-a3482371f494/262B39A37119D9DCFE023B907F54BF03.02.12.19-final-sbc-project-mic-2025-report.pdf.

334. Samuel Hammond, *Marco Rubio Wants a National Innovation Strategy*, (Feb. 15, 2019), https://www.nationalreview.com/2019/02/marco-rubio-industrial-policy-report-counter-china-innovation-strategy/.

335. *Id*.

> Highly leveraged investments in technological discovery offer unknown outcomes, but distributions to shareholders are quantifiable. The existence of non-productive alternatives to capital investment, as a result, makes the product of the firm's American workers less valuable while at the same time increasing profits, making possible a world of higher asset prices, lower investment in the economy, and lower worker pay.[336]

The decision at the turn-of-the-century to expand trade with China was predicated upon the expectation that this would open up additional markets in China for American companies.[337] The Rubio Report recognized that this is not happened.[338] Instead, the advanced manufacturing products where America supposedly had not just a comparative advantage but a competitive advantage are increasingly being captured by Chinese enterprises.[339] The Rubio Report argued that our focus has been oriented in the wrong direction:

> In a globalized economy, high wages for American workers are not the natural outcome of expanding trade, especially when some trading partners do not abide by the rules that they've agreed to. Free markets can be an unparalleled force for the creation of prosperity and wealth, but they produce in response to the terms they've been given. Lately, success by these terms has been defined by the growth of financial services instead of applied research or advanced manufacturing. The conclusion we should draw from this evidence is that we have too often failed to make the well-being of working Americans the terms for market success.

In arguing in favor of a focus upon manufacturing, as opposed to financial services, the Report stated:

> To that end, recent history delivers a few general lessons to help provide these implications. Manufacturing provides better and more stable employment for American workers than financial services. Physical capital development makes for more prosperous towns and communities than does digital capital. Knowing how to make a specialized product is a less replicable skill than marketing the product for sale. Research and

336. MADE IN CHINA 2025 AND THE FUTURE OF AMERICAN INDUSTRY, *supra* note 333, at 72.
337. *Id*. at 4.
338. *Id*.
339. *Id*.

> development expenditures deliver greater benefits to the public than private cost alone justifies. Offshoring jobs to save on labor costs doesn't often create equivalent jobs for the workers displaced by it. Worker skills are not easily transferable across industries.
>
> Geographic proximity to productive assets like factories increases the prosperity of supplying [sic suppliers] and local small businesses. In sum, production matters.[340]

The "industrial policy" suggested by the report was summarized as follows:

> U.S. policy should respond to the practical and political economy challenges of the "Made in China 2025" plan. This includes enacting strategic U.S.-China capital flow restrictions and corresponding defensive measures for domestic industries targeted by the plan. It also means prioritizing new economic development, including encouraging physical investment and discouraging un-productive arbitrage through the tax code, and utilizing development assistance like the Small Business Investment Company and Small Business Investment Research programs. Finally, it means considering labor market stabilization policies to support Americans' attachment to the labor force and accumulation of valuable skills.[341]

This is a basis to begin discussions as to what a meaningful industrial policy for the United States would look like when it is focused upon benefiting the ordinary worker rather than the one-percenters.

D. President Biden's Proposed Industrial Policy

During his presidential campaign, Joe Biden released his "Build Back Better"[342] plan to enable Americans and the American economy to recover from the effects of the pandemic crisis. Two components of this plan were to mobilize American manufacturing innovation,[343] and to

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340. *Id.* at 13.

341. *Id.* at 6.

342. *Build Back Better: Joe Biden's Jobs and Economic Recovery Plan For Working Families*, BIDEN HARRIS DEMOCRATS, https://www.joebiden.com/build-back-better/. [hereinafter Build Back Better].

343. The first element of Build Back Better was to:

> Mobilize American manufacturing and innovation to ensure that the future is made in America, and in all of America. We've seen the importance of bringing home critical

build a modern infrastructure and an equitable, clean energy future.[344] He also set forth his "Buy American" program[345] to complement and, in part, implement Build Back Better.

The Buy American program has six basic components:

1. Buy American: Make "Buy American" real and make a $400 billion procurement investment;[346]
2. Make it in America: Retool and revitalize American manufacturers;[347]
3. Innovate in America: Make a new $300 billion investment in research and development (R&D) and breakthrough technologies;[348]
4. Invest in all of America: Ensure investments reach all of America;[349]

> supply chains so that we aren't dependent on other countries in future crises. But Biden believes we can't stop there — he is releasing a plan today to build a strong industrial base and small-business-led supply chains to retain and create millions of good-paying union jobs in manufacturing and technology across the country. *Id.*

344. The second element was to:

> Mobilize American ingenuity to build a modern infrastructure and an equitable, clean energy future. We've seen the need for a more resilient economy for the long-term, and that means investing in a modern, sustainable infrastructure and sustainable engines of growth — from roads and bridges, to energy grids and schools, to universal broadband. Biden will soon release updated proposals to meet the climate crisis, build a clean energy economy, address environmental injustice, and create millions of good-paying union jobs. *Id*.

345. Joe Biden, The Biden Plan to Ensure the Future is "Made in All of America" by All of America's Workers, BIDEN HARRIS DEMOCRATS, https://www.joebiden.com/made-in-america/.

346. The Biden administration plans to use governmental expenditures funding expansion of clean energy and infrastructure repair, replacement and renewal to "power new demand for American products, materials, and services and ensure that they are shipped on U.S.-flagged cargo carriers." *Id*.

347. The Biden administration plans to use "specific incentives, additional resources, and new financing tools" to focus on smaller manufacturers and those owned by women and people of color, in order to expand the U.S. manufacturing base. *Id.*

348. The Biden administration plans to unleash "high-quality job creation in high-value manufacturing and technology" — from electric vehicle technology to lightweight materials to 5G and artificial intelligence – through investment in research and development. In 1964, public federal R&D support was 2% of GDP, compared to only 0.7% today. This difference amounts to nearly $250 billion less annually in federal R&D spending. *Id*.

349. The Biden administration plans to ensure that the major public investments — procurement, R&D, infrastructure, training, and education — reach all Americans across all states and regions, including urban and rural communities, with historic investments in communities of color and an emphasis on small businesses. According to Biden:

> Twenty five percent of venture capital investment is concentrated in the San Francisco area, and 75% flows to just three states: California, New York, and Massachusetts. Female entrepreneurs only receive 16% of all venture capital dollars. Only 3% go to start-ups with Black or Latino founders. *Id*.

5. Stand up for America: Pursue a pro-American worker tax and trade strategy;[350]
6. Supply America: Bring back critical supply chains to America[351]

The combination of Build Back Better and Buy American represents an industrial policy which recognizes the need for a manufacturing base if this country is to be economically secure and politically and militarily secure. As Biden pointed out, "U.S. manufacturing was the Arsenal of Democracy in World War II and must be part of the Arsenal of American Prosperity today, helping fuel an economic recovery for working families."[352]

Even a globalist like Fareed Zakaria has a positive "take" on Biden's "America first" policy, first noting that it was not "a mercantilist call for tariffs and trade wars."[353] He then praised the massive "ramp up [in] investment in research and development," pointing out that federal investment in the 1950s and 1960s in research and development "led to the personal computer, the Internet, the Global Positioning System and a host of other technologies that have transformed the economy."[354]While Mr. Zakaria had his reservations in general about an industrial policy that picked winners and losers or subsidized specific companies or industries, he viewed positively the idea that government would let the market know that it will buy certain types of innovative products. In support of the foregoing, Mr. Zakaria stated that "[a]s late as 1962, the U.S. government was responsible for purchasing 100% of all semiconductor chips produced in the country, which is what allowed that industry to become viable."[355]

Then came the hard part of any policy – implementation. The $1 trillion infrastructure portion Build Back Better was passed by Congress

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350. Article III of GATT provides that governments should not "afford protection to domestic production." The Biden administration has indicated a willingness to challenge these provisions. According to Biden:

> In 2018 alone, the Department of Defense, (DOD spent $3 billion on foreign construction contracts, leaving American steel and iron out in the cold, and nearly $300 million on foreign engines and vehicles instead of buying from American companies and outing Americans to work. *Id.*

351. *Id.*

352. *Id.*

353. Fareed Zakaria, *Biden Finds a Better Way to Do "America First,"* WASH. POST (July 16, 2020), https://www.washingtonpost.com/opinions/biden-finds-a-better-way-to-do-america-first/2020/07/16/b0eafa20-c79f-11ea-b037-f9711f89ee46_story.html

354. *Id.*

355. *Id.*

last year,[356] but the $1.7 trillion social welfare aspect, such as expanded child tax credit and healthcare coverage, universal pre-K (state government-funded preschool programs), investment in affordable housing, and climate change initiatives such as home energy tax credits and a credit for U.S.-made union-made electric vehicles,[357] received no Republican support and failed.

At this point, collective support for the legislation seemed dead in the water. However, negotiations continued with Senators Manchin and Sinema[358] and, on August 7, 2022, the Senate passed the Inflation Reduction Act of 2022.[359] The House passed the bill on August 12, and President Biden cited into law on August 16, 2022.[360] Although denoted as the "Inflation Reduction Act," the bill provides $369 billion for energy security and climate change, and incentivizes the production of clean energy products in the United States, thereby providing jobs for U.S. workers.[361]About a week earlier, President Biden signed into law the CHIPS (Creating Helpful Incentives to Produce Semiconductors) Act,[362] a $280 billion package designed to encourage the growth of the semiconductor industry in the United States.[363] The bill was motivated by

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356. Emily Cochrane, *Senate Passes $1 Trillion Infrastructure Bill, Handing Biden a Bipartisan Win*, Aug. 10, 2021, N.Y. TIMES (Aug. 10, 2021), https://www.nytimes.com/2021/08/10/us/politics/infrastructure-bill-passes.html.

> With $550 billion in new federal spending, the measure would provide $65 billion to expand high-speed internet access; $110 billion for roads, bridges and other projects; $25 billion for airports; and the most funding for Amtrak since the passenger rail service was founded in 1971. It would also renew, and revamp existing infrastructure and transportation programs set to expire at the end of September.

357. Alicia Adamczyk, *Here's What's in the Democrats' $1.75 trillion Build Back Better Plan*, CNBC (Oct. 28, 2021), https://www.cnbc.com/2021/10/28/whats-in-the-democrats-1point85-trillion-dollar-build-back-better-plan.html.

358. Associated Press, *WATCH: GOP Senators go After Manchin and Sinema's Support of Climate and Tax Bill*, PBS: NEWS HOUR (Aug 5, 2022, 3:02 PM), https://www.pbs.org/newshour/politics/watch-gop-senators-go-after-manchin-and-sinemas-support-of-climate-and-tax-bill.

359. *STATEMENT: U.S. Senate Passes the Inflation Reduction Act, Advancing Historic Climate Legislation to the House of Representatives*, WORLD RES. INST. (Aug 7, 2022), https://www.wri.org/news/statement-us-senate-passes-inflation-reduction-act-advancing-historic-climate-legislation.

360. *FACT SHEET: The Inflation Reduction Act Supports Workers and* Families, THE WHITE HOUSE (Aug. 19, 2022), https://www.whitehouse.gov/briefing-room/statements-releases/2022/08/19/fact-sheet-the-inflation-reduction-act-supports-workers-and-families/.

361. *Inflation Reduction Act Guidebook*, THE WHITE HOUSE, https://www.whitehouse.gov/cleanenergy/inflation-reduction-act-guidebook/ (last visited Jan 25. 2023).

362. Chips Act of 2022, 136 STAT. 1372 (2022).

363. *What's in the Recently Passed CHIPS Act*, USA FACTS (Aug. 12, 2022), https://www.usafacts.org/articles/whats-in-the-recently-passed-chips-

the desire not only to increase U.S. production capability, but also to avoid supply chain dependence upon Taiwan in view of the increasing hostility by the Chinese government toward the island.[364] The United States is finally moving towards an industrial policy.

IX. CONCLUSION

When Paul Samuelson argued that the principle of comparative advantage was the most beautiful idea in economics, he was dealing with the 20th century conception, which involved the underdeveloped nations providing natural resources and the developed nations providing finished products. The trade between developed countries was essentially between countries with similar standards of living. It was also a time when the United States was dominant in trade. When a principle is working, there is less incentive to examine its underlying basis. This factor may account for why the idea of comparative advantage has been accepted without critical examination.

But once Riccardo's theorem is examined in its entirety, two under-identified factors stand out: (1) that Ricardo assumed that capital would be loyal to the country of origin, and (2) that adjustments in the value of currencies would eventually even out imbalances in trade. Even here, he recognized when one country consistently runs a trade deficit, there is a transfer of wealth from that country. Ricardo's example of cloth and wine also does not involve dual-use technologies, that is, industrial along with military use.

Once capital is free to move around the world in search of higher returns, and where the conventional wisdom is that the purpose of a corporation is to maximize shareholder value, not worker well-being, international trade turns into labor arbitrage and jobs are shipped from the importing nation to the exporting nation. As a consequence, the United States has lost much of its manufacturing base. From 2000 to 2009, the United States lost over 5 million manufacturing jobs, almost one-third of its total.

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364. Don Clark & Anna Swanson, *Watching China, U.S. Pours Cash into Chip Making*, N.Y. TIMES, (Jan. 2, 2023), https://static01.nyt.com/images/2023/01/02/nytfrontpage/scan.pdf.

Supposedly this job loss occurred as a result of automation, but we suffered these job losses at a time of increasing gross national product. If manufacturing had grown along with gross national product, then the effect of automation may well have been merely to level the manufacturing job base rather than reduce it. When entire industries, such as the wood furniture industry examined in this article, move offshore to a nation with low labor standards, it is labor arbitrage that is the culprit, not automation. When Boeing out-portions contracts of its planes to other countries and companies, which arguably have no more technical superiority then Boeing, in order to obtain sales from such countries, this transfer of jobs is not caused by automation, but rather by the desire to enhance sales, corporate profitability, and shareholder wealth.

Neither American workers nor American businesses physically located in the United States can compete in a system in which a country, such as China, subsidizes its industry and short-circuits the cost of technological development by coercing, directly or indirectly, the transfer of technology developed in the United States and often funded by the U.S. taxpayer. The situation is all the more egregious when a country, such as China, engages in theft of intellectual property and industrial espionage.

Unfortunately, many so-called American companies today view themselves as global enterprises, with loyalty to neither the United States nor our workforce. If the goal is to maximize shareholder value, then where the product is produced is irrelevant so long as it is produced at the lowest possible cost in order to maximize profits. From the standpoint of national loyalty, it is easy to rationalize financing industrial development in other countries, and transferring technology to obtain sales, on the basis that this is the nature of global trade and global enterprise.

When an American company opens a plant in China, not only do American workers lose, but the spinoffs from manufacturing, including satellite suppliers and research and development, are also lost. China's industrial policy, discussed at length, is to be the world leader in high-tech manufacturing and to establish a military capability, including the frontiers of space, second to none. In such a situation, the United States cannot blindly turn aside to the realities of the situation and rely abstractly on the notion that the market solves all problems. As one commentator stated in discussing Sen. Rubio's report, "Made in China 2025 and the Future of American Industry," in order for markets to work effectively, there must be rules:

> Markets are always and everywhere structured by rules and institutions, the parameters of which shape final outcomes for society at large. That these rules should align with national priorities like strong families and decent wages for average people might seem obvious, but alas, too often it's not.[365]

It is important that the United States economy operates upon rules that provide for the benefit of all Americans, including workers, and not just investors. Moreover, if we are to stem the outflow of jobs from the manufacturing sector and their replacement, if in fact they are replaced, by lower paying service jobs, we need an industrial policy that values manufacturing and American workers, and not just financial engineering. Equally important, from a national security perspective, we cannot rely upon either products that originate in, or supply chains that run through, a potential adversary.

Global trade needs to work to the advantage of the United States and our workers, not to our disadvantage. Sen. Rubio opened a discussion of the need to have some sort of industrial policy that will focus the United States on the maintenance and development of critical industries and the provision of a job base that will support the middle class. The legislation enacted during President Biden's first two years was a step in the right direction. However, with a Republican House majority in 2023, which will have a more free-trade focus, more meaningful legislation is unlikely in the short run.

Simply relying upon the mantra that free trade benefits all, and supporting such mantra on the basis that it is "proved" by Ricardo's theorem of comparative advantage, is to put our head in the sand and ignore the evidence set forth in this article. To oppose anything that resembles an industrial policy on the basis that this is inconsistent with a market-based capitalistic system, is to fail to recognize that this same mentality justified child labor and opposed Social Security and Medicare. Evolution has taught us that an organism either adapts or dies. The same is true of political and economic systems.

APPENDIX I

China

365. Hammond, *supra* note 334, at 1.

Year	Exports	Imports	Balance
1985	3,855.70	3,861.70	-6
1990	4,806.40	15,237.40	-10,431.00
1995	11,753.7	45,543.2	-33,789.5
1996	11,992.6	51,512.8	-39,520.2
1997	12,862.2	62,557.7	-49,695.5
1998	14,241.2	71,168.6	-56,927.4
1999	13,111.1	81,788.2	-68,677.1
2000	16,185.2	100,018.2	-83,833.0
2001	19,182.3	102,278.4	-83,096.1
2002	22,127.7	125,192.6	-103,064.9
2003	28,367.9	152,436.1	-124,068.2
2004	34,427.8	196,682.0	-162,254.3
2005	41,192.0	243,470.1	-202,278.1
2006	**53,673.0**	**287,774.4**	**-234,101.3**
2007	**62,936.9**	**321,442.9**	**-258,506.0**
2008	**69,732.8**	**337,772.6**	**-268,039.8**
2009	**69,496.7**	**296,373.9**	**-226,877.2**
2010	**91,911.1**	**364,952.6**	**-273,041.6**
2011	**104,121.5**	**399,371.2**	**-295,249.7**
2012	**110,516.6**	**425,619.1**	**-315,102.5**
2013	**121,746.2**	**440,430.0**	**-318,683.8**
2014	**123,657.2**	**468,474.9**	**-344,817.7**
2015	**115,873.4**	**483,201.7**	**-367,328.3**
2016	**115,594.8**	**462,420.0**	**-346,825.2**
2017	**129,997.2**	**505,165.1**	**-375,167.9**
2018	**120,281.2**	**538,514.2**	**-418,232.9**
2019	**106,481.2**	**449,110.7**	**-342,629.5**
2020	**124,543.8**	**432,683.4**	**-308,139.5**
2021	**151,442.2**	**504,935.4**	**-353,493.2**

APPENDIX II: RICARDO'S MODEL

Ricardo developed his theory of competitive advantage[366] by using the following model: assume that, in England, it takes 100 men, working one year, to produce a given quantity of cloth (say 200 units) and 120 men, working one year, to produce a given quantity of wine (say 100 units); assume further that, in Portugal, it takes 90 men, working one year, to make the same quantity of cloth (200 units) and 80 men, working one year, to make the same quantity of wine (100 units). Further assume that, in both countries, 200 units of cloth and 100 units of wine are needed.

In the above model, it can be seen that Portugal has an absolute advantage, that is, it is more efficient in producing both cloth and wine. If absolute advantage were the key to international trade, Portugal would buy neither cloth nor wine from England because it is more expensive. Note that this assumes that wages are the same in both countries.

However, England is more efficient in producing cloth than in producing wine; conversely, Portugal is more efficient in producing wine than cloth. This is where comparative advantage comes in. If England were to specialize in making cloth, and divert manpower from the making of wine, it would then be able to produce 2.2 times as much quantity of cloth (namely, 440 units) as before. Conversely, if Portugal were to specialize in producing wine, it could divert manpower from the making of cloth and could produce 2.125 times as much wine (namely 212.5 units) as before.

Thus, when the two countries specialize, there will be an increase in the total amount of both cloth and wine produced by the two countries. In England, cloth requires 0.5 man-years to produce one unit of cloth, whereas wine requires 1.2 man-years to produce a unit of wine. Therefore, wine costs 2.4 times as much as cloth and cloth costs 0.42 times as much as wine. Thus, to replace the 100 units of wine that it has forgone, England would be willing to trade 240 units of cloth. If it sent 240 units of cloth to Portugal, it would still have 200 units of cloth left.

In Portugal, on the other hand, cloth requires 0.45 man-years to produce a unit of cloth and .8 man-years to produce a unit of wine. Therefore, wine costs 1.78 times as much as cloth, and cloth costs 0.56 times as much as wine. Thus, to replace 200 units of cloth that Portugal has diverted into the making of wine, Portugal would be willing to pay 112 units of wine and would trade 112 units of wine for 200 units of cloth. Consequently, Portugal could trade its 112 units of wine and still have 100 units of wine left, together with 200 units of cloth.

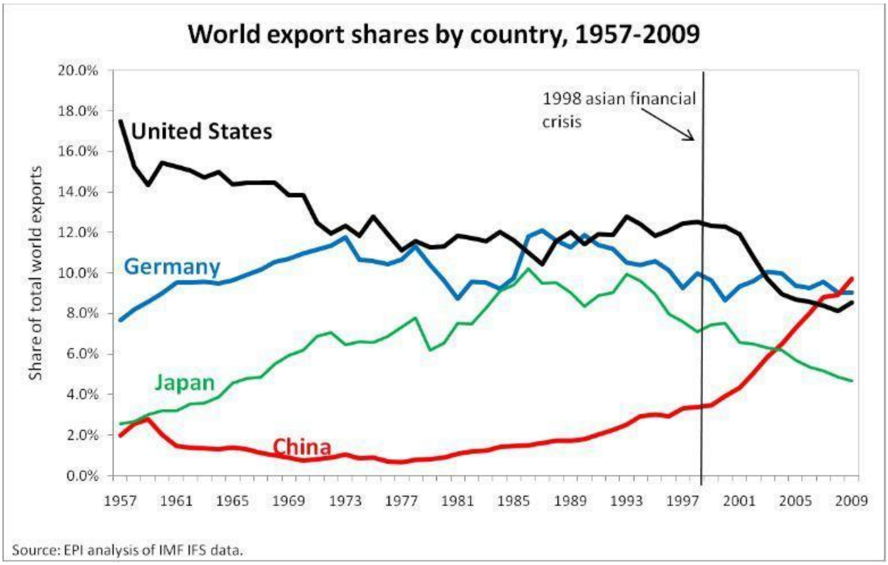
366. RICARDO, *supra* note 1, at 7.

At this point, it looks as though both countries are in the same place because of trade. However, Portugal would not need to trade 112 units of wine to obtain 200 units of cloth from England, because England would trade 200 units of cloth for 84 units of wine. Similarly, England would not need to trade 240 units of cloth to obtain 100 units of wine because Portugal would trade 100 units of wine for 178 units of cloth. Consequently, a trade equilibrium would be established whereby England transferred less than 240 units of cloth to Portugal and Portugal would transfer less than 112 units of wine to England.

For example, if England transferred 220 units of cloth to Portugal, Portugal might transfer 105 units of wine to England. In this case, both countries would have both more wine and more cloth than if trade did not exist.

Thus, according to the theory of comparative advantage, everybody is better off by specializing.

APPENDIX III



APPENDIX IV – YUAN VS. U.S. DOLLAR