Revival of Industrial Policy Implications for International Trade Law

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Abstract

In recent years, the world's major economies, such as the United States, China, and the European Union, have adopted policies that aim to promote domestic industries in strategic areas, such as semiconductors and electric vehicles, through substantial subsidization. These policies have been justified for the need to secure supply chains and protect national security interests, but they are also incompatible with the rules of international trade law, such as the WTO Subsidies and Countervailing Measures Agreement. There are considerable challenges to addressing this incompatibility as these economies have shared interests in promoting these policies for their own domestic industries. The increasing economic and political tensions between China and other powers, such as the United States, generate substantial political support for maintaining the current trajectory, which is justified by national security concerns, regardless of their incompatibility with WTO law. The current U.S. block of the appointment of Appellate Body members also creates an additional barrier to addressing this issue in the WTO dispute settlement body. This article discusses the revival of industrial policy and examines its implications for international trade law, including incompatibility with the WTO subsidies regime and regulation under GATT Article XXI. The article also explores pathways to bridge the present gap between the requirements of international trade law and

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industrial policies.

Keywords: Industrial Policy, Subsidy, National Security, WTO Subsidies and Countervailing Measure Agreement, GATT Article XXI

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Introduction

On November 26, 2024, the Biden administration announced that the United States Department of Commerce awarded Intel Corporation, a major U.S. semiconductor producer, \$7.9 billion in subsidies for its production of semiconductors.¹ Intel is not the only recipient of substantial government subsidies: other global semiconductor producers, such as TSMC and Samsung, have also been awarded \$6.6 billion and \$4.7 billion, respectively, from the U.S. government for producing semiconductors in the United States.² The Creating Helpful Incentives to Produce Semiconductors and Science Act of 2022 ("CHIPS Act")³ allocates a total of \$52.7 billion and authorizes the government to grant subsidies for the production of semiconductors within the United States.⁴ Similarly, the United States government also provides significant tax cuts under the provisions of the Inflation Reduction Act ("IRA") for the purchase of electric vehicles ("EVs") produced in the United States that meet certain origin requirements for battery materials and components.⁵

The massive government subsidies to the semiconductor and EV industries mark a substantial departure from the previous U.S. position. For several decades, the United States emphasized the level playing field and criticized other competing industrializing countries, including Japan in the 70s and the 80s and China in more recent decades, for supporting their industries with government subsidies

[https://perma.cc/FLU5-DEKQ].

^{1.} Biden-Harris Administration Announces CHIPS Incentives Award with Intel to Advance U.S. Leading-Edge Chip Capacity and Create Tens of Thousands of Jobs, U.S. DEP'T OF COM. (Nov. 26, 2024),

https://www.commerce.gov/news/press-releases/2024/11/biden-harris-administration-announces-chips-incentives-award-intel

^{2.} Sang-Eun Lee, US Finalizes \$4.7 bn Chip Subsidy for Samsung Before Trump Takes Office, THE KOREA ECON. DAILY (Dec. 22, 2024, 9:00 AM),

https://www.kedglobal.com/business-politics/newsView/ked202412220002 [https://perma.cc/UKU4-8NUW];

Biden-Harris Administration Announces CHIPS Incentives Award with TSMC Arizona to Secure U.S. Leadership in Advanced Semiconductor Technology, U.S. DEP'T OF COM. (Nov. 15, 2024),

https://www.commerce.gov/news/press-releases/2024/11/biden-harrisadministration-announces-chips-incentives-award-tsmc [https://perma.cc/R5DL-88KN].

^{3.} CHIPS and Science Act of 2022, 15 U.S.C. §§ 4651–59.

^{4.} Id. § 102.

^{5.} Inflation Reduction Act of 2022, Pub. L. No. 117–169, § 13401, 136 Stat. 1818, 1954–62.

such as grants and tax cuts.⁶ This U.S. stance was consistent with the prevailing neoliberal position that the economy runs most efficiently when it is left to the private sector; thus, the government should refrain from interfering with private businesses and industries.⁷ This does not mean that the United States has never supported businesses and industries with subsidies; for example, the United States has heavily subsidized the domestic agricultural sector and domestic steel production.⁸

The semiconductor and EV subsidies, however, are distinct from the U.S. subsidies for industrial production in the past: while the latter subsidies have been granted to vulnerable domestic sectors (e.g., agriculture, steel) for political reasons, the semiconductor and EV subsidies are provided under strategic plans to gain global competitiveness in the production of semiconductors and EVs.⁹ The U.S. government has been concerned with the competitiveness of its industries, but the mode of its support has been primarily indirect, such as support for research and development (R&D), rather than direct production support.¹⁰ The semiconductor and EV subsidies are distinct as they directly support production in the United States.¹¹

By enacting the CHIPS Act and the IRA, the United States has revived state industrial policy or "industrial policy," which "refers to any economic, financial, and/or other policy adopted by a state to

https://www.nal.usda.gov/economics-business-and-trade/agricultural-subsidies (last visited Apr. 20, 2024). *See also* Robert Guy Matthews, *U.S. Steel Industry Itself Gets Billions in Public Subsidies, Study Concludes*, WALL ST. J. (Nov. 29, 1999), https://www.wsj.com/articles/SB943834458435506838.

^{6.} See, e.g., Dylan Gerstel & Matthew P. Goodman, From Industrial Policy to Innovation Strategy, CTR. FOR STRATEGIC INT'L STUD. (Sept. 2020), https://csis-website-prod.s3.amazonaws.com/s3fs-

public/publication/200901_Gerstel_InnovationStrategy_FullReport_FINAL_0.pdf [archival link] (discussing U.S. criticism of Japan's industrial policies). *See also* KAREN M. SUTTER, CONG. RSCH. SERV., IF10964, "MADE IN CHINA 2025" INDUSTRIAL POLICIES: ISSUES FOR CONGRESS (2023) (summarizing China's recent industrial policy and U.S. responses).

^{7.} Neoliberalism is a dominant political-economic ideology that emerged in the 1980s, which discourages positive government interventions in the economy and promotes free market approaches, including privatization and trade liberalization. *See* John Williamson, *What Washington Means by Policy Reform, in* LATIN AMERICAN ADJUSTMENT, 5 (John Williamson ed., 1990).

^{8.} See Agricultural Subsidies, U.S. DEP'T OF AGRIC. NAL,

ups://www.wsj.com/articles/5b945854458455506858.

^{9.} See, e.g., THE WHITE HOUSE, Building Resilient Supply Chains, Revitalizing American Manufacturing, and Fostering Broad-Based Growth (June 2021) [hereinafter "2021 White House Report"],

https://www.whitehouse.gov/wp-content/uploads/2021/06/100-day-supply-chain-review-report.pdf [https://perma.cc/VXX9-QSLQ].

^{10.} Gerstel & Goodman, *supra*, note 6, at 18.

^{11.} See discussion infra Section I.A.

promote industries." ¹² Other successfully industrialized countries, such as China, Japan, South Korea, Taiwan, and Singapore, have also actively adopted industrial policies to promote their industries for the purpose of economic development.¹³ In the past, the United States criticized, again from the perspective of a level-playing field, the practices of these governments for unfairly aiding their own industries.¹⁴ The rules of international trade law developed under the influence of the United States, such as the legal disciplines of the World Trade Organization ("WTO law"),¹⁵ which outlaws or makes certain state industrial subsidies actionable under the provisions of the Subsidies and Countervailing Measures Agreement ("SCM Agreement") for their adverse impact on international trade.¹⁶

Another significant factor that has influenced the revival of industrial policy is a rising concern about national security. China's technological and industrial rise in recent decades has been perceived as a significant security risk to the West. ¹⁷ China's increasing technological and industrial capacity has led to China's growing military capability while tensions exist between China and the United States in areas such as Southeast China Sea and Taiwan. ¹⁸ Semiconductors are considered strategically important products for a wide range of industrial and military use; thus, the reliance on Chinaproduced semiconductors is considered a security risk. ¹⁹ The response to this perceived risk has been two-fold: one to restrict the supply of the latest semiconductor technology and production equipment to China and the other to increase domestic production capacity.²⁰ The CHIPS Act aims to implement both of these policies, as

^{12.} Yong-Shik Lee, Law and Development 242 (2nd ed. 2022) [hereinafter Lee, Law and Development].

^{13.} Id. at 250–60.

^{14.} *See supra* note 6 and accompanying text (discussing the U.S. criticism of state industrial policies adopted by other countries).

^{15.} The legal disciplines of the World Trade Organization, or "WTO law," includes the General Agreement on Tariffs and Trade ("GATT") as incorporated by the Marrakesh Agreement Establishing the World Trade Organizations ("WTO Agreement"), as well as agreements, understandings, and decisions annexed to the WTO Agreement and adopted after the establishment of the WTO. Marrakesh Agreement Establishing the World Trade Organization, Apr. 15, 1994, 1867 U.N.T.S. 154.

^{16.} Agreement on Subsidies and Countervailing Measures, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1A, 1869 U.N.T.S. 14 [hereinafter SCM Agreement].

^{17.} Gerstel & Goodman, *supra*, note 6, at 1.

^{18.} See, e.g., ASIAN GEOPOLITICS AND THE US-CHINA RIVALRY (Felix Heiduk ed., 2022) (discussing the U.S.-China rivalry in geopolitical contexts).

^{19. 2021} White House Report, *supra* note 9, at 6.

^{20.} See discussion infra Section I.A.

explained in subsequent sections.

The concern is an apparent inconsistency between this industrial policy and the rules and underlying policies of international trade law. Most experts agree that the subsidies under the CHIPS Act and the IRA are actionable under the SCM Agreement. As other major semiconductor and EV producers, including China and the European Union (EU), also enact laws that grant similar support to their own producers, there has not been an invocation of the provisions of the SCM Agreement against these subsidies. Regardless of this inaction, these laws are nevertheless inconsistent with the WTO policy to minimize state interference and the resulting distortion of international trade caused by government subsidies.²¹ The current incapacitation of the WTO's Appellate Body, caused by a U.S. block of all appointments to the Appellate Body, has weakened the WTO's ability to redress disputes arising from trade measures²² inconsistent with WTO law, including actionable subsidies created under the current legislation.

It is also doubtful that the current U.S. industrial policy, as it currently stands, would be justified to meet its national security interests, as discussed in Part III. The United States also experienced a critical shortage of semiconductors during the pandemic,²³ and it remains to be seen whether the support under the CHIPS Act will work to increase the domestic production of semiconductors and prevent its recurrence. It is also questionable that the United States has implemented its industrial policy to increase domestic semiconductor production in a way that meets both the governments and businesses' interests. As discussed in Section IV, the government has a role in facilitating industrial and economic development, as successfully played by the Newly Industrializing Countries ("NICs") in the past.²⁴ This government role has been played most successfully when the government and businesses formed a successful partnership that meets both government interests (e.g., industrial

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^{21.} The author has long advocated for the adjustment of WTO law to create a policy space for the adoption of tariff and subsidy measures, but the proposed adjustment was solely for the benefit of developing countries to meet their development needs and not for such advanced countries as the United States to gain strategic industrial advantages vis-à-vis their competitor, namely China.

^{22.} The term "trade measure" or "measure" refers to a broad range of government actions (or omissions) that affects international trade, including adoption of tariffs, quota, or other rules or regulations that regulate international trade. Jaemine Lee & Y.S. Lee, *Legal Issues in the Promotion of Microtrade: From the Perspective of International Economic Law*, 6 L. DEV. REV. 1, 2 (2003).

^{23. 2021} White House Report, *supra* note 9, at 25–26.

^{24.} LEE, *supra* note 12, at 250–60.

development) and those of businesses. The U.S. policy, in its earlier stage, did not show such a partnership.²⁵

This article is organized as follows. Part I examines the revival of industrial policy in the areas of semiconductor and EV production and explains relevant legislation in the United States, China, and the EU. Part II reviews the compatibility of the semiconductor and EV subsidies with WTO law. Section II.A introduces WTO law regulating subsidies (the SCM Agreement). Section II.B examines the compatibility of the subsidies under the current legislation with the rules of WTO law. Part III assesses the national security arguments associated with the current industrial policy. Section III.A reviews the critical semiconductor shortages in the United States during the pandemic and discusses a rising confrontation between the United States and China, which has been used to justify the industrial policy strengthening the "strategic areas" such as the semiconductor industry. Section III.B examines the provisions of WTO law (GATT Article XXI) that authorize WTO Member States ("Members") to adopt measures necessary to protect their essential national security and inquires whether the current subsidies will be justified under these provisions.

Part IV evaluates the implications of the current industrial policy for international trade law. Section IV.A examines the incapacitation of the WTO Appellate Body, which is diminishing the WTO's ability to resolve trade disputes caused by rule-breaching government measures, such as the current subsidies. The section also discusses the destabilizing impact of the Appellate Body's incapacitation and the prevalence of the actionable subsidy measures on the international trading system. Section IV.B explores the role of government in industry and economy as reflected by the current subsidies. While the section acknowledges the role of the government in facilitating industrial and economic development, it questions whether the current form of industrial policy would be conducive to meeting the objective. The author calls for a new paradigm and a new approach under which the government and businesses can form a more productive partnership. Section V draws conclusions.

^{25.} See Yong-Shik Lee, National Security as a Means to a Commercial End—Call for a New Approach, 102 NEB. L. REV. 1 (2023) [hereinafter Lee, National Security as A Means to A Commercial End] (discussing the U.S. government's demand for sensitive business information when major semiconductor manufacturers were not willing to disclose such information).

I. REVIVAL OF INDUSTRIAL POLICY

A. UNITED STATES

1. Overview

President Biden, in his first year of office, implemented an industrial strategy to revitalize domestic manufacturing, create well-paying American jobs, strengthen supply chains, and accelerate the industries of the future.²⁶ The Biden administration highlighted the importance of the domestic production of semiconductors and large-capacity batteries used in EVs to meet these goals.²⁷

The Biden administration's focus on semiconductor production stems from its concern about a decline in the global market share in semiconductor production, which it considered strategically important, as well as from a shortage of semiconductors that the United States experienced during the COVID-19 pandemic. Commentators have observed that the United States leads "semiconductor research and development (R&D), chip design, and some aspects of semiconductor manufacturing" but lacks production capacity: many of the industry's production facilities have been moved offshore, resulting in the production (fabrication) capacity as a percentage of the global capacity falling from around 40 percent in 1990 to 11 percent in 2019.²⁸

The resulting U.S. dependence on overseas semiconductor suppliers contributed to a shortage of semiconductors during the pandemic when demand for semiconductors sharply increased due to the unprecedented shift to remote and offsite work arrangements.²⁹ Industrial disruptions caused by the spread of the coronavirus and the measures that the governments adopted to fight it led to volatility in semiconductor supply around the world, which culminated in the critical shortage of semiconductors used for the production of automobiles in the United States, causing rising prices of automobiles

^{26.} *See* 2021 White House Report, *supra* note 9, at 6–8.

^{27. 2021} White House Report, *supra* note 9, at 8–9. The Report also emphasized the importance of securing critical minerals and materials as well as pharmaceuticals and active pharmaceutical ingredients. This article focuses on the government support for semiconductor and EV battery production. This government support materialized in key legislation such as the CHIPS Act and the IRA authorizing massive government subsidies.

^{28.} Matt Mazewski & Christian Flores, *Economic Impacts of the CHIPS for America Act*, DATA FOR PROGRESS (May 19, 2022),

https://www.filesforprogress.org/memos/USICA_Semiconductors.pdf.

^{29.} Id.

and generating political pressure to increase semiconductor supply.³⁰ Under this pressure and the strategic concern—semiconductor's wide array of uses and U.S. dependence on semiconductor supply from overseas—a substantial expansion of domestic semiconductor production has been considered a national priority.³¹

Large-capacity batteries used in EVs ("EV batteries") are another strategic area that the Biden administration also prioritized as offering "an important and growing market that can support the creation of American jobs, help meet [U.S.] security needs, and bring ambitious climate targets within reach."³² The U.S. government sees that demand for EVs and energy storage is increasing, and the pandemic has revealed the fragility of some U.S. supply chains, as has been observed with semiconductor supply.³³ The 2021 White House Report concluded that government policies are necessary to "incentivize every stage of the U.S. battery chain, including boosting demand for products like EVs and stationary storage that use highcapacity batteries."³⁴

The U.S. government's support for EV batteries is distinguished from its support in other areas, such as semiconductors, in that the government seeks to increase demand for products that use highcapacity batteries, such as EVs. The proposed support in other areas, such as semiconductors, is focused on production support, and it does not directly support the consumption of the end products using the components that receive production support, such as semiconductors. The Report explains the rationale for increasing demand is that "[s]trong demand for end products can unlock benefits from colocation (e.g., cost and flexibility benefits from placing battery pack and cell manufacturing near EV demand) and provide a foundation from which to compete in global markets."³⁵

2. CHIPS Act, Inflation Reduction Act

The Biden administration enacted the CHIPS Act to incentivize

^{30.} Commerce Secretary Gina Raimondo commented in her 2021 interview that "[w]e need to increase the supply of cars so prices will come down. In order to do that, we need an increase in semiconductor chips." *Id.* at 3. She also highlighted that automobile companies cannot secure a sufficient amount of semiconductor supplies. *Id.*

^{31.} See also 2021 White House Report, supra note 9, at 75–77.

^{32.} Id. at 86.

^{33.} Id.

^{34.} Id.

^{35.} Id.

semiconductor production through several funding programs.³⁶ They include distinct grant and subsidy programs for different types of semiconductor operations, which are to be distributed by several government agencies.³⁷ The major thrust of this Act is a significant tax credit called the advanced manufacturing investment credit and will be administered by the Internal Revenue Service (IRS). The advanced manufacturing investment credit is granted for an amount equal to 25 percent of the qualified investment for the taxable year concerning any advanced manufacturing facility of an eligible taxpayer. 38 Advanced manufacturing facilities are defined as facilities for which the primary purpose is manufacturing semiconductors or semiconductor manufacturing equipment.³⁹ Eligible taxpayers are taxpayers who are not a Foreign Entity of Concern (FEOC)⁴⁰ and have not made defined "applicable transactions" during the taxable year.⁴¹ Applicable transactions refer to any significant transaction (as determined by the Treasury Secretary, in coordination with the Commerce Secretary and Defense Secretary) involving the material expansion of semiconductor manufacturing capacity of such a taxpayer in a foreign country of concern, including the Peoples Republic of China (China).42

Under this provision, the semiconductor manufacturer engaged in the "material expansion of semiconductor manufacturing capacity" in certain foreign countries will not be eligible to receive the subsidy (the advanced manufacturing investment credit). Under the

^{36.} CHIPS and Science Act of 2022, 15 U.S.C. §§ 4651-4659.

^{37.} The CHIPS Act establishes the CHIPS for America Fund for accounts within the Commerce Department, the CHIPS for America Defense Fund for accounts within the Defense Department, and The CHIPS for America International Technology Security and Innovation Fund for accounts within the State Department and several subsidiary agencies (US Agency for International Development (USAID), The Export-Import Bank (EXIM Bank), and the US International Development Finance Corporation (DFC)), and the America Workforce and Education Fund under the National Science Foundation. *Id.* § 102.

^{38.} Advanced Manufacturing Investment Credit, 26 U.S.C. § 48D(a).

^{39.} Id. § 48D(b)(3).

^{40.} The CHIPS Act expands the definition of FEOC under the National Defense Authorization Act which are China, Russia, Iran, and North Korea. Acquisition of sensitive materials from non-allied foreign nations: prohibition, 10 U.S.C. § 4872(d)(2). It includes any countries determined to be engaged in conduct detrimental to U.S. foreign policy or national security objectives by the Secretaries of Defense and State, and the Director of National Intelligence. CHIPS Act, Pub. L No. 117-167, § 103(a)(4), 136 Stat. 1380, 16 (2022). *See also* Acquisition of sensitive materials from non-allied foreign nations: prohibition, 10 U.S.C. § 4872(d)(2); 15 U.S.C. §4651(6)–(8).

^{41.} Advanced Manufacturing Investment Credit, 26 U.S.C. § 48D(c)(1)-(2).

^{42. 15} C.F.R. § 231.202(a) (2025).

Department of Commerce (DOC) regulation implementing the Act, "material expansion" is also defined as "the increase of the semiconductor manufacturing capacity of an existing facility by more than five percent of the capacity due to the addition of a cleanroom, production line or other physical space, or a series of such additions." ⁴³ The regulation also prohibits joint research or technology licensing with a FEOC that relates to technologies or products that raise national security concerns (although projects that had been continued prior to the Secretary's determination that such technology or products raised national security concerns are exempt from this restriction).⁴⁴

Under the terms of the CHIPS Act, the U.S. government aims to promote domestic production of semiconductors and simultaneously contain the development and expansion of semiconductor industries in FEOC, notably China. However, China is the world's largest semiconductor market, representing 34 percent of worldwide final sales (\$179 billion out of \$527 billion in 2023),⁴⁵ and most of the global semiconductor manufacturers, whom the United States endeavors to incentivize with its massive subsidies to invest in manufacturing facilities in the United States, cannot afford to disregard China's market. In accommodation of this concern, the U.S. government decided to exempt the 10-year ban on the expansion⁴⁶ of existing facilities or equipment for manufacturing legacy semiconductors ⁴⁷ or significant transactions involving material

47. Legacy semiconductors" are, for the purpose of a semiconductor wafer facility, a silicon wafer measuring 8 inches (or 200 millimeters) or smaller in diameter; or a compound wafer measuring 6 inches (or 150 millimeters) or smaller in diameter. *Id.* § 231.107(a)(1). For the purposes of a semiconductor fabrication facility, it refers to a digital or analog logic semiconductor that is of the 28-nanometer generation or older (i.e., has a gate length of 28 nanometers or more for a planar transistor), a memory semiconductor with a half-pitch greater than 18 nanometers for Dynamic Random Access Memory (DRAM) or less than 128 layers for Not AND (NAND) flash that does not utilize emerging memory technologies, such as transition metal oxides, phase-change memory, perovskites, or ferromagnetics relevant to advanced memory fabrication, or semiconductors identified by the Secretary under 15 U.S.C. § 4652; 15 C.F.R. § 231.107(a)(2). For the purposes of a semiconductor packaging facility, a

^{43.} Id. § 231.108(1).

^{44.} Id. § 231.203.

^{45.} China Semiconductor Market: Industry Analysis and Forecast (2024-2030), MAXIMIZE MKT. RSCH. (Dec. 2023),

https://www.maximizemarketresearch.com/market-report/china-semiconductormarket/85973/; *see also* Jessie Shen, *Global semiconductor sales drop 8% in 2023, says SIA*, DIGITIMESASIA (Feb. 6, 2024),

https://www.digitimes.com/news/a20240206VL201/semiconductor-2023-sales-sia.html [https://perma.cc/J95F-K6CN].

^{46. 15} C.F.R. § 231.202(a).

expansion of legacy semiconductor manufacturing capacity that predominantly serves the market of a foreign country of concern.⁴⁸ Despite this exemption, the terms of the CHIPS Act exert considerable pressure on global semiconductor manufacturers, particularly those from countries with strong security relations with the United States (i.e., South Korea and Taiwan), to reduce investments in China relating to semiconductor manufacturing.

The Inflation Reduction Act (IRA) creates a tax incentive called the Clean Vehicle Credit (CVC) to encourage consumers to purchase clean vehicles.⁴⁹ As discussed earlier, the U.S. government attempts to promote large-capacity batteries by increasing demand for products using these batteries, such as EVs. The goal is for the CVC to accelerate clean vehicle adoption, assist the United States in achieving its climate goals, and create jobs by growing the clean vehicle industry.⁵⁰ While the CHIPS Act promotes capacity building by subsidizing domestic semiconductor production in the United States, the CVC focuses on encouraging the adoption of clean vehicles and increases in their market share, which is an interesting methodological difference that is also observed in other countries' industrial policies as discussed below.

The CVC incentivizes the adoption of new clean vehicles⁵¹ (the term that may be used interchangeably with "EVs") by offering

50. See id.

51. The IRA defines a "new clean vehicle" as a vehicle made by a qualified manufacturer, the original use of which commences with the taxpayer and is acquired for use or lease by said taxpayer and not for resale. Inflation Reduction Act of 2022, Pub. L. No. 117–169, § 13401(a), 136 Stat. 1818, 1954–62. It must be made by a qualified manufacturer, defined as any manufacturer who enters into a written agreement with the Transportation Secretary to periodically make reports providing vehicle identification numbers and information related to each vehicle manufactured as the Secretary may require 26 U.S.C. § 30D(d)(1). At the time of the sale, the seller will furnish a report to the taxpayer and the Secretary, which includes much of the previously described information. *Id.* § 30D(d)(1)(H). It must have a gross vehicle weight rating (GVWR) of less than 14,000 pounds, be treated as a motor vehicle under the Clean Air Act (CAA), be manufactured in North America, and be self-propelled by an electric motor and rechargeable battery with a capacity of not less than 7-kilowatt hours (kWh). *Id.* §30D(d)(1). This means clean vehicles are generally indistinguishable from most EVs.

semiconductor that does not utilize advanced three-dimensional (3D) integration packaging. 15 C.F.R. § 231.107(a)(3). However, this does not protect semiconductors critical to national security or other advanced semiconductors. *Id*.15 C.F.R. § 231.107(b).

^{48. 15} C.F.R. § 231.202(a)(1)-(2).

^{49. 26} U.S.C. §30D(d)(1). Clean vehicle credit, 26 U.S.C. § 30D(d)(1) (defining a clean vehicle as a vehicle which "is propelled to a significant extent by an electric motor which draws electricity from a battery which has a capacity of not less than 7 kilowatt hours, and is capable of being recharged from an external source of electricity").

rebates to taxpayers who purchase them.⁵² The amended CVC offers two \$3,750 credits for each vehicle put into service by the taxpayer, one available if the vehicle meets certain critical mineral requirements and the other available if certain battery component requirements are met. ⁵³ Regarding critical minerals, ⁵⁴ the new eligibility requirement is that the percentage value of the applicable critical minerals in the battery was extracted or processed in the United States or any country with which it has a free trade agreement (FTA) in effect or recycled in North America, is equal to or greater than the applicable percentage.⁵⁵ The applicable percentage progressively increases by 10 percent at the beginning of each year, from 40 percent in January 2024 to 80 percent by January 2027.⁵⁶

The requirement concerning battery components is also similar: for a battery-powered vehicle, the percentage of the value of the components contained in its battery that were manufactured or assembled in North America must be equal to or greater than the applicable percentage.⁵⁷ The applicable percentage also increases by 10 percent at the beginning of each year, starting at 50 percent in January 2024 and increasing to 100 percent by 2028.⁵⁸ This is a similar requirement but arguably stricter than the requirement for critical minerals because it requires manufacturing or assembly in North America, not in any FTA partner with the United States. Another critical requirement for a vehicle to qualify for a CVC is that its final assembly must occur within North America.⁵⁹ The CVC also excludes vehicles containing critical minerals or battery components from FEOC.⁶⁰

The CHIPS Act and the IRA have attracted interest from major semiconductor manufacturers and also seem to have influenced prices for EVs. The DOC received more than 600 statements of interest in the semiconductor subsidies, and semiconductor manufacturers

^{52.} Inflation Reduction Act, § 13401(a).

^{53. 26} U.S.C. § 30D(a)-(b).

^{54. 26} U.S.C. § 45X(c)(6) (referencing the term critical mineral includes aluminum, antimony, barite, beryllium, cerium, cesium, chromium, cobalt, dysprosium, europium, fluorspar gadolinium, germanium, graphite, indium, lithium, manganese, neodymium, nickel, niobium, tellurium, tin, tungsten, vanadium, and yttrium).

^{55. 26} U.S.C. § 30D(e)(1)(A)(i)-(ii).

^{56.} *Id.* § 30D(e)(1)(B)(i)–(v).

^{57.} Id. § 30D(e)(2)(A).

^{58.} Id. § 30D(e)(1)(B)(i)-(vi).

^{59.} Id. § 30D(d)(1)(G).

^{60.} *Id.* §30D(d)(7) (stating that for critical minerals, any vehicle placed in service after December 31, 2024, and for battery components, any vehicle after December 31, 2023).

are known to have requested more than \$70 billion in federal subsidies, approximately twice the amount of funding that is available. ⁶¹ As a result of the subsidies, global semiconductor manufacturers, such as Samsung and TSMC, are expected to invest \$37 billion and over \$65 billion, respectively, in building semiconductor manufacturing facilities in the United States.⁶² Encouraged by these investments, U.S. Secretary of Commerce, Gina Raimondo, made an optimistic statement that new investments would put the United States on track to produce approximately 20 percent of the world's most advanced logic chips by the end of the decade.⁶³ There are also signs that the CVC is affecting EV prices: according to a report, Ford and Tesla are cutting prices for their electric vehicles to increase the number of EVs they can sell.⁶⁴

However, several factors suggest that the prospect of success is uncertain. The cost of manufacturing semiconductors in the United States is substantially higher—up to 40 percent higher⁶⁵—the reason that semiconductor production was moved overseas in the first place.⁶⁶ It remains to see how the federal subsidies, massive as they may be, could make up for the increased costs. The CHIPS Program Office within the DOC also requires that any subsidy recipient of \$150 million or more in direct funding share with the U.S. government a portion of any cash flows or returns exceeding the applicant's projection above an established threshold, only to be waived in exceptional circumstances. ⁶⁷ If this profit-sharing scheme

63. Ngo, supra note 61.

1_Protecting_US_Taxpayers_Fact_Sheet_0.pdf [https://perma.cc/4CC9-29V5].

^{61.} Madeleine Ngo, *Chipmakers Seek More Than \$70 Billion in Federal Subsidies*, N.Y. TIMES (Feb. 26, 2024),

https://www.nytimes.com/2024/02/26/us/politics/semiconductors-chips-us-subsidies.html.

^{62.} See Lee, supra note 2. See also Biden-Harris Administration Announces Preliminary Terms with TSMC, Expanded Investment from Company to Bring World's Most Advanced Leading-Edge Technology to the U.S., U.S. DEP'T COM.

⁽April 8, 2024), https://www.commerce.gov/news/press-releases/2024/04/biden-harris-administration-announces-preliminary-terms-tsmc-expanded.

^{64.} Jack Ewing, *Electric Vehicles Could Match Gasoline Cars on Price this Year*, SEATTLE TIMES (Feb. 11, 2023), https://www.seattletimes.com/business/electric-vehicles-could-match-gasoline-cars-on-price-this-year/ [https://perma.cc/Y89M-EKJN].

^{65.} Ian Thomas, *How the CHIPS Act is Aiming to Restore a U.S. Lead Position in Semiconductors*, CNBC (Oct. 17, 2023), https://www.cnbc.com/2023/10/17/how-the-chips-act-is-aiming-to-restore-a-us-lead-in-semiconductors.html.

^{66.} Id.

^{67.} Funding Opportunity—Commercial Fabrication Facilities, NAT'L INST. STANDARDS & TECH. (Feb. 28, 2023),

https://www.nist.gov/system/files/documents/2023/02/28/CHIPS_NOFO-

materializes, it will reduce the utility of semiconductor subsidies for the manufacturers. Both the CHIPS Act and the IRA attempt to contain the development and expansion of semiconductor and EV battery production in China. ⁶⁸ China is already a key player in both semiconductor and EV battery production, and it also remains to be seen how successful this attempt of "decoupling" from China in these product areas will be.⁶⁹

B. CHINA

The United States is not the only country that has adopted government subsidies for semiconductors and EVs. Several major semiconductor manufacturing countries, including China, the EU, Japan, India, South Korea, and Taiwan, also grant subsidies to promote semiconductor and EV production.⁷⁰ Among these countries, this section and the next focus on China and the EU, respectively.

State industrial policy (throughout this article, the term "state" refers to a sovereign state, not an individual State in the United States unless indicated otherwise) has been at the center of China's economy. China, which had been a communist country for decades since its establishment in 1949, and has adopted elements of the market economy since its economic reform in 1978.⁷¹ The government has, however, remained closely involved in the economy, which is justified under the notion of the "socialist market economy," maintaining a large number of state-owned enterprises (SOEs) and controlling major economic sectors.⁷² The Chinese government also grants direct

https://www.bloomberg.com/news/articles/2023-11-10/japan-ministry-aims-for-13-billion-in-support-for-chip-sector.

71. Yong-Shik Lee, Should China be Granted Market Economy Status?: In View of Recent Development, 3 CHINA & WTO REV. 319, 326 (2017).

^{68.} Id.

^{69.} See, e.g., J. Stewart Black & Allen J. Morrison, *The Strategic Challenges of Decoupling*, HARV. BUS. REV. (May-June 2021), https://hbr.org/2021/05/the-strategic-challenges-of-decoupling.

^{70.} See Kazuya Manabe et al., Subsidies Race Casts Pall over Global Free Trade, NIKKEI ASIA (July 8, 2023), https://asia.nikkei.com/Spotlight/Datawatch/Subsidiesrace-casts-pall-over-global-free-trade. South Korea to Invest \$7 Billion in AI in Bid to Retain Edge in Chips, REUTERS (Apr. 9, 2024),

https://www.reuters.com/technology/south-korea-invest-7-bln-ai-bid-retain-edgechips-2024-04-09/. Takeshi Mochizuki, *Japan Prepares \$13 Billion to Support Country's Chip Sector*, BLOOMBERG (Nov. 10, 2023),

^{72.} See id. at 324. See also ALICIA GARCÍA-HERRERO & GARY NG, CHINA'S STATE-OWNED ENTERPRISES AND COMPETITIVE NEUTRALITY (2021) (observing that China's state-owned enterprises (SOEs) introduce distortions into markets and diminish "competitive neutrality" between public and private companies as China's SOEs receive favorable treatment from the state).

subsidies to private enterprises to promote industries and facilitate economic development. This state-led economic development is not unique to China: Other successfully developed economies, such as South Korea, Taiwan, and Singapore, achieved significant industrial and economic development from the 1960s through the 1990s, adopting government subsidies and trade measures.⁷³

Semiconductor manufacturing has been a strategic area of concern for China. In 2014, the Chinese government published "Guidelines to Promote National Integrated Circuit Industry Development," which was a plan to promote "a world-leading semiconductor industry in all areas of the integrated circuit supply chain by 2030."⁷⁴ The plan included measures to meet the goal of fulfilling 70 percent of China's semiconductor demand with domestic production by 2025 (later revised to meet 80 percent of domestic demand by 2030).⁷⁵ To implement this plan, China created a massive government fund called the China Integrated Circuit Investment Fund (CICIF) to channel approximately \$150 billion in state subsidies to support the domestic semiconductor industry, state-directed overseas acquisitions, and the purchase of foreign semiconductor equipment.⁷⁶

The CICIF proceeded in phases. In the first phase, the Fund secured 138.72 billion yuan (\$19.6 billion), mostly from public funding sources,⁷⁷ exceeding the original goal of 120 billion yuan (\$17

^{73.} See LEE, LAW AND DEVELOPMENT, *supra* note 12, at 250–60 (discussing the stateled economic development process of the East Asian countries).

^{74.} Bolaji Ojo, *China Seeks to Conquer Chip Market, Part One*, EE TIMES (Feb. 22, 2016), https://www.eetimes.com/china-seeks-to-conquer-chip-market-part-one-0w/.

^{75.} Cong. RSch. Serv., China's New Semiconductor Policies: Issues for Congress1, Report no. R46767at 3–4 (2021),

https://crsreports.congress.gov/product/pdf/R/R46767. See also John VerWey, Chinese Semiconductor Industrial Policy: Past and Present, J. INT'L COM. & ECON., July 2019, at 1,

https://www.usitc.gov/publications/332/journals/chinese_semiconductor_industria l_policy_past_and_present_jice_july_2019.pdf.

^{76.} CONG. RSCH. SERV., *supra* note 75, at 4.

^{77.} Luffy Liu, *China's 'Big Fund' Phase II Aims at IC Self-Sufficiency*, EE TIMES (Oct. 30, 2019), https://www.eetimes.com/chinas-big-fund-phase-ii-aims-at-ic-self-sufficiency/. The Ministry of Finance and China Development Bank Capital Corporation (CDB Capital) contributed 25.95 percent and 23.07 percent, respectively. The rest of the funding came from SOEs, with the China National Tobacco Corporation contributing 14.42 percent, Beijing E-Town International Investment and Development Co., Ltd. contributing 7.21 percent, and China Mobile Communications Corporation contributing 7.21 percent. Jiang Liang (蒋亮), Zhengfu Yindao Jijin: 12 Wanyi De Kunjing Yu Maodun (政府引导基金: 12 万亿的困境与矛盾) [Government Guidance Funds: A 12 Trillion RMB Predicament and Contradiction], SOHU (搜狐) (Dec. 15, 2018), https://www.sohu.com/a/282040292_480400.

billion) by 15.6 percent.⁷⁸ By the end of September 2018 the CICIF had invested in 77 projects and 55 integrated circuit enterprises, with "[t]he investment scope covering all levels of the industry, strategic projects and key project areas."⁷⁹ As has been the case with the U.S. semiconductor subsidy, the CICIF attracted interest from the industry and spurred investments: the total capital expenditure of the Chinese semiconductor industry in 2014–2017 doubled compared with the previous four years.⁸⁰

In October 2019, China announced phase II of the CICIF with an estimated capitalization of \$28.9 billion.⁸¹ By December 2023, the Fund was known to have invested more than \$8.5 billion in over 40 semiconductor firms.⁸² In addition to the subsidy payout, the Chinese government also announced an exemption of qualified semiconductor manufacturers from corporate income tax: semiconductor manufacturers producing integrated circuits with a line width less than or equal to 28nm (nanometers) who have been in business or had projects for at least 15 years are exempt from the corporate income tax for ten years. ⁸³ Manufacturers who meet these qualifications and produce integrated circuits with a line width less than or equal to 65nm shall be exempt from corporate tax for five years.⁸⁴

Additional subsidies were also announced in December 2022, when China also began developing a 1 trillion yuan (\$143 billion) support package for semiconductors to maintain its manufacturing edge in light of growing competition from the United States and its allies.⁸⁵ These funds would be used mainly to purchase domestic

82. Vishakha Saxena, *China's Big Fund Bumps Up Investments in Chip Supply Chains*, ASIA FIN. (Dec. 6, 2023), https://www.asiafinancial.com/chinas-big-fund-bumps-up-investments-in-chip-supply-chains [https://perma.cc/A53X-QNEF].

83. Xin Shiqi Cujin Jicheng Dianlu Chanye He Ruanjian Chanye Gao Zhiliang Fazhan De Ruogan Zhengce (新时期促进集成电路产业和软件产业高质量发展的若干政策) [*Certain Policies to Promote the High-Quality Development of the Integrated Circuit Industry and the Software Industry in the New Period*] (promulgated by the St. Council, July 27, 2020, effective Aug. 4, 2020), St. Council Gaz., Aug. 20, 2020, at 6; CHINA STATE COUNCIL, STATE COUNCIL NOTICE ON THE PUBLICATION OF CERTAIN POLICIES TO PROMOTE THE HIGH-QUALITY DEVELOPMENT OF THE INTEGRATED CIRCUIT INDUSTRY AND THE SOFTWARE INDUSTRY IN THE NEW PERIOD (2020).

84. Id.

85. Julie Zhu, Exclusive: China Readying \$143 Billion Package for its Chips Firms in the Face of U.S. Curbs, REUTERS (Dec. 13, 2022, 8:28 PM),

https://www.reuters.com/technology/china-plans-over-143-bln-push-boost-domestic-chips-compete-with-us-sources-2022-12-13/.

^{78.} See Liu, supra note 77.

^{79.} Id.

^{80.} Id.

^{81.} CONG. RSCH. SERV., *supra* note 75, at 4.

semiconductor equipment for fabrication plants and seem only available for companies purchasing equipment made by Chinese firms. ⁸⁶ Chinese manufacturers making such purchases would be entitled to a 20 percent subsidy on the cost of such purchases.⁸⁷ There are also indications that these companies might also have preferential tax policies.⁸⁸

EVs have been another area of concern for China's industrial development strategy. China has implemented several incentives to promote the manufacturing and adoption of new energy vehicles (NEVs). This began in 2009 with rebates of up to \$9,000 for pure electric vehicles (PEVs), including battery electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs).⁸⁹ Since then, China's central and local governments have spent more than a total of \$47 billion on EV subsidies.⁹⁰ "In 2014, China announced its plan to extend these subsidies beyond the original 2015 expiration date as part of continued efforts to jump-start plug-in sales and reduce air pollution."91 China's EV subsidy programs seem to have contributed to an outstanding result: in 2016, the sales of EVs and plug-in hybrid EVs (PHEVs) increased by 62 percent to 336,000 units, making it by then the largest market for hybrid vehicles worldwide, with a 44 percent share in global sales whereas Chinese market share in 2013 was only six percent.92

China has also established the new electric vehicle (NEV) mandate targeting manufacturers.⁹³ Starting in 2018, all large Chinese manufacturers, defined as those producing or importing at least 30,000 passenger cars annually, have the opportunity to receive up to six tax credits for each EV they produce.⁹⁴ The credits are distributed per vehicle, with each EV eligible, for one to six tax credits, based on

https://doi.org/10.1016/j.eneco.2020.104773.

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^{86.} Id.

^{87.} Id.

^{88.} Id.

^{89.} Tamara Sheldon & Rubal Dua, *Effectiveness of China's Plug-in Electric Vehicle Subsidy*, 88 ENERGY ECON., Apr. 29, 2020, at 1, 1,

^{90.} Giulia Interesse, *China Considers Extending its EV Subsidies to 2023 (updated)*, CHINA BRIEFING (June 27, 2023), https://www.china-briefing.com/news/china-considers-extending-its-ev-subsidies-to-2023/ [https://perma.cc/R7Z7-ZH4E].

^{91.} Id.

^{92.} Id.

^{93.} Sheldon & Dua, supra note 89.

^{94.} Hongyang Cui, *China's New Energy Vehicle Mandate Policy (Final Rule)*, INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION (JAN. 11, 2018),

https://the icct.org/publication/chinas-new-energy-vehicle-mandate-policy-final-rule/.

technical performance. ⁹⁵ The continuation of this program was announced in 2020 as part of the Chinese Development Plan for the New Energy Automobile Industry (2021-2035), with the end goal of having the EVs comprise the majority of vehicles sold in China by 2035.⁹⁶ In June 2023, China also announced a substantial tax incentive package for the purchase of NEVs.⁹⁷

China's semiconductor and EV subsidies produced mixed outcomes. In both areas, state subsidies have incentivized producers and consumers, leading to substantially increased outputs and higher global market shares.⁹⁸

However, several problems, such as "corruption, misuse of funds, and inefficiency, have plagued" China's subsidy programs. ⁹⁹ In response to these problems, Chinese authorities have launched several investigations into executives connected to the CICIF.¹⁰⁰ Fiscal expenditure for subsidies has also become a substantial burden to public finance. The Chinese government had planned to phase out the fiscal incentives for EVs by 2021, only to be extended due to the economic downturn caused by the COVID-19 pandemic and the resulting political pressure to boost the affected automobile industry. ¹⁰¹ The U.S. policy to contain China's development and expansion of its semiconductor and EV battery production has instigated what is likely a reactionary response from Chinese authorities, who seem to have decided to maintain and reinforce the current subsidies to counter U.S. measures rather than phasing them out.¹⁰²

http://www.gov.cn/zhengce/content/2020-11/02/content_5556716.htm.

97. Guanyu Yanxu He Youhua Xinnengyuan Qiche Cheliang Gouzhishui Jianmian Zhengce De Gonggao (关于延续和优化新能源汽车车辆购置税减免政策的公告) [Announcement on the Extension and Optimization of the Vehicle Purchase Tax Exemption Policy for New Energy Vehicles], MINISTRY OF FIN. OF THE PEOPLES REPUBLIC OF CHINA (June 21, 2023),

https://szs.mof.gov.cn/zhengcefabu/202306/t20230620_3891500.htm.

^{95.} Id.

^{96.} Guowuyuan Bangongting Guanyu Yinfa Xinnengyuan Qiche Chanye Fazhan Guihua (2021–2035 Nian) De Tongzhi (国务院办公厅关于印发新能源汽车产业发展 规划 (2021–2035 年)的通知) [Notice of the General Office of the State Council on Printing and Distributing the Development Plan for the New Energy Automobile Industry (2021–2035)], GEN. OFF. ST. COUNCIL (Nov. 2, 2020),

^{98.} See Interesse, supra note 90.

^{99.} See Yifan Yu, U.S. Should Not Follow China's Subsidies Playbook, Experts Say, NIKKEI ASIA (Aug. 25, 2023),

https://asia.nikkei.com/Business/Tech/Semiconductors/U.S.-should-not-follow-China-s-subsidies-playbook-experts-say.

^{100.} Id.

^{101.} See Interesse, supra note 90.

^{102.} Compare id. (discussing China's alteration of its plan to phase-out subsidies in

C. EUROPEAN UNION

The European Union has also joined the subsidy race in the area of semiconductors by enacting the European Chips Act, ¹⁰³ which entered into force on September 21, 2023, following its approval by the European Parliament and the Council. ¹⁰⁴ The European Commission explains that the legislation is necessary due to Europe's "extreme global dependency of the semiconductor value chain on a very limited number of actors in a complex geopolitical context," while demand for chips is expected to double by 2030.¹⁰⁵ It is apparent that the European Chips Act has been influenced by China's and U.S. initiatives, such as the CHIPS Act and the CICIF, both of which have been successful in attracting interest from global market players in the semiconductor industry.¹⁰⁶

With the European Chips Act, which is set to mobilize more than \notin 43 billion (approximately \$46 billion) of public and private investments and adopt measures to prepare, anticipate, and respond to any future supply chain disruptions, the EU expects to address semiconductor shortages and strengthen Europe's technological leadership based on the following three pillars action: first, the Chips for Europe Initiative, which will support large-scale technological capacity building and innovation; second, a framework to incentivize public and private investments in manufacturing facilities which will ensure the security of supply and resilience of the Union's semiconductor sector; and third, a coordination mechanism through the European Semiconductor Board, which is the key platform for coordination between the Commission, Member States, and stakeholders.¹⁰⁷ With these initiatives, the EU aims to increase its production capacity to 20 percent of the global market by 2030.¹⁰⁸

order to promote automobile sector), with Scott Kennedy, The Chinese EV Dilemma: Subsidized Yet Striking, CENTER FOR STRATEGIC & INTERNTIONAL STUDIES (June 28, 2024), https://www.csis.org/blogs/trustee-china-hand/chinese-ev-dilemma-subsidizedyet-striking (assessing China's response to the United States and EU's restrictions on Chinese EVs).

^{103.} Regulation 2023/1781, of the European Parliament and of the Council of 13 September 2023 Establishing a Framework of Measures for Strengthening Europe's Semiconductor Ecosystem and Amending Regulation (EU) 2021/694 (Chips Act), 2023 O.J. (L 229) 1 [hereinafter European Chips Act].

^{104.} EUROPEAN COMMISSION, European Chips Act,

https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/europe-fit-digital-age/european-chips-act_en (last visited Apr. 1, 2025).

^{105.} Id.

^{106.} See discussion supra Sections I.A, I.B.

^{107.} European Chips Act, *supra* note 103, art. 1.

^{108.} EUROPEAN COMMISSION, *supra* note 104.

In November 2023, the European Commission also inaugurated the Chips Joint Undertaking (Chips JU).¹⁰⁹ The Chips JU is the primary implementing device for the Chips for Europe Initiative.¹¹⁰ The Chips JU aims to strengthen Europe's semiconductor ecosystem and economic security by managing an expected budget of nearly €11 billion (approximately \$12 billion) by 2030.¹¹¹ The Chips JU is expected to "set up pre-commercial, innovative pilot lines, providing industry state-of-the-art facilities to test, experiment and validate semiconductor technologies and system design concepts; deploy a cloud-based Design Platform for design companies across the EU; support the development of advanced technology and engineering capacities for quantum chips; and establish a network of competence centres and promote skills development."112 The Chips JU's work aims to reinforce Europe's technological leadership by facilitating knowledge transfer from "the lab to the fab" and "bridging the gap between research, innovation, and industrial activities." 113

The EU has not been offering EV subsidies, although some of its funds, such as the InvestEU Fund, can be used to support the transition to clean energy vehicles.¹¹⁴ EV subsidies in Europe are

^{109.} Council Regulation 2021/2085, 2021, O.J. (L 423) 1 (establishing the Chips Joint Undertaking).

^{110.} The European Chips Act sets forth the Initiative's five objectives. The first is developing large-scale design capacities for integrated semiconductor technologies by creating a virtual design platform to improve access to design resources, upgrading the design capacity with ongoing innovative developments, and "enlarg[ing] the semiconductor ecosystem" by vertical integration of the semiconductor industry. The second objective is enhancing existing and producing new advanced pilot lines by integrating research and innovation activities and preparing the development of future technology nodes, providing access to new or existing pilot lines for experimentation, testing, and validation of new design concepts integrating key functionalities, and supporting IPFs and Open EU Foundries through priority access to new pilot lines. The third objective is to build advanced technology and engineering capacities to accelerate quantum chip development. The fourth objective is establishing a network of competence centers in the EU to provide education and improve the supply of human capital for this industry. The fifth objective is undertaking "Chips Fund" activities by providing grants and debt and equity financing for companies in the semiconductor value chain. See European Chips Act, supra note 103, art. 5. See also Proposal for a Regulation of the European Parliament and of the Council establishing a framework of measures for strengthening Europe's semiconductor ecosystem (Chips Act), Com (2022) 46 final, art. 4 (Feb. 8, 2022). The Initiative is also supported by funding from Horizon Europe and the Digital Europe programs for a maximum indicative amount of EUR 1,725 billion and EUR 1,575 billion, respectively. European Chips Act, *supra* note 103, art. 3.

^{111.} European Commission Press Release IP/23/6167, *Commission launches Chips Joint Undertaking under the European Chips Act* (Nov. 30, 2023).

^{112.} Id.

^{113.} Id.

^{114.} Council Regulation 2021/523, 2021, O.J. (L 107) 30 (EU); see also European

provided by individual member states: 20 EU member states offer fiscal incentives for purchasing EVs.¹¹⁵ Seven countries, including Belgium, Bulgaria, Denmark, Finland, Latvia, Slovakia, and Sweden, do not provide any purchase incentives, but most of them grant other tax deductions or exemptions. For example, Denmark offers minimumrate taxes on acquisition and ownership, while Bulgaria and Romania exempt EVs from ownership-related taxes.¹¹⁶ Except for Germany and France, no other EU countries have substantial EV production; thus, there seems to be no significant political incentive to offer subsidies at the EU level, where the vast majority of the member states already offer incentives for purchasing EVs.¹¹⁷

II. SUBSIDIES UNDER INTERNATIONAL TRADE LAW

A. WORLD TRADE ORGANIZATION SUBSIDIES REGIME

1. Overview

Commentators have opined that the semiconductor and EV subsidies may violate WTO law, particularly the rules that regulate trade-related subsidies. ¹¹⁸ National authorities have initiated

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Commission Press Release IP/23/6167, supra note 111. Horizon Europe also provides funding for EV-related projects. An example is the eCharge4Drivers project, which received €14,424,526 from the EU to improve charging options and services for EV users between June 2020 and May 2024. EUROPEAN ALTERNATIVE FUELS OBSERVATORY, European Funded Projects,

https://alternative-fuels-observatory.ec.europa.eu/policymakers-and-public-

authorities/european-funded-projects [https://perma.cc/JGK2-QJKS]. The objective is to make EV ownership more convenient by connecting with owners to understand their needs, which could make charging infrastructure more convenient and thereby encourage the adoption of EVs. Id.

^{115.} Electric cars: Tax benefits and purchase incentives, ACEA (July 5, 2023), https://www.acea.auto/fact/electric-cars-tax-benefits-purchase-incentives-2023/ [https://perma.cc/AYC7-FP5Z].

^{116.} Id.

^{117.} Id.

^{118.} See, e.g., Noah Kaufman et al., The US broke global trade rules to try to fix climate change—to finish the job, it has to fix the trade system, THE CONVERSATION (Sept. 5, 2023), https://theconversation.com/the-us-broke-global-trade-rules-to-try-to-fixclimate-change-to-finish-the-job-it-has-to-fix-the-trade-system-212750

[[]https://perma.cc/EU4R-PMUL]; Alan O. Sykes, Stanford's Al Sykes on the \$280 Billion Chips and Science Act, Government Intervention, and Trade, STANFORD LAW SCHOOL (Aug. 2. 2022), https://law.stanford.edu/2022/08/02/stanfords-al-sykes-on-the-280billion-chips-and-science-act-government-intervention-and-trade

[[]https://perma.cc/W8HN-YTGU]; PETROS MAVROIDIS, INDUSTRIAL POLICY, NATIONAL SECURITY, AND THE PERILOUS PLIGHT OF THE WTO 3 (2024).

investigations into these subsidies and brought challenges to the WTO: China has filed a complaint against the U.S. for the CVC,¹¹⁹ alleging that U.S. incentives for semiconductor investment and production "could cause adverse effects to the interests of other Members, in particular causing serious prejudice by displacing or impeding the exports of a like product of the Member from a third country market." ¹²⁰ Additionally, the European Commission has published a notice of initiation of EU anti-subsidy investigations into subsidized EV imports from China, which may lead to countervailing duties. ¹²¹ The U.S. government also successfully challenged a major Chinese tax rebate at the WTO, which resulted in China's agreement in 2007 to cease granting a discriminatory value-added tax (VAT) rebate, amounting to 14 to 17 percentage points, that was provided only to domestic semiconductors.¹²²

WTO-compatibility of the semiconductor and EV subsidies is an important issue that goes to the heart of the international trading system. How government subsidies may adversely impact international trade is intuitive. For example, suppose that Country A offers a subsidy that is equivalent to 30 percent of the manufacturing cost of product X. As a result of this subsidy, the producers of product X will save substantial production costs and may, in turn, lower its price significantly. Producers in country A will enjoy a price advantage over producers of the same or a similar product from other countries that do not receive such a government subsidy.¹²³ This type of advantage is considered "unfair" and is regulated by WTO rules.¹²⁴ If the other countries affected by this subsidy choose to grant subsidies

^{119.} Request for Consultations by China, *United States—Certain Tax Credits Under the Inflation Reduction Act*, WTO Doc. WT/DS623/1 (Mar. 28, 2024) [hereinafter IRA Request for Consultation by China].

^{120.} WTO: China Shows "Mirror" to US on Washington's Semiconductor Subsidies, THE THIRD WORLD NETWORK (Oct. 27, 2022) [hereinafter China Shows "Mirror"], https://www.twn.my/title2/wto.info/2022/ti221015.htm [https://perma.cc/L7XX-MRRS].

^{121.} European Commission 2023/160, 2023, O. J. (C/2023/6731).

^{122.} Semiconductor & the World Trade Organization, SEMICONDUCTOR INDUS. ASS'N (Nov. 2020),

https://www.semiconductors.org/wp-content/uploads/2020/11/The-WTO-and-the-Semiconductor-Industry-Nov-20201.pdf [https://perma.cc/CJ68-UTYE]. *See also* Communication from China and the United States, *China-Certain Measures Granting Refunds, Reductions or Exemptions from Taxes and Other Payments, Communication from China and the United States*, WTO Doc. WT/DS358/14 (Jan. 4, 2008).

^{123.} See also DOMINICK SALVATORE, INTERNATIONAL ECONOMICS 281–83 (8th ed. 2003) (explaining that government subsidies may distort international trade where they are provided to promote exports and discourage imports).

^{124.} See also Yong-Shik Lee, Reclaiming Development in the World Trading System 84–86 (2d ed. 2016).

to their own producers to offset the impact of Country A's subsidy, this "subsidy race" will further distort international trade, burden public finances, and increase economic inefficiency across the board.¹²⁵

GATT Article VI,¹²⁶ Article XVI,¹²⁷ and the SCM Agreement¹²⁸ provide legal disciplines for subsidies. The WTO subsidy rules classify subsidies into three categories: prohibited subsidies, actionable subsidies (not prohibited *per se* but actionable when certain criteria are met), and permitted subsidies (neither prohibited nor actionable).¹²⁹ Claims have been made that the semiconductor and EV subsidies are prohibited or actionable subsidies,¹³⁰ while advocates of these subsidies have justified them (in the case of EV subsidies) as a "tool" to "seriously address the global climate crisis, cutting the pollution that drives climate change and environmental injustice while pursuing major new investments in clean energy technology."¹³¹ The remainder of this section examines the relevant WTO subsidy provisions to facilitate an examination of the WTO compatibility of the subsidies.

2. Prohibited Subsidies

Under the SCM Agreement (which provides the most detailed rules for the regulation of trade-related subsidies), the following two types of subsidies are "prohibited" (i.e., WTO Members may not grant or maintain these subsidies): subsidies contingent upon export performance ("export subsidies") and subsidies contingent upon the use of domestic over imported goods ("import substitution subsidies").¹³² Article 3 of the SCM Agreement affirms this in the

128. SCM Agreement, *supra* note 16.

^{125.} SALVATORE, supra note 123, at 281–86. See also Anabel González, Trade Thoughts, from Geneva—Five reasons to fear a global subsidy race and what to do about it, WTO Blog (June 27, 2023),

https://www.wto.org/english/blogs_e/ddg_anabel_gonzalez_e/blog_ag_06oct22_e.ht m.

^{126.} General Agreement on Tariffs and Trade art. VI, Oct. 30, 1947, 55 U.N.T.S. 194 [hereinafter GATT].

^{127.} Id. art. XVI.

^{129.} See LEE, supra note 124 (discussing the WTO regulation of subsidies).

^{130.} See, e.g., IRA Request for Consultation by China, *supra* note 119. See also China Shows "Mirror," *supra* note 120 (presenting claims of violations).

^{131.} Second Written Submission of the United States, *United States—Certain Tax Credits under the Inflation Reduction Act, Communication from the United States*, WTO Doc. WT/DS623/2 (Apr. 8, 2024) [hereinafter IRA Communication from the United States].

^{132.} SCM Agreement, *supra* note 16, art. 3. Annex I of the SCM Agreement includes the illustrative list of prohibited export subsidies.

relevant part:

Except as provided in the Agreement on Agriculture, the following subsidies, within the meaning of Article 1, shall be prohibited: (a) subsidies contingent, in law or in fact, whether solely or as one of several other conditions, upon export performance, including those illustrated in Annex I5; (b) subsidies contingent, whether solely or as one of several other conditions, upon the use of domestic over imported goods (footnote omitted).¹³³

Export subsidies and import substitution subsidies are considered the most trade-distorting and, thus, have been prohibited altogether. 134

The WTO Appellate Body has clarified the criteria for prohibited subsidies: the grant of the prohibited subsidy must be "conditional" on or "dependent for its existence" on export performance or import substitution, which may be the sole condition governing the grant of a prohibited subsidy, or "one of several other conditions."¹³⁵ Thus, for example, a government payment made on proof of exportation would be export-contingent even though the payments under different conditions were also available.¹³⁶ These conditions may be implicit and "can also be derived by necessary implication from the words actually used in the measure."¹³⁷ A Member whose trade is affected by a prohibited subsidy may challenge it at the WTO for immediate withdrawal¹³⁸ or adopt a countervailing duty (CVD) subject to the requirements discussed below.

3. Actionable Subsidies

Under the SCM Agreement, a subsidy is "actionable" when the subsidy is specifically limited to an enterprise or group of enterprises, an industrial sector or group of industries, or a designated geographic

^{133.} SCM Agreement, *supra* note 16, art. 3.1.

^{134.} LEE, supra note 124, at 92.

^{135.} Appellate Body Report, *United States—FSC* (Recourse to Article 21.5 of the DSU by European Communities), WTO Doc. WT/DS108/AB/RW ¶111 (January 14, 2002) [hereinafter Tax Treatment for "Foreign Sales Corporations"].

^{136.} Appellate Body Report, *United States—Subsidies on Upland Cotton*, WTO Doc. WT/DS267/AB/R ¶ 579 (Mar. 3, 2005).

^{137.} Appellate Body Report, *Canada—Certain Measures Affecting the Automotive Industry*, WTO Doc. WT/DS139/AB/R and WTO Doc. WT/DS142/AB/R ¶ 100 (May 31, 2000).

^{138.} SCM Agreement, supra note 16, art. 4.

region within the jurisdiction of the granting authority (specificity requirement) ¹³⁹ and the subsidy causes adverse effects to the interests of other Members. A Member whose trade is affected by an actionable subsidy may request consultations with the country applying the subsidy in question and, if a mutually agreed solution is not found, may resort to the WTO Dispute Settlement Body for adjudication. The WTO may authorize countermeasures (retaliation) if the subsidizing country does not withdraw the subsidy in question pursuant to its decision.¹⁴⁰

Adverse effects, an operative term that renders a subsidy actionable, includes injury to the domestic industry of the importing country, nullification or impairment of benefits of bound tariff rates, or serious prejudice to the interests of another Member.¹⁴¹ The existence of the cited injury may lead to the application of CVDs, which are additional tariffs imposed on imports to offset the effect of subsidies,¹⁴² are applicable as a remedy to the affected exporting country where a subsidy "cause[s] or threaten[s] material injury to an established domestic industry or ... materially retards the establishment of a domestic industry."143 The cited nullification or impairment may occur where the application of a subsidy may undermine a commitment to trade concessions made by an importing country. An example would be a case where an importing country commits to lowering tariffs on product X by 15 percent ad valorem and then grants domestic producers subsidies for an amount equivalent to 15 percent of the cost of producing X, which will undermine the benefit of the importing country's tariff commitment (as the subsidized domestic producers can undercut prices).144

https://institutdelors.eu/en/publications/les-subventions-au-coeur-de-la-guerrecommerciale-2/ [https://perma.cc/CB8Y-BWD4]. Fabry opined that industrial subsidies are a cause of the trade war between the United States and China and proposed a regulatory reform. *Id.*

144. An infringement of the obligations assumed under a covered agreement is also deemed prima facie constituting a case of nullification or impairment. Marrakesh Agreement Establishing the World Trade Organization, Understanding on Rules and

^{139.} Id. art. 2.

^{140.} Id. art. 7.

^{141.} Id. art. 5.

^{142.} Part V of the SCM Agreement (Articles 10–23) provides for substantive and procedural rules for the application of CVDs. *See* SCM Agreement, *supra* note 16, arts. 10–23.

^{143.} GATT, *supra* note 126, art. VI, ¶¶ 5–6. A commentator described a difficulty associated with obtaining the authorization for CVDs: "[n]ot only does the complainant bear the burden of proof to show the injury that has been suffered, but [un]transparent government funding in some countries complicates this task even further and discourages complaints from being lodged in the first place." Elvire Fabry, *Industrial Subsidies Are at the Heart of the Trade War* (Jan. 27, 2020),

2025]

As for serious prejudice, Article 6 of the SCM Agreement lists cases in which serious prejudice to the domestic industry may be deemed to exist. Article 6.1 provides that the serious prejudice is deemed to exist in the case of:

(a) the total ad valorem subsidization of a product exceeding 5 percent; (b) subsidies to cover operating losses sustained by an industry; (c) subsidies to cover operating losses sustained by an enterprise, other than one time measures which are nonrecurrent and cannot be repeated for that enterprise and which are given merely to provide time for the development of long-term solutions and to avoid acute social problems; (d) direct forgiveness of debt, i.e., forgiveness of government-held debt, and grants to cover debt repayment.¹⁴⁵

This is not an exhaustive list but offers helpful guidance to determine the existence of serious prejudice that renders a subsidy actionable.

- B. COMPATIBILITY WITH THE SCM AGREEMENT
- 1. Semiconductor Subsidies

The semiconductor subsidies granted by the United States, China, and the EU are subject to the regulations of the SCM Agreement. Article 1.1 of the SCM Agreement provides that an industry is deemed to have received a subsidy where a benefit is conferred on the industry as a result of:

a financial contribution by a government or any public body within the territory of a Member . . . where: (i) a government practice involves a direct transfer of funds (e.g. grants, loans, and equity infusion), potential direct transfers of funds and liabilities (e.g. loan guarantees); (ii) government revenue that is otherwise due is forgone or not collected (e.g. fiscal incentives such as tax credits); (iii) a government provides goods or services other than general infrastructure, or purchases goods; (iv) a government makes payments to a

Procedures Governing the Settlement of Disputes, Annex 2, Apr. 15, 1994, 1869 U.N.T.S. 403, art. 3.8 [hereinafter DSU].

^{145.} SCM Agreement, *supra* note 16, art. 6.1.

funding mechanism, or entrusts or directs a private body to carry out one or more of the type of functions illustrated in (i) to (iii) above which would normally be vested in the government and the practice, in no real sense, differs from practices normally followed by governments.

The Article requires two distinct legal elements to exist for the determination of a subsidy: a financial contribution and a benefit.¹⁴⁶ To qualify as a subsidy, a financial contribution must be made "by a government or any public body," the latter of which covers those entities that possess, exercise, or are vested with government authority.¹⁴⁷ A benefit is deemed to exist where the recipient is put in a more advantageous position by reference to the market than would have been but for the financial contribution, regardless of whether there is any cost to the government.¹⁴⁸ Article 1.1 of the SCM Agreement illustrates four possible methods of financial contribution conferring a benefit, as cited above.

The advanced manufacturing investment credit granted under the CHIPS Act is a financial contribution made by a government (the U.S. Department of Treasury) conferring a benefit. The particular method is a tax credit, and a recipient may elect to treat this credit as a payment against the tax liability (including an overpayment of tax) or to receive an elective payment instead of claiming a credit if the recipient is an eligible entity (i.e., an eligible partnership or Scorporation).¹⁴⁹ Thus, this constitutes a benefit under Article 1.1, which is either "a direct transfer from the government of funds" (in case of the payment election) or "government foregoing the revenue that should otherwise have been collected" (where the tax credit is used to reduce the tax liability of the recipient).¹⁵⁰

China's CICIF is a government fund managed by a public entity.¹⁵¹ Therefore, a payout from this fund will qualify as a financial

^{146.} Panel Report, United States—Measures Treating Exports Restraints as Subsidies, ¶ 8.73, WTO Doc. WT/DS194/R (adopted June 29, 2001).

^{147.} Appellate Body Report, *United States—Definitive Anti-Dumping and Countervailing Duties on Certain Products from China*, ¶ 317, WTO Doc. WT/DS379/AB/R (adopted Mar. 11, 2011).

^{148.} Panel Report, *Canada—Measures Affecting the Export of Civilian Aircraft*, ¶ 9.112, WTO Doc. WT/DS70/R (adopted Apr. 14, 1999); Appellate Body Report, *Canada—Measures Affecting the Export of Civilian Aircraft*, ¶¶ 154, 157, WTO Doc. WT/DS70/AB/R (adopted Aug. 2, 1999).

^{149.} Advanced Manufacturing Investment Credit, 88 FED. REG. 17451 (proposed Mar. 23, 2023) (to be codified 26 C.F.R. pt. 1).

^{150.} SCM Agreement, *supra* note 16, art. 1.1(a)(1)(i)-(ii).

^{151.} See Liu, supra note 77 (reporting the composition of the Fund).

contribution conferring a benefit under Article 1.1 of the SCM Agreement. A study identifies China's additional government incentives for semiconductor manufacturers, including grants, reduced utility rates, favorable loans, tax breaks, and free or discounted land.¹⁵² Grants and favorable loans qualify for a direct transfer from the government of funds under Article 1.1.¹⁵³ Tax breaks are the government foregoing the revenue that should otherwise have been collected, another example of subsidy under Article 1.1.¹⁵⁴ Free or discounted land is the government providing goods or services other than general infrastructure.¹⁵⁵ Thus, all of these incentives qualify as subsidies under Article 1.1. The "investment" stipulated under the European Chips Act¹⁵⁶ will also qualify as a subsidy under Article 1.1 to the extent that it transfers public funds to the recipients.¹⁵⁷

The semiconductor subsidies are also specifically limited to "an industrial sector or group of industries" under Article 2 of the SCM Agreement.¹⁵⁸ Under the CHIPS Act, the investment qualified for the advanced manufacturing investment credit ("qualified investment") is with respect to an "advanced manufacturing facility," which means "a facility for which the primary purpose is the manufacturing of *semiconductors or semiconductor manufacturing equipment*" (emphasis added).¹⁵⁹ It is also clear that the recipients of subsidies from the CICIF and under the European Chips Act are limited to the semiconductor industry.¹⁶⁰ The specific criteria and conditions for qualifying for such subsidies are specified in laws, regulations, and other official documents (e.g., the CHIPS Act, the official documents concerning CICIF, and the European Chips Act), so as to be capable of verification.¹⁶¹

As discussed above, the semiconductor subsidies are subject to regulation by the SCM Agreement. The subsidies are also specifically limited to the semiconductor manufacturers. Thus, the semiconductor

^{152.} SEMICONDUCTOR INDUS. ASSOC., *SIA Whitepaper: Taking Stock of China's Semiconductor Industry* (July 2021), https://www.semiconductors.org/wp-content/uploads/2021/07/Taking-Stock-of-China%E2%80%99s-Semiconductor-Industry_final.pdf [https://perma.cc/7452-K62G].

^{153.} SCM Agreement, *supra* note 16, art. 1.1(a)(1)(i).

^{154.} *Id.*, art. 1.1(a)(1)(ii).

^{155.} *Id.*, art. 1.1(a)(1)(iii).

^{156.} European Chips Act, *supra* note 103, arts. 5, 19.

^{157.} See discussion supra Section I.C.

^{158.} SCM Agreement, *supra* note 16, art. 2.

^{159.} Advanced Manufacturing Investment Credit, 26 U.S.C. §48D(b)(3).

^{160.} See discussion supra Sections I.B and I.C.

^{161.} SCM Agreement, *supra* note 16, art. 2(1)(b).

subsidies will be "actionable" if the subsidies cause adverse effects to the interests of other Members.¹⁶² The semiconductor subsidies are likely to cause such adverse effects. As for the injury to the domestic industry of another Member, 163 the tens of billions of subsidies granted under the CHIPS Act have led global semiconductor manufacturers, such as Samsung and TSMC, to announce large amounts of investments (\$37 billion and \$65 billion, respectively) to build semiconductor manufacturing facilities in the United States, which, without these subsidies, would unlikely proceed due to the substantially higher production costs (i.e., up to 40 percent higher) in the United States.¹⁶⁴ Thus, the semiconductor subsidies in the United States will arbitrarily reduce the semiconductor manufacturing cost, likely causing injury to the semiconductor manufacturers in other countries by impeding their exports into the United States and a third market (where they may have to compete against subsidized imports from the United States).¹⁶⁵

As for serious prejudice to the interests of another Member, Article 6 of the SCM Agreement provides that serious prejudice shall be deemed to exist in the case of the total *ad valorem* subsidization of a product exceeding 5 percent.¹⁶⁶ Annex IV of the SCM Agreement also clarifies that in determining whether the overall rate of subsidization exceeds 5 percent of the value of the product, the value of the product shall be calculated as the total value of the recipient firm's sales in the most recent 12-month period, for which sales data is available, preceding the period in which the subsidy is granted.¹⁶⁷ It would be difficult to estimate with any accuracy the expected sales of the semiconductor manufacturers receiving subsidies once their manufacturing facilities are completed, but this 5 percent mark may well have been exceeded due to the unprecedented amounts of subsidies (e.g., \$7.9 billion to Intel, \$6.6 billion to TSMC, and \$4.7 billion to Samsung).¹⁶⁸

The preceding analysis could also be applied to the semiconductor subsidies under China's funding programs and the European Chips Act, which have authorized \$143 billion and \$46

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^{162.} Id. art. 5.

^{163.} Id. art. 5(a).

^{164.} *See* Thomas, *supra* note 65 (reporting the substantially higher semiconductor manufacturing cost in the United States).

^{165.} *See* China Shows "Mirror," *supra* note 120 (introducing China's concern on the impact of subsidized imports in a third market).

^{166.} SCM Agreement, *supra* note 16, art. 6(a).

^{167.} SCM Agreement, *supra* note 16, Annex IV ¶ 2.

^{168.} *See supra* notes 1, 2 and accompanying text (reporting subsidies allotted to the leading semiconductor manufacturers).

billion, respectively, for their semiconductor subsidies. ¹⁶⁹ In all likelihood, the semiconductor subsidies will be actionable under WTO law. However, as of April 2025, no challenge has been brought against any of these actionable semiconductor subsidies to the WTO. A likely reason is that all of the global semiconductor manufacturing countries adopt similar types of actionable subsidies, and they have an interest in refraining from challenging actionable subsidies from other countries, which may drive them to inadvertently challenge their own actionable semiconductor subsidies. As a result, a subsidy race has proceeded (e.g., the CHIPS Act, the CICIF, and the European Chips Act), and there is a substantial risk that this race will lead to economic inefficiency and waste on a global scale, causing one subsidy cancelling out another.

There is a question of whether the semiconductor subsidies are also prohibited export or import substitution subsidies under Article 3 of the SCM Agreement. The primary purpose of the semiconductor subsidies is to meet their domestic needs and reduce dependence on overseas semiconductor supply.¹⁷⁰ As a result, most of the subsidies are not contingent upon export or import substitution (as they are directed to semiconductor manufacturers rather than consumers). However, the Chinese semiconductor funding announced in 2022¹⁷¹ may have an element of an import substitution subsidy: the scheme reportedly requires that the recipients of funds purchase semiconductor equipment made by Chinese firms.¹⁷² If this is the case, the subsidy is contingent upon the use of domestic goods and will fall in the category of a prohibited import-substitution subsidy under Article 3 of the SCM Agreement.¹⁷³

2. Electric Vehicle Subsidies

Some EV subsidies, such as the CVC, benefit the purchasers of EVs. The direct recipient of a benefit need not be the producer. In a WTO dispute case, *Brazil—Export Financing Programme for Aircraft* (*Brazil—Aircraft*), the panel found a prima case of a subsidy, where the payment was made in support of export credits extended to the purchasers of the product to the extent that it benefits the producer indirectly by lowering the cost of the product to the purchasers.¹⁷⁴ It

^{169.} See Sections I.A, I.B.

^{170.} See, e.g., 2021 White House Report, supra note 9, at 8.

^{171.} See Zhu, supra note 85 (explaining China's semiconductor funding program).

^{172.} Id.

^{173.} SCM Agreement, *supra* note 16, art. 3.1(b).

^{174.} Panel Report, Brazil-Export Financing Programme for Aircraft, WTO Doc.

is obvious that the CVC, as in *Brazil—Aircraft* case, would benefit the producer indirectly by offering a tax credit to the purchasers of EVs. Thus, the CVC and other CVC-type consumer credit will qualify as a subsidy under Article 1.1 of the SCM Agreement. Direct payouts or tax breaks to the EV producers would also qualify for a subsidy under Article 1.1, as explained above in the case of semiconductor subsidies.¹⁷⁵

The EV subsidies are also specifically limited to the purchasers and manufacturers of EVs, a specific segment of the automobile industry; thus, the subsidies are "specific" under Article 2 of the SCM Agreement.¹⁷⁶ As for the adverse effects under Article 5, the CVC which requires (i) a certain value of critical minerals for EV batteries to be extracted or processed in the United States or any of its FTA partners or recycled in North America, (ii) a certain value of the manufacturing or assembly of the EV batteries to be completed in North America,177 and (iii) the final assembly of the EV to occur in North America¹⁷⁸—is likely to cause injury to the domestic industry of another country that does not meet these requirements. It is because the purchasers of EVs that do not meet the requirements would not be eligible to receive the CVC. The CVC may also cause "nullification or impairment of benefits of bound tariff rates"179 under Article 5 because the tariff concession commitment, which should favor the exporters, would be undermined with this consumer credit, which has an effect of reducing domestically-produced EV prices. Subsidies directly benefitting EV manufacturers, such as China's NEV Mandate offering tax credits, may also cause injury to the domestic EV industry of another country that does not receive these credits.

The EV subsidies, just as the semiconductor subsidies, are likely actionable under the SCM Agreement. In contrast to the semiconductor subsidies, EV subsidies are facing a challenge at the WTO: China has challenged the CVC and invoked Articles 3.1(b) and 3.2 of the SCM Agreement, inter alia,¹⁸⁰ because, in its argument, the

180. In addition to Articles of 3.1(b) and 3.2 of the SCM Agreement, China has invoked other provisions of WTO law claiming additional rule violations by the United

WT/DS46/RW/2 (adopted July 26, 2001).

^{175.} SCM Agreement, *supra* note 16, art. 1.1.

^{176.} Article 8 of the SCM, which expired at the end of 1999, authorized national authorities to adopt subsidies for certain environmental purposes ("assistance to promote adaptation of existing facilities to new environmental requirements imposed by law and/or regulations which result in greater constraints and financial burden on firms"). *Id.* art. 8.2(c).

^{177.} See supra Section I.A.

^{178. 26} U.S.C. § 30D(d)(1)(G).

^{179.} SCM Agreement, *supra* note 16, art. 5.

CVC "is a subsidy contingent, whether solely or as one of several other conditions, upon the use of domestic goods over imported goods."¹⁸¹ The CVC is, in all likelihood, an actionable subsidy under the SCM Agreement, but is it also a prohibited subsidy under Article 3 of the SCM Agreement?

The answer is contingent on whether the critical mineral and assembly restrictions for the CVC would render it, as argued by China, *contingent, whether solely or as one of several other conditions, upon the use of domestic over import goods.* The restrictions for the CVC are three-fold: (1) for a part of the credit, a certain percentage value of the applicable critical minerals in the EV battery must be extracted or processed in the United States or any of its FTA partners or recycled in North America; (2) for another part of the credit, a certain percentage value of the components contained in the battery must be manufactured or assembled in North America; and (3) the final assembly of the EV must occur within the United States.¹⁸² In other words, the terms of the CVC restriction require the use of domestic products *or* imports from certain other countries in North America (e.g., Canada and Mexico) or other FTA partner countries.

There are two possible interpretations of the clause under Article 3.2(b). One is a literal interpretation; that the provision prohibits a subsidy contingent upon "the use of domestic over imported goods," not "the use of domestic or imported goods from certain specified countries over imported goods from other countries." Thus, the conditions under Article 3.2(b) are not met, and the CVC is not a prohibited subsidy. Advocates of this view might find support from the Vienna Convention on the Law of Treaties ("Vienna Convention") which requires that "[a] treaty shall be interpreted in good faith *in accordance with the ordinary meaning to be given to the terms of the treaty* in their context and in the light of its object and purpose" (emphasis added).¹⁸³ In the ordinary meaning to be given, "the use of domestic over imported goods from certain specified countries ov

183. Vienna Convention on the Law of Treaties, art. 31, May 23, 1969, 1155 U.N.T.S. 331.

States, such as GATT Article 11.1 (claiming a violation of the most-favored-nation principle), Article III.4 (claiming a violation of national treatment), and Articles 2.1 and 2.2 of the Agreement on Trade-Related Investment Measures (claiming that the CVD is a trade-related investment measure inconsistent with WTO law and that the CVD imposes the prohibited local content requirement, respectively). IRA Request for Consultation by China, *supra* note 119.

^{181.} Id.

^{182.} See supra Section I.A.

Another possible, and perhaps more contextual, interpretation is that the framers of the SCM Agreement could not have permitted a subsidy that is not only contingent upon the use of domestic goods, but also upon the use of domestic goods or imports from a few other specified countries. This interpretation would not cause discrimination among imports according to their origin and would be consistent with the most-favored-nation principle under GATT Article I.¹⁸⁴ It is difficult to imagine that the framers would have allowed such discriminatory treatment in the application of otherwise actionable subsidies, even if these other specified countries were the importing country's FTA partners.

The Appellate Body decision in *United States—FSC* could also be referenced to support the position that the CVC is a prohibited import substitution subsidy. According to the decision, import substitution may be the sole condition governing the grant of a prohibited subsidy or "one of several other conditions."¹⁸⁵ As discussed above, the CVC requires, at least arguably, the use of the domestic product (import substitution) as *one* of the conditions, and *other conditions* may include the use of goods imported from other countries in North America or FTA partners of the United States. This position will be in line with the contextual interpretation, which stands to reason, as the complainant (China) has contended.¹⁸⁶

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^{184.} GATT Article I.1 provides the relevant part: "With respect to customs duties and charges of any kind imposed on or in connection with importation or exportation or imposed on the international transfer of payments for imports or exports, and with respect to the method of levying such duties and charges, and with respect to all rules and formalities in connection with importation and exportation, and with respect to all matters referred to in paragraphs 2 and 4 of Article III, any advantage, favour, privilege or immunity granted by any contracting party to any product originating in or destined for any other country shall be accorded immediately and unconditionally to the like product originating in or destined for the territories of all other contracting parties."

^{185.} Tax Treatment for "Foreign Sales Corporations," *supra* note 135, ¶ 91.

^{186.} IRA Request for Consultation by China, *supra* note 119, at 4. GATT Article XX(b) also authorizes measures "necessary to protect human, animal or plant life or health," notwithstanding other provisions in the GATT. This provision could be interpreted as authorizing measures necessary to protect the environment, but the mainstream view is that the obligations under the SCM Agreement are not subject to a defense under Article XX. *See* Gary N. Horlick, *The WTO and climate change 'incentives', in* INTERNATIONAL TRADE AND THE MITIGATION OF CLIMATE CHANGE 194 (Thomas Cottier et al. eds., 2009). *See also* Bradly J. Condon, *Climate Change and Unresolved Issues in WTO Law,* 12 J. INT'L ECON. L. 895, 926 (2009).

III.ARGUMENTS FOR SECURITY INTERESTS

A. SECURING SUPPLY CHAINS

1. Semiconductor Shortage in the United States

The U.S. industrial policy to promote the semiconductor industry has been justified, at least in part, by the substantial economic problems caused by the shortage of semiconductors during the COVID-19 pandemic.¹⁸⁷ In the midst of the pandemic, automakers warned that semiconductors used in automobiles were increasingly unavailable and that this shortage was expected to disrupt vehicle production.¹⁸⁸ In the second quarter of 2020, the industry adopted a six-week shut down to mitigate the spread of the pandemic at vehicle manufacturing facilities. This shutdown halted the vehicle production line, and auto parts suppliers were compelled to cancel orders for chips as a result.¹⁸⁹

The pandemic was expected to cause a decline in vehicle demand, and, as a result, semiconductor suppliers shifted production and foundry orders away from automotive-grade chips.¹⁹⁰ The lockdowns and the economic downturn indeed reduced demand for automobiles, and automobile sales were reduced by nearly 50 percent in the early months of the pandemic.¹⁹¹ However, vehicle demand rebounded earlier than anticipated, but a part of the production capacities for automotive chips remained committed to other uses.¹⁹² As a result, the suppliers were not ready to resupply chips for the automobile industry.¹⁹³ During the pandemic, lockdowns also occurred elsewhere

191. Ondrej Burkacky et al., *Coping with the Auto-semiconductor Shortage: Strategies for Success*, MCKINSEY & CO. (May 27, 2021),

https://www.mckinsey.com/industries/automotive-and-assembly/our-

insights/coping-with-the-auto-semiconductor-shortage-strategies-for-success [https://perma.cc/PMC5-59NW].

193. The 2021 White House Report accounts the difficulty: "When auto parts suppliers returned to place orders for chips to meet the unanticipated surge in vehicle demand, semiconductor manufacturers had reportedly already utilized spare capacity to produce chips for electronics devices. Because manufacturing a chip can take up to 26 weeks, and sometimes much longer when supply is tight, production volumes are usually confirmed six months in advance, and it can take months to switch a production line from one type of chip to another. A further complication for the

^{187.} See also Lee, National Security as A Means to A Commercial End, supra note 25, at 6–8.

^{188. 2021} White House Report, *supra* note 9, at 25.

^{189.} Id. at 25.

^{190.} Id.

^{192. 2021} White House Report, *supra* note 9, at 25.

in the world, including Asia, where a majority of semiconductor chips are produced, and the production interruptions in Asia aggravated the shortage.¹⁹⁴

In addition to the production issue caused by the pandemic, the structural problems in the industry also contributed to the shortage: the semiconductor industry lacked the long-term capacity to meet the increasing demand. According to a report, the United States possessed approximately 12 percent of the world's global chip manufacturing capacity as of 2021, which was a substantially lower percentage of global production capacity than it previously had (37 percent in 1990).¹⁹⁵ Another study reported that the semiconductor sector was already working at 88 percent of its production capacity in 2020.¹⁹⁶ In addition, the industry's tendency to plan only in the short term was a contributing factor. The industry's "just-in-time manufacturing" practice, which was designed to minimize the inventory, might be useful in reducing the associated cost, but the practice does not allow for maintaining supplies at an adequate level when production is disrupted.¹⁹⁷

The cost of the semiconductor shortage was significant to the automobile industry, amounting to approximately \$110 billion in 2021.¹⁹⁸ The industry produced nearly four million fewer vehicles than had been previously forecasted. ¹⁹⁹ The damage was not contained to the automobile industry but also spread to a number of other industries—as many as 169²⁰⁰—creating significant economic difficulties across the board. Uncertainty created by the COVID-19

automotive industry is that automotive grade chips can only be produced by qualified producers and they require extensive testing to meet rigorous quality and vehicle safety requirements. These requirements are burdensome—both in time and cost—to the semiconductor producers, particularly when compared to the less stringent requirements for the relatively higher-margin chips for consumer good applications." *Id.* at 26 (footnote omitted).

^{194.} Burkacky et al., *supra* note 191. Additionally, a series of accidents have also disrupted the production of semiconductors. For example, a fire at a Japanese semiconductor plant that accounts for 30 percent of the market for microcontrollers used in automobiles, a severe drought in Taiwan that strained semiconductor production requiring large amounts of water, and storms in Texas that caused loss of utilities to two major semiconductor manufacturing plants have also aggravated the shortage. 2021 White House Report, *supra* note 9, at 26.

^{195.} WORLD POPULATION REVIEW, *Semiconductor Manufacturing by Country 2024*, https://worldpopulationreview.com/country-rankings/semiconductor-manufacturing-by-country [https://perma.cc/YY2J-FNR3].

^{196.} Burkacky et al., *supra* note 191.

^{197.} Id.

^{198.} Id.

^{199.} Id.

^{200.} Id.

pandemic was the direct cause of this crisis, but the fragile and underprepared semiconductor manufacturing sector also contributed to the problem, generating substantial political pressure to seek ways to secure semiconductor supply as a matter of its economic security. The U.S. government has decided to respond to public concern by facilitating semiconductor production in the United States.²⁰¹

2. Confrontations between the United States and China

Commentators have observed that the trade war between the United States and China also contributed to the semiconductor shortage. ²⁰² Political and economic tensions between the two countries have continued for decades: the United States had supported China's economic development to secure China's cooperation in its effort to check the Soviet Union during the Cold War. ²⁰³ However, the Cold War ended in the 1990s, and China's rapidly growing economic and industrial capacities in the subsequent decades have strengthened its military capability and strategic resources to the extent that the United States began to perceive them to be serious challengers to its global economic and military positions as well as its own security.²⁰⁴ The United States has elected to respond by suppressing, *inter alia*, China's expansion in trade, which has been well demonstrated by the recent trade war.

In July 2018, the United States imposed 25 percent tariffs *ad valorem* on \$34 billion worth of imports from China, covering 818 tariff subheadings. ²⁰⁵ In the following month, the United States

^{201. 2021} White House Report, *supra* note 9.

^{202.} See, e.g., Kim Lyons, US Tightens Trade Restrictions on Chinese Chipmaker SMIC, THE VERGE (Sept. 26, 2020),

https://www.theverge.com/2020/9/26/21457350/us-tightens-trade-restrictionschina-chipmaker-smic; *See also* Yong-Shik Lee, *International Trade Law Post Neoliberalism*, 68 BUFFALO L. REV. 413, 454–57 (2020).

^{203.} See, e.g., CENTER FOR STRATEGIC AND INTERNATIONAL STUDIES, A Speech by Assistant Secretary of State for East Asian and Pacific Affairs David R. Stilwell (Dec. 13, 2019), https://www.csis.org/analysis/speech-assistant-secretary-state-east-asian-and-pacific-affairs-david-r-stilwell [https://perma.cc/7F89-B3CD]; See also YONG-SHIK LEE, SUSTAINABLE PEACE IN NORTHEAST ASIA 123 (2023) (citing U.S. assistance with China's economic development).

^{204.} See ASIAN GEOPOLITICS AND THE US-CHINA RIVALRY, supra note 18.

^{205.} Office of the United States Trade Representative (USTR), Notice of Action and Request for Public Comment Concerning Proposed Determination of Action Pursuant to Section 301: China's Acts, Policies, and Practices Related to Technology Transfer, Intellectual Property, and Innovation,

⁸³ FED. REG. 28, 710 (June 20, 2018),

https://www.federalregister.gov/documents/2018/06/20/2018-13248/notice-of-

expanded the tariff imposition to \$16 billion, covering 279 tariff subheadings.²⁰⁶ Under sections 301(b) and 304(a) of the Trade Act,²⁰⁷ the Office of the United States Trade Representative (USTR) made the following determination: (i) China uses foreign ownership restrictions, such as joint venture requirements and foreign equity limitations, and various administrative review and licensing processes, to require or pressure technology transfer from U.S. companies; (ii) China's regime of technology regulation forces U.S. companies seeking to license technologies to Chinese entities to do so on non-market-based terms that favor Chinese recipients; (iii) China directs and unfairly facilitates the systematic investment in and acquisition of U.S. companies and assets by Chinese companies to obtain cutting-edge technologies and intellectual property and generate the transfer of technology to Chinese companies: and. (iv) China conducts and supports unauthorized intrusions into, and theft from, the computer networks of U.S. companies to access their sensitive commercial information and trade secrets.²⁰⁸

The United States cited China's objectionable intellectual property rights (IPRs) practice and its industrial policy, such as "Made in China 2025" to support its dominance in strategic industries, as a cause of the U.S. action.²⁰⁹ The United States had raised concerns about China's IPR issues repeatedly, but according to the United States, China had been unwilling to offer effective adjustments to its unfair

action-and-request-for-public-comment-concerning-proposed-determination-ofaction-pursuant [https://perma.cc/R56Z-ZHCX].

^{206.} USTR, Notice of Action Pursuant to Section 301: China's Acts, Policies, and Practices Related to Technology Transfer, Intellectual Property, and Innovation, 83 FED. REG. 40823 (Aug. 16, 2018),

https://www.federalregister.gov/documents/2018/08/16/2018-17709/notice-of-action-pursuant-to-section-301-chinas-acts-policies-and-practices-related-to-technology [https://perma.cc/6BZ3-HTN4].

^{207.} The Trade Act of 1974, §§ 301(b), § 304(a), *amended by* 19 U.S.C. §§ 2411(b), 2414(a).

^{208.} USTR, Notice of Determination and Request for Public Comment Concerning Proposed Determination of Action Pursuant to Section 301: China's Acts, Policies, and Practices Related to Technology Transfer, Intellectual Property, and Innovation, 83 FED. REG. 14906, 14907 (Apr. 16, 2018) [hereinafter Notice of Determination and Request for Public Comment],

https://www.federalregister.gov/documents/2018/04/06/2018-07119/notice-of-determination-and-request-for-public-comment-concerning-proposed-determination-of-action [https://perma.cc/2MUR-NXXC].

^{209.} A USTR report states that trade analysts from several U.S. government agencies identified products that benefit from Chinese industrial policies, including Made in China 2025, indicating that the U.S. measures were, at least in part, motivated to check against China' industrial drive. Notice of Determination and Request for Public Comment, *supra* note 208, at 14907.

practices.²¹⁰ China did not accept the U.S. argument and responded to the U.S. tariffs by imposing approximately \$50 billion of its own tariffs on imports from the United States.²¹¹ The United States escalated the situation by imposing additional tariffs on the \$200 billion worth of imports from China, unprecedented in terms of scale, covering 5,745 full and partial tariff subheadings at 10 percent *ad valorem*, to be increased to 25 percent *ad valorem* on January 1, 2019.²¹²

Talks between the two countries proceeded, but the dispute still went to the WTO. In April 2018, China filed a complaint with the WTO Dispute Settlement Body on the U.S. tariffs.²¹³ China argued that the U.S. tariffs breached the provisions of GATT Article I:1 by imposing additional duties applicable only to products originating from China and GATT Articles II:1(a) and (b), which prohibit imposing tariffs beyond the Members' scheduled commitment to the maximum bidding rates, by imposing additional tariffs in excess of them.²¹⁴ GATT Article I.1, as discussed above, prohibits discriminatory treatment of imports according to their origins.²¹⁵ GATT Article II.1 requires Members to observe the maximum tariff rates (the maximum binding rates) that they have committed by stipulations in their Schedules of Concessions.²¹⁶

The United States responded that both countries had reached a "mutually satisfactory solution" in accordance with Article 12.7 of the Dispute Settlement Understanding (DSU),²¹⁷ but the WTO dispute settlement panel ("panel") rejected this claim on a procedural

https://www.federalregister.gov/documents/2019/03/05/2019-03935/notice-ofmodification-of-section-301-action-chinas-acts-policies-and-practices-related-to [https://perma.cc/6K2N-8XZJ].

^{210.} USTR, Notice of Modification of Section 301 Action: China's Acts, Policies, and Practices Related to Technology Transfer, Intellectual Property, and Innovation, 83 FED. REG. 47974, 47975 (Sep. 21, 2018),

https://www.federalregister.gov/documents/2018/09/21/2018-20610/notice-ofmodification-of-section-301-action-chinas-acts-policies-and-practices-related-to [https://perma.cc/MQQ6-RZ4Q].

^{211.} Id. at 47974.

^{212.} *Id.* Talks ensued between the two countries, and the scheduled tariff hikes were suspended. USTR, Notice of Modification of Section 301 Action: China's Acts, Policies, and Practices Related to Technology Transfer, Intellectual Property, and Innovation, 83 FED. REG. 7966 (Mar. 5, 2019),

^{213.} Request for Consultations by China, *United States—Tariff Measures on Certain Goods from China*, WTO Doc. WT/DS543/1 (Apr. 5, 2018).

^{214.} Report of the Panel, *United States—Tariff Measures on Certain Goods from China*, WTO Doc. WT/DS543/R ¶ 3.1 (Sep. 15, 2020) [hereinafter Tariff Measures on Certain Goods from China].

^{215.} *See supra* note 184 (introducing the provisions of GATT Article I.1).

^{216.} GATT, art. II.1.

^{217.} Tariff Measures on Certain Goods from China, *supra* note 214, ¶ 3.3.

point.²¹⁸ The United States also made a substantive argument that its tariffs are justified under GATT Article XX(a), which authorizes Members to adopt trade measures that will be necessary to "protect public morals." ²¹⁹ The panel also rejected this argument, finding that the United States failed to adequately demonstrate that its chosen measures contribute to the achievement of its asserted public morals objective.²²⁰ Curiously, the United States did not invoke a violation of the WTO Agreement on Trade-Related Intellectual Property Rights (TRIPS Agreement) or GATT Article XX(d) authorizing trade measures to protect IPRs while it contended that its tariffs were necessitated by China's objectionable IPR practices.²²¹

The United States appealed the panel decision to the WTO Appellate Body,²²² and has not lifted its tariffs against China, despite the panel finding that it's tariffs are inconsistent with WTO law.²²³ The continuing trade dispute between the United States and China has put the United States in a precarious position to rely on the supply of strategically important products, such as semiconductors, from China.²²⁴ The intensifying military tension in the Southeast China Sea and China's threat of invading and occupying Taiwan,²²⁵ which is the world's leading semiconductor manufacturer, creates a security risk, from which the U.S. government finds the justification to promote the domestic semiconductor industry and increase semiconductor manufacturing on U.S. soil, to avoid the geopolitical risk involved in the reliance on the supply from overseas. The U.S. experience in the shortage of semiconductors during the COVID-19 pandemic has heightened the awareness of the security risk created by this reliance.

^{218.} Id. ¶ 7.22.

^{219.} Id. ¶ 3.3

^{220.} Id. ¶ 7.238.

^{221.} Notice of Determination and Request for Public Comment, *supra* note 208, at 14907.

^{222.} See discussion infra Section VI.A.

^{223.} Tariff Measures on Certain Goods from China, *supra* note 214, ¶ 8.4.

^{224.} In a different context, China restrained the exportation of rare earth materials, including tungsten and molybdenum, which are essential components for various electronic products. *See* Ruth Jebe et al., *China's Export Restrictions on Raw Materials and Rare Earths: A New Balance between Free Trade and Environmental Protection?*, 44 GEO. WASH. INT'L L. REV. 579 (2012).

^{225.} Christopher Bodeen, *China Reaffirms Its Military Threats Against Taiwan Weeks Before the Island's Presidential Election*, AP (Dec. 28, 2023), https://apnews.com/article/china-taiwan-elections-military-threats-ea68fa11a0b172c31162c0ff128cabf7 [https://perma.cc/U3HZ-VWEL].

1. Protecting Essential National Security under Article XXI

The 2021 White House Report reiterated the importance of semiconductors to national security. The Report emphasized:

[S]emiconductors are essential to national security. Semiconductors enable the development and fielding of advanced weapons systems and control the operation of the nation's critical infrastructure. They are fundamental to the operation of virtually every military system, including communications and navigations systems and complex weapons systems such as those found in the F-35 Joint Strike Fighter.²²⁶

As discussed above, the semiconductor and EV subsidies are likely actionable and possibly prohibited under the SCM Agreement.²²⁷ China has challenged the CVC at the WTO, citing, *inter alia*, violations of Articles 3.1(b) and 4.2 of the SCM Agreement.²²⁸ In its response, the United States did not explicitly defend its subsidies with a claim that they are necessary to protect national security but alluded to its possibility.²²⁹ The United States invoked national security, *albeit* unsuccessfully, to defend its tariffs in a previous trade dispute case.²³⁰ Considering its repeated emphasis on the importance of its subsidies for national security,²³¹ the United States may well invoke national security again in defense of its EV subsidies (the CVC) and semiconductor subsidies at the WTO dispute settlement procedure in the case of a dispute.

GATT Article XXI allows Members to adopt measures that may otherwise be inconsistent with WTO law to protect "essential national security." The Article stipulates:

^{226. 2021} White House Report, *supra* note 9, at 25.

^{227.} See discussion supra Section II.B.

^{228.} IRA Request for Consultation by China, *supra* note 119.

^{229.} IRA Communication from the United States, *supra* note 131. The United States stated in relevant part "Without prejudice to ... whether *the consultations request raises issues of national security* not susceptible to review or capable of resolution by WTO dispute settlement, the United States accepts the request of China to enter into consultations." *Id.*

^{230.} *See* discussion *infra* Subsection 2.

^{231. 2021} White House Report, supra note 9.

Nothing in this Agreement shall be construed

(a) to require any contracting party to furnish any information the disclosure of which it considers contrary to its essential security interests; or

(b) to prevent any contracting party from taking any action which it considers necessary for the protection of its essential security interests

(i) relating to fissionable materials or the materials from which they are derived;

(ii) relating to the traffic in arms, ammunition and implements of war and to such traffic in other goods and materials as is carried on directly or indirectly for the purpose of supplying a military establishment;

(iii) taken in time of war or other emergency in international relations: or

(c) to prevent any contracting party from taking any action in pursuance of its obligations under the United Nations Charter for the maintenance of international peace and security.²³²

It is easily conceivable that there are circumstances in which the trade-facilitating rules of WTO disciplines should be set aside for the protection of national security, such as "a war-time trade restriction imposed on materials that are used to build weapons, trade control of fissionable material that could be made into dangerous nuclear devices, and trade sanctions adopted according to a United Nations resolution" to protect international security.²³³ It is questionable, though, that the provisions of Article XXI could be applied to justify government measures that include the adoption of subsidies that are inconsistent with WTO to promote particular industries with terms that mandate the exclusion of investment in, or materials from, a group of particular countries as a condition to receive the subsidies.²³⁴ The outcome of the recent WTO dispute case involving the U.S. tariffs on steel and aluminum products, which is discussed in the next

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^{232.} GATT, art. XXI.

^{233.} Yong-Shik Lee, Three Wrongs Do Not Make A Right: The Conundrum of the U.S. Steel and Aluminum Tariffs, 18 WORLD TRADE Rev. 481, 485 (2019).

^{234.} See discussion in Section II.A.

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subsection, suggests that there is a limited chance for success invoking national security to justify the protection of particular industries.

The United States has consistently argued that the national security claim under Article XXI is a self-judging matter that is unreviewable by the WTO, 235 but this argument does not have support in WTO jurisprudence.²³⁶ Members necessarily have some discretion to determine their own national security interests, but granting Members unfettered discretion in this matter, as the United States seems to suggest, would likely lead to abuse. Should the latter position be adopted, a Member would be able to justify any trade measure by claiming that it is necessary to protect its national security. This will undermine the multilateral trade disciplines under the WTO. Finding a proper balance between national autonomy and multilateral control on the applicability of Article XXI is delicate and challenging. For example, the provisions of Article XXI do not include precise definitions for key terms such as "essential security interest," 237 which raises interpretive issues.²³⁸

238. The drafter of Article XXI explained its rather broad wording as follows: We recognized that there was a great danger of having too wide an exception and we could not put it into the Charter, simply by saying: "by any Member of measures relating to a Member's security interests," because that would permit anything under the sun. Therefore we thought it well to draft provisions which would take care of really essential security interests and, at the same time, so far as we could, to limit the exceptions and to adopt that protection for maintaining industries under every conceivable circumstance [T]here must be some latitude here for security measures. It is really a question of balance. We have got to have some exceptions. We cannot make it too tight, because we cannot prohibit measures which are needed purely for security reasons. On the other hand, we cannot make it so broad that, under the guise of security, countries will put on measures which really have a commercial purpose.

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^{235.} See, e.g., Communication from the United States, United States-Certain Measures on Steel and Aluminium Products, WTO Doc. WT/DS548/13 (June 11, 2018) Ihereinafter U.S. Steel and Aluminum Products Communication from the United States].

^{236.} See, e.g., Report of the Panel, Russia—Measures Concerning Traffic in Transit, 7.53-.58, WTO Doc. WT/DS512/R (April 5, 2019) (finding that the panel has jurisdiction to review Article XXI matters).

^{237.} Scholars have pointed out ambiguity in the provision of Article XXI. particularly in its key terms, such as "essential" security interests and "emergencies in international relations." E.g., Wesley A. Cann, Jr., Creating Standards and Accountability for the Use of the WTO Security Exception: Reducing the Role of Power-Based Relations and Establishing a New Balance Between Sovereignty and Multilateralism, 26 YALE J. INT'L L. 413, 423 (2001); Peter Lindsay, Note, The Ambiguity of GATT Article XXI: Subtle Success or Rampant Failure? 52 DUKE L.J. 1277, 1278-79 (2003); see Michael J. Hahn, Vital Interests and the Law of GATT: An Analysis of GATT's Security Exception, 12 MICH. J. INT'L L. 558, 595 (1991) (offering further discussion of Article XXI).

2. Steel and Aluminum Tariffs

The outcome of the WTO dispute on U.S. tariffs on steel and aluminum products ("U.S. steel and aluminum tariffs") provides an indication as to whether the national security defense under Article XXI could be adopted to justify government measures to promote domestic industries. In March 2018, the United States imposed 25 percent and 10 percent increases in tariffs on all imported steel and iron products and all aluminum products, respectively.²³⁹ The U.S. steel and aluminum tariffs, which affected \$29 billion of steel trade and \$17 billion of aluminum trade, were unprecedented in terms of scale.

The United States adopted these broad tariffs on the grounds of national security: the DOC had investigated the national security effect of imports of steel and aluminum products under Section 232 of the Trade Expansion Act of 1962, which authorizes the government to adopt trade measures for the protection of national security.²⁴⁰ The DOC investigation reports emphasized that steel and aluminum are essential to U.S. national security (because the 2021 White House Report²⁴¹ underscores the importance of semiconductors for national security) and concluded that increased imports had weakened domestic industries producing these products.²⁴²

The reports determined that the measures to reduce imports of these steel and aluminum products were necessary to strengthen domestic steel and aluminum industries as they are essential to national security. They did not explain, however, why such a broad range of steel and aluminum products, including all entries of steel and aluminum products, was essential to national security.²⁴³ In fact, the U.S. Department of Defense (DOD) issued a statement that the "U.S. military requirements for steel and aluminum each only represent"

U.N. ESCOR, 2d Sess., 33d mtg. at 20–21, U.N. Doc. E/PC/T/A/PV/33 (July 24, 1947). This explanation suggests that the world "essential" was adopted in an effort to narrow the scope of "security interests" to be protected under the Article. The word "essential" is to mean real security interests as opposed to "anything under the sun." However, this distinction does not remove the element of subjectivity as to what constitutes "essential" security interests and the question of interpretation remains. *Id.*

^{239.} Proclamation No. 9705, 83 FED. REG. 11625 (Mar. 15, 2018); Proclamation No. 9704, 83 FED. REG. 11619 (Mar. 15, 2018).

^{240. 19} U.S.C. 1862.

^{241. 2021} White House Report, supra note 9, at 22-24.

^{242.} U.S. DEP'T OF COM., THE EFFECT OF IMPORTS OF STEEL ON THE NATIONAL SECURITY 2–5 (2018) [hereinafter *Steel Report*]; U.S. DEP'T OF COM., THE EFFECT OF IMPORTS OF ALUMINUM ON THE NATIONAL SECURITY 1–6 (2018) [hereinafter *Aluminum Report*].

^{243.} Id.

approximately 3 percent of U.S. production.²⁴⁴ Therefore, DOD did not believe that the findings in the reports impacted the ability of DOD programs to acquire the steel or aluminum necessary to meet national defense requirements.²⁴⁵

The controversial U.S. tariffs invited a shift in response and criticism from major steel and aluminum exporters around the world. This is in contrast to several contemporary semiconductor manufacturing countries engaging in a subsidy race rather than challenging the actionable, or possibly prohibited, semiconductor subsidies. Several WTO Members, including the EU, China, Japan, Mexico, Canada, India, Norway, Russia, Switzerland, and Turkey, filed complaints with the WTO and challenged the U.S. position that the steel and aluminum tariffs are necessary to protect national security concerns.²⁴⁶ The complaining Members concluded that the tariffs are a disguised trade protection that is inconsistent with the U.S. obligations under WTO disciplines, and are not measures adopted to protect essential national security under Article XXI.²⁴⁷

There is historical support for this view. The United States has adopted multiple trade measures, such as a number of antidumping measures,²⁴⁸ for decades in an effort to protect the declining domestic

247. See supra note 246.

248. See WTO, Anti-dumping Sectoral Distribution of Measures by Reporting Member 01/01/1995—30/06/2013,

https://www.wto.org/english/tratop_e/adp_e/AD_Sectoral_MeasuresByRepMem.pdf [https://perma.cc/6JKB-87U5].

^{244.} Memorandum from Secretary of Defense on Response to Steel and Aluminum Policy Recommendations to the Secretary of Commerce (Dec. 15, 2017).

^{245.} Id.

^{246.} E.a., Report of the Panel, United States—Certain Measures on Steel and Aluminium Products, WTO Doc. WT/DS550/R (July 11, 2019) (Canada); Request for Consultations by Turkey, United States-Certain Measures on Steel and Aluminium Products, WTO Doc. WT/DS564/1 (Aug. 8, 2018) (Turkey); Request for Consultations by the European Union, United States-Certain Measures on Steel and Aluminium Products, WTO Doc. WT/DS548/1 (June 6, 2018) (EU); Report of the Panel, United States-Certain Measures on Steel and Aluminium Products, WTO Doc. WT/DS547/R (Aug. 8, 2023) (India); Report of the Panel, United States-Certain Measures on Steel and Aluminium Products, WTO Doc. WT/DS551/R (July 11, 2019) (Mexico); Request to Join Consultations, United States—Certain Measures on Steel and Aluminium Products, WTO Doc. WT/DS551/2 (June 11, 2018) (Japan); Request for Consultations by Norway, United States—Certain Measures on Steel and Aluminium Products, WTO Doc. WT/DS552/1 (June 19, 2018) (Norway); Request for Consultations by the Russian Federation, United States-Certain Measures on Steel and Aluminium Products, WTO Doc. WT/DS554/1 (July 2, 2018) (Russia); Request for Consultations by Switzerland, United States—Certain Measures on Steel and Aluminium Products. WTO Doc. WT/DS556/1 (July 12, 2018) (Switzerland); Request for Consultations by China, United States-Certain Measures on Steel and Aluminium Products, WTO Doc. WT/DS544/1 (Apr. 9, 2018) (China).

steel and aluminum industries. Members did not find the national security argument that the United States raised to justify the steel and aluminum tariffs credible and perceived it as only another pretext for the protection of domestic industries for a commercial purpose.²⁴⁹ Several Members also adopted retaliatory measures against imports from the United States, implemented on various dates from April to December of 2018, including tariff increases from 5 percent to 50 percent on a wide range of agricultural, industrial, steel and aluminum products exported from the United States.²⁵⁰

In defense of the tariffs, the United States maintained its position that issues of national security are "political matters not susceptible to review or capable of resolution" by a third party and that every WTO Member "retains the authority to determine for itself those matters that it considers necessary to the protection of its essential security interests" under GATT Article XXI.²⁵¹ As discussed above, this U.S. position is untenable, as such blanket discretion would likely lead to abuse and undermine the balance sought by the drafters in the application of Article XXI national security exceptions.²⁵² Without proper multilateral scrutiny, it would indeed be simple to invoke national security to protect just about any major productsemiconductors, steel, automobiles, electronics, ships, chemicals, just to name a few—with a claim that the product in question, whatever that might be, is an essential part of today's complex national security apparatus just as the United States attempted to justify its steel and aluminum tariffs.

^{249.} See supra note 246 (citing the grounds for their complaints).

^{250.} Notification of Communication, European Union—Proposed Suspension of Concessions, WTO doc. G/SG/N/12/EU/1 (May 18, 2018); Notification of Communication, Russian Federation—Proposed Suspension of Concessions, WTO Doc. G/SG/N/12/RUS/2 (May 22, 2018); Notification of Communication, China—Proposed Suspension of Concessions, WTO Doc. G/SG/N/12/CHN/1 (April 3, 2018); Notification of Communication, Turkey—Proposed Suspension of Concessions, WTO Doc. G/SG/N/12/TUR/6 (May 22, 2018); Notification of Concessions, WTO Doc. G/SG/N/12/TUR/6 (May 22, 2018); Notification of Concessions, WTO Doc. G/SG/N/12/IND/1/Rev.1 (June 14, 2018); Customs Notice 18-08: Surtaxes Imposed on Certain Products Originating in the United States (June 29, 2018, revised May 16, 2019) (Can.); Decree Modifying the Tariff Schedule of the Law of General Import and Export Taxes, Decree Establishing the General Import Tax Rate Applicable during 2003 for Goods Originating in North America, and the Decree Establishing Various Sectoral Promotion Programs (enacted June 5, 2018) (Mex.).

^{251.} U.S. Steel and Aluminum Products Communication from the United States, *supra* note 235.

^{252.} *See* U.N. Economic and Social Council, Second Session of the Preparatory Committee of the United Nations Conference on Trade and Employment: Verbatim Report, 20-21, E/PC/T/A/PV/33 (July 24, 1947); *see also* Hahn, *supra* note 237, at 579 (arguing that the national security exception in Article XXI should be narrowly interpreted).

The panel rejected the United States' argument that Article XXI is "self-judging" or "non-justiciable."²⁵³ The panel considered that the conditions and circumstances that justify a measure as protecting essential national security interests under Article XXI are not entirely reserved to the judgment of the invoking country.²⁵⁴ The panel also found that the U.S. authorities made determinations according to a different legal standard and basis established by U.S. law (Section 232), as opposed to the standard under Article XXI. The former requires an examination of the necessity to protect the essential security interests of the United States while the latter (Article XXI) requires a nation to identify or examine an "emergency in international relations" within the meaning of Article XXI. 255 According to the panel, the situation to which the United States refers did not rise "to the gravity or severity of tensions on the international plane so as to constitute an 'emergency in international relations," and the tariffs were in breach of Article XXI.256

The outcome of this case provides a reference for the applicability of the national security defense under Article XXI with respect to the semiconductor and EV subsidies. The panel did not determine whether the protection of the steel and aluminum industries through the tariffs was necessary to protect the essential national security of the United States; rather, it examined a more straightforward question—whether the cited emergency in international relations indeed existed.²⁵⁷ It is likely that future panels will adopt this approach for Article XXI cases, including the semiconductor and EV subsidies (should Article XXI be invoked as a defense), and examine whether the emergency has existed to justify the measure. Despite the continuing tension between the United States and China, it will be difficult to argue that "an emergency in international relations" existed at the times when the subsidies were adopted,²⁵⁸ which renders Article XXI defense likely inapplicable.

^{253.} Panel Report, *United States—Certain Measures on Steel and Aluminum Products*, WTO Doc. WT/DS544/R, WT/DS552/R, WT/DS556/R, WT/DS564/R, ¶ 7.128 (adopted Dec. 9, 2022) [hereinafter Certain Measures on Steel and Aluminum Products].

^{254.} Id.

^{255.} Id. ¶¶ 6.21, 7.18.

^{256.} Id. ¶ 7.148.

^{257.} Id.

^{237.} IU.

^{258.} The war in Ukraine and a conflict in Gaza, tragic as they may be, are not likely emergencies in international relations that necessitate the semiconductor or EV subsidies to protect essential national security.

IV. CALL FOR A NEW PARADIGM

A. REINFORCING THE RULE-BASED MULTILATERAL TRADING SYSTEM

1. Current Impasse: Incapacitation of the WTO Appellate Body

The WTO maintains a formal dispute settlement procedure,²⁵⁹ which is regulated by the Dispute Settlement Understanding (DSU).²⁶⁰ The WTO's dispute settlement procedure is a critical component of the rule-based international trading system, which is essentially important for maintaining stability in international trade through adjudicating trade disputes. The WTO adopts a judicial approach to dispute settlement: an *ad-hoc* panel, which is established to adjudicate a dispute case filed with the WTO's Dispute Settlement Body,²⁶¹ performs a judicial function and makes a recommendation to the DSB.²⁶² A party to the dispute may appeal this panel decision to the standing Appellate Body, composed of seven members with four-year terms and a possibility of reappointment.²⁶³ The Appellate Body decision is adopted by the DSB unless there is a "reverse" consensus (i.e., consensus not to adopt the report).²⁶⁴

The latter rule, reverse consensus, is instrumental to the effectiveness of the WTO's dispute settlement process and has contributed to stabilizing international trade relations. Indeed, the WTO's dispute settlement mechanism has been described as the "lawyer's triumph over diplomats" (compared to the more consensusdriven dispute settlement process during the previous GATT era).²⁶⁵ The judicial nature of the WTO's dispute settlement mechanism has reduced the scope for diplomatic pressure to alter the outcome of the process.²⁶⁶ As a result, major powers and leading trading nations,

^{259.} The terms, "dispute settlement procedure," "dispute settlement process," and "dispute settlement mechanism" are used interchangeably without distinction.

^{260.} DSU, supra note 144.

^{261.} Id. art. 2.1.

^{262.} Article 11 of the DSU provides in relevant part, "a panel should make an objective assessment of the matter before it, including an objective assessment of the facts of the case and the applicability of and conformity with the relevant covered agreements, and make such other findings as will assist the DSB in making the recommendations or in giving the rulings provided for in the covered agreements." *Id.* art. 11.

^{263.} Id. art. 17.

^{264.} Id. art. 16.4.

^{265.} Michael K. Young, Dispute Resolution in the Uruguay Round: Lawyers Triumph over Diplomats, 29 INT'L LAW 389 (1995).

^{266.} Id. at 391.

including the U.S., have not prevailed in a number of WTO dispute settlement cases.²⁶⁷ In fact, the WTO DSB adopted the panel and the Appellate Body reports that recommended that these powerful Members bring their disputed measures in compliance with WTO law.²⁶⁸

The U.S. has expressed strong concerns about this outcome by blocking all of the appointments (including reappointments) to the Appellate Body. ²⁶⁹ Appointments and reappointments to the Appellate Body proceed by consensus of Members under Article 17 of the Dispute Settlement Understanding (DSU), without any voting mechanism. The United States was able to block these processes by withholding its consent to initiate or complete the appointment process. As a result, the Appellate Body lost its quorum and has been unable to review appeals since December 2019.²⁷⁰ The U.S. block has effectively incapacitated the Appellate Body and created a serious issue for the WTO dispute settlement mechanism. Under the DSU, WTO Members, including the U.S., may appeal adverse panel decisions to the Appellate Body even if it cannot review and render any decision on appeals.²⁷¹ This means that a Member whose challenged trade measure has been found to be violative of WTO law by the dispute settlement panel can simply refuse to withdraw its measure by appealing the adverse decision to the incapacitated Appellate Body, citing that the case is on appeal and that the final decision has not been made by the DSB.

The U.S. has precisely done this. It has lost dispute cases concerning its major trade measures, including its unprecedented

https://wtoplurilaterals.info/plural_initiative/the-mpia/ (last visited May 14, 2024).

^{267.} According to a report, the WTO found the U.S. measures violative of WTO law in 85.7 percent of the 84 dispute cases brought against the United States. Simon Lester, *U.S. "Wins" and "Losses" in WTO Disputes*, INT'L ECON. L. & POL'Y BLOG (Mar. 15, 2020), https://ielp.worldtradelaw.net/2020/03/us-wins-and-losses-in-wto-disputes.html.

^{268.} Id.

^{269.} The U.S. raised ambiguous systemic issues, such as the alleged Appellate Body's judicial overreach as the justification for its block, but commentators consider that successful challenges to a number of anti-dumping measures, countervailing measures, and safeguards adopted by the U.S. are more likely a reason. *See* Kenneth A. Reinert, *Steel, Security and the WTO Dispute Settlement Mechanism: A Trade Catastrophe in the Making*, 47 WORLD ECON. 2741, 2743 (2024).

^{270.} Id.

^{271.} In 2020, a group of 47 WTO Members created a new Multi-Party Interim Appeal Arbitration Arrangement (MPIA) under Article 25 of the DSU as an alternative appeal mechanism open to Members, but this process is not binding on the non-participating Members such as the United States and, thus, does not replace the Appellate Body. GENEVA TRADE PLATFORM, *Multi-Party Interim Appeal Arbitration Arrangement (MPIA)*, WTO PLURILATERALS,

tariffs against China and its steel and aluminum tariffs,²⁷² and the panels in those cases found the U.S. tariffs inconsistent with its obligations under WTO law.²⁷³ However, the U.S. appealed the adverse panel decisions to the Appellate Body that it had incapacitated and then refused to withdraw their tariffs found to be inconsistent with WTO law, arguing that it is under no obligation to rescind the tariffs because there is no "final decision" from the DSB.²⁷⁴ The U.S. is likely to maintain this position should its semiconductor and EV subsidies be challenged at the WTO and found to be inconsistent with the SCM Agreement, citing, again, that the final decision of the DSB, which it incapacitated by blocking appointments of the Appellate Body, is still pending.²⁷⁵

2. The Risk of Destabilizing Rule-Based Multilateral Trading System

The current impasse of the Appellate Body has created an opportunity for Members to adopt WTO-inconsistent trade measures, such as the semiconductor and EV subsidies, and maintain them regardless of WTO panel decisions (except, perhaps, for challenges brought among the participants of the Multi-Party Interim Appeal Arbitration Arrangement (MPIA), a new arbitration mechanism).²⁷⁶ Accordingly, the U.S. block of the Appellate Body appointments may facilitate the adoption of WTO-inconsistent industrial policy that the adopting countries nevertheless may consider essential for their industrial and economic development, which explains the present proliferation of the semiconductor and EV subsidies. By incapacitating the Appellate Body, the U.S. (and other Members) can keep their ruleinconsistent trade measures, whether they are subsidies, antidumping measures, safeguards, or other types of measures, regardless of their adverse impact on the trade interests of other Members.277

This "policy space" outside the WTO jurisprudence, however, has

^{272.} See discussion supra Sections III.A.2, B.2.

^{273.} Id.

^{274.} Nina M. Hart & Brandon J. Murrill, CONG. RSCH. SERV., LSB10553 Section 301 Tariffs on Goods from China: International and Domestic Legal Challenges, 3–4 (July 22, 2021).

^{275.} Id. at 4.

^{276.} See supra note 271 (discussing the MPIA).

^{277.} Thus, the U.S. has maintained its tariffs on China and the steel and aluminum tariffs despite the adverse WTO panel decisions. *See* Tariff Measures on Certain Goods from China, *supra* note 214, ¶ 8.4; Certain Measures on Steel and Aluminum Products, *supra* note 253, ¶ 7.166.

been generated at the cost of weakening the rule-based, multilateral trading system. Undermining the system apparently risks returning to the power-based, rather than the rule-based, international trading system that had prevailed prior to the establishment of the GATT and the WTO. There is a historical precedence: the prevalence of uncontrolled trade protection measures by major trading nations deepened the economic recessions of the 1930s and created a cause of World War II.²⁷⁸ The hard lesson of the destructive war, which resulted in tens of millions of civilian casualties, was that there is a pressing need for a global trading system that sets forth the binding rules of international trade. Rules that control trade measures prevent nations from starting trade wars, which, ultimately, undermines the trade interests of all parties, damages global trade and economies, and creates political tension that can start a war.²⁷⁹ The outcome of this awareness was the establishment of the GATT in 1947 and the WTO in 1994.280

After several decades of economic growth and prosperity, largely facilitated by the rules and practices of open trade under the GATT and the WTO, the hard-earned lesson seems to have faded in the midst of the U.S.-China rivalry and the resulting national security discourse. The result of this digression was a costly trade war between the U.S. and China, leading to the loss of economic welfare to both countries due to higher tariffs on both ends and the subsidy race that cost the participating countries a total of hundreds of billions of dollars without a clear prospect of success on either side.²⁸¹ Restoring the Appellate body to its full function will be essential to stopping this dangerous digression and turning the current trajectory back on a more cooperative and productive path, which will restore the stability of international trade relations and the associated benefits for all.

B. THE ROLE OF GOVERNMENT IN THE ECONOMY

1. Government Intervention in Industry and Economy

The implementation of the semiconductor and EV subsidies (with the accompanying terms to exclude investments in, and materials²⁸² from, particular countries) marks a clear turn in the U.S. economic

^{278.} See LEE, supra note 124, at 6–9 (discussing history of the trading system).

^{279.} Id.

^{280.} Id.

^{281.} *See infra* note 304 and accompanying text (discussing the subsidy race).

 $[\]ensuremath{\text{282.}}$ The term "materials" refer to both minerals and components (parts) for EV batteries.

policy: the government has become an industrial facilitator, the role that the governments of the successful developing countries in the past assumed, rather successfully, resulting in unprecedented economic development for decades.²⁸³ However, the countries that successfully adopted the state-led industrial policy in the past were developing countries with limited economic, industrial, and financial resources, not the most developed, technologically advanced countries, such as the U.S. Could this success of the industrial policy be replicated in the U.S., which is now adopting state subsidies to promote the domestic semiconductor and EV industries?

The debates on the appropriate government role in the economy have continued for centuries. The conventional wisdom in mainstream economics, which dates back to the time of Adam Smith, cautions against government intervention in the economy. The most important revelation in modern economics is that the "invisible hand" of the market optimizes supply and demand, which, in turn, maximizes economic efficiency, and that the core element of prosperous economies is market forces that create wealth for a nation and its people when they are left to operate without state intervention.²⁸⁴ Thus, government intervention is only justified in the limited cases of market failures, such as monopoly, monopsony, externalities, public goods, and asymmetric information. ²⁸⁵ This conventional wisdom is well reflected by the famous statement of Adam Smith: "What is the species of domestic industry which his capital can employ, and of which the produce is likely to be of the greatest value, every individual, it is evident, can, in his local situation, judge much better than any statesman or lawgiver can do for him."286

This market-centric view of the economy holds that individuals

^{283.} The successful developing countries have achieved unprecedented economic development over the course of three decades; between 1961 and 1996, Korea increased its GDP (gross domestic product) by an average of 8.75 percent per annum, Hong Kong by 7.61 percent, Taiwan by 8.64 percent, and Singapore by 8.61 percent (calculated with real GDP figures at constant 2005 national prices), while the world's average annual GDP increase and the annual GDP increase of the low and middle income countries for the corresponding period were 3.85 and 4.39 percent, respectively. Robert C. Feenstra et al., *Penn World Table Version 8.1* (Apr. 13, 2015), http://www.rug.nl/ggdc/productivity/pwt/pwt-releases/pwt8.1

[[]https://perma.cc/AUP9-FPZC]; WORLD BANK, GDP Growth (annual %),

https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG [https://perma.cc/ZRJ4-VEV5].

^{284.} See ADAM SMITH, AN INQUIRY INTO THE NATURE AND CAUSES OF THE WEALTH OF NATIONS (Edwin Cannan ed., 1937). The terms "state intervention" and "government intervention" are used interchangeably without distinction.

^{285.} Id.

^{286.} Id. at 23.

make the best economic choice for themselves as long as they have access to information and the freedom to choose. ²⁸⁷ This conventional view also holds that government involvement in the economy leads to economic waste and inefficiency. ²⁸⁸ This mainstream pro-market approach remains popular in today's socioeconomic contexts as it not only guides economic policy but also supports the ideals of Western democracy (as it allows political freedom and the dissemination of information necessary for an individual to make choices). The rule of law, which is also characteristic of Western democracy, protects the integrity of market transactions and economic rights (such as freedom of contract and property rights) of the market participants. Thus, the pro-market approach has broad sociopolitical appeal and is congruent with a democratic form of government that is a preferred form of government around the world.²⁸⁹

Although market economies have spread, a majority of countries remain "developing," characterized by limited economic and financial resources.²⁹⁰ A question arises as to why these countries have neither achieved successful economic development nor attained a high-income country status.²⁹¹ An answer to this question is found in the underlying presumptions of the success of the market economy— access to information that allows an individual to make rational choices.²⁹² Information is often unavailable to market participants,

290. The term "developing country" is generally used as opposed to "developed country," which represents the status of an industrialized economy generating high levels of income. A World Bank study accounts that as of 2022, 137 out of 217 tracked countries qualified as developing. *Developing Countries 2025*, WORLD POPULATION REV., https://worldpopulationreview.com/country-rankings/developing-countries [https://perma.cc/U79Q-BLND].

291. The World Bank uses gross national income (GNI) per capita to classify countries into different income groups. For the 2025 fiscal year, the World Bank defined low-income economies as those with a GNI per capita of USD 1,145 or less; middle-income economies are those with a GNI per capita of more than USD 1,146 but less than USD 14,005; high-income economies are those with a GNI per capita of USD 14,006 or more. Lower-middle-income and upper-middle-income economies are separated at a GNI per capita of USD 4,515. *World Bank Country and Lending Groups*, WORLD BANK, https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups [https://perma.cc/4LNP-NLLF].

292. LEE, supra note 12, at 245.

^{287.} LEE, *supra* note 12, at 244.

^{288.} Id.

^{289.} According to an EU poll in 2007, about 80% of respondents around the world, regardless of country, continent, age, gender or religion, believed democracy was the best way to run a society. Ian Morris, *Democracy: The Least Bad Form of Government*, STRATFOR WORLDVIEW (Oct. 7, 2015),

https://worldview.stratfor.com/article/democracyleast-bad-form-government [https://perma.cc/UZ7J-5LMW].

particularly those in developing countries. A "rational choice" presumption, even if information should be available, does not always hold. The 2008 financial crisis, which occurred in the world's most advanced market economy, was a vivid example: human factors such as irrational greed, panic, and fear, not just rationality, may influence the decisions of otherwise sophisticated market participants.²⁹³ In addition, information externalities (*i.e.*, the risk of no compensation or under-compensation for those who first engage in new ventures) and problems with coordination (*i.e.*, lack of other support services and infrastructure necessary for new production activities that incur high fixed costs) necessitate government intervention to adjust compensation structures and facilitate the needed coordination.²⁹⁴

Even if the economic role of government should be recognized, the proper extent of government intervention, which may well differ in accordance with the state of the economy, would remain controversial.²⁹⁵ Thus, a related question, as mentioned above, is the efficacy of state industrial policy in an advanced economy such as the U.S., where, unlike developing countries, the existence of the robust private sector may reduce the need for state industrial support, which could otherwise distort resource allocation. ²⁹⁶ The success of

^{293.} Financial Crisis Caused by "Greed and Stupidity": Geithner, REUTERS (Apr. 25, 2012), https://www.reuters.com/article/us-usa-economy-geithner/financial-crises-caused-by-stupidity-and-greed-geithner-idUSBRE83P01P20120426 [https://perma.cc/U3WZ-KR7B].

^{294.} Dani Rodrik, Industrial Policy for the Twenty-First Century 8-14, 16-17 (2004),

https://drodrik.scholar.harvard.edu/files/dani-rodrik/files/industrial-policy-twenty-first-century.pdf [https://perma.cc/3VTE-LX9L].

^{295.} A commentator observed the distinction between government and the market has become unclear:

By the late 1990s, the consensus in development economics had shifted dramatically. The Washington Consensus was agreed to have often been a failure and two principal paths forward have emerged A more promising approach is represented by the New Development Economics (NDE) which eschews truisms such as "getting institutions right" and represents a break with big-picture paradigms that advance one-size-fits-all solutions....Drawing on the neoclassical paradigm, it recognizes that markets are not nearly as inefficient as the early structuralists believed; rather the fundamental principle of rational responses to incentives continues to organize economic behavior. Further, with the rise of the New Institutional Economics, the distinction between government and markets has become blurred—each operating via similar fundamental mechanisms. As such, NDE advocates a complementary role for governments and markets, finding both to be susceptible to failures in coordination, imperfect information, and agency problems.

Michael Trebilcock, Between Theories of Trade and Development: The Future of the World Trading System, 16 J. WORLD INV. & TRADE 122, 128–29 (2015).

^{296.} See Alan O. Sykes, The Economics of WTO Rules on Subsidies and Countervailing

industrial policy in developed countries, such as the U.S. and the EU, or in a (super) developing country that has massive financial resources, such as China, might require a new approach to reduce this distortion.²⁹⁷

2. Call for a New Approach

The U.S. semiconductor and EV subsidies are predicated on the notion that state subsidies are necessary to promote these strategic industries and to protect national security interests by reducing reliance on supply from overseas.²⁹⁸ The EU semiconductor subsidies have also been adopted for a similar rationale.²⁹⁹ In the case of China, the semiconductor and EV subsidies in their early stages seem to have improved industrial output and market shares,³⁰⁰ but in the later stages, the subsidies exhibited significant problems, such as misuse of funds, corruption, and economic waste, which led to criminal investigations. ³⁰¹ Considering the adverse development and uncertain prospects, it is necessary to examine the underlying notions purported to justify the massive semiconductor and EV subsidies.

As for industrial promotion, it is not clear whether government subsidies will achieve this. In the U.S., semiconductor subsidies are primarily aimed at attracting investment and creating a favorable domestic environment for the industry.³⁰² The massive subsidies may motivate some global semiconductor manufacturers to relocate production facilities to the U.S. due to their concerns about increasing trade barriers, such as the significant tariffs that could also be applied to semiconductors. However, the cost of these efforts is substantial, as demonstrated by the global subsidy race funneling massive amounts

Measures 7 (John M. Olin L. & Econ., Working Paper No. 186, 2003) (noting that many government subsidies" [S]imply transfer resources to well-organized interest groups without remediating any demonstrable market failure."). *See also* Scott Kennedy, *China Is the Wrong Industrial Policy Model for the United States*, CTR. FOR STRATEGIC AND INT'L STUD., (Aug. 9, 2022), https://www.csis.org/analysis/china-wrong-industrial-policy-model-united-states [https://perma.cc/ZRZ3-E8WU] (discussing issues with China's industrial policies and reasons why the US should not follow suit).

^{297.} See LEE, supra note 12, at 264 (noting that "The increasing economic disparity and structural economic issues in the United States... call for a new legal and institutional approach...." with regard to industrial policy).

^{298.} See discussion supra Section I.A.

^{299.} See discussion supra Section I.C.

^{300.} See discussion supra Section I.B.

^{301.} See Yu, supra note 99 (discussing the problems associated with China's subsidies).

^{302.} See Thomas, supra note 65.

of resources toward semiconductor manufacturing capability. ³⁰³ Alternatively, if left alone, semiconductor manufacturers would find locations where semiconductors can be manufactured more efficiently without burdening public finances or undermining the rule-based international trading system. EV subsidies are equally problematic and costly. The CVC that excludes battery materials from certain countries would only reduce consumer choice and the associated economic welfare.³⁰⁴

There is also an argument for subsidies under a national security justification.³⁰⁵ However, it is also not clear why it is necessary to manufacture commercial semiconductors and EVs on American soil to protect national security. As has been the case with the steel and aluminum tariffs, 306 the government has not provided sufficient explanation or evidence as to why failing to manufacture increased amounts of semiconductors and EV batteries in the U.S. would threaten the country's national security. The 2021 White House Report and other documents provide only sketchy descriptions of national security implications for the cited products, ³⁰⁷ a vaguely broad approach that can be adopted to justify promoting almost any industry of some significance. The national security argument, as it stands now, does not provide sufficient justification for the massive spending of public funds. Two wrongs-an unclear prospect of industrial promotion and a vague national security argument-do not make a right.

A new approach, which is less costly to the public and more economically efficient, requires a clearer assessment of the feasibility of industrial promotion and the necessity for national security. The current plan to subsidize costly semiconductor production in the U.S. should be re-examined with a view to considering less-costly alternatives such as co-investments in production facilities in places where semiconductors could be manufactured at lower costs than in

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^{303.} See also Global Semiconductor Race Heats Up With \$81bn Subsidy Surge, BIZNEWS (May 13, 2024),

https://www.biznews.com/global-investing/2024/05/13/global-semiconductor-race-heats-up [https://perma.cc/Q3Z8-NEKF].

^{304.} SALVATORE, *supra* note 123, at 281–86. A Yale economist also opined that new policies will likely slow global growth, innovation, and poverty reduction even if they benefit certain industries in certain countries. Pinelopi K. Goldberg and Tristan Reed, *Is the Global Economy Deglobalizing? And if so, Why? And What is the Next?*, NAT'L B. ECON. RES. (Apr. 2023),

https://www.nber.org/system/files/working_papers/w31115/w31115.pdf [https://perma.cc/6KPA-DZVY].

^{305.} See, e.g., 2021 White House Report, supra note 9.

^{306.} See discussion supra Section III.B.

^{307. 2021} White House Report, supra note 9.

the U.S. The U.S. could decide to reinforce global value chains by focusing on building capacities in the areas in which it has a competitive edge, such as research and development as well as design, rather than manufacturing.³⁰⁸

As for the national security concerns, an alternative, and less costly option, would be to reinforce supply chains with the participation of leading semiconductor manufacturers and U.S. allies, such as South Korea and Taiwan, instead of pressing or enticing them to move their production facilities to the U.S., thus substantially burdening public finances and undermining the international trading system with actionable or prohibited subsidies.³⁰⁹ More precisely, targeted plans can be drawn up to secure the needed semiconductors at times of crisis, such as a pandemic, which do not require relocating or setting up large-scale production sites in the U.S.. While China raises security concerns to the U.S., careful consideration should also be given to the feasibility and desirability of the current containment policy, which is increasingly costly and undermines the rules of international trade.³¹⁰

Conclusion

The semiconductor and EV subsidies, which have been spread among the major manufacturing countries around the world, present a significant threat to the rule-based multilateral trading system. The adoption of the WTO-inconsistent subsidies has resulted in the costly subsidy race that the framers of the WTO law, including the U.S., endeavored to prevent by setting forth the rules of international trade law, such as the SCM Agreement. The cost of this inconsistent policy is now borne by the general public, whose tax payments have financed the massive subsidies, even though the economic benefits may not outweigh the cost at all. The U.S. has substantially undermined the WTO's dispute settlement, which is essential to the functioning of the

^{308.} Successful developing countries in the past that adopted state-led development policies also focused on the promotion of industries where they could have a competitive advantage such as lower costs. *See* LEE, *supra* note 12, at 250–60.

^{309.} Another problem is potential harm to other semiconductor manufacturing countries; for example, a former advisor to the South Korean President opined that the U.S. policy could "hollow out" Korea's high-tech industry by drawing Korea's capital and technology to the U.S. Moon Chung-In, *Is an Economic Security Alliance with US in Korea's Best*

Interest?, HANKYOREH (Nov. 4, 2022),

https://english.hani.co.kr/arti/english_edition/english_editorials/1065795 [https://perma.cc/J29V-FGD3].

^{310.} See discussion supra Section II.B.

multilateral trading system, by blocking all appointments to the Appellate Body.

This block may have enabled the U.S. and others to maintain the rule-breaching trade measures, including the semiconductor and EV subsidies, by appealing adverse panel decisions to the nonfunctioning Appellate Body and creating a legal limbo, but the resulting weakening of the multilateral trading system will not serve the interest of any Member in the long run. For one, without effective judicial recourse, Members will be more inclined to resort to immediate retaliation, as has been shown in the course of recent trade disputes-an outcome that is adverse to the trade interest of all parties and undermines the trading system as a whole.³¹¹ The creation of the rule-based international trading system under the WTO was an important achievement to ensure the long-term interest of all Members, and the substantial increase in international trade and global economic welfare since the establishment of the WTO is a testament to this achievement.³¹² There is a shared global interest in preventing further deterioration of the system and returning to the rule-based international trading system by restoring the fully functioning Appellate Body.

State industrial policy, which has been instrumental to the economic development of successful developing countries, is now revived by the world's most advanced economies, such as the U.S. and the EU. In May 2024, the Biden administration announced an expansion of its industrial policy by substantially increasing tariffs on several products imported from China, including EVs, EV batteries, steel and aluminum, semiconductors, solar cells, and ship-to-shore cranes.³¹³ The tariff increases range from 25 to 100 percent, affecting

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^{311.} A recent study reported a sharp increase in the retaliatory measures (suspension of concessions) since 2018, which coincides with the period in which the United States has been blocking appointments of the Appellate Body. Hiromi Yano, *Rebalancing the Trading Scale? Recent Trends in the Implementation of Article 8 of the Safeguards Agreement*, 19 GLOB. TRADE & CUSTOMS J. 110 (2024).

^{312.} International merchandise trade increased nearly six times from \$4.34 trillion in 1994 to \$23.93 trillion in 2023. WORLD BANK, *Trade*,

https://data.worldbank.org/topic/trade [https://perma.cc/FJ9A-54AQ]. In the same period, the world's gross domestic product (GDP) increased also four times from 27.94 trillion in 1994 to 106.17 trillion in 2023. WORLD BANK, *GDP (current US\$)*, https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?end=2023&start=1960&vi ew=chart [https://perma.cc/Z2X4-95W7].

^{313.} THE WHITE HOUSE, Memorandum on Actions by the United States Related to the Statutory 4-Year Review of the Section 301 Investigation of China's Acts, Policies, and Practices Related to Technology Transfer, Intellectual Property, and Innovation, Memorandum of May 14, 2024, 89 FED. REG. 44541 (May 20, 2024),

https://www.federalregister.gov/documents/2024/05/20/2024-11193/actions-by-the-united-states-related-to-the-statutory-4-year-review-of-the-section-301-

\$18 billion³¹⁴ in imports of the cited products from China.³¹⁵ Tariff measures, as well as subsidies, are two principal components of national industrial policies to promote industries. ³¹⁶ The Biden administration decided to reinforce its industrial policy by adding extensive tariff measures.³¹⁷ In December 2024, the USTR announced additional tariff increases on certain tungsten products, wafers, and polysilicon from China.³¹⁸

Unfortunately, this revival and expansion has been done at the cost of the integrity and stability of the rule-based international trading system.³¹⁹ As discussed above, the subsidies are inconsistent with the WTO subsidy rules, which has caused a costly subsidy race, and the new tariffs are also likely violative of the WTO law.³²⁰ While state industrial policy has contributed to the economic development of successful developing countries, ³²¹ mainstream economists are right in cautioning against the side effects of industrial policy, such as the subsidy race that has been continuing in the areas of semiconductors and EVs. ³²² The current semiconductor and EV

releases/2024/05/14/fact-sheet-president-biden-takes-action-to-protect-american-workers-and-businesses-from-chinas-unfair-trade-practices/

[https://perma.cc/P6EG-3BNJ] [hereinafter President Biden Takes Action].

315. *Memorandum of Actions by the United States, supra* note 313.

316. LEE, supra note 12, at 19.

317. The White House reported that President Biden was directing the USTR to increase tariffs on imports from China "to protect American workers and businesses [by promoting competing U.S. industries with the extensive tariffs]." *President Biden Takes Action, supra* note 314.

318. Office of the United States Trade Representative (USTR), Notice of Modification: China's Acts, Policies, and Practices Related to Technology Transfer, Intellectual Property, and Innovation, 89 FED. REG. 101682 (Dec. 16, 2024), https://www.federalregister.gov/documents/2024/12/16/2024-29462/notice-of-modification-chinas-acts-policies-and-practices-related-to-technology-transfer [https://perma.cc/8]5Y-X8UQ].

319. *See* discussion *supra* Section II.B. (discussing the inconsistency of the subsidies with WTO law). The new tariffs on imports from China are likely a violation of GATT Articles I and III, breaching the MFN and national treatment requirements.

320. The tariff increases are likely a violation of relevant provisions of WTO law, including GATT Articles I and II, which require the most-favored nation treatment and compliance with the maximum binding tariff rates stipulated in the Member's Schedule of Concessions, respectively. LEE, *supra* note 12, at 33–51, 63–77 (examining the requirements of GATT Articles I and II).

321. LEE, *supra* note 12, at 250–60. *See also supra* note 283 (explaining the successful economic development of South Korea, Taiwan, Hong Kong, and Singapore).

322. See supra note 304 (discussing the subsidy race). See also Kennedy, supra note

investigation [https://perma.cc/H54L-QTVX] [hereinafter Memorandum of Actions by the United States].

^{314.} FACT SHEET: President Biden Takes Action to Protect American Workers and Businesses from China's Unfair Trade Practices, THE WHITE HOUSE, (May 14, 2024), https://www.whitehouse.gov/briefing-room/statements-

subsidies are predicated on unclear promises of industrial promotion and equally unclear national security justifications, and this ambiguity requires a new approach to reduce the associated cost and enhance the economic benefit with a clearer assessment of the needs and a more targeted approach.

The future continuation of the U.S. semiconductor and EV subsidies are uncertain as U.S. President Donald Trump has publicly expressed criticism of these programs.³²³ However, as of this writing, Congress does not have any legislation on its agenda to amend or repeal them, rendering their immediate removal unlikely. Beyond the subsidies, it is important to note a critical development in international trade that began in April 2025 when President Trump imposed "universal" tariffs of 10 percent on virtually all imports and announced additional product-specific, country-specific "reciprocal tariffs" on imports from approximately 90 countries. 324 These unprecedented tariffs-allegedly adopted as a means to protect and promote domestic industries ³²⁵ —creates the most significant disruption to the multilateral trading system and pose a serious risk of dismantling the rule-based international trading system altogether. 326 Such blanket tariffs do not constitute an effective industrial policy and are likely to trigger an economic downturn in the United States and in other affected countries around the world.³²⁷

^{296 (}cautioning against the adoption of state industrial policy in the U.S.).

^{323.} Josh Israel, *Trump's proposed repeal of CHIPS law could cost jobs in Pennsylvania*, PA. INDEP. (March 11, 2025),

https://pennsylvaniaindependent.com/economy/trumps-proposed-repeal-of-chipslaw-could-cost-jobs-in-pennsylvania/ [https://perma.cc/5SK5-4FWE]; David Shepardson & Nandita Bose, *Trump says he may end EV tax credit; is open to naming Elon Musk as an adviser*, REUTERS, https://www.reuters.com/world/us/trump-sayshe-would-consider-ending-7500-electric-vehicle-credit-2024-08-

^{19/?}utm_source=chatgpt.com (last visited Apr. 15, 2025).

^{324.} Exec. Order No. 14,257, Regulating Imports with a Reciprocal Tariff to Rectify Trade Practices That Contribute to Large and Persistent Annual United States Goods Trade Deficits, 90 FED. REG. 15041 (Apr. 2, 2025)

^{325.} Id.

^{326.} See, e.g., Simon J. Evenett & Johannes Fritz, US Reciprocal Tariffs: Upending the Global Trade Policy Landscape, VOXEU/CEPR (Apr. 3, 2025),

https://cepr.org/voxeu/columns/us-reciprocal-tariffs-upending-global-trade-policy-landscape [https://perma.cc/JZ2W-ELG6].

^{327.} The stock and bond markets, for example, reacted in anticipation of an economic downturn. When Donald Trump announced the controversial tariffs on April 2, 2025, global financial markets experienced historic turmoil. The Dow Jones Industrial Average plummeted by more than 4,000 points (approximately 9.5 percent) within two days, marking the first instance of consecutive daily losses exceeding 1,500 points in its history. The S&P 500 declined by 10 percent, and the Nasdaq Composite fell by 11 percent. U.S. Treasury bond yields also recorded their sharpest one-week increase in over two decades, reflecting heightened investor concerns about inflation

and fiscal stability. Brian Evans et al., Dow nosedives 1,600 points, S&P 500 and Nasdaq

drop the most since 2020 after Trump's tariff onslaught, CNBC (Apr. 3, 2025), https://www.cnbc.com/2025/04/02/stock-market-today-live-updates-trumptariffs.html [https://perma.cc/DC3P-WJKD]; Bernard Condon & Stan Choe, *Freak Sell-Off of 'Safe Haven' US Bonds Raises Fear That Confidence in America Is Fading*, AP NEWS (Apr. 11, 2025), https://apnews.com/article/treasurys-bond-market-yield-tariff-46b4818710f01b8cc93fd002081167b0 (last visited Apr. 15, 2025). In the meantime, the trade war between the United States and China escalated dramatically, with the United States imposing 145 percent tariffs on all imports from China and China retaliating with 125 percent tariffs on all imports from the United States, raising significant concerns about the stability of world trade and the global economy. Joe Cash & Yukun Zhang, *China raises duties on US goods to 125%, calls Trump tariff hikes a 'joke*, REUTERS (Apr. 15, 2025), https://www.reuters.com/world/china/chinaincrease-tariffs-us-goods-125-up-84-finance-ministry-says-2025-04-11/ (last visited Apr. 16, 2025).