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Emerging Technology and Economic Security of the United States: The US Export Control Policy Toward China

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Abstract

Emerging technology has gained prominence in U.S. export controls, particularly following the 2019 National Defense Authorization Act, which includes the Export Control Reform Act (ECRA) and the Foreign Investment Risk Review Modernization Act (FIRRMA). Influenced by China's draft Export Control Law, these measures underscore a technological rivalry between the U.S. and China dating back to the 1970s. This paper reviews the historical and current U.S. export control systems and U.S.-China relations. The U.S. approach balances national security with economic interests, evolving from Cold War-era policies to recent unilateral measures on emerging technologies. The re-legislation of ECRA in 2018 marks a strategic shift, highlighting China as a key competitor. This legislation aims to enhance control over advanced technologies, reflecting the U.S.'s commitment to maintaining technological leadership and national security amidst global challenges.

Keywords: emerging technology, export control, ECRA, FIRRMA, IEEPA

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I. Introduction

The term "emerging technology"[1] has gained significant attention within the realm of export control since it was addressed in the United States through the enactment of the National Defense Authorization Act for Fiscal Year 2019[2] on August 13, 2018. This Act incorporated two highly significant laws: the Export Control Reform Act (ECRA) and the Foreign Investment Risk Review Modernization Act (FIRRMA). These legislative measures were notably influenced by the "Draft Export Control Law of China" proposed in 2017. This development seemingly sparked a trade war centered on advanced technologies between the United States and China. However, these developments only became apparent around 2018, while the struggle over advanced technologies and export control between the two nations actually began in the 1970s.

In this paper, to elucidate the historical policy significance of export control for the United States, I will first review the U.S. export control system. Subsequently, I will provide a historical overview of U.S.-China relations concerning export control and advanced technology, followed by an analysis of the current bilateral relations regarding export control.

[1]The Emerging and Foundational Technologies referred to in the Export Control Reform Act enacted in August 2018 pertain to technologies critical to U.S. national security. These include technologies that could be used in conventional weapons, weapons of mass destruction, intelligence-related information gathering, terrorist activities, or those that provide military or intelligence advantages to the United States.

[2]The National Defense Authorization Act for Fiscal Year 2019 was finalized by the Senate and House on July 23, 2018, passed by the House on July 26, and the Senate on August 1, with President Trump's signature enacting it on August 13. This law grants budget authority to the Department of Defense and is enacted annually.

II. Export Control System as the Economic Security

1. The U.S. Export Control System

In August 2018, the ECRA was re-legislated concerning export control in the United States. "Re-legislation" literally means that it was re-enacted as law. Since the expiration of the Export Administration Act (EAA) of 1979 in 2001, the United States had experienced an abnormal situation where export control was conducted without a legal foundation for as long as 17 years. Naturally, administration cannot operate without laws; hence, export control administration was maintained through the invocation of presidential orders under the International Emergency Economic Powers Act (IEEPA).

During this period, the federal congress attempted multiple times to re-legislate the export control law, but these efforts did not bear fruit. Why, then, was the re-legislation of the export control law realized in 2018?

Historically, U.S. export control is often associated with the Coordinating Committee for Multilateral Export Controls (COCOM) from the Cold War era. However, it would be overly simplistic to regard COCOM merely as a predecessor to the present Wassenaar Arrangement, as their policies differ significantly.

COCOM was a highly politically charged agreement aimed at maintaining the military superiority of the West (the United States) by coordinating with allied countries to control the export of high-tech products and technologies to Eastern bloc countries, with only 17 countries participating. In contrast, the Wassenaar Arrangement, established as COCOM's successor after the Cold War, is characterized by its political neutrality, as evidenced by the participation of Russia, a former adversary. It has become a framework for the "non-proliferation export control," "dual-use goods management," and "non-specific enemy management" of the new era.

Yet, 25 years after the establishment of the Wassenaar Arrangement, it is none other than the United States that feels the limitations of this agreement, which now involves 42 countries in the management of items and technologies. Traditionally, the term "harmonization" has often been used in the context of export control, signifying that conducting export control unilaterally is less effective concerning its objectives. Whether in the case of COCOM or other export control regimes, their implementation under international cooperation held significance. However, in recent years, this principle has been eroding because the rapid pace of advanced technology development has outstripped the capabilities of existing systems. Consequently, as will be discussed later, since 2012, the United States has commenced its independent management of "emerging technologies" without relying on international export control regimes.

2. National Security or Economics

During the Cold War, it is easy to imagine that countries excluded from the regime due to the "logic of exclusion" faced significant military and economic disadvantages due to the difficulty in acquiring high-specification goods and their technologies. However, the United States, which has built the international system of export controls, has also historically faced various challenges concerning industrial international competitiveness, resulting in economic disadvantages.

Traditionally, the United States has maintained a position of free trade, encouraging companies to export U.S.-made goods and technologies while being extremely cautious about the outflow of cutting-edge consumer goods (and technologies) and weapons (and weapon technologies) to hostile countries. As a nation with advanced technology and a free market economy globally, the balance between free trade and national security has repeatedly become a political agenda, a situation that persists today. The export control, which must simultaneously ensure national security and the international competitiveness of domestic industries (or industrial international superiority), becomes more of a dilemma the more strictly it is enforced, particularly for technologically advanced nations.

Notably, unlike other countries, the United States independently regulates items beyond those controlled by international regimes. This independent regulation challenges the principle of export control policy,

which values alignment with other countries, and it impacts not only issues within the U.S. but also the export controls of other nations. The U.S. export regulations apply "extraterritorial application" of U.S. law concerning U.S.-origin products and so forth. Even transactions in other countries, where U.S. jurisdiction would typically not extend, are subject to "re-export controls," requiring similar regulations as exports from the U.S. and necessitating applications for permission from the U.S. government. However, countries outside the U.S. find the complexity of this extraterritorial application frustrating and have started "Design Out" strategies, where they do not use U.S. goods and technology in their products. This has been pointed out within the U.S. government as significantly weakening the international competitiveness of U.S. companies.[3] Essentially, strict regulation is ironically leading to a weakening of the international competitiveness of domestic industries.

Of course, there is no basis in international law for U.S. domestic law to directly regulate foreign companies. However, currently, companies and universities outside the U.S. exercise great caution to avoid violating re-export controls when involved in the development or manufacture related to U.S. products. This is because, if they were to violate re-export controls, foreign companies could be listed as violators by the U.S. government, potentially facing sanctions that would prohibit any dealings with U.S. companies.

3. Complex Jurisdiction

The export control system of the United States is primarily governed by two major laws: the Arms Export Control Act of 1976 (AECA) and the Export Control Reform Act (ECRA). The former, under the jurisdiction of the Department of State, regulates the export and import of weapons, related items, and weapon technologies, whereas the latter, under the jurisdiction of the Department of Commerce, governs the export and re-export of dual-use goods and technologies that could significantly impact the development of weapons of mass destruction or enhance military capabilities (Table 1). Moreover, the ECRA is not confined to a framework of non-proliferation export control; it also serves various U.S. foreign policy objectives and includes measures to protect domestic industries by controlling the supply of goods.

Table 1: U.S. Export Control Systems with Different Jurisdictions

	Dual-use items (including less sensitive	**Military Items**
Supervisory Authority	The Bureau of Industry and Security at U.S. Department of Commerce (BIS)	The Directorate of Defense Trade Controls at U.S. Department of State (DDTC)
Governing Law	The Export Control Reform Act of 2018(ECRA)	The Arms Export Control Act of 1976
Regulations	The Export Administration Regulations (EAR)	The International Traffic in Arms Regulation (ITAR)
Control List	Commerce Control List (CCL)	U.S. Munitions List (USML)

Additionally, the export control of nuclear-related products and technologies is administered under the Atomic Energy Act, overseen by the Department of Energy and the Nuclear Regulatory Commission. The International Emergency Economic Powers Act (IEEPA) provided the legal foundation for export control during the period when the Export Administration Act of 1979 was defunct. The Department of the Treasury implements economic sanctions, such as trade prohibitions and asset freezes, against countries, regions, specific individuals, or companies designated by the U.S. government for diplomatic and security

[3]"Record of Comments: The effects of Export Controls on Decision to Use or Not Use U.S.-Origin Parts and Components in Commercial Products and the Effects of Such Decision," April 20, 2009 in Public Comments at EFOIA Documents Index, pp. 149-157.

purposes. It is also important to note the existence of the Foreign Investment Risk Review Modernization Act (FIRRMA), which is a twin to the ECRA concerning U.S. investment regulations.

Thus, the U.S. export control system, along with its related regulations and laws, presents a complex landscape. In the subsequent sections, I will provide an overview of how these U.S. export controls have been applied to China.

III. The US Export Control and the Cold War

1. U.S. Export Control Towards China During the Cold War

(1) The Beginning of Export Control Towards China

The history of export control over strategic materials and advanced technologies between the U.S. and China is longstanding. Initially, U.S. export control began as a foreign policy on "trading with the enemy," addressing how to conduct commerce and trade with adversary nations. Prioritizing economic benefits and expanding trade relations with enemy nations could inadvertently lead to situations where legitimately traded goods and technologies might be used in unintended ways, such as in the development of weapons of mass destruction, or could threaten national security. However, from a trade policy perspective, ignoring a large enemy market could result in diminished international competitiveness and economic national interests. Historically, and even presently, U.S. export control towards China has been built upon the conflict between national security and economic interests, or rather the delicate balance between the two, fundamentally reflecting the issue of trading with the enemy.

In 1949, the United States established COCOM, initially targeting the Soviet Union and its satellite countries, but gradually grew concerned about the expansion of communist forces in Asia and considered extending COCOM's export controls to China. However, securing cooperation from the United Kingdom, which controlled Hong Kong at the time, proved difficult, and diplomatic negotiations regarding export control were very challenging.

The situation shifted after the Korean War broke out in 1950. With China's entry into the Korean War, the U.S. adopted a policy of total embargo against China, and by 1952, under COCOM, the "China Committee" (CHINCOM) was established to enforce stricter control over China than the Soviet Union. Nonetheless, the special international framework for strictly controlling China faced fierce opposition from the United Kingdom and France regarding its necessity following the armistice of the Korean War, leading to its practical conclusion in 1957. Subsequently, the United States continued to develop unilateral export regulations towards China for nearly two decades.

(2) Export Control Towards China During the Détente Period

A significant relaxation of the unilateral export controls towards China, developed by the United States, was undertaken by President Richard Nixon, who assumed office in 1969. From the time of the presidential election, Henry Kissinger, who would later become Nixon's assistant, emphasized the importance of establishing a new relationship with China for two reasons: one, the normalization of diplomatic relations with China as a bilateral relationship; and two, leveraging U.S.-China normalization to position the United States advantageously in its relations with the Soviet Union(Kissinger, 1979: 164-171).

Indeed, in 1970, the prohibition on travel to China was relaxed, and notable events such as the visit of a table tennis team to China, known as "Ping Pong Diplomacy," and the partial lifting of the embargo were pursued, leading to Kissinger's dispatch to China in July. In meetings with Zhou Enlai, Kissinger engaged in secret agreements on the normalization of diplomatic relations within two years, non-support for military action by Taiwan against China, and prior notification of U.S.-Soviet diplomacy related to China. Subsequently, President Nixon's visit to China was announced the following year, surprising the world.

In 1972, the Shanghai Communiqué was issued, marking the first step in the restoration of U.S.-China relations since the end of World War II. The communiqué also emphasized the promotion of U.S.-China trade, leading to the establishment of liaison offices in both countries in 1973. In Asia, countries such as Japan, Malaysia, the Philippines, and Thailand successively restored diplomatic relations with China,

advancing détente in the region.

Concerning export control, for the 20 years leading up to Nixon's presidency, the U.S. government had maintained multilateral or unilateral regulations against China. However, the relaxation of export controls towards China had been gradually initiated even before Nixon's visit. In December 1969, the Department of the Treasury relaxed foreign assets control regulations, allowing U.S. companies' overseas subsidiaries to trade with China on items classified as "non-strategic materials" on the COCOM list and permitted U.S. companies to engage in triangular trade involving Chinese products. Treasury regulations were also amended to allow general export licenses for food, agricultural products, pesticides, and pharmaceuticals to China. In June 1971, the administration formally announced the relaxation of the embargo against China that had been in place since 1950(Cahill, 1973: 8-10). Consequently, by February 1972, China's status in export control transitioned from "Country Group Z," which was subject to a total embargo, to "Country Group Y," where the export of non-strategic items was permitted, aligning China's export restrictions with those of the Soviet bloc. In 1973, inertial navigation devices for submarines and missiles were approved for export, and in 1974, computer exports were authorized.

(3) The End of Détente and U.S.-China Diplomatic Normalization

Jimmy Carter, who signed the "Export Administration Act of 1979," which served as the legal foundation for U.S. export control until 2001, assumed the presidency in 1977. His inaugural address emphasized nuclear disarmament, reduction in arms exports, prevention of the proliferation of conventional and nuclear weapons, and the importance of human rights. While U.S.-Soviet détente continued from Nixon's era, the "China Policy" remained an important diplomatic agenda.

Notably, there was intense contention between Secretary of State Cyrus Vance, who believed that U.S.-China relations should not be considered within the triangular relationship with the Soviet Union, and National Security Advisor Zbigniew Brzezinski, who advocated deepening U.S.-China relations in a manner that might provoke the Soviet Union. From the onset of the administration, Vance held that U.S.-China relations should be approached as a bilateral issue, revising the notion of using China as a card in Soviet diplomacy. Conversely, a memorandum prepared by Brzezinski's National Security Council (NSC), under the president's direction, proposed the normalization of U.S.-China diplomatic relations and the equitable transfer of technology to both China and the Soviet Union, which would later be realized during the Carter administration(Garrett and Glaser, 1987: 264-271).

However, Vance believed that further rapprochement with China would undermine U.S.-Soviet diplomacy, including bilateral treaties such as arms control and SALT. He later predicted that the world would ultimately face the worst possible outcome if Reagan's administration further relaxed the transfer of dual-use technology to China(Chanda, 1946: 11).

The resolution of this issue was indeed influenced by the triangular relationship with the Soviet Union. Between October and December 1977, the Soviet Union deployed intermediate-range ballistic missiles and bombers, leading NATO to deploy short-range ballistic missiles. Concurrently, the Ogaden War broke out in the so-called "Horn of Africa" in October. This conflict, while directly between Ethiopia and Somalia, saw the Soviet Union openly support the Ethiopian military, sending weapons and advisors. By February 1978, Ethiopia's victory was assured, discrediting the U.S., which had supported Somalia. This prompted discussions of sanctions and reprisals against the Soviet Union within and outside the administration, with Brzezinski noting that U.S.-Soviet détente was "buried in the sands of the Ogaden"(Nimmo, 1984). Consequently, the NSC-led China policy, which included the transfer of weapon technologies, gained momentum(Garrett, 1979: 236). In May 1978, Brzezinski's visit to China led to a retreat from the policy of "evenhandedness"—treating China and the Soviet Union equally—and the White House announced the approval of exports to China of "civilian goods with potential military applications" (dual-use technology), previously referred to as the "grey area"(Garrett, 1979: 236). Brzezinski also announced the relaxation of controls on the transfer of advanced technology to China under COCOM(Brzezinski, 1983: 212).

In January 1979, U.S.-China diplomatic relations were formally established. In the fall of that year, a leaked

Pentagon paper (Consolidated Guidance Number 8: Asia During a Worldwide Conventional War) concluded that China would play a central role in the global balance of power. Strengthening China's defense capabilities and promoting military modernization were deemed essential, prompting the Pentagon to request the White House to actively pursue assistance to China in advanced technology, defense equipment, intelligence data, integration of Chinese products into U.S.-made weapons, and joint military exercises(Garrett and Glaser, 1987: 264-271). Subsequently, in July, China was granted most-favored-nation status, and in August, Vice President Walter Mondale visited Beijing to discuss strengthening U.S.-China economic cooperation, further deepening bilateral relations.

A definitive end to détente with the Soviet Union occurred in December with the Soviet invasion of Afghanistan. Thereafter, U.S. export controls against the Soviet Union began with the suspension of export licenses for all items destined for the Soviet Union, culminating in a boycott of the Moscow Olympics. According to a press release from the Department of Commerce, President Carter was particularly inclined to tighten export controls on computers, software, manufacturing technology, and materials critical for manufacturing high-tech products.[4] As U.S.-Soviet relations cooled, China was granted increased access to U.S. advanced technology(Meese, 1981: 20), and by 1980, "Country Group P" was created for China, facilitating the transfer of dual-use high-tech products. This new group allowed, on a case-by-case basis, the export of civilian-use items such as aircraft, helicopters, flight simulators, aerial cameras, trucks, electronics, computers, and all associated technologies(Meese, 1981: 33-34). In September of the same year, a senior Pentagon official visited China, and the export of approximately 400 military-related items to China was authorized(Brzezinski, 1983: 424).

(4) The Reagan Administration and Export Control Towards China

Since the Nixon administration, the logic of U.S. export control towards China has consistently fluctuated within the triangular relationship with the Soviet Union, a situation unchanged in the 1980s. By 1981, when the Reagan administration took office, U.S.-Soviet relations had further deteriorated, enhancing China's significance within the strategic triangle. Considering the global balance of power and national interests at the time, a "strong China" was deemed essential for the United States. The basic logic was to further relax export controls and transfer advanced technologies that would strengthen China's military capabilities.

In January 1981, the Reagan administration promptly announced a new policy on export controls towards China, known as the "two-times policy." This policy involved exporting technologies to China that were "twice" as advanced as those exported to the Soviet bloc. Based on this policy, the Department of State significantly relaxed arms export restrictions.

However, U.S.-China relations began to show signs of strain early on, originating from the Taiwan Relations Act established at the end of the previous administration. Simultaneously with the establishment of U.S.-China diplomatic relations in 1979, the U.S.-Taiwan Mutual Defense Treaty was abrogated, U.S. military forces withdrew from Taiwan, and diplomatic relations between the U.S. and Taiwan were severed. Nevertheless, the United States could not accept Taiwan, previously part of the Western bloc, being occupied by China or changes in the military balance in East Asia. Thus, the Taiwan Relations Act was born. Although U.S. military forces would not be stationed in Taiwan, the Act emphasized military support, including the use of force and provision of arms in emergencies. Indeed, assistance exceeding $100 million in military items was provided under the Act.

In response to these U.S.-Taiwan relations, China objected to U.S. arms sales to Taiwan in 1981, the year Reagan assumed the presidency, leading to an unstable state in U.S.-China relations. In July, Secretary of State Alexander Haig visited China to engage in dialogue with China, which harbored mistrust towards U.S.-Taiwan relations. After more than eight months of dialogue, the third U.S.-China Joint Communiqué

[4]Press Release, "President Sets Tougher Criteria on High Technology Exports to the U.S.S.R.," U.S. Department of Commerce News, March 19, 1980.

was finally issued in August 1982. The communiqué included provisions for reducing U.S. arms sales to Taiwan, aiming for a peaceful resolution of the Taiwan issue.

Furthermore, in 1983, the Reagan administration made a significant decision to change China's country group from the previous "Country Group P" to "Country Group V," which included Europe and Japan. U.S. export controls determine the necessity of permits based on a combination of "items" and country groups, and China's move from P to V meant that, unless there was strong suspicion of diversion or major issues with the end-user, most items would be permitted for export to China similarly to Western allies. A Pentagon official described the transfer of military technology and advanced dual-use technology as a "carrot" to draw China into the Western bloc(Chanda, 1946: 12-13).

By November 1983, a new "item zone" was established for reviewing export licenses to China, allowing many items that required cumbersome inter-agency reviews to be categorized in the "green zone" for easier export. Consequently, sales of dual-use items (including technology) to China increased from $630 million in 1982 to $1.72 billion in 1988, recording ten times the exports to the Soviet bloc(Heinz, 2019: 89).

However, such U.S.-China relations did not last long. When China's export of missiles and related technologies to Iran was discovered in 1987, the Reagan administration suspended further relaxation of export controls (including computers, electronics, and other high-tech technologies) that were under consideration. Following the Tiananmen Square incident in 1989, all COCOM member countries, including the United States, halted all arms exports, and the previously considered relaxation of export controls towards China within COCOM was also shelved.

2. Post-Cold War Export Control Towards China

After the Gulf War, it was revealed through United Nations investigations that Iraq had amassed a vast arsenal, including biological and chemical weapons such as mustard gas, nerve gas, sarin, anthrax, and botulinum toxin, which shocked the international community. On the other hand, the Gulf War also had significant implications for China.

In the 1980s, China pursued the "Four Modernizations," aiming to modernize agriculture, industry, science and technology, and the People's Liberation Army (PLA).[5] However, Operation Desert Storm, which brought a swift victory to the United States through the use of modern weapons, marked a turning point for China, prioritizing military modernization. The Gulf War showcased advanced technologies that the PLA did not possess, including precision-guided munitions, stealth technology, electronic warfare, airborne command and control, and intelligence gathering (Shambaugh, 1996: 25).

In 1993, Jiang Zemin announced the "Military Strategic Guidelines for the New Period," highlighting in a speech to the Central Military Commission the utility and potential of high-tech use in the military domain demonstrated by the Gulf War. He emphasized the critical importance of acquiring advanced technology to gain strategic military superiority and strengthen China's comprehensive national and defense capabilities(Finkelstein, 2007). Following the Taiwan Strait Crisis of 1995, the Communist Party Central Committee and the State Council issued a "Decision on Accelerating Scientific and Technological Progress," steering towards market-oriented and technology-based industrial development. The goals set included strengthening collaboration between military enterprises, private companies, research institutions, and universities, establishing joint ventures with domestic and foreign partners, and particularly acquiring technology and know-how from overseas experts(Walsh, 2003: 47).

In response, the Clinton administration saw significant relaxation of controls on high-tech exports to China, despite fierce opposition between Congress, the government, and private enterprises. During the first half of the administration, there was a series of relaxations concerning supercomputers,

[5]U.S. Government Accountability Office, Impact of China's Military Modernization in the Pacific Region, GAO/NSIAD-95-84, Executive Summary, 1995.

telecommunications equipment and technology, five-axis machine tools, and commercial satellites (although commercial satellites became strictly regulated again during the administration's second term).

Under the Clinton administration, the Department of Commerce, the Department of Defense, and private enterprises possessing high-tech items advanced export control towards China. The logic of the proponents of deregulation was broadly based on four pillars: first, the absence of a common enemy among Western countries, like the Soviet bloc during the Cold War; second, the ineffectiveness of unilateral U.S. regulation on items traded with China by other countries, which only weakened the international competitiveness of U.S. companies; third, the cycle of foreign availability rapidly accelerating alongside technological innovation, meaning that cutting-edge technology could quickly become commonplace; and finally, the impact of the military-to-civilian conversion policies advanced in the 1980s.

In the 1970s and 1980s, advanced U.S. technology was predominantly developed by the Defense Advanced Research Projects Agency (DARPA) of the Department of Defense. However, hardware, software, electronics, space-related, and nuclear technologies initially developed for military purposes eventually spun off for civilian use. After military-to-civilian conversion became a national policy in the 1980s, government funds, including from the Department of Defense, were invested in the research and development of dual-use advanced technologies by private companies and universities. A 1995 White House report noted that development within the Pentagon was ill-suited to the high innovation levels and short business cycles led by the market, with civilian development becoming the mainstream for advanced dual-use technology.[6] As this spin-on of military technology progressed, stringent export controls threatened to reduce the international competitiveness of leading companies, potentially straining their operations, prompting the Department of Defense to seek reform.

Mitchel Wallerstein, who served as Deputy Assistant Secretary of Defense during the Clinton administration, testified before Congress that, since exports are crucial to the operations of high-tech companies, the government should ensure that unnecessary competitive disadvantages are not imposed on such companies and should recognize that export revenues contribute to the research and development of advanced dual-use technologies.[7] Additionally, a senior official from the Department of Commerce harshly criticized the dichotomous thinking of choosing between national security and economic prosperity as outdated, arguing that export restrictions reduced corporate earnings, indirectly harming national security by limiting funds available for next-generation technology research and development(Butts and Hughes, 2001: 80).

Conversely, in Congress, particularly among Republican members, there was an outcry against the government's relaxation of export controls, with numerous hearings held in both the House and Senate to investigate the impact of supercomputer deregulation during the early Clinton administration on the modernization of the PLA.[8] Stephen Bryen, who served as Deputy Under Secretary of Defense during the Reagan administration, testified that "thanks to export deregulation, China was able to establish various infrastructures and its own electronics and computer companies. Silicon Graphics, Convex Computer, and IBM sold more supercomputers to China than to any other country and benefited from the deregulation of supercomputers under the Clinton administration".[9]

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[6]The White House, Second to None: Preserving America's Military Advantage Through Dual-Use Technology, January 1st, 1995.

[7]Statement by Mitchel Wallerstein in U.S. Senate, National Security Implications of Lowered Export Controls on Dual-Use Technologies and Defense Capabilities, hearing before the Committee on Armed Services, 104th Congress, 1st Session, May 11, 1995, p. 6.

[8]Statement by Floyd Spence in U.S. House of Representatives, U.S. Supercomputer Export Control Policy, hearing before the Committee on National Security, 105th Congress, 1st Session, November 13, 1997, pp. 1-2.

[9]Statement by Stephen Bryen, in U.S. Senate, US Export Control and Nonproliferation Policy and Role and Responsibility of the Department of Defense, hearing before the Committee on Armed Services, 105th Congress, 2nd Session, July 1981, p. 16.

IV. 21st Century Export Control Towards China: Towards the Enactment of the Export Control Reform Act of 2018

During the Clinton administration, the significant relaxation of regulations on dual-use items expanded trade between the U.S. and China, with the value of U.S.-China trade accounting for over 22% of the total U.S. exports by 2004. While China became an indispensable trading partner for the U.S., serious national security issues also emerged. Acting Under Secretary of Commerce Peter Lichtenbaum expressed ongoing concerns about the modernization of China's conventional military forces and the military application of sensitive dual-use items during a hearing of the U.S.-China Economic and Security Review Commission (USCC).[10] He noted that under the current system, the majority of items did not require permits, and even for those that did, most permits were granted. This situation was influenced by the significant deregulation during the Clinton era, the direct benefits that civilian exports to China brought to U.S. companies and their employees, and the rapid advancement in foreign availability in the 2000s, making unilateral U.S. regulation increasingly meaningless.

Against this backdrop, the George W. Bush administration formulated the so-called "China Military Catch-All Rule." After years of deliberation, this regulation stipulated that items on the Commerce Control List (CCL), regulated for national security and weapons of mass destruction reasons, would be denied if they significantly contributed to China's military capability.

Under the Obama administration, recovering from the economic turmoil triggered by the Lehman shock was a major challenge. The administration aimed for a general easing of export controls without specifically targeting China. This approach was embodied in President Obama's large-scale deregulation policy, "The Four Singles" (i.e., a single list, a single licensing agency, a single enforcement agency, and a single IT system). Among these, the "unification of regulatory lists" was particularly important.

This reform aimed to consolidate and integrate the two regulatory item lists managed by two departments, as seen in Section 3, specifically the "U.S. Munitions List (USML)" managed by the Department of State for controlling weapon items, aerospace-related items, and satellite items, and the CCL managed by the Department of Commerce. The goal was to establish high barriers around a small number of highly sensitive items, with other items addressed according to their level of sensitivity.

During the transition from the Department of State, the initial step was to categorize items based on their relative military value and availability, creating a tiered USML. Tier 1 items, crucial to the U.S., are protected by "high walls." Tier 2 items do not require permits for export to allied countries and international regime participants, but require permits for other countries. Tier 3 items, although military, are of lower importance than the upper two tiers. Items not classified into these tiers are transferred to the CCL, where a new numbering system under the Export Control Classification Number (ECCN) is implemented.

An important concurrent reform during the unification of these lists was the establishment of emerging technology regulations in April 2012. Initially, this regulation started as a receptacle for items whose transfer requests from the USML to the CCL were denied. However, it evolved to regulate independently listed items not currently controlled under existing lists (USML and CCL), deemed critical to U.S. military and intelligence superiority or diplomatically justified by the Department of Commerce, with the concurrence of the Department of Defense and the Department of State, classified under ECCN "0Y521".[11] This approach allows the U.S. to impose its own regulations, given that existing export control regimes[12]

[10]Statement by Peter Lichtenbaum, in U.S.-China Economic and Security Review Commission Hearing, June 23, 2005, https://www.uscc.gov/sites/default/files/6.23.05lichtenbaum_statement_wrts.pdf.

[11]15 CFR Appendix Supplement No. 5 to Part 774- Commerce Control List.

[12]The four export control regimes refer to the Nuclear Suppliers Group (NSG) regulating nuclear-related items, the Australia Group regulating biological and chemical weapons-related items, the Missile Technology Control Regime regulating missile-related materials, and the Wassenaar Arrangement regulating conventional arms and related goods and technologies.

take over a year from proposal to listing, potentially rendering regulation meaningless by the time it is implemented.

Items classified under "0Y521" must be formally regulated on the CCL, re-designated under "0Y521," or classified as unlisted regulated items (EAR99) within a year.

As previously discussed, the U.S. operated under the legal basis of the IEEPA for export control for 17 years following the expiration of the EAA in 2001. This changed in 2017 under the Trump administration. In November 2017, the FIRRMA was introduced, followed by the ECRA in the House in February 2018. Both were bipartisan bills aimed at preventing technology leakage to foreign countries, particularly China, and addressing various concerns regarding unauthorized acquisition of intellectual property and U.S. investment concerns. Rather than being debated independently, these bills were incorporated into the National Defense Authorization Act for Fiscal Year 2019, enacted in August 2018. Notably, ECRA marked the transition of export control law from a temporary to a permanent statute, after 70 years of successive extensions and occasional expirations.

The core aim of the ECRA and FIRRMA was to strengthen export controls on China. The ECRA, in particular, focused on three major pillars: strengthening export controls on emerging and foundational technologies, revising license exceptions for comprehensive arms embargo countries, and reviewing military end-use and end-user controls.

Additionally, several related policies were rapidly enacted:

1. The prohibition on U.S. government procurement of telecommunications and surveillance equipment and services from five Chinese companies, as specified in the 2019 National Defense Authorization Act.

2. A Presidential Executive Order under the IEEPA to secure the supply chain of information and communications technology services, excluding products and services from "U.S. adversaries" in domestic private transactions.

3. Restrictions on purchasing Chinese-made drones, rail cars, and buses under the 2020 National Defense Authorization Act.

4. A federal funding ban on purchasing telecommunications equipment from companies posing national security threats under the Secure and Trusted Communications Networks Act.

5. Establishment of the Committee for the Assessment of Foreign Participation in the U.S. Telecom Services Sector under a Presidential Executive Order, including restrictions on new entries and revocation of existing approvals.

6. Strengthening investor protection rules for U.S.-listed companies by the U.S. Securities and Exchange Commission, targeting Chinese companies.

These measures are closely related to China's "Military-Civil Fusion" policy, initiated in the mid-2000s and adopted as a national strategy in 2016. In 2018, Dr. Christopher Ashley Ford, Assistant Secretary of State for International Security and Nonproliferation, stated that contemporary China, in pursuit of the "Chinese Dream" of national rejuvenation, aims to strengthen its global standing, with high-tech weapon acquisition and military-civil fusion serving as "engines driving this dream".[13] He further argued that in the current global context, distinctions between civilian and military users, as well as civilian and military applications, hold little relevance, rendering traditional export control approaches like "end-user and application checks" ineffective.

Ford's remarks reflect longstanding issues in U.S. politics and administration regarding the handling and management of dual-use items post-Cold War. Over the past 30 years, the distinction between civilian and

[13]Remarks as Delivered by Assistant Secretary Bureau of International Security and Nonproliferation Dr. Christopher Ashley Ford, Why China Technology-Transfer Threats Matter at U.S. Naval Academy, Annapolis, MD, October 24, 2018.

military applications has gradually diminished, especially in advanced technologies. Additionally, the listing processes of international regimes can take over a year from proposal to publication, risking obsolescence due to foreign availability by the time of listing.

The first administrative regulatory enhancement following the enactment of ECRA under the Trump administration reflected this point. In 2018, the BIS decided to abolish the "License Exception CIV (Civil End-Users)," which had previously allowed exports to civilian end-users and civilian applications in China without a license. This decision starkly illustrated the increasingly blurred lines between military and civilian applications in China.

The second regulatory enhancement involved the introduction of military end-user controls on China. Previously, export control regulations imposed military end-use and end-user controls on Russia and Venezuela, while only military end-use controls applied to China. However, with the regulatory enhancements accompanying the enactment of ECRA, military end-user controls were also introduced for China, significantly expanding the scope of controlled items.[14]

The third regulatory enhancement sought to exclude Chinese companies and universities from the U.S. market by leveraging the Entity List, one of the lists under the Department of Commerce's jurisdiction. The Entity List includes individuals, companies, and institutions that act against U.S. national security and foreign policy interests or are involved in the development of weapons of mass destruction. Entities listed face prohibitions on the export, re-export, and domestic sale of EAR-regulated items, and may require a license for non-listed items. On May 16, 2019, the Department of Commerce added Huawei Technologies Co. Ltd and 68 affiliated companies to the list, mandating license applications for all exports of items subject to EAR regulations. On October 7 of the same year, 28 Chinese governmental organizations and private companies were added to the Entity List for engaging in activities contrary to U.S. foreign policy interests. This October measure included entities involved in human rights abuses targeting Uyghurs and other Muslim minority groups in the Xinjiang Uyghur Autonomous Region by the Chinese government.

Moreover, on August 13, 2019, the Department of Defense's Federal Procurement Office and NASA announced a rule revising the Federal Acquisition Regulations based on Section 889 of the 2019 National Defense Authorization Act. The new rule excludes video surveillance and telecommunications equipment produced by Huawei Technologies Co. Ltd, ZTE Corporation, Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, Dahua Technology Company (or their subsidiaries or affiliates), and equipment produced or provided by companies designated by the Secretary of Defense, in consultation with the Director of National Intelligence and the FBI Director, from government procurement.

The tightening of regulations against China under the Trump administration extends beyond these measures. Even a brief evaluation suggests that what is currently being implemented in the U.S. transcends the traditional framework of export control, constituting a comprehensive economic security policy in conjunction with other policies and laws. This trend continues under the Biden administration, with bipartisan support from Senator Robert Menendez, Chairman of the Senate Foreign Relations Committee (Democrat), and Ranking Member Jim Risch (Republican), who submitted the "Strategic Competition Act of 2021" to the committee. On April 20, the committee passed the act almost unanimously, 20-1, outlining countermeasures in the "strategic competition" with China. The act's "strategic competition" spans five areas: 1) investment in the future of competition, 2) investment in alliances and partnerships, 3) investment in our values, 4) investment in economic and national technology, and 5) enduring strategic security. The emphasis on collaboration with allies in this act is noteworthy. Furthermore, the third point, "investment in our values," suggests that a new "Cold War,"

[14]The previous content of China's military end-use control broadly covered 32 U.S.-origin items (depleted uranium, digital oscilloscopes, items regulated for terrorism-supporting countries such as thermal imaging cameras, carbon fibers, lasers, gas turbine engines, hydraulic fluids, high-performance computers, bearings, communication devices, etc.). The regulatory requirement necessitated a license application when military end-use was known or notified by the government.

centered on ideological confrontation, has already begun, albeit with a different adversary.

V. Conclusion

For the United States, export control has traditionally served as a tool to contain the influx of advanced technologies to "enemy countries" and ensure its military superiority. However, since around the 1970s, it has frequently been used as a diplomatic tool, a trend particularly evident in its application towards China. Following the normalization of diplomatic relations between the U.S. and China, cutting-edge technologies, which would never have been exported to the Soviet Union, began to be transferred to China. This was underpinned by a strategy within the strategic triangle with the Soviet Union, aimed at fostering a "strong China as an ally of the United States."

On the other hand, China, which in a sense had been continually buffeted by the Cold War, shifted its national policy towards strengthening military capabilities after witnessing modern warfare with high-tech weapons during the Gulf War, focusing efforts on acquiring and stealing advanced technologies. By the 2000s, the Bush administration, perceiving a significant threat from this development, formulated the "China Military Catch-All Rule," which was further strengthened under the Trump administration.

The Export Control Reform Act (ECRA), re-legislated in 2018 after 17 years, could be said to institutionalize the recognition of China as a threat, being heavily oriented towards China. Beyond merely intending to prevent the outflow of emerging technologies, it can be assessed as a law that signaled both domestically and internationally the U.S.'s intent to confront China in the interest of national security.

References

1. Brzezinski, Zbigniew K (1983) *Power and Principle: Memoirs of the National Security Adviser, 1977-1981.* New York: Farrar, Straus & Giroux.
2. Butts, Kent and Hughes, Edward (2001) *Economics and National Security: The Case of China.* Washington DC: The United States Army War College's Center for Strate gic Leader ship, the National Intelligence
3. Council.
4. Cahill, Harry A (1973) *The China Trade and Us Tariffs.* California: Praeger.
5. Chanda, Nayan (1946) 'Far Eastern Economic Review', *Review Publishing Company Limited,* 2(8), pp. 1-18.
6. Finkelstein, David M (2007) 'China's National Military Strategy: An Overview of the "Military Strategic Guidelines"', *Asia Policy,* (4), pp. 67-72.
7. Garrett, Banning (1979) 'China Policy and the Strategic Triangle', in Oye, K.A., Rothchild, D. & Lieber, R. (eds.) *Eagle Entangled: Us Foreign Policy in a Complex World. New York: Longman*: London: Longman, pp. 228-263.
8. Garrett, Banning and Glaser, Bonnie S (1987) 'From Nixon to Reagan: China's Changing Role in American Strategy', in Oye, K.A., Lieber, R.J. & Rothchild, D. (eds.) *Eagle Resurgent*: Boston: Little, Brown, pp. 256-283.
9. Heinz, John (2019) *Us Strategic Trade: An Export Control System for the 1990s.* London: Routledge.
10. Kissinger, Henry (1979) *White House Years: The First Volume of His Classic Memoirs.* Boston: Little, Brown & Company.
11. Meese, Sally A (1981) 'Export Controls to China: An Emerging Trend for Dual-Use Exports', *The International Trade Law Journal,* 7(1), pp. 20-37.
12. Nimmo, Elizabeth M (1984) 'United States Policy Regarding Technology Transfer to the People's Republic of China', *Northwestern Journal of International Law & Business,* 6, pp. 249-274.

13. Shambaugh, David (1996) 'China's Military: Real or Paper Tiger?', *The Washington Quarterly,* 19(2), pp. 19-36.
14. Walsh, Kathleen (2003) *Foreign High-Tech R&D in China.* Washington DC: The Henry L. Stimson Center.