



EXPORT CONTROL LAWS IN RECENT TRADE WARS: THE INFUSION OF SECURITY INTERESTS INTO COMMERCIAL SPHERE

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ABSTRACT

The structure of international export control agreements and domestic export controls have historically established a regime tailored to restrict the global proliferation of military-use goods and technology. The foundation of these export control regimes focused on building a consensus to form export control lists for national security interest that could be adopted into domestic export control laws.

The ongoing U.S.-Sino and South Korea-Japan trade wars have evolved the role of export control laws in its domestic application to trade. This paper discusses the two trade wars through the perspective of how export control regulations have been applied in them, and makes the argument that export control laws have now expanded beyond its original purpose of imposing regulatory restrictions on outbound movement of military-used goods and technology. The imposition of domestic export control laws against an important trading partner has translated into imposing trade restriction with commercial implications.

This paper outlines the basic framework of how international and domestic export control laws were structured, and how the recent trade wars highlight the change in ideology in how the export controls could be employed in a trade dispute. The increase use of domestic export control laws reflects a new method of encroaching on free trade that might have commercial impact on the global technology supply chain.

The article aims to bring this important debate on export control to the field of Brazilian academic debate and the construction of public policies.

Keywords: Export, technology, foreign trade, export control.

LEIS DE CONTROLE DE EXPORTAÇÃO EM GUERRAS COMERCIAIS RECENTES: A INTERFERÊNCIA DE INTERESSES DE SEGURANÇA NA ESFERA COMERCIAL

RESUMO

A estrutura de acordos internacionais de controle de exportação, bem como controles de exportação de natureza doméstica estabeleceram historicamente um regime feito sob medida para restringir a proliferação global de bens e tecnologia de uso militar. O fundamento desses regimes de controle de exportação concentrava-se na construção de um consenso para formar listas de controle de exportação para fins de segurança nacional que pudessem ser adotadas nas leis de controle de exportação domésticas.

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As guerras comerciais entre EUA e China e Coreia do Sul e Japão trouxeram a aplicação das leis de controle de exportação para aplicação doméstica ao comércio internacional. Este artigo discute as duas guerras comerciais através da perspectiva de como as regulamentações de controle de exportação foram aplicadas e analisa o aspecto de que as leis de controle de exportação se expandiram além de seu propósito original de impor restrições regulatórias sobre o movimento de saída de bens e tecnologia de uso militar. A imposição de leis domésticas de controle de exportação contra um importante parceiro comercial se traduziu na imposição de restrições ao comércio com implicações comerciais.

Este artigo descreve a estrutura básica de como as leis de controle de exportação internacionais e domésticas foram estruturadas, e como as guerras comerciais recentes destacam a mudança na forma como os controles de exportação poderiam ser empregados em uma disputa comercial. O aumento do uso de leis domésticas de controle de exportação reflete um novo método de usurpar o livre comércio que pode ter impacto comercial na cadeia global de suprimentos de tecnologia.

Importante ter presente que o artigo tem por escopo trazer esse importante debate sobre o controle das exportações para o debate acadêmico brasileiro e também para construção de políticas públicas.

PALAVRAS CHAVE: Exportação, tecnologia, comércio exterior, controle da exportação.

1. INTRODUCCIÓN

The School of Public Policy and Government of the Getulio Vargas Foundation (FGV EPPG), as part of its 2021 FGV/EPPG Webinars invited professor Cindy Whang, assistant professor at Fu Jen Catholic University in Taiwan, to give a lecture on Export Control Laws. Professor Liziane Angelotti Meira participated in the event as a debater and brought some of the perspective of Brazil.

The event was extremely interesting and fruitful. Export control, as noted by Chapman³, is almost as old as the organization of human society. This is normally a concern of countries with more international power. There is actually a war, this paper will show. However, despite Brazil having some policies related to the export control of technology military-related military-use-goods, this important conflict has not been echoed in this country. It seems that Brazil has taken on a very passive role, the theme of export control is not yet explored either in academia or in the Brazilian social-political sphere.

Therefore, this research will analyze current and relevant aspects on the subject involving the United States, the European Union, China, Japan and South Korea, but always bearing in mind that this issue related to export control affects the whole world, particularly developing countries, technology importers such as Brazil.

In 2018, the United States imposed safeguard tariff on the imports of solar panels and washing machines that gradually escalated into an ongoing trade war between the

* The authors would like to thank Taiwan's Ministry of Science and Technology (Grant numbers: 110-2410-H-030-014- and 105-2410-H-030-011-) for supporting part of the research done in this paper.

³ "Nations have attempted to use export controls and other economic sanctions to achieve strategic objectives throughout history. During the Peloponnesian War, Athenian leader Pericles sought to impose a trade embargo on the Spartan allied state of Megara, banning it from access to Athenian markets and ports in 433/432 BC for killing an Athenian emissary and cultivating land consecrated to the Athenian goddess Demeter." (CHAPMAN, 2013)

United States and China.⁴ As the trade war between the United States and China intensified, the export control measures that Japan imposed on semi-conductor-related materials being exported to South Korea in 2019 created trade conflict between the two countries.⁵ A special characteristic of these two trade wars has been the contribution and role that domestic export control laws have played in escalating the trade tension between the trading partners. Since export control laws have been viewed as an economic extension of a country's national security interests, restrictive trade measures that derive from these security concerns have generally been viewed as an exception of trade norms and allowed in international trade. However, in the recent trade wars, the application of export control laws seemed to have expanded beyond their traditional scope of application to military-related security concerns. The usage of these laws seemed have expanded to encroach upon commercial interests.

In an interconnected world where various countries are all linked to the global technology supply chain ecosystem, the increased use and changing role of export control regulations among these developed countries creates challenges for their trading partners. For Brazil and Taiwan that both have China, the United States, and Japan as their top trading partners,⁶ the changes made to export control will have both direct and indirect impact with these trading partners. This paper will discuss the role that export control regulations play in integrating the concept of national security interest into a country's domestic economic consideration, and how the international trade of commercial technology might be impacted by the change in how countries use their export control regulations. The paper will talk about the traditional roles of export control regimes, and how these export control regimes have changed in the recent years to achieve the political and economic goals of various governments. While outlining the ongoing changes made to export control regulations, it is important to analyze if the application of export control will fragment and impact the global technology supply chain.

2. THE TWO ELEMENTS OF EXPORT CONTROL LAWS AND REGULATIONS

The genesis of the export control regime was rooted in the international export control agreements that relied heavily on consensus-building between member states to prevent the non-proliferation of military-use technology. As such, there have been two elements of the export control regime that have stayed consistent from international export control agreements and domestic export control laws. The first element is the consensus-building element, and the second element is the focus on security-orientation. Both of these elements have been challenged severely in the recent changes made to export control regulation. Therefore, it is important to analyze what the two elements were in order to analyze how the role of export control had changed in the recent trade wars.

(A) Consensus-Building Element

The consensus-building element is a cornerstone to the establishment of international export control agreements. International export control agreements are non-

⁴ BOWN; and KOLB, 2017.

⁵ MINISTRY OF ECONOMY, TRADE AND INDUSTRY OF UNITED STATES, 2019-D.

⁶ MINISTRY OF ECONOMY BUREAU OF FOREIGN TRADE, 2020; and WORLD BANK, 2021.

binding international agreements established after World War II to restrict the proliferation of military-use goods. Currently, there are four international export control agreements that states can join: The Nuclear Suppliers Group,⁷ the Australia Group,⁸ the Missile Technology Control Regime,⁹ and the Wassenaar Arrangement.¹⁰ Of these four, Brazil is a member state of the Nuclear Supplier Group and the Missile Technology Control Regime. Participating states of these international export control regimes are countries that are capable of manufacturing or retaining export-controlled military-use and dual-use technologies.

Due to the sensitive nature of export control regimes as it restricts the trade of military-use and dual-use items, international export control agreements are non-binding agreements that have been viewed as a gentleman's agreement between the member states.¹¹ This meant that unlike other international instruments that create binding legal obligations, participating states of international export control agreements exert a high degree of self-determination in adopting the lists of export control items and technologies into their domestic laws. In order to facilitate a cohesive understanding and willingness to adopt the agreed upon international export control lists into domestic legislation, the items or technology subject to export control have been formed through the consensus of participating states of these international agreements.

The participating states of international export control agreements are more limited in number when compared with the state parties of a similar international treaty such as the Arms Trade Treaty.¹² This is due to the fact that a country is required to be a manufacturer of the military-use items or goods in order to join the international export control agreement as a member state, and as a result, it is important for countries to come to a consensus on how they want to regulate the items and technology. However, it should be noted that due to how specific the target of export control has been, the impact of imposing export control has been relegated to a very specific part of a country's overall trade concerns that is closely tied with a country's sovereignty and national security. This narrow definition is related to the national security concerns listed as an exception in international trade agreements such as the Article XXI Security Exceptions of General Agreement on Tariffs and Trade (GATT).

(B) Security-Oriented Element

When the Cold War between the United States and former Soviet Union intensified after World War II, the United States used various defense and economic policies to join allies together to combat the military threat of the Soviet Union. The United States along with its allies in Western Europe established the North Atlantic Treaty Organization for its common defense, and the international export control agreement formulated through the Coordinating Committee for Multilateral Export Controls (COCOM) was used to create a common list of items and technology that restricted specific items from being exported to the Soviet Union.¹³ Because COCOM was established

⁷ Nuclear Suppliers Group, About the NSG, <http://www.nuclearsuppliersgroup.org/en/about-nsg/history1>.

⁸ Australia Group, The Origins of the Australia Group, <https://australiagroup.net/en/origins.html>.

⁹ Missile Technology Control Regime, Frequently Asked Questions, <http://mtcr.info/frequently-asked-questions-faqs/>.

¹⁰ MISSILE TECHNOLOGY CONTROL REGIME, 2017.

¹¹ OFFICE OF TECHNOLOGY ASSESSMENT, 1979.

¹² ARMS TRADE TREATY, 2021.

¹³ MCDANIEL, 1993.

under the Cold War security concerns, the export control lists agreed by COCOM were focused on restricting the trade of military-use and dual-use items and goods from being exported to the Soviet Union. The purpose of export control laws was aligned with an overarching security interest that the member states of COCOM shared, and the focus of implementing export control laws for security reasons have become a fundamental element in export control regimes.

The security-oriented element of export controls is reflected in the general scope of items and technology subject to export restrictions. The four international export control agreements that consist of the Nuclear Suppliers Group, the Australia Group, the Missile Technology Control Regime, and the Wassenaar Arrangement formulate their export control lists based on the respective military-use items and technology determined in the agreements. The security-oriented element places limits on the types of items and technology that would require government oversight in trade issues.

3. TRADE WARS AND THE CHANGING EXPORT CONTROL LAWS AND REGULATIONS

Recent international events have shifted the policy focus and application of export control laws and regulations. The use of domestic export control laws in the trade war between the United States and China and the trade hostility between South Korea and Japan reflect a shift in the ideology of how to determine security concerns as it relates to trade issues. The issue of determining what constituted as a security exception has been subject to governmental and scholarly debates in recent years, especially in light of the 2019 World Trade Organization's dispute settlement Panel report on the *Russian- Measures Concerning Traffic in Transit* case.¹⁴

For the European Union, the cybersurveillance technology that European corporations exported to the Middle East in light of the Arab Spring brought forth the discussion that human rights should be incorporated into the discussion of security concerns. This concept of "human security" was introduced as a policy element into the 2021 the European Union's Regulation (EU) No 2021/821 that became the dual-use export control regime for the European Union.

The combination of these three events established a trend where export controls laws are slowly evolving away from the consensus-building and security-oriented elements that used to be found in export control regimes.

(A) United States and China Trade War

In early 2018, the trade tension increased between the United States and China with the imposition of tariff on solar panels, eventually led to a trade war between the two countries focused on the technology.¹⁵ In the backdrop of China's "Made in China 2025" economic policy that was focused on boosting the technological manufacturing capability in several key industries, the United States Trade Representative (USTR) had issued a report in 2018 that found China to be gaining unfair competitive advantage by forcing the United States corporations to transfer technologies in their Chinese

¹⁴ WORLD TRADE ORGANIZATION, 2019.

¹⁵ OFFICE OF THE UNITED STATES REPRESENTATIVE, Jan. 22, 2018.

investments.¹⁶ China's increase in technology capability would put them in direct global competition with the same industries from the United States.

As a result of this concern, the United States passed the Export Control Reform Act (ECRA) in August of 2018¹⁷ and created policy initiatives that strayed from the two elements established through previous export control regimes. One of the policy purposes was the inclusion of the pursuit of global technological leadership as a national security export control concern. ECRA stated that, "[t]he national security of the United States requires that the United States maintain its leadership in the science, technology, engineering, and manufacturing sectors... Such leadership requires that United States persons are competitive in global markets."¹⁸ ECRA's policy purpose makes it clear that the traditional focus of national security as defined by military concerns has been expanded to include economic elements of maintaining global leadership in the advancement of commercial technology. The original security-oriented focus of export control has been structured to be more inclusive of policy purposes beyond those of military-related items and technology.

This expansion of a security-oriented focus on trade restrictions has been reflected on the two new categories of emerging and foundational technology that ECRA created.¹⁹ While there have been no preclusion of allowing countries to structure their export control regimes in accordance with domestic needs under international export control agreements, ECRA's establishment of these two additional categories of technology have expanded the scope of the United States' domestic export control regime to potentially reach beyond those that have been formed by the consensus under international export control regimes. The unilateral application of these new categories of items and technology challenged the consensus-building element in export control regimes.

While the policy goal of ECRA was to establish the global leadership for the United States' technology industry, the implementation of identifying what should be export controlled as emerging technology and foundational technology has been met with great pushback from within the United States. In November of 2018, the Department of Commerce Bureau of Industry and Security (BIS) proposed fourteen categories of technologies to be categorized under emerging technologies,²⁰ only to be met with a barrage of comments from domestic technology industry associations, non-government organizations (NGOS), and universities within the United States that all opposed the proposal. Their resistance to the newly proposed categories were due to the wide-range of technologies included on the list and the dissonance that this new category of technologies might have with the international norms.²¹

The strong pushback from the industries have led to an inconclusive establishment of a separate emerging technologies list in the United States export control regime. However, as this technology category still exist under ECRA, BIS used this categorization to highlight specific technologies that international export control

¹⁶ OFFICE OF THE UNITED STATES REPRESENTATIVE, Mar. 18, 2018.

¹⁷ Export Control Reform Act of 2018, 50 U.S.C. § 4801.

¹⁸ Export Control Reform Act of 2018, 50 U.S.C. § 4811 (3).

¹⁹ Export Control Reform Act of 2018, 50 U.S.C. § 4817.

²⁰ Review of Controls for Certain Technologies, 82 Fed. Reg. 58201 (Nov. 19, 2018).

²¹ WHANG, 2021.

agreements such as the Wassenaar Arrangement had decided to restricted as emerging technology.²² Currently, an independent list using objective criteria for determining emerging technologies does not exist in the United States domestic export control regime, but the way ECRA revamped the United States' domestic export control legislation have changed the way that export control laws are applied. The United States used export control regimes as a method to address threats that have not been conventionally viewed as military-oriented national security concerns.

The United States used export control regulations to impose restrictions against Chinese technology firms on the basis of national security concerns in two ways. First, the United States indicated specific Chinese technology firms to be placed on their Entity List that would result in these corporations having to adhere to additional United States export license requirements while being limited to most license exceptions for Huawei's exports, reexports, and incountry transfers. Huawei Technology Co., Ltd. (Huawei), one the world's largest information and communications technology corporation, was the first commercially prominent Chinese firm that the United States placed on the Entity List in 2019.²³ Subsequently, other hi-tech Chinese firms such as the Semiconductor Manufacturing International Corporation Incorporated (SMIC) were also placed on the Entity List.²⁴ This hindered these corporations ability to freely export items and technology from the United States.

Second, the United States amended their Export Administration Regulations (EAR) to impose export control over foreign-produced items that contained technology from the United States when there is knowledge that the final items were destined to a designated entity on the Entity List.²⁵ This created an extraterritorial reach for the United States export control regime that sought to regulate items that were manufactured overseas by technology of U.S.-origin destined for entities on the Entity List. While this EAR amendment was meant for all foreign-produced products that fall under these criteria, Huawei was specifically mentioned by name as an entity subject to this rule, making it clear that the United States government had specific Chinese corporations in mind when they were making the regulatory amendments.²⁶

As the United States passed legislation and amended their regulations to impose export control restrictions on Chinese firms, China passed their own Export Control Law in 2020.²⁷ In the Xinhua News Agency press release discussing this legislation, Director Wang Ruihe of the National People's Congress Standing Committee Legislative Affair Commission Economic Law Department noted that passing the Export Control Law unified China's various export control regulations and align them with international norms.²⁸ Chinese legal scholars pointed out that most European and North American states have export control laws and that by having China pass the Export Control Law, it would clarified the ambiguity that might exist in export control matters

²² UNITED STATES DEPARTMENT OF COMMERCE BUREAU OF INDUSTRY AND SECURITY, Oct. 5, 2020.,

²³ UNITED STATES DEPARTMENT OF COMMERCE BUREAU OF INDUSTRY AND SECURITY, May 19, 2021.

²⁴ OFFICE OF THE UNITED STATES REPRESENTATIVE, Dec. 22, 2020.

²⁵ UNITED STATES DEPARTMENT OF COMMERCE, May 19, 2020.

²⁶ Id at 29850.

²⁷ PEOPLE'S REPUBLIC OF CHINA NATIONAL PEOPLE'S CONGRESS, 2020.

²⁸ YU, Jiaxin, Oct. 17, 2020.

for national security purposes.²⁹ While the Chinese coverage of the law makes no mention of whether or not the law was passed to counter the effects of the United States' use of ECRA, in an analysis that the United States Congressional Research Services wrote noted that certain articles in the law were trying to counterweight the United States export control regime that limited the transfer of dual-use technology from the United States.³⁰

In analyzing whether or not China's Export Control Law contained the consensus-building and security-oriented elements of export control regimes, Export Control Law Article 1 notably stated that the law was "established to safeguard national security and interests," emphasizing the security-oriented purpose of the Chinese law. However, even as the policy purpose seemed to conform with the security-oriented element of export control regimes, the Export Control Law Article 9 states that, "...[F]or the maintenance of national security and national interests and the performance of anti-proliferation and other international obligations, with the approval of the [specific government agencies], the [government] may exercise temporary control over any goods, technologies and services *outside* the export control lists..." (emphasis added) This article gave the Chinese government the authority of deciding what goods and technology are harmful to national security even if they are not on export control lists. This rule broke away from the consensus-building element found in other export control regimes and could be a result of the ongoing trade tension between the United States and China.

The ongoing trade war between the United States and China has resulted in the passing of new laws such as ECRA and the Export Control Law, and they reflect a shift in the use of national security concerns to impose trade restrictions that would impact commercial-use technology. In the case of the United States and China, this infringement on trade was done through a change in law. In the other case of the trade tension between Japan and South Korea, the export control laws themselves have not been changed, but the method of applying export control law arguable could be viewed to have shifted from how it was used previously. The following section discusses another way the export control has been used in recent trade tensions.

(B) Japan and South Korea Trade War

The official start of the trade conflict between Japan and South Korea began on July 1, 2019 when Japan removed South Korea from its "White Countries" list under the Export Trade Control Order and mandated exporters to apply for individual export licenses for fluorinated polyimide, resist, and hydrogen fluoride being exported to South Korea.³¹ Japan's "White Countries" list were countries that Japan viewed to be preferred trading partners, and the three products that were mandated for individual licenses were necessary for the production of semi-conductors.³² Japan declared that the change made to South Korea's export control trade status was made because it viewed South Korea's actions to undermine Japan's export control and regulation.³³ Subsequent press releases by Japan indicate a broader security concern related to South

²⁹ Id; and TAKUNGPAO, Oct. 18, 2020.

³⁰ SUTTER, Oct. 26, 2020.

³¹ MINISTRY OF ECONOMY, Jul. 1, 2019.

³² MINISTRY OF ECONOMY, TRADE AND INDUSTRY, Aug. 2, 2019.

³³ MINISTRY OF ECONOMY, Jul. 1, 2019.

Korea's export control regime and the insufficiency of South Korea's catch-all export controls.³⁴

In truth, the increased hostility between Japan and South Korea started long before Japan's policy changes in 2019, and the policy change was often viewed as having stemmed from political issues rather than trade issues. When Japan occupied the Korean Peninsula prior to their defeat in World War II, the Japanese rule resulted in several ongoing disagreements between Japan and South Korea on how specific incidents should be determined and categorized. One of the such incidents was the 2018 South Korea Supreme Court's rule on the compensation that Japanese companies should give to Korean workers.³⁵ While Japan refutes political considerations as the reason for changing South Korea's trade partner status, South Korea contested Japan claim by stating, "Japan's restrictive measure is economic retaliation against Korean Supreme Court rulings issued last year. The Government deeply regrets that decisions of an independent judicial branch in a democracy can be considered grounds for economic regulations."³⁶ As the two countries were deadlocked on this trade issue, South Korea has brought this dispute before the WTO Dispute Settlement Body in 2019.³⁷ As of July 2021, reports from this case have not yet been released.

It should be noted that despite the way export control regime was used by Japan against South Korea, unlike the United States and China, Japan did not amend their Foreign Exchange and Foreign Trade Act, the legal basis of their export control regulations. The fundamental Japanese trade law was unchanged, but the application of export control changed from its original military security focus to be used as a form of economic statecraft. Japan's used of its export control regime further the blurred line between military security concerns and economic security concern in the deployment of export control regimes in trade issues.

(C) European Union's New Dual-Use Export Control Regulations

The European Union (EU) amended their Dual-Use Export Control Regulations in May 2021 under different circumstances and considerations unrelated to trade wars mentioned in the previous two sections.³⁸ A catalyst for amending the dual-use export controls was the Arab Spring democratic movement in the Middle East during the early 2010s that had reports stating that European companies were actually selling and providing cyber surveillance equipment to countries in the Middle East to monitor their dissidents.³⁹ This became a huge issue within the EU because these European companies assisted those governments in monitoring the dissidents and infringing on their human rights.

As a result, the debate of amending EU's dual-use export control regulation centered around the idea of imposing a "human security" consideration into the export control.⁴⁰ The "human security" element required that the export control regime be inclusive of the policy goal of protecting human rights. If the export of certain European

³⁴ MINISTRY OF ECONOMY, TRADE AND INDUSTRY, Jul.24, 2019.

³⁵ KAWASE, Apr. 13, 2021.

³⁶ MINISTRY OF TRADE, INDUSTRY AND ENERGY, Jul. 2, 2019.

³⁷ WORLD TRADE ORGANIZATION, 2020.

³⁸ EUROPEAN PARLIAMENT, 20 May 2021.

³⁹ KANETAKE, 2019.

⁴⁰ EUROPEAN COMMISSION, Sep. 28, 2016.

technology could harm the human rights of people in at the destination country, this technology should not be exported based on human rights concern.

The human security element was quickly met with immense pushback from EU's technology industry.⁴¹ These industries viewed the definition "human security" as being ambiguous and an unilateral export barrier specifically imposed by EU that would be detrimental to these corporation's global competitiveness. In having to consider human security as an export concern, it would expand the security-oriented element of export control regimes and also negating on the consensus-building basis of formulating lists under international export control regimes. The industries argue that they would have to take on more liability compared with their industry counterparts from other countries.

On May 21, 2021, the EU passed the new dual-use export control rules called "Regulation of the European Parliament and of the Council setting up a Union regime for the control of exports, brokering, technical assistance, transit and transfer of dual-use items (recast)." An important element that was included in this new regulation was the protection of human rights element that was established as a policy purpose for EU's dual-use export control regulations. However, compared with the original draft proposal where EU's dual-use export control regime would be triggered if the end-use of an item or technology would infringe human rights, EU Regulation 2021/821 established a more concrete focus on the prevention of human rights violation to a type of technology. In EU Regulation 2021/821 Article 5, cyber-surveillance items were specifically singled out as the technology that could be given specific export control review for their potential use in violating human rights and international humanitarian law.⁴² In Article 9, EU Member states may authorize export control over dual-use items for human rights considerations, but that was up to the member states' discretion.⁴³ The changes made to EU's dual-use export control incorporated an added element of human rights consideration into the regime.

4. A RACE TO THE TOP? THE REALITIES OF THE TECHNOLOGY RACE

Export control regime have been viewed as security exception because it deals with the trade of military-used and dual-use goods. However, as countries now include the export control regime as part of their economic or human right considerations, the application of export control seemed to be expanding, and how these changes might impact the flow of international technology trade remains to be seen.

Under the WTO, the Information Technology Agreement under substantially lowered the tariffs of information-related products all around the world, representing about 97 percent of the world's information technology products.⁴⁴ The international development of the global information technological supply chains in the past decades have changed the feasibility of the use of export control law to contain the transfer of technology from one country to another. The global technology supply chain had expanded to many countries from all over the world. As the global trade has made

⁴¹ BUNDESVERBAND DER DEUTSCHEN INDUSTRIE, Feb. 24, 2017. See also DigitalEurope, European Commission Proposed Recast of the European Export Control Regime (Feb. 24, 2017).

⁴² Regulation (EU) 2021/821 Art. 5 1.

⁴³ Regulation (EU) 2021/821 Art. 9 1.

⁴⁴ WORLD TRADE ORGANIZATION, 2021.

countries become more integrated with one another, it is difficult to reverse the trend and try to consolidate a supply chain of specific technology all within a country.

In a White House report prepared for the United States President Joe Biden in 2021, the White House analyzed the manufacturing and supply chain of several industries important to the United States and discussed the impact of the global supply chain on the specific industry.⁴⁵ It is clear that there is a decrease in global percentage for United States manufacturing in the global supply chain, whether or not the resolution lies in moving all of the industries back to the United States seems questionable. For now, the application of export control laws in international trade is disruptive to the global technology chain, but the changing landscape of the international technology industry would give Brazil and Taiwan an opportunity to reanalyze both their own laws and their place in the global marketplace.

It is highly questionable whether or not including commercial dual-use goods and technology to the scope of a country's export control will preserve a country's technological leadership in the world. This is partially due to the fact that the commercial technology industry has evolved to be more inclusive of different countries as the global supply chain has become more integrated with each other. For example, Taiwan's vibrant export-oriented economy is heavily reliant on the exportation of goods and equipment related to the technology industry, especially those of the semi-conductor industry.⁴⁶ While the changes made in the United States and China's export control regime will inevitably impact Taiwanese corporations, what is also true is the independent nature of Taiwan's semi-conductor foundry industry that was fostered by the Taiwanese government and have grown to be a critical part of the global circuit chip manufacturing industry. Even though the semi-conductor foundry industry would not survive independently in the global semi-conductor business, the fact that Taiwan was able to develop a niche in the semiconductor industry and carve out a business for itself in the international marketplace highlights the fact that commercial technological leadership is no longer concentrated to a few countries. Therefore, export control legislation that have been passed to achieve the policy goals of preserving a country's technological leadership might be hard to achieve in the current international trade setting.

The inclusion of a human rights factor is an interesting input to the export control regime, but how EU and other countries will actually implement it will be something to analyze in the future. Whether this extra human security concern will change certain aspect of the international technology trade would also be something to be researched later.

5. CONCLUSION

The recent changes in the export control laws in other countries are creating extra trade barriers for the technology industries. While industries are against governments imposing export control laws due to the global nature of the technology supply chain, security considerations exist for governments. What might happen if more and more

⁴⁵ THE WHITE HOUSE, June 2021.

⁴⁶ MINISTRY OF ECONOMICS BUREAU OF FOREIGN TRADE, 2020-B.

countries impose their own export control regulations is the possibility that countries will now have to choose whose security concerns are they most aligned with and shape their own export control regimes to those trading partners. This result will certainly change the security-oriented and consensus building-element that used to exist in export control regimes.

This research pointed out that the export control trade war is a very fierce dispute, in which the main actors are developed countries, with special emphasis on the United States, China and the European Union.

Restrictions related to export controls are an important instrument used by the United States to conserve and expand its technological and economic leadership in the world. China, in turn, taking into account its relevance in the international economy, strongly competes for more space.

The cases studied in this research show that export control can serve not only to accumulate and conserve the development and control of technology within developed countries, but also has an impact on the technological safety of importers, many of them are developing countries like Brazil.

In Brazil, much attention is given to national policies to control imports and stimulate exports, but the effects of import controls carried out by developed countries are not discussed.⁴⁷ Hence the undeniable importance of bringing this important international panorama and involving Brazil in this discussion, as international policies are being determined which can maintain and increase our technological dependence, as well as interfere in the security of the importing country and its citizens.

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