PUBLIC HEALTH POLICY SPACE FOR RESPONDING TO POTENTIAL PANDEMICS UNDER THE SCM AGREEMENT

Ying-Jun Lin & Feng-Jen Tsai*

ABSTRACT

During the COVID-19 pandemic, trade measures are popular to countries to secure and strengthen the health care system's capacity. Subsidies are one of the trade measures to boost the production of medical products and build up the domestic supply chain. The article explores the legality of a subsidy responding pandemics under the framework of the Agreement on Subsidies and Countervailing Measures (hereinafter "SCM Agreement"). The analyses reveal that the uncertainty inherent to pandemic responses does not automatically exempt governments' financial contributions from the governance of the SCM Agreement. Two solutions are proposed to reserve policy space for public health subsidies. One is to reconsider the relevance of the precautionary principle in interpretation of the SCM Agreement; another is to reflect the balancing policy in the SCM Agreement. A point central to the two solutions is harmonizing the international trade governance and global health governance in response to pandemics. Besides, the article highlights the role of regional governance in managing the emergency supply-demand imbalance caused by public health threats and exploring new subsidy rules.

* Ying-Jun Lin, Assistant Professor, School of Law, Chungyuan Christian University, Taiwan. Feng-Jen Tsai, Director and Associate Professor of PhD Program in Global Health and Health Security, Taipei Medical University, Taiwan. The authors can be reached at: yingjunlin@cycu.edu.tw; jeanfjtsai@tmu.edu.tw. Part of this work was supported by the WTO Chairs Programme. This article does not reflect the opinions or views of the World Trade Organization, its Secretariat or any of its Members.

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I. INTRODUCTION

In COVID-19, medical products, such as personal protective products, hospital and laboratory supplies, medicines, and medical technology, are crucial to fight and control the pandemic. The development of the pandemic is in line with the mutation of the disease. Therefore, the conditions of the pandemic and scientific information are uncertain and influential to decision-making.

Among COVID-19 responses, trade measures are popular to secure and strengthen the health care system's capacity. For instance, export restrictions and subsidies are popular to secure medical equipment and product supplies to meet the national conditions. Nevertheless, these measures might constitute governmental interventions on the trade of medical products that cause trade distortion effects, although they are for public health purposes.

Compared with the other trade measures such as export restrictions, the legality of a subsidy is more controversial in World Trade Organization (hereinafter "WTO") law. First, a subsidy for healthcare industries during the pandemic is mainly for building up or strengthening the capacity of national health systems. The capacity-building usually targets a group of industries or enterprises. It is questionable whether the benefits conferred to industries and enterprises are concerned with "private interests," or "public interest," or hybrid interests. If subsidies are for public interests, could the measures be exempted from the governance of WTO laws because of its legitimate policy purpose of protecting the population interests? Second, the trade effects of these subsidies are relatively long-term. The over-production of medical products that disturbs the global market would happen after a certain period of adopting a subsidy. The appropriateness is questionable to challenge this kind of subsidies due to the afterward trade-distortion effects. After all, their original policy purpose was to support the national capacity of healthcare services and the affordability of hospital systems.

Subsidies for healthcare industries raise tension between public health policies and the WTO governance. The former is concerned with the protection of the population's health, while the latter is concerned with the fairness of the trade environment. To what extent WTO law strikes a balance between public health policies and trade policies is crucial for the international society and governments to prepare for future pandemics.

This article proposes a scenario that the tension is rooted in the uncertainty of public health policies, on the one side, and, on the other side, the specificity and predictability required by WTO law. The uncertainty inherent to pandemic responses might not automatically exempt the governance of WTO rules and restrain policy space for pandemic responses. Therefore, we suggest that the precautionary purpose of public health subsidies could open a door to justify the trade-distortion effects, either

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through treaty interpretation or amending WTO rules.

The article contains five parts except for the introduction. Part II explores the development pattern shared by the COVID-19 and other pandemics and explains three dimensions of the uncertainty of infectious diseases. The uncertainty leads to the precautionary nature of public health responses. Part III discusses the WTO governance of subsidies, namely the Agreement on Subsidies and Countervailing Measures (hereinafter "the SCM Agreement"). The discussion focuses on two requirements of the SCM Agreement: conferring benefits and specificity of a subsidy. The findings reveal the limited space for legitimate objectives in the determination process. Part IV analyzes the applicability of general exceptions of the General Agreement on Tariffs and Trade (hereinafter "GATT") to justify a subsidy for public health objectives. In Part V, the article proposes two ideas to harmonize the tension between the SCM Agreement and public health policies. Besides, learned from the COVID-19 pandemic, Part VI suggests regional organizations in the Asia-Pacific region such as the Association of Southeast Asian Nations (hereinafter "ASEAN") and the Asia-Pacific Economic Cooperation (hereinafter "APEC") could take the lead to explore regional cooperation and collaboration system to manage the supply and demand of medical products. Also, they can be incubators to discuss new subsidy rules to balance public health concerns against trade interests.

II. LESSONS FROM THE COVID-19 PANDEMIC: SUBSIDIES OF MEDICAL PRODUCTS FOR THE PUBLIC HEALTH PURPOSE

A. The Development of the COVID-19 Pandemic and the Needed Medical Products

The COVID-19 pandemic presents the world with an unprecedented public health challenge. COVID-19 started initially been from Wuhan, China, in late 2019. With delayed reporting in the beginning,[1] up to the end of November 2021, it has already caused more than 5.4 million deaths and more than 2,909 million confirmed cases worldwide.[2] When this article was submitted, the world is still under the fourth peak of the COVID-19 outbreak with mutated Omicron virus. These facts show the severe impact of COVID-19 on human society and the uncertainty of the development of such a pandemic.

The development of the COVID-19 pandemic can divide into different

[1] Associated Press, *China Delayed Releasing Coronavirus Info, Frustrating WHO*, DIPLOMAT (June 2, 2020), https://thediplomat.com/2020/06/china-delayed-releasing-coronavirus-info-frustrating-who/.

[2] *WHO Coronavirus (COVID-19) Dashboard*, WORLD HEALTH ORG. [hereinafter WHO], https://covid19.who.int/ (last visited Jan. 4, 2022).

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stages.[3] With the evolution of the pandemic and the increased scientific understanding of the disease, the need for medical products is identified and increased progressively.

In the first stage, the cross-border spread of COVID-19 within the incubation period led to the community transmission in many countries before March 2020. At this stage, the most needed medical products were face masks, which refer to surgical masks and disinfection cleaning materials like 60% alcohol for individuals to prevent the virus's infection. Then the capacity of the health care system began to exceed as a consequence of the COVID-19 outbreak in the community.

While the massive amount of COVID-19 patients seeks healthcare service in the hospital at the same time due to the outbreak in the community, the shortages of crucial equipment needed to care for critically ill patients, including ventilators and personal protective equipment (hereinafter "PPE"): like respirators, gloves, face shields, gowns, and hand sanitizer for medical staffs, were reported in most affected countries. In addition, the lack of adequate PPEs for the frontline healthcare workers also contributed to the experience of high rates of infection death in several countries.[4] During the period, the clinical practice and studies found that the typical clinical characteristics of COVID-19 were fever and cough.[5] Also, the ground-glass opacity was the most common radiologic finding on chest computed tomography (CT).[6] While the COVID-19 virus severely impacted the function of the lung, the tremendous shortage of oxygen and ventilators further led to an ethical dilemma for frontline healthcare workers to allocate limited resources.[7] The shortage of COVID-19 diagnostic tests also delayed the control of the outbreak. Therefore, those medical products were urgently needed during the third stage.

The last stage is the afterwards of the curve of the COVID-19 outbreak. At this stage, the pandemic is finally flatted by the collaborative efforts of experts around the world. However, with rapid advanced scientific evidence in late 2020, the need for medical products like vaccines to prevent further outbreaks and deaths is growing, even now.

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[3] *See generally* Thiago Carvalho et al., *The First 12 Months of COVID-19: A Timeline of Immunological Insights*, 21 NATURE REVS. IMMUNOLOGY 245 (2021).

[4] *See generally* Megan L. Ranney et al., *Critical Supply Shortages—The Need for Ventilators and Personal Protective Equipment During the Covid-19 Pandemic*, 382 NEW ENG. J. MED. e41(1), e41(1) (2020).

[5] *See* Parag Goyal et al., *Clinical Characteristics of Covid-19 in New York City*, 382 NEW ENG. J. MED. 2372, 2372 (2020).

[6] *See* Wei-jie Guan et al., *Clinical Characteristics of Coronavirus Disease 2019 in China*, 382 NEW ENG. J. MED. 1708, 1711 (2020).

[7] *See* Ezekiel J. Emanuel et al., *Fair Allocation of Scarce Medical Resources in the Time of Covid-19*, 382 NEW ENG. J. MED. 2049, 2050 (2020). *See generally* Harshil Bhatt & Sandeep Singh, *The Ethical Dilemma of Ventilator Sharing During the COVID-19 Pandemic*, 10(2) J. GLOB. HEALTH 1 (2020), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7688199/ (last visited Jan. 15, 2022).

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B. The Subsidy of Medical Products During the COVID-19 Pandemic

The needed medical products for responding to emerging infectious diseases could be generally categorized into "emergency medical goods" and "general medical goods," based on the specificity of the targeted disease.

The "emergency medical goods" are products made for specified new diseases or possible future pandemics, like the COVID-19 vaccine. One of the fundamental issues for those products would be the uncertainty of the "possible market" and the "predictable return" for their investment. If there is no such pandemic, or if the pandemic finished at an early stage without the need for such product, there won't be any "market" and "possible benefit" for the parabronchial company. And even there comes the pandemic; the investment of such a product does not guarantee the return if the R&D is not working. Therefore, governments usually will be the only buyer for those products while the stage of the possible pandemic is uncertain.

In contrast, "general medical goods" like face masks are not specially targeted on a specific disease. These kinds of goods already exist in the market and do not require financial support to create a market or advance R&D. However, as we mentioned before, the need for medical products is identified and increased progressively with the evolution of the pandemic and the increased scientific understanding of the disease. Take COVID-19, for example, the need for face masks as shown in the first stage. Although face mask is not a new product, the shortage of such product due to the sudden appearance of the outbreak would make the general medical good into a possible privileged medical product for responding to the pandemic.

To respond to the shortage of medical products during the COVID-19 pandemic, many governments introduced policies to secure the local supply of the products, especially in the early pandemic. Restricting the export of goods considered by governments is one of the policies essential to combat the disease.[8]

In the first stage, several countries prohibited the exportation of face masks from preserving essential medical products' capacity for their people. For example, the Taiwan government had banned mask exports and requisitioned all masks made in Taiwan since January 2020 to ensure the local supply of masks.[9] European Union (hereinafter "EU") and the United States (hereinafter "US") also applied export controls on their domestically

[8] BDI, *Export Controls and Export Bans over the Course of the Covid-19 Pandemic*, WORLD TRADE ORG. [hereinafter WTO] (Apr. 29, 2020), https://www.wto.org/english/tratop_e/covid19_e/bdi_covid19_e.pdf.

[9] *Taiwan: Government Lifts Mask Export Ban and Loosens COVID-19 Restrictions*, LIBR. CONG. (June 26, 2020), https://www.loc.gov/item/global-legal-monitor/2020-06-26/taiwan-government-lifts-mask-export-ban-and-loosens-covid-19-restrictions/.

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produced PPE in the early stage of the pandemic.[10]

Except for export restrictions, many countries also introduced the strategic subsidy policy to address the shortage of local supply of the PPE by enhancing the local capacity and production. For example, the US government deployed an industrial policy in the form of $1.2 billion of subsidies from 2020 to expand domestic PPE production capacity directly.[11] It started by subsidizing domestic facilities producing N-95 respirators from mid-April 2020. Overall, it made nearly $800 million of publicly funded investments in American PPE production capacity expansion, as well as for inputs along the PPE supply chain, in 2020. Furthermore, based on the Coronavirus Aid, Relief, and Economic Security Act (CARES Act) passed by the 116th US Congress and signed into law by President Donald Trump on March 27, 2020, the Department of Health and Human Services (HHS) collaborated with the Department of Defense (DOD) to give subsidies to specific companies to add product lines for N-95 respirators or surgical masks.[12] Freeman Manufacturing and others received subsidies further scaled up the production of hospital gowns.

Besides the subsidies of producing the required PPE, more funding was sent to other companies to expand the production of key inputs needed for PPE manufacturers of those surgical masks, respirators, and hospital gowns.[13] In May and June of 2021, the US government further spent over $400 million on a half dozen companies to expand the capacity, including for key raw material inputs, for the nitrile glove production.

The subsidization of medical products and the demand shock-induced entry by American firms instead has changed the landscape of the domestic healthcare industry, although the COVID-19 pandemic is not yet finished. Moreover, the similar subsidy policy across countries might lead to a foreseeable over-production of relevant products. In addition, over-production changes the landscape of the international market of relevant medical products and influences the competitive environment. These changes all raise the concern of unfair trade caused by subsidies for preventing the pandemic. Likewise, the subsidy policy for vaccine production in many countries could also result in similar consequences.[14]

Slightly different from the scenario of PPE, the trade-in vaccine was

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[10] *Export Prohibitions and Restrictions*, *Information Note*, WTO (Apr. 23, 2020), https://www.wto.org/english/tratop_e/covid19_e/export_prohibitions_report_e.pdf.

[11] *See* Chad P. Bown, *How COVID-19 Medical Supply Shortages Led to Extraordinary Trade and Industrial Policy*, 17(1) ASIAN ECON. POL'Y REV. 1, 14 (2021).

[12] The subsidies were provided to 3M, O&M Halyard, Honeywell, Crosstex, and Medline Industries to add product lines for N-95 respirators or surgical masks.

[13] Hollingsworth & Vose (filters), Lydall (meltblown filtration media), and NPS (meltblown fiber) received such subsidies to expand the production of key inputs needed for PPE manufacturers of those surgical masks, respirators, and hospital gowns.

[14] *See* Chad P. Bown & Thomas J. Bollyky, *How COVID-19 Vaccine Supply Chains Emerged in the Midst of a Pandemic* 35 (Peterson Inst. for Int'l Econ., Working Paper No. 21-12, 2021).

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considered as public investment at-risk. For example, only three of the seven domestic vaccines for which the United Kingdom (hereinafter "UK") government made advance purchase commitments ultimately established some domestic manufacturing facilities.[15]

The UK subsidy strategy featured a two-pronged approach: accelerating the vaccine supply domestically in the short term and enhancing the ability to manufacture vaccines in the long run. For the first part, the UK started early in May 2020 to subsidize the acceleration of clinical trials for two home-grown candidates. The government also gave financial support of £31 million to manufacture the vaccine candidates for clinical trials and £42 million to reserve the fill-and-finish capacity for 18 months at UK sites. Moreover, the United Kingdom paid out £914 million upfront, much of it nonrefundable, for the companies to further develop their clinical trials and set up their supply chains at risk.[16]

Regarding the second component of the UK subsidy strategy, the UK government spent more than £266 million to enhance the long-term ability of the United Kingdom to manufacture vaccines. The scope of such subsidization includes training programs for staff and the development of new national databases to speed up registrations needed for future clinical trials. Although the world still needs vaccines to combat the COVID-19 pandemic, the possible price competition of vaccines in the coming year is also predicted and alarmed.

Experiences of fighting the COVID-19 pandemic reveal the impacts of public health policy on trade while those policies have a legitimate policy purpose of combating infectious diseases.

C. The Uncertainty of Emerging Infectious Diseases and Subsidies for the Precaution Purpose

According to the experiences combating the COVID-19 pandemic, we can see governments' actions are altering along with the evolution of the pandemic and the development of scientific knowledge. While the international society has been experiencing several pandemics, the prediction of emerging infectious diseases had not been commenced until the severe acute respiratory syndrome (hereinafter "SARS") happened in 2003. The following global outbreak of the H1N1 virus, Ebola virus and zika virus, instead, showed us the difficulty of predicting the pattern of infectious diseases because of the variety and complexity of possible infectious diseases. The various patterns of infectious diseases, including the COVID-

[15] As of July 2021, only one of these vaccines (AstraZeneca) had been granted emergency use; the other two (Novavax and Valneva) had not yet been cleared by regulators.

[16] *GSK to Support Manufacture of Novavax' COVID-19 Vaccine*, GSK (Mar. 29, 2021), https://www.gsk.com/en-gb/media/press-releases/gsk-to-support-manufacture-of-novavax-covid-19-vaccine/.

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19 pandemic, reveal the nature of the uncertainty of pandemics. The uncertainty explains the alternation and changes in public health policies.

The uncertainty of infectious diseases and public health policies can be explained from several dimensions. The first dimension is about the uncertainty of the types of transmission routes of the future emerging infectious disease. The uncertainty relates to the health impact of the emerging infectious disease being predicted.

Scientifically, an infectious disease can be classified by modes of transmission as direct and indirect transmission.[17] An infectious agent is transferred from a reservoir to a susceptible host by direct contact or droplet spread in direct transmission. Direct contact occurs when infectious organisms are transferred from an infected person to a susceptible individual, either directly through physical contact or indirectly via contaminated objects (e.g., US transducer, fluoroscopy table, doorknob, computer mouse); susceptible individuals could then inoculate themselves by touching their eyes, nose or mouth with contaminated fingers.[18] Indirect transmission is the transfer of an infectious agent from a reservoir to a host by suspended air particles, inanimate objects (vehicles), or animate intermediaries (vectors). In other words, the transmission route of indirect transmission varies from transmitted through the air like COVID-19, food and water like hepatitis A, and through vectors as mosquitos like Zika or malaria.

Because the transmission route of possible future pandemics varies results in different health impacts, it will differentiate the need for medical products and related preventive products. Although medical products like hand hygiene and PPE for personal protection and the products for cleaning and disinfection of the environment were always essential, products for preventing the spread of the virus at the community level highly depended on the transmission routes of the disease. For example, air-cleaning devices and personal decontamination products were recommended by the governments for preventing the COVID-19 infection due to its nature as an air-transmitted virus.[19] Moreover, bed nets would be the needed prevention products to prevent mosquito-transmitted disease.

The second dimension is about the virus of emerging infectious diseases.

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[17] *Lesson 1: Introduction to Epidemiology, Section 10: Chain of Infection*, CDC, https://www.cdc.gov/csels/dsepd/ss1978/Lesson1/Section10.html#_ref46 (last visited Jan. 15, 2022).

[18] *See* Monica Miranda-Schaeubinger et al., *A Primer for Pediatric Radiologists on Infection Control in an Era of COVID-19*, 50(9) PEDIATRIC RADIOLOGY 1191, 1197 (2020); Sobia K. Mirza et al., *Microbiology for Radiologists: How to Minimize Infection Transmission in the Radiology Department*, 35(4) RADIOGRAPHICS 1231, 1232 (2015); *How Infections Spread*, CDC, https://www.cdc.gov/infectioncontrol/spread/index.html (last visited Jan. 15, 2022).

[19] *See generally Potential Application of Air Cleaning Devices and Personal Decontamination to Manage Transmission of COVID-19*, GOV.UK (Nov. 4, 2020), https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/939173/S0867_EMG_Potential_application_of_air_cleaning_devices_and_personal_decontamination_to_manage_transmission_of_COVID-19.pdf.

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While previous experiences and scientific theories indicate the possible scope of medical products, the uncertainty of the possible virus remains the biggest challenge for public health policy. If the virus cannot be identified, policy instruments and actions to prevent the emerging infectious disease cannot be specified. Human experiences shed light on a serious threat to the health of populations potentially posed by infectious diseases and indicate possible preventive actions. However, specific actions and the development of infectious diseases still need information and knowledge. This explains the third dimension of uncertainty to infectious diseases, namely the uncertainty of scientific knowledge.

Without adequate scientific knowledge, a government cannot make proper and sound decisions. In the situation of emerging infectious disease, however, governments are required to make fast decisions and repaid actions. Therefore, these actions are usually undertaken in conditions with a pervasive lack of knowledge and scientific evidence.

Recent human and animal epidemics provide clear examples of the relationship between the uncertainty of the emergence of new diseases and the lack of knowledge. In 2000, an inquiry into the UK's BSE crisis, Mr. Cruickshank of the Animal Health Group in the UK's Ministry of Agriculture, Fisheries and Food remarked that "[w]e do not know where this disease came from, we do not know how it is spread and we do not know whether it can be passed to humans."[20] In the case of the emergence of SARS in 2003, global scientific uncertainty has been strikingly evident with the statement described the situation when the global health community first became aware of the emergence of SARS. It stated that: "[T]he international health community faced a potential pandemic for which there were no identified causal agent, no diagnostic laboratory assays, no defined properties or risk factors for transmission, no infection-control practices of proven efficacy, and no known treatment or prevention measures."[21]

The three dimensions of uncertainty explain the changes in public health policies when facing emerging infectious diseases. Moreover, they explain why the World Health Organization (hereinafter "WHO") recommended precautionary policies as crucial instruments to address the uncertainty of infectious diseases.

Nevertheless, the legitimacy of precautionary policies might be challenged if the consequence of the policies generates negative impacts on national and global interests.

Take the WHO's recommendations during the 2009 swine flu pandemic, for example. When the H1N1 influenza virus was out of the break in 2009,

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[20] LORD PHILLIPS OF WORTH ET AL., BSE INQUIRY REPORT: VOLUME 1—FINDINGS AND CONCLUSIONS 44 (2000).

[21] *See* Jairam R. Lingappa et al., *Wresting SARS from Uncertainty*, 10(2) EMERGING INFECTIOUS DISEASE 167, 167 (2004).

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the WHO declared the condition as a "public health emergency of international concern" for infectious disease control according to the amendment of International Health Regulations 2005 (IHR 2005).[22] At the beginning of the pandemic, studies estimated that the real number of cases, including asymptomatic and mild cases, could be 700 million to 1.4 billion people—or 11 to 21% of the global population of 6.8 billion.[23] Concerning the potentially severe threat to the population in the world, the WHO recommended countries take precautionary actions while the development of the 2009 swine flu pandemic was uncertain.

One of the precautious actions recommended by WHO at that time was preparing the minimal amount of "Tamiflu" in response to the potential pandemic.[24] Many countries did follow the WHO's recommendation and spent huge budgets in purchasing drugs and vaccines, including Tamiflu. Nevertheless, the final development of the H1N1 pandemic was comparatively mild than the prediction. The number of lab-confirmed deaths reported to the WHO is around 18,449, while the WHO predicted the H1N1 flu to cause the infection of approximately a third of the world population at the time.[25]

The serious gap between the prediction and actual results raises the concern of the legitimacy of precautionary actions. A specific issue is whether the WHO's recommendation of precautionary actions is violated with the principle of the conflict of interests and confer benefits to specific companies.

At that time, the Parliamentary Assembly of the Council of Europe and the British Medical Journal (BMJ) made a statement concerning the transparency issue during the decision-making process of declaring the global pandemic of H1N1.[26] In January 2010, Dr. Wolfgand Wodarg, who

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[22] *See* Martin Michaelis et al., *Novel Swine-Origin Influenza a Virus in Humans: Another Pandemic Knocking at the Door*, 198(3) MED. MICROBIOLOGY & IMMUNOLOGY 175, 177 (2009).

[23] *See* Kelly Heath et al., *The Age-Specific Cumulative Incidence of Infection with Pandemic Influenza H1N1 2009 Was Similar in Various Countries Prior to Vaccinatio*n, 6(8) PLOS ONE 1, 1 (2011). *See generally* Robert Roos, *Study Puts Global 2009 H1N1 Infection Rate at 11% to 21%*, CIDRAP (Aug. 8, 2011), https://www.cidrap.umn.edu/news-perspective/2011/08/study-puts-global-2009-h1n1-infection-rate-11-21; Declan Butler, *How Severe Will the Flu Outbreak Be?*, 459(7243) NATURE 14 (2009).

[24] *See* WHO Dep't Communicable Disease Surveillance & Response, *WHO Global Influenza Preparedness Plan: The Role of WHO and Recommendations for National Measures Before and During Pandemics*, WHO 11, 15 (2005), https://apps.who.int/iris/handle/10665/68998; WHO Dep't Communicable Disease Surveillance & Response, *WHO Guidelines on the Use of Vaccines and Antivirals During Influenza Pandemic*, WHO, Annex 1, 3-4 (2004), https://apps.who.int/iris/handle/10665/70631.

[25] *Pandemic (H1N1) 2009—Update 112: 2010—India*, WHO (Aug. 6, 2010), https://www.who.int/emergencies/disease-outbreak-news/item/2010_08_06-en.

[26] *See* Paul Flynn, *The Handling of the H1N1 Pandemic: More Transparency Needed*, COUNCIL EUR. PARLIAMENTARY ASSEMBLY 7 (Mar. 23, 2010), https://assembly.coe.int/CommitteeDocs/2010/20100329_MemorandumPandemie_E.pdf.

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chaired the Health Committee at the Council of Europe, claimed that the H1N1 pandemic was a "false pandemic" because pharmaceutical companies put pressure on WHO to announce the pandemic declaration and support development and use of vaccines.[27]

It is questionable whether these criticisms are fair to the WHO because they are taking an afterthought to review the WHO decisions during the pandemic. However, it is undoubted that the experience of the H1N1 pandemic causes the chilling effect to governments and partially explains the delayed public health responses of the world, including the WHO, regarding the COVID-19 pandemic.

We can foresee that the world will be confronting other infectious diseases in the future. However, governmental actions in responding to the emerging infectious disease will still attract critiques that second-guess and review the effectiveness of these actions.

Therefore, two points are inspired by the lessons of COVID-19 and previous pandemics. First, governmental actions in response to severe public health crises are often precautionary decisions.[28] The precautionary actions are designed to address the uncertainty of infectious diseases and scientific knowledge. Secondly, the governmental actions in combating pandemics are part of trade measures that might disrupt the market of medical products and cause adverse effects on international trade.

Because of the intertwined relationship between public health policy and trade policy, the article argues that international trade regulations, i.e. the WTO law, strike a balance against public health policies is vital for future pandemic preparedness. Furthermore, the issue will be more intensive if countries provide subsidies for medical products to secure the local supply and production precautionary.

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[27] Lisa Schnirring & Robert Roos, *Health Officials, Experts Reject "False Pandemic" Charges*, CIDPRAP NEWS (Jan. 13, 2010), https://www.cidrap.umn.edu/news-perspective/2010/01/health-officials-experts-reject-false-pandemic-charges; David P. Fidler, *Negotiating Equitable Access to Influenza Vaccines: Global Health Diplomacy and the Controversies Surrounding Avian Influenza H5N1 and Pandemic Influenza H1N1*, 7(5) PLOS MED. 1, 3 (2010).

[28] Andrew Stirling & Joel A. Tickner, *Implementing Precaution: Assessment and Application Tools for Health and Environmental Decision-Making*, *in* THE PRECAUTIONARY PRINCIPLE: PROTECTING PUBLIC HEALTH, THE ENVIRONMENT AND THE FUTURE OF OUR CHILDREN 181, 184-86 (Marco Martuzzi & Joel A. Tickner eds., 2004).

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III. THE REGULATION OF INDUSTRIAL POLICIES UNDER THE SCM AGREEMENT

A. The Regulatory Scenario of the WTO Governance of Subsidies

A subsidy not only affects the landscape of the market but also the economic structure and industrial policies of a country. For either developed countries or developing countries, industrial policies are essential to maintain their comparative advantages in interdependence and respond to the changes in the international trade environment.[29] In specific, entering and advancing the process of industrialization and supporting infant industries are essential for developing countries to compete with other countries in the era of globalization. Moreover, under the macroeconomic purposes, subsidies coordinated with the patent system and other entry barriers can create a more stable environment that encourages domestic firms to establish the ecosystem of the targeted industry.[30]

On the other hand, subsidies raise the concern of protectionism. Because a subsidy involves a government's financial support, it implies governmental intervention in the competitive environment between domestic and foreign firms. The inconclusive debate of the advantage of subsidies among economists also fuels the concern of subsidies in international trade law.[31]

By considering the potential trade-distorting effects of a subsidy, WTO drafters agreed on a set of rules to regulate the use of subsidies to prevent protectionist measures to constitute unfair trade.[32] The WTO rules include Article XVI of the GATT and the SCM Agreement. However, the scope of the SCM Agreement does not cover all trade activities. It only applies to the subsidies affecting trade in goods, not including agricultural products and trade in services.[33]

The SCM Agreement creates a tariff-lights model to categorize subsidies into three types. The three types of subsidies include prohibited subsidies (red box subsidies), actionable subsidies (amber box subsidies) and non-

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[29] HA-JOON CHANG, THE POLIITCAL ECONOMY OF INDUSTRIAL POLICY 75-76 (1996).

[30] SHERZOD SHADIKHODJAEV, INDUSTRIAL POLICY AND THE WORLD TRADE ORGANIZATION: BETWEEN LEGAL CONSTRAINTS AND FLEXIBILTIES 80 (2018).

[31] BIJIT BORA ET AL., INDUSTRIAL POLICY AND THE WTO, at 3, U.N. Doc. UNCTAD/ITCD/TAB/7, U.N. Sales No. E.00.II.D.26 (2000); Moonsung Kang, *Globally Optimal R&D Subsidy Policy: An Economist's View on the WTO Subsidy Agreement*, 23(2) J. ECON. INTEGRATION 346, 348 (2008).

[32] *See* Simon Lester, *The Problem of Subsidies as a Means of Protectionism: Lessons from the WTO EC — Aircraft Case*, 12 MELB. J. INT'L L. 1, 5 (2011); Chang-fa Lo & Tang-Kai Wang, *From Addressing Trade Distortion to Correcting Environmental Distortion: The Fisheries Subsidies Negotiation as the Turning Point of the WTO's Task*, 16 ASIAN J. WTO & INT'L HEALTH L. & POL'Y 153, 166 (2021).

[33] BORA ET AL., *supra* note 31, at 20.

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actionable subsidies (green subsidies).[34] Regarding prohibited subsidies, member countries agreed to only concentrate on export subsidies and import substitution subsidies.[35] In addition, member countries permitted the adoption of R&D subsidies that include assistance to industrial research and pre-competitive development activity, pursue regional development and promote new environmental requirements.[36] For instance, people (staff and researchers), equipment, instruments, buildings, technical knowledge, running costs that involved the targeted research activity are part of permitted subsidies.[37] Nevertheless, these green subsidies were expired since the Year 2000.[38]

The arrangement of the SCM Agreement reveals the dilemma facing WTO drafters. On the one hand, they recognized and gave deference to the regulatory needs through the categorization of subsidies, the transition rule of green subsidies and special and differential treatment for developing countries. On the other hand, they intended to avoid protectionist policies in the disguising subsidy and minimize the disruption on the competition relationship by setting up a series of requirements.[39] Consequently, the legality of a subsidy is evaluated in line with the SCM Agreement to maintain the certainty of international trade governance.[40]

The SCM Agreement provides a two-stage examination. The first stage is to identify a governmental action falling within the scope of the SCM agreement. Once the governmental action constituting the subsidy under the SCM Agreement, it is required to satisfy requirements that the SCM Agreement provides in accordance with prohibited or actionable subsidies.

Conferring benefits to specific targets is a premise of regulation of subsidies by the SCM Agreement. For public health subsidies, an arguable issue is whether the uncertainty of diseases and pandemic responses could exempt the subsidy from constituting a conferred benefit and how the relevance of the uncertainty in the determination process. Moreover, to what extent would the uncertainty of public health policies not threaten the certainty of WTO subsidies rules?[41]

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[34] Agreement on Subsidies and Countervailing Measures art. 2.1(c), Oct. 30, 1947, 1869 U.N.T.S. 14 [hereinafter SCM Agreement]; Kang, *supra* note 31, at 347 n.4.

[35] SCM Agreement art. 3.1(a).

[36] SCM Agreement art. 8.2(a), (b), (c).

[37] SCM Agreement art. 8.2(a)(i), (v).

[38] SCM Agreement art. 31 ("The provisions of . . . Article 8 and Article 9 shall apply for five years, beginning with the date of entry into force of the WTO Agreement.").

[39] Kang, *supra* note 31.

[40] Article 3.2 of the Understanding on Rules and Procedures Governing the Settlement of Disputes also indicates a function of the WTO system as "providing security and predictability to the multilateral trading system."

[41] The authors thank the reviewer for pointing out this issue to deepen the understanding of the uncertainty of pandemic responses is in the WTO system.

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B. The Requirement of Conferred Benefits

Article 1.1 of the SCM Agreement identifies certain situations in government efforts that would be amount to financial contributions. Financial contributions would not be condemned only if they conferred a benefit.[42] "A conferred benefit" is a key issue to decide whether a governmental effort applies to the SCM Agreement.

In *Canada — Aircraft*, the Appellate Body stated that the term of benefits implies advantages. The requirement needs to be examined from the perspective of the recipient rather than the government. Therefore, "the benefit must be received or enjoyed by a beneficiary or a recipient, not the cost to government."[43] Besides, the recipient must be in a more favorable market position because of the received financial contribution. In this regard, the benefit needs to be examined by an appropriate comparable basis, the marketplace.[44] The Appellate Body, in *Canada — Renewable Energy*, repeatedly confirmed that the market-based analysis is crucial to determine the existence of a conferred benefit, regardless of the characteristics and methods of a measure.[45] In other words, the absence of a market benchmark will hinder the evaluation of whether a subsidy has existed or not.[46]

The market-based benefit analysis provides a baseline to the transition from financial contributions to conferred benefits. However, the analysis that hinges upon the conception of the market raises issues of how to define the "relevant market" in which a governmental financial contribution affects the competitive environment. If no market existed, is the governmental action still subject to the SCM Agreement?

In *EC — Aircraft*, Appellate Body relied on economic conceptions, i.e. demand-side and supply-side, to explain "the relevant market" referring to the area of economic activity in which the existence of buyers and sellers and the forces of supply and demand decide prices.[47] More specifically, an area

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[42] SCM Agreement art. 1.1:

> For the purpose of this Agreement, a subsidy shall be deemed to exist if: (a)(1) there is a financial contribution by a government or any public body within the territory of a Member (referred to in this Agreement as "government"), i.e. where: . . . or (a)(2) there is any form of income or price support in the sense of Article XVI of GATT 1994, and (b) a benefit is thereby conferred.

[43] Appellate Body Report, *Canada — Measures Affecting the Export of Civilian Aircraft*, ¶ 157, WTO Doc. WT/DS70/AB/R (adopted Aug. 20, 1999).
[44] *Id.* ¶¶ 157-58.
[45] Appellate Body Report, *Canada — Certain Measures Affecting the Renewable Energy Generation Sector*, ¶ 5.130, WTO Doc. WT/DS412/AB/R (adopted May 24, 2013).
[46] *Id.* ¶ 5.164.
[47] Appellate Body Report, *European Communities and Certain Member States — Measures Affecting Trade in Large Civil Aircraft*, ¶¶ 1121-22, WTO Doc. WT/DS316/AB/R (adopted June 1, 2011).

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in which two products have an actual or potential competition relationship can be defined as the market relevant to the challenged subsidy.[48] The Appellate Body recognized that commercial consideration is not decisive to the definition of the market, especially in the absence of market data to a financial contribution. In *Japan — DRAMs (Korea)*, the Appellate Body also confirmed the role of non-commercial consideration to evaluate the "usual practice" in the market.[49] Accordingly, the term "a conferred benefit" under the SCM Agreement is determined by the following elements: (1) contributions received by the recipients; (2) the definition of the market; (3) a comparison of the recipient's treatment against others. The determination is required a market-oriented analysis.

However, the regulatory purpose of protecting a market would not be achieved once the market does not exist or is created without the government's support. In this regard, a possible counterargument to the determination of conferring benefits is to prove the absence or non-existence of a market.[50] This is a "no market, no harm" scenario.

The Appellate Body in *Canada — Feed-in-Tariff Program* ever responded to the no-market argument.[51] It believed a market-based approach to benefit benchmarks "not excluding to take into account situations where governments intervene to create markets that would otherwise not exist."[52] A panel is required to distinguish the situation where government interventions create a market from other situations where government interventions impact an existing market. The former situation is not subject to the governance of the SCM Agreement in line with Article 1.1.[53] Accordingly, the Appellate Body found that the markets for renewably generated electricity exist in Ontario only because of government intervention and the benefits of the feed-in tariff program (hereinafter "FIT Program") cannot be determined because of no market that FIT generators could enter.[54]

The market benefit analysis and no market counterargument are important to the legality of public health subsidies. For the group of

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[48] *Id.* ¶ 1122.

[49] Appellate Body Report, *Japan — Countervailing Duties on Dynamic Random Access Memories from Korea*, ¶ 226, WTO Doc. WT/DS336/AB/R (adopted Dec. 17, 2007) [hereinafter *Japan — DRAMs (Korea)*].

[50] Ru Ding, *Time to Reform the Non-Actionable Subsidy Rules in the WTO: The COVID-19 Subsidies and Beyond*, *in* RETHINKING, REPACKING, AND RESCUING WORLD TRADE LAW IN THE POST-PANDEMIC ERA 57, 65 (Amrita Bahri et al. eds., 2021).

[51] The authors thank the reviewer for reminding the discussion of the no-market argument in WTO dispute cases.

[52] Appellate Body Report, *Canada — Measures Relating to the Feed-in-Tariff Program*, ¶ 5.185, WTO Doc. WT/DS426/AB/R (adopted May 24, 2013) [hereinafter *Canada — Feed-in-Tariff Program*].

[53] *Id.* ¶ 5.188.

[54] *Id.* ¶ 5.199.

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emergency medical goods such as vaccines and novel medicine, a market could not exist without government support. In this situation, government support would not constitute "a subsidy conferring benefits" because of the non-existence of a market. In contrast, for the group of general medical goods, government supports are to adjust the supply-and-demand imbalance in the existing market. Therefore, it is questionable that whether policy purposes can be used to defend the subsidy for general medical goods.

The WTO jurisprudence reveals panels and the Appellate Body struggling of introducing legitimate policy purposes in the determination of the SCM Agreement. The Appellate Body mentioned non-commercial factors as the supplements to the non-availability of commercial alternatives in the determination.[55] The Appellate Body in *Canada — Feed-in-Tariff Program* also agreed to consider the government's intention of creating a market in the benefits analysis. However, the Appellate Body clarified its position that considering legitimate policy purposes is inconsistent with Article 1.1(b) of the SCM Agreement.[56] The contradiction in the Appellate Body's opinions implies the relevance of non-commercial factors remaining arguable in practice.

The ambiguity of non-commercial factors affects the consideration of the uncertainty of diseases and public health responses.

Back to reviewing the subsidies adopted in pandemics, governments can procure medical products and medicines by a direct transfer of funds, making payments or other forms defined by paragraph 1 of Article 1.1 of the SCM Agreement. These government interventions are highly possible to be determined as subsidies conferring benefits to certain producers or industries that are in the existing market. Consequently, governmental supports for "general medical goods" that already exist in the market might be determined a conferred benefit.

C. The Requirement of Specificity

When government efforts are determined as a conferred benefit, the next question is whether the subsidies are specific to or generally available.

Article 2 of the SCM Agreement provides four situations to determine the specificity of a subsidy: enterprise-specificity, industry-septicity, regional specificity, and prohibited subsidies.[57] Among the four situations, the specificity of prohibited subsidies is the most easily determined because of

[55] *Japan — DRAMs (Korea)*, *supra* note 49, ¶ 226.
[56] *Canada — Feed-in-Tariff Program*, *supra* note 52, ¶ 5.185.
[57] U.N. CONF. OF TRADE & DEV., DISPUTE SETTLEMENT: WORLD TRADE ORGANIZATION, 3.7 SUBSIDIES AND COUNTERVAILING MEASURES, at 13, U.N. Doc. UNCTAD/EDM/Misc.232/Add.15 (2003), https://unctad.org/system/files/official-document/edmmisc232add15_en.pdf.

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the presumable defined by paragraph 3 of Article 2.[58] Other three situations may confront the difficulty of distinguishing *de jure* specificity or *de facto* specificity.[59]

In general, determining de jure specificity is easier by finding whether a subsidy has targeted sectors or firms. A problematic situation is when a subsidy provides objective criteria and conditions regarding eligibility to all potential firms or sectors. According to footnote 2 of the SCM Agreement, a subsidy can be exempt from the element of specificity if its economic effects are neutral. The neutrality of a subsidy could be assessed by the terms and conditions regarding the eligibility of a subsidy.

The WTO jurisprudence, however, shows that the exemption of de jure specificity is not as easy as expected, especially subsidies involving R&D programs.

In *United States — Aircraft*, the European Communities (hereinafter "EC") challenged the patent rights allocation under NASA/USDOD contracts and agreements that include the US government's payments and other supports to Boeing. The panel found the challenged measures regarding the R&D performance constituting specific subsidies within the meaning of Article 2.1 (a). The reason is that the R&D performance under the arguable individual programs is relatively narrowed and focused.[60] The panel evaluated the allocation of patent rights under the argued R&D contracts and found these contractual arrangements not constituting a subsidy with specificity.

However, the panel's specificity analysis was partially reserved by the Appellate Body. The Appellate Body did not deny the panel's decision of evaluating the granting authority "within the legal framework of the WTO Member concerned at various levels of government, legislation, and regulation."[61] What the Appellate Body questioned is the application relationship among subparagraphs of Article 2.1. The Appellate Body believed that the finding of non-specificity in subparagraphs a and b of Article 2.1 should not cease the specificity analysis by subparagraph c.[62] A panel is required to assess the specificity element provided by all three subparagraphs of Article 2.1 before reaching the final decision.

While the Appellate Body found the US subsidies limited to "a particular

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[58] SCM Agreement art. 2.3 ("Any subsidy falling under the provisions of Article 3 shall be deemed to be specific.").

[59] U.N. CONF. OF TRADE & DEV., *supra* note 57, at 13-14.

[60] Panel Report, *United States — Measures Affecting Trade in Large Civil Aircraft (Second Complaint)*, ¶ 7.1196, WTO Doc. WT/DS353/R (adopted Mar. 23, 2012). The Appellate Body upheld the panel's finding. *See* Appellate Body Report, *United States — Measures Affecting Trade in Large Civil Aircraft (Second Complaint)*, ¶ 730, WTO Doc. WT/DS353/AB/R (adopted Mar. 23, 2012) [hereinafter *US — Civil Aircraft* Appellate Body Report].

[61] *US — Civil Aircraft* Appellate Body Report, *supra* note 60, ¶ 760.

[62] *Id.* ¶ 797.

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class of eligible recipients,"[63] it found the allocation of patent rights provided by the claimed measures not explicitly limited to specific enterprises. Consequently, the Appellate Body decided US R&D contracts concerning patent rights not satisfied the specificity of Article 2.1.[64]

The *US — Aircraft* case gives some insights into subsidizing medical products responding to the pandemic. First, the specificity analysis of Article 2.1 must be completed after the cumulative application of three subparagraphs. For public health subsidies, they are hardly passed the examination of subparagraph (c) of Article 2.1 because the provision provides the ground to determine *de facto* specificity. Governments' financial contributions could constitute subsidies even they had no clear appearance of specificity under subparagraphs (a) and (b). Second, economic effects and consequences are more crucial to the determination of the specificity of a subsidy. Therefore, the R&D programs with potential trade-distortion effects are not presumably exempted from the governance of Article 2.1.

Given the R&D demand for emergency medical goods might not exempt the subsidy from the governance of the SCM Agreement, the next question is whether the SCM Agreement leaves policy space for public health objectives.

IV. THE BALANCING AGAINST PUBLIC HEALTH POLICIES IN THE SCM AGREEMENT

A. The Policy Space Reserved by the SCM Agreement

The policy space left for WTO Members is generally reflected in the preambular language, substantive obligations, and exception provisions. Different contexts affect the interpretation and application of the concerned provisions.[65]

For instance, the preamble of the Technical Barriers to Trade Agreement (hereinafter "TBT Agreement") explicitly states that WTO Members are not prevented from taking measures necessary to specific policy grounds such as the protection of human, animal or plant life or health.[66] A similar

[63] *Id.* ¶ 756.
[64] *Id.* ¶ 800.
[65] Bradly J. Condon, *Treaty Structure and Public Interest Regulation in International Economic Law*, 17(2) J. INT'L ECON. L. 333, 335 (2014); Ying-Jun Lin, *The Interaction Between Adjudicators and Legislative States Behind the Balancing Analysis in International Trade Law and Investment Law*, 16(2) ASIAN J. WTO & INT'L HEALTH L. & POL'Y 329, 334-35 (2021).
[66] Agreement on Technical Barriers to Trade pmbl., Jan. 1, 1995, 1868 U.N.T.S. 120 [hereinafter TBT Agreement]. ("Recognizing that *no country should be prevented from taking measures necessary to ensure* the quality of its exports, or for the protection of human, animal or plant life or health, of the environment, or for the prevention of deceptive practices, at the levels, it considers appropriate . . . (emphasis added).").

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preambular language is also included in the Agreement on the Application of Sanitary and Phytosanitary Measures (hereinafter "SPS Agreement"). The SPS Agreement's preamble also confirms that WTO Members are not deprived of adopting measures necessary to protect human, animal or plant life or health.[67] Following the preambular language, the TBT Agreement and the SPS Agreement provide requirements to the trade measures, for instance, the requirement of necessity, non-discrimination principle, less trade-restrictiveness effect and the prevention of a disguised restriction on international trade.

As to exception provisions, GATT exemplifies providing policy grounds for inconsistent measures concerning trade in goods.[68] Article XX of the GATT 1994 provides ten policy grounds to justify the legality of inconsistent measures. The protection of human, animal or plant life or health is one of the policy grounds provided by GATT Article XX.[69]

Reviewing the structure of the SCM Agreement, neither the preamble nor the provisions provide similar texts that provide legitimate grounds for subsidies. While Article 8 provides certain subsidies exempted from the governance of the SCM Agreement, it has no longer binding due to the expiration. In this situation, it is questionable whether subsidies can be subject to general exceptions of the GATT 1994.

These requirements among the GATT 1994, the TBT and SPS Agreements are very similar. However, the context of these requirements categorizes the policy space under the WTO Agreements into two groups, namely exception provisions and substantive obligations. The different contexts would affect the interpretation and application of these requirements to determine a member's policy space.

Reviewing the structure of the SCM Agreement, neither the preamble nor the provisions provide similar texts that are designed to reserve the regulatory sovereignty of WTO Members. While Article 8 provides certain subsidies exempted from the governance of the SCM Agreement, it has no longer binding due to the expiration. Accordingly, we argue that the SCM

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[67] Agreement on the Application of Sanitary and Phytosanitary Measures pmbl., Jan. 1, 1995, 1867 U.N.T.S. 493 [hereinafter SPS Agreement]. ("Reaffirming that no Member *should be prevented from adopting or enforcing measures necessary to protect human, animal or plant life or health* . . . (emphasis added).").

[68] *See generally* Glyn Ayres & Andrew D. Mitchell, *General and Security Exceptions Under the GATT and the GATS*, *in* INTERNATIONAL TRADE LAW AND WTO (Indira Carr et al. eds., 2012); Caroline Henckels, *Permission to Act: The Legal Character of General and Security Exceptions in International Trade and Investment Law*, 69 INT'L & COMPAR. L. Q. 557, 558-59 (2020); Julie Kim, *Balancing Regulatory Interests Through an Exceptions Framework Under the Right to Regulate Provisions in International Investment Agreements*, 50 GEO. WASH. INT'L L. REV. 289, 292-93 (2018).

[69] General Agreement on Tariffs and Trade art. XX, Oct. 30, 1947, 61 Stat. A-11, 55 U.N.T.S. 194. ("[N]othing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures: . . . (b) necessary to protect human, animal or plant life or health . . . .").

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Agreement does not reserve the necessary policy space for WTO Members to adopt subsidies to respond to their regulatory needs.

Nevertheless, can the problem be solved by referring to general exceptions of the GATT 1994? The issue is about the cross-reference between WTO Agreements.

B. The Applicability of GATT Article XX in the SCM Agreement

The SCM Agreement and the GATT 1994 are part of Annex IA to the Agreement Establishing the World Trade Organization (hereinafter "the WTO Agreement"). According to the interpretative note to Annex IA, once a provision of the GATT 1994 has conflict with other agreements, the latter should prevail.[70] Instead, the interpretative note is silent to the cross-reference among these agreements.

Considering the limited policy space left by the SCM Agreement, a popular proposal is to apply general exceptions of the GATT to interpret the concerned provision of the SCM Agreement by treating WTO law as an integrated system.[71] General exceptions of the GATT can be used as defense against the claim arising out of the SCM Agreement because the SCM Agreement is *lex specialis* to GATT's subsidy rule (Article XVI).[72]

In contrast, WTO adjudicators take a relatively conservative position to the cross-reference. In *China-Raw Materials*, China argued that it enjoyed the right to regulate trade for promoting the conservation of exhaustible natural resources and public health. The right to regulate was embedded in exceptions such as GATT Article XX.[73] The Appellate Body denied China's claim by the reason that the application of GATT Article XX to other WTO Agreements must base on explicit textual reference. For instance, Article 3 of the Agreement on Trade-Related Investment Measures explicitly incorporates the right to invoke the justifications of GATT Article XX. The textual reference cannot be found in China's Accession Protocol.[74]

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[70] Marrakesh Agreement Establishing the World Trade Organization art. XVI, ¶ 3, annex 1A, General interpretative note to Annex 1A, Apr. 15, 1994, 1857 U.N.T.S. 154 (In the event of a conflict between a provision of the General Agreement on Tariffs and Trade 1994 and a provision of another agreement in Annex 1A to the Agreement Establishing the World Trade Organization (referred to in the agreements in Annex 1A as the "WTO Agreement"), the provision of the other agreement shall prevail to the extent of the conflict.).

[71] *See* Ilaria Espa & Gracia Marín Durán, *Renewable Energy Subsidies and WTO Law: Time to Rethink the Case for Reform Beyond Canada — Renewable Energy/Fit Program*, 21(3) J. INT'L ECON. L. 621, 643-47 (2018).

[72] Robert Howse, *Do the World Trade Organization Disciplines on Domestic Subsidies Make Sense? The Case for Legalizing Some Subsidies*, *in* LAW AND ECONOMICS OF CONTINGENT PROTECTION IN INTERNATIONAL TRADE 85, 98 (Kyle W. Bagwell et al. eds., 2009).

[73] Appellate Body Report, *China — Measures Related to the Exportation of Various Raw Materials*, ¶ 300, WTO Doc. WT/DS394/AB/R, WT/DS395/AB/R, WT/DS398/AB/R (adopted Feb. 22, 2012) [hereinafter *China — Raw Materials* Appellate Body Report].

[74] *Id.* ¶¶ 303, 306.

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The Appellate Body's viewpoints imply that GATT Article XX cannot apply to other WTO rules if there is no textual indication or explicit reference. The textual arrangement restrains WTO adjudicators' discretion of cross-reference.[75] Accordingly, GATT Article XX is not applicable to the SCM Agreement because lacking textual indication.

While the limitation on cross-reference is consistent with the interpretative principles of international law,[76] it is also helpful to avoid exceeding the authority of WTO adjudicators delegated by Members. That is because a balance between trade liberalization and non-trade interests relates to the rights and obligations of WTO Members in WTO law. WTO adjudicators need to be cautious about the arrangements of rights and obligations among WTO Members when adopting cross-reference.

V. TWO APPROACHES PROPOSED TO RESERVE THE POLICY SPACE FOR PUBLIC HEALTH OBJECTIVES IN THE SCM AGREEMENT

The analyses indicate that the existing SCM Agreement does not provide necessary policy spaces for WTO Members' right to regulate, including public health policies.[77] The textual arraignment leads some lawyers to suggest WTO rules giving more flexibility for legitimate subsidies.[78] For contributing to the discussion, we propose two ideas: reconsidering the precautionary principle in interpretation and restoring public health objectives in the text.

A. Reserving the Policy Space by Recognizing the Relevance of the Precautionary Principle in Treaty Interpretation

1. The Origin of the Precautionary Principle and the WTO Practice — The precautionary principle was originated from the field of environmental law.[79] This principle is a policy instrument to assist decision-making under uncertainty that results from incomplete information, inconclusive evidence or public controversy.[80] For instance, Article 191 (2) of the Treaty on the Functioning of the EU states that "Union policy on the environment . . . shall

[75] Ilaria Espa, *The Appellate Body Approach to the Applicability of Article XX GATT in the Light of China — Raw Materials: A Missed Opportunity*?, 46(6) J. WORLD TRADE 1399, 1409 (2012).
[76] For instance, see SHADIKHODJAEV, *supra* note 30, at 225-27.
[77] The viewpoint echoes Condon's study. Condon, *supra* note 65, at 334.
[78] *See generally* LUCA RUBINI, RETHINKING INTERNATIONAL SUBSIDIES DISCIPLINES: RATIONALE AND POSSIBLE AVENUES FOR REFORM (2015); Espa & Durán, *supra* note 71, 643-50; Howse, *supra* note 72, at 85-102; Ding, *supra* note 50, at 71-76.
[79] LUKASZ GRUSZCZYNSKI, REGULATING HEALTH AND ENVIRONMENTAL RISKS UNDER WTO LAW: A CRICIAL ANALYSIS OF THE SPS AGREEMENT 158 (2010).
[80] Science for Environment Policy, Eur. Comm'n, Future Brief 18, The Precautionary Principle: Decision-Making Under Uncertainty, at 3 (2017).

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be based on the precautionary principle and on the principles that preventive action should be taken . . . ."[81] The provision implicates the precautionary principle as the legitimate ground for regulatory interventions under scientific uncertainty.[82]

The precautionary principles then were introduced in international environmental law in the 1980s.[83] The 1985 Vienna Convention for the Protection of the Ozone Layer and the 1989 Montreal Protocol on Substances that Deplete the Ozone Layer incorporated the precautionary approach or principle to control the global emissions.[84] In 1992, the Rio Declaration on Environments and Development adopted the precautionary principle as policy guidance for sustainable development. Meanwhile, public health policies pay attention to the precautionary principle. The first International Conference on Health Promotion held in 1986 announced the Ottawa Charter for Health Promotion. The document marked a paradigm shift in public health policy.[85] It revealed that the focus of public health policy is shifting from individuals and communities to addressing the social and macroeconomic determinants of population health.[86]

When public health policies pay attention to the population level, the function of public health policies from "reaction" to "precaution."[87] It means that actions must be taken when risks to the population's health are identified even if the cause-and-effect relationship is not fully established. Concerning scientific uncertainty, the precautionary principle could provide the ground to justify these actions.[88] Also, the precautionary principle enables policymakers to consider the regulatory level to protect public interests in line with risk management.[89]

Nevertheless, the precautionary principle attracts critiques. A popular critique is an ill-defined concept and ambiguous substance.[90] Unsettled definitions and various formulate result in different thresholds of scientific evidence and review standards in the evaluation. The shortages lead to the

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[81] Consolidated Version of the Treaty on the Functioning of the European Union art.191(2), Oct. 26, 2012, O.J. (C326) 47.

[82] European Commission, *supra* note 80, at 4.

[83] Bernard D. Goldstein, *The Precautionary Principle Also Applies to Public Health Actions*, 91(9) AM. J. PUB. HEALTH 1358, 1358 (2001); GRUSZCZYNSKI, *supra* note 79, at 159.

[84] GRUSZCZYNSKI, *supra* note 79, at 159.

[85] *Ottawa Charter for Health Promotion, 1986*, WHO REG'L OFF. EUR., https://www.euro.who.int/__data/assets/pdf_file/0004/129532/Ottawa_Charter.pdf (last visited Jan. 15, 2022).

[86] Neil Pearce, *Public Health and the Precautionary Principle*, *in* THE PRECAUTIONARY PRINCIPLE: PROTECTING PUBLIC HEALTH, THE ENVIRONMENT AND THE FUTURE OF OUR CHILDREN 49, 55 (Marco Martuzzi & Joel A. Tickner eds., 2004).

[87] *Id.* at 57.

[88] Goldstein, *supra* note 83, at 1358.

[89] Hans-Joachim Priess & Christian Pitschas, *Protection of Public Health and the Role of the Precautionary Principle Under WTO Law: A Trojan Horse Before Geneva's Walls*?, 24(1) FORDHAM INT'L L.J. 519, 522 (2000).

[90] European Commission, *supra* note 80, at 6; GRUSZCZYNSKI, *supra* note 79, at 160-61.

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implementation of the precautionary principle to rely on interpretation instead of textual indications. Consequently, the precautionary principle might cause legal uncertainty. These shortages explain the conservative position of WTO adjudicators.

Some lawyers suggested that the precautionary principle is subject to WTO law because of the similar characteristics such as insufficient scientific evidence, the conduction of risk assessment, and the purpose of protecting human life or health. A classic example is the SPS Agreement.[91]

The SPS Agreement provides essential principles and requirements to adopt sanitary and phytosanitary measure (hereinafter "SPS measures") and prevent these measures from disguised international trade barriers. One of the basic requirements is that a decision of SPS measures must be based on sufficient scientific evidence.[92] On the other hand, the SPS Agreement leaves room for a situation where scientific evidence is insufficient. Under Article 5.7 of the SPS Agreement, the adoption and maintenance of an SPS measure are valid only when four requirements are fulfilled. The four requirements include: (i) the measure is provisional; (ii) the measure is adopted because relevant scientific evidence is insufficient to conduct a risk assessment; (iii) the measure must be based on available pertinent information and seek additional information for a more objective assessment of risk; (iv) the measure shall be reviewed within a reasonable period of time.[93]

The similar characters motivated the EU to invoke the precautionary principle to justify its ban on hormone-treated beef in *EC — Hormones*. In this case, the Appellate Body did not confirm the precautionary principle as a general principle of international law because the popularity is not strong enough to support the legal status. It was believed that "the status of the precautionary principle in international law continues to be the subject of debate among academics, law practitioners, regulators and judges."[94]

On the other hand, the Appellate Body did not deny the influence of the precautionary principle on the SPS Agreement. It agreed that Article 5.7 relates to the precautionary principle although it denied to directly apply in the determination process.[95] It insisted that the SPS Agreement sets up requirements to decide the operation of the precautionary principle to trade

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[91] SABRINA SHAW & RISA SCHWARTZ, TRADING PRECAUTION: THE PRECAUTIONARY PRINCIPLE AND THE WTO 6 (2005), http://collections.unu.edu/eserv/UNU:3103/Precautionary_Principle_and_WTO.pdf; Ilona Cheyne, *Gateways to the Precautionary Principle in WTO Law*, 19(2) J. ENV'T L. 155, 159 (2007).

[92] SPS Agreement art. 2.2: "Members shall ensure that any sanitary or phytosanitary measure is applied only to the extent necessary to protect human, animal or plant life or health, is based on scientific principles and is not maintained without sufficient scientific evidence."

[93] *Id.* art. 5.7.

[94] Appellate Body Report, *European Communities — Measures Concerning Meat and Meat Products (Hormones)*, ¶ 123, WTO Doc. WT/DS26/AB/R, WT/DS48/AB/R (adopted Feb. 13, 1998).

[95] *Id.* ¶ 124.

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measures. These requirements must prevail the practice of international law on the precautionary principle.

The Appellate Body's opinions give several insights. First, the development of the precautionary principle in international society is not decisive for whether this principle is a general principle of international law. It depends upon the discretion of WTO adjudicators. Second, the precautionary principle can be applied only when there is an explicit textual indication by WTO provisions. The textual indication draws the line for WTO adjudicators' discretion. But it is arguable whether the Appellate Body's position remains justifiable in the contemporary era.

2. The Role of the Precautionary Principle in Interpretation of the SCM Agreement — Treaty interpretation is usually the way to create policy space in the lack of general exceptions or textual indication.

The way of treaty interpretation can divide into two paths. A pathway is to take a high threshold of requirements or restrain the application of provisions. Condon ever suggested interpreting Article 3 of the SCM Agreement by limiting the scope of application to reserve regulatory autonomy of WTO Members for environmental interests.[96] Another pathway is to detect WTO law reflecting international customary law and rely on international practices to interpret specific provisions.[97] Howse suggested general international law, including declarations of international organizations with the nature of soft law, as the guidance to interpret the requirements and conditions of Article 2.1 (b) of the SCM Agreement.[98] Bloche took a further step to argue the protection of health being a *de facto* interpretative principle rather than a conceptual international value to strike a balance between health and other objectives across the WTO system.[99]

This article argues that the precautionary principle could be used to merge the two interpretative ways to give deference to public health objectives in the SCM Agreement. Especially, the COVID-19 pandemic paves the way to reconsider the relevance of the precautionary principle in WTO law.

We are aware that the principle of precautionary remains having shortages such as the absence of standard definition and united formula. These shortages might restrain the application and threaten the certainty of interpretation results.[100] Therefore, we suggest that article 5.7 of the SPS Agreement is a good reference and a good start exploring new subsidy rules reflecting precautionary principle. For instance, the requirements of

[96] Condon, *supra* note 65, at 346.
[97] GRUSZCZYNSKI, *supra* note 79, at 165-66.
[98] Howse, *supra* note 72, at 99.
[99] M. Gregg Bloche, *WTO Deference to National Health Policy: Toward an Interpretative Principle*, 5(4) J. INT'L ECON. L. 825, 846 (2002).
[100] *See* GRUSZCZYNSKI, *supra* note 79, at 160-64.

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provisional measures regular reviewing and monitoring of the operation are important to avoid the abuse and minimize negative effects on trade.

However, the requirements in detail need further studies and cases to ensure the regulations can answer the variety of public policies and are consistent with the rationale of the SCM Agreement. For example, the requirement of risk assessment provided by the SCM Agreement might be infeasible for pandemic responses.

B. Reflecting Public Health Objectives in the SCM Agreement

Some international lawyers have argued to reform the SCM Agreement to leave more space for domestic policies. A popular reform proposal introduces an exemption for non-actionable subsidies, learning from the expired Article 8.2 of the SCM Agreement.[101] The proposal can fix the problem of lacking policy space for legitimate subsidies, on the one hand. On the other hand, the proposal might attract challenges from WTO Members on the concern of the scope of good subsidies and relevant criteria.[102]

Considering the political pressure and practical challenge from WTO Members, the article suggests a feasible step is to at least insert public health objectives in the preamble of the SCM Agreement. Modifying the preamble would be a feasible and easier starting point, compared with amending substantive obligations or adding general exceptions. As Gregg Bloche argued, the value of health protection has materialized as a normative principle in WTO laws.[103] Allowing the reference to public health objectives in the preamble might be easier to get the consensus of WTO Members than legislating substantive exceptions.

The preambular language can provide the textual ground for WTO adjudicators to make deference to domestic policies in the interpretation process. The preambular language is also helpful for the WTO jurisprudence to develop substantive requirements to good subsidies from the cumulation of cases. More importantly, this approach has the merits of remedying the consistency of the balancing policy in WTO law and responding to the global health governance.

1. The Consistency of a Balancing Policy in WTO Law — The WTO Agreement and the associated multilateral agreements have indicated that trade liberalization is not the primary purpose to pursue. The goal of trade liberalization is bent on other policy objectives and to strike a balance between trade and non-trade concerns. As the Appellate Body stated in *China — Raw Materials*, "the WTO Agreement, as a whole, to reflect the balance

[101] *See* Espa & Durán, *supra* note 71, at 647-48; Ding, *supra* note 50, at 74.
[102] Espa & Durán, *supra* note 71, at 648; Ding, *supra* note 50, at 75.
[103] Bloche, *supra* note 99, at 827.

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struck by WTO Members between trade and non-trade-related concerns."[104]

Nevertheless, the balancing policy indicated by the WTO Agreement does not directly apply to other agreements. Other agreements must provide "specific guidance" on the balancing policy. The specific guidance can refer to the objectives listed in the WTO Agreement or be materialized through general exceptions, substantive provisions, and the preamble. If the SCM Agreement had the preamble referring to public health objectives, it could assist to implement the balancing policy in WTO law more comprehensively and consistently. While we suggest inserting public health objectives in the SCM Agreement, we do not limit the scope of policy grounds to public health. Rather, we believe the content of the WTO Agreement, SPS and TBT Agreements on policy objectives as good references. Given a subsidy could be used to achieve divergent policy purposes. Environmental, social and economic factors are all potential reasons motivating a government to provide financial support to relevant industries and enterprises. Our central point is highlighting public health objectives essential to reserve policy space for WTO Members in response to future pandemics.

2. Public Health Objective and Global Health Security — Concerning pandemic responses, an issue of the content of "protection of human health" is worth discussing. Whether the scope of "protecting human health" is limited to the territory of the executing country or refers to the international society as a whole is influential to the way of WTO law responding to the global health governance.

Global health governance is experiencing a shifting pattern by the development of global health security. The conventional pattern to infectious diseases focuses on minimizing the impacts of public health policies on international trade and travel and requiring these policies based on scientific evidence and public health principles.[105] The scale and scope of responses are relatively limited and mainly rely on affected countries' actions and their network. Experiences of infectious diseases such as HIV/AIDS and SARS highlighted the weakness and insufficiency of the conventional pattern to global health crises.[106] Therefore, WHO develops the concept of global health security to change the understanding of infectious diseases.

Global health security stresses the global nature of diseases rather than focusing on the transmission pattern. The global nature requires global health governance and a global cooperation network to protect people's health in the world.[107] To manage the global influence, WHO strengthens its

[104] *China — Raw Materials* Appellate Body Report, *supra* note 73, ¶ 306.
[105] David P. Fidler, *From International Sanitary Conventions to Global Health Security: The New International Health Regulations*, 4(2) CHINESE J. INT'L L. 325, 329 (2005).
[106] *Id.* at 343.
[107] Aeyal Gross, *Whose Global Health Security?*, BILL OF HEALTH (Sept. 22, 2021), https://blog.petrieflom.law.harvard.edu/2021/09/22/whose-global-health-security/.

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collection and surveillance of information and no longer relies on States as a singular information source of infectious diseases.[108] More importantly, global health security requires countries and international organizations to expand the horizon of health policies to technological, political, social and economic aspects.[109] In short, global health security aims to establish international risk governance and management instead of infectious disease-only responses.[110]

Because of the uncertainty of infectious diseases, the decision-making mainly relies on the global network and governance. After WHO shifts its governance approach from nation-centered interest to global interests, its recommendations to a large extent are concerned with well-being for all people. Then, an issue facing WTO law is whether WHO's recommendations provide legitimate ground to defend the legality of a subsidy for healthcare industries.

VI. IMPLICATIONS FOR THE ASIA-PACIFIC REGIONAL GOVERNANCE

The COVID-19 pandemic demonstrates a public health emergency, not only a health crisis but also a social and economic crisis.[111] The wide effects of COVID-19 require global efforts and solutions that primarily rely on cooperation and collaboration. Therefore, multilateral organizations such as WTO and WHO are primary forums to respond to global demands.

However, the intensive geopolitics weakens the function of multilateral organizations on maintaining the supply-demand of goods during the COVID-19 pandemic. The rise of nationalism in pandemic responses also threatens the efforts of global cooperation.[112]

A more severe shortcoming of multilateral organizations is too specific on individual affairs. Specialization of international affairs contributes to the

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[108] Fidler, *supra* note 105, at 348.
[109] *Id.*
[110] *Id.* at 351.
[111] *Trade Set to Plunge as COVID-19 Pandemic Upends Global Economy*, WTO (Apr. 8, 2020), https://www.wto.org/english/news_e/pres20_e/pr855_e.htm ("This crisis is first and foremost a health crisis which has forced governments to take unprecedented measures to protect people's lives . . . . The unavoidable declines in trade and output will have painful consequences for households and businesses, on top of the human suffering caused by the disease itself."); *2020 Leaders' Declaration*, ASIA-PAC. ECON. COOP. (Nov. 20, 2020), https://www.apec.org/meeting-papers/leaders-declarations/2020/2020_aelm ("COVID-19 is one of the most challenging health and economic crises of our times."); *APEC Economic Leaders' Statement: Overcoming COVID-19 and Accelerating Economic Recovery*, ASIA-PAC. ECON. COOP. (July 16, 2021), https://www.apec.org/Meeting-Papers/Leaders-Declarations/2021/2021_ILR ("The pandemic continues to have a devastating impact on our region's people and economies.").
[112] *See* Florian Bieber, *Global Nationalism in Times of the COVID-19 Pandemic*, 50(1) NATIONALITIES PAPERS 13, 16-19 (2020).

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development of international orders, on the one hand. On the one hand, specialization restrains holistic and comprehensive solutions to cross-cutting issues and results in the fragmentation of international law. For instance, although public health subsidies are involved trade and public health issues, the legality must be evaluated by WTO law and the WHO rules, if any, separately. WHO's recommendations and guidance would be valuable evidence to the fact-finding instead of the legitimate ground for inconsistent trade measures in WTO dispute settlement.[113] The "without any overall plan" situation makes finding answers to the legality of public health subsidies in other international regimes difficult.[114] Therefore, we suggest highlighting regional governance complementary to the operation of multilateral mechanisms.

Regional organizations have taken preventive and precautionary actions to help fight the COVID-19 pandemic. For instance, ASEAN selected a range of medical products and integrated them into the consensus-based list of essential goods for combating the COVID-19 pandemic.[115] The European Union also proposed a concept paper that suggested a series of medical goods essential to maintain the strength of healthcare systems confronting the COVID crisis.[116] These documents indicate governments how to strengthen their healthcare capacity by maintaining the openness of international trade of these identified products. The phenomenal list of essential medical products indicates the contribution of regional organizations on precautionary suggestions.

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[113] The viewpoint is deduced from the panel and the Appellate Body's opinions in *Australia — Plain Packagin*g. In this case, Australia defended measures of tobacco plain packaging on the ground of implementing its obligation under the WHO Framework Convention on Tobacco Control [hereinafter WHO FCTC] and consistent with FCTC guidelines and recommendations. The panel did not treat the WHO FCTC as the legitimate ground to justify trade distortion effects of Australia's measures but use it as evidence to confirm these measures' policy objective. The panel's finding was upheld by the Appellate Body. Panel Report, *Australia — Certain Measures Concerning Trademarks, Geographical Indications and Other Plain Packaging Requirements Applicable to Tobacco Products and Packaging*, ¶¶ 7.243-.244, WTO Doc. WT/DS435/R, WT/DS441/R, WT/DS458/R, WT/DS467/R, (adopted June 29, 2020); Appellate Body Report, *Australia — Certain Measures Concerning Trademarks, Geographical Indications and Other Plain Packaging Requirements Applicable to Tobacco Products and Packaging*, ¶ 6.706, WTO Doc. WT/DS435/AB/R, WT/DS441/AB/R, (adopted June 29, 2020).

[114] Martti Koskenniemi and Päivi Leino argued the "without any overall plan" situation constituting the character of "postmodernity" of international law. Martti Koskenniemi & Päivi Leino, *Fragmentation of International Law? Postmodern Anxieties*, 15(3) LEIDEN J. INT'L L. 553, 556 (2002).

[115] *ASEAN MOU on Essential Goods Enter into Force*, ASEAN (Nov. 13, 2020), https://asean.org/asean-mou-on-essential-goods-enters-into-force/; *2020 Memorandum of Understanding on the Implementation of Non-Tariff Measures on Essential Goods Under the Hanoi Plan of Action on Strengthening ASEAN Economic Cooperation and Supply Chain Connectivity in Response to the COVID-19 Pandemic*, CIL (Nov. 13, 2020), https://cil.nus.edu.sg/wp-content/uploads/2020/12/2020-MOU-on-Implementation-of-NTMs-on-Essential-Goods.pdf.

[116] *Trade in Healthcare Products: Concept Paper*, EUR. COMM'N (June 11, 2020), https://trade.ec.europa.eu/doclib/docs/2020/june/tradoc_158776.pdf.

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Our suggestion to regional governance is that regional organizations take the experiment of establishing regional ecosystem for medical products and explore new subsidy rule to harmonize trade and public health policies. The Asia-Pacific region could take the lead because of the influence of China and the United States on global economy and policies and the diversity of economic development and social conditions. Moreover, the highly overlapped membership between ASEAN and APEC provides precious platforms for regional communication, cooperation and collaboration. Therefore, APEC and ASEAN could start the idea of regional ecosystem of medical products from the data-collecting and data-sharing mechanism.[117] The data-sharing system of medical products enables economies to be aware of the supply-demand situation and provides the foundation to facilitate the distribution in response to emergency imbalance.

Furthermore, in regional organizations are easier to create room for cross-forum cooperation to discuss cross-cutting issues. The discussion of new subsidy rules could start with the issues of how to distinguish subsidies with good intention from protectionism measures, the extent to which the trade distortion effects of legitimate subsidies are acceptable to maintain the market mechanism, and the policy space and requirements are appropriate to manage different situations for the specificity of medical products for pandemics. As Rolland and Trubek argued, the central point to new rules is to reserve more space for domestic policy choices by equalizing trade and non-trade concerns.[118]

VII. CONCLUSION

By focusing on the subsidies in response to pandemics, the article points out the limitation of WTO law on future pandemics. The limitation has resulted from the non-existence of general exceptions and indeterminate balancing policy in the SCM Agreement. The conflict of regulatory scenario between trade and public health policies is also influential to the legality of public health subsidies.

The analyses reveal that the uncertainty of public health policies cannot exempt public health subsidies from the application of the SCM Agreement. The precautionary purpose of public health subsidies might open a door to

[117] The concept of regional ecosystems is inspired by the Economist Group that promotes the idea of a sustainable vaccine ecosystem. Compared with the global horizon suggested by the Economist Group, this article uses the similar concept to highlight the regional scale of cooperation and collaboration as a starting point of global cooperation. *See Consensus Statement of the Advisory Council*, ECON. IMPACT (May 27, 2021), https://vaccineecosystem.economist.com/consensus-statement/?utm_source=OrganicEIUSocial&utm_medium=Twitter&utm_campaign=Vacc-Ecosystem-Consensus&utm_content=300x600_AT.

[118] SONIA E. ROLLAND & DAVID M. TRUBEK, EMERGING POWERS IN THE INTERNATIONAL ECONOMIC ORDER: COOPERATION, COMPETITION AND TRANSFORMATION 211 (2019).

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defend their trade-distortion effects, but the door depends upon WTO adjudicators' attitudes. Therefore, the article also suggests reflecting a balancing policy in the SCM Agreement, including public health objectives.

While the proposed approaches rely on different actions (adjudicative actions v. legislative acts), they complement the balancing against public health policies in the SCM Agreement. More importantly, they are concerned with harmonizing the WTO governance on pandemic responses. In this regard, we suggest regional governance and regional organizations are pathways to ease the tension between trade and public health policies to complement the operation of multilateral mechanisms. We believe that drawing on the experience of COVID-19 can enhance the adaptation of WTO law for future public health crises.

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