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Trade Policy Analysis and the COVID-19 Pandemic

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Abstract

The COVID-19 pandemic proved to be a test case for the multilateral system, particularly in the realms of health and trade policy. With the ultimate total death count of approximately 15 million, it is clear that the multilateral system did not respond in an ideal way. Nonetheless, trade economists and the trade policy community more broadly made significant contributions to analyzing emerging data, making policy proposals from the very start of the pandemic, and trying to suggest a more productive way forward. This chapter outlines the trade policy analysis and recommendations of these research and policy communities in the areas of medical goods and vaccines and discusses both multilateral and plurilateral options to better prepare for the next pandemic.

Introduction

As part of its public health preparedness, Taiwan's Center for Disease Control (CDC) monitors health-related chatter on the Chinese internet, and in December 2019, it alerted the World Health Organization (WHO) of an 'atypical pneumonia' in Wuhan China (Kahl and Wright, 2021, p. 159). This was the first sign of what was to become the COVID-19 pandemic and proved to be a test case for the multilateral system, particularly in the realms of health and trade policy. With the ultimate total death count of approximately 15 million (Msemburi et al., 2023), it is clear that the multilateral system did not respond in an ideal way. Indeed, the Taiwan CDC's warning was ignored by the United States (US) government, whose own Center for Disease Control had trained much of Taiwan's public health staff. The warning was also suppressed by the Chinese government in its politicization of the viral outbreak.

The COVID-19 pandemic had significant impacts on economic growth, employment, investment, and trade. The World Bank (2020) suggested that the pandemic-induced recession was the worst since World War II and was more pronounced than the recessions of 1975, 1982, and 1991 and, in some respects, even overshadowed even the global financial crisis of 2009. Similarly, Reinhart and Reinhart (2020) stated that 'the shared nature of this shock—the novel coronavirus does not respect national borders—has put a larger proportion of the global community in recession than at any other time since the Great Depression' (p. 84). From an economic perspective, then, the pandemic was a signature event.

Given these observation taking place at the time, it is interesting to consider trends in trade during the period. Figure 1 plots world exports of goods and services and world exports of goods with exponential trend lines from 2015 to 2023. There was clearly an impact of the pandemic on trade volumes for both goods and services, particularly in 2020. But recovery began in 2021 and went quickly back to trend for the whole period. Despite this recovery, however, the rhetoric regarding trace policy quickly grew dire. For example, US Trade Representative Robert Lighthizer (2020) referred to the pandemic as an opportunity to reshape trade relations and referred to these trade relations (and not the pandemic) as a 'disease' despite the fact that pandemic deaths in the United States had reached 100,000 at that time. Similarly, US Trump Administration advisor trade Peter Navarro stated (Politi, 2020):

> This is a wake-up call for an issue that has been latent for many years but is critical to US economic and national security…. If we have learned anything from the coronavirus and swine flu H1N1 epidemic of 2009, it is that we cannot necessarily depend on other countries, even close allies, to supply us with needed items, from face masks to vaccines.

Policy commentaries such as these set the stage for *pandemic nationalism* (e.g., Reinert, 2025, Chapter 8), and this policy trend ended up having important implications for trade policy both during and after the pandemic. The focus shifted to 'reshoring' global value chains (GVCs) in many sectors, including pharmaceuticals and medical products. As stated by Farrell and Newman (2020), for example, 'as critical supply chains break down, and nations hoard medical supplies and rush to limit travel, the crisis is forcing a major reevaluation of the interconnected

global economy'. Such ideas regarding economic globalization and the shift to nationalistic policies set in motion a number of policy changes that continue at the time of this writing.

This chapter will examine some of the main dimensions of these trade policy issues as they emerged during the COVID-19 pandemic. These include personal protective equipment and medicals supplies; vaccines and vaccine nationalism; China's vaccine nationalism; and pandemic multilateralism and plurilateralism. The chapter concludes with an overall assessment of future pandemic preparedness.

Personal Protective Equipment and Medical Products

Early in the pandemic, attention quickly moved to personal protective equipment (PPE) and, more generally, medical products, as actors became cognizant of trade dependencies in this realm. For example, before the pandemic, China accounted for approximately one half of the world's output of medical masks. As noted by Farrell and Newman (2020), Chinese manufacturers of medical masks 'ramped up production as a result of the crisis, but the Chinese government effectively bought up the country's entire supply of masks, while also importing large quantities of masks and respirators from abroad'. In the case of the European Union (EU), at the beginning of the COVID-19 pandemic, 90 percent of its PPE was imported, and this caused initial panic within the EU (Stellinger, Berglund and Isakson, 2020, p. 21). For example, in late March 2019, the French government seized 6 million masks at the Swedish medical company Mölnycke's European distribution facility in Lyon.

The evolving awareness of trade interdependence led to a number of zero-sum policy reactions. Early in the COVID-19 pandemic, for example, there was also the application of export controls on PPE and other types of medical products with more than 70 counties applying export controls and more than 100 restrictions on these products.[1] Some of these even took place within the EU single market with Germany and France initially leading the way and then the EU Commission itself issuing a string of continuously modified directives throughout early 2020. In doing so, the Commission gave no regard to the impacts on counties dependent on the EU for PPE and medical products (Bown, 2020 and Evenett, 2020).

[1] As noted by Evenett et al. (2022) and others, many of the export controls introduced, as well as other trade policy changes during the pandemic, were not notified to the World Trade Organization as required.

Some observers interpreted these events as a potential failure or weak spot in the multilateral trading system. For example, Farrell and Newman (2020) stated that single-source providers, or regions in the world that specialize in one particular product, can create unexpected fragility in moments of crisis, causing supply chains to break down'. Trade economists offered a different message, stressing the importance of an open trade regime in maintaining access to PPE and medical supplies and the self-defeating nature of protectionism.[2] For example, Baldwin and Evenett (2020) stated:

> The US is heavily dependent on imports of PPE while simultaneously being a major exporter of PPE. And the same is true of China. Indeed, the US is China's number one customer and China is the US's number four. Plainly, a tit-for-tat retaliation between the US and China in PPE would hinder the supply of PPE in both nations (p. 8).

Further, there is a consensus among trade policy analysts that export restrictions result in prices being both higher and more volatile than they otherwise would be, and this contributes to their self-defeating nature. In the case of PPE export restrictions, these price effects proved to be real, with consequent negative impacts on front-line health workers that undermined pandemic response. For example, Espitia, Rocha and Ruta (2020) examined trade in 17 products identified by the World Health Organization (WHO) as part of its COVID-19 Disease Community Package. They noted that, even more than for large players like the United States, China and the EU, many low- and middle-income countries (LMICs) are always highly dependent on imports for adequate supplies of these products. Consequently, export restrictions by the main players would have significantly detrimental impacts for these LMICs, particularly, but not exclusively in medical masks. These researchers stated that:

> A concern with export restrictions is that they could be contagious. As prices of key COVID-19 products rise, more governments could respond by imposing export restrictions to mitigate price rises and possible shortages in domestic markets.

[2] This issue also caught the attention of researchers in global public health. See, for example, Barlow et al. (2021).

> These actions have aggregate consequences, exacerbating the initial shock and leading to further price escalation, a multiplier effect (p. 3).

Misreading this reality, early in the pandemic, US Trump administration advisor Peter Navarro proposed rules to force the US health care system to only purchase US-produced PPE and medicines, even though the US did not have the necessary capacity (Goodman et al., 2020). The Trump administration also began to put export restrictions in place under the US Defense Production Act (DPA), restricting access to PPE in many LMICs. Trade restricting directives such these and equivalent measures in the EU ignored the complexities of suppliers, assumed that the imposing countries would not be affected by tit-for-tat actions in other countries (including on key PPE manufacturing inputs), ignored the fact that the imposed lack of export opportunities could reduce the incentives for new market entrants in medical sectors with large, fixed costs, and significantly increase overall market uncertainties. Consequently, during 2020, Bown (2020) stated that 'global PPE markets are in chaos, with reports of piracy, defective products, hoarding and price gouging, in addition to the shortages' (p. 32).

The empirical reality is that there are perhaps one million medical products, and not even technologically advanced countries can produce them all (Stellinger, Berglund and Isakson (2020). Perhaps equally important, the GVCs for these products can be very complex and are spread out over many countries. Further, the structure of the GVCs can vary from one medical product to another. While prudential diversification of these GVCs is always wise for those firms involved, complete 'reshoring' as often called for by economic nationalists is simply not viable. For example, in one review of GVCs in medical products, Gereffi, Pananond and Pedersen (2022) concluded that 'for policymakers, while it is tempting to think of GVC resilience as a standard concept that can be applied uniformly in national economies, in fact, value chains are product-specific and overgeneralization may lead to higher risks and reduced security' (p. 65).

Trade policy economists have emphasized that the multilateral trading system itself offers resiliency in PPE and medical supplies. For example, Baldwin and Evenett (2020) stated that 'a liberal world trading system gives health ministries, hospitals, and other medical service providers a wider range of suppliers to choose from…. This facet of globalisation should be seen as a massive risk minimization device' (p. 16). This view has a great deal of merit. Nonetheless, economic nationalists used the episode to further their cause. As summed up by Evenett (2020):

> Economic nationalists… exploited… shortages of medical supplies to argue that sourcing from abroad cannot be relied upon in extremis. In this view, greater self-reliance is needed in the future and medical supply chains should be shortened or even repatriated entirely…. The debate over how to source medical kit has become the latest battleground over competing visions of the world economy (p. 50).

Fortunately, as the pandemic proceeded into 2020, corrections were made with a number of countries beginning to liberalize trade in PPE and medical supplies. China, the world's largest supplier of masks, increased production by multiples and began to allow these to be exported. Consequently, there was some late-course correction.

Evenett et al. (2022) provided a more comprehensive assessment of trade policy changes during the pandemic. Notably, import liberalizations accompanied export restrictions, and measures affecting medical products and PPE outweighed those on food. Regarding export restrictions on medical products and PPE, these authors showed that there was a decline after about mid-2020. This is again evidence of adjustment after an initial panic, what the authors termed 'herding effects'. That said, the authors noted a large amount of heterogeneity among country response, and this was taken up by Hayakawa and Imai (2022). These researchers examined bilateral trade relations in medical products and noted the export restrictions tended to follow significant increases in COVID-19 mortality, but 'any decrease in exports became smaller when exporting to countries with political, economic or geographic ties' (p. 367). In other words, standard international relations variables remained important during the pandemic.

A comprehensive and updated view of export restrictions on medical goods from the Global Trade Alert (used by Evenett et al., 2022) is provided in Figure 2. As seen there, before the pandemic, this sector was relatively free of export restrictions. Beginning in 2020, as discussed here, there was a dramatic spike in the number of these restrictions, and while the numbers began to fall thereafter, the number of export restrictions in place is dramatically higher than in the pre-COVID-19 era. The pandemic has had a lasting impact.

We are going to consider the general issue of plurilateralism in pandemic-related trade issues below. Here we will consider this issue within the domain of health products. Because full-blown WTO negotiations are now cumbersome and, indeed, often fraught, a second-best solution would be a plurilateral agreement among a (hopefully large) subset of WTO members. Stellinger,

Berglund and Isakson (2020) suggested building upon the 1994 GATT Trade in Pharmaceutical Products plurilateral agreement.[3] This was an agreement among 12 GATT members and stated that 'each government will eliminate customs duties on pharmaceutical products, recognizing that the objective of tariff elimination should not be frustrated by trade restrictive or trade distorting measures'. However, plurilateral solutions need to ensure access for LMICs since many of these countries have little or no domestic manufacturing capability in medical supplies and are therefore often reliant on imports.[4]

Evenett and Winters (2020) went into some further details on this plurilateral proposal.[5] These researchers suggested that WTO members sign into the proposal for terms of five years rather than for perpetuity. It would apply to both medical goods and medicines and would initially involve eliminating both tariffs and export restrictions, opening up both sides of markets. Subsequent deviations would be notified to the WTO and justified but could only reduce trade flows by half and be in place for six months. The Evenett and Winters proposal is one of the most detailed and can therefore serve as a starting point for potential plurilateral agreements in health products during pandemics.

The record of trade policy and the WTO in PPE and medical products during the COVID-19 pandemic was not altogether positive. For example, Hoekman (2020) summarized this episode by stating that 'large trade powers did not play a leadership role in using the WTO as a platform to cooperate in boosting global production and distribution of medical products' (p. 338). The key thing in moving forward is to learn some fundamental lessons and begin to draft a plurilateral medical supply agreement as part of pandemic readiness. Unfortunately, despite the dislocations of the pandemic, this is not currently a priority of the main actors within the WTO. We return to this issue below.

[3] As noted by these authors, the original proposal was by the EU trade ministry. See https://www.wto.org/gatt_docs/English/SULPDF/91770009.pdf.

[4] This is not a new insight. For example, in a discussion of globalization and development, Goldin and Reinert (2012) stated: 'Improving the health outcomes of poor people usually involves imports of medicines and medical products. It is simply not possible for small developing countries to produce the entire range of even some of the more basic medical supplies, much less more advanced medical equipment and pharmaceuticals' (pp. 47-48). This was reiterated in Bown (2020).

[5] This also reflected a proposal by New Zealand and Singapore (World Trade Organization, 2020a).

Vaccines and Vaccine Nationalism

It was clear from the beginning of the COVID-19 pandemic that the health policy challenge was the race between the ability of the virus to quickly mutate and the ability of humankind to develop, produce, and distribute vaccines. The advice of both health policy experts and trade policy analysts, however, ran into the factor of an emerging *vaccine nationalism* that made winning the race more difficult (e.g., Reinert, 2025, Chapter 8). While ultimately, vaccine development and distribution were successful, in some notable cases, nationalistic policies drew out the process, costing additional lives.

Overall, the development and deployment of COVID-19 vaccines were unprecedented. For example, Bown and Bollyky (2022) noted that Moderna was able to move a vaccine into trial just about one month after the release of the COVID-19 genetic sequence by the Chinese government in early 2020. The first vaccines for public use appeared at the end of 2020, a radically shorter time than for any previous vaccine. Despite that success, however, manufacturing and distribution still needed to take place, and this is where the process began to slow down in some important instances. Bown and Bollyky explained why international trade was to be so important in these final stages of COVID-19 vaccine provision:[6]

> The geographic concentration of vaccine production was one reason why trade would play a substantial role in inoculating much of the global population. Most of Sub-Saharan Africa, for example, as well as low- and middle-income countries elsewhere, rely on imports, as they had little pre-pandemic experience manufacturing vaccines locally. Trade was also critical because of the cross-border nature of many vaccine supply chains that emerged during the pandemic, including trade in specialized inputs, the manufacturing of which was also characterized by the geographic concentration of suppliers (p. 474).

The above-noted vaccine nationalism involved high-income countries producing, buying, and hoarding vaccines for their own domestic use to the detriment of poorer countries. This policy posture is ultimately self-defeating because it provides viruses more opportunity to mutate in ways

[6] As noted by Bown and Bollyky (2022), vaccine manufacturing is often a classic case of vertical intra-industry trade (or fragmentation), enabled by integration through information and communication technology.

that make early vaccines less effective (e.g., Lagman, 2021). For example, during the COVID-19 pandemic, WHO Director General Tedros Adhanom Ghebreyesus (2021) stated: 'Vaccine nationalism is not just morally indefensible. It is epidemiologically self-defeating and clinically counterproductive'. He also stated that: 'The pandemic will not be over anywhere until it is over everywhere. This is the reality of an interconnected world, and that reality can be met only by a reaffirmation of solidarity and an inclusive public-health order that distributes vaccines globally, quickly, and equitably'. Similar sentiments were echoed by WTO Director General Ngozi Okonjo-Iweala who called for increased equity in access to vaccines, stating that 'we cannot accept that in a world where the technology exists to save lives, we let people die because they live in poor countries that have neither the resources, nor the access to vaccines and other medical countermeasures needed to save their populations'.[7]

From the very beginning of the pandemic, trade policy analysts recognized these realities. For example, Bollyky and Bown (2020) stated:

> Absent an international, enforceable commitment to distribute vaccines in an equitable and rational way, leaders will instead prioritize taking care of their own populations over slowing the spread of COVID-19 elsewhere or helping to protect essential health-care workers and highly vulnerable populations in other countries (pp. 96-97).

Indeed, vaccines are one area where the trap of nationalistic, zero-sum thinking can emerge:

> Without global coordination, countries may bid against one another, driving up the price of vaccines and related materials…. In the interim, health-care workers and billions of elderly and other high-risk inhabitants in poorer countries will go unprotected, which will *extend the pandemic*, increase its death toll, and imperil already fragile health-care systems and economies (p. 97, emphasis added).

[7] https://www.wto.org/english/news_e/spno_e/spno15_e.htm.

These trade policy views reflected the reality of *global public goods*, namely goods that are non-excludable and non-rival at the global level.[8] In their powerful contribution to pandemic response, vaccines have global public good characteristics. Despite the global public good realities of vaccines, however, vaccine nationalism was often the default posture of country governments during the pandemic. For example, the US Trump administration tried to enforce contracts that any vaccines made in the United States remain there and not be eligible for exports. The overall impacts of vaccine nationalism became apparent in the data from Duke University's COVID Global Accountability Platform (COVID GAP).[9] The low-bar, global target was to have 40 percent of the population of all countries vaccinated, and COVID GAP assessed progress on this target at the end of 2021. The data showed that only one high-income country failed to meet that target. Nineteen upper-middle income countries also failed to do so, but a total of 57 lower-middle income and low-income countries did not meet the target. As became apparent, there was a strong, inverse relationship between income levels and vaccination rates.

The failure to meet the 40 percent target was not an issue of global supply. By the end of 2021, vaccine manufacturers had produced 11 billion doses with a production capacity of over one billion per month. There were more than enough vaccines to exceed the low-bar target and soon reach the high-bar 70 percent target. The issue was one of allocation with millions of doses of vaccines being discarded in high-income countries like the United States. This was a systemic policy failure.

Given the temperature requirements of COVID-19 vaccines, allocation was always going to be a problem. These challenges were to be addressed by the COVID-19 Vaccines Advance Market Commitment (COVAX AMC), an entity related to the more general COVAX Facility but funded separately.[10] COVAX was described as 'the primary international effort to deliver equitable access to COVID-19 vaccines' (Upton, 2024, p. 3). Its objective was to use advanced purchase

[8] For example, Kaul, Grunberg and Stern (1999) stated that the benefits of global public goods are 'quasi universal in terms of countries (covering more than one group of countries), people (accruing to several, preferably all, population groups), and generations (extending to both current and future generations, or at least meeting the needs of current generations without foreclosing development options for future generations). This property makes humanity as a whole the publicum, or beneficiary of global public goods' (p. 3).

[9] https://covid19gap.org/.

[10] https://www.gavi.org/gavi-covax-amc.

agreements to deliver two billion vaccine doses by the end of 2021 in an equitable manner. However, it achieved only slightly above 600 million at the end of 2021, and only 1.9 billion doses by February 2023 (Upton, 2024). This failure was the result of funding shortfalls, the difficulties of building out vaccine cold chains, failure to join (China and Russia), joining late (the United States), competition from other facilities (the EU), and export restrictions.

A mid-2021 assessment of COVAX by public health researchers Eccleston-Turner and Upton (2021) concluded the following:

> The prevalence of vaccine nationalism appears to be limiting the participation of some of the world's wealthiest countries in COVAX. These countries have pursued bilateral advanced purchase agreements with the vaccine manufacturers, placing those countries in direct competition with the COVAX Facility for doses when they become available. This act of countries hedging their bets represents an existential threat to the facility and puts its mission in peril (p. 444).

A subsequent assessment by Upton (2024) further noted that 'COVAX also failed to adequately address the issue of how doses would be utilized once they had been procured and delivered' (p. 6). This researcher concluded that 'sadly, despite it laudable objectives, COVAX failed to deliver equitable access to COVID-19 vaccines' (p. 3).

Some arguments against vaccine nationalism have focused on intellectual property issues. There were calls for the waiver of these rights for COVID-19 vaccines within the WTO's Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS).[11] This waiver was originally proposed by India and South Africa and had the support of the US Biden Administration (World Trade Organization, 2020b). However, as stated by Zaman (2022), 'the proposal (was) vehemently opposed by the European Union (EU), Germany, the United Kingdom, Canada, Japan, Switzerland, Brazil and Switzerland' (p. 296). While the EU was characterized as being recalcitrant on this issue, the reality was that the EU was broadly in line with the concern for equity and called for a Declaration on TRIPS and Public Health in the case of the COVID-19 pandemic (World Trade Organization, 2021). This action would have triggered a set of existing mechanisms

[11] See, for example, the 2021 statement by Doctors without Borders: https://www.doctorswithoutborders.org/what-we-do/news-stories/news/us-trade-representatives-encouraging-statements-access-covid-19.

for the production of off-patent, generic versions of vaccines via compulsory licensing.[12] We will return to this issue below.

There have also been allegations that intellectual property protection contributed to the failure of COVAX to deliver on its promises (e.g., Gostin et al., 2023). But Upton (2024) concluded that 'while intellectual property can undoubtedly be viewed as a barrier to equitable access to vaccines in general, it is difficult to state with any certainty how much better COVAX might have performed under different circumstances' (p. 7). Consequently, this line of argument might not be well founded.

China's Vaccine Nationalism

In the case of China, vaccine nationalism took the form of a refusal to embrace any vaccine other than Sinopharm and Sinovac despite their not being based on mRNA technology and consequent poorer performance. Instead, and in keeping with the country's industrial policy approach, the Chinese government supported vaccine technologies based on the traditional inactivated virus approach. As mRNA vaccines became available, China deployed non-tariff measures against them and went so far as to harness state media to discredit them in favor of Chinese vaccines that were still in development.[13] As described in some detail by Pan et al. (2025), this vaccine nationalist posture was part of a misconceived national security perspective within China that called for vaccine independence. These authors stated that 'from the onset of the pandemic, China's response has been deeply intertwined with national security concerns, reflecting a pronounced nationalist strategy in its policies and actions' (p. 6). Further, for the Chinese government, this policy stance was not practical but *symbolic*.[14]

[12] These mechanisms were the important legacy of the HIV-AIDS pandemic and the activism that took place in that context (e.g., Chapter 3 of Wolf, 2012). If not perfect, they could have helped a desperate situation.

[13] Chester and Shih (2024) referred to China's 'producer-oriented vaccine nationalism in which national authorities seek to instill consumer preferences for domestically made vaccines and hesitancy toward foreign-made vaccines, especially in competitive markets, through messages published by state media' and that 'state media lent their support to Chinese vaccine producers in their competition against proven Western alternatives in the middle of a pandemic' (p. 164).

[14] For example, Pan et al. (2025) quoted a 2022 speech by President Xi in which he stated that 'our vaccination campaign and research represented Chinese political wisdom and the advantages of the socialist system' (p. 6).

As the highly transmissible Omicron variant arose in 2022, this nationalistic posture painted China into a corner. The county's zero-COVID goal and its commitment to Chinese vaccines began to work at odds with each other. How this would ultimately play out was clear in early 2022 when it became apparent that the Chinese vaccines were relatively ineffective against Omicron. Consequently, in March 2022, China was forced to put the entire city of Shanghai with its 26 million residents in lockdown. As of April 2022, a total of more than 350 million Chinese citizens were in lockdown, and such lockdowns continued through 2022.[15] China was holding up approval of tried and tested mRNA vaccines so that it could ultimately develop its own no matter the consequences.[16]

As of November 2022, approximately one fifth of China's GDP was under lockdown, and riots broke out in Zhengzhou at the world's largest iPhone factory employing 200,000 workers (*The Economist*, 2022a). Meanwhile, only 40 percent of China's population over 80 years old had received a third COVID shot, and there was no campaign for a fourth shot (*The Economist*, 2022b). For a government with dictatorial powers, this was not a good record, and still it refused to approve the use of 'foreign' vaccines, eschewing trade relations that would benefit the health of its citizens.

By December 2022, the Chinese government reversed its zero-Covid policy and ended all lockdowns. Although information is sparse, the death toll increased substantially (Qian and Pierson, 2022). While at that time the official death toll was under 100,000, most sober assessments put it at approximately one million.[17] China's vaccine nationalism was an unfortunate and unnecessary episode.

Pandemic Multilateralism and Plurilateralism

As mentioned above, pandemic preparedness and pandemic response are global public goods and consequently require a multilateral response to facilitate provisioning. While trade economists rightly emphasize the importance of multilateral trade relationships in pandemic response, more broadly, multilateralism in health matters a great deal. As discussed in Markel (2014), there is a

[15] Yuan (2022). This author noted that the cities under lockdown 'account for 26 percent of China's population and 40 percent of its economic output'. For the situation as of September 2022, see Wang (2022) who reported that over 30 Chinese cities were in lockdown.
[16] See, for example, Stevensen (2022).
[17] For a review of scientific articles on China's post zero-COVID death toll, see Glanz, Hvistendahl and Chang (2023).

long, underappreciated history in global health going back to the 19th century. He summarized the importance of multilateralism in health by stating that 'in today's interconnected world, one must reimagine a pragmatic, operational and unified vision, which emphasizes the powerful sums of solving… global health problems rather than a zero-sum game of competing interests, disaster relief, and isolationism' (p. 127). Despite warnings such as this, as of this writing, the world is heading away from multilateralism, with the United States, for example, abandoning both the WHO and the WTO. This is a serious policy error.

Beyond the issue of medical equipment and vaccines, any pandemic makes open trading relations more rather than less important. This is purely economic in that trade restrictions tend to be recessionary, offering fewer pathways into recovery. Consequently, expanded import protection and export subsidies that could launch a set of countervailing actions need to be avoided. Further, there are many ways that an open trading system can support pandemic response. For example, at the beginning of the pandemic, González (2020) wrote a 'Memo to Trade Ministers' that outlined a set of multilateral steps that could have been taken to better address the pandemic. These included the following elements.

Lower tariffs on pharmaceuticals, medical devices, and other medical supplies. A joint report of the WTO, the World Intellectual Property Organization (WIPO) and the WHO (2020) emphasized the importance of ensuring that 'health care products, technologies and protective equipment are available and can be accessed equitably in sufficient quantities worldwide' (p. 1). While tariff reductions were the opposite of what many political actors advocated, this policy was largely a consensus among trade economists. Importantly, González pointed to the list of essential COVID-19 medical supplies published by the World Customs Organization, and this could have been a useful starting point.[18] Helble and Shepherd (2017) noted that, while tariffs on health-related products are overall modest, there is a great deal of variance in rates, and many low- and middle-income countries are characterized by specific tariff peaks above 10 percent. These authors

[18] https://www.wcoomd.org/-/media/wco/public/global/pdf/topics/facilitation/activities-and-programmes/natural-disaster/covid_19/hs-classification-reference_en.pdf?la=en. More generally, Helble and Shepherd (2017) pointed out that trade in health products consists of medicines, chemicals used in the production of pharmaceuticals, and hospital and laboratory inputs and equipment.

also noted that non-tariff measures (NTMs) are also often applied by high-income countries. Consequently, there is much room for trade liberalization.

Improve trade facilitation to reduce the cost of moving health-related products and materials across borders. This is an underemphasized area of practical policies that became quite apparent during the pandemic. For example, Clark and Bernard (2022) noted:

> The COVID-19 crisis underscored the critical need for more effective and efficient trade and for faster and technologically based customs processes. The crisis brought about by the pandemic laid bare the limitations of customs administrations who were still requiring paper documentation and in-person interaction to release goods (p. 98).

While there has been attention to general trade facilitation issues under the WTO's Trade Facilitation Agreement (TFA), the application of measures to pandemic related goods has been lacking. One potential area of cooperation is the setting up of pre-approved customs 'green lanes' for medical supplies during pandemics, particularly for vaccines and other time-sensitive medical products.[19] Clark and Bernard (2022) stressed the role of transparency more generally as a key factor in effective customs clearance, and Heble and Shepherd (2017) emphasized the role not just of customs but of logistics more generally as a necessary factor in vaccine access. This is an important area for important policy and commercial innovation.

Adopt international standards to ensure the quality and safety of imported health-related products. This relates to behind-the-border regulatory standards on health-related products, as well as other types of non-tariff measures (NTMs). For example, Helble and Shepherd (2017) stated that 'health products are typically subject to numerous NTMs' (p. 9) and that NTMs 'are a major obstacle for international trade in health products' (p. 10). One prominent NTM is product registration and approval, processes that can take a great deal of time. González stated that 'domestic regulations incompatible with international standards should be eased, and complex and

[19] These considerations relate to the use container security devices and, more generally, smart containers in order to set up green lane custom procedures, namely prioritized and streamlined customs clearance. See, for example, Prokop (2012) and Scholliers et al. (2016).

lengthy procedures to assess conformity with those standards should be speeded up'. Research in this policy area remains scarce, however.

Allow health professionals to move across borders. The WTO's General Agreement on Trade in Services (GATS) specifies four modes of service delivery and includes Mode 4, the Temporary Movement of Natural Persons. This mode has received the least attention of them all but retains importance. In one of the few studies on this issue, Bach (2003) stated that 'increased movement of health workers on a temporary basis is an integral component of service liberalization and is especially significant for the health sector because of its labour-intensive character' (p. 29). This has taken on greater urgency given the experience of the COVID-19 pandemic. González suggested that 'special visas, work permits, and more flexible regulations can help', and this is true. However, work should begin on including much more specific language in a Pandemic Treaty to be discussed below.

Share knowledge via e-health and other cross-border digital interactions. As discussed in Banerjee et al. (2025), digitally delivered services are an important phenomenon, accounting for a great deal of service trade delivery, but this policy suggestion actually bridges a number of technologies relevant to pandemics. These include *telemedicine*, which involves technologies to help in triage, monitoring, and virtual access to specialists (including those who might be quarantined) (Hollander and Carr, 2020) and *tele-critical care*, which involves 'providing care to critically ill patients through synchronous, audiovisual two-way communications' and has potential 'wide global adoption' (Singh et al., 2021, p. 261). Health policy researchers still tend to think of these digital services as nationally based, but trade policy researchers and professionals can expand that scope to help rethink the ways these services can be delivered across national boundaries where the movement of health professionals is not possible.

Ensure that appropriate intellectual property protection does not hinder development of new technologies and drugs. In the previously mentioned joint report, the WTO, WIPO and WHO (2020) included as an action item 'to develop, test, manufacture and ensure equitable access to diagnostics, vaccines and therapeutics' (p. 1). The term 'equitable access' is important here, and the joint report emphasized the central role of patents, in particular the 'expedient compulsory licensing and government use licensing' (p. 4). At issue is TRIPS Article 31bis on compulsory licensing (as amended in 2017), and this has been a thicket of legal and policy issues since the

founding of the WTO. Most assessments of this issue suggest that little progress was made (e.g., Haugen, 2021 and Zaman, 2022). Regarding the previously mentioned TRIPS waiver, Zaman (2022) analyzed both the legal and procedural issues within the WTO and noted that, despite potential benefits to low-income countries, there are 'numerous hurdles' in the way of progress on this issue (p. 306). Progress might be more likely by engaging EU proposals on the extension of compulsory licensing, but there are many more issues to be addressed here.[20]

At a broader level, during the pandemic, Bown and Bollykyl (2021) proposed a new COVID-19 Vaccine Trade and Investment Agreement (CVITA). They envisioned this as beginning as a plurilateral agreement that would increase membership numbers over time. It would involve subsidization of vaccine supply chains, 'an enforceable commitment not to place export restrictions on supplies of vaccines and related materials destined for other signatory countries', and transparency mechanisms. They noted that 'the WTO Secretariat played an important role in convening industry, civil society, and policymakers to educate the community about the underlying supply chain challenges and to generate potential policy solutions', but the current question is how to institutionalize this given the fact that the United States has walked away from both the WHO and WTO. Bown and Bollykyl envisioned the CVITA as centered on the United States, European Union, and India. Given the turn of the United States away from multilateralism, however, a future Pandemic Vaccine Treaty (PVT) would, unfortunately, need to exclude the United States.

Beyond vaccines, during the pandemic, there was also a proposal by 25 countries for a more general Pandemic Treaty.[21] The call correctly stated that: 'Experts agree that this will likely not be the last pandemic. We live in the 'age of pandemics,' in which pathogens of zoonotic origin, and the challenges posed by anti-microbial resistance, present a continued and growing risk'. The call was for 'a legally binding treaty, convention, or agreement, under the auspices of the WHO'. This proposal was considered at the World Health Assembly (WHA) in 2021, but no consensus was reached. Further, Hannon et al. (2022) argued that the Pandemic Treaty needs to be a United

[20] Bown and Bollykyl (2021) noted: 'Such a waiver by itself is likely to have only a limited immediate impact on increasing production, given that the main technological impediment to vaccine manufacturing is how to affirmatively transfer production knowhow, not the patent. There are other impediments to scaling up manufacturing, such as insufficient supply of specialized inputs, inadequate regulatory oversight, and an inexperienced workforce, that a patent waiver would also not resolve'.
[21] For the call by ministers of health, see: https://www.bmj.com/content/375/bmj.n2879.

Nations instrument, namely that ‘a treaty at the UN General Assembly level can allow effective monitoring and evaluation mechanisms to manage sovereign considerations and trigger a high-level political response’ (p. e1232). So, the best locus of the treaty is still under debate.

While a Pandemic Treaty would be a welcome development, a prudential approach would require also working in parallel on a plurilateral pandemic-related agreement under the auspices of the WTO. This agreement would incorporate some of the elements introduced by González (2020) and reviewed here, as well as the proposals by Stellinger, Berglund and Isakson (2020) and Evenett and Winters (2020). Given the fractious nature of global economic relations, the use of the plurilateral mechanism within the WTO might be the only realistic path forward. But it is important that work begins soon.

Conclusion

An early review of the impact of the COVID-19 pandemic on trade and trade policy by Gruszczynski (2020) suggested that some of the de-globalization elements of the policy responses at that time had been long in the making and indeed pre-dated the pandemic. This insight reflected the fact that it will always be difficult to disentangle the pandemic effects from those of increased economic nationalism. The latter is the more enduring trend but harnessed the pandemic for its own ends (e.g., Chapter 8 of Reinert, 2025). More recently, the economic nationalist trend has caused a global trade war, particularly for the US-China relationship but also for the world at large (e.g., Elms, 2025).

At the current juncture, *open plurilateral agreements* (OPAs) have emerged as one practical way forward. For example, in a review of the pandemic from the point of view of the WTO, Hoekman (2020) stated:

> Plurilateral agreements offer a potential ‘third path’ for trade cooperation, complementing discriminatory preferential trade agreements and multilateral negotiations that span all WTO members. The key promise – and constraint – is that open plurilateral agreements permit like-minded WTO members to cooperate but must do so without discriminating against non-participants (p. 339).

But even moving forward in this manner will require communication and negotiation among at least some major players within the WTO. Otherwise, the agreements will remain narrow in scope and membership. This in itself will be a major challenge.

More broadly, Kahl and Wright (2021) referred to the COVID-19 pandemic as an 'international experiment' in the form of 'What would happen in a global crisis if world politics was dominated by nationalist governments that refused, or were unable, to cooperate with one another' (p. 10). In the view of these authors, 'the system failed'. 'In the face of a once-in-a-century pandemic and a historic global economic catastrophe, there was hardly any international cooperation' (p. 322). This episode, in their words, 'will forever stand as an example of what happens when the planet confronts a major crisis in the absence of international leadership and a collective response' (p. 323). Nonetheless, trade economists and the trade policy community more broadly made significant contributions to analyzing emerging data, making policy proposals from the very start of the pandemic, and trying to suggest a more productive way forward.

It is important not to forget this trade policy advice. As noted by Hook (2020), each year, between two and five zoonotic viruses are discovered to have jumped from animals to humans. The world is no more prepared for this than it was at the beginning of 2019. For this reason, reviewing the proposals of trade economists and heeding some of this advice will help to prepare for the inevitable future pandemic. There is little time to waste.

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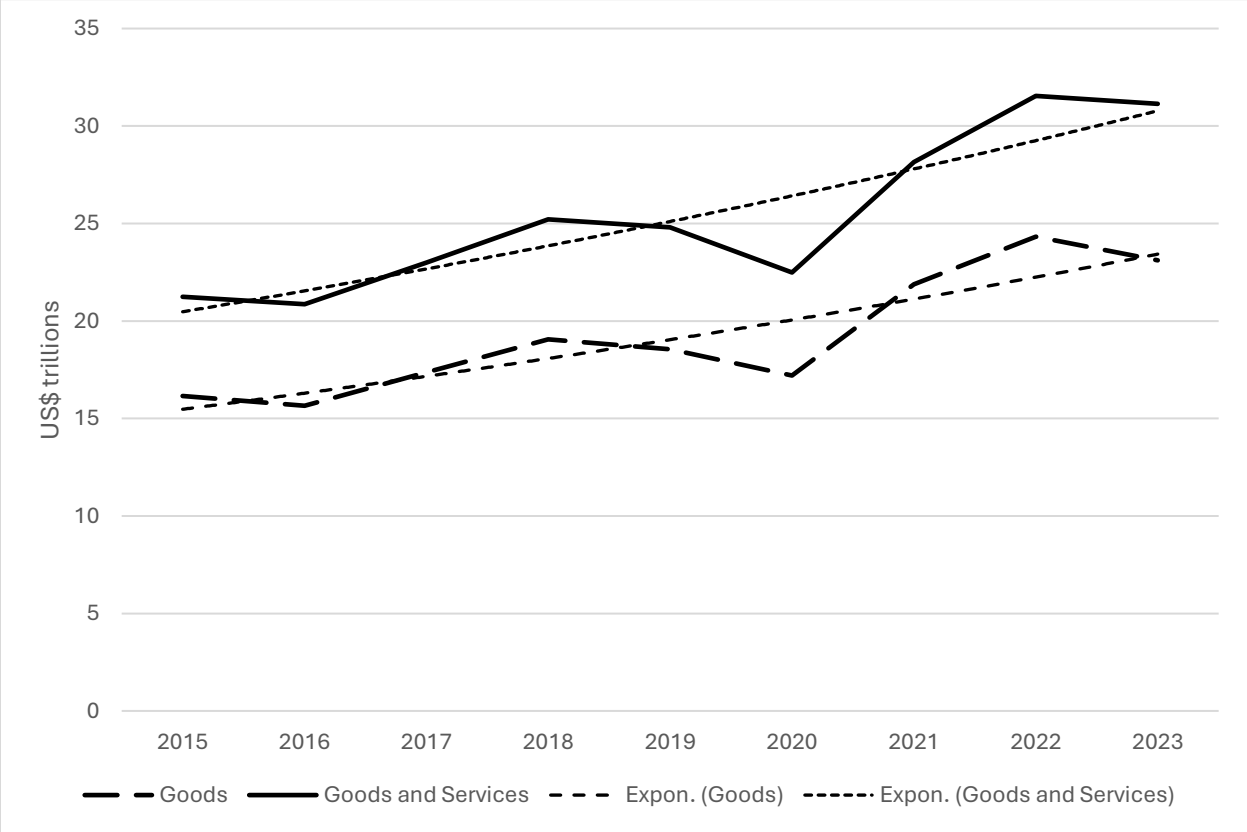
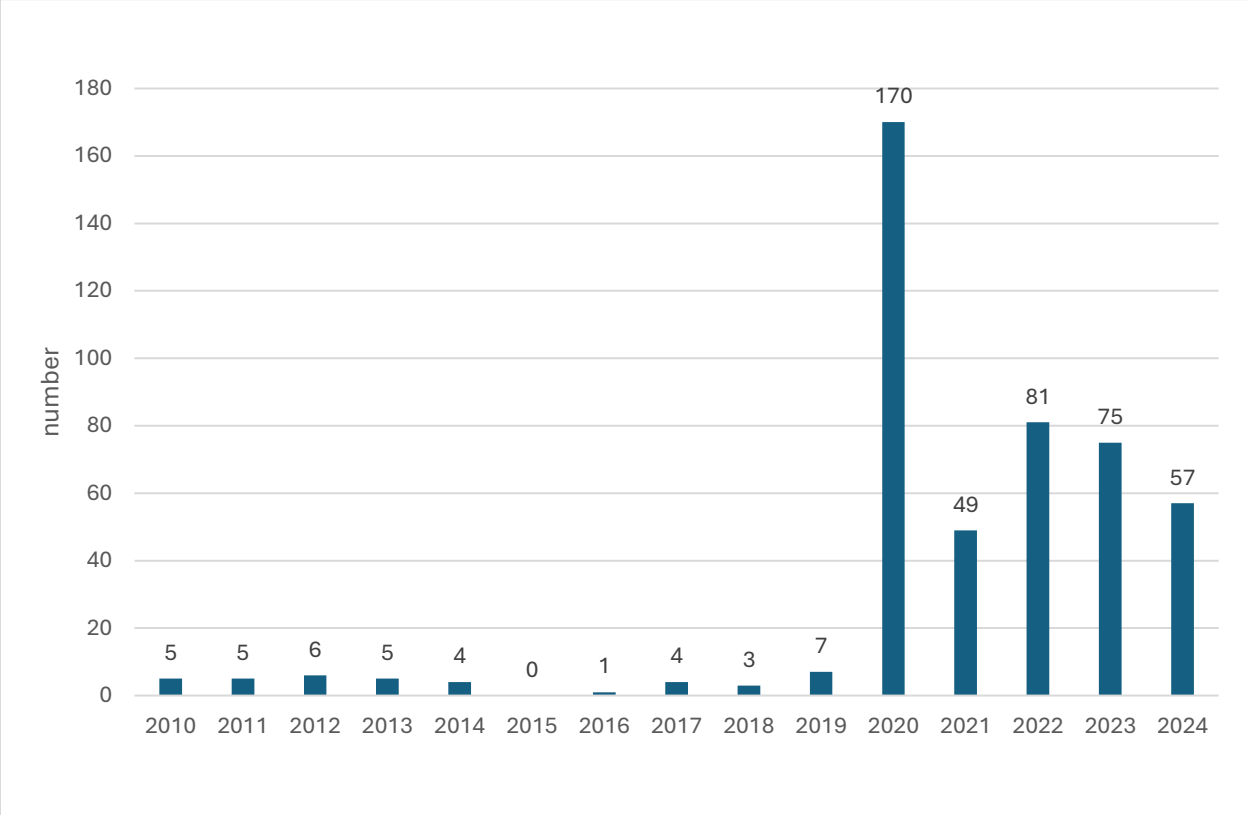
Figure 1: World Exports



Source: databank.worldbank.org

Figure 2: Medical Goods Export Restrictions



Source: globaltradealert.org