

COVID-19 and Trade Policy: Why Turning Inward Won't Work

Edited by Richard E. Baldwin
and Simon J. Evenett



THE
GRADUATE
INSTITUTE
GENEVA

CENTRE
FOR TRADE
AND
ECONOMIC
INTEGRATION



A VoxEU.org Book

CEPR Press

2 COVID-19: Demand spikes, export restrictions, and quality concerns imperil poor country access to medical supplies

Chad P. Bown

Peterson Institute for International Economics & CEPR

Early 2020 has seen a chaos of export restrictions, policy flipflops, price spikes, and quality concerns surrounding trade in vital medical supplies. This chapter summarises the restrictions taken by the EU, US, and China and argues that developing nations are particularly exposed to the downside. More worryingly, the export restrictions could trigger a spiral of retaliation. Dozens of countries have already imposed such restraints – and the restrictions go well beyond the personal protective equipment that has been in the headlines. It includes hospital equipment, pharmaceuticals, and food.

Developing countries will be impacted by the coronavirus. Their policy response regarding social distancing may, understandably, be different from the approaches taken in China, Europe, the US and elsewhere (Barnett-Howell and Mobarak 2020). They will also certainly face other, context-specific preparedness constraints: for example, more than one third of west Africans do not have access to basic handwashing facilities at home (OECD 2020).

But for public health, medical workers in developing countries will require access to the same respirators, surgical masks, hospital gloves and other personal protective equipment (PPE) that have proven to be in short supply elsewhere. And poor countries will have fewer options than China, Europe and the US. Many lack domestic manufacturing facilities that their governments could instruct to suddenly scale up production. Some will be entirely reliant on imports as a source of supply. Price spikes in international markets – or being cut off from imports because historical foreign suppliers suddenly refuse to share – could put in peril their ability to cope.

Unfortunately, there are some signs that the greatest fears of many such countries will materialise. In the face of a pandemic, one back of the envelope estimate indicates that the social value of an American hospital worker accessing an N95 respirator could “easily be more than a million dollars per mask” (Abaluck et al. 2020). Major PPE suppliers, such as the EU and US, have suddenly imposed limits on exports. EU and US policies were poorly designed and clearly imposed in haste. Initial announcements were not only draconian but also self-defeating. Each has thus been subject to nearly continual adjustment, creating massive uncertainty about PPE availability for foreign consumers, including those in poor countries.

Furthermore, China was also a major initial contributor to the global shortage. As the original hotspot of COVID-19, caring for its population of 1.4 billion people was a large source of the spike in global demand. But as a supplier of more than 40% of world imports of personal protective equipment, the early 2020 Chinese demand increase contributed to disrupting global PPE availability. As time has passed, China has responded with additional supply, but new challenges have emerged. An overwhelming increase in foreign demand has led to new concerns over product quality and the appropriate levels of regulatory oversight.

As a result, global PPE markets are in chaos, with reports of piracy, defective products, hoarding and price gouging, in addition to the shortages. Many poor and vulnerable countries face uncertainty over their current and future access to imported PPE.

... global PPE markets are in chaos, with reports of piracy, defective products, hoarding and price gouging, in addition to the shortages. Many poor and vulnerable countries face uncertainty over their current and future access to imported PPE.

The purpose of this chapter is modest. It starts by clarifying what is known about the frenzied policy events and potential trade impacts by major government interventions in global PPE markets in early 2020. That includes export limits imposed by the EU (Section 1) and US (Section 2). It then turns to the complicated role played by China (Section 3). Each section also provides an initial assessment of some of the developing country importers of PPE most directly exposed to foreign supply shocks, with the standard caveat that inference is limited, given a lack of detailed data about domestic production capabilities or existing stockpiles of these products. Section 4 introduces issues of product quality and regulatory adjustments taking place endogenously during the pandemic, and a final section concludes.

The EU export authorisation programme for PPE

In late February 2020, Italy was the first EU member state to plunge into a health crisis, and was forced to [ration](#) hospital treatment.¹ Spain and other countries were hit hard as well. But France and Germany, two major European suppliers of vital medical equipment, took trade policy into their own hands, prioritising protection of their own citizens.²

- On March 3, France requisitioned domestic production of respirators for French health care workers.³
- On March 4, [Germany](#) imposed its own national export restrictions on masks, face shields, and other PPE.⁴

Thus, as Italy and other areas of the continent faced shortages, Europeans lost access to life-saving equipment made in other EU member states.

- The European Commission intervened on March 15 by establishing an emergency export authorisation programme for five pieces of personal protective equipment: face shields, protective garments, mouth-nose-protective equipment, hospital gloves, as well as protective goggles and visors.

The promise of the initial act was that it would be temporary, and would terminate after six weeks, on April 25 (European Commission 2020a). It did not ban exports to non-member states, but potential sales outside of the Union would be subject to bureaucratic review and could potentially be declined.

One major problem with the Commission's initial export restrictions was their potential to disrupt pan-European supply chains, as they also applied to commerce with major European (but non-EU) economies like Switzerland and Norway. For that reason, the Commission modified the original authorisation.

- On March 20, the Commission announced a modification to the programme so that it no longer impacted trade with Switzerland, Norway, and a handful of other countries and territories (European Commission, 2020b).

1 This section draws heavily from Bown (2020b,e). See also Keynes (2020).

2 European Commission (2020a) stated, "Production of personal protective equipment such as mouth protection masks in the Union is currently concentrated in a limited number of Member States, namely the Czech Republic, France, Germany, and Poland." The Czech Republic imposed export restrictions as well.

3 See Government of France (2020). See also Lara Marlowe (2020), "Coronavirus: European solidarity sidelined as French interests take priority Row over face masks exposes threat to EU principles of free trade and collaboration", The Irish Times, 30 March.

4 See Federal Ministry for Economic Affairs and Energy (2020).

Nevertheless, the EU's restrictions remained imposed for the next five weeks on products for which there was an estimated \$10.3 billion in foreign sales to covered countries in 2019 (Bown 2020c). Of the restricted products, EU exports of face shields were the largest at \$6.5 billion, followed by protective garments (\$2.7 billion), mouth-nose-protective equipment (\$746 million), hospital gloves (\$264 million), as well as protective goggles and visors (\$148 million).

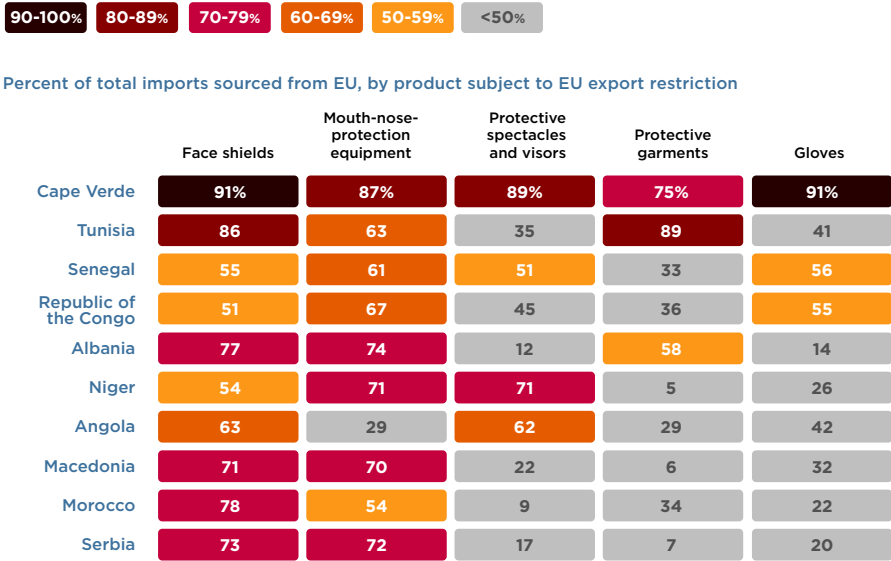
- After the programme had been in effect for a month, the European Commission proposed three additional modifications (European Commission, 2020c).

First, the export authorisation programme for protective masks ("mouth-nose-protection equipment") would be extended for another 30 days starting April 26; the export restrictions for the other four products would be lifted on April 25 on schedule. Second, the export restrictions would no longer apply to a group of West Balkan countries in process of acceding to the EU, including Albania, Bosnia and Herzegovina, North Macedonia, Montenegro, Serbia, and Kosovo. Third, the Commission established a new transparency commitment that would eventually require "Member States to report to the Commission on their authorisations granted and refused and commits the Commission to report publicly on these developments."

The EU's export restrictions for PPE have the potential to impact a number of developing countries historically reliant on EU member states for their imports (Figure 1).⁵ The initial export restriction applying to all five PPE products could impact sales to a range of countries in Eastern Europe, northern Africa, and sub-Saharan Africa for six weeks starting March 15. (To the extent that such countries historically procured supplies from Germany, France, or the Czech Republic, they would have been cut off earlier in March.) Conditional on the proposed modification going into effect on April 26, the export restrictions would cease to apply to countries like Albania, northern Macedonia and Serbia. For other importing countries, export restrictions would remain on mouth-nose-protection equipment.

Figure 1

EU export restrictions on medical supplies put countries in Eastern Europe, northern Africa, and sub-Saharan Africa at risk



EU = European Union

Note: Average share of a country's total imports of each product sourced from the EU over 2016-2018.

Source: Constructed by the author with country-specific import data at 6-digit Harmonized System level from UN Comtrade accessed via World Integrated Trade Solution (WITS). See Bown (2020b).

Nevertheless, the initial six weeks may have imperilled some countries' access to PPE during a critical period of preparing for the pandemic. Given global shortages of PPE, it is highly unlikely they would have been able to suddenly switch and procure supplies from alternative sources. And, for mouth-nose-protection equipment for which the export restrictions continued to apply beyond April 25, a number of African countries could still face shortages. Historically, countries like Cape Verde, Tunisia, Senegal, Congo, Niger and Morocco have procured much of their imports of hospital masks from EU member states.

The EU's export restrictions for PPE have the potential to impact a number of developing countries historically reliant on EU member states for their imports ... could impact sales to a range of countries in Eastern Europe, northern Africa, and sub-Saharan Africa for six weeks starting March 15.

US export restrictions under the Defence Production Act

On 3 April 2020, 3M, the American manufacturer of respirators and other PPE, issued the extraordinary statement that the Trump administration had “requested that 3M cease exporting respirators that we currently manufacture in the US to the Canadian and Latin American markets” (3M 2020a). In 2019, 34% of US exports of respirators and surgical masks went to Canada, and 30% went to Mexico alone (Bown 2020d). Later that day, President Donald Trump announced and issued a memorandum that the US would restrict exports of certain PPE under the Defence Production Act (DPA) (White House 2020a, 2020b).⁶

Whether the DPA announcement would turn into actual US policy was initially unclear. Over his prior three years in office, President Trump had earned the reputation of using such announcements to generate uncertainty. Sometimes the end result was a trade policy change, but often the threat was used to make a deal on something else.⁷ And in this case, his administration was in ongoing negotiations with 3M to increase American access to PPE.

On 6 April, the President and 3M announced an agreement. 3M would be permitted to continue to export from its American facilities, and it would import 167 million respirators from its production facilities in China over the next three months (White House 2020c, 3M 2020b). Given the deal, it appeared as if the export restrictions the President had previously announced under the DPA might be off.

Many were thus surprised when the export restricting policy was made official late on 7 April. Federal Emergency Management Agency (FEMA) issued a rule to limit American exports of a variety of respirators, surgical masks, and hospital gloves starting on 7 April for 120 days, terminating on August 10 (FEMA 2020a). The rule provided only limited exemptions, the main one being that “materials from shipments made by or on behalf of US manufacturers with continuous export agreements with customers in other countries since at least 1 January 2020, so long as at least 80% of such manufacturer’s domestic production of covered materials, on a per item basis, was distributed in the US in the preceding 12 months.” This language appeared as if it might accommodate 3M’s business model, which relied on its American manufacturing facilities to supply PPE

⁶ This section draws heavily from Bown (2020a, 2020d).

⁷ As one example, on May 30, 2019, Trump issued a statement that he was “invoking the authorities granted to me by the International Emergency Economic Powers Act” and would apply tariffs on all imports from Mexico starting June 10, as the President was unhappy with how Mexican was addressing migration issues (White House 2019). There was never an official Federal Register notice implementing the policy, and the President did not follow through with the tariffs.

to the US, Canadian, and Latin American markets. Nevertheless, the rule also indicated that the decision of whether to exempt any potential shipment from the export ban remained at the discretion of the Trump administration.

Then, late on Friday 17 April, the Trump administration quietly released a revised rule providing a complete exemption for exports to Canada and Mexico after all (FEMA 2020b).⁸ However, even the modified rule would continue to restrict exports made as commercial transactions to other destinations.

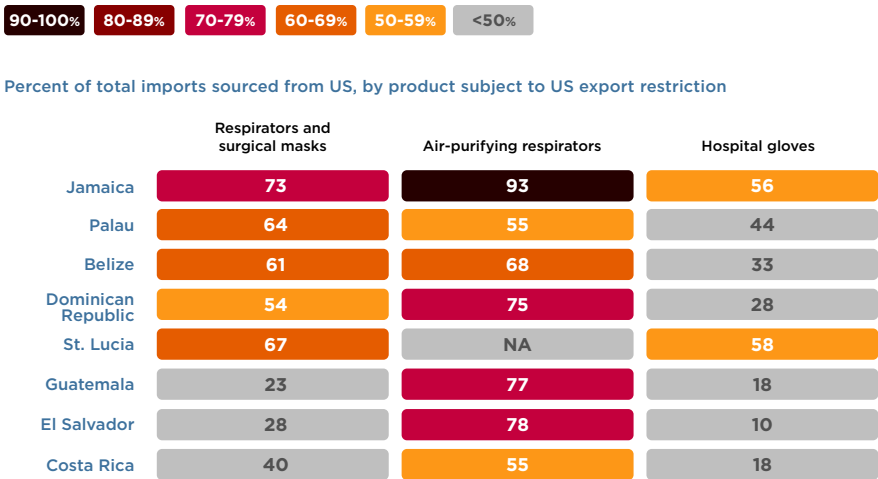
... FEMA issued a rule to limit American exports of a variety of respirators, surgical masks, and hospital gloves starting on 7 April ... Then, late on Friday 17 April, the Trump administration quietly released a revised rule providing a complete exemption for exports to Canada and Mexico ... the rule could be self-defeating if it exposed the US to retaliatory export bans. In 2019, the US imported more than five times the amount of these pieces of PPE as it exported

Overall, the US exported an estimated \$1.1 billion of the restricted products in 2019, including disposable respirators and surgical masks (\$511 million), air-purifying respirators (\$415 million), and hospital gloves (\$150 million). As indicated, much of these exports went to Canada and Mexico. Under the revised rule, these countries would be exempted. While not a point of discussion here, the rule could be self-defeating if it exposed the US to retaliatory export bans. In 2019, the US imported more than five times the amount of these pieces of PPE as it exported (Bown 2020d).

Nevertheless, there are a number of Latin American countries that have sourced a large share of their imports of these products from the US historically (Figure 2). They did not receive a blanket exemption even under the revised rule of 17 April. However, the revised rule does contain one other potentially important exemption – for humanitarian purposes – that could apply. PPE exports could be exempted if they were procured by a charity or NGO and freely distributed.⁹ Yet, the ban would appear to continue to apply to hospitals in these countries desperate for PPE and seeking to purchase such equipment from American manufacturers via a commercial transaction.

Figure 2

US export restrictions on medical supplies put countries in Latin America at risk



NA = not available

Note: Average share of a country's total imports of each product sourced from the US over 2016-2018.

Source: Constructed by the author with country-specific import data at 6-digit Harmonized System level from UN Comtrade accessed via World Integrated Trade Solution (WITS). See Bown (2020d).

The Trump administration’s export restrictions shared other important similarities with the EU policy. The initial policy in each was applied in haste, with little regard for supply chains that could have led the policies to be self-defeating. Nor did either consider their larger exposure to retaliatory export restrictions imposed by other countries. Each also increased uncertainty about PPE availability for historical importers, including a number of poor countries.

... a number of Latin American countries have sourced a large share of their imports of these products from the US ... They did not receive a blanket exemption ... the ban would appear to apply to hospitals in these countries desperate for PPE and seeking to purchase such equipment from American manufacturers via a commercial transaction.

China's exports of personal protective equipment

The origin of the coronavirus outbreak was Wuhan province, and PPE demand in China spiked beginning in January. While estimates of the size of the demand increase remain unclear, these events almost certainly took some global supply immediately off the market. There were also media reports – subsequently denied by the Chinese government – that China itself imposed export limits on PPE.¹⁰ This all took place before Europe, the US, and countries elsewhere began to ban exports in response to local spikes in demand, shortages of supply, and inadequate stockpiles. But the anticipated falloff in Chinese supply to the world was surely a contributing concern – once the data were released in late March, it became apparent that China's exports of PPE were 15% lower in January and February of 2020 than during the same period in 2019. Though it remained a net exporter, China's imports of PPE had also increased.¹¹

Before the crisis had taken hold, China supplied over 40% of world imports for five categories of personal protective equipment (Bown 2020c).¹² For many countries, and for many products, China was the source of much more than 40% of PPE imports over 2016-2018.

... China supplied over 40% of world imports for five categories of personal protective equipment ... For many countries, and for many products, China was the source of much more than 40% ... There were media reports – subsequently denied by the Chinese government – that China itself imposed export limits on PPE.

A number of developing countries have been reliant on China as an import source for their PPE (Figure 3). The geographical proximity of Kyrgyzstan, Cambodia, Myanmar, Malaysia, Pakistan, Iran and Uzbekistan echoes patterns for the EU (Eastern Europe, Africa) and US (Latin America), suggestive of the role played by regional networks. Yet, China is also clearly different – it is a much larger exporter than the EU and especially the US. And the import reliance of countries relatively far from China, including in western Africa (Togo and Mauritania) as well as South America (Peru, Argentina) illustrates the dominant role played by China as a global supplier.

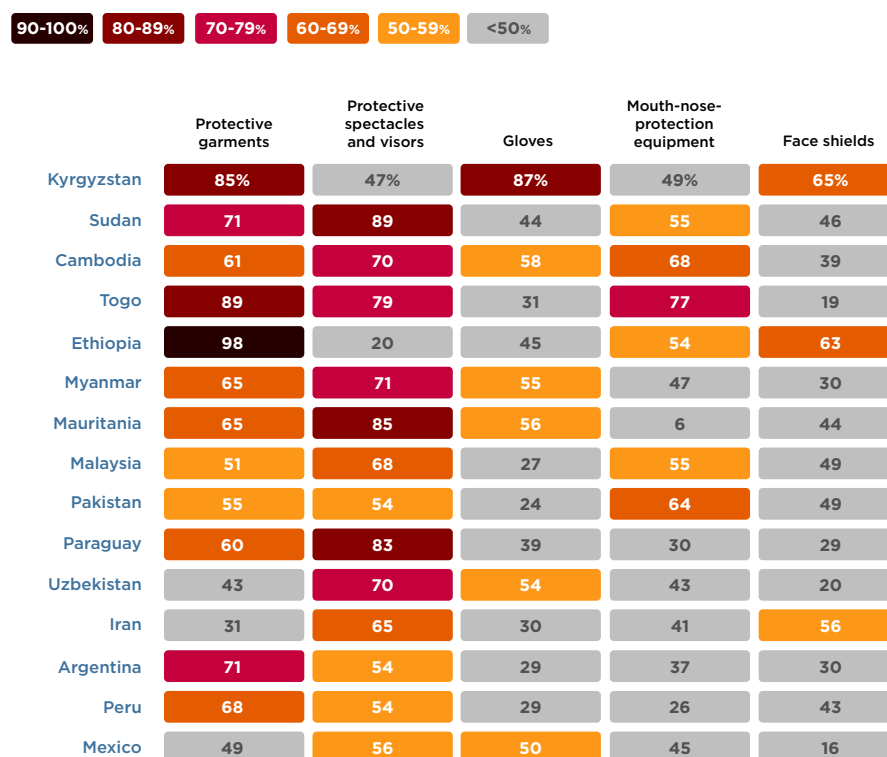
10 Wang Hui (2020), “China denies banning export of face masks,” CGTN, 6 March.

11 This section draws heavily from Bown (2020c).

Figure 3

Many developing countries rely on imports from China for their medical supplies

Percent of total imports sourced from China by product



Note: Average share of a country's total imports of each product sourced from China over 2016-2018.

Source: Constructed by the author with country-specific import data at 6-digit Harmonized System level from UN Comtrade accessed via World Integrated Trade Solution (WITS). For product definitions, see Bown (2020b).

March and April featured China's economy re-emerging from the crisis, its health system having potentially tamed the initial wave of the pandemic. Some of China's PPE manufacturers resumed and scaled up exporting to destinations around the world. However, some of the reports of events taking place in markets were also extraordinary. Whereas relatively low-cost surgical masks and N95 respirators once would have been transported by container ship in a voyage taking weeks, heightened demand meant they were now being flown by air freight, by commercial airlines, or by private jet, to move them from factory floor to hospitals within days or even hours. At the same time,

demand was reportedly uncoordinated, with Federal governments competing with local governments to bid up prices for equipment that could potentially be used to supply the same hospitals and assist the same health care workers treating the same patients.¹³ Finally, some governments also reported acts of piracy; a German official indicated that 200,000 masks bound for Germany from China had been “confiscated” while in route.¹⁴

... the spike in demand for Chinese-produced PPE is almost certain to have driven up prices. For poor countries without market power, one effect was likely an additional strain on public health budgets, even for those countries lucky enough to tap into foreign supplies.

The lack of coordinated procurement and the spike in demand for Chinese-produced PPE is almost certain to have driven up prices. For poor countries without market power, one effect was likely an additional strain on public health budgets, even for those countries lucky enough to tap into foreign supplies.

Regulatory changes, product quality, and reputational effects

In response to COVID-19, governments have also been adjusting their regulatory environments, including for PPE. Some countries have relaxed regulations in an attempt to facilitate domestic production as well as imports. The US Food and Drug Administration, for example, issued new Emergency Use Authorisation (EUA) to permit eligibility of certain products, including KN95 respirators made in China, that had not previously been approved for use in the US.¹⁵ Italy also created a process by which suppliers could self-certify their surgical masks as being compliant with safety recommendations.¹⁶

13 Ana Swanson (2020), “White House Airlifts Medical Supplies From China in Coronavirus Fight”, New York Times 29 March; Andrew Beaton (2020), “A Million N95 Masks Are Coming From China—on Board the New England Patriots’ Plane”, Wall Street Journal, 2 April; Bojan Pancevski (2020), “As Countries Vie for Coronavirus Supplies, Germany Cuts Deal With China”, Wall Street Journal, 8 April.

14 See Richard Lough and Andreas Rinke (2020) “US coronavirus supply spree sparks outrage among allies”, Reuters 3 April. 3M issued a statement denying the confiscated shipment involved its sales of masks (3M, 2020c).

15 “On April 3, FDA issued a new Emergency Use Authorisation (EUA) for non-NIOSH-approved respirators made in China, which makes KN95 respirators eligible for authorisation if certain criteria are met, including evidence demonstrating that the respirator is authentic” (Fulton, Kadish and Sumner, 2020).

16 See Roberto Cursano and Riccardo Ovidi (2020), “Italy: Medical Masks Without CE Marking”, Baker McKenzie, 27 March 2020. See also Alan Beattie (2020), “Crisis response is stuck in regulatory quagmire” Financial Times, 2 April.

The US FDA issued Authorisation to permit eligibility of KN95 respirators made in China, that had not previously been approved for use in the US. Italy also created a process by which suppliers could self-certify their surgical masks ... the regulatory relaxation and heightened demand for PPE resulted in an increased incidence of concerns over product quality. ... on 10 April, the Chinese government moved in the other direction, increasing the stringency of its regulations for certain PPE intended for export. China suddenly imposed export quality checks for PPE as well as other products, including masks, protective garments, goggles and gloves.

Not surprisingly, the regulatory relaxation and heightened demand for PPE resulted in an increased incidence of concerns over product quality. In March, reports arose in the Netherlands of faulty Chinese-supplied masks; similar reports over defective PPE had occurred within China itself.¹⁷ That many of the initial reports involved Chinese supplies was not surprising for a number of reasons. Two important ones were that China was such a large share of global supply, and that it had ramped up its additional production earlier in 2020 than other countries in response to the pandemic.

Nevertheless, on 10 April, the Chinese government moved in the other direction, increasing the stringency of its regulations for certain PPE intended for export. China suddenly imposed export quality checks for PPE as well as other products, including masks, protective garments, goggles and gloves.¹⁸

One way to interpret the Chinese government action was out of concern for the reputational effects (negative externalities) that might tarnish its industry, if new Chinese entrants were generating products of inferior quality that threatened incumbent suppliers – including the subsidiaries of foreign multinationals. Recall the melamine scandal in China in 2008, in which the chemical was found in infant formula. Not only did the lack of adequate regulatory oversight cause health concerns, but it also inflicted damage on the Chinese dairy sector's international reputation.¹⁹ The recent Chinese regulatory action could be an attempt to avoid a similar fate for its PPE industry.

17 See Alexandra Stevenson and Tiffany May (2020), "China Pushes to Churn Out Coronavirus Gear, but Struggles to Police it", *New York Times*, 27 March; Adam Payne, Sinéad Baker and Ruqayyah Moynihan "The Netherlands has recalled 600,000 coronavirus face masks it imported from China after discovering they were faulty", *Business Insider* 29 March.

18 Liza Lin (2020), "China Tightens Customs Checks for Medical Equipment Exports", *Wall Street Journal*, 10 April and Keith Bradsher (2020) "China Delays Mask and Ventilator Exports After Quality Complaints", *New York Times*, 11 April.

19 See Bai et al (2019).

Nevertheless, a Chinese regulatory decision that led to a slowdown of PPE exports could have other reputational effects. It ran the risk of signalling that the Chinese government was proving indifferent to the millions of foreigners suffering from the ravages of the COVID-19 pandemic whose medical workers were desperate for PPE imports from China.²⁰

Poor countries, with many fewer personnel and financial resources available to tackle the same issues, may face heightened risk of only getting access to lemons.

For poor countries, these incidents raise additional concerns for their imports of PPE. Even consumers in countries with the most advanced regulatory oversight have ended up with faulty products. Poor countries, with many fewer personnel and financial resources available to tackle the same issues, may face heightened risk of only getting access to lemons.

Economics and policies

Export restrictions are a costly form of trade policy. They are problematic if markets are competitive and market failures are absent. In that case, an export restriction discourages local production and incentivises too much local consumption. But it also has distributional implications, creating winners and losers. Relative to open trade, local consumers benefit (through lower prices and greater access to products), and the local supplier loses. In global terms, the policy can be beggar-thy-neighbour, as it can impose costs on trading partners.²¹ Taking supplies off the global market can lead to higher world prices and reduced quantities, harming hospital workers in need in other countries.

An export restriction has distributional implications ... Relative to open trade, local consumers benefit, and the local supplier loses. In global terms, the policy can impose costs on trading partners. Taking supplies off the global market can lead to higher world prices ... harming hospital workers in need in other countries.

20 See Kate O’Keefe, Liza Lin and Eva Xiao (2020), “China’s Export Restrictions Strand Medical Goods US Needs to Fight Coronavirus, State Department Says”, Wall Street Journal, 16 April.

21 See, for example, Bagwell and Staiger (2002).

The chaos of early 2020 certainly signalled that there were likely failures in PPE markets. Nevertheless, export restrictions were not the first best policy to address those problems. And without a diagnosis of the true underlying market failure, export restrictions could make matters worse, even if only considering the interests of the policy-imposing country and assuming away any other countries' policy response. For a country like the US, such an assumption was ludicrous. Trading partners could retaliate by restricting exports of inputs that American companies needed to make the PPE. They could also threaten to withhold any number of other products, on which the US was also import-reliant in its fight against the pandemic.

... one country's PPE export restriction may beget more ... The worry involves the knock-on effects of EU and US actions. Here, there are parallels with the problematic export restrictions on agricultural products imposed in the late 2000s, in response to commodity price spikes, that exacerbated food shortages ... This led to a "multiplier effect," worsening the impact of export restrictions, especially for net importers of food ... The risk is that a similar, escalating pattern of export limits on vital medical supplies arises today

A final important additional concern is that one country's PPE export restriction may beget more. The EU and US are not the world's largest sources of trade in PPE; indeed, the US especially is a major net importer (Bown 2020d). The worry involves the knock-on effects of EU and US actions. Here, there are parallels with the problematic export restrictions on agricultural products imposed in the late 2000s, in response to commodity price spikes, that exacerbated food shortages (see Giordani, Rocha and Ruta 2016; Martin and Anderson 2011). During that period, one country's export restriction led to additional global shortages, further increasing world prices, putting pressure on other countries to impose even more export restrictions. This led to a "multiplier effect," worsening the impact of export restrictions, especially for net importers of food.

The risk is that a similar, escalating pattern of export limits on vital medical supplies arises today. Dozens of countries have imposed such restraints. And the restrictions go well beyond PPE, to include other hospital equipment, pharmaceuticals, and food.²² Like the pandemic itself, no end is in sight.

22 See Keynes (2020), for a discussion. For monitoring of these export restricting policies, see Evenett (2020), Espitia, Rocha and Ruta (2020), UN International Trade Centre (2020), and WTO (2020).

Some of the most vulnerable to these export restrictions are the countries reliant on imports, without any manufacturing capacity to scale up PPE production of their own. That is likely to include many poor countries, put in the difficult position to cope with the COVID-19 crisis for countless additional reasons. But cutting them off from foreign supplies only adds to their concerns.

References

Abaluck, J, JA Chevalier, NA Christakis, HP Forman, EH Kaplan, A Ko, and SH Vermund (2020), “[The Case for Universal Cloth Mask Adoption and Policies to Increase Supply of Medical Masks for Health Workers](#).” Yale University Working Paper, April 2.

Bagwell, K and RW Staiger (2002), *The Economics of the World Trading System*, Cambridge, MA: The MIT Press.

Bai, J L Gazze, and Y Wang (2019), “Collective Reputation in Trade: Evidence from the Chinese Dairy Industry,” Harvard University manuscript, available at <https://drive.google.com/open?id=0B52sohAPtnAWekRXQWFwNnJRMFU>, September.

Barnett-Howell, Z and AM Mobarak (2020) “[Should Low-Income Countries Impose the Same Social Distancing Guidelines as Europe and North America to Halt the Spread of COVID-19?](#)” Yale University Working Paper, 2 April.

Bown, CP (2020a) “[Trump’s trade policy is hampering the US fight against COVID-19](#),” PIIE Trade and Investment Policy Watch, 13 March.

Bown, CP (2020b) “[EU limits on medical gear exports put poor countries and Europeans at risk](#),” PIIE Trade and Investment Policy Watch, 19 March.

Bown, CP (2020c) “[COVID-19: China’s exports of medical supplies provide a ray of hope](#),” PIIE Trade and Investment Policy Watch, 26 March.

Bown, CP (2020d) “[COVID-19: Trump’s curbs on exports of medical gear put Americans and others at risk](#),” PIIE Trade and Investment Policy Watch, 9 April.

Bown, CP (2020e) “[How the G20 can strengthen access to vital medical supplies in the fight against COVID-19](#),” PIIE Trade and Investment Policy Watch, 15 April.

European Commission (2020a) “[Commission Implementing Regulation \(EU\) 2020/402 of 14 March 2020 making the exportation of certain products subject to the production of an export authorisation](#),” Official Journal of the EU, L1 77/1, 15 March.

European Commission (2020b) “Commission Implementing Regulation (EU) 2020/426 of 19 March 2020 amending Implementing Regulation (EU) 2020/402 making the exportation of certain products subject to the production of an export authorisation,” Official Journal of the EU, L 84 I/1, 20 March.

European Commission (2020c), “European Commission narrows down export authorisation requirements to protective masks only and extends geographical and humanitarian exemptions,” 14 April.

Espitia, A, N Rocha and M Ruta (2020), “Database on COVID-19 trade flows and policies”, World Bank.

Evenett, S (2020), “Tackling Coronavirus: The Trade Policy Dimension”, Global Trade Alert, 11 March.

FEMA (2020a), “Prioritisation and Allocation of Certain Scarce or Threatened Health and Medical Resources for Domestic Use,” 85 FR 20195, 10 April.

FEMA (2020b), “Prioritisation and Allocation of Certain Scarce or Threatened Health and Medical Resources for Domestic Use; Exemptions”, 17 April.

Fulton, A, J Kadish and E Sumner (2020), “Update: Key FDA Actions for COVID-19 Devices and Therapies”, National Law Review, 9 April.

Giordani, PE, N Rocha and M Ruta (2016), “Food prices and the multiplier effect of trade policy”, Journal of International Economics 101: 102-122.

Government of France (2020), “Décret n° 2020-190 du 3 mars 2020 relatif aux réquisitions nécessaires dans le cadre de la lutte contre le virus covid-19”, 3 March.

Federal Ministry for Economic Affairs and Energy (2020), “Anordnung von Beschränkungen im Außenwirtschaftsverkehr mit bestimmten Gütern Vom 4. März 2020”, 4 March.

Keynes, S (2020) “New trade barriers could hamper the supply of masks and medicines”, The Economist, 11 March.

Martin, W and K Anderson (2012), “Export Restrictions and Price Insulation During Commodity Price Booms”, American Journal of Agricultural Economics 94(2): 422–427.

OECD (2020), *More than one-third of West Africans have no handwashing facility at home*, Paris: OECD.

3M (2020a), “[3M response to Defense Production Act order](#)”, April 3.

3M (2020b), “[3M and the Trump Administration Announce Plan to Import 166.5 Million Additional Respirators into the US over the Next Three Months](#)”, April 6.

3M (2020c), “[3M Responds to Inaccurate Reporting on Alleged Seizure of N95 Respirator Shipments](#)”, April 5.

UN International Trade Centre (2020) [COVID-19 Temporary Trade Measures](#), last accessed 19 April.

White House (2020a), “[Statement from the President Regarding the Defense Production Act](#)”, 3 April.

White House (2020b), “[Memorandum on Allocating Certain Scarce or Threatened Health and Medical Resources to Domestic Use](#)”, 3 April.

White House (2020c), “[Remarks by President Trump, Vice President Pence, and Members of the Coronavirus Task Force in Press Briefing](#)”, 6 April.

White House (2019), “[Statement from the President Regarding Emergency Measures to Address the Border Crisis](#)”, 30 May.

WTO (2020), [Trade in Medical Goods in The Context of Tackling COVID-19: Information Note](#). Geneva: World Trade Organisation.

About the author

Chad P. Bown is Reginald Jones Senior Fellow at the Peterson Institute for International Economics and a Research Fellow of CEPR. From 2009-2016, he was on staff at the World Bank, most recently as a Lead Economist in the Development Research Group.

