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Trade Policy Responses to the COVID-19 pandemic  
crisis: Evidence from a New Dataset

Simon Evenett, Matteo Fiorini, Johannes Fritz, Bernard Hoekman,  
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## **Abstract**

This paper presents new high frequency data on trade policy changes targeting medical and food products since the beginning of the COVID-19 pandemic, documenting how countries used trade policy instruments in response to the health crisis on a week-by-week basis. The dataset reveals a rapid increase in trade policy activism in February and March 2020 in tandem with the rise in COVID-19 cases, but also uncovers extensive heterogeneity across countries in both their use of trade policy and the types of measures used. Some countries acted to restrict exports and facilitate imports, others targeted only one of these margins, and many did not use trade policy at all. The observed heterogeneity suggests numerous research questions on the drivers of trade policy responses to COVID-19, on the effects of these measures on trade and prices of critical products, and on the role of trade agreements in influencing the use of trade policy.

## **Keywords**

COVID-19, trade policy, export restrictions, import liberalization.

**JEL classification:** F13, F52, I18





## 1. Introduction\*

One of the instruments many governments resorted to in responding to the COVID-19 pandemic was trade policy. Barriers to the importation of medical products and supplies and agricultural and food products were lowered, and restrictions imposed on exports of such goods. The mix of import facilitation and export controls were driven by the objective of maximizing the availability of critical supplies in the domestic market. Real time tracking of the use of trade policy measures is difficult as governments only report changes in trade policy to the WTO with a lag and may not notify the WTO at all. Timely information on trade policy measures matters for businesses seeking to expand production and needing to source inputs to do so, to public authorities responsible for procuring critical supplies, and for policy analysts interested in assessing the effects and effectiveness of policy responses to the pandemic.

This paper introduces a new dataset on trade policy interventions – both to control exports and facilitate imports of food, medical supplies, and personal protective equipment (PPE). The dataset is the product of an ongoing open data initiative conducted by the Global Trade Alert (GTA) in partnership with the European University Institute and the World Bank to collect information on changes in trade policy towards exports and imports of medical and food products starting in January 2020.<sup>1</sup> Until mid-October 2020 the data were collected and reported on a weekly basis, providing the ability to track the imposition and removal of measures across a wide range of countries. The high frequency of the data is a unique feature of the exercise. The project is ongoing. The data used in this paper span the period from 2 January 2020 to 9 October 2020.

Our aim in this paper is to provide a descriptive assessment of the trade policy measures implemented in response to the COVID-19 pandemic. This paper and the accompanying database complement a growing body of policy oriented economic research studying international trade during the COVID-19 pandemic. Early in the pandemic many analysts and organizations stressed the importance of keeping borders open to allow supply chains to work efficiently in ramping up supply of critical products (e.g., Baldwin and Evenett, 2020; Bown, 2020a,b,c; Evenett, 2020; Espitia et al., 2020; Mattoo and Ruta, 2020; OECD, 2020; WTO, 2020). In practice, some countries did so; others did not. Understanding the drivers of the differences in observed trade policy responses over time and across countries and sectors is important for drawing inferences (and lessons) about the implications of the COVID-19 pandemic for international cooperation and potential rule-making looking forward. The dataset allows empirical analysis of a range of research questions. Some of these are discussed briefly on the penultimate section of this paper, but we do not undertake such analyses here. Instead our main aim is to raise awareness of the dataset in the hope others will be encouraged to use it.

The remainder of the paper is organized as follows. Section 2 presents the dataset and provides basic summary statistics. Section 3 highlights some stylized facts that emerge from the trade policy responses to the COVID-19 pandemic. Section 4 discusses several hypotheses suggested by these stylized facts and possible research questions that could be the subject of further analysis. Section 5 concludes.

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\* This paper describes an ongoing EUI-Global Trade Alert-World Bank joint project to collect and report information on trade policy measures for food and medical products put in place during the COVID-19 pandemic. The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors. They do not necessarily represent the views of the World Bank and its affiliated organizations, or those of the Executive Directors of the World Bank or the governments they represent.

<sup>1</sup> Information on trade policy changes are processed and collated by the Global Trade Alert team. The data are posted at <https://www.globaltradealert.org/> as well as at <https://globalgovernanceprogramme.eui.eu/covid-19-trade-policy-database-food-and-medical-products/> and <https://www.worldbank.org/en/topic/trade/brief/coronavirus-covid-19-trade-policy-database-food-and-medical-products>.

## **2. The dataset**

The data collection initiative presented in this paper is confined to trade policy changes in two sectors: medical goods and medicines, and agricultural and food products. The products falling under each of these sectoral headings are listed in the methodology note that accompanies the database.<sup>2</sup> Policy interventions by national and sub-national governments, as well as actions taken at the supra-national level by a customs union are included in the data collection exercise.

Trade policy measures are identified by the GTA team using the following methodology. First, automated techniques are used to gather information in multiple languages on relevant trade policy changes from many different sources including websites of relevant government agencies (which can include finance ministries, trade ministries, customs agencies, health ministries or associated agencies, and offices of the head of government or state); websites of relevant international organizations (IMF, ITC, UNCTAD, WCO, WTO); online media sources, including social media; and non-state organizations collecting information on the matters falling within the scope of this initiative, including law firms, consulting companies, research institutes and other academic initiatives.

These sources are searched for key words in major languages relating to the policies and products falling into the two sectors of interest. Such searches create “leads” which are processed to identify those that legitimately characterize a trade policy change falling within the scope of the initiative. Every lead recorded in the GTA’s systems is enriched in a multi-step analytical process. In the first step, an analyst provides an initial assessment of whether the lead is of topical relevance (within scope as defined in the last section), the implementing jurisdiction, the policy instrument category described, the product categories affected, and the direction of the trade policy change. This initial assessment is subsequently validated by a second analyst who confirms, amends, or rejects the first’s choices. Once past this initial assessment, relevant leads then move into the GTA reporting pipeline. Where missing in the first step, an official source is sought and, if found, saved for each lead. Once the official source has been located, the responsible GTA trade policy analyst processes the lead into a GTA database entry that combines a brief description of the state act along with identification of the most accurate policy instrument among a rich taxonomy plus the appropriate United Nations product and sectoral codes.<sup>3</sup>

The final database on trade policy changes includes information on the sector affected (medical products and/or food); the type of information used to document the trade policy change (official source, report on the Global Trade Alert website, media sources, or consultancy or law firm reports); the jurisdiction implementing the trade policy change; an initial assessment whether the trade policy change is liberalizing or restrictive; where relevant/available the date the trade policy change was announced/was implemented and lapsed; and whether the trade policy change affects imports and/or exports.

The version of the dataset used in this paper spans the period up to October 9, 2020. It includes 701 policy measures covering 135 customs territories (the European Union, the South African Custom Union, and the Eurasian Custom Union are considered as a single territory, independent from of their member states).<sup>4</sup> For the ensuing descriptive analysis of trade policy measures across countries and over time we consider the date of announcement as the starting date of each measure. We clean the data

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<sup>2</sup> See <https://globalgovernanceprogramme.eui.eu/wp-content/uploads/2020/05/Methodologynote050420.pdf>

<sup>3</sup> For products this is the Harmonized Commodity Description and Coding System (HS); for sectors the UN use is made of the International Standard Industrial Classification (ISIC).

<sup>4</sup> In the case of the European Union, some member states also took individual actions to restrict or encourage trade in medical supplies. These countries included Belgium, France, Germany, Greece, Hungary, Italy, Latvia, Poland and Romania. In the analysis that follows the scores attributed to individual members of a custom union are added to whatever measures are implemented by the union. That is, the EU and its member states are identified as distinct implementing jurisdictions. This permits identification of both the EU as an entity and individual EU countries in the scatterplots that follow, which data for member states comprising those measures implemented on top of the EU-level ones (which are identified by the label EU).

accordingly to remove inconsistencies in the reported measures. We also exclude measures with a 2019 announcement date, i.e., before the COVID-19 outbreak. This leaves 645 measures, of which 284 have no removal date indicated and 52 are to be removed in 2021 or later.

The discussion that follows focuses on two types of measures: export restrictions and import liberalization-cum-facilitation. These measures cover most of the measures in the dataset. Details on the set of policy instruments included in these two categories are reported in Appendix Table A1.<sup>5</sup> The dataset encompasses significantly more measures than reported by the two international organizations that have engaged in monitoring exercises. The first of these is the International Trade Centre (ITC), which launched a COVID-19 dashboard in early 2020 that provides information on trade measures taken by countries. The focus of this effort is not limited to food and medical products. As of 9 October 2020, the ITC repository comprised 338 measures implemented by 145 countries, custom unions, and autonomous territories, substantially fewer than what is reported by the GTA.<sup>6</sup>

The second is the WTO, which reports on COVID-19 related measures notified by its members and maintains a separate dataset on export and import-related measures compiled by the WTO Secretariat that is drawn from official sources. The latter includes only measures that are verified by the WTO members concerned. Transparency is a fundamental dimension of WTO membership. This also applies to emergency measures. WTO members must notify quantitative restrictions that are motivated by domestic emergencies, including public health. The relevant 2012 Decision on Notification Procedures for Quantitative Restrictions (WTO G/L/59/Rev.1) stipulates that notifications must occur at two yearly intervals, and more salient to the present context, report changes as soon as possible, and no later than six months from their entry into force (Hoekman, 2020).<sup>7</sup> WTO members may engage in so-called reverse notifications as well, reporting on measures imposed by other countries and customs territories.

In principle, transparency through notification and reverse notification supports discussion in the WTO of measures taken. In practice many WTO members have not lived up to their transparency obligations, notwithstanding commitments by G20 Trade Ministers to notify the WTO of trade-related measures taken. As of 9 October 2020, 55 WTO members had submitted 245 notifications related to COVID-19. These span export restrictions and import liberalization/trade facilitation measures as well as changes in product regulation (standards) and economic support programs. Brazil is the leader in having notified 28 measures, followed by Kuwait (16), the USA (14), the European Union (12), Philippines (11), Thailand (11) and Korea (9) (Figure 1). Three-quarters of these COVID-19 related notifications pertain to product standards for medical supplies and PPE.<sup>8</sup> Through October 9, 2020 only 58 COVID-19 related notifications did not pertain to sanitary and phytosanitary (SPS) or technical barriers to trade (TBT). This compares to 645 measures – both export restrictions and import liberalization/facilitation – targeting food and medical products in the GTA dataset.<sup>9</sup>

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<sup>5</sup> Note that the data do not include changes in health and safety standards applicable to the products concerned, i.e., sanitary and phytosanitary measures and technical barriers to trade (product standards).

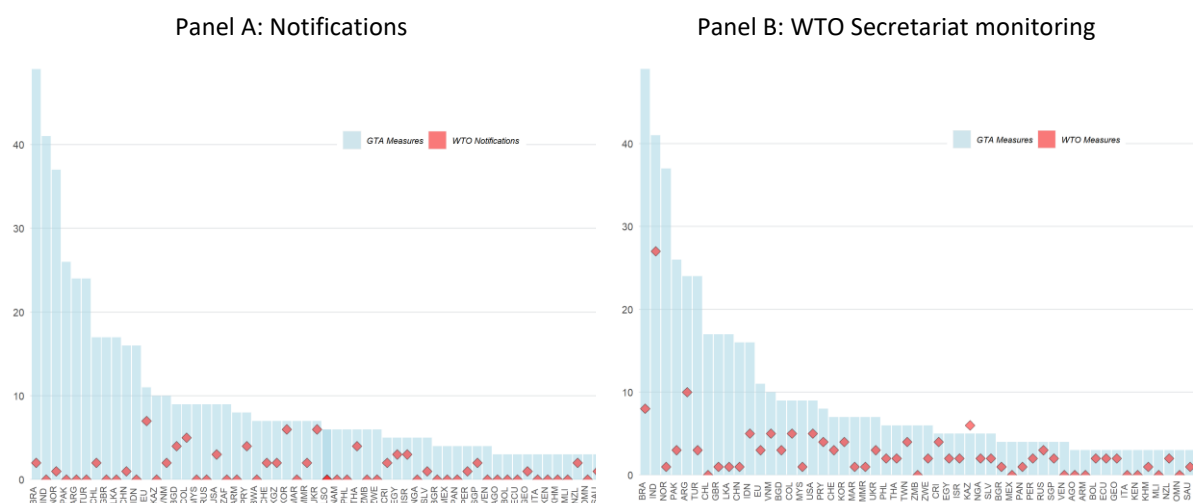
<sup>6</sup> The ITC considers overseas and autonomous territories separately from the home country. This is not done in the GTA or WTO monitoring exercises. See <https://www.macmap.org/covid19>

<sup>7</sup> The 2013 Agreement on Trade Facilitation similarly has transparency requirements, requiring WTO members to publish promptly information on import, export or transit restrictions or prohibitions.

<sup>8</sup> This is consistent with the May 14, 2020 G20 Trade Ministerial commitment to: “Reduce sanitary and technical barriers by encouraging greater use of relevant existing international standards and ensuring access of information on relevant standards is not a barrier to enabling production of PPE and medical supplies.”

<sup>9</sup> As noted, the GTA COVID-19 monitoring exercise does not encompass SPS and TBT measures.

**Figure 1: GTA vs. WTO Monitoring**



**Source:** Hoekman (2020).

**Notes:** To increase legibility, both panels only report the countries with at least 3 measures recorded in the GTA data. This leaves out half of the countries for which the GTA collected information (54 out of 109), which account for less than 13% of the total measure included in the GTA data.

Matters are worse than suggested by the figure because some countries' notifications concern updates for the same measure and some pertain to support programs, neither of which are included in the GTA COVID-19 dataset.<sup>10</sup> The differences in terms of coverage are illustrated in Figure 1. Panel (a) plots the number of non-SPS, non-TBT related notifications to the WTO (the red diamonds) against the measures covered by the GTA. Panel (b) instead compares the data on export and import-related measures compiled by the WTO Secretariat from official sources and that members have verified. This shows more overlap with the GTA data, but still reveals a significant discrepancy: through October, 9 2020, the WTO secretariat reported 243 verified measures taken by 85 member/observer states, substantially fewer than the 645 found by the GTA.<sup>11</sup>

### 3. COVID-19 trade policy responses across countries and time

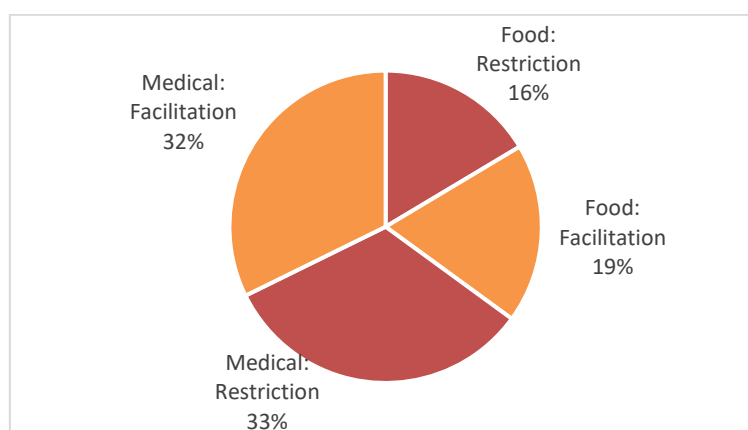
In this section we discuss some of the stylized facts emerging from the data on use of export restrictions and import liberalization-cum-facilitation measures during the first nine months of the COVID-19 pandemic.

#### 3.1. Food vs. Medical Products; Restrictions vs. Trade Facilitation

A first stylized fact is that measures targeting medical products and PPE dominate, accounting for two-thirds of all trade measures taken. Food is less in focus. Medical sector measures are divided roughly equally between export restrictions and import facilitation. For the food sector, import liberalization-cum-facilitation represents 55% of the relevant policy changes (Figure 2).

<sup>10</sup> For example, Australia has more notifications to the WTO (6) than policies captured by the GTA (1). The latter aims to facilitate imports of PPE. Australia's notifications pertain to updates for this one measure.

<sup>11</sup> WTO information on notification and measures reported by the Secretariat were accessed on 9. October 2020 from [https://www.wto.org/english/tratop\\_e/covid19\\_e/notifications\\_e.htm#:~:text=COVID%2D19-,WTO%20members'%20no%20notifications%20on%20COVID%2D19,notifications%20related%20to%20COVID%2D19](https://www.wto.org/english/tratop_e/covid19_e/notifications_e.htm#:~:text=COVID%2D19-,WTO%20members'%20no%20notifications%20on%20COVID%2D19,notifications%20related%20to%20COVID%2D19) and [https://www.wto.org/english/tratop\\_e/covid19\\_e/trade\\_related\\_goods\\_measure\\_e.htm](https://www.wto.org/english/tratop_e/covid19_e/trade_related_goods_measure_e.htm), respectively.

**Figure 2: Export restrictions and import facilitation in food and medical products**

**Note:** Some 7% of the policy measures recorded by GTA involve both Food and Medical products. These measures have been counted in both sectors.

Table 1 reports the evolution of active measures over time. Apart from medical goods in March 2020, import facilitating measures outnumber export restrictions. Overall, import facilitation slightly dominates the trade policy responses in every month since February 2020, for both food and medical products. Export restricting measures peak in April/May 2020, but the overall number of measures do not vary significantly during the period.

**Table 1: Active measures over time**

|           | Food                |                     | Medical             |                     |
|-----------|---------------------|---------------------|---------------------|---------------------|
|           | Import Facilitation | Export Restrictions | Import Facilitation | Export Restrictions |
| February  | 14                  | 6                   | 13                  | 6                   |
| March     | 17                  | 8                   | 24                  | 49                  |
| April     | 47                  | 33                  | 141                 | 120                 |
| May       | 59                  | 32                  | 170                 | 126                 |
| June      | 68                  | 30                  | 177                 | 112                 |
| July      | 66                  | 26                  | 172                 | 109                 |
| August    | 70                  | 28                  | 180                 | 112                 |
| September | 80                  | 34                  | 183                 | 114                 |
| October   | 75                  | 33                  | 149                 | 107                 |

**Notes:** The number of active trade policies is computed at the 15th of each month. Roughly 7% of total policies recorded by GTA involve both Food and Medical products. These measures have been counted in both sectors.

Similar patterns of relative importance across sectors and categories emerge when looking at the value of trade covered by recorded measures. To provide a rough estimate of such values we have used UN Comtrade data for 2019 (or latest year available) to estimate the amounts of trade which may be implicated by the interventions in our data set. For the inclusion into the GTA database, the products affected by each intervention are classified according to the Harmonized System (HS). For our analysis, we use HS codes at the 6-digit-level, the most granular product breakdown for which there is comparable international trade data available through UN Comtrade. To estimate the amount of trade that may be implicated by each intervention, we sum over the trade flow values in the affected products in the year prior to the intervention. The estimates account for geographic restrictions on the potentially affected trading partners such as FTA exemptions or targeted interventions. Furthermore, to remove de minimis trade flows, we apply a minimum threshold of USD 1 million per HS code – trading partner combination.

In terms of the value of trade covered, trade policy changes in medical goods outweigh those in food products by a factor of 3 or higher (Table 2, panel a). At the same time, trade reforms in both product

groups outweigh the newly erected barriers in our sample. We estimate that the export curbs in medical goods and medicines covered international trade worth \$135 billion. Whereas the many import reforms in the same sector covered \$165 billion of 2019 trade. In the case of food and agri-food products, the comparable totals are \$39 billion and \$42 billion, respectively. The instability of trade patterns is an important caveat for the estimates presented above. Basing our estimates on trade values in medical supplies and equipment that pre-date the COVID-pandemic may misrepresent the scale of the problem. Global demand for medical supplies and equipment spiked when the pandemic encompassed ever more countries. The estimates presented for these products below may thus understate the magnitudes of implicated trade.

Table 2 (panel b) disaggregates the information by policy measure, while Table 3 looks at the share of 2019 trade affected by the trade interventions over time.<sup>12</sup> The data show the importance of export bans as trade restrictive measures in medical goods and tariff changes among the trade liberalizing measures. In terms of the evolution of the share of trade covered by policy interventions over time, we observe a surge in February-March-April 2020 for both trade liberalizing and restrictive measures on medical and food products. Thereafter, the trade coverage of trade restrictive measures slightly declines, while the coverage of liberalizing measures stabilizes.

**Table 2: trade coverage of measures tracked by GTA database (US\$ bn)**

| Panel a: Annualized totals of 2019 world trade |                           |                |
|------------------------------------------------|---------------------------|----------------|
|                                                | Export restraints         | Import reforms |
| Medical                                        | 134.6                     | 165.2          |
| Food                                           | 39.4                      | 42.2           |
| Panel b: Medical goods only                    |                           |                |
| <b>Trade restrictive measures</b>              | Worldwide export coverage |                |
| All included instruments                       | 134.6                     |                |
| Of which:                                      |                           |                |
| Export ban                                     | 101.8                     |                |
| Export licensing requirement                   | 66.2                      |                |
| Export quota                                   | 1.4                       |                |
| <b>Trade liberalizing measures</b>             |                           |                |
| All included instruments                       | 165.2                     |                |
| Of which:                                      |                           |                |
| Import ban                                     | 0                         |                |
| Import licensing requirement                   | 6.3                       |                |
| Import quota                                   | 0                         |                |
| Import-related non-tariff measure, nes         | 7.5                       |                |
| Import tariff                                  | 145.7                     |                |
| Import tariff quota                            | 12.5                      |                |
| Internal taxation of imports                   | 88.6                      |                |

<sup>12</sup> Trade data are for 2019 given 2020 trade data are not yet available. The intention is simply to give a sense of the coverage of the trade measures used. The figures in Table 2 estimate the total value of 2019 trade in essential goods that were affected at least once according to the GTA data. The percentages reported in Table 3 are based on all interventions in force at the end of the given month, using as denominator the total value of 2019 world trade in the food or medical essential goods, respectively

**Table 3: Affected portion of trade over time**

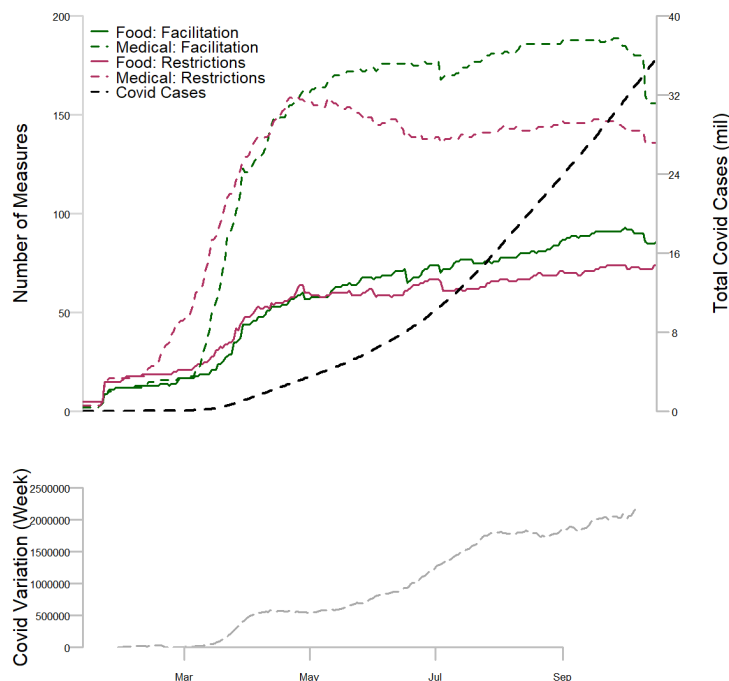
|           | Food           |                   | Medical        |                   |
|-----------|----------------|-------------------|----------------|-------------------|
|           | Import reforms | Export restraints | Import reforms | Export restraints |
| February  | 4.8%           | 3.3%              | 5.6%           | 1.4%              |
| March     | 5.1%           | 4.6%              | 8.4%           | 6.4%              |
| April     | 6.1%           | 5.7%              | 10.7%          | 7.4%              |
| May       | 6.2%           | 5.6%              | 11.3%          | 4.6%              |
| June      | 7.0%           | 5.5%              | 12.2%          | 4.6%              |
| July      | 6.7%           | 3.8%              | 11.3%          | 4.5%              |
| August    | 6.9%           | 3.8%              | 11.1%          | 4.4%              |
| September | 6.8%           | 3.6%              | 11.4%          | 4.3%              |

**Notes:** All data in Tables 2 and 3 are based on interventions in the GTA database which were implemented since 1 January 2020 and affecting at least one product from the list of essential goods (available at <https://globalgovernanceprogramme.eui.eu/wp-content/uploads/2020/05/Methodologynote050420.pdf>). Trade data from UN Comtrade for 2019 or latest year available.

### 3.2. Who did what for how long?

There are some clear patterns in changes to trade policies observed during the first nine months of the COVID-19 pandemic. First, there is a big jump in trade policy activism starting in February and accelerating in March (top panel Figure 3), with the initial increase occurring in tandem with the rise in the number of COVID-19 cases (the bottom part of Figure 3 plots the weekly change in global COVID-19 cases).

**Figure 3: Global COVID-19 Cases and Trade Policy Measures**



**Notes:** For each regional sub-figure the upper part plots the number of active trade policy measures and the absolute number of COVID-19 cases over time while the lower part plots the weekly variation of COVID-19 cases.

**Source:** COVID-19 data from John Hopkins University CSSE database.

As noted previously, there is a more marked increase in the number of measures pertaining to medical products/PPE than actions targeting food products, and, for both sectors we observe a greater number of liberalization-cum-facilitation measures than trade restrictions. The latter pattern is stronger after May 2020, reflected in a gradual decline in the overall number of export control measures for medical products. Starting in August-September we also see a decline in the number of import-facilitating measures, reflecting a partial rollback of temporary reductions in import barriers (tariffs, taxes) for medical goods. The number of measures affecting food trade rise steadily throughout the period, with trade facilitating measures only showing a slight decline in late September/early October. The correlation between trade policies and the weekly increase in global COVID-19 cases is high, as expected, and appears to be stronger for food-related measures than for trade policies towards medical products (Table 4). Correlations that also consider cross-country variation reveal greater similarity between food and medical product-related trade policy activism.

**Table 4: Correlation between trade measures and number of global COVID cases**

|                | Weekly Variation |         | Total Cases |         |
|----------------|------------------|---------|-------------|---------|
|                | Food             | Medical | Food        | Medical |
| Restrictions   | .867*            | .666*   | .743*       | .515*   |
| Liberalization | .926*            | .806*   | .827*       | .657*   |

Source: COVID-19 data from John Hopkins University CSSE database.

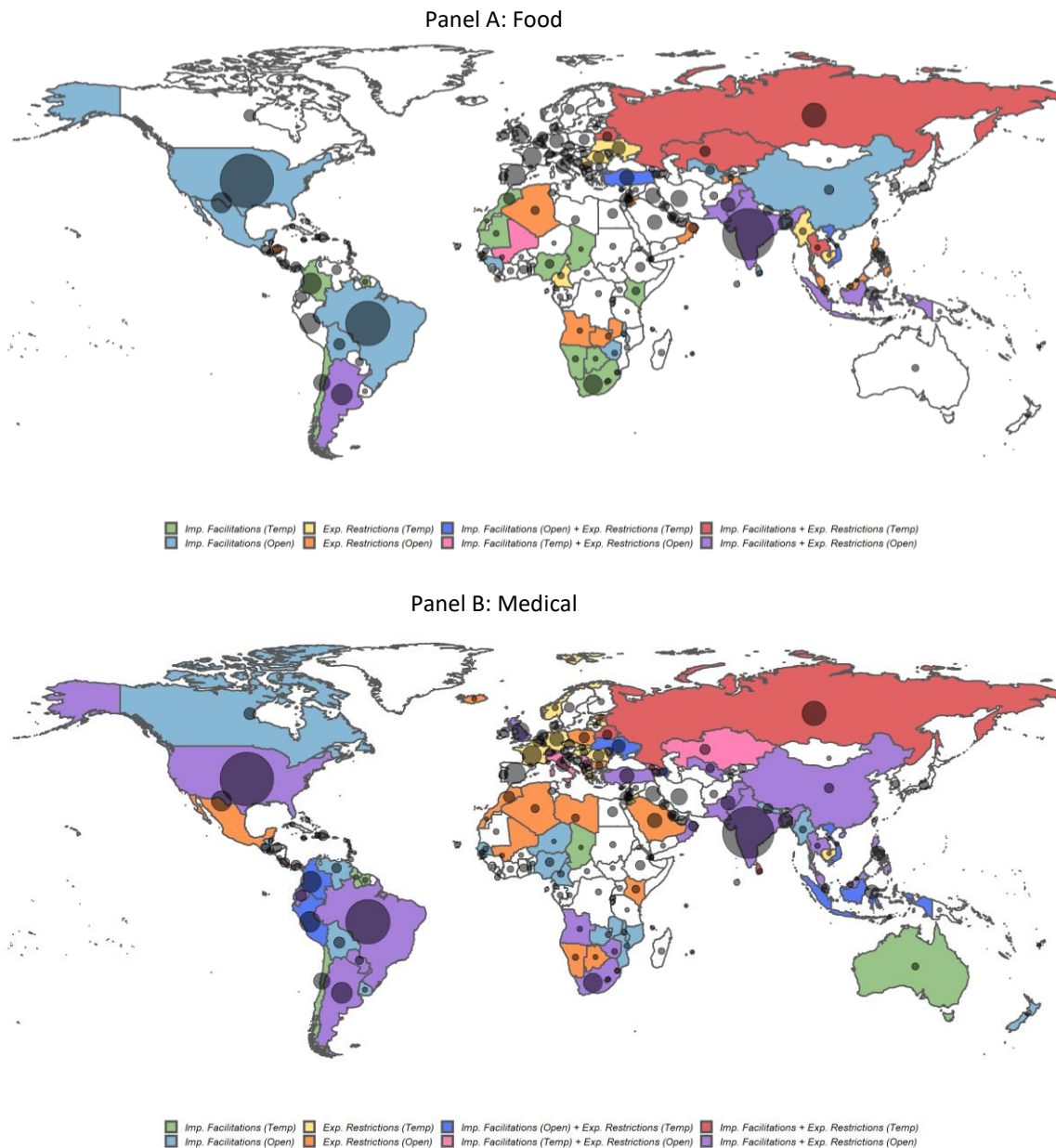
Regional patterns (see Appendix Figure A1) confirm to some extent the timing of the aggregate (global) response, but also reveal significant heterogeneity. Countries responded to the COVID-19 pandemic with heterogeneous timings and different combinations of export controls and import liberalization-cum-trade facilitating measures. Some countries acted both on the restrictive and liberalizing side creating long term changes in their pre-COVID trade policy structures for the food and medical sectors; other countries acted only on one side, either restricting trade or liberalizing it. However, short term changes in trade policy were very frequent. Finally, many countries did not employ any trade policy tool.

Figure 4 offers a visual representation at the country level of these different strategies by identifying countries that did not implement any change in their trade policy structures, and, for active jurisdictions, by distinguishing between temporary versus open ended changes in policy. Sectoral heterogeneity emerges (again) in shaping trade policy responses across countries. The food sector (Panel (a) Figure 4) is characterized by a higher number of inactive countries (colored white), and a higher tendency to implement temporary rather than open-ended trade policy changes. Some major net exporters of food tended to adopt a mix of import facilitation and export restrictions. Argentina and Indonesia did so on an open-ended basis, whereas Russia and Kazakhstan did so on a temporary basis. Other major food producers only took action to liberalize-facilitate imports of food products (e.g., Brazil and the US). Many net importers in Africa did the same, but on an explicitly temporary basis.

Turning to trade policies towards medical products, there are again countries that take only measures to facilitate trade. Australia, Chile, New Zealand are among those that did so on a temporary basis, while Canada, Colombia and Thailand are examples of nations that did so on an open-ended basis. In contrast, many European countries stand out by imposing measures to temporarily control exports, while other countries – Mexico, North African countries – do so on an open-ended basis. Many countries act on both the export and import margin to enhance domestic access to (availability of) medical supplies and PPE. This is the case for several large countries, e.g., Brazil, China, India, South Africa, and the US.



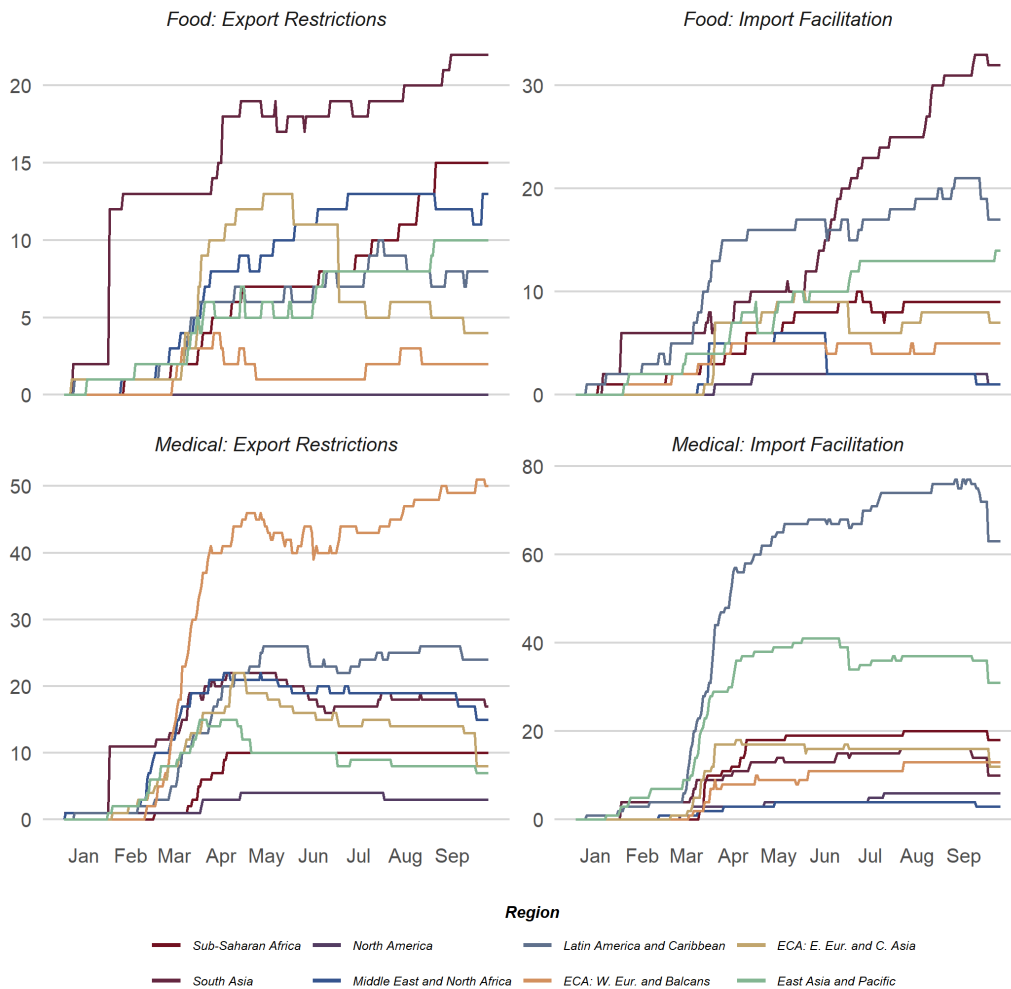
**Figure 4: Trade policy responses and COVID-19 cases across countries**



**Notes:** Blank (white) fill implies no measure of any type was implemented. Bubbles are representative of the absolute number of COVID-19 cases in each country for which data were available. Data on COVID-19 cases are sourced from The John Hopkins University CSSE COVID-19 Data. All information was extracted on 9 October 2020.

Figure 5 explores the variation of trade policy responses over time and across geographic regions. As far as the food sector is concerned, South Asia appears as the most active region in the implementation of both restrictive and liberalizing trade policy changes. When it comes to policies affecting medical goods the Latin America and the Caribbean region has the highest number of active import liberalizations, followed by East Asia and Pacific. The Western Europe and Balkans sub-region in the Europe and Central Asia region shows instead the highest number of active export restrictions.

**Figure 5: Trade policy responses over time and across geographic regions**

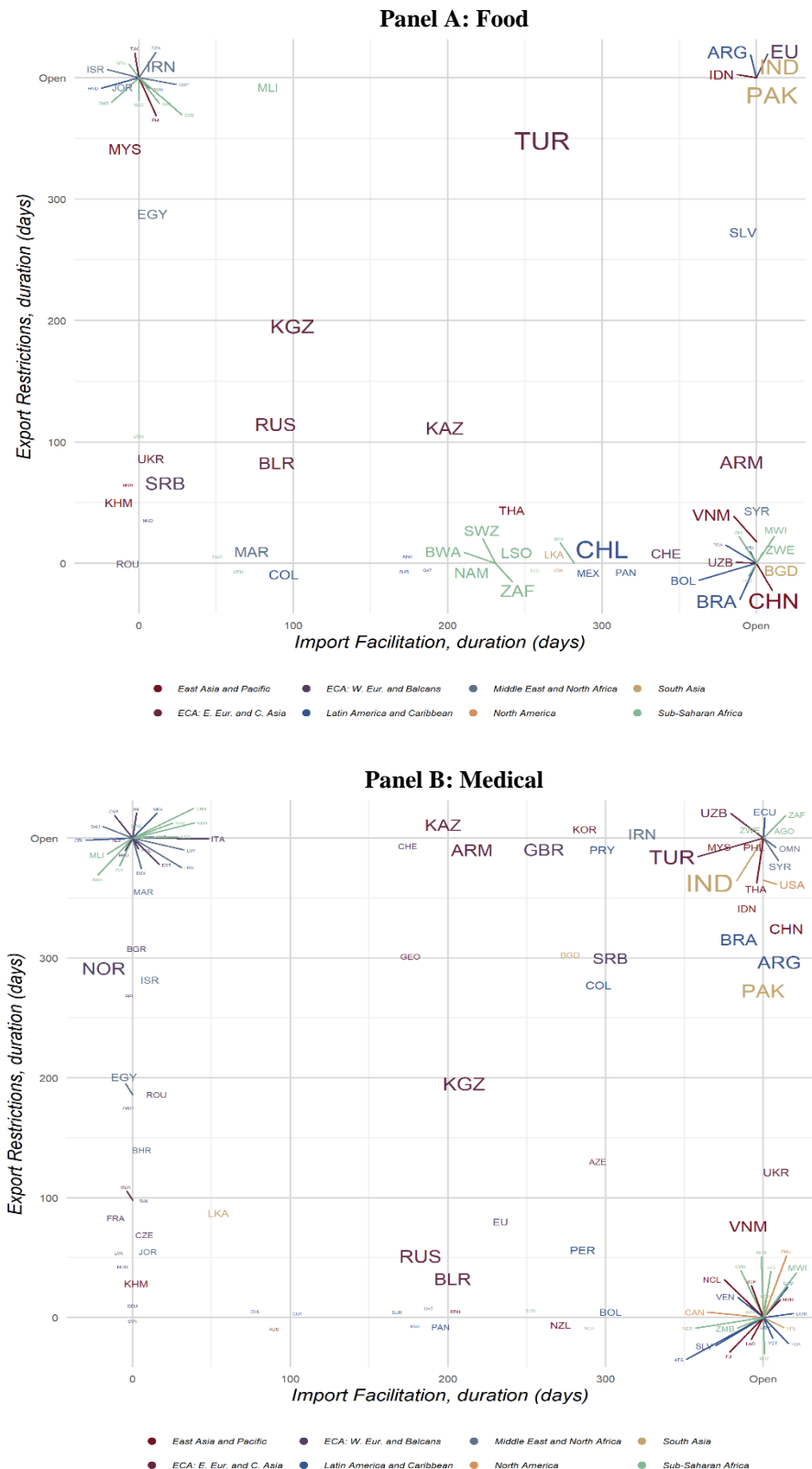


**Note:** Number of active policies refers to the declared termination date.

A richer visualization of the different trade policy strategies is given in Figure 6. In both panels (A for food and B for medical goods) countries are displayed in terms of the duration (in days) of the longest period in which there is at least one active import facilitation action (measured on the horizontal axis) and the duration of the longest period with at least one active export restriction (measured on the vertical axis). The value "Open" at the end of each axis identifies open-ended measures (with no end date specified in the relevant documents) and measures with an end date that is in 2021 or later. The size of each country code displayed in the chart is proportional to the total number of trade measures implemented (both facilitating and export restricting), while its color identifies the associated geographic region defined in the legend at the bottom of each panel.

Figure 6 drills down further into the timing of policy changes by country/jurisdiction and highlights the variation across countries in the duration of temporary interventions. Compare for instance the very short duration of German and French restrictions on medical exports (displayed on the lower part of the vertical axis in Figure 6, Panel B) with the longer duration export restriction strategy chosen by Belgium or Italy (at the upper end of the vertical axis).

**Figure 6: Trade policy responses. Who did what for how long?**



**Notes:** Colored lines point to the names of countries located in the same space of a graph. Countries are displayed in terms of the duration (in days) of the longest period with at least one active import liberalization measure (horizontal axis) and at least one active export restriction (vertical axis). The value "Open" at the end of each axis identifies measures without an end date or that extend beyond December 2020. The font size of each country code is proportional to the total number of measures implemented; colors identify the associated world region.

Keeping the focus on European countries, Figure 6 also captures the heterogeneous responses of EU Member States with respect to each other as well as to the EU common commercial policy. The figure illustrates that the EU chose an open-ended import liberalization strategy for the food sector (see the EU label in the bottom-right corner of Panel A). Apart from Romania (which imposed a temporary export ban), other EU member states did not adopt any idiosyncratic measure to complement the EU-level policy response. Once again, the picture looks different for medical goods. In that sector the strategy of the EU – temporary export restrictions (lasting less than 100 days) combined with a 6 month period of sustained import facilitation – has been accompanied by numerous idiosyncratic measures affecting trade at the EU Member State level, with a common feature being that national actions complement those imposed for the EU as a whole by involving export controls and restrictions.

More broadly, Figure 6 shows how countries differ in the duration and mix of trade policy measures used for each sector. It identifies which countries primarily engaged in import facilitation (located at the far right of the horizontal axis); others restricted exports without facilitating imports (those located at the top of the vertical axis) and many did both, with some imposing many more measures than others (reflected in the size of the font of each country label).

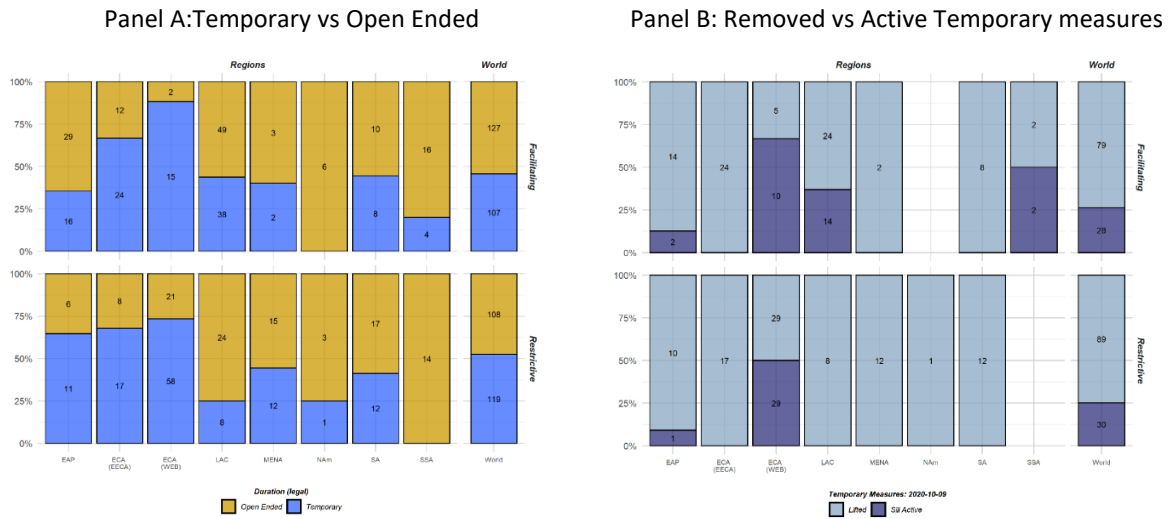
The data also allow identification of the specific type of measure beyond the broad categories of export restrictions and import liberalization-cum-facilitation. Appendix Figure A2 uses all information in the database to plot the structure of trade policy responses in the medical products sector for three populous countries with the highest absolute number of COVID-19 cases: Brazil, India and the US. Comparing the three panels in Figure A2 we see substantial cross-country heterogeneity in the use of specific instruments.

Figure 7 reports the region-specific and global distribution of temporary versus de jure open-ended measures (Panel A). Within the category of temporary measures, it also distinguishes between those that were removed during the nine-month period under consideration and those that remained in place as of 9 October 2020 (Panel B).

At the global level, there is an approximate balance between temporary and open-ended measures, but there is significant heterogeneity at the regional level. The Western Europe and Balkans region has the highest percentage share of temporary measures (Panel A) but also the highest share of measures that were still active (Panel B). The East Asia and Pacific and the Europe and Central Asia regions also reveal a prevalence of temporary changes in their trade policy structures, with most of the measures removed as of October 2020. All other regions trade policy responses tend to use more intensively open-ended measures.

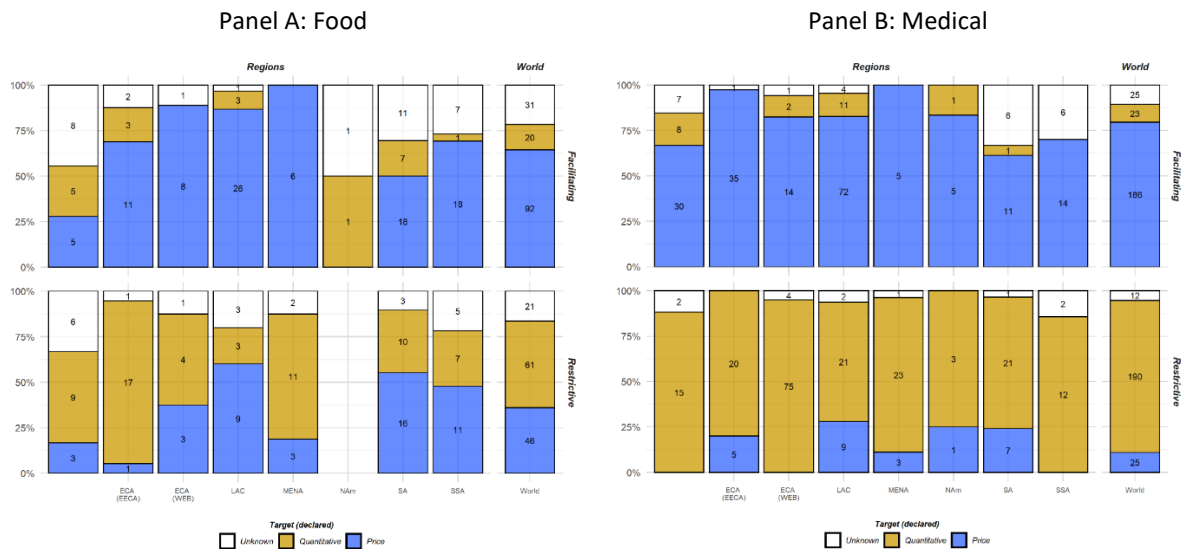
Finally, Figure 8 presents yet another dimension of heterogeneity in trade policy responses: the degree to which jurisdictions employ price-based (tax) as opposed to quantitative restrictions. The import facilitation side of the global trade policy response mostly revolves around price-based measures (reductions in taxes and import tariffs). The opposite is true for export controls, especially for medical products where systematically across regions more than two-thirds of trade policy changes targeted quantities rather than prices.

**Figure 7 – Medical Sector: Temporary VS Long-term (open-ended)**



**Notes:** Panel (a) reports medical related import liberalization/facilitation and/or export restrictions by declared duration. Open-ended measures include all policies for which no removal date is specified or with a duration that extends beyond 2020. Panel (b) focuses on measures that were reported as explicitly temporary with end dates in 2020, distinguishing between those that had been removed as of October 9, 2020 and those that remained to be withdrawn before the end of 2020.

**Figure 8 – Price versus quantitative measures**



**Notes:** Price targeting measures include export taxation, internal import taxation, import tariffs and tariff quotas. Quantitative measures include import/export quotas, generic non-tariff measures, import/export bans, licensing requirements. The residual “Unknown” category groups all measures with no clear description. Food- and Medical- related measures are reported in Panel A and Panel B respectively.

#### 4. Avenues for future research based on these data

As mentioned, the primary purpose of this paper is to raise awareness of the COVID-19 trade policy dataset and encourage its use. In this section we briefly sketch out possible research questions that are suggested by the patterns we observe in the data.

#### 4.1 Policy choice

A first set of research questions centre around understanding the motives underlying choices in the design and implementation of trade policy responses to the pandemic, reflected in the substantial cross-country heterogeneity observed in the data. These include the timing, the duration, and the use of different instruments. Potential explanatory variables include mechanisms pertaining to the medical, the economic and the political spheres, e.g., public health parameters of the COVID-19 pandemic; features of the pre-crisis trade and trade policy structures, such as trade dependency, GVC participation and positioning; degree of existing protection; integration in multilateral or plurilateral trade policy initiatives; the political forces determining the quality of government action etc. An important corollary exercise would be to test whether and how such empirical relationships vary between the food and the medical sectors and potentially between more disaggregated product-level categories.

Herding effects could be considered as well, calling into question whether individual observed policy choice is independent of the choices of others. Another source of interdependence across policy choices arises from membership of regional trade agreements. In this regard, the role that the European Commission played in replacing and then reining back the export controls imposed initially by Member States of the European Union is worthy of further study.

Econometric analyses could be complemented by some well-chosen country case studies. For instance, the Indonesian government started by exhorting local producers not to sell masks abroad. Then, Jakarta imposed an export limit or share. When that did not ‘work’ they banned exports of masks. This sequence of policy steps is different than jumping in with an export ban in the first place, reflecting, potentially, different political economy factors. Another example of potentially interesting country-specific case study relates to Vietnamese export controls on rice. The government initially banned exports, but then the Prime Minister progressively watered down and abandoned the export controls. News reports suggest that opposition from rice farmers was important but did other factors play a part in this policy reversal?

An example of research in this vein concerns the relationship between recourse to export controls and actions to facilitate imports. Do governments imposing export restrictions also act on the import side? Insofar as governments are expected to use both types of policy measures to maximize local access, we can examine whether there is more liberalization on the import side conditional upon imposing export restrictions estimating an equation as follows:

$$IMP\ liberalization_j = \exp(\alpha + \beta EXP\ restrictions_j + \gamma' Z_j) + \varepsilon_j \quad (1)$$

where  $IMP\ liberalization_j$  and  $EXP\ restrictions_j$  are the logarithm of 1 plus the number of import liberalizations and export restrictions, respectively, implemented by jurisdiction  $j$ ;  $Z_j$  is a vector of control variables;  $\alpha$  is a constant and  $\varepsilon_j$  the error term. The results from estimating equation (1) using the Poisson Pseudo Maximum Likelihood Estimator, reported in Table 5, suggest that conditional upon having imposed export restrictions on medical products, there is more liberalization on the import side (the coefficient on export restrictions is statistically significant at 1%). Ceteris paribus and on average, a 10% rise in the number of export restrictions is found to be associated with a 5% increase in the number of import liberalization measures in these results. This is consistent with a prior that countries using trade policy instruments in response to the crisis will do so by targeting both the import and export margin of trade.

The role of foreign policy variables, e.g., national security/defence relationships or the extent to which countries seek to give preferential treatment to (some) developing countries or former colonies is another potential research question. A feature of the implementation of export restrictions in the EU was that actors could request exemptions based on such considerations. But presumably there was also lobbying by countries, firms and interest groups (NGOs) for selective removal of measures. An assessment of the impact of trade measures on developing countries using the dataset could be an input into such more granular political economy research questions.

**Table 5: Import liberalization conditional on export controls (medical products)**

| Dependent variable:      | <i>IMP liberalization</i> |
|--------------------------|---------------------------|
| <i>EXP restrictions</i>  | 0.54***<br>(0.18)         |
| $\log(1 + \text{TAR}_j)$ | 0.59**<br>(0.21)          |
| Constant                 | -1.69**<br>(0.83)         |
| Observations             | 108                       |
| R-squared                | 0.59                      |

*Note.* Regression includes controls for government effectiveness; revealed comparative advantage; population; GDP weighted geographic distance to global markets; number of COVID-19 cases and import dependence. Robust standard errors, clustered by country, in parentheses. Levels of significance: \*10%, \*\*5%, \*\*\*1%.

#### 4.2 Policy impact

A second set of potential questions revolves around the quantification of the effects of different trade policy strategies. Natural outcome variables varying at the country, sector and time level include trade flows, extent of/reliance on GVC participation and positioning, and (changes in) offshoring and reshoring. Observed trade policy strategies may also be associated with firm-specific performance, the timing and scope of fiscal policies or features of applied lock-down measures.

We take a first look at some of these effects by assessing the potential impact that decreases in the global supply of food and medical products could have on international prices because of an increase in export restrictions imposed on these products.<sup>13</sup> To calculate the impact of export restrictions imposed on product  $k$  on its international price, we use a standard partial equilibrium approach and divide the changes in global supply of such product by its import elasticity:

$$\text{Change in Price}_k = \frac{\Delta \text{Global supply}_k}{\text{Elasticity}_k} \quad (2)$$

Changes in global supply are captured by the share of world exports that are covered by exports bans that have been imposed by exporters between January and October 2020.<sup>14</sup> Product elasticities are estimated for a panel covering 152 importing countries by Fontagné, Guimbar and Orefice (2019) and are assumed to be constant across countries. Our estimates focus on those restrictions that prohibit exports (export bans) and therefore could be considered as a lower bound estimation of the potential impact of restrictive export policy on prices.

Results by product category are presented in Table 6.<sup>15</sup> Due to export bans, food prices rise by 0.7 percent on average, with increases in prices for different food categories ranging between 0.1 for chemical products such as pesticides to 1.2 for fresh fruits and vegetables. The impact of export bans on medical products is more pronounced: prices increase by 3.3 percent on average, with increases of 12.9 percent on prices of key critical items identified by the World Health Organization Covid-19 Disease

<sup>13</sup> For other applications see Espitia, Rocha and Ruta (2020a,b).

<sup>14</sup> The trade flows used to compute export shares are based on UN Comtrade statistics for 2019 or most recent year available. These calculations do not account for the total duration of the export bans imposed by countries.

<sup>15</sup> To aggregate the estimations in equation 1 by product category we use a weighted average across products where the weights are represented by the share of world exports of each product.

Community Package (DCP) to deal with the current crisis. Within the critical medical products, personal protection equipment such as face masks and protective clothing have experienced increases in prices of 22.2 percent and 20 percent respectively.

**Table 6: EXPORT SUPPLY AND PRICE EFFECTS OF EXPORT BANS**

| <b>Product</b>                       | <b>Affected Trade Share</b> | <b>Change in prices<br/>(Trade weighted)</b> |
|--------------------------------------|-----------------------------|----------------------------------------------|
| <b>Medical Products</b>              | <b>8.1%</b>                 | <b>3.3%</b>                                  |
| Critical Products                    | 7.4%                        | 12.9%                                        |
| <i>Case Management</i>               | 1.8%                        | 0.7%                                         |
| <i>Diagnostics</i>                   | 7.1%                        | 1.4%                                         |
| <i>Hygiene</i>                       | 1.0%                        | 0.1%                                         |
| <i>Personal Protection Equipment</i> | 40.0%                       | 17.7%                                        |
| Non-Critical Products                | 8.3%                        | 1.4%                                         |
| <i>Anti-epidemic goods</i>           | 0.9%                        | 0.7%                                         |
| <i>Food preparations</i>             | 0.5%                        | 0.3%                                         |
| <i>Manufacturing of Masks</i>        | 0.8%                        | 1.2%                                         |
| <i>Medical Equipment</i>             | 0.5%                        | 0.7%                                         |
| <i>Medical Supplies</i>              | 7.4%                        | 2.4%                                         |
| <i>Medicines</i>                     | 14.4%                       | 1.1%                                         |
| <b>Food Products</b>                 | <b>0.8%</b>                 | <b>0.7%</b>                                  |
| Cereals                              | 0.9%                        | 0.2%                                         |
| Chemical products                    | 0.6%                        | 0.1%                                         |
| Fertilizers                          | 0.0%                        | 0.0%                                         |
| Fresh Fruits – Vegetables            | 1.5%                        | 1.2%                                         |
| Inputs for animal feed               | 0.0%                        | 0.0%                                         |
| Miscellaneous edible preparations    | 0.3%                        | 0.0%                                         |
| Oil-bearing                          | 0.9%                        | 0.0%                                         |
| Seeds                                | 0.0%                        | 0.0%                                         |
| Stimulant crops                      | 0.0%                        | 0.0%                                         |
| Sugar                                | 3.6%                        | 0.9%                                         |
| Vegetable and animal oils            | 1.0%                        | 0.6%                                         |

#### **4.3 Compatibility with WTO rules and trade agreement commitments**

The trade policy monitoring exercise does not take a view on the consistency of the changes in trade policy that are registered with a jurisdiction's commitments under the WTO or extant regional trade agreements. However, the extent and determinants of compliance with obligations in trade agreements is both an important research question. Trade agreements permit governments to restrict trade in response to a public health emergency such as the COVID-19 pandemic, but whether and how this is done may reflect a desire to exempt close partners and may or may not result in designing interventions to conform with rules relating to transparency and temporariness of measures. One reason why we have stressed that the dataset distinguished between open-ended and time-bound measures is that such information is needed to assess performance considering international disciplines. The dataset permits analysis of compliance with – and the effects of – applicable trade agreements. An example of such research is Hoekman et al. (2020), who investigate the relationship between the use of trade policy observed in the first 6 months of the pandemic and characteristics of national public procurement regimes, including membership of the WTO Agreement on Government Procurement and deep trade agreements that include provisions on public procurement. They find statistically strong associations between procurement regimes and use of trade policy.

A related research question concerns the potential impact of cooperation aimed at enhancing transparency. Several observers have pointed to the example of the Agricultural Monitoring and Information System (AMIS) as a possible explanation for the limited recourse to export restrictions on



food – and a potential model for cooperation to generate information on production capacity and trends in markets for critical medical supplies (Hoekman, Fiorini and Yildirim, 2020). Does the way AMIS was designed and executed—maybe in terms of crops covered and information collected and made available—account for the smaller number of export controls observed in the food and agri-food sector? Here it would be important to understand where this transparency mechanism has teeth and where it shows up in the data.

## **5. Concluding remarks**

This paper presents new high frequency data on trade policy changes in two sectors that are critical during the COVID-19 pandemic: medical goods and medicines, and agricultural and food products. The data were collected on a weekly basis, and span the period from January 2 to mid-October, 2020.<sup>16</sup> The data record the jurisdiction implementing the policy change, the direction of the measure (i.e. trade liberalizing or restrictive), the type of measure (e.g. export ban, tariff reduction), the timeline of the measure and the sectors covered by the policy.

The data reveal several stylized facts on trade policy changes over the first nine months of the COVID-19 pandemic:

- There was a big jump in trade policy activism starting in February 2020. This accelerated in March, with the initial increase occurring in tandem with the rise in the number of COVID-19 cases. At the global level, there is an approximate balance between temporary and open-ended measures, but there is significant heterogeneity at the regional/country level.
- Measures targeting medical products and PPE dominate, accounting for two-thirds of all trade measures taken. Food is less in focus. In terms of the value of 2019 trade covered, trade policy changes in medical goods outweigh those in food products by a factor of 3 or more.
- Export curbs in medical goods covered international trade worth \$135 billion (of 2019 trade). Whereas import reforms in the same sector covered \$165 billion. In the case of food and agri-food products, the comparable totals are \$39 billion and \$42 billion, respectively. Because these estimates are based on 2019 (i.e. pre-pandemic) trade data, they may understate the magnitudes of implicated trade, especially for medical products.
- Countries responded to the COVID-19 pandemic with different combinations of export controls and import liberalization measures. Some countries acted both on the restrictive and liberalizing side creating long term changes in their pre-COVID trade policy structures for the food and medical sectors; other countries acted only on one side, either restricting trade or liberalizing it. Although many countries resorted to trade policy instruments, it is noteworthy that numerous countries did not resort to trade policy tools at all.
- There is also substantial heterogeneity across countries in the types of trade instruments used and the extent and speed with which crisis-motivated trade measures were removed.

The patterns of observed trade policy activism in response to the COVID-19 pandemic raise many questions regarding the determinants and underlying political economy of trade policy. We have suggested several areas for research using the dataset and hope the data collection exercise will stimulate such research. Understanding the motives underlying choices in the design and implementation of trade policy responses to the pandemic, reflected in the substantial cross-country heterogeneity observed in the data, is one area. Another concerns quantification of the effects of different trade policy strategies, both for the world as a whole and for the countries concerned. The preliminary analysis reported above suggests that export bans increased international prices of critical medical goods, especially for PPE. A third policy research question the data can help address revolves around the broader question of the

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<sup>16</sup> Weekly data are available through October 15, 2020. Looking forward data will continue to be compiled monthly.

value of trade agreements. To what extent did countries comply with basic provisions of trade agreements calling for transparency, and for trade restrictions in response to emergencies to be temporary and necessary? These are just some of the research questions suggested by the stylized facts revealed by the dataset. No doubt there are many others, including questions that are not directly related to trade.

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## APPENDIX

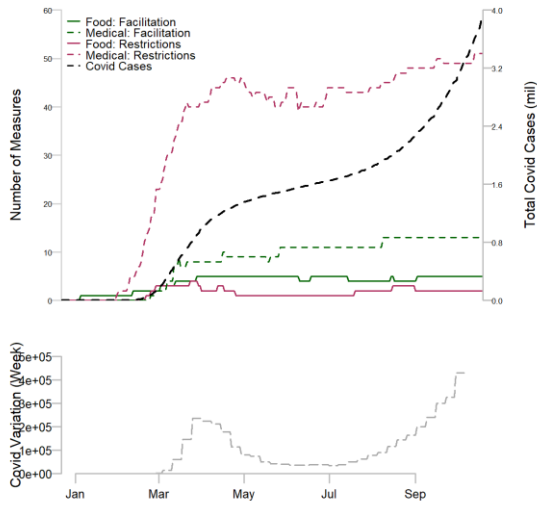
**Table A1: Specific measures included in the two broad categories of export restrictions and import facilitation**

| Export Control                         |     | Import Facilitation                    |     |
|----------------------------------------|-----|----------------------------------------|-----|
| Export ban                             | 123 | Import Internal taxation               | 54  |
| Export licensing requirement           | 73  | Import licensing requirement           | 13  |
| Export quota                           | 13  | Import quota                           | 8   |
| Export tax                             | 5   | Import tariff                          | 161 |
| Export-related non-tariff measure, nes | 2   | Import tariff quota                    | 15  |
| Export-related, Unknown measure        | 21  | Import-related non-tariff measure, nes | 5   |
|                                        |     | Import-related, Unknown measure        | 46  |
| Total                                  | 237 | Total                                  | 302 |

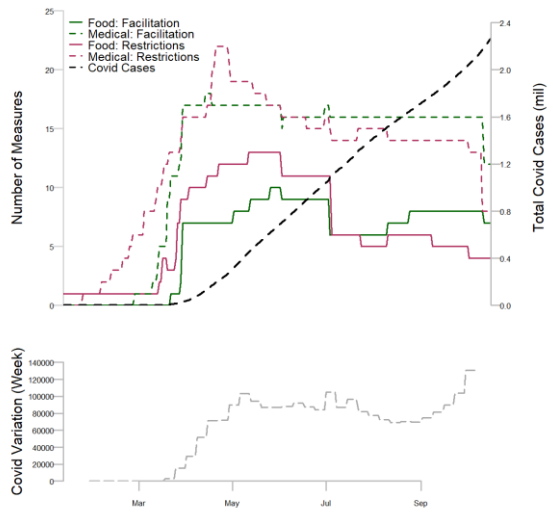
**Notes:** GTA Intervention Classes as included in the classification adopted in this paper. 106 measures are excluded from the current analysis (81 and 25 targeting imports and exports respectively)

**Figure A1: World and regional aggregate trade policy responses and COVID-19 cases**

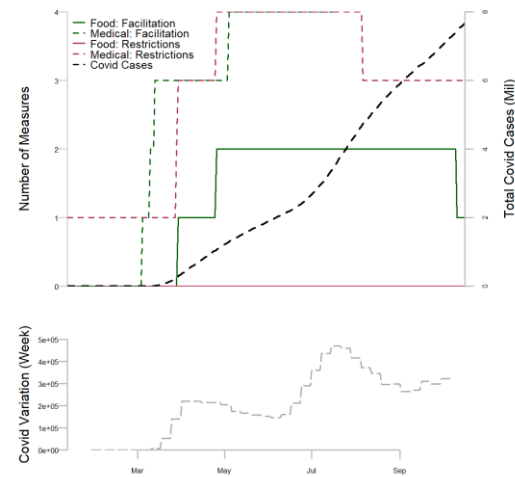
**Western Europe and Balcans**



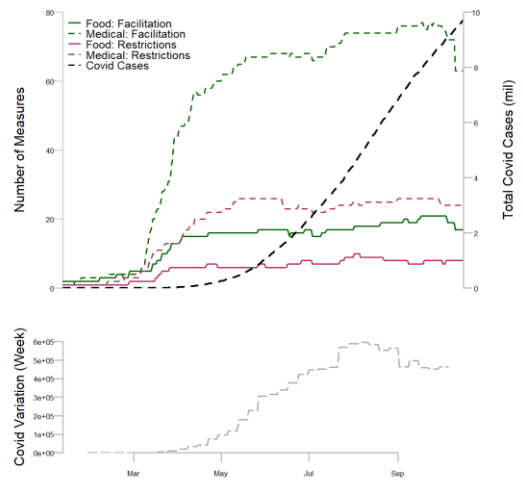
**Eastern Europe and Central Asia**



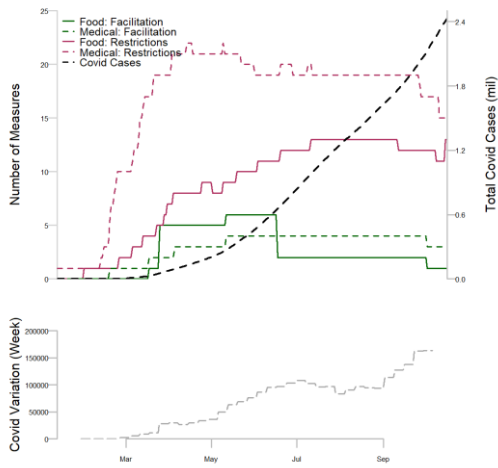
**North America**



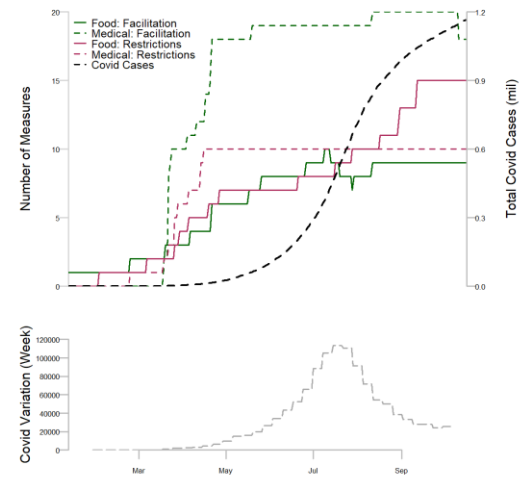
**Latin America and Caribbean**



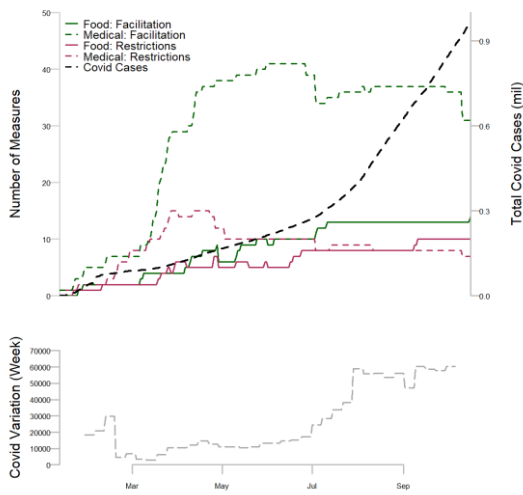
**Middle East and North Africa**



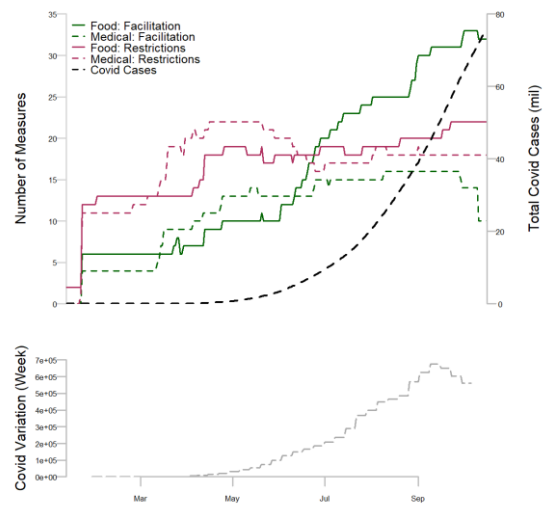
**Sub-Saharan Africa**



**East Asia and Pacific**

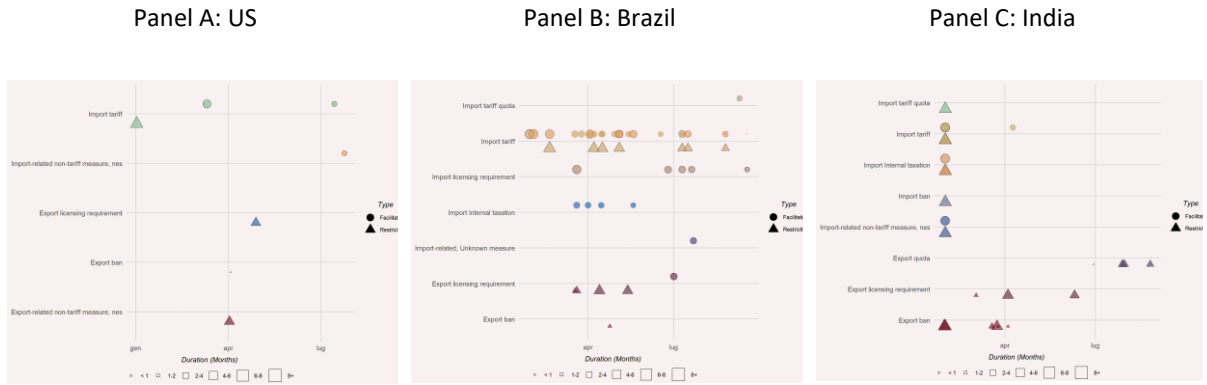


**South Asia**



**Notes:** For each regional sub-figure the upper part plots the number of active trade policy measures and the absolute number of COVID-19 cases over time while the lower part plots the weekly variation of COVID-19 cases.

**Figure A2: Trade policy response in the medical sector, selected large countries**



**Notes:** Measures reported by announcement date and expected duration. A black contour indicates that no removal date is reported; a red contouring indicates that the measure is expected to be lifted after Dec 31<sup>st</sup>, 2020.

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