

# THE IMPACT OF COVID-19 ON THE DIRECTIONS AND STRUCTURE OF INTERNATIONAL TRADE

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# The Impact of COVID-19 on Directions and Structure of International Trade

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2020 marked some of the largest reductions in trade and output volumes since WWII. Focusing on the COVID-19 pandemic and using the latest monthly and quarterly data on international trade of selected countries and products, this paper documents key shifts in geographical direction and product composition of international trade in 2020. Trade in services declined by more than twice as much as trade in goods and its recovery has also been slower. While the size of the drop in global trade relative to the drop in output in 2020 was smaller than during the Global Financial Crisis (GFC), this was not related to the overall size of the trade impacts in 2020, but rather reflects the significant heterogeneity of trade and production impacts across specific goods, services and trade partners from COVID-19. Trade in several types of goods plummeted, while that in others increased markedly. As a result, the variation in trade impacts across the different product categories in 2020 was not only larger than during the GFC, but also larger than in any other year during the past two decades. The product structure of countries' goods trade also changed significantly in 2020, indicating large adjustments. While some international supply chains came under pressure in early months of the pandemic, the data also show that supply chains were instrumental in the resumption of economic activity. The distance travelled by imported products actually continued to increase in 2020, largely as a result of China and other Asian countries filling supply gaps resulting from lockdowns and demand changes in other regions. These shifts occurred in the context of significant perturbations in the international transport sector. While it is not known which of the changes in 2020 will be only short-lived, some seem to show signs of longer-term shifts or are likely to result in long-term adjustments. Above all, the unprecedented heterogeneity of changes in trade flows across products, sources and destinations seen in 2020 suggests high uncertainty and adjustment costs, and implies an increased need – and incentives – for consumers, firms and governments to adopt new or intensify existing risk mitigation strategies.

**Key words:** International trade, statistics, COVID-19, globalisation, international supply chains.

**JEL codes:** F10, F14, F40, F61.

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## Key findings

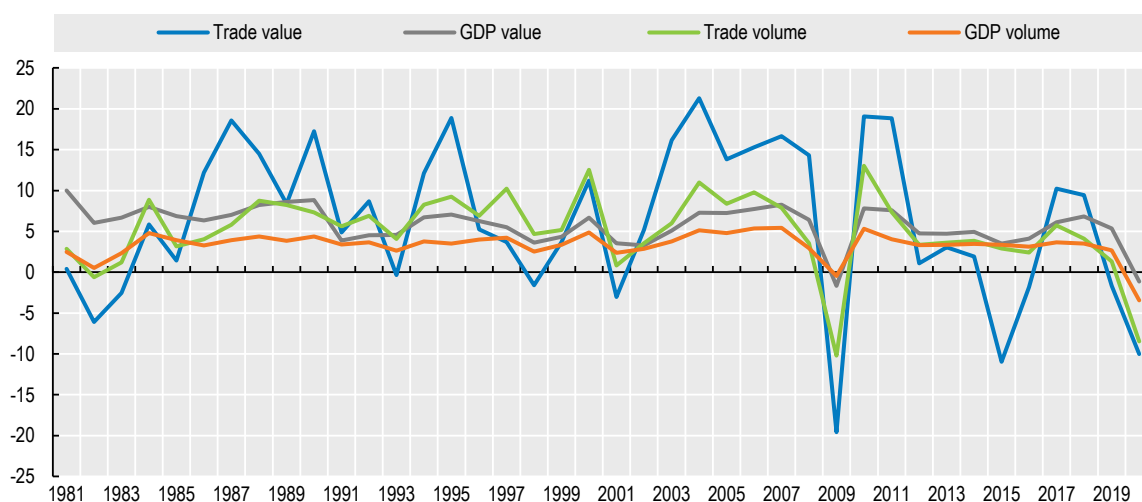
- In 2020, the COVID-19 pandemic had large and varied impacts on demand, supply and international trade.
- The collapse and subsequent recovery of goods trade in 2020 occurred in a period of already “sluggish” trade growth and was V-shaped.
- Overall, at the aggregate level, the COVID-19 pandemic was associated with large shifts in trade volumes and values.
- Moreover, across different products and sectors, there were unprecedented differences in the extent and speed of declines and subsequent recovery of trade. This range of trade impacts across different products and sectors was larger than during the Global Financial Crisis and in any other year during the past two decades.
  - Services trade, in particular trade in travel services, was hit harder and has been recovering at a slower pace than goods trade.
  - The value of exports of services in OECD countries declined in 2020 by 16.7%, twice as much as the value of goods exports (-8.2 %).
  - The product structure of merchandise trade changed significantly: trade in several products plummeted (e.g. fuels, aircrafts, cars, mechanical machinery, steel), while trade in some other products increased (e.g. protective equipment and pharmaceutical products, food, and ‘home nesting’ products such as domestic appliances and electronics). The structural change in the course of 2020 caused by the COVID-19 pandemic was similar in magnitude to changes typically seen over a period of five years.
  - The pandemic had relatively equal impacts on trade in products of different technological sophistication.
- Supply chains came under pressure early in 2020 but were also instrumental in supporting the resumption of economic activity.
  - Asia was at the heart of supply chain developments in 2020, with China seeing a significant expansion of merchandise exports.
  - In some industries, such as automobiles, subdued trade was due to reduced consumer demand rather than problems with the supply of auto parts and components through international supply chains.
  - The distance travelled by imported products continued to grow in 2020, mostly as a result of China and other Asian countries filling supply gaps resulting from lockdowns and altered demand in other regions. These shifts occurred despite significant perturbations in the international transport sector.
- It is not known which of the 2020 changes will turn out to be only short-lived, but some display some traits of longer-term shifts or are likely to result in long-term adjustments.
- The unprecedented heterogeneity of changes in trade flows across products, sources and destinations seen in 2020 suggests high uncertainty and adjustment costs and implies an additional need – and incentives – for consumers, firms and governments to adopt new, or intensify existing, risk mitigation strategies.

## 1. The COVID-19 pandemic had large and varied impacts on demand, supply and international trade

The COVID-19 pandemic and associated policy responses had far-reaching economic consequences in 2020. The estimated 3.5% decline in world real GDP and the 8.5% decline in the volume of international trade of goods and services in 2020 (OECD, 2021<sup>[1]</sup>) marked some of the deepest real output and trade reductions since the end of WWII (Figure 1).

The trade and wider economic effects of the Global Financial Crisis (GFC) of 2008-10 and the COVID-19 pandemic are often compared, even if the origins, policy responses and economic adjustment mechanisms have been quite different. Having originated in the financial sector, the GFC was characterised by a very large and sudden decline in trade that was synchronised across countries and products, (the ‘Great Trade Collapse’). This was driven primarily—at least initially—by a decline in demand due to a widespread crisis of confidence by firms and customers (Baldwin, 2020<sup>[2]</sup>), exacerbated by a drying up of trade finance (OECD, 2010<sup>[3]</sup>). The COVID-19 pandemic, in contrast, originated outside the economic system but has led governments to deploy significant and diverse virus containment measures and support for firms, and has had a major impact on human behaviour. Trade finance disruptions have also been less severe (OECD, 2021<sup>[4]</sup>). Combined, these factors have resulted in large, but also highly heterogeneous, impacts on both the demand and supply sides of domestic economies and on international commerce.

**Figure 1. World GDP and trade of goods and services, value and volume, annual growth rates**



Source: OECD Economic Outlook, No. 109, May 2021; OECD Economic Outlook database.

Over the course of 2020, international trade was subject to compound pressures as demand and supply of goods and services changed sharply. Trade also faced direct headwinds in the form of new restrictions and costs stemming from temporary border closures, restrictions on passenger travel and disruptions in transport sectors. Impacts on trade in 2020 were large and heterogeneous across regions, countries, products and periods. In some cases, they also revealed hitherto undetected bottlenecks and vulnerabilities. These took the form of problems with both sourcing materials, parts and components and other manufactured products and with unexpectedly large inventories as demand fell.

That said, international trade was also instrumental in addressing the pandemic-related supply shortages (e.g. in the case of pharmaceuticals, personal protective equipment, surgical masks and electronic

products). Overall, world trade volumes, especially for goods, ultimately fell by much less in 2020 than initially expected<sup>1</sup> and, indeed, some industries and products actually recorded gains.

This note draws on the latest editions of various detailed high-frequency trade and trade-related data<sup>2</sup> to unpack the directions and magnitude of key changes in the geographical and product composition of international trade in 2020. It puts these changes in the context of some of the main developments during the COVID-19 pandemic, with a view to identifying implications going forward. While it is difficult to determine at this stage which of the observed changes are temporary and which may indicate signs of (or incentives for) longer-term shifts, examining granular data can shed light on this important distinction, or at least suggest avenues for further investigation.

## 2. The collapse and subsequent V-shaped recovery of goods trade in 2020 occurred in a period of already ‘sluggish’ trade growth

The COVID-19 related disruptions in international merchandise trade in 2020 occurred in the context of already sluggish trade growth. The growth in world goods trade slowed down at the end of 2018 and became negative in 2019 (Figure 2). The likely factors underlying this slowdown included growing economic policy uncertainty, increasing trade policy tensions [see, for example, OECD-WTO-UNCTAD (2020<sup>[5]</sup>)] and the continuing deceleration in the expansion of international supply chains (Arriola, 2020<sup>[7]</sup>).

The declines in both world industrial production and goods trade in the first half of 2020 were of similar depth to those at the trough of the GFC. Nevertheless, they materialised and disappeared more quickly, marking more of a ‘V’ shaped recovery in 2020. The recovery in the second half of the year was particularly rapid and was due to the combined effects of a reduction in backlogs in supply chains and logistics and of a freeing up of pent-up demand for durable goods accumulated during the lockdowns of the first half of the year. In consequence, the annual 5.3% decline in the volume of world merchandise trade<sup>3</sup> and the 4.3% decline in the volume of world industrial production accumulated over the course of 2020 compare favourably to the declines of 12.8% and 7.6% respectively recorded at the trough of the GFC in 2009.

A long-term view, which takes into account the speed at which world goods trade has typically changed relative to world industrial production over the last two decades, suggests that the relationship between trade and production is not constant, but varies with the global economic cycle (Figure 3). Over the past two decades, a 1% growth in production was associated with, on average, a 1.23% increase in world trade (the pre-GFC era where trade grew at about twice the speed of output was exceptional). During the GFC, trade reacted more sharply than industrial production, with the elasticity rising to about 1.75. The ‘inter-crisis’ period (defined here as ranging from May 2010 to December 2019) saw trade growing at a slightly lower speed than output, with an estimated elasticity of 0.94. During the current COVID-19 crisis (Jan 2020 – Feb 2021 here), the elasticity was found to be 1.28, only slightly higher than the long-term estimate. This is partially explained by the unusually steep increase in goods trade in the second half of 2020 when restrictions on economic activity were temporarily lifted in several countries.

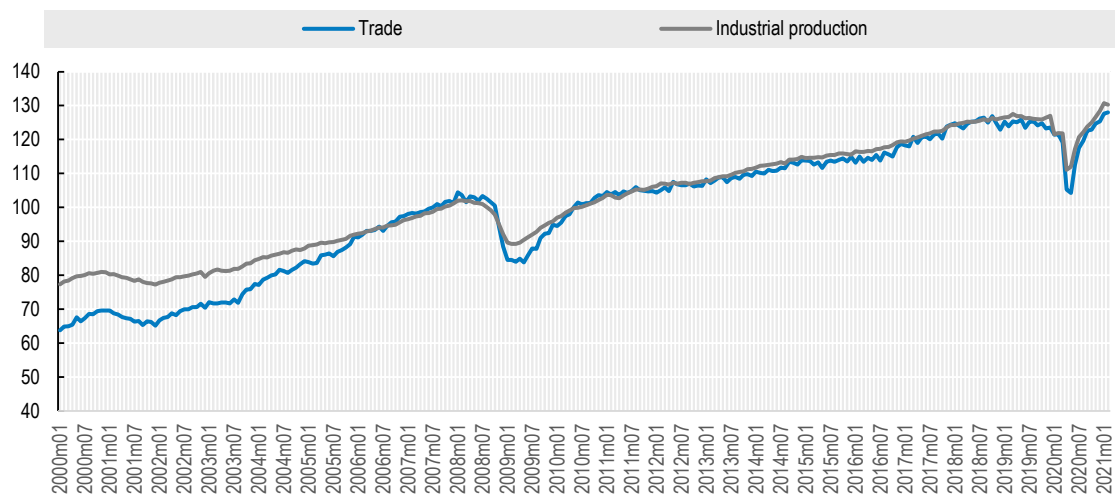
<sup>1</sup> The first pandemic-era WTO forecast for world merchandise trade for 2020, issued on 8 April 2020, was a decline by 13% to 32% (WTO, 2020<sup>[9]</sup>). The latest estimate, issued on 31 March 2021, is a fall of 5.3% in 2020 (WTO, 2021<sup>[10]</sup>).

<sup>2</sup> Unless otherwise stated, the analysis uses data as accessed at the end of May 2021.

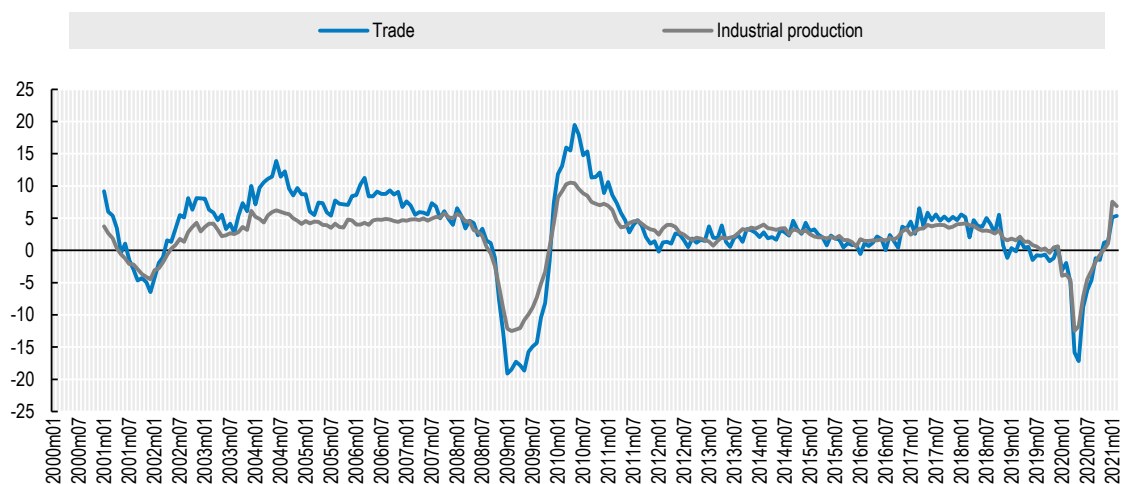
<sup>3</sup> The corresponding annual change in world merchandise trade in value terms estimated on the basis of the ITC Trade Map data is 9% for 2020.

**Figure 2. World merchandise trade and industrial production volumes (2010=100, seasonally adjusted)**

Panel A. Trade volume (2010=100)



Panel B. Year-on-year growth rates (%)

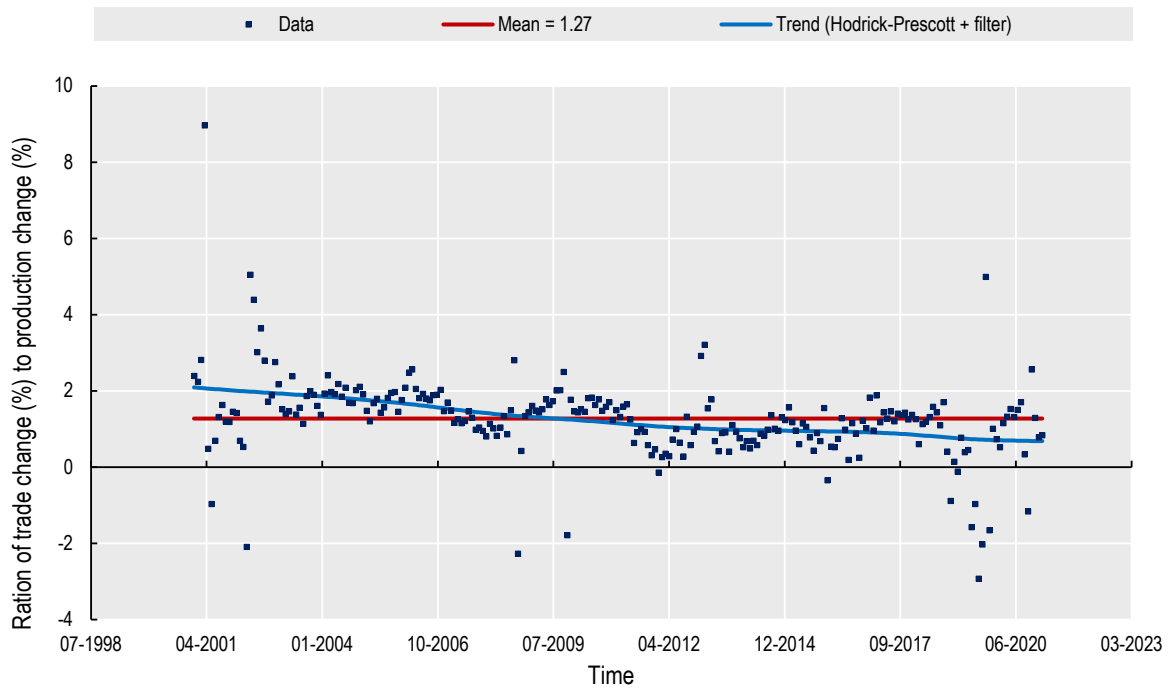


Source: OECD calculations based on CPB data.



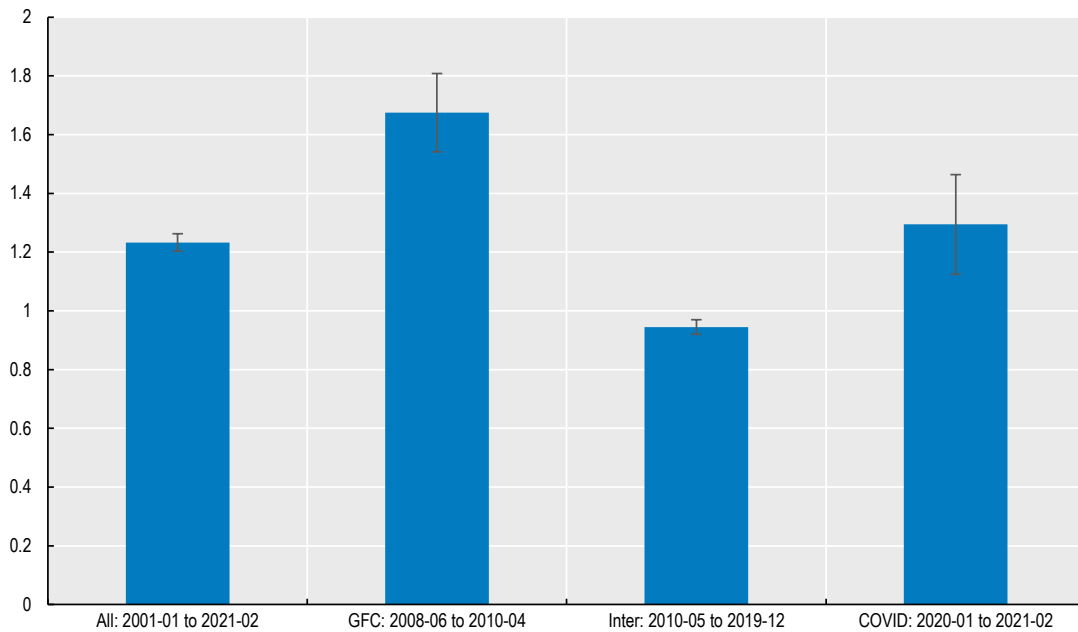
**Figure 3. The elasticity of world trade to world production is variable over time**

Panel A. The elasticity of world trade to world production



Note: The ratio on the vertical axis is calculated 'by dividing 12 months moving averages of percent changes in trade and production.

Panel B. Estimated elasticity of world trade to world production by sub-period



Note: The elasticity is estimated by Ordinary Least Squares regression of the logarithm of trade volume on the logarithm of the volume of industrial production. Error bars indicate 2 standard deviations from the estimated coefficients.

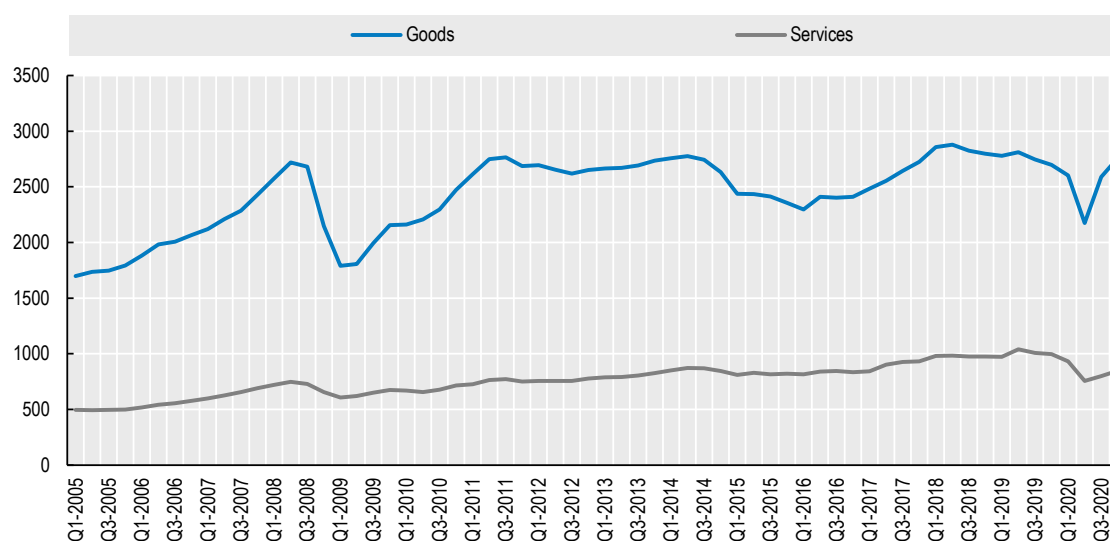
Source: Data from CPB World Trade Monitor, OECD calculations.

### 3. Services trade was hit harder and has been slower to recover than goods trade

Country coverage in services trade data in recent periods is more restricted than for goods trade; however, available data for OECD countries show that, in contrast to goods, services trade was hit harder in 2020 than during the GFC (Figure 4). The value of exports of services in OECD countries declined in 2020 by 16.7%, twice as much as the value of goods exports (-8.2 %). This was mostly due to the decline in trade in travel services and – albeit to a lesser extent – in transport services. These are the two major categories of internationally traded services and those which suffered the most from the COVID-19 restrictions on international travel (Annex Figure A A.1). Recovery in services trade in 2020 and early 2021 has also been much slower to date.

**Figure 4. Imports and exports of goods and services, OECD countries**

Panel A. Value (USD billion)



Panel B. Year-on-year growth rates



Source: OECD Balance of Payments Statistics, last accessed on 6 August 2021.

COVID-19 social distancing requirements weighed heavily on the domestic provision of services, which also typically relies more on person to person contact than goods. Since services account for a much higher share of GDP than of international trade, the depth of the decline in GDP was larger –and the

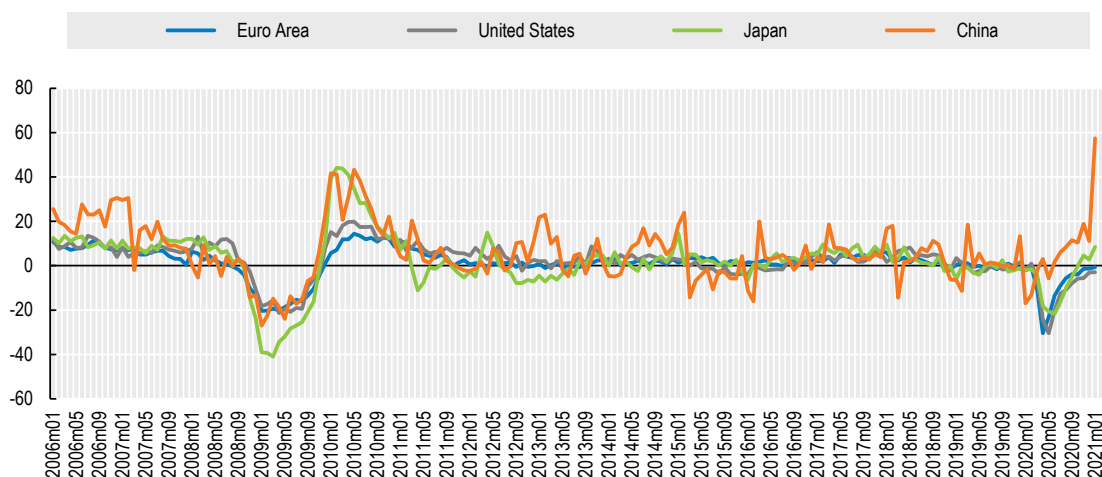
decline in goods and services trade smaller relative to the decline in GDP – in 2020 as compared to the GFC (recall Figure 1).

#### 4. China saw a significant expansion of merchandise exports

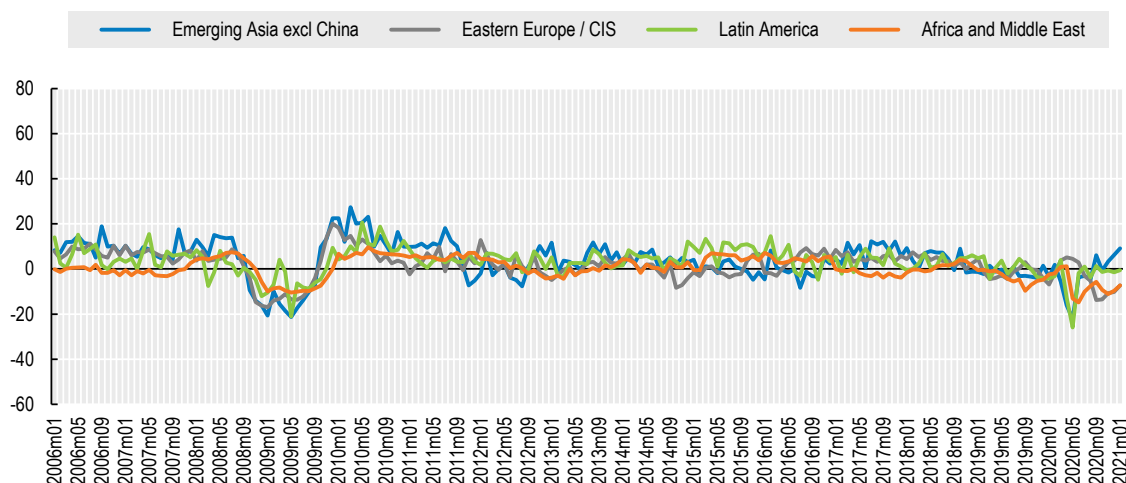
The initial decline and the subsequent recovery in goods trade was determined by the geographical spread of the pandemic, and ultimately by the severity and timing of virus containment measures. As a result, in 2020, changes in goods trade were less synchronised geographically than during the GFC, particularly between the People’s Republic of China (hereafter “China”) and other traders in emerging Asia and other regions. In 2020, China’s aggregate exports were already recording positive year-on-year growth rates in July (and reached a historical high of 40% in February 2021). In contrast, Japan’s exports only recovered in November 2020 and those of the Euro Area and the United States were still negative in January-February 2021 (Figure 5, Panel A). While during the GFC the share of world goods exports increased for the Euro Area and the United States, and declined for China, the opposite was the case in 2020 (Figure 5, Panel C).

**Figure 5. Synchronisation of merchandise exports and changes in export shares during the GFC and COVID-19 crises**

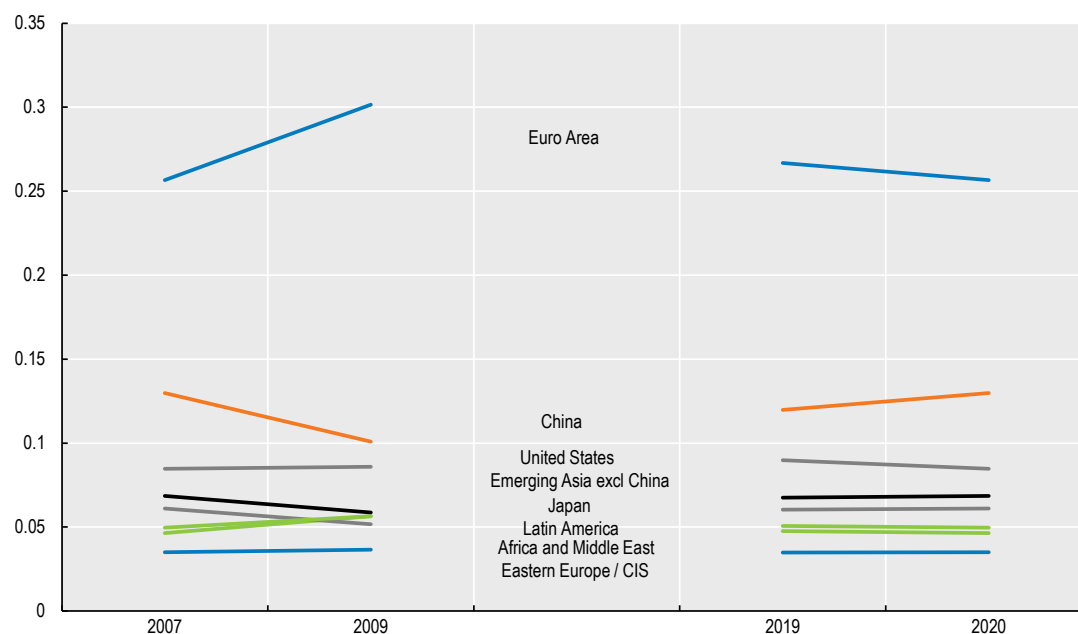
Panel A. Major advanced economies and China (year-on-year growth rates of export volumes)



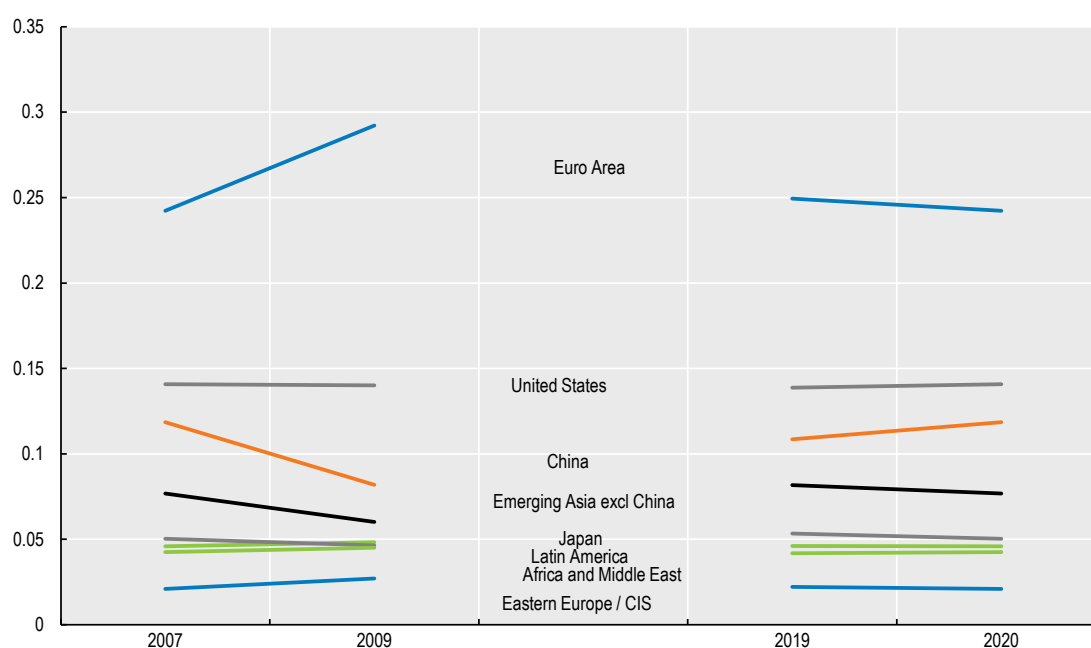
Panel B. Emerging regions (year-on-year export volumes' growth rates)



Panel C. Changes in world export shares



Panel D. Changes in world import shares



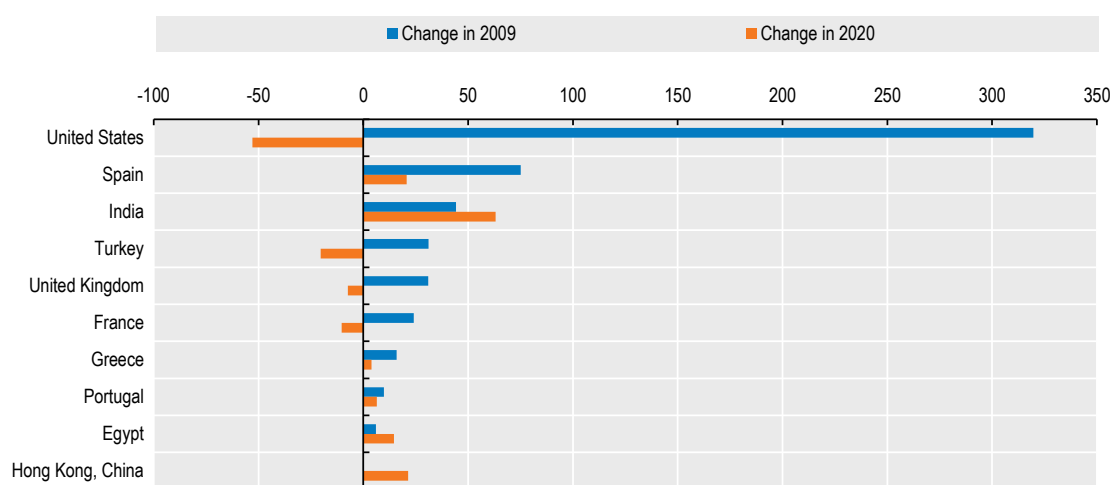
Note: Data for Euro Area includes intra-Euro Area trade.  
Source: OECD calculations based on CPB data.

Rates of export growth in emerging regions also followed rather different profiles in 2020 (Figure 5, Panel B). Eastern Europe / CIS for example managed to maintain some positive growth in the first part of the year and was the only emerging region to increase its share in world exports in 2020, albeit only marginally. Emerging Asia (excluding China) recorded a steep decline in the first part of the year, followed by a more rapid recovery than other emerging regions in the second half of the year, ultimately finishing with a largely unchanged share of world merchandise exports at the end of 2020. Overall, the share of world merchandise exports of emerging regions (bar China) remained largely unchanged at the end of 2020.

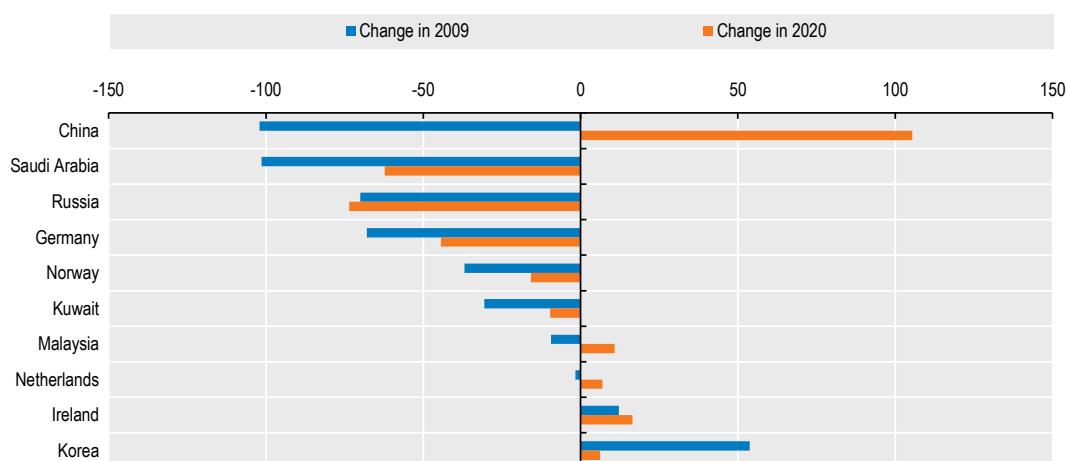
Changes in exports and imports for individual countries during the COVID-19 pandemic are reflected in their balances of merchandise trade (Figure 6).<sup>4</sup> During the GFC, all major traders experienced falls in both exports and imports of goods and there was a clearer tendency towards “rebalancing”. China – the country with the largest goods trade surplus prior to the GFC – saw its goods trade balance deteriorate, while the United States – the country with the largest deficit – saw an improvement. In contrast, in 2020, imbalances tended to widen in some countries. This was most notably the case for China which expanded the value of its goods exports by some USD 92 billion and, since its goods imports fell by USD 13 billion, also improved its overall goods trade surplus by USD 105 billion. Ireland, the Netherlands, Korea and Malaysia were the countries with some of the largest surpluses in 2019 that increased further in 2020, while the United States saw its merchandise trade deficit deteriorate in 2020.

**Figure 6. Changes in trade balances for countries with the largest goods trade deficits and surpluses (USD billion)**

Panel A. Change in goods trade deficit for 10 countries with largest deficits in 2019 (current USD bln), ordered by the change in 2009



Panel B. Change in goods trade surplus for ten countries with largest surpluses in 2019 (current USD bln), ordered by the change in 2009



Source: Authors' calculations based on ITC's Trade Map database, extracted in August 2021.

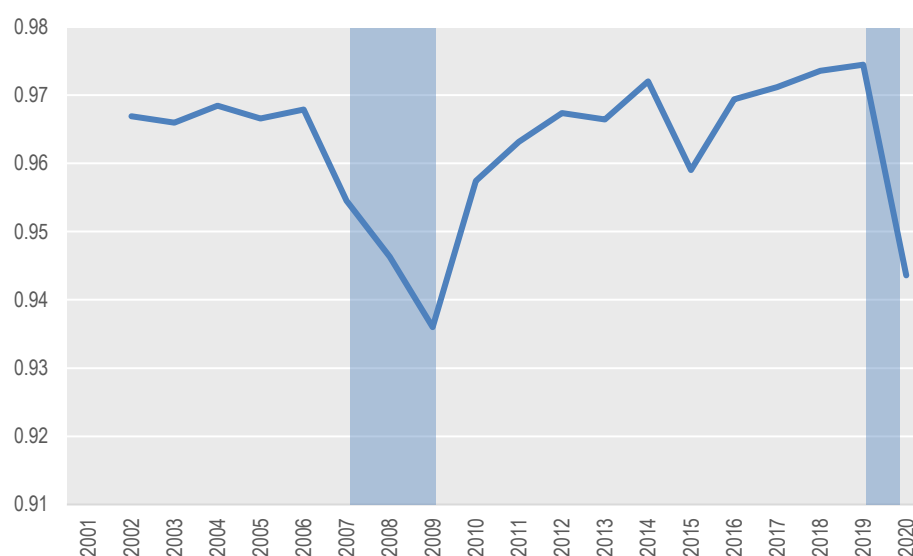
<sup>4</sup> This analysis considers detailed data on values of exports and imports of the largest 38 largest countries for which high-frequency product-level data for trade values is available for the whole 2020. These countries accounted for more than 80% of the total exports in 2019.

## 5. The product structure of merchandise trade changed considerably

Trade effects were also highly heterogeneous across products and sectors, and, in 2020, the product structure of exports ended up being considerably different from that in 2019. This can be seen in the evolution of the Finger-Kreinin export similarity index calculated for each of the world's eight largest economies (G7 and China) and averaged across them (Figure 7).<sup>5</sup> In the years preceding the COVID-19 pandemic, the trade structures of the world's eight largest economies were relatively stable from one year to another. The year 2020 marked a change that was more pronounced than those seen in 2007 and 2008 and similar to that seen in 2009, the year of the largest trade adjustments during the GFC.<sup>6</sup> The change in trade structure caused by the COVID-19 pandemic in a single year was of a similar magnitude to changes otherwise typically seen over a period of five years (Figure A A.2, Panel A).

### Figure 7. Similarity of composition of merchandise exports

Finger-Kreinin index of similarity of export structure across 2-digit HS product categories  
(1 = structure identical to the previous period)



Note: This figure shows the average Finger-Kreinin index across individual G7 countries and China in a given year. For corresponding individual country indices, see Annex Figure A A.2, Panel B. The Finger-Kreinin index measures the degree to which the export structure at the Harmonised System (HS) 2-digit level of a country in a given period  $t$  with respect to a reference period  $t-n$  are similar (n.b. above the reference period is the preceding year, i.e.  $n=1$ ). For each region, the index is computed with the following formula:

$$FKI_{t,t-n} = \sum_i \min\left\{\frac{x_{it}}{X_t}, \frac{x_{it-n}}{X_{t-n}}\right\}$$

Where  $x_i/X_t$  is the share of exports of commodity  $i$  in a region's total exports at time  $t$ . Similarly,  $x_{i,t-n}/X_{t-n}$  is the share of exports of commodity  $i$  in a region's total exports at the reference period ( $t-n$ ). The values of the index vary between 0 and 1. A value of 1 means that a country exports different goods (2-digit HS categories) in exactly the same proportions as in the reference period, i.e. product shares are equal. When the indicator is equal to zero this means there are no export products in common in the two periods. A value of 0.5 can be approximately interpreted as representing a 50% overlap in export structures between the two periods. The reference period here is the preceding year on a rolling basis. A value of 1 means that export shares of different HS 2-digit product categories in the given period are identical to that of the previous year while a value of 0 means that the shares are entirely different from the previous year. Source: Authors' calculations based on ITC's Trade Map database.

<sup>5</sup> The evolution of the values of the index for individual G7 countries and China can be seen in Figure A A.2, Panel B.

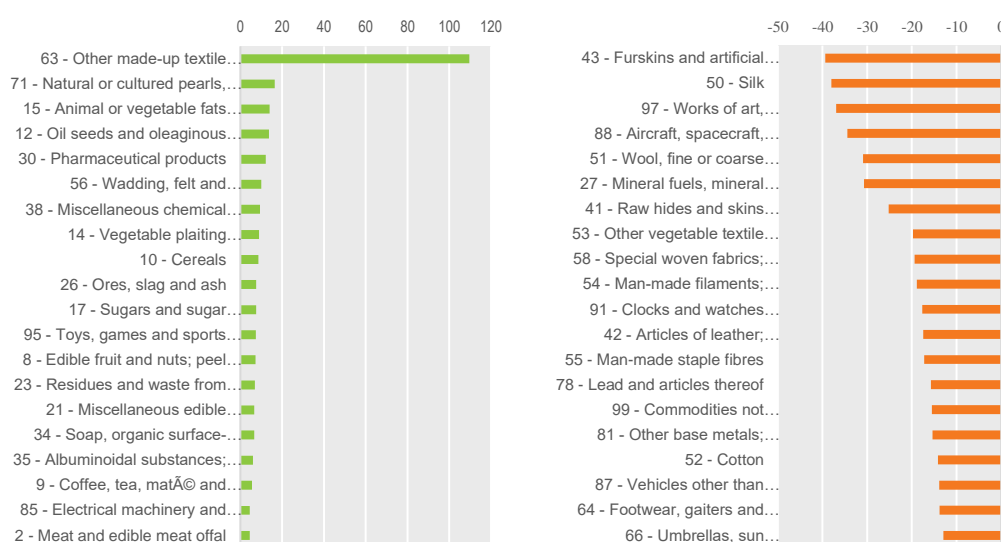
<sup>6</sup> It should be noted that while for some countries (e.g. United Kingdom, Canada) the 2020 changes in product structure of trade were smaller than the ones observed during the GFC, for other countries (e.g. United States, Japan) the magnitude of changes in 2020 was similar to that during the GFC (Figure A A.2, Panel A). It should also be noted that the GFC was characterised by larger adjustments in world prices of agricultural raw materials, food, minerals and crude oil than 2020 was (Figure A A.5). The Finger-Kreinin export similarity index shown is calculated using trade values.

## 6. Trade in some products plummeted, while that of others increased

The significant changes in the structure of countries' exports reflects the considerable heterogeneity in trade effects across product categories. These effects reflected both the COVID-19 pandemic and the ensuing economic crisis. Demand increased for protective and pharmaceutical products, food, 'home nesting' products (e.g. electrical appliances and electronics) as well as 'safe haven' products (precious metals). In contrast, other products were in lower demand during lockdowns and periods of teleworking, such as clothing and textiles (besides masks and other protective equipment), or, as in the case of durable goods for which demand usually decreases during economic crises (vehicles, machinery), experienced severe declines.

For example, trade in other made-up textiles articles – a category which includes masks and other textile-based protective equipment – grew by 110% in 2020, while trade in pharmaceuticals grew by 12%. High growth rates were also seen in several agro-food product categories, such as animal and vegetable oils (+14%), oil seeds and oleaginous fruits (+14%), cereals (+9%) and sugar (+8%), miscellaneous chemical products (+9%) and in commodities (stones, precious stones and precious metals (+16 %), ores, slag and ash (+8%)), electrical and electronic machinery and equipment (+5%). At the same time, fuels and several prominent manufacturing products saw steep declines (mineral fuels, oils and products (-31%), aircraft, spacecraft and parts (-34%), vehicles and parts (-14%) and iron and steel (-13%)) (Figure 8).

**Figure 8. Product categories with highest and lowest growth rates in 2020**

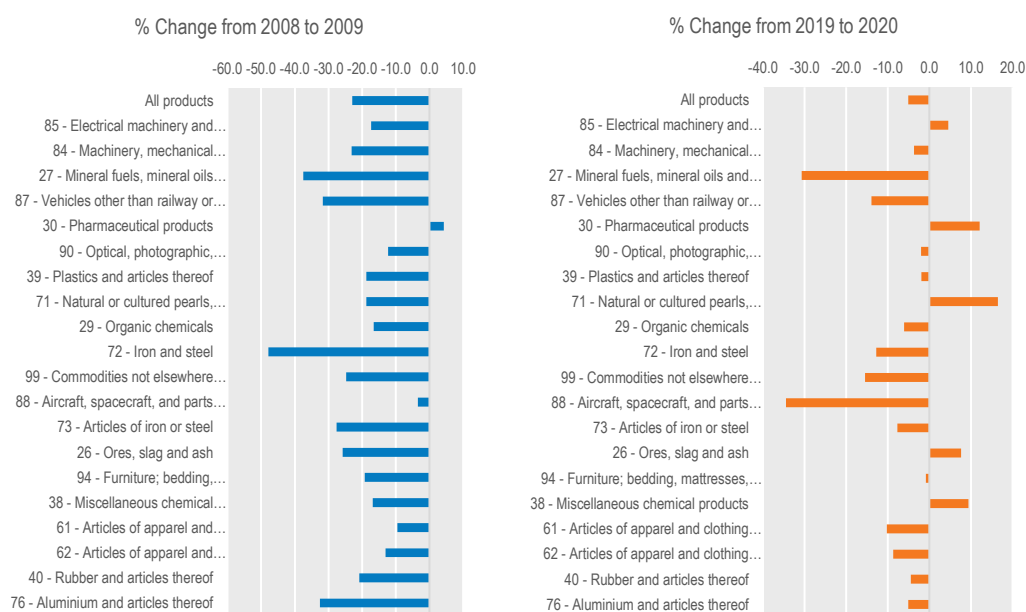


Note: the top-20 products ranking was established on the basis of highest and lowest annual percent change in trade values (exports + imports) in 2020 across 37 largest economies for which product-level data for trade values was available for the whole 2020. These are: Argentina, Australia, Austria, Belgium, Brazil, Canada, Chile, China, Chinese Taipei, Czech Republic, Denmark, Germany, Finland, France, Hungary, Ireland, Italy, Japan, Kazakhstan, Korea, Malaysia, Netherlands, Norway, Philippines, Poland, Portugal, Romania, Russian Federation, Singapore, Slovakia, South Africa, Spain, Sweden, Switzerland, Turkey, United States and United Kingdom. The numbers in product descriptions are 2-digit HS codes. Annex Table A.B.1 lists fuller descriptions of all HS 2-digit codes.

## 7. The heterogeneity in trade impacts across products was larger than during the GFC and any other year in the past two decades

In contrast to the GFC when trade in almost all categories of major traded products experienced significant reductions, several products experienced gains in 2020 (Figure 9). Disparity in trade impacts across different product categories in 2020 was not only larger than during the GFC, when the trade collapse was highly synchronised across products and countries, but also larger than in any other year in the past two decades (Figure 10).

**Figure 9. Changes in trade of 20 most traded products**



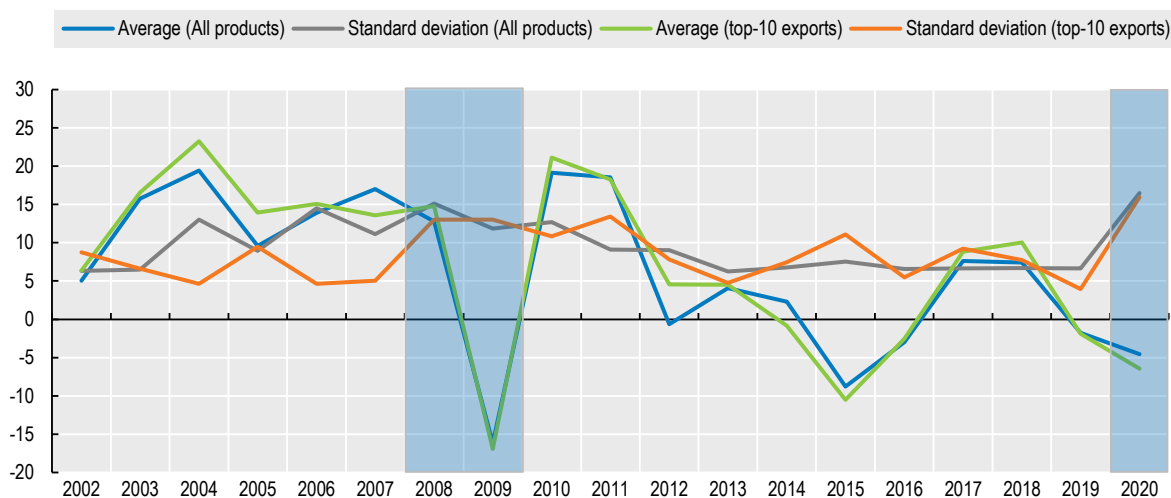
Note: the top-20 traded products ranking was established on the basis of value of trade (exports + imports) in 2019 exports across 37 largest economies for which product-level data for trade values is available for the whole 2020. These are: Argentina, Australia, Austria, Belgium, Brazil, Canada, Chile, China, Chinese Taipei, Czech Republic, Denmark, Germany, Finland, France, Hungary, Ireland, Italy, Japan, Kazakhstan, Korea, Malaysia, Netherlands, Norway, Philippines, Poland, Portugal, Romania, Russian Federation, Singapore, Slovakia, South Africa, Spain, Sweden, Switzerland, Turkey, United States and United Kingdom. The numbers in product descriptions are 2-digit HS codes. Annex Table A B.1 lists the descriptions of all HS 2-digit codes.

Source: Authors' calculations based on ITC's Trade Map database.



**Figure 10. Synchronisation of annual export growth rates for top-10 world exports**

Annual growth rate and standard deviation of growth rates across all and top-10 exported HS2 products



Note: This figure shows average annual growth rates and standard deviations across, respectively, all and top-10 HS2 product categories. The top-10 traded products ranking was established on the basis of value of exports in 2019 exports across 37 largest economies for which product-level data for trade values was available for the whole 2020. These are: Argentina, Australia, Austria, Belgium, Brazil, Canada, Chile, China, Chinese Taipei, Czech Republic, Denmark, Germany, Finland, France, Hungary, Ireland, Italy, Japan, Kazakhstan, Korea, Malaysia, Netherlands, Norway, Philippines, Poland, Portugal, Romania, Russian Federation, Singapore, Slovakia, South Africa, Spain, Sweden, Switzerland, Turkey, United States and United Kingdom.

Source: Authors' calculations based on ITC's Trade Map database.

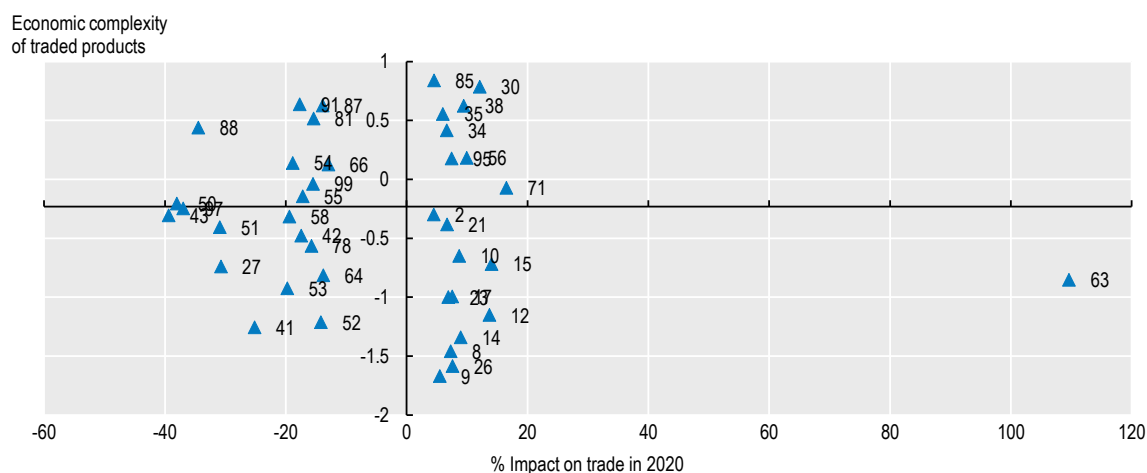
## 8. In 2020, the pandemic had relatively equal impacts on trade in products of different technological sophistication

While some of the products traded intensively in 2020 were relatively unsophisticated<sup>7</sup> (masks, disinfectants), others were relatively sophisticated (electrical machinery and electronic equipment, pharmaceuticals). Similarly, the decline in total goods trade in 2020 included some relatively sophisticated products (e.g. vehicles, aircraft) as well as more basic ones (e.g. textiles, leather products). This resulted in a relatively equal spread of annual world trade (sum of exports and imports) increases and declines across products characterised by their levels of economic complexity (Figure 11).

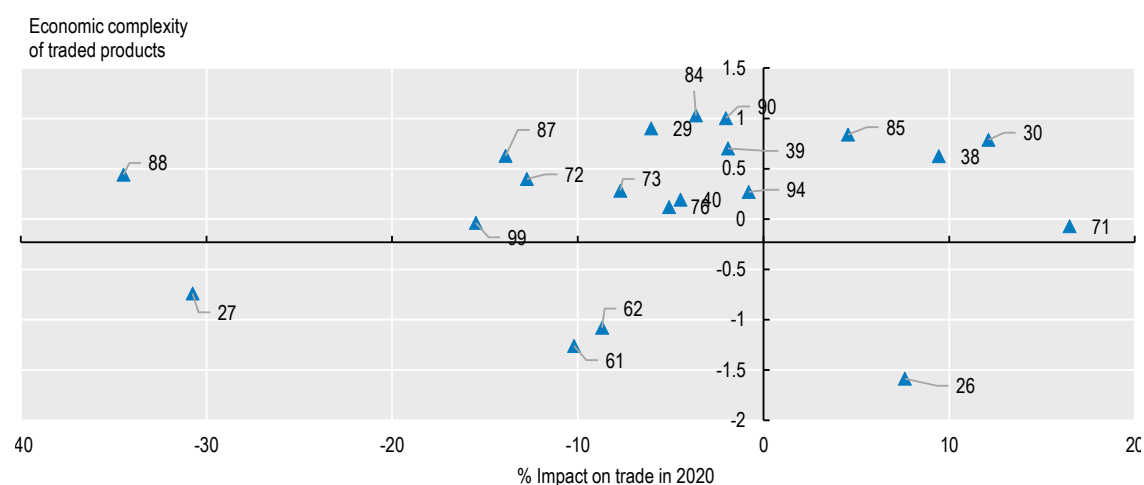
<sup>7</sup> The measure of sophistication of products used here is the measure of economic complexity developed by Hausmann (2014<sub>[7]</sub>). The Economic Complexity methodology integrates the concepts of diversification, uniqueness and technology and know-how. It is built, among others, on the observation that the most complex products are those that are produced by a few most advanced countries and require several capabilities (See <https://atlas.cid.harvard.edu/explore>).

**Figure 11. 2020 trade impacts and sophistication of traded products**

Panel A. Product categories with highest and lowest growth rates in 2020



Panel B. Twenty most traded products



Note: The vertical axis shows average values of the index of economic complexity of products at HS-2 digit level (and denoted by data labels, Annex Table A B.1 lists the descriptions of all HS 2-digit codes). These averages were calculated using the original product complexity scores estimated at the HS 4-digit level using the economic complexity methodology (Hausmann, 2014<sup>[8]</sup>) and provided by the Harvard Atlas of Economic Complexity (<https://atlas.cid.harvard.edu/explore>). Trade refers to the sum of exports and imports of 37 largest economies for which product-level data for trade values was available for the whole 2020. These are: Argentina, Australia, Austria, Belgium, Brazil, Canada, Chile, China, Chinese Taipei, Czech Republic, Denmark, Germany, Finland, France, Hungary, Ireland, Italy, Japan, Kazakhstan, Korea, Malaysia, Netherlands, Norway, Philippines, Poland, Portugal, Romania, Russian Federation, Singapore, Slovakia, South Africa, Spain, Sweden, Switzerland, Turkey, United States and United Kingdom. Yellow dots signify products with negative growth rates in 2020 and green ones products with positive growth rates.

Source: Authors' calculations based on ITC's Trade Map database and Harvard Atlas of Economic Complexity.

## 9. Supply chains came under pressure early in 2020 but were also instrumental in the resumption of economic activity

In particular at the start of the pandemic, changes in demand and supply for some products were so large and sudden that they could not be easily accommodated. The result was shortages, on the one hand, and unexpected inventories and spare capacity on the other. Supply shortages of essential goods and critical components in particular attracted the attention of policy makers, who were concerned about the reliability of international supply chains in the face of shocks. Some early analytical assessments suggested that the high specialisation in international supply chains and the resulting geographical concentration of trade flows created bottlenecks and aggravated the economic disturbances seen in 2020. Others pointed to examples of where international supply chains helped in addressing pandemic-related shortages. A recent OECD stocktaking has shown that, while concentration of trade is indeed quite high for some products, and international supply chains can transmit some economic shocks, they are also important channels of adjustment to shocks (Arriola, 2020<sup>[7]</sup>).

Analysis of monthly trade data at the sector level paints a similarly nuanced picture. A negative correlation of sectoral changes in exports in 2020 and country concentration of exports across these sectors (Figure 12, Panel A) could suggest that sectors with more concentrated exports were affected more negatively. However, when the first and second half of 2020 are considered separately to distinguish between the period of lockdowns during the first wave of the pandemic (H1-2020) and their temporary relaxation and the consequent revival of economic activity in many countries (H2-2020), we see that industries with more concentrated exports tended to experience both steeper falls in H1-2020 (Figure 12, Panel B) and quicker recoveries in H2-2020 (Figure 12, Panel C). Moreover, in H1-2020, among industries that enjoyed positive export growth rates during this period, some of the more concentrated --such as other made-up textile articles (HS-63) which includes protective masks--performed better. In H2-2020, almost all sectors experienced positive growth rates and the more concentrated sectors performed better.

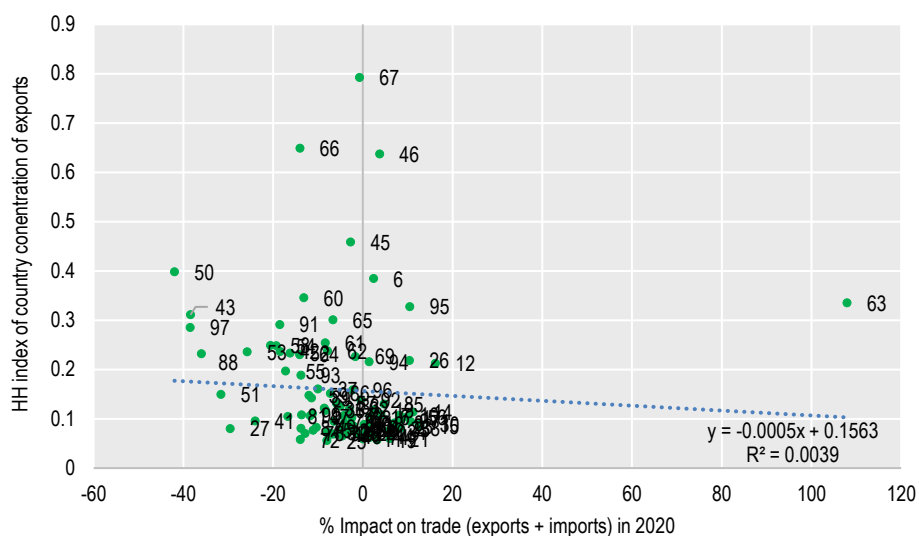
To the extent any generalisations can be made about developments in this very particular context, it seems that sectors with more geographically concentrated exports came under more pressure in the first half of 2020 but were also more important as part of the recovery in the second half of the year. These developments were certainly strongly influenced by the timing and geographical spread of the COVID-19 pandemic and China's prominent position in world trade and international supply chains. China was the first large trading country to face and to contain the pandemic, and this had a significant, positive impact on its trade performance. Moreover, China tends to have large exports shares in more concentrated sectors (Figure A A.3). Hence, it is difficult to disentangle the effects of concentration from those of relying on trade with China.<sup>8</sup>

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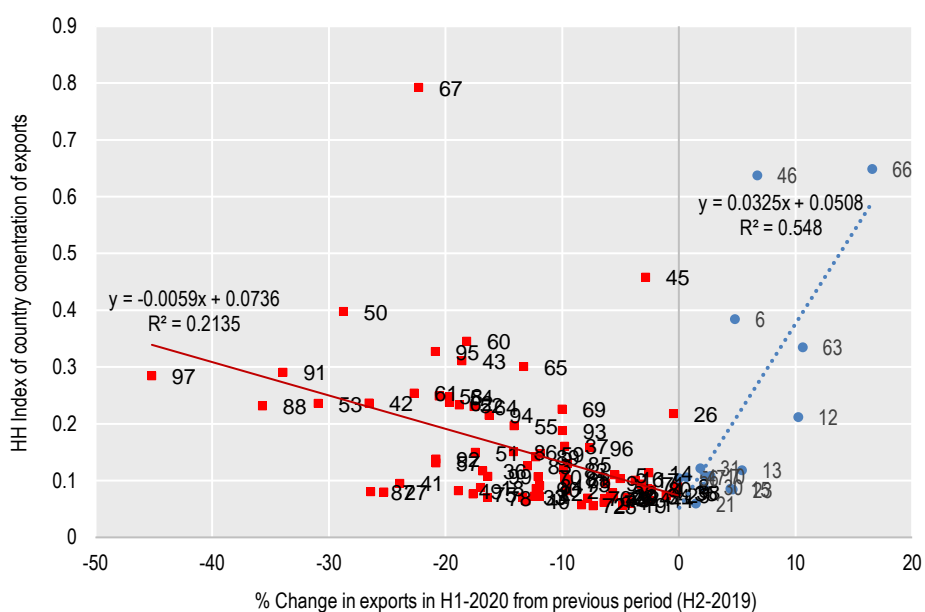
<sup>8</sup> In addition, China is excluded from calculations in Panels B and C of Figure 12 as exporter because it does not have complete monthly data for 2020.

**Figure 12. Sectoral trade declines and recoveries, and country-concentration of exports in 2020**

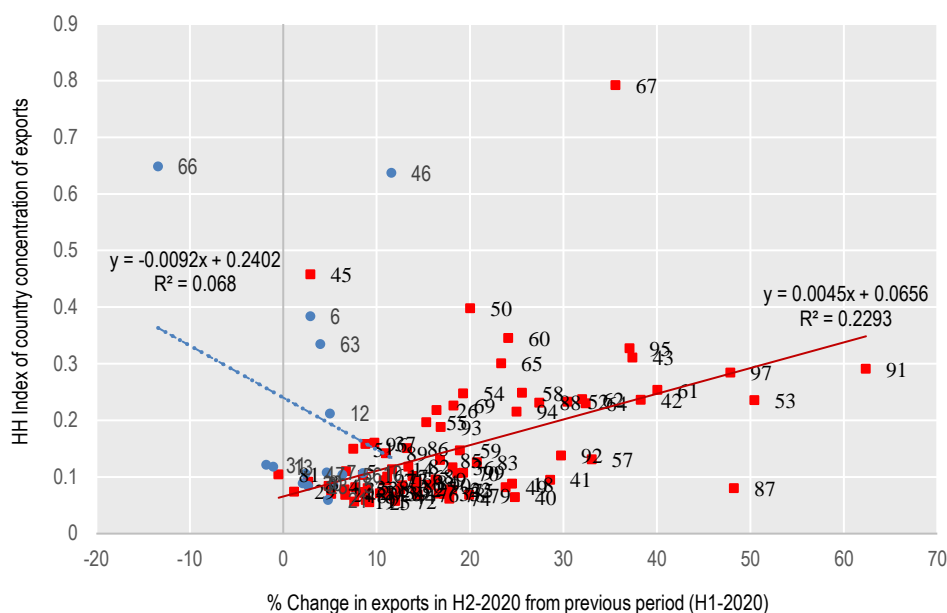
Panel A. The whole year



Panel B. First half of 2020



Panel C. Second half of 2020



Note: Data labels indicate HS2 product codes (Annex Table A.B.1 lists the descriptions of all HS 2-digit codes). In Panels B and C, red (blue) markers denote products with positive (negative) export growth rates in the first half of 2020 (H1-2020). In Panel A, trade refers to the sum of exports and imports of 37 largest economies for which high-frequency product-level data for trade values was available for the whole 2020. These are: Argentina, Australia, Austria, Belgium, Brazil, Canada, Chile, China, Chinese Taipei, Czech Republic, Denmark, Germany, Finland, France, Hungary, Ireland, Italy, Japan, Kazakhstan, Korea, Malaysia, Netherlands, Norway, Philippines, Poland, Portugal, Romania, Russian Federation, Singapore, Slovakia, South Africa, Spain, Sweden, Switzerland, Turkey, United States of America and United Kingdom. In Panels B and C, only exports are taken into account and, since monthly data are missing for China for months Jan-Feb and Aug-Dec, this country is excluded as an exporter from the calculations of exports dynamics statistics presented here. The Herfindahl-Hirschman (HH) index measures market concentration as the sum of squared export shares. It lies between one and zero, with the value one indicating full concentration of exports in one country.

Source: Authors' calculations based on ITC's Trade Map database.

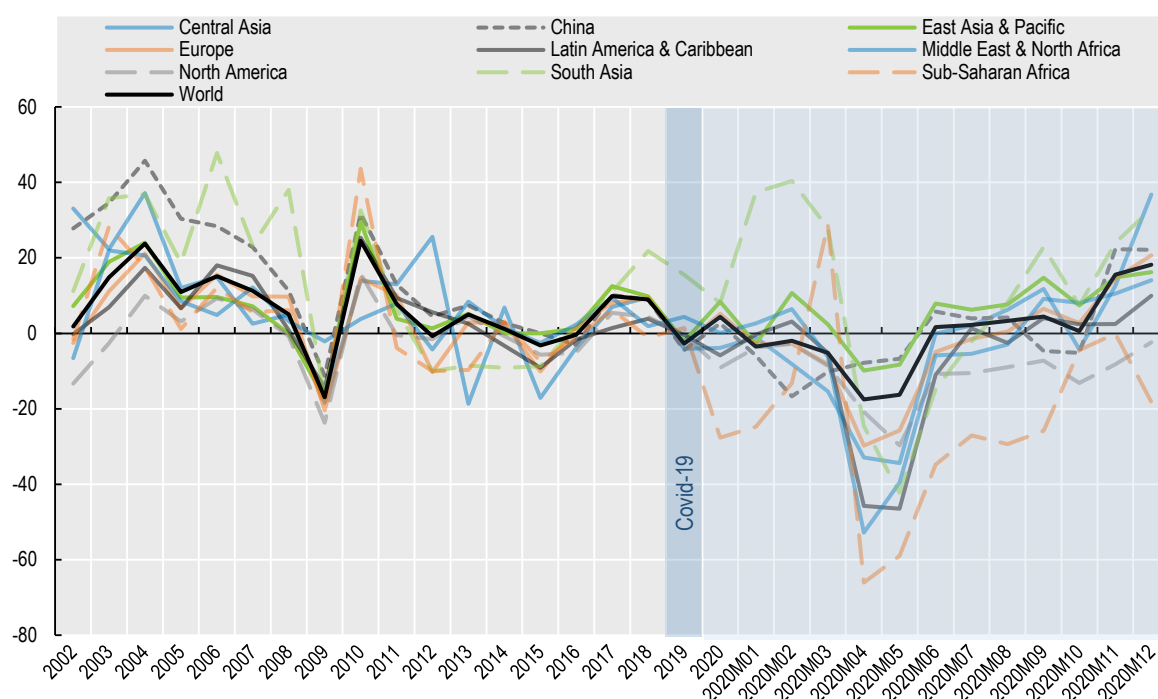
## 10. Asia was at the heart of supply chain developments in 2020

The important role of China, but also of other Asian countries, as suppliers during the COVID-19 pandemic can be illustrated by the example of the electrical and electronic machinery and equipment sector (HS-85), which includes many electronic and home office products, as well as components used in their production. In this sector, which was one of the prominent winners of 2020 (4.6% increase in the value of the industry's world exports in 2020, per Figure 8), prior to the pandemic, China accounted for 29% of world exports and East Asia and Pacific (excluding China) accounted for a further 39%.<sup>9</sup> The evolution of monthly growth rates of exports in 2020 suggests that suppliers from East Asia and Pacific, but also South Asia, filled in for those in China and Europe in the first three months of 2020, when supplies from China were drying up (Figure 13). April and May 2020 saw declines across all supplying regions, but exports growth from East Asia and Pacific and China recovered earlier than those from other regions and, already in June, both China and East Asia and Pacific were already exporting more than in the previous year. At the end of 2020, East Asia and Pacific and South Asia, with annual export increases of, respectively, 8.4% and 8.1%, were the industry's biggest winners, while Europe (5.2%) and China (2.6%) followed.

<sup>9</sup> Average shares for the period 2017-19 based on annual ITC Trade Map data.

**Figure 13. Supply of electrical machinery and equipment (HS-85) during the COVID-19 pandemic**

Year-on-year growth rates (%) in world imports by source country/region



Note: Import data (value) is the sum of values reported by the 37 largest economies for which high-frequency product-level data for trade values is available for the whole 2020. These are: Argentina, Australia, Austria, Belgium, Brazil, Canada, Chile, Chinese Taipei, Czech Republic, Denmark, Germany, Finland, France, Hungary, Ireland, Italy, Japan, Kazakhstan, Korea, Malaysia, Netherlands, Norway, Philippines, Poland, Portugal, Romania, Russia, Singapore, Slovakia, South Africa, Spain, Sweden, Switzerland, Turkey, United States and United Kingdom.

Source: Authors' calculations based on ITC's Trade Map database.

Semiconductors (Electronic integrated circuits and microassemblies, HS-8542) have been reported to struggle to meet surging demand during the COVID-19 pandemic. While trade data indicate that the industry as a whole was able to meet partly the demand surge, bottlenecks have materialised in late 2020 in key sectors such as automobiles. The demand surge in 2020 was initially related to increased demand for 'lockdown consumer durables', such as television sets, video-game consoles, appliances, and computer equipment, and fuelled by government stimulus.

In 2020 semiconductor trade came out of a sluggish year 2019 (Figure 14). US-China tensions had led to chip hoarding in 2018 by Huawei and other Chinese firms and a subsequent trade slump in 2019. China also saw a sharp fall in the construction of new data centres and less crypto mining, contributing to lower overall demand for chips.

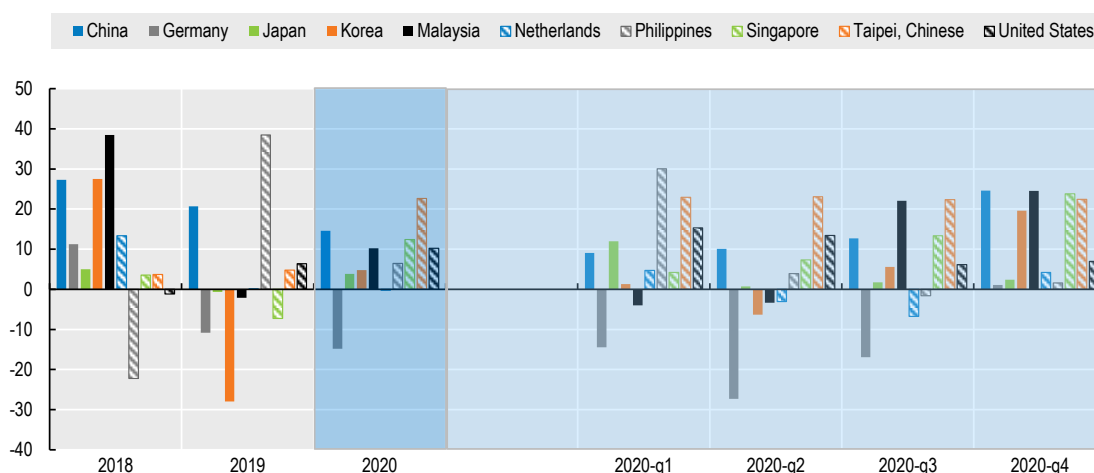
Particularly in the second quarter of 2020, negative growth rates in exports of semiconductors were recorded by producers in Europe, as well as Korea and Malaysia, but exports of the latter two countries rebounded in the second half of the year. Chinese Taipei and Philippines recorded year-on-year growth rates exceeding 20% at the beginning of the year, while Malaysia's exports grew strongly in the third and fourth quarter at rates exceeding 20%.<sup>10</sup> The varied trade performance is also a reflection of the varied nature of the portfolio of products that is exported from a given country, involving a mix of high-end chips and low-end chips, such as standard memory chips or the chips used in motor vehicles. Overall, the value of exports of the ten largest exporters grew by 11.5% in 2020 with respect to 2019, and preliminary data

<sup>10</sup> More detailed data on Malaysia's exports of semiconductors (not shown here) suggest that Singapore, China, Korea and Chinese Taipei were the primary destinations of these shipments.

suggest that rapid growth continued through early 2021. Among the top suppliers, only Germany and the Netherlands recorded negative growth rates in 2020, but those have been turning positive since late 2020.

**Figure 14. Supply of semiconductors (HS-8542) during the COVID-19 pandemic (10 largest suppliers)**

Year-on-year growth rates (%) in the value of exports to all countries by source country



Note: The ranking of the world's largest suppliers is based on world export shares in 2019.

Source: Authors' calculations based on ITC's Trade Map database.

## 11. In some industries, supply chains appeared more resilient than consumer demand

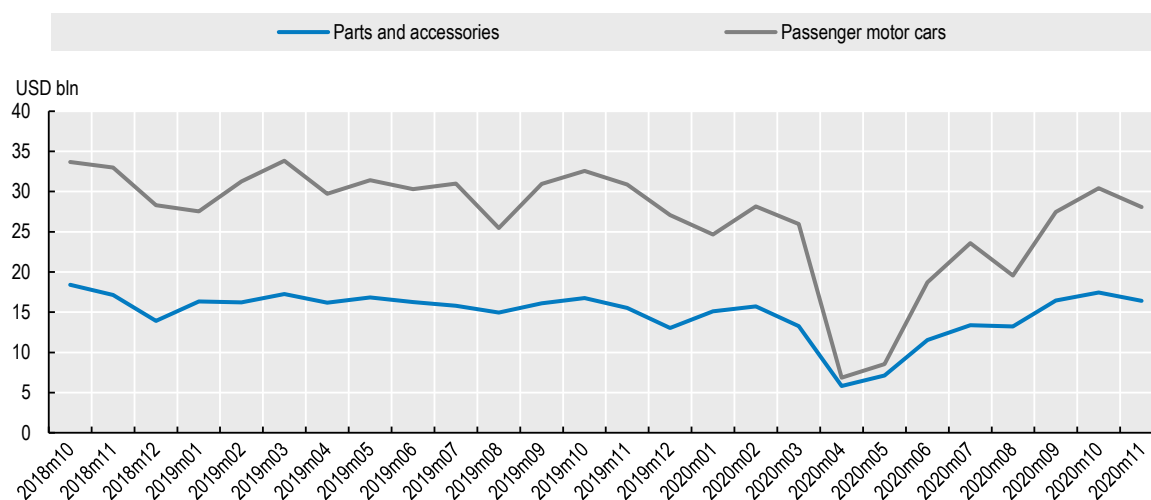
Vehicles and parts (HS-87) is an example of an industry which recorded significant overall losses in 2020. World exports of these products fell in 2020 by 14% (Figure 8). A comparison of the dynamics of trade in passenger motor cars (a proxy for the part of the car market more affected by consumer demand) and trade in parts and components (a proxy for the 'value chain' trade in the same industry) in G7 countries suggests that export losses recorded in 2020 by this sector were not primarily due to shortages of parts and components but rather to a drop in demand for final car products (Figure 15). The car industry was quite particular in the context of 2020: buying a new passenger car can be put on hold in times of crisis, and the need for cars as a means of transport to work may have decreased, while travel and movement restrictions also worked against increasing the demand for these products.

In the course of 2020, exports of final car products by the main exporters plummeted, while those of parts or components decreased less rapidly and recovered more quickly (Figure 15). This might suggest that demand for motor cars kept surprising negatively and that production and supply chain planners kept assuming that the situation would be temporary and kept replenishing the components as if demand would soon rebound. This was consistent with the expectations of imminent improvement in the pandemic situation and easing of restrictions communicated regularly by authorities. At the end of 2020, trade in car components rebounded and was higher than at the end of 2019. Moreover, towards the end of the year, this trade grew faster than in 2018 and 2019, likely reflecting making up for the period of transport disruptions earlier in the year. The same was not the case for final car products.<sup>11</sup>

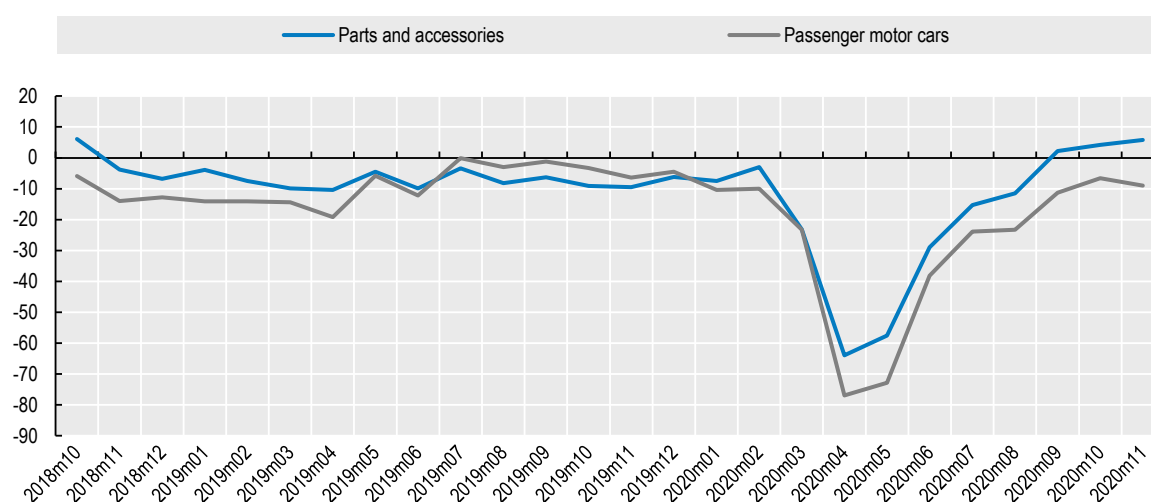
<sup>11</sup> This analysis is based on trade values but the data on consumer prices of cars suggest that these trends are not driven by price changes as these have not decreased significantly in 2020. For example, the Federal Reserve Bank of St. Louis data show that the Harmonized Index of Consumer Prices: Motor Cars for Euro Area (<https://fred.stlouisfed.org/series/CP0711EZ18M086NEST>) increased by 0.4% between December 2019 to

### Figure 15. Exports of passenger motor cars and car parts and accessories

Panel A. Value of G7 countries' exports



Panel B. Year-on-year growth rates (%)



Source: Authors' calculations based on ITC's Trade Map database, Broad Economic (BEC) classification into parts and accessories (adjusted by authors to only cover car parts and accessories) and passenger cars.

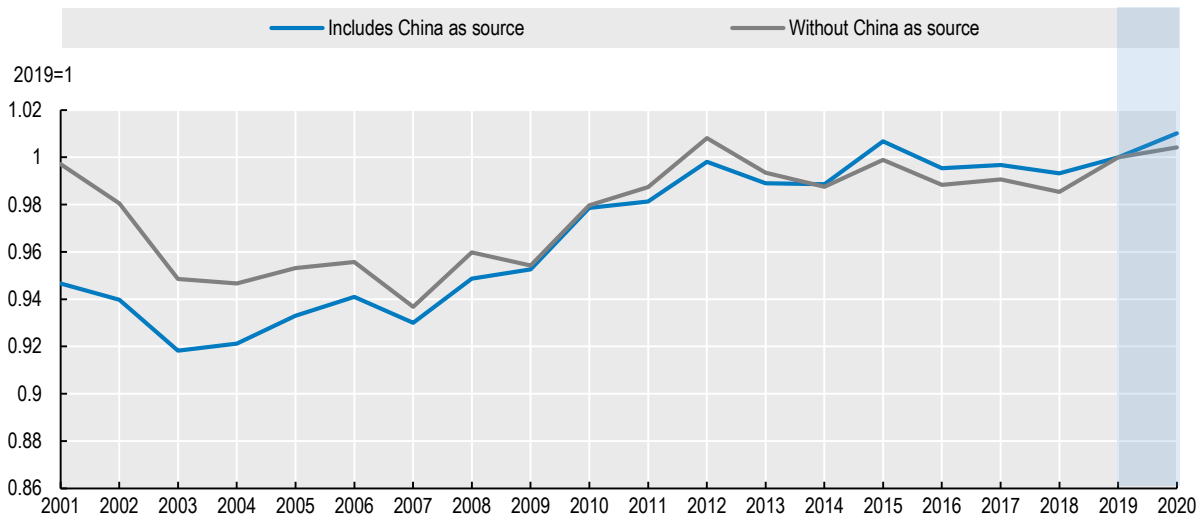
December 2020. The same source shows that the Consumer Price Index for All Urban Consumers: New Vehicles in US City Average (<https://fred.stlouisfed.org/series/CUSR0000SETA01>) increased by 1.9% in the same period.



## 12. The distance travelled by imports continued to grow as China and Asia filled supply gaps

The trade-weighted distance travelled by imported products has been increasing rapidly in the aftermath of the GFC, likely reflecting continuous competitiveness improvements and outsourcing of production to more distant cost locations. This trend slowed in the second part of 2010s, consistent with the plateauing of GVC expansion during that period (e.g. Arriola (2020<sup>[6]</sup>)). While supply disruptions have led to proposals for ‘reshoring’ or ‘shortening’ of value chains, the average distance travelled by imported products in 2020 was actually higher than in 2019 (or indeed any year since 2001). This finding holds irrespective of whether China as a source country is included or excluded in the calculation (Figure 16). Figure 17 shows further that, while in 2020 countries in some regions were indeed importing more from their regional neighbours (e.g. East Asia and the Pacific), all regions imported more from China, and several regions also imported more from East Asia and the Pacific. This means that China and countries in East Asia and the Pacific were those that could fill the supply gaps left by others. For many regions, this meant importing from more distant locations than usual.

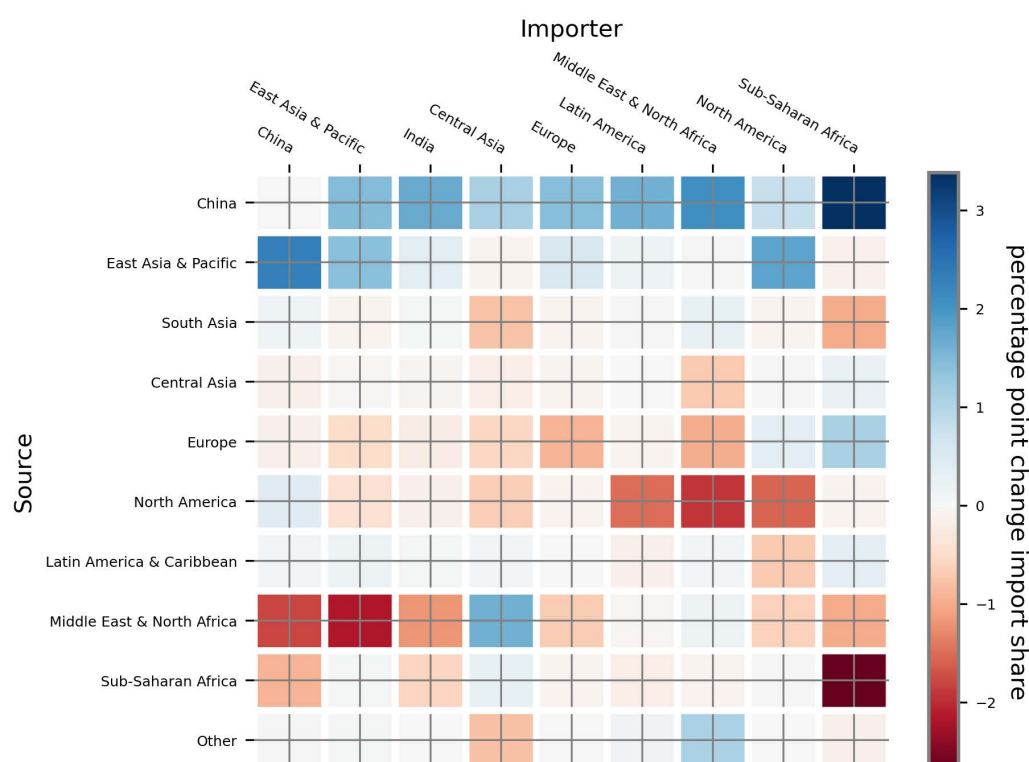
**Figure 16. Trade weighted average distance of goods imports (2019=1)**



Note: Import data used for calculations of trade weighted distances covers 37 largest economies for which high-frequency product-level data for trade values was available for the whole 2020. These are: Argentina, Australia, Austria, Belgium, Brazil, Canada, Chile, Chinese Taipei, Czech Republic, Denmark, Germany, Finland, France, Hungary, Ireland, Italy, Japan, Kazakhstan, Korea, Malaysia, Netherlands, Norway, Philippines, Poland, Portugal, Romania, Russian Federation, Singapore, Slovakia, South Africa, Spain, Sweden, Switzerland, Turkey, United States and United Kingdom. Distances refer geodesic distances, calculated following the great circle formula, which uses latitudes and longitudes of the most important cities/agglomerations (in terms of population).

Source: Authors' calculations based on ITC's Trade Map database (extracted in June 2021) for trade data and CEPII for distance data.

Figure 17. Reallocation of import shares in 2020



Note: Import data used for calculations of trade weighted distances covers 37 largest economies for which high-frequency product-level data for trade values was available for the whole 2020. These are: Argentina, Australia, Austria, Belgium, Brazil, Canada, Chile, Chinese Taipei, Czech Republic, Denmark, Germany, Finland, France, Hungary, Ireland, Italy, Japan, Kazakhstan, Korea, Malaysia, Netherlands, Norway, Philippines, Poland, Portugal, Romania, Russian Federation, Singapore, Slovakia, South Africa, Spain, Sweden, Switzerland, Turkey, United States and United Kingdom. Distances refer geodesic distances, calculated following the great circle formula, which uses latitudes and longitudes of the most important cities/agglomerations (in terms of population).

Source: Authors' calculations based on ITC's Trade Map database (extracted in June 2021) for trade data and CEPII for distance data.

### 13. These shifts occurred despite significant disruptions in the international transport sector

These shifts in trade structure and direction occurred not only in the context of surges in demand and supply constraints but also during a period of significant disruptions in the international transport sector. Products and commodities can be shipped on different international routes using different modes, or combinations of modes, of transport (principally sea, air, rail and road transport). Which mode of transport is used for which product depends, among other things, on the required timeliness of delivery, value-to-size and value-to-weight ratios and route-specific prices of different modes of transport – which, in turn, depend on demand, costs (e.g. prices of fuel), and capacity constraints. On long routes, for example those connecting China and Europe, heavy and bulky products, such as iron and steel or furniture, tend to be transported by sea, while higher value and low weight and smaller size products, such as electronics or high precision equipment, are transported by both sea and air (Figure A A.4).

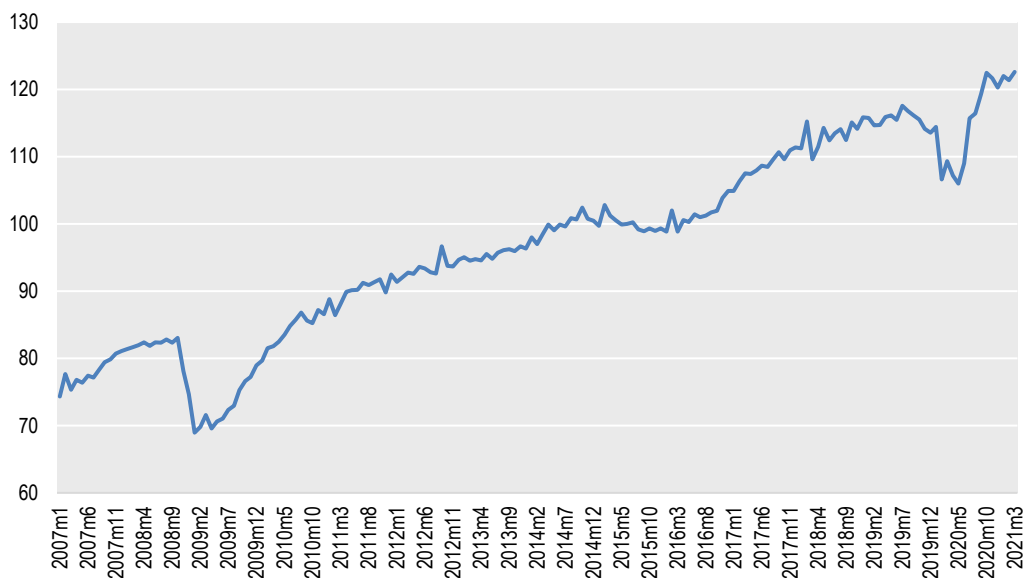
Global container shipping was not on autopilot during 2020. The industry, which is at the heart of global supply chain logistics, saw demand plummet during the first half of 2020 (Figure 18). Nevertheless, in spite

of low demand, idling of much container shipping capacity, and historically low crude oil prices<sup>12</sup> (Figure A.A.5), global freight rates continued to rise, and recently reached the highest levels since 2009 (Figure 19). These rates are nevertheless still markedly lower than during the GFC. From mid-2020 onwards, the industry has been struggling to meet demand for ocean freight, as global trade has gained pace and demand shifted to consumer goods that are mainly produced in Asia. Constraints on vessel capacity, not enough containers being available at the right port at the right time and on-shore logistics bottlenecks, partly due to COVID-19, have combined to create tensions in the market and, consequently, rising freight rates.<sup>13</sup>

The global air cargo industry experienced first a sharp drop in the first half of 2020 and then a relatively swift recovery in international freight volumes (Figure 20). According to IATA data, carriers based in North America and Africa<sup>14</sup> have seen a rapid growth in cargo volumes, while Asia Pacific, Middle Eastern, and European airlines experienced a recovery of demand only later in 2020. Latin American carriers are still operating at levels about 30% below cargo volumes two years ago.<sup>15</sup>

### Figure 18. Container throughput

Panel A. RWI/ISL Container-Throughput-Index (2015=100, seasonally adjusted)



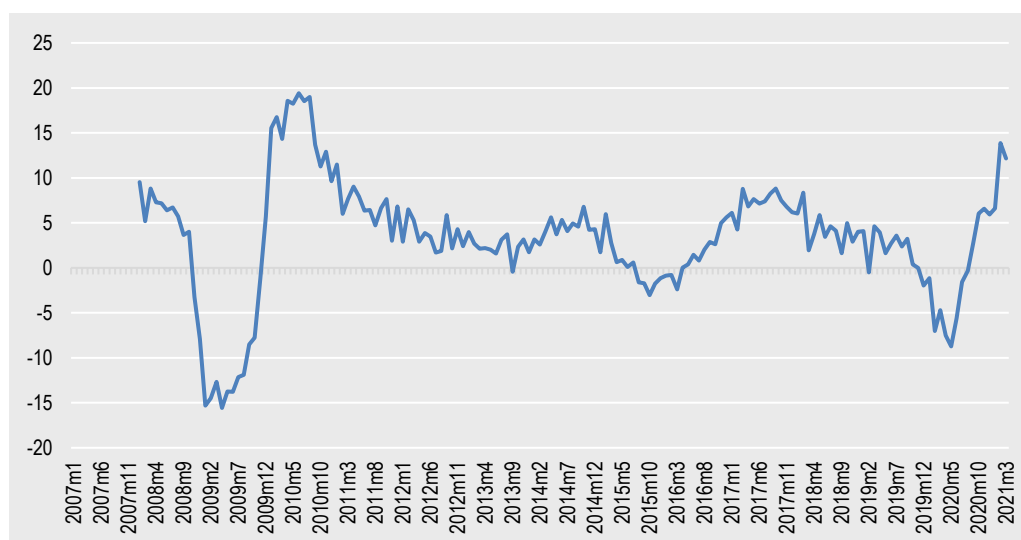
<sup>12</sup> Price of fuel oil, which is used for maritime transport, is closely correlated with price of crude oil. Despite the increase in 2020, rates of ocean freight were not as high as they were at the outset and during the GFC (Figure 20). During the GFC, unlike in 2020, however, prices of crude oil (as well as other commodities) were at their historical highs (Annex Figure A A.5).

<sup>13</sup> (ECB, 2021<sup>[22]</sup>) suggests that there were two principal factors that explain the increase in shipping costs, particularly in the second half of 2020: (i) the strong rise in demand for Chinese exports (including intermediate inputs) and thus the demand for container shipments as well as (ii) shortages of containers at Asian ports and the resulting premium rates that had to be paid by Asian companies to get containers back. Labour availability and costs could have also been a factor, especially during the first lockdowns.

<sup>14</sup> The Africa region shows a particularly fast expansion, posting a 13% growth compared with April 2019. The smaller Africa-Asia trade lanes were the main driver behind the region's performance. Note, however, that the Africa market is relatively small compared to the rest of the industry (a 2% market share) and therefore even small changes in volumes result in large changes in growth rates.

<sup>15</sup> The apparent slowdown in the early months of 2021 (Figure 20) reflects a seasonal pattern found every year, and recent IATA statistics show a subsequent pick-up of cargo volumes, probably boosted further by the ruptures of sea container transport due to the temporary blockage of the Suez Canal in March and limited operations at several Chinese ports in the second quarter of 2021.

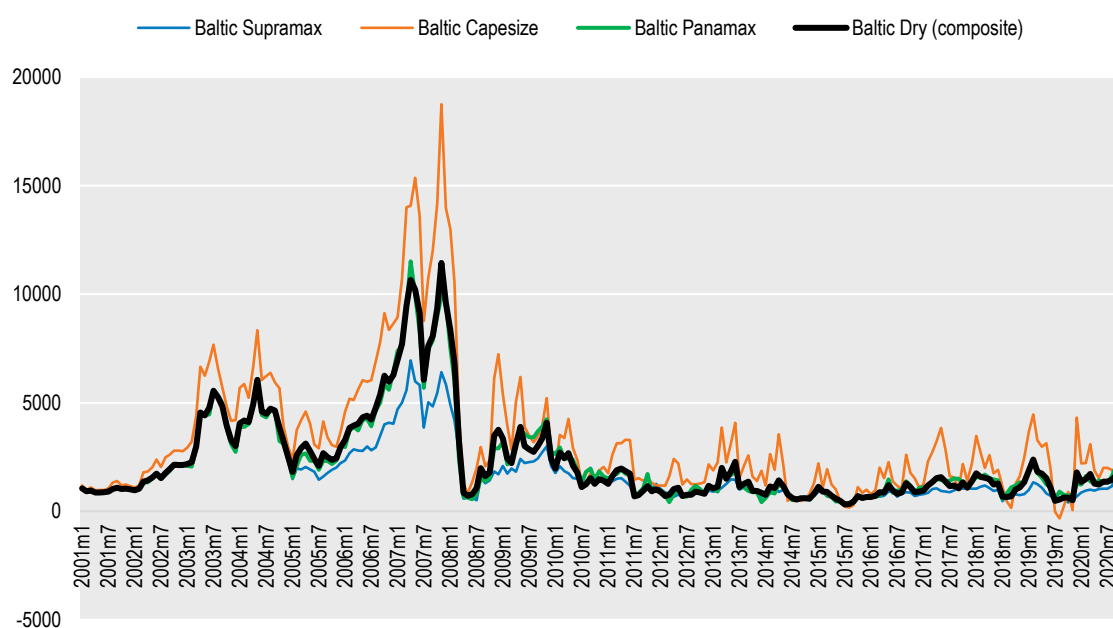
Panel B. RWI/ISL Container-Throughput-Index (year-on-year growth rates)



Note: Eighty-two international ports handled more than 60% of world ship containers. More information on the methodology of the index is available at <https://www.isl.org/en/containerindex>.

Source: Institute of Shipping Economics and Logistics (ISL) and the RWI – Leibniz-Institut für Wirtschaftsforschung (RWI) (<https://www.isl.org/en/containerindex>).

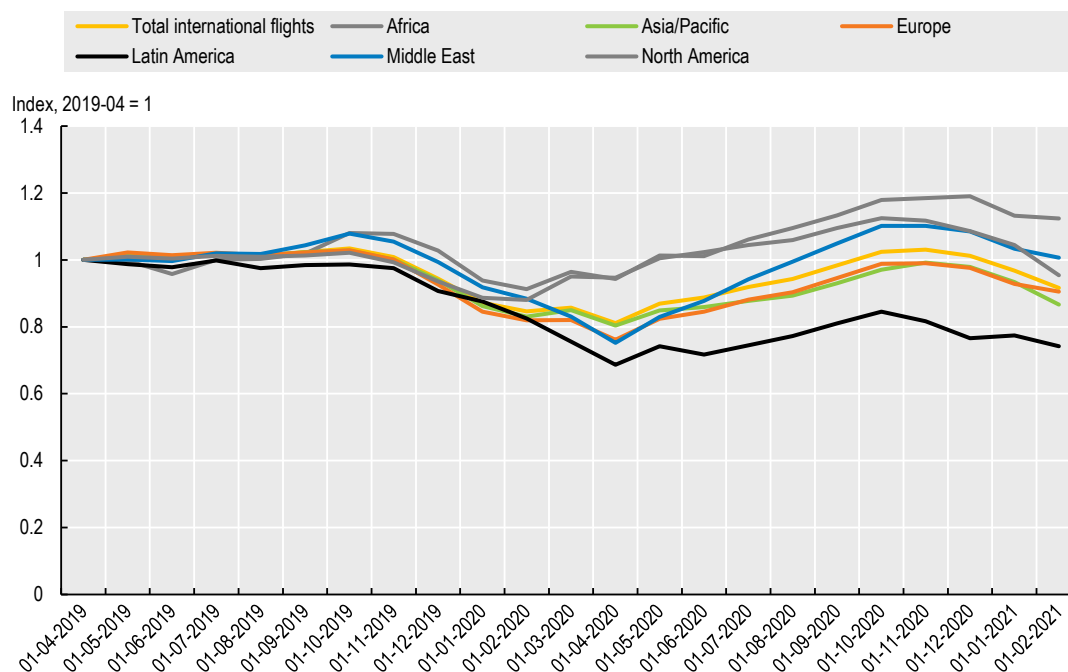
Figure 19. Costs of maritime transport (the Baltic Dry Index)



Note: The Baltic Dry Index, reported by the Baltic Exchange in London, provides a benchmark for the price of moving the major raw materials by sea. It is a composite of three sub-indices that measure different sizes of dry bulk carriers: Capesize, which typically transport iron ore or coal cargoes of about 150 000 tonnes; Panamax, which usually carry coal or grain cargoes of about 60 000 to 70 000 tonnes; and Supramax, with a carrying capacity between 48 000 and 60 000 tonnes. The Baltic Dry Index takes into account 23 different shipping routes carrying coal, iron ore, grains and many other commodities (Source: <https://tradingeconomics.com/commodity/baltic>).

Source: Factset.

**Figure 20. Development of air freight tonne-kilometres (total and by region of carrier)**



Note: Series are smoothed using 4-months moving averages (exponential weights).

Source: IATA monthly statistics, Factset, OECD calculations.

Before the pandemic, on long-haul routes, passenger aircraft carried more than 50% of total air cargo in the hold. Air freight rates peaked in mid-2020, when most international and domestic passenger flights were grounded, and when there was also a sudden need to quickly transport personal protective equipment, pharmaceuticals and other essential products. Rates fell somewhat later, as liquidity-seeking airlines turned idle passenger aircraft into temporary freighters ('passenger freighters') and, when restrictions on mobility and travel were temporarily lifted, before increasing again towards the end of the year. While the situation is dynamic and route-specific, industry analysts indicate that air cargo rates remain higher than before the pandemic, particularly on routes connecting Europe and North America. The latter seems to be related to continued disruptions at North American and European<sup>16</sup> air cargo hubs throughout 2020 due to below-capacity passenger traffic, higher costs of handling cargo carried by 'passenger freighters'<sup>17</sup> and staffing problems due to COVID-19 mitigation measures.<sup>18</sup> Indices of bilateral air traffic, constructed using scheduled departing flights data, show indeed that, due to reduced capacity at source and destination, at the end of 2020, the transatlantic routes were still estimated to operate at only about 40% of capacity, while those involving China were estimated to operate at above 60% capacity (Figure 21).

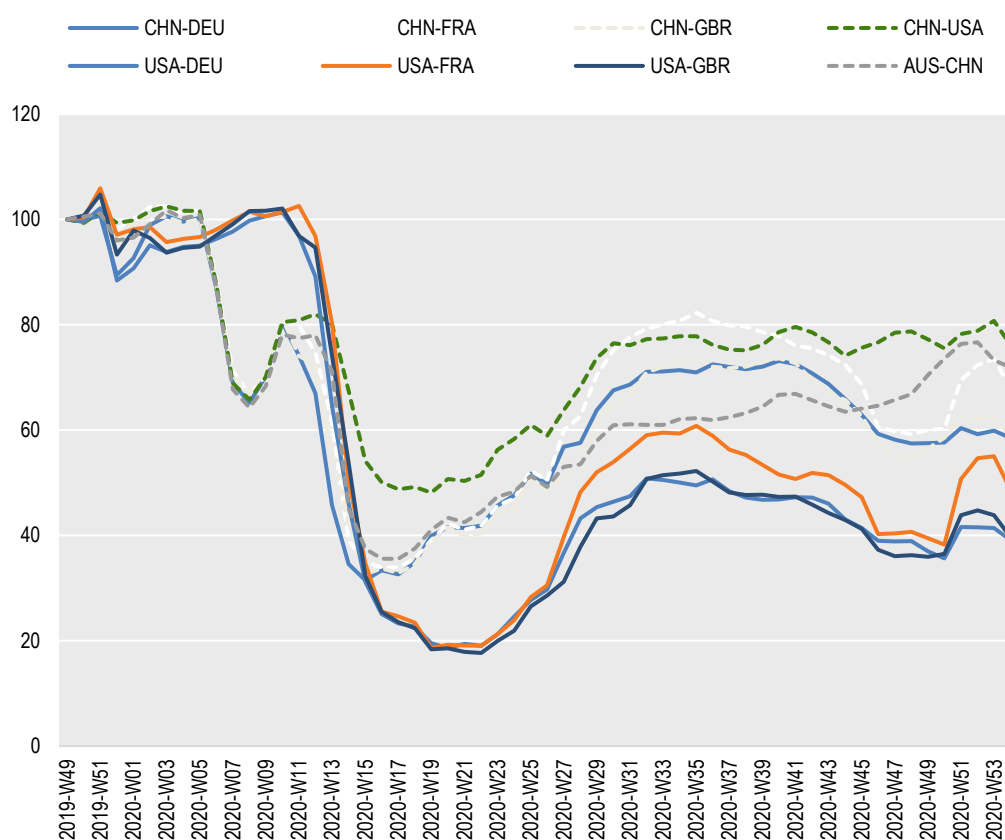
<sup>16</sup> Hong-Kong, China; and Singapore once important air cargo hubs, are also severely disrupted.

<sup>17</sup> It is more costly (time, manpower) to load and unload cargo carried by 'passenger freighters'.

<sup>18</sup> Knowler (2021<sup>[21]</sup>), for example, argues that these are some of the main reasons for why European air cargo hubs are under pressure.

**Figure 21. Scheduled bilateral flights capacity**

Week 49 of year 2019 = 100



Note: the index on route A-B is calculated as  $(a+b)/2$  where  $a$  is an index of scheduled departing flights out of location A (where 100= number of scheduled flights operating in the week 49 of 2019) and  $b$  is an index of scheduled departing flights at location B (where 100= number of scheduled flights operating in the week 49 of 2019). It is thus a simple average of the two location-specific indices.

Source: OECD calculations of Official Aviation Guide data.

## 14. Will the 2020 changes be short-lived?

It is not known which of the 2020 trade developments will be short-lived and which might signal longer-term changes.

The swift recovery in aggregate merchandise trade in the second half of 2020 and the expectations of containment of the COVID-19 pandemic in 2021 might suggest that the duration of the trade collapse was too short to result in significant long-term adjustments. On the other hand, several containment measures introduced in 2020, such as the restrictions on international travel, which underpinned the exceptional trade effects in 2020, were still in place in the second quarter of 2021, and continue to constrain not only services, but also goods, trade.

In addition, the aggregate trade statistics mask significant heterogeneity in the speed and extent of decline and recovery of trade across products. The unprecedented spikes and troughs seen in 2020 signify high uncertainty and adjustment costs. Even if the COVID-19 pandemic is contained in the coming months, the possibility of similar pandemics in the future cannot be excluded and lessons from 2020 will be a natural reference point for those making long-term adjustments. Firms are likely to adopt new – or intensify existing – risk mitigation strategies, which could include relying less on labour (through automation), holding larger inventories, and diversifying or reshoring production and sourcing of inputs so as to be less exposed to

international disruptions in supply, demand and in transport markets. Many governments are also considering the role of policy in these adjustments.

Consumers' incomes, savings and preferences have also been significantly affected, and it is not clear how persistent the resulting adjustments will be. With economic recovery, consumer spending may rebalance towards services and more durable goods, but some changes, such as teleworking, home nesting or on-line shopping, may be set to continue.

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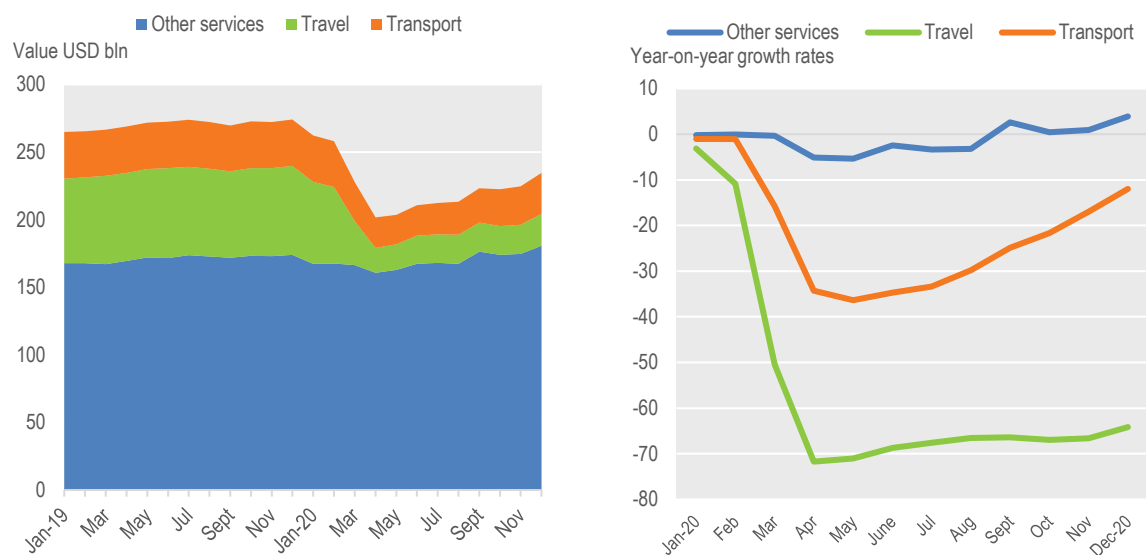
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## Annex A. Supplementary figures

**Figure A A.1. Exports of services by main service category, for selected OECD countries**

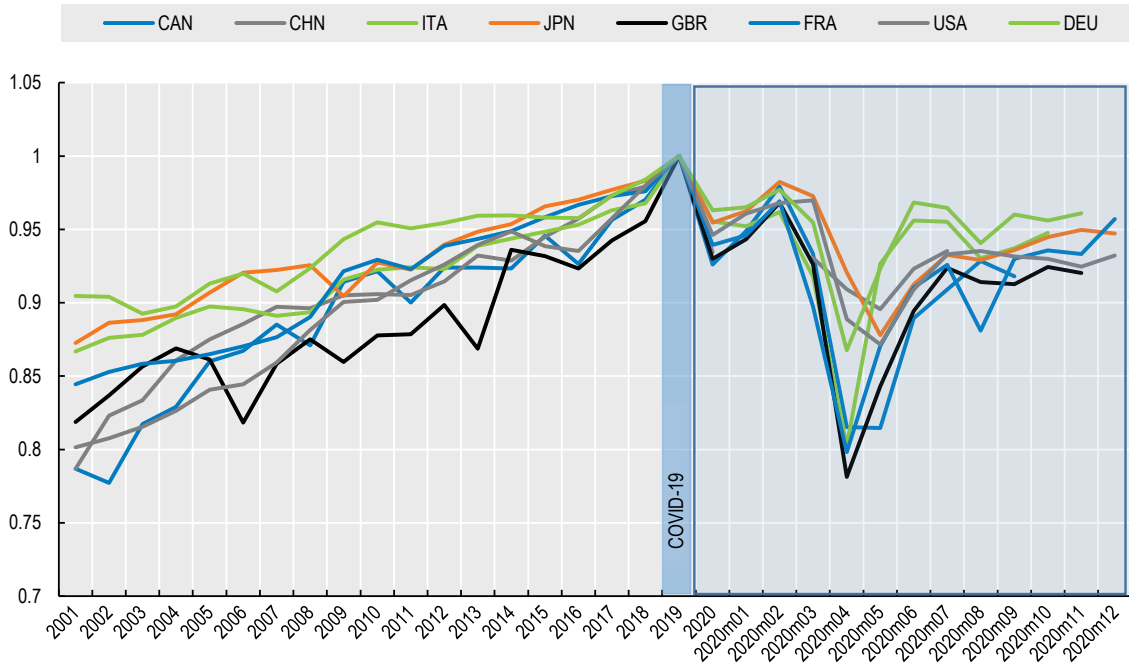


Note: Sample covers United States, Canada, Brazil, Japan, Korea, China, Australia, Russia, United Kingdom, and extra-EU27 trade; it accounted for about 65% of world exports in 2019.

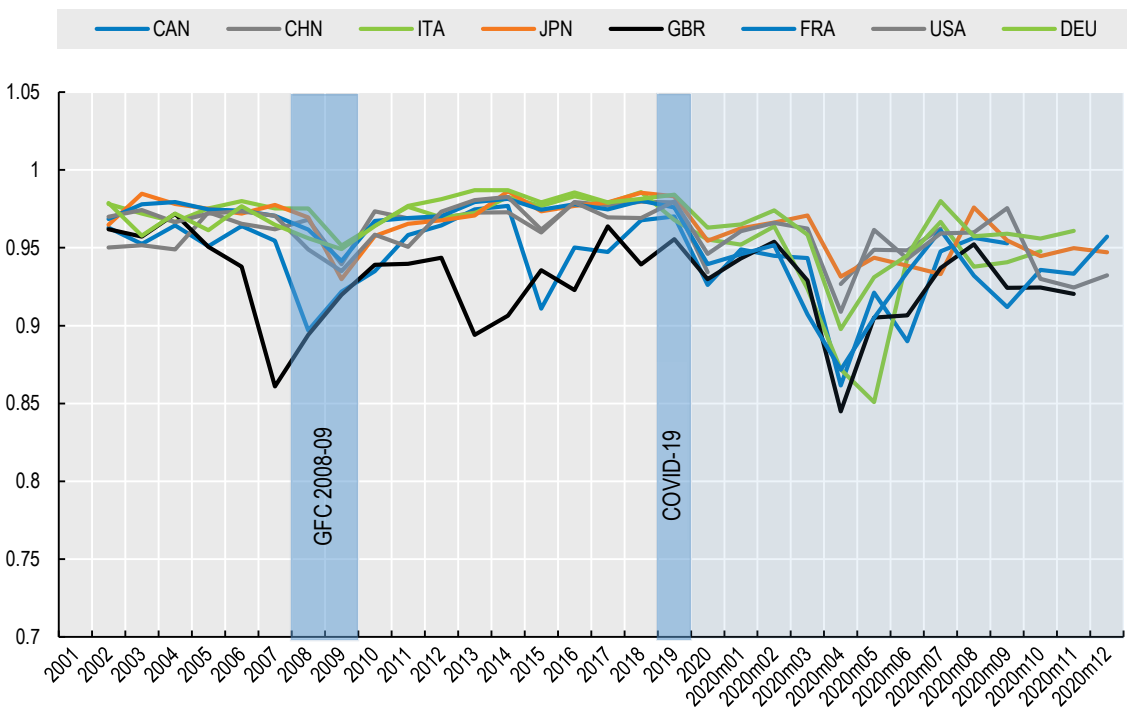
Source: OECD calculations based on national data sources.

**Figure A A.2. Similarity of composition of merchandise exports for selected countries**

Panel A. Similarity of export structure across 2-digit HS product categories (1 = structure identical to that in 2019)



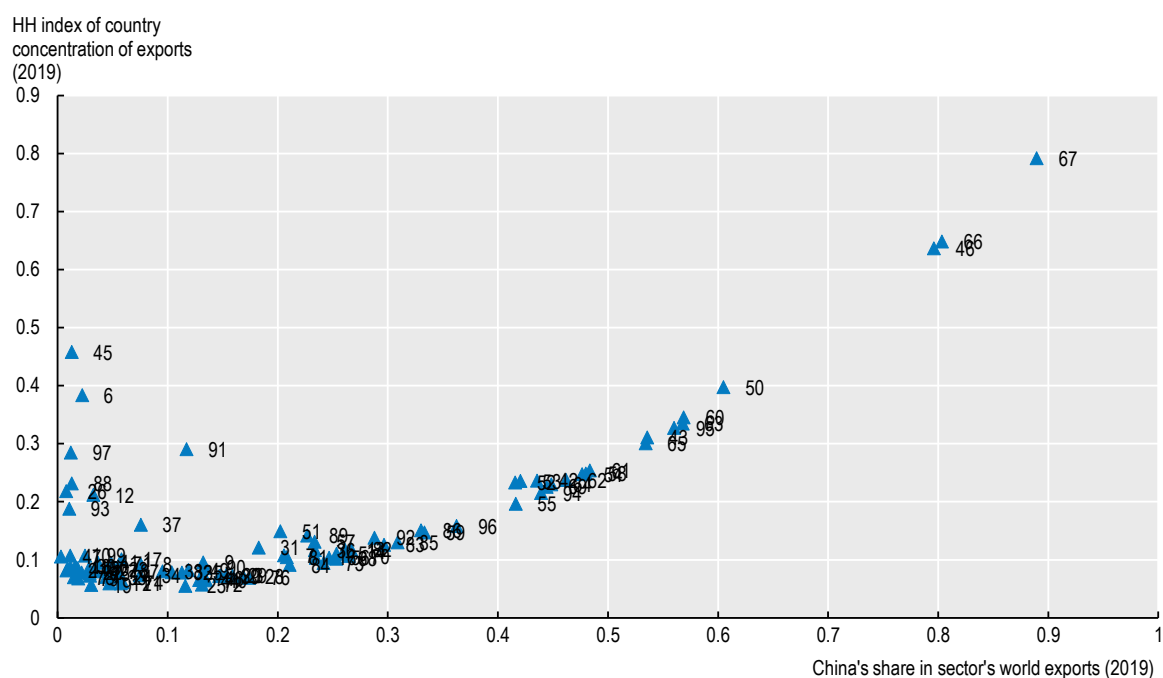
Panel B. Similarity of export structure across 2-digit HS product categories (1 = structure identical to the previous period)



Note. Both panels show the values of Finger-Kreinin index, which measures the degree of similarity of export structure at the HS 2-digit level of a country in a given period with respect to a reference period. The reference periods are: in Panel A the year of 2019; and in Panel B the preceding year or month, on a rolling basis. A value of 1 means that export shares of different HS 2-digit product categories in the given period are identical to that in the reference period, while a value of 0 means that the shares are entirely different. For each country, the values for 2020 as a whole take into account the data for all the months for which the country reported data.

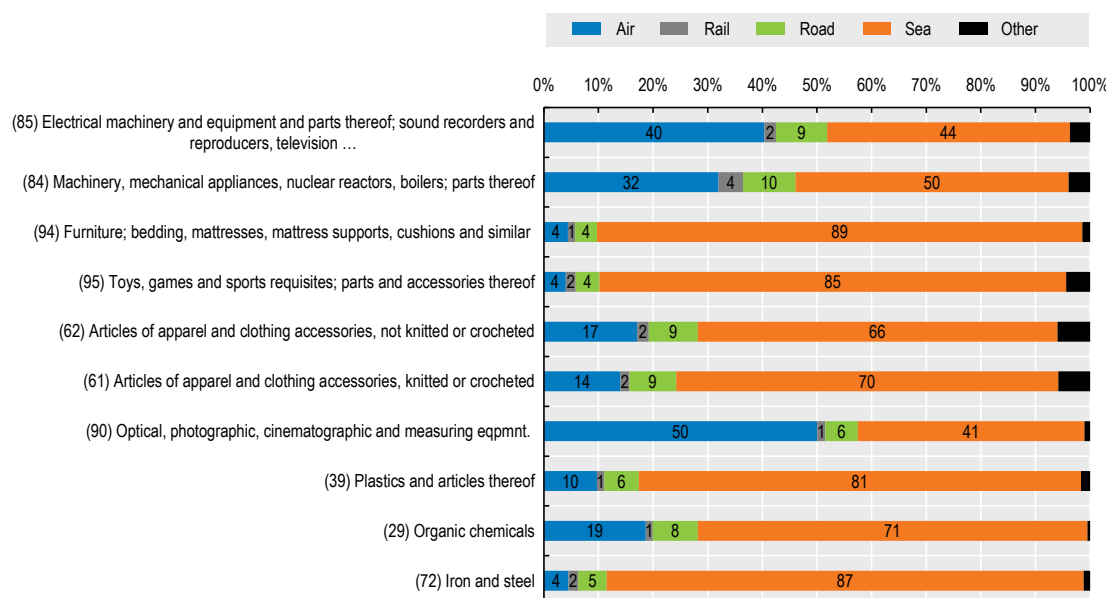
Source: Authors' calculations based on ITC's Trade Map database.

**Figure A A.3. Correlation of the HH index of country concentration of exports and China's share in sector's world exports**



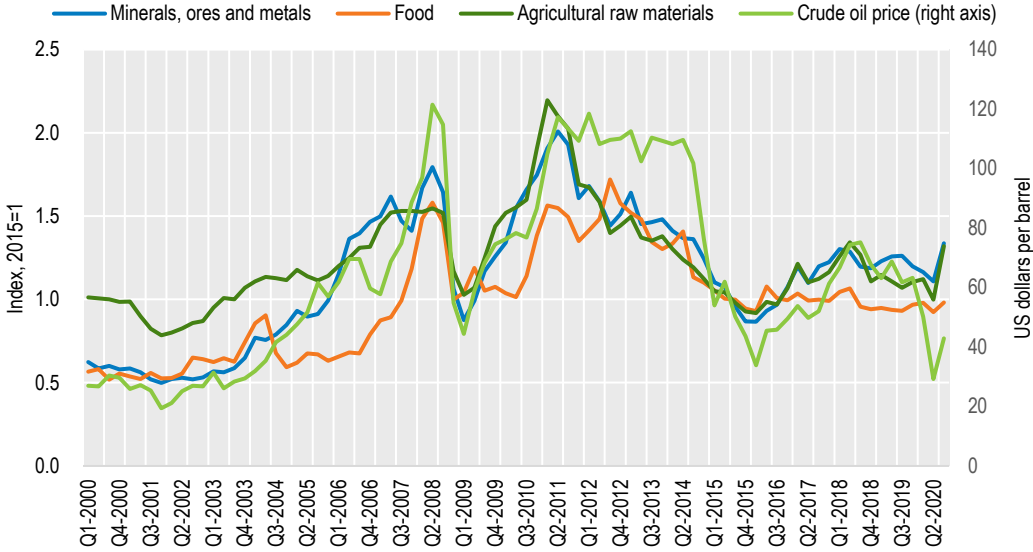
Source: OECD based on ITC Trade Map.

**Figure A A.4. Top 10 EU imports from China in 2018, by mode of transport**



Source: OECD calculations based on Eurostat.

Figure A A.5. Prices of crude oil and primary commodities excluding energy



Source: OECD Economic Outlook database and Hamburgische WeltWirtschaftsinstitut.

## Annex B. Supplementary tables

**Table A B.1. Harmonised System: Combined 2-digit product codes and product descriptions**

2-digit code	HS – Combined Product Description
01	Live animals
02	Meat and edible meat offal
03	Fish and crustaceans, molluscs and other aquatic invertebrates
04	Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere specified or included
05	Products of animal origin, not elsewhere specified or included
06	Live trees and other plants; bulbs, roots and the like; cut flowers and ornamental foliage
07	Edible vegetables and certain roots and tubers
08	Edible fruit and nuts; peel of citrus fruit or melons
09	Coffee, tea, maté and spices
10	Cereals
11	Products of the milling industry; malt; starches; inulin; wheat gluten
12	Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit; industrial or medicinal plants; straw and fodder
13	Lac; gums, resins and other vegetable saps and extracts
14	Vegetable plaiting materials; vegetable products not elsewhere specified or included
15	Animal or vegetable fats and oils and their cleavage products; prepared edible fats; animal or vegetable waxes
16	Preparations of meat, of fish or of crustaceans, molluscs or other aquatic invertebrates
17	Sugars and sugar confectionery
18	Cocoa and cocoa preparations
19	Preparations of cereals, flour, starch or milk; pastrycooks' products
20	Preparations of vegetables, fruit, nuts or other parts of plants
21	Miscellaneous edible preparations
22	Beverages, spirits and vinegar
23	Residues and waste from the food industries; prepared animal fodder
24	Tobacco and manufactured tobacco substitutes
25	Salt; sulphur; earths and stone; plastering materials, lime and cement
26	Ores, slag and ash
27	Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes
28	Inorganic chemicals; organic or inorganic compounds of precious metals, of rare-earth metals, of radioactive elements or of isotopes
29	Organic chemicals
30	Pharmaceutical products
31	Fertilisers
32	Tanning or dyeing extracts; tannins and their derivatives; dyes, pigments and other colouring matter; paints and varnishes; putty and other mastics; inks
33	Essential oils and resinoids; perfumery, cosmetic or toilet preparations
34	Soap, organic surface-active agents, washing preparations, lubricating preparations, artificial waxes, prepared waxes, polishing or scouring preparations, candles and similar articles, modelling pastes, 'dental waxes' and dental preparation
35	Albuminoidal substances; modified starches; glues; enzymes
36	Explosives; pyrotechnic products; matches; pyrophoric alloys; certain combustible preparations
37	Photographic or cinematographic goods
38	Miscellaneous chemical products
39	Plastics and articles thereof
40	Rubber and articles thereof
41	Raw hides and skins (other than furskins) and leather

2-digit code	HS – Combined Product Description
42	Articles of leather; saddlery and harness; travel goods, handbags and similar containers; articles of animal gut (other than silkworm gut)
43	Furskins and artificial fur; manufactures thereof
44	Wood and articles of wood; wood charcoal
45	Cork and articles of cork
46	Manufactures of straw, of esparto or of other plaiting materials; basketware and wickerwork
47	Pulp of wood or of other fibrous cellulosic material; recovered (waste and scrap) paper or paperboard
48	Paper and paperboard; articles of paper pulp, of paper or of paperboard
49	Printed books, newspapers, pictures and other products of the printing industry; manuscripts, typescripts and plans
50	Silk
51	Wool, fine or coarse animal hair; horsehair yarn and woven fabric
52	Cotton
53	Other vegetable textile fibres; paper yarn and woven fabrics of paper yarn
54	Man-made filaments; strip and the like of man-made textile materials
55	Man-made staple fibres
56	Wadding, felt and nonwovens; special yarns; twine, cordage, ropes and cables and articles thereof
57	Carpets and other textile floor coverings
58	Special woven fabrics; tufted textile fabrics; lace; tapestries; trimmings; embroidery
59	Impregnated, coated, covered or laminated textile fabrics; textile articles of a kind suitable for industrial use
60	Knitted or crocheted fabrics
61	Articles of apparel and clothing accessories, knitted or crocheted
62	Articles of apparel and clothing accessories, not knitted or crocheted
63	Other made-up textile articles; sets; worn clothing and worn textile articles; rags
64	Footwear, gaiters and the like; parts of such articles
65	Headgear and parts thereof
66	Umbrellas, sun umbrellas, walking sticks, seat-sticks, whips, riding-crops and parts thereof
67	Prepared feathers and down and articles made of feathers or of down; artificial flowers; articles of human hair
68	Articles of stone, plaster, cement, asbestos, mica or similar materials
69	Ceramic products
70	Glass and glassware
71	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad with precious metal, and articles thereof; imitation jewellery; coin
72	Iron and steel
73	Articles of iron or steel
74	Copper and articles thereof
75	Nickel and articles thereof
76	Aluminium and articles thereof
78	Lead and articles thereof
79	Zinc and articles thereof
80	Tin and articles thereof
81	Other base metals; cermets; articles thereof
82	Tools, implements, cutlery, spoons and forks, of base metal; parts thereof of base metal
83	Miscellaneous articles of base metal
84	Nuclear reactors, boilers, machinery and mechanical appliances; parts thereof
85	Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles
86	Railway or tramway locomotives, rolling stock and parts thereof; railway or tramway track fixtures and fittings and parts thereof; mechanical (including electromechanical) traffic signalling equipment of all kinds
87	Vehicles other than railway or tramway rolling stock, and parts and accessories thereof
88	Aircraft, spacecraft, and parts thereof
89	Ships, boats and floating structures

2-digit code	HS – Combined Product Description
90	Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments and apparatus; parts and accessories thereof
91	Clocks and watches and parts thereof
92	Musical instruments; parts and accessories of such articles
93	Arms and ammunition; parts and accessories thereof
94	Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings; lamps and lighting fittings, not elsewhere specified or included; illuminated signs, illuminated nameplates and the like; prefabricated buildings
95	Toys, games and sports requisites; parts and accessories thereof
96	Miscellaneous manufactured articles
97	Works of art, collectors' pieces and antiques
98	Commodities specified at chapter level only
99	Commodities not elsewhere specified

Note: Some product descriptions are not shown in full for presentational reasons. Full 2-digit product descriptions as well as lists and descriptions of 4 and 6-digit products and commodities belonging to these 2-digit categories can be consulted on-line at <http://www.foreign-trade.com/reference/hrcode.htm>

Source: World Integrated Trade Solution.



## OECD TRADE POLICY PAPERS

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