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# The Impact of COVID-19 International Travel Restrictions on Services-Trade Costs

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This report casts light on the impact of regulatory restrictions on the movement of people across international borders on services trade costs. Such restrictions were implemented on health and safety grounds following the COVID-19 outbreak in March 2020. The analysis relies on several illustrative scenarios in which all the countries are assumed to close their borders to passengers, but leave freight trade open. Services trade costs are estimated to increase by an average of 12% of export values across sectors and countries in the medium term in such a hypothetical scenario. The analysis identifies a large variability in the increase in services-trade costs across sectors and across countries, reflecting the stringency of initial regulations and the relative importance of business travel and labour mobility to international services trade.

**Keywords:** Travel bans, COVID-19 (coronavirus), trade in services

**JEL Codes:** F14, F2, F68

## **Acknowledgements**

This report has benefited from inputs by Alexander Jaax, Janos Ferencz, Inese Rozensteine, and Francesca Spinelli. The authors would like to thank John Drummond, Sébastien Miroudot, Koen De Backer, and Norihiko Yamano for their useful comments and suggestions. This report also benefitted from discussions in the OECD Working Party of the Trade Committee, which agreed to make it more widely available through declassification. Finally, the authors thank Laëtitia Christophe and Michèle Patterson for preparing this report for publication.

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## Key findings

Regulatory restrictions on the movement of people across international borders, implemented on health and safety grounds following the COVID-19 outbreak, have implications for services exporters. Services trade costs are estimated to increase by an average of 12% of export values across sectors and countries in the medium term in a hypothetical scenario where all the countries are assumed to close their borders to passengers, but leave freight trade open. Countries where sectoral regulations related to travels and labour market access were initially more liberal would be by design more affected than those where regulations were already stringent.

It is therefore important that emergency measures designed to tackle COVID-19 be targeted, proportionate, transparent and temporary.

OECD analysis identifies a large variability in the increase in services-trade costs across sectors in the scenario, reflecting the stringency of initial regulations and the relative importance of business travel and labour mobility to international services trade:

- Trade costs for professional services are found to increase by around 9%-13%, and vary across professions depending on the pre-existing degree of openness.
- Trade costs in logistics services could jump by slightly more than 10%.
- Trade costs could rise by 6% to 9 % across transport modes, reflecting the fact that transport is more capital intensive than other services sectors.
- The regulatory environment for commercial banking and insurance is particularly sensitive to disruption, but uncertainties around trade costs estimates in these sectors are large.
- Remote connection and teleworking could help to mitigate somewhat increases in trade costs, especially for professional services and insurance, but the extent of this is difficult at present to assess.

Across countries, the highest increases in trade costs are generally found in Brazil, China, India, France and Korea in this illustrative scenario. Restricted movement of business travellers is found to contribute significantly to the overall rise in the stringency of regulation in services trade, and the effects would be broadly similar across countries. The impact of limiting temporary employment of international services providers, via quotas or limitations in the duration of stays, is expected to vary widely across countries.

Countries are necessarily focussed on ensuring the health and economic security of their people today. Looking beyond the immediate, steps to reduce services trade costs will promote a recovery that is robust, widespread and sustainable. Easing of COVID-19-related international travel restrictions, when health and safety considerations permit, will ensure that trade in services, which is highly intertwined with manufacturing in global value chains, can support the recovery. Increased investment in digital infrastructure will also help the adjustment to new working arrangements.

## 1. Temporary restrictions on the movement of people

Almost all OECD countries and emerging market economies have announced temporary restrictions in movements of people to contain the COVID-19 epidemic (see [OECD COVID-19 policy tracker](#)). These range from border closures, either complete or restricted to some regions or countries, to specific restrictions on visas, quarantine and flight suspensions. Those restrictions appear to have helped to delay the pandemic by 3-4 weeks when 90% of air travel is restricted in affected countries, or by two months if more restrictive measures are introduced (OECD, 2020)

Countries have started to ease some restrictions but most are still in place. According to UNWTO (2020), as of 18 May, 100% of all destinations worldwide continue to have some form of COVID-19-related travel restrictions in place. Furthermore, 75% continued to have their borders completely closed for international tourism. In 37% of all cases, travel restrictions have been in place for 10 weeks, while 24% of global destinations have had restrictions in place for 14 weeks or more.

There is already evidence that the time to cross borders has increased in Europe (Baldwin, 2020). While these measures focus on reducing passenger flows, governments have sought to preserve trade and the transport of freight. As such, the various transport modes and sectors are likely to be affected differently.

### Approach

This paper seeks to quantify the services trade costs associated with an illustrative scenario where all the countries are assumed to close their borders to passengers, but leave freight trade open. Drawing on the OECD COVID-19 policy tracker and the OECD Services Trade Restrictiveness Index (STRI) database, a set of recent regulatory changes affecting business travel and labour mobility was identified. The outcomes were subsequently translated into trade costs, expressed as a percentage of export values, following Benz and Jaax (2020a). Technical details on the STRI and the methodology applied to compute trade costs are provided in Annex A.

Several types of measures are considered.

- In the first step, conditions on business travel are assumed to become more restrictive. These include the time and costs to deliver visas, the time taken for customs clearance, and other restrictions on business travels. Only measures regarding visas of passengers have been made more restrictive. Visa procedures for transport crews remain unchanged. This is consistent with the fact that policies have aimed to restrict passenger traffic, while leaving freight traffic unchanged.
- In a second step, quotas on intra-corporate transferees have been set to zero, in addition to the measures considered in the first step.
- In a third step, sector-specific measures have been put in place. These are related to measures on mutual recognition of qualifications, temporary licensing, or residency requirements, which have been rendered more difficult or impossible by the restrictions on passenger travel.
- In a final step, measures taken for air transport but which are not related to the movement of people (e.g. restrictions on foreign entry, closures of airports, loan guarantees, and tax deferrals) have been introduced.

Measures are assumed to be applied to all countries and, with the exception of sector-specific measures, to all sectors. Although not all countries have put in place all the measures considered in this exercise, it was judged preferable to focus on an illustrative scenario, rather than a country-specific assessment which would have been rapidly outdated. The idea is to gain insight on average effects and to identify sectors or countries that would be the most affected by these restrictions. As the exercise was not calibrated on measures actually implemented, results should not be interpreted as predictions.

Several caveats should be kept in mind. First, estimates capture only part of the impact of restrictions on passenger travel and do not account for the effects of policy changes since the COVID-19 outbreak on cross-border trade, for example, nor on labour supply. Policies that have considerably softened monetary and fiscal policy stances since the COVID-19 outbreak have also been omitted, as is the effect of the considerable fall in oil prices. Second, neither international nor inter-sectoral spillovers are incorporated in estimates. Finally, some approximations needed to be made for the purpose of this exercise. For instance, measures on quotas, which normally concern both foreign and domestic workers, have been assumed to apply to foreign workers. By contrast, measures on temporary licences which in practise apply to new services, have been assumed here to apply to all services in the sector. Other measures, such as changes to *de minimis* regimes (specific thresholds, below which goods are exempted from import duties and/or full declaration procedures) which might impact firms and consumer cross-border transactions, have been omitted.

## 2. Findings

### Increase in the stringency of regulations

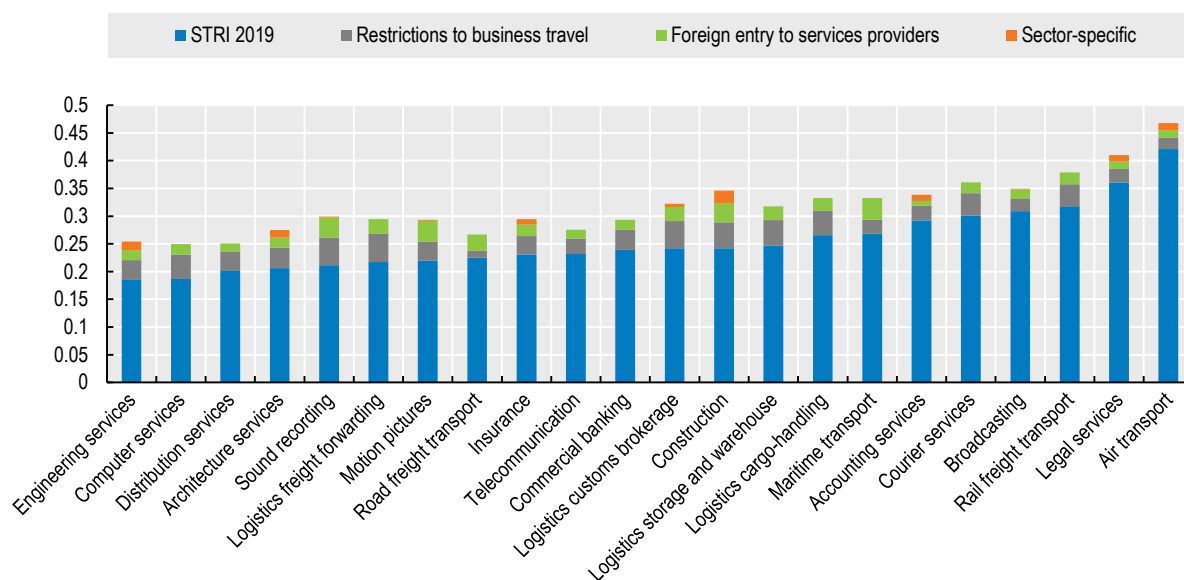
The imposition of new restrictions on passenger travel in this hypothetical scenario implies a rise in the stringency of services-trade regulations. The level of restriction is estimated to increase by around one-quarter on average of their initial level across sector and country, but with large variations (Figure 1).

Across sectors, regulations tighten especially in professional services and, to a lesser extent, in logistics. Sectoral differences reflect initial services-trade regulations stringency and the relative importance of business travel and labour mobility to international services trade. In most sectors, measures that restrict business travel have a higher impact on the overall increase in restrictions than those related to foreign entry into the labour market.

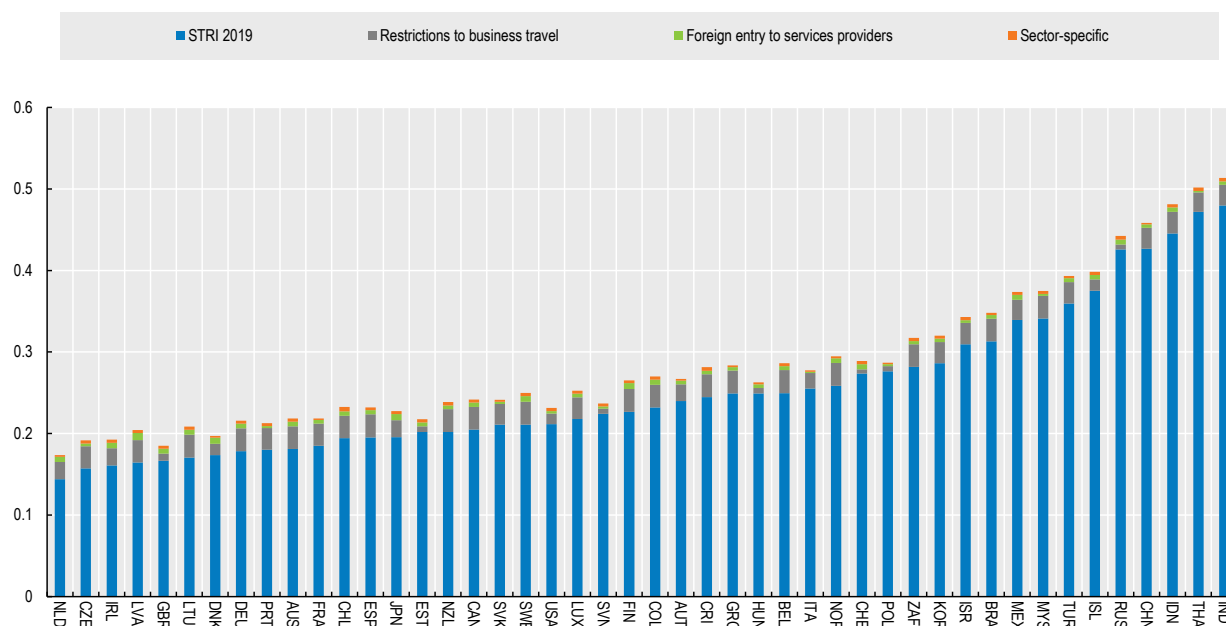
Across countries, differences reflect pre-existing restrictions in services sectors. Countries where regulations related to travels and labour market access were initially more liberal would be by design more affected than those where regulations were already stringent. At the limit, no impact will be visible in a country where regulations were already restrictive in all sectors. In so far as the sectors are concerned, a larger variability of impacts is observed for measures related to foreign entry into labour markets.

Figure 1. Increase in the stringency of services-trade regulations

A. Services Trade Restrictiveness Indicator by sector



B. Services Trade Restrictiveness Indicator by country



Note: The STRI varies from 0 (less restrictive) to 1 (most restrictive). See more information in Annex A.

Source: Calculations using the OECD STRI database.

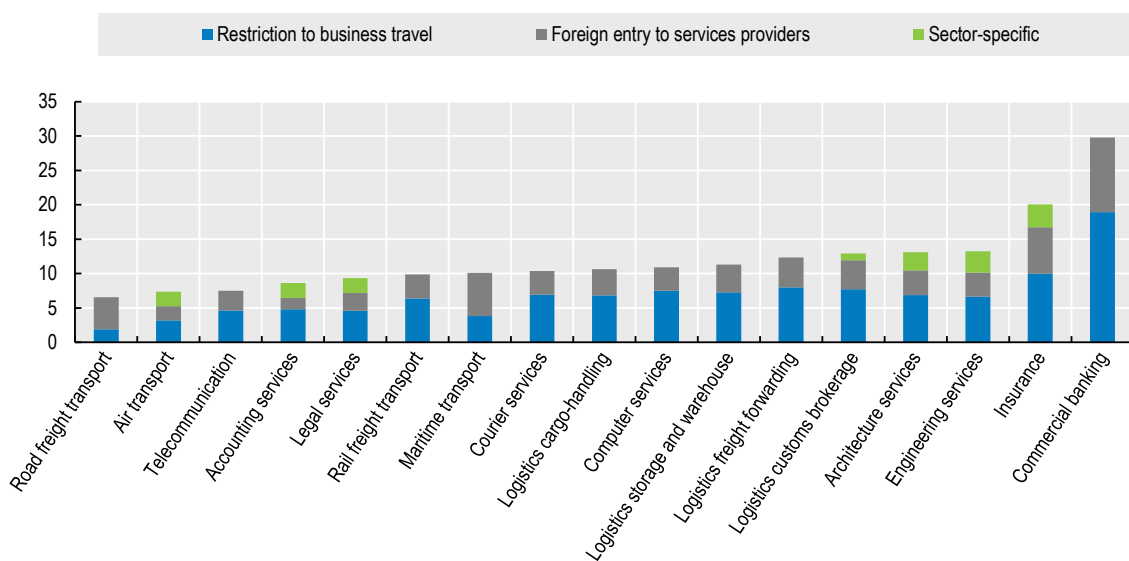
### Increase in trade costs

Trade costs on services are estimated to increase by an average of 12% of export values across sectors and countries in the medium term, in a hypothetical scenario where all countries close their borders to passenger travel, but leave freight trade open.

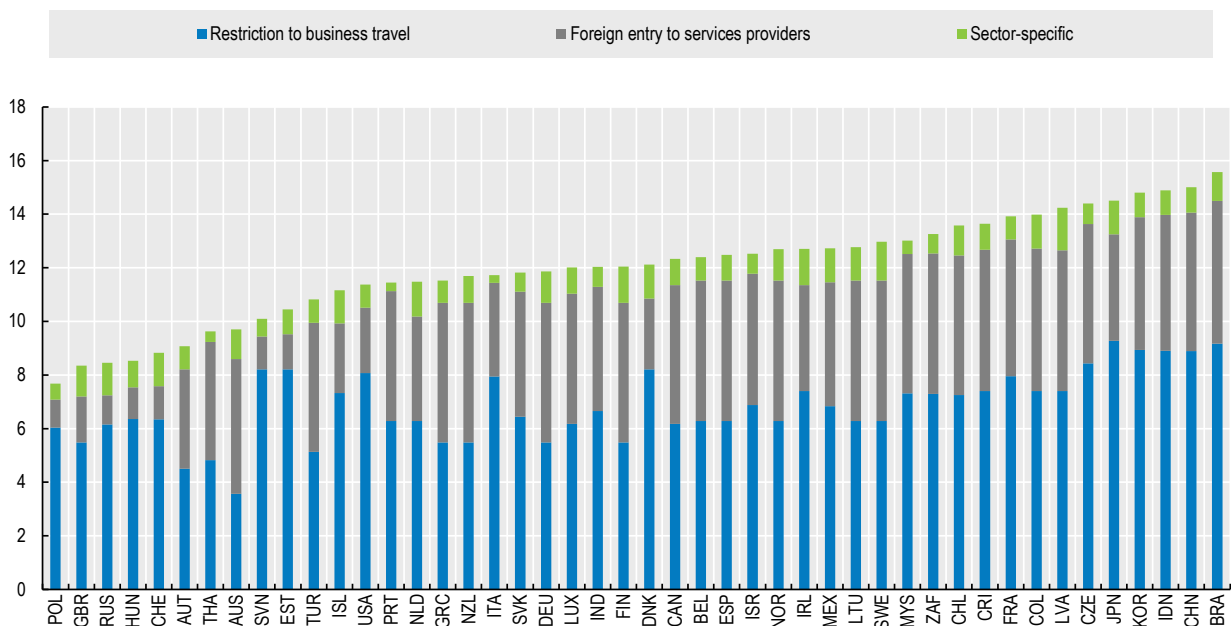
To a large extent, differences across sectors and countries reflect difference in STRI changes (Figure 2). However, the ranking in terms of trade costs across sectors can vary as the various elasticities used in the calculations are sector-specific (Annex A). As a result, there is no strict proportionality between an increase in the STRI and the related changes in trade costs (Benz and Jaax, 2020a).

Figure 2. Rise in trade costs

A. By sector, percentage of export values



B. By country, percentage of export values



Source: OECD calculations using Benz and Jaax (2020a).



Overall, the large variability in the increase in services-trade costs across sectors in the scenario reflects their initial regulations stringency and the relative importance of business travel and labour mobility in international services trade:

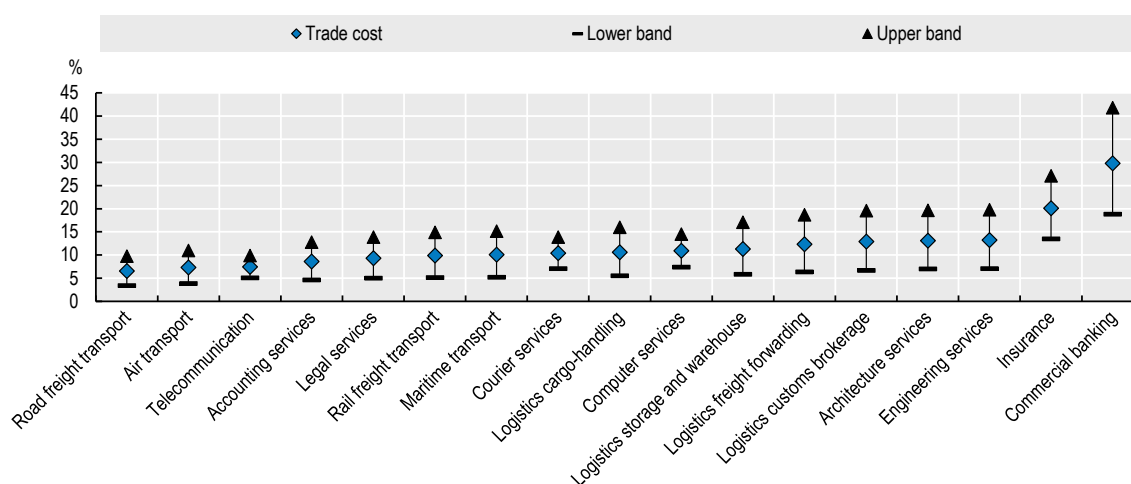
- Impact on trade costs varies across professional services. While engineering and architecture services could experience a rise in trade costs of 13%, accounting and legal services would experience a less pronounced increase of about 9%. The difference between the two groups reflects the pre-existing degree of restrictions.
- Logistic services (cargo handling, freight forwarding, storage and warehousing, and customs brokerage) are under severe stress from the current lockdown. Trade costs in logistics services could jump by slightly more than 10%, reflecting the steep increase in the stringency of regulations. Time taken for customs clearance appear to be the main contributor to the rise in trade costs in all the logistics sub-sectors.
- Trade costs could rise by 6% to 9% across all transport modes. The transport sector would be less affected than other sectors as it is more capital intensive and only freight is considered in road, rail and maritime transport. Although this is not captured in the estimates, it is important to bear in mind that the reduction in the number of passenger flights has implications for freight transport, as a substantial share of air cargo is transported on passenger flights.
- Commercial banking could experience a large rise in trade costs. Insurance would also be hit, but to a lesser extent. In these sectors, estimates suggest a strong impact of small regulatory changes on trade costs (Benz and Jaax, 2020a; Nordas and Rouzet, 2017; Benz, 2017; Fontagné et al., 2019). A tentative interpretation of this large effect could be that restrictions on travels have contributed to a rise in uncertainty which has added to trade costs. Those estimates are surrounded by large uncertainties (see below) and should be interpreted with caution.
- Across countries, the highest rises in trade costs are generally found in emerging-market economies (Brazil, China, India), France and Korea in the scenario, while those costs would increase less in Eastern European countries, the United Kingdom and Switzerland. Differences reflect essentially pre-existing restrictions in foreign entry to services providers.

## Uncertainties around trade costs

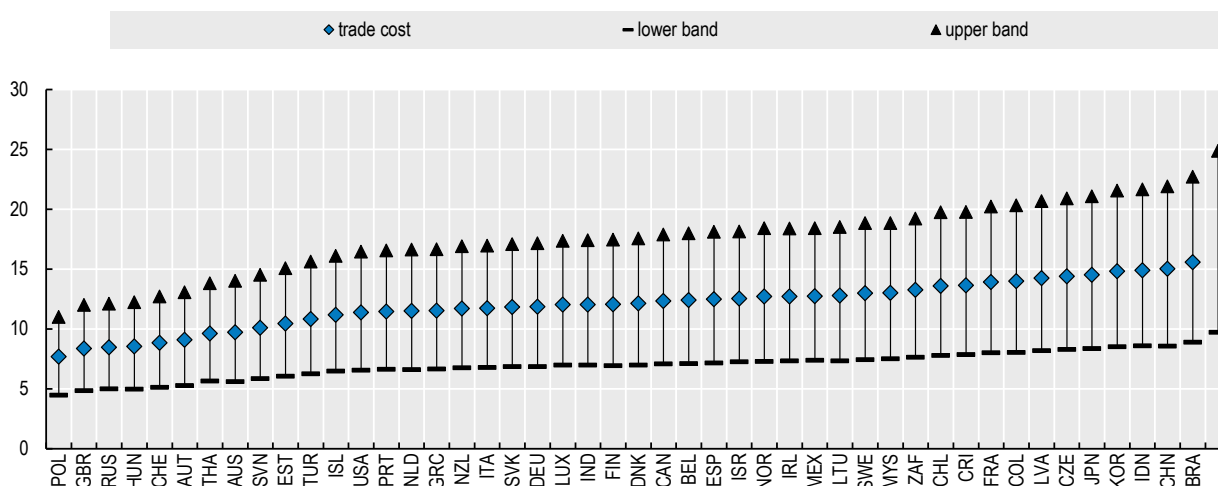
The computation of trade costs is subject to a number of uncertainties. To cast some light on these considerations, 90% confidence bands have been computed using the standard errors around the sector-specific trade elasticity estimates from the gravity model estimated in Benz and Jaax (2020a) (Annex A). These confidence bands capture only part of the uncertainties, but provide some useful insights into the relative precision of estimates by sector or country. Confidence bands around trade costs in commercial banking and insurance are sizeable, for example (Figure 3). By contrast, trade costs increases in telecommunications, courier services or road freight are estimated with greater precision. Across countries, confidence bands are found to be, on average around +/-5 percentage points and would be particularly large in some emerging-market economies. Differences would reflect the country's regulatory environment, relative to other economies, and the relative precision of the sectoral estimates.

Figure 3. Uncertainties around trade costs

## A. By sector



## B. By country



Note: 90% confidence bands are computed using standard errors around estimates of trade elasticities.

Source: OECD calculations using Benz and Jaax (2020a).

### Impact of remote connection

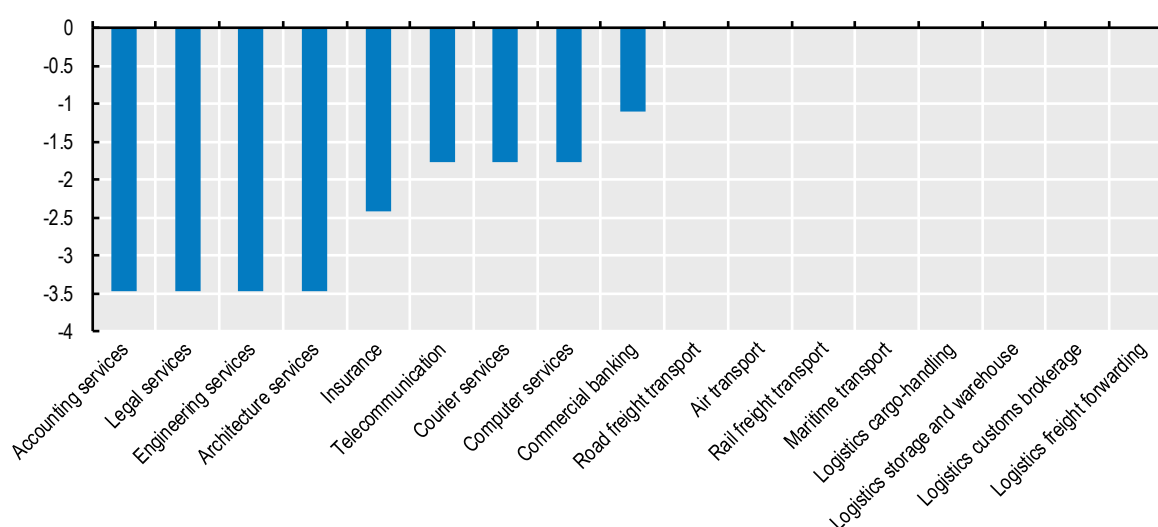
New working arrangements (e.g. increase in teleworking and remote connections) are likely to mitigate the increase in trade costs due to restrictions on passenger travel. The extent that travel restrictions on trade costs to be mitigated by digitalisation varies by industry. Most services are digital-intensive industries, including sectors such as telecommunications, IT, finance, legal and accounting services, scientific and research services, advertising and other business services. By contrast, transportation and storage or accommodation and food services are industries with low digital intensity (Calvino et al., 2018). Dingel and Neiman (2020) found that teleworking can be more easily performed at home in professional services and technical services, management, finances and insurance and education services than in other sectors. This is consistent with Adam-Passl et al. (2020) and Del Rio-Chanona et al. (2020). In line with existing evidence, estimates using a gravity model suggest that an increase in the recent take up of

remote connection has lowered trade costs to various extents across sectors, ranging from -3.5% in professional services to no significant effect in transport or logistics (Figure 4).

Recent evidence from teleconference service providers suggest that these services have experienced strong growth after only a few weeks since the COVID-19 outbreak, of a magnitude similar to what was observed on average per year since 2014. At this stage, it is difficult to assert whether these high rates will persist or whether a correction will occur once the pandemic is over. Assuming recent observations are early indications of structural behavioural changes towards more teleworking would imply lower trade costs than those reported above. If, on the contrary, workers revert back to their previous working arrangements, the estimates presented above would remain valid.

**Figure 4. Impact of remote connection on trade costs**

Percentage, average per year



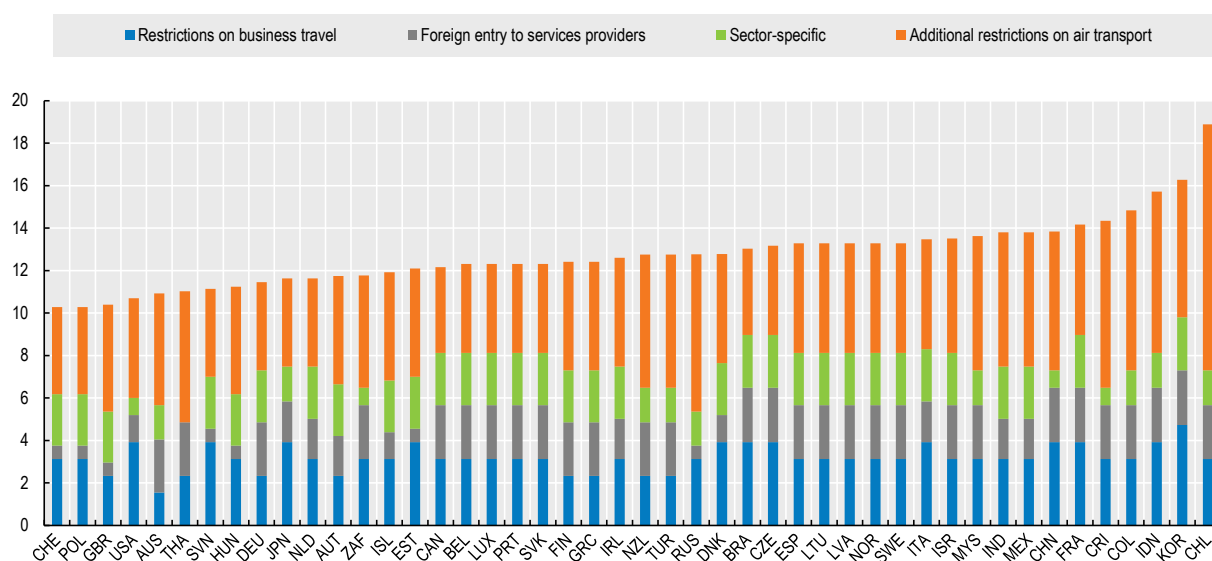
Source: Benz and Jaax (2020b, forthcoming).

### Impact of other restrictions in air transport

Most countries have introduced measures in air transportation that are not directly related to the travel bans. For instance, they have closed airports, prohibited the lease of foreign aircraft with crew, or have introduced discriminatory measures towards foreign suppliers. These measures are found to have a significant impact, raising trade costs in air transport on average across countries by a further 5.4 percentage points to a total of 12.8% (Figure 5).

Figure 5. Rise in trade costs in air transport by country

Percentage of export value



Source: OECD calculations using Benz and Jaax (2020a).

### 3. Conclusions

Increasing restrictions on passenger travel are found to increase trade costs by 12% on average across countries and sectors in the medium term. A large variability can be observed across both dimensions, reflecting essentially the production structure and pre-existing levels of regulations. Repealing the restrictive measures introduced to address the current sanitary crisis, as conditions permit, will therefore be an important consideration in promoting sustainable economic recovery.

The present analysis is subject to several caveats. The most important is that the shock considered here is applied to all countries, while only some of the costs and features of the current environment have been captured. As such, the outcomes illustrate that emergency measures designed to tackle COVID-19 should be targeted, proportional, transparent and temporary – but results should not be interpreted as a prediction of the likely effect of the travel bans in individual countries. In addition, the computation of trade costs makes use of elasticities estimated over time and therefore may not perfectly reflect the current environment and the unprecedented nature of the COVID-19 crisis.

Several extensions could enrich the analysis. First, a simulation using a general equilibrium model could help to quantify the international and inter-sectoral spillover effects from the travel restrictions. Second, it could be useful to identify regulatory or trade facilitation measures that would help to limit the expected increase in trade costs.

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## Annex A. Additional details on the approach used

### Services-Trade Restrictiveness Index

The OECD Services Trade Restrictiveness Index (STRI) provides information on regulations that affect trade in services in 22 sectors across OECD countries and several emerging-market economies.

The STRI covers limitations on market access and national treatment, as well as national regulatory and competition policies which apply to both national/resident and foreign/non-resident companies, and investment policies. The policy measures accounted for in the STRI database are organised under five policy areas.

- Restrictions on foreign entry include information on foreign equity limitations, requirements that management or board of directors must be nationals or residents, foreign investment screening, restrictions on cross-border mergers and acquisitions, capital controls and a number of sector-specific measures.
- Restrictions on movement of people include information on quotas, economic needs tests and duration of stay for foreign natural persons providing services as intra-corporate transferees, contractual services suppliers or independent service suppliers, and recognition of foreign qualifications in regulated professions.
- Other discriminatory measures include discrimination of foreign services suppliers as far as taxes, subsidies and public procurement are concerned; and instances where national standards differ from international standards where relevant.
- Barriers to competition include information on anti-trust policy, government ownership of major firms and the extent to which government-owned enterprises enjoy privileges and are exempted from competition laws and regulations. Sector-specific pro-competitive regulation in network industries also falls under this category.
- Regulatory transparency includes information on consultations and publications prior to entering into force of laws and regulations. It also records information on administrative procedures related to establishing a company, obtaining a license or a visa. The STRI reviews regulations currently in force and does not take into account preferential trade agreements. The STRI database is updated every year and countries covered are given the opportunity to comment on, and discuss, the accuracy of the information therein.

Further information can be found in [Trade Policy Paper N°177](#) and [Policy trends up to 2020](#).

### Computation of trade costs

This section summarises the methodology developed in Benz and Jaax (2020a). The empirical strategy employed to convert the information in the STRI database into AVEs is based on a gravity model. Traditionally used to analyse patterns of trade in goods, gravity equations have also been widely applied to cross-border trade in services (Eaton and Kortum, 2018; Nordas and Rouzet, 2017; Van der Marel and Shepherd, 2013; Anderson et al., 2015).

Formally, the gravity model can be expressed as follows:

$$Exports_{ij} = \frac{GDP_i GDP_j}{GDP_{world}} \left( \frac{tradecost_{ij}}{\Pi_i P_j} \right)^{(1-\sigma)}$$

where the left-hand side variable represents the trade flow from exporter  $i$  to importer  $j$ . The second term ensures that the model takes into account GDP proportionality, whereas the third term captures the role of trade costs which encompass two main components. First, pair-specific costs of economic transactions

between two countries  $i$  and  $j$ . Second, the above-mentioned country-specific costs of engaging in trade with the rest of the world, here represented by  $\Pi_i$  and  $P_j$ . The parameter  $\sigma$  is the elasticity of substitution between foreign and domestic goods and services.

This model remains valid when  $i$  and  $j$  reference the same country. In this case, the variable  $tradecost_{ij}$  indicates internal trade costs within a country, while  $\Pi_i$  and  $P_j$  are defined as above and now indicate inward multilateral resistance and outward multilateral resistance of the same country. Calculated as the share of gross production that is not exported, the addition of a country's trade with itself aligns the gravity estimations with the modelling of choices between domestic and foreign goods (Yotov et al., 2016; Dai, Yotov and Zylkin, 2014; Yotov, 2012). Moreover, the inclusion of within-country trade permits to analyse the effect of multilateral policy variables, i.e. variables that do not vary bilaterally, without omitting multilateral resistance terms (Heid, Larch and Yotov, 2015).

The gravity estimations presented in this paper are run separately for each sector and estimated using the Poisson Pseudo Maximum Likelihood (PPML) technique introduced by Santos Silva and Tenreyro (2006). This approach is now commonly used for the estimation of the gravity model. It is superior to the traditional log-linearized estimation with ordinary least squares due to its robustness to different patterns of heteroscedasticity. Moreover, it allows retaining zeros in bilateral trade data, which would otherwise get lost in the logarithmic transformation of the model.

The regressions rely on variations of the following specification:

$$exports_{ij,k} = \exp(\beta_1 STRI_{j,k} border_{ij} + \beta_2 border_{ij} + \gamma Z_{ij} + \eta_{i,k} + \mu_{j,k} + \varepsilon_{ij,k})$$

where the dependent variable are services exports from country  $i$  to country  $j$  in sector  $k$  measured in million USD. Exporter and importer fixed effects  $\eta_{i,k}$  and  $\mu_{j,k}$  control for multilateral resistance terms and all other country-specific variables. A set of standard gravity variables (represented by  $Z$ ) control for other determinants of bilateral trade costs.  $\beta_1$  is the main coefficient of interest; it represents the effect of changes in the STRI score of the importer  $j$  on the estimated flow of services exports from country  $i$  to country  $j$  relative to domestic services consumption in country  $j$ . Standard errors are clustered by exporter and importer.

Trade costs (expressed in percentage) are computed using the following equations

$$trade\_cost = 100 * \exp(\Delta STRI * \frac{\beta_1}{1 - \sigma})$$

**Table A A.1. Coefficients used for the computation of trade costs**

Sectors	Trade elasticities ( $\beta_1$ )	Import demand elasticities ( $1 - \sigma$ )
Communication	-4.403	-2.67
Business	-3.959	-2.21
Finance	-7.355	-1.54
Insurance	-5.042	-1.77
Transports and logistics	-3.606	-2.39

Source: Benz and Jaax (2020a).