Organisation de Coopération et de Développement Économiques
Organisation for Economic Co-operation and Development

29-Oct-2014

English - Or. English

TRADE AND AGRICULTURE DIRECTORATE
TRADE COMMITTEE

Cancels & replaces the same document of 02 April 2014

Working Party of the Trade Committee

SERVICES TRADE RESTRICTIVENESS INDEX: TRANSPORT AND COURIER SERVICES

OECD Trade Policy Paper No. 176
by Massimo Geloso Grosso, Hildegunn Kyvik Nordås, Asako Ueno, Frederic Gonzales, Iza Lejarraga, Sébastien Miroudot, Dorothée Rouzet

All Trade Policy Papers are available on the OECD website at: http://www.oecd.org/trade

JT03365120

Complete document available on OLIS in its original format
This document and any map included herein are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

OECD TRADE POLICY PAPERS

The OECD Trade Policy Paper series is designed to make available to a wide readership selected studies by OECD staff or by outside consultants. This series continues that originally entitled OECD Trade Policy Working Papers.

This paper is published under the responsibility of the Secretary-General of the OECD. The opinions expressed and the arguments employed herein do not necessarily reflect the official views of OECD member countries.

The publication of this document has been authorised by Ken Ash, Director of the Trade and Agriculture Directorate

This document and any map included herein are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

This document has been declassified on the responsibility of the Working Party of the Trade Committee under the OECD reference number TAD/TC/WP(2014)3/FINAL.

Comments on the series are welcome and should be sent to tad.contact@oecd.org.

OECD TRADE POLICY PAPERS
are published on www.oecd.org/trade

© OECD (2014)

You can copy, download or print OECD content for your own use, and you can include excerpts from OECD publications, databases and multimedia products in your own documents, presentations, blogs, websites and teaching materials, provided that suitable acknowledgment of OECD as source and copyright owner is given. All requests for commercial use and translation rights should be submitted to rights@oecd.org.

ABSTRACT

This paper presents the services trade restrictiveness indices (STRIs) for transport and courier services. The STRIs are composite indices taking values between zero and one, zero representing an open market and one a market completely closed to foreign services providers. The indices are calculated for 40 countries, the 34 OECD members and Brazil, China, India, Indonesia, Russia and South Africa. This report presents the first vintage of indicators for transport and courier services and captures *de jure* regulations in force in 2013. The STRI supports the view that these services are subject to very different regulatory frameworks and, in some cases, to a relatively elevated degree of regulation. Indices for air transport covering measures affecting commercial establishment and accompanying movement of natural persons are on average quite high (0.43), with little variation across countries. A preliminary assessment of restrictiveness in cross-border trade in the sector shows that, while some progress in easing restrictions has been achieved through open skies agreements, significant limitations remain in place. The maritime transport sector is moderately open with an average STRI of 0.25. Foreign equity restrictions are still quite common in the sector and contribute significantly to the index. Most other sector-specific restrictions are found in the cabotage market and in ports. In road freight transport, the results confirm that the domestic road freight transport regime has been significantly liberalised over the years, and currently commercial establishment in the sector is largely affected by horizontal measures. The overall level of restrictiveness is relatively low with an average of 0.16, but exhibits pretty large variation. With respect to rail freight, the STRI also supports the view that considerable reforms have been undertaken in the sector in the past decades. The average level of restrictiveness is moderate at 0.22, although two countries maintain a statutory state-owned monopoly, which implies that the sector is completely closed to foreign suppliers. Finally, for courier services the results show that the overall level of restrictiveness is moderate with a sample average of 0.26. There is, however, large variation in STRI indices among countries. The elevated levels of restrictiveness are found in countries where foreign equity restrictions or statutory monopolies exist.

Keywords: Services trade, services trade restrictions, transport services, courier services, regulation.

JEL classification: F13, F14, K33, L87, L91, L92, L93

ACKNOWLEDGEMENTS

The STRI project for transport and courier services started with an expert meeting where the list of measures was discussed. The STRI team is grateful for the insights and advice that the participants brought to the meeting. The STRI database has been put together by going through laws and regulation in each of the 40 countries included. Each entry is documented by the source and a web link to the law or regulation and each government has fact-checked the database. Needless to say this has been an enormous task and the OECD Secretariat would like to thank Member governments for reviewing and peer reviewing the databases. We will also like to thank Mariam Abdova, Beatriz Cano Buchholz, Ekaterina Burdina, Stellina Galitopoulou, Ahmet Gulsen, Dora Hajdu, Anthony Halley, Anna Jankowska, Gimin Kang, Fatma Kayhan, Yunhee Kim, Maria Kopyta, Hendric Richter, Humberto Lopez Rizzo, Baron Sacharidis, Katharina Sass, Jonathan Senft, Marie Sudreau, Lucie Vondrackova, Jozefien Willemen and Aviad Ben Yehuda who provided excellent research assistance in creating the database. Also thanks to the University of Adelaide and project managers Christopher Findlay and Uwe Kaufman for creating the database for Key Partners. Special thanks to Rainer Lanz and Alexander Ragoussis for their contribution to the design of the STRI methodology, and to Antonia Carzaniga, Jari Kauppila, Peter Krausz and Pierre Latrille for very helpful comments. A special thanks also to Kazuhiro Sugie for great help at the end of the process. The weighting scheme for the STRI indices is derived from an online survey. Thanks to everybody that took time to do the survey. Finally, the authors would like to thank Dale Andrew, Crawford Falconer and Raed Safadi for useful comments and inputs. The paper benefitted from discussions in the OECD Working Party of the Trade Committee, which has agreed to make the study more widely available through declassification on its responsibility.

TABLE OF CONTENTS

EXECUTIVE SUMMARY 6

1. Introduction 8
2. Definition and characteristics of transport and courier services 9
3. Identifying measures to be included in the STRI 23
4. Classifying restrictions 28
5. Methodology for developing the STRI 29
6. STRI results 36
7. Sensitivity analysis 57
8. Conclusions 63

REFERENCES 65

ANNEX A. INDEX VALUES BY POLICY AREA 69

ANNEX B. CLASSIFICATION OF TRADE BARRIERS FOR TRANSPORT AND COURIER SERVICES 74

ANNEX C. AIR SERVICES AGREEMENTS AND BILATERAL RELATINOSHIPS 88

ANNEX D. SCORING METHODOLOGY FOR AIR TRANSPORT SERVICES 91

ANNEX E. SCORING METHODOLOGY FOR ROAD FREIGHT TRANSPORT 97

Tables

Table 1. Definition of the transport and courier sector 9
Table 2. Economic importance of the transport and courier sector 11
Table A.1. Commercial establishment in air transport (passenger and cargo) 69
Table A.2. Maritime transport 70
Table A.3. Commercial establishment in road freight 71
Table A.4. Rail freight services 72
Table A.5. Courier services (including postal services) 73
Table B.1. Air transport services (passenger and cargo) 74
Table B.2. Maritime transport 77
Table B.3. Road freight transport services 80
Table B.4. Rail freight transport services 82
Table B.5. Courier services (including postal services) 85
Table C.1. Bilateral relationships covered in the STRI 88

Figures

Figure 1. World revenue passenger-km annual percent growth rate, domestic and international 12
Figure 2. Percent passenger-km performed by region 13
Figure 3. World annual freight tonne-km performed, international 14
Figure 4. Year-to-year freight tonne-km percent growth 14
Figure 5. Leading EU road freight exporters 19
Figure 6. Leading EU road freight importers 19

Figure 7. The cross-border market as a share of the total global letter and package market 22
Figure 8. The composition of the STRI for transport and courier services in a totally restrictive country 35
Figure 9. The STRI for commercial establishment in air transport.....37
Figure 10. Preliminary STRI for cross-border trade in air transport.....38
Figure 11. The STRI for maritime transport 40
Figure 12. The STRI for commercial establishment in road freight 41
Figure 13. The STRI for rail freight transport by policy category 43
Figure 14. STRI for courier services (including postal services) by policy category 44
Figure 15. Courier services outside postal monopoly.....45
Figure 16. The STRI by other classifications: GATS categories.....46
Figure 17. The STRI for transport and courier by other classifications: Modes of supply.....49
Figure 18. The STRI by other classifications: Discriminatory versus non-discriminatory.....52
Figure 19. The STRI by other classifications: Establishment versus on-going operations.....55
Figure 20. The STRI for transport with equal weights 58
Figure 21. The STRI for courier services (including postal services) with equal weights 60
Figure 22. The STRI for transport and courier with random weights.....61
Figure D.1. Cumulative scoring in bilateral air services provisions 92
Figure D.2. Cumulative scoring in slot allocation 94
Figure D.3. Measures that are automatically scored one as a consequence of foreign equity limits....95
Figure D.4. Measures that are automatically scored one when domestic traffic is prohibited 96
Figure E.1. Measures that are automatically scored one as a consequence of foreign equity limits....97

Boxes

Box 1. Freedoms of the air.....25
Box 2. Air services agreements and relationships covered in the STRI 38

EXECUTIVE SUMMARY

This paper presents the Services Trade Restrictiveness Index (STRI) for transport and courier services, covering in the transport sector air, maritime freight transport, and road and rail freight. The indices are developed for OECD countries and the key partners (Brazil, the People's Republic of China, India, Indonesia, the Russian Federation and South Africa). Transport and courier services account for more than 5% of GDP and employment in OECD countries, and constitute more than 20% of trade in services. These services are not only extensively traded in their own right, but also are intermediate services for other kinds of trade. They are at the core of recent developments towards international integration of economic activity, characterised by networked production and just-in-time supply management, with the related demand for door-to-door services.

The STRI supports the view that **air transport** services are subject to a relatively high degree of regulation. Trade in the sector is affected by restrictions contained in bilateral air services agreements, as well as a range of domestic measures restricting foreign establishment and competition in the sector. Indices covering measures affecting commercial establishment and accompanying movement of natural persons are on average quite high (0.43), with little variation across countries. *Restrictions on foreign entry* feature prominently, where significant impediments remain in the form of foreign equity limits, and on the nationality of board members and managers of air carriers. *Barriers to competition* also play an important role, notably non-competitive airport slot allocation.

A preliminary assessment of restrictiveness in cross-border trade has also been made for air services, by deriving unilateral indices from information contained in bilateral and plurilateral air services agreements. The pattern that emerges shows that, while some progress in easing restrictions has been achieved through open skies agreements, significant limitations remain in place. It is too early though to draw firm conclusions from the findings on the sample of bilateral agreements presented, since the database is still under development. This is an initial attempt to capture restrictiveness in this mode of supply in light of its importance for trade in the sector. Further work will be undertaken in the future as the information base improves.

As regards **maritime transport**, the sector is moderately open with an average STRI index of 0.25, ranging between 0.07 and 0.44. *Restrictions on foreign entry* have the greatest impact, with several countries restricting foreign ownership in the sector. Most other sector-specific restrictions are found in the cabotage market and in ports. Among the countries included in the STRI for maritime services, only a few have no restrictions on cabotage and impediments in ports are also widespread. There are few restrictions on international maritime transport, even though several countries maintain cargo reservation schemes on their books. Cargo reservations, however, may not be enforced, due to the difficulties of monitoring compliance in modern shipping hub and spoke networks, with extensive transhipment that have developed to support containerised cargo.

In **road freight transport**, the overall level of restrictiveness for commercial establishment and accompanying movement of natural persons is relatively low with an average of 0.16, but exhibits pretty large variation. This is for the most part due to the more elevated levels of restrictiveness in some of the key partners. *Restrictions on foreign entry*, and *restrictions to movement of people* contribute the most to

the results, followed by *barriers to competition*. The results confirm that, although heavily regulated in the past, the domestic road freight transport regime has been significantly liberalised over the years, and currently commercial establishment in the sector is largely affected by horizontal measures. Few sector-specific measures remain in place, including foreign equity limits, exemptions of road freight carriers' agreements from competition law, economic needs tests in order to obtain a permit to practice, and pricing guidelines for road hauliers.

However, cross-border trade in road transport services remains heavily restricted in several countries, where the sector is governed by a system of bilateral and plurilateral agreements. Such agreements typically provide for permits, quotas and other impediments. Restrictiveness in this mode of supply for road freight transport will be subject to future investigation.

With respect to **rail freight**, the STRI also supports the view that considerable reforms have been undertaken in the sector in the past decades. The average level of restrictiveness is moderate at 0.22, but the variation is large ranging from less than 0.1 to one. The countries with a completely closed market maintain statutory state-owned monopoly in the sector, while transit is also negligible. The two areas that contribute the most to the index are *restrictions on foreign entry* and *barriers to competition.* A number of countries limit entry into this sector.

Rail freight is a network industry subject to economies of scale and network effects. It is clear from the analysis that there is no one size fits all solution to how rail transport should be structured and regulated. The STRI therefore distinguishes between two basic types of market structure, vertical integration and vertical separation, and does not pass judgement on which one is the better. However, once the market structure is given, there is a higher degree of consensus on what constitutes best practice regulation. Deviation from best practice regulation contributes the most to the index under barriers to competition.

For **courier services**, the results show that the overall level of restrictiveness is moderate with a sample average of 0.26. There is, however, large variation in STRI indices among countries ranging from 0.07 to 0.87. *Restrictions on foreign entry* contribute significantly to the results for the countries where foreign equity restrictions or statutory monopolies exist. *Barriers to competition*, such as preferential tax or subsidy treatment for the designated postal operators (DPOs) and lack of measures to avoid cross-subsidisation, also have a substantive impact on many countries.

Postal reforms have been undertaken in many countries since the 1990s. The STRI for courier services seems to reflect such liberalisation efforts; however, it also shows that there remains the need to ensure a level playing field between the DPOs and private operators. Courier services play an important role in modern logistics chains and highly depend on physical means of delivery, particularly air and road transport services. An interesting question for further research is to combine the STRI results for transport and courier services with the forthcoming STRI for logistics services to see the overall level of restrictions on seamlessly integrated production and services networks.

The weights used to calculate the STRI for these services from the qualitative database rely on expert judgement. Sensitivity analysis indicates that the results are not very sensitive to the choice of the weighting scheme. Once again, it should be noted that the indices are preliminary since the database is still under verification and peer review.

1. Introduction

1. The OECD Services Trade Restrictiveness Index (STRI) project was launched by the Trade Committee in June 2007 as a tool for quantifying barriers to trade in services at the sectoral level (OECD, 2007). This paper presents the indices for transport and courier services; transport services cover air transport, maritime freight transport, and road and rail freight. The major outputs from the project are:

- A regulatory database, providing detailed information on current laws and regulations affecting international trade in services; and
- Trade restrictiveness indices which provide a snapshot of the trade policy stance at a particular point in time.

2. The index methodology to quantify services trade barriers was pioneered by the Australian Productivity Commission in the late 1990s. Several institutions, including the OECD (see e.g. Dihel and Shepherd, 2007) and the World Bank (Borchert *et al*., 2012) have developed services trade restrictiveness indices since then. Additional work has also been undertaken for some specific transport sub-sectors. In aviation, the WTO has developed the Air Liberalisation Index (ALI), which includes market access provisions of more than 2000 bilateral air services agreements.[1] In addition, the World Bank has recently conducted a systematic analysis of a range of bilateral road transport agreements in different regions, and developed indices of the economic importance of agreements (Kunaka *et al.*, 2013).

3. The STRI project builds upon these efforts, but goes beyond them in several ways. First, it creates regulatory profiles and indices for a large number of countries with a harmonised dataset based on actual laws and regulations, which allows for cross-country comparisons of trade barriers. In air transport, it also develops indices based on restrictions contained in bilateral and plurilateral air services agreements, on the basis of the actual texts of the agreements. Such indices could in the future be integrated with investment and other domestic measures to provide an overall level of restrictiveness. Furthermore, to our knowledge, no services trade restrictiveness index has been developed in the courier sector.

4. The STRI database contains information on market access, national treatment, relevant domestic regulation and administrative procedures in all 34 OECD Member countries, and the key partners (Brazil, China, India, Indonesia, the Russian Federation and South Africa). In light of the importance of bilateral agreements in aviation, the STRI for this sector takes into account also bilateral measures as opposed to only unilateral, MFN restrictions.[2] The sources of information for the database are laws and regulations in each country,[3] as well as the bilateral or plurilateral agreements. Each entry is documented by reference to the source. Each member has verified its data and the database has been subject to peer review. The qualitative information contained in the database is transformed into numerical values in the STRI indices.

1. The indicators draw from information contained in the World Air Services Agreement (WASA) database published by ICAO, and have been developed in 2005 and 2011 (WTO, 2006). For the 2011 data, see www.wto.org/asap/.

2. In general, the STRI database records policy measures applied on a most-favoured nation (MFN) basis. Therefore, the STRI records the level of openness towards third countries and does not take into account preferential agreements. For instance, the database for European Union members records legal provisions applying to services suppliers from outside the European Economic Area.

3. For federal states, where the sector may be regulated at the sub-federal level in addition to federal laws and regulations, a representative state or province was chosen based on output, population and/or the location of the largest city: New South Wales (Australia), Sao Paulo (Brazil), Ontario (Canada), Province of Beijing (China), Bavaria (Germany), National Capital Territory of Delhi (India), Special Capital Region of Jakarta (Indonesia), Federal District of Mexico (Mexico), Oblast of Moscow (Russian Federation), Canton of Zürich (Switzerland), State of New York (United States).

5. The next section of the paper reviews the definitions of transport and courier services and describes the principal characteristics of these services. Section 3 and 4 present a description of the measures included in the indices and the different classification schemes used in the analysis, respectively. Section 5 then sets out the methodology for developing the STRI for these services, and Sections 6 and 7 present the results along with sensitivity analysis. The last section concludes.

2. Definition and characteristics of transport and courier services

6. Table 1 presents the definition of transport and courier services covered in the STRI according to the WTO Services Sectoral Classification List (MTN.GNS/W/120, hereafter referred to as W/120), which is based on the Provisional Central Products Classification (CPC Prov.). The W/120 classification is used by most countries to schedule specific commitments under the General Agreement on Trade in Services (GATS).[4] The coverage of these services is broadly similar in the Extended Balance of Payments Services (EBOPS) classification, which is commonly used for reporting trade in services; and the International Standard Industrial Classification (ISIC), which is used for reporting foreign direct investment, foreign affiliate sales and production.

Table 1. Definition of the transport and courier sector

	W/120		CPC Prov.
Transport			
Air	11.C.a.	Passenger transportation	731
	11.C.b	Freight transportation	732
	11.C.c	Rental of aircraft with crew	734
	11.C.d	Maintenance and repair of aircraft	8868
	11.C.e	Supporting services for air transport	746
Maritime	11.A.b	Freight transportation	7212
	11.A.c	Rental of vessels with crew	7213
	11.A.d	Maintenance and repair of vessels	8868
	11.A.e	Pushing and towing services	7214
	11.A.f	Supporting services for maritime transport	745
Road	11.F.b	Freight transportation	7123
	11.F.c	Rental of commercial vehicles with operator	7124
	11.F.d	Maintenance and repair of road transport equipment	6112+8867
	11.F.e	Supporting services for road transport services	744
Rail	11.E.b	Freight transportation	7112
	11.E.c	Pushing and towing services	7113
	11.E.d	Maintenance and repair of rail transport equipment	8868
	11.E.e	Supporting services for rail transport services	743
Courier	2.A	Postal services	7511
	2.B	Courier services	7512

4. However, air transport services are governed by the GATS Annex on Air Transport, which excludes from the agreement the largest part of the sector: traffic rights and services directly related to the exercise of traffic rights. Developments in the air transport sector and the operation of the Annex are subject to periodic review by the council for Trade in Services, with a view to considering the possible further application of the GATS to the sector.

7. The STRI covers air transport services on a scheduled basis. Charter services are not covered to the extent that they are subject to a different regulatory regime. In light of the range of air transport subsectors, the approach in the STRI is to focus on measures affecting carriers' transport of passengers and goods between points. Airport management and other aviation services are only relevant in so far as regulations enacted by relevant authorities can have an impact on the ability of foreign carriers to transport passengers and goods between points. The other aviation services will be covered more fully in the future when the logistics services sector is incorporated in the STRI project.

8. Maritime transport covered by the STRI is currently limited to freight transport, excluding transport on internal waterways. Extension to passenger traffic will be considered in the future. The STRI maritime transport index covers port and auxiliary services that are necessary to execute the maritime transport movement, namely services supporting the vessel (pilotage, towing and tugging) and other activities linked to the ability to organise the ship transport (maritime-related documentation and cargo-handling). Logistical services that are not integral to maritime services and affect various modes of transport (i.e. multimodal) are not included. They will be covered in the future, however, in the logistics index.

9. Land-locked countries warrant special mention. They do not have seaports in their territory, so all measures related to regulations in ports are irrelevant. Land-locked countries do import maritime transport services when they import goods c.i.f. although overland transit is necessary before the cargo reaches its final destination. Land-locked countries could also in principle be flag states and host ship registers as well as shipping companies. Among the OECD countries, Switzerland is a landlocked but an important ship owner nation accounting for about 1% of world tonnage (UNCTAD, 2013). A few land-locked countries also have scheduled maritime services in the GATS.

10. However, few if any land-locked countries have maritime sector-specific laws and regulation. A maritime sector STRI index for these countries would have to be calculated on the basis of horizontal measures that apply to all sectors, while sector-specific measures would be irrelevant and scored zero. Even if land-locked countries did have sector specific restrictions such as cargo reservation schemes or foreign equity restriction on shipping companies, it is unclear how such regulation could be enforced and how it would restrict the countries' trade in maritime services. This implies that a maritime STRI for land-locked countries would not be comparable to coastal countries' and therefore not very meaningful. Land-locked countries are therefore not included in the STRI for maritime services.

11. As for maritime services, road transport covers only freight. The STRI scope in the sector is limited to commercial establishment-related measures (and accompanying movement of people), which have an impact on road transport providers to carry freight between points. Road auxiliary services will be incorporated to a greater extent in the future when the STRI for logistics services is included in the project. Furthermore, cross-border trade in road freight is not included in the analysis; restrictiveness in this mode of supply will be the subject of future work.

12. In the rail sector the STRI also limits coverage to freight transport. A fundamental question is how to cover infrastructure ownership and management. It is outside the scope of the definition of the sector in both CPC and ISIC and it is sometimes considered part of public infrastructure funded and managed by the government.

13. Among the countries that consider rail infrastructure a natural monopoly some have transferred infrastructure management to commercialised independent government-owned enterprises. These are often regulated to allow competition in transport services provided over the rail network. In other countries infrastructure management and transport operations have long traditions of being commercial activities with private ownership of both infrastructure and operations, often in vertically integrated rail companies.

14. The literature on the sector finds strong synergies between infrastructure management and transport operations and the openness of the rail transport sector can only be understood against the backdrop of how the infrastructure is managed. The STRI therefore covers regulation of infrastructure management and explicit restrictions on foreign participation in this market segment.

15. Based on the recent developments in many countries, the STRI for courier services covers regulations that have an impact on pick-up, transport, delivery (door-to-door delivery) services of letters, parcels, and express delivery services regardless of who provides services. These services include both addressed and unaddressed items. This definition is based on the CPC Prov. classification, which does not distinguish courier and postal services by the type of activity. While CPC Prov. distinguishes postal and courier services by the nature of the services provider, this distinction does not reflect the current market situation appropriately, i.e. both designated postal operators (DPOs) and private operators are increasingly covering the same activities as mentioned above. Therefore this comprehensive approach covering the pick-up, transport, delivery services by all types of service providers makes it possible to capture the different schemes of countries, and to assess whether monopoly power has influence on competitive services such as express delivery services.

Principal characteristics of transport and courier services

16. Transport and courier services represent a significant determinant of international trade and are at the core of recent developments towards international integration of economic activity. Table 2 presents data on the economic importance of these services in OECD countries, based on the ISIC Revision 4 and EBOPS (2002) classifications, for which data on trade, investment, production and employment are available. The transport sector as a whole accounted for more than 5% of GDP and employment in 2010. The table shows that transport and courier services constitute a large share of trade in services, above 20% in 2010. Maritime services alone accounted for almost 10% of total services trade in 2010, followed by air transport at almost 7.5%. Transport inward FDI stocks represented over 3% of total services inward FDI stocks in the same year.

Table 2. Economic importance of the transport and courier sector (2010)

Sector name	ISIC Rev.4	EBOPS 2002	% of GDP	% of employment	% of services import trade	% of services inward FDI stocks
Total services	45-99	200	70.02	73.24	100.00	100.00
Transport	49-53*	205	5.14	5.38	22.97	3.19
Air	51	210	0.22	0.18	7.45	0.19
Maritime	501(50)**	206	0.37	0.30	9.92	0.66
Road	492(49)**	223	2.43	2.90	2.77	0.89
Rail	491(49)**	219			0.41	
Courier (postal and courier)	53	246	0.53	0.85	0.31	0.11

* indicates that data is available at the aggregation level of section H (Transportation and storage) including division 53 (postal and courier).

** indicates that the service is assigned a code in the classification system, but data is available only at the aggregation level shown in the parentheses. Division 50 (Water transport) includes sea and coastal water transport and inland water transport. Division 49 (Land transport and transport via pipeline) includes road transport, rail transport and transport via pipeline.

%GDP and %employment follow ISIC Rev.4 classification, %FDI inflows follows ISIC Rev.3 classification and %services trade follows EBOPS classification

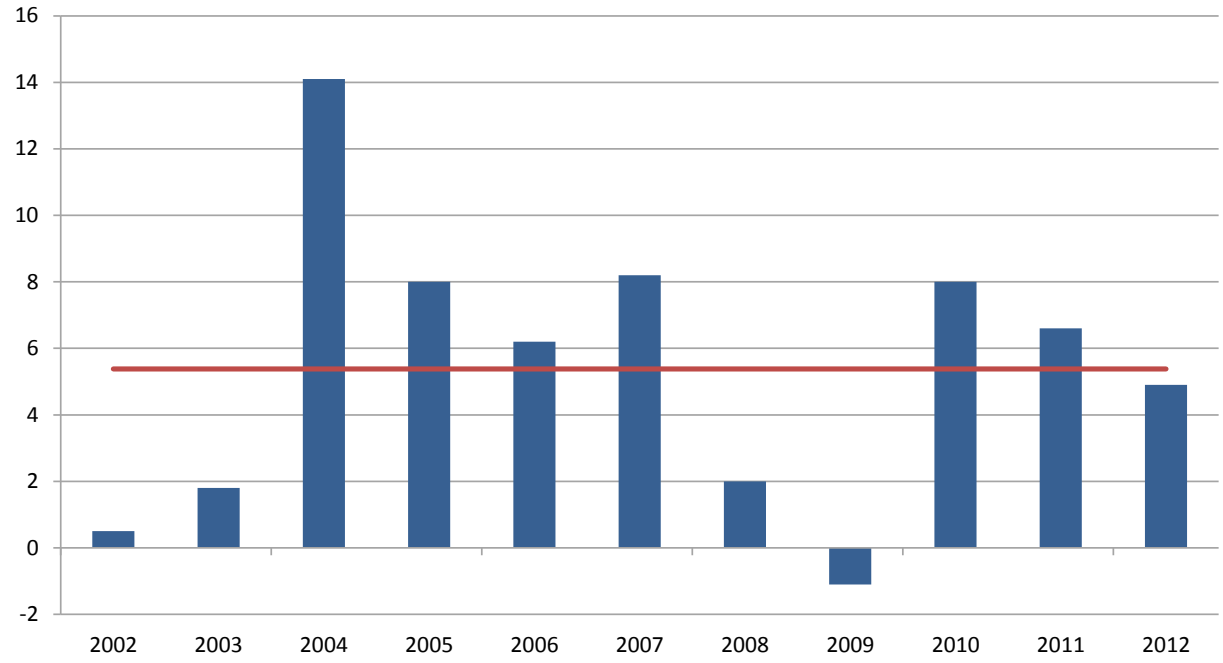
Source: OECD.

Air transport services

17. Air transport services have experienced one of the most dynamic growths of all sectors in the transport industry and play an important role in the integration of the world economy. Air transport is not only a large traded sector in its own right but is an intermediate service for other kinds of trade. International air transport is considered a prerequisite for the development of tourism. Although it accounts for around 2% of all cargo moved worldwide in terms of tonnage, air freight represents over one third of the value of world trade in merchandise. Air cargo transport is also a key determinant in meeting demand for time sensitive products, such as perishable goods, textiles and clothing, and often represents the only viable means of transport to remote, peripheral regions and landlocked countries.

18. Between 1960 and 2000, world passenger traffic grew at an average annual rate of 9%, well above that of world GDP. Traffic growth has subsequently slowed in light of major external shocks. Air passenger traffic increased at an average of 5.5% between 2002 and 2012; growth was uneven during the period, ranging from double-digit expansion to an actual drop in 2009 (see Figure 1). The external events, particularly the September 11 attacks, SARS in 2003 and the recent global economic crisis, had a significant impact on world GDP, growth in air traffic and airline profitability. The industry has also been affected by supply-side factors, such as rising oil prices and the emergence of low-cost carriers.

Figure 1. World revenue passenger-km annual percent growth rate, domestic and international



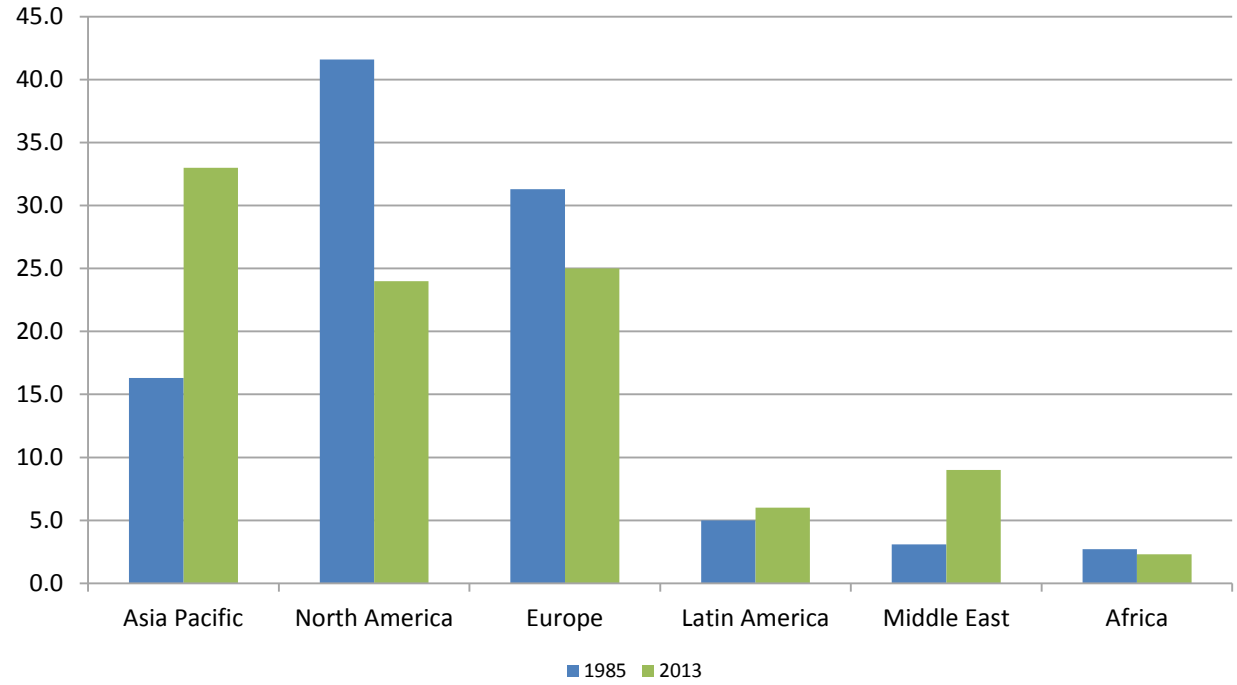
Source: International Civil Aviation Organisation (ICAO).

19. The traffic picture in different regions of the world is varied (see Figure 2 below). The Asia Pacific region has experienced dynamic growth and has become the world's largest air passenger market, currently accounting for a third of world traffic. The rapid growth of Asian airlines, which in the past accounted for a tiny share of world traffic, has brought about considerable changes in the structure of the international industry. Hong Kong, China and Singapore, although featuring a non-existent domestic market, rank very high in the world in terms of international traffic. The domestic market in China has experienced significant growth, increasing by 10.3% in 2012 (ICAO, 2013a). China is already the fifth

largest passenger market and is projected to become in the next two decades the second largest aviation market in the world.

20. The Middle East region has recently experienced the highest growth rate, topping 13.7% in 2012 and accounts for 9% of world traffic (ICAO, 2013b). This growth has been driven by the strong performance of its largest air carriers in gaining market shares on international routes. Growth has been modest in Europe and North America, even though results are expected to improve given the resilience of the US economy, and the stabilisation of financial markets in the Eurozone. The United States remains the largest domestic market, with 47% of world domestic scheduled traffic, though deceleration of traffic expansion is confirming the maturity of the US market (ICAO, 2013a).

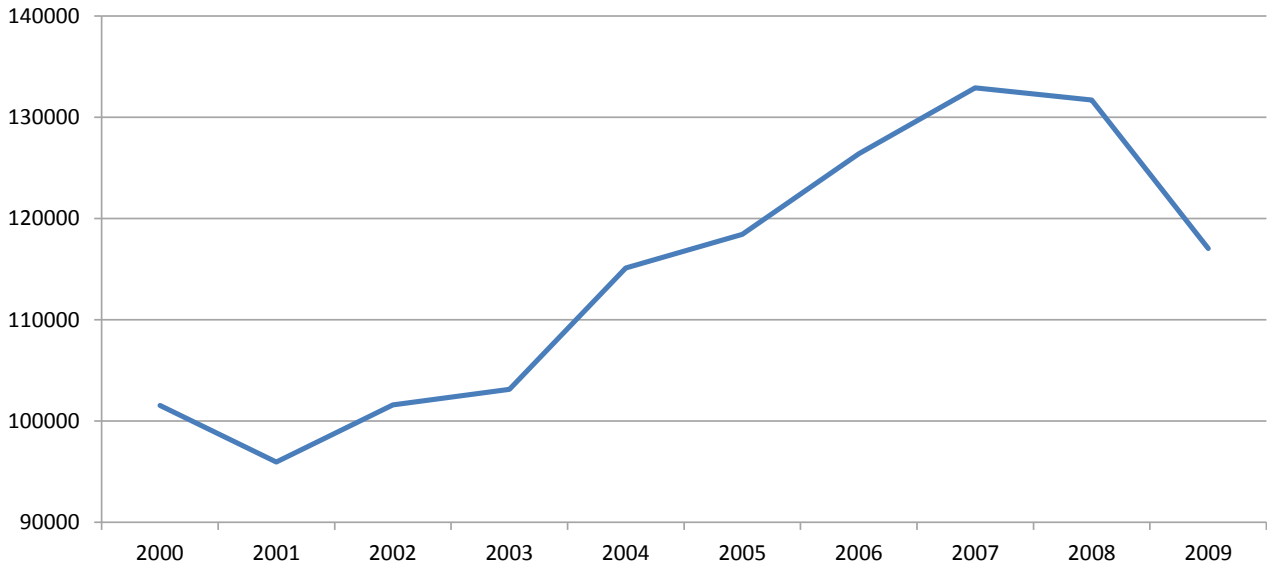
Figure 2. Percent passenger-km performed by region



Source: ICAO

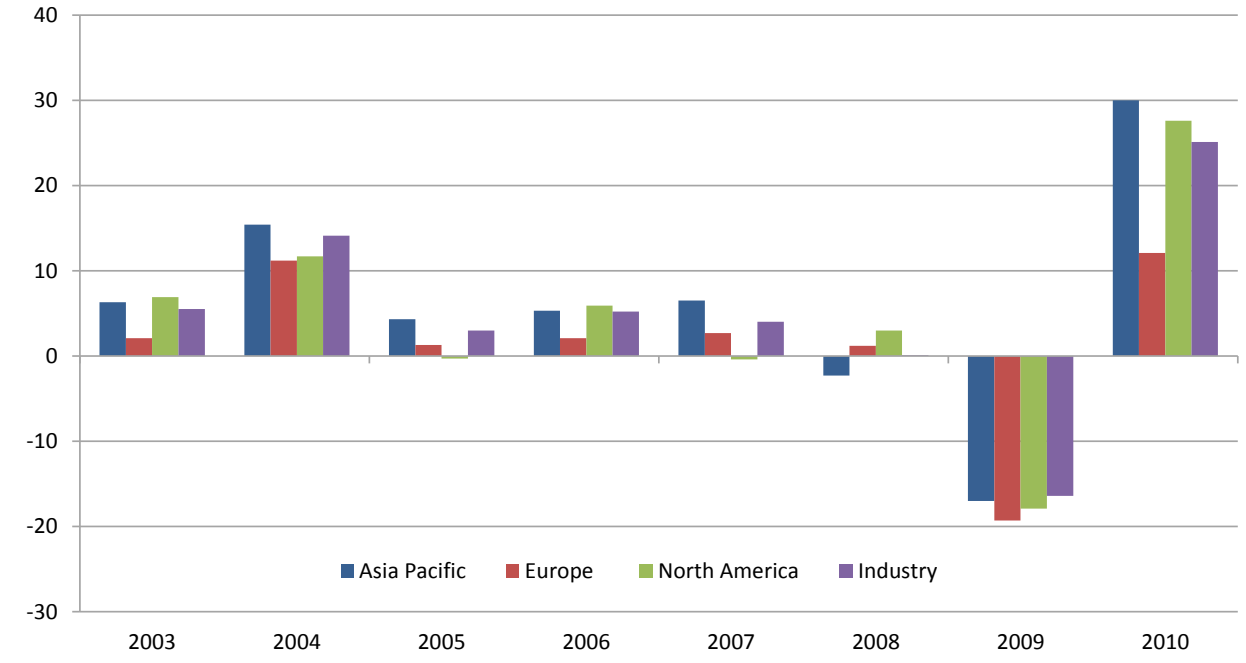
21. The air cargo segment has also grown at a rapid pace over the past several decades. World cargo volumes grew at 7.7% per year between 1980 and 2000 (ICAO, 2001), but slowed thereafter. As for passenger traffic, the general trend shows uneven growth since 2000 and has been characterised by major external events (see Figures 3 and 4 below). In 2009, in particular, with the slowdown in world trade caused by the global financial crisis, international air cargo traffic fell sharply. However, it subsequently increased significantly in line with the rebound in international trade in 2010. The recovery was led by air carriers in the Asia Pacific region, the world's largest air cargo market, with an increase of around 30%. More recent figures released by International Air Transport Association (IATA) indicate that cargo volumes have stabilised at more modest levels of growth in 2011 and 2012, reflecting slow economic recovery in Europe and a slowdown in emerging markets (IATA, 2013).

Figure 3. World annual freight tonne-km performed, international, USD millions



Source: ICAO.

Figure 4. Year-to-year freight tonne-km percent growth



Source: IATA.

22. Although the airline industry has often achieved high rates of traffic growth, this has, nevertheless, not translated into high rates of profitability. On the contrary, airline profit margins have been well below average compared with firms in other industries and in some years the industry has experienced heavy losses. This has been the case especially in recent years in part as a consequence of major external

shocks. For instance, it has been estimated that airlines members of IATA, the main international body representing business interests in the air transport sector, lost a total of USD 36 billion between 2001 and 2004 (Bisignani, 2005).

23. With respect to modes of supply, to date cross-border trade (mode 1) remains the most important. Commercial establishment (mode 3) plays a supporting role for mode 1 in the provision of air transportation and related services (e.g. the establishment of offices in foreign countries for the sale and promotion of air transport, which is typically provided for in bilateral air services agreements). With the trend towards air transport liberalisation in the last decade or so, mode 3 and accompanying movement of personnel (mode 4) are also becoming in some countries a viable means of establishing a more far reaching commercial presence abroad.

24. Air transport is one of the services sectors with the most sector-specific regulation. Trade and competition in the sector have been heavily restricted by governments around the world since the aftermath of World War II. Historically, the aviation industry was highly regulated domestically and generally had either one single "flag carrier" or only a few participants. Internationally, dating from the Chicago Conference in 1944 the international community chose a bilateral air services framework in preference to a multilateral model. Air traffic rights (which stem from air space sovereignty) were to be exchanged on a strictly bilateral and reciprocal basis.

25. Market access via cross-border trade is largely determined by a complex system of some 3500 bilateral air services agreements, which typically stipulate the traffic rights of airlines operating on bilateral routes, as well as the airlines allowed to operate such routes, the tariffs, and the number and frequency of flights. Another important feature of such agreements relates to so-called "ownership and control" rules, which establish which businesses are eligible for access to the terms of the agreement (i.e. a "rule of origin"). The elaborate structure of restrictions in bilateral agreements effectively imposes country-specific quotas in each market, where markets are defined as routes between two countries (Findlay, 2003).

26. Over the years the regulatory framework of air transport has become increasingly more liberal. Reforms have involved privatisation of national flag carriers and deregulation of the industry allowing for the entry of new carriers, including more recently low-cost carriers, and opening domestic routes to competition. Liberalisation of international air transport has taken place through more open bilateral agreements. The emergence of "open skies" agreements in the second half of the 1990s has relaxed restrictions, typically allowing airlines to fly on all routes between two countries without controls on capacity or fares, and granting enhanced market access. Another development has been the establishment of plurilateral agreements, including as part of broader regional initiatives (e.g. the EU's Single Aviation Market).

27. The restrictions imposed by the regulatory system have also prompted business-led responses, particularly through the development of global airline alliances and code-sharing agreements among carriers of different countries. These agreements provide opportunities for the partner airlines to reduce costs by integrating activities in various aspects and by linking existing networks. The partners may just reschedule their existing fleets to serve new markets, thereby avoiding investment in aircraft and hubs. On the other hand, code-sharing may adversely affect competition in a particular market, potentially resulting in market allocation, capacity limitations and higher fares. Industry experts are of the view that airline alliances will continue to grow in the years to come. Recently, some major hub airports have been rearranging their terminals based around which alliance each airline belongs to.

28. Air transport carriers are also constrained by a range of domestic regulations affecting their entry and operations. A prominent feature of the aviation regulatory regimes in many countries is a restrictive foreign investment policy, typically preventing foreign carriers from gaining a controlling interest in

domestic airlines. Such restrictive regimes can affect airlines in either both domestic and international traffic, or only one type of traffic. Non-competitive slot allocation policies are also widespread. Airport take-off and landing slots (entitlements to use a runway at a given time) represent the primary infrastructure access for aviation and they are in excess demand in congested airports, especially at peak hours.

Maritime transport[5]

29. The cargo shipping sector carries about 90% of merchandise trade when measured in volume and about half when measured in value. The sector involves carriers and ports which perform complementary services. The performance and profits of carriers depend on location, quality, price and timeliness of basic services at ports. The throughput of ports in turn depends on the competitiveness of the carriers and in addition the availability of hinterland intermodal transportation services. The customers (shippers), choose carriers based on the competitiveness of the maritime transport chain, including related port services (Talley and Ng, 2013).

30. Markets are distinguished by the nature of the cargo as well as the routes being served. Special ships include for instance oil tankers; ships transporting liquefied natural gas (LNG); and ships carrying motor vehicles. Cargo that does not require special ships can be transported on general cargo-vessels (break-bulk ships) or container ships. Containerisation of transport is one of the most significant technical developments in cargo transport and has contributed substantially to globalisation (Levinson, 2006; Bernhofen *et. al*., 2013). Container ships carry more than half of total global seaborne trade in value terms. The past decade has seen increased market concentration in the container ship segment with larger ships and fewer companies. Larger ships require larger cargo handling capacity at ports and a hub and spoke system has emerged.

31. Ship ownership is highly concentrated at a country level. The five largest ship-owning nations control more than 50% of the global fleet, the ten largest almost 70% and the 35 largest about 95%.[6] The five largest according to tonnage are Greece, Japan, China, Germany and Korea, while the five largest according to the value of ships are Japan, United States, Greece, China and Germany.

32. A special feature of the maritime transport sector is the separation of nationality of ship owners, the registration of the ship and the routes being serviced by the ships. In January 2013, about 75% of all ships (measured by tonnage) owned by the 35 largest ship owner nations was registered under foreign or international flag, a record high.[7] The flag of registration with the largest number of vessels are Panama, Liberia, Marshall Islands, Hong Kong (China) and Singapore, where only Singapore has a significant share of locally owned ships under its flag. Ships registered in the national register typically belong to the cabotage fleet, or operate under cargo reservation schemes. For the countries included in the STRI database, with the exception of India, Indonesia and the European Union, cabotage constitutes a small share of the total maritime cargo transport market. Comparable data on the volume or value of cabotage transport are not readily available, but Eurostat finds that short-sea transport accounted for about 60% of maritime freight transport going through EU ports measured in volume.[8]

---

5. The facts and numbers in this section are taken from UNCTAD (2013) if not otherwise indicated.

6. The shares can be calculated on the basis of tonnage, number of ships or value of ships. All propelled seagoing vessels of 1000 GT and above are included in the data. See UNCTAD (2013).

7. These include open resisters such as Bahamas, Liberia and Panama and second/international registers such as the Norwegian International Register or the Danish International Register.

8. See http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Maritime_transport_statistics_-_short_sea_shipping_of_goods

33. Ports are often publicly owned, while port services to various degrees are provided by private companies operating under concessions (WTO, 2010a). Gateway hubs handle cargo generated from the hinterland of the port and inland intermodal transport is crucial for the operations and competitiveness of such ports. Trans-shipment ports on the other hand depend on seaward connectivity. While competition is mainly for the market when considering services in a single port, ports compete with other ports, particularly for trans-shipment. Developing countries account for about 70% of container throughput at ports, and only three OECD countries (Korea, Turkey and Mexico) figure on the list of the 20 largest countries as far as container throughput at ports is concerned.

34. The separation of ownership, registration and services make maritime services a truly global sector and the location of ship-owners may not matter much for the origin and destination of the service. Ships are registered under a limited number of foreign registers which offer the ship owners the same framework as far as taxes and wage costs are concerned. The flag states are responsible for ensuring compliance with international regulation (UNCTAD, 2013).

35. International maritime services appear to be a highly competitive and global market. Trade and regulatory barriers affecting international maritime transport are mainly related to lack of anti-trust policy enforcement, cargo reservation schemes and restrictions and barriers to competition in ports.

36. Demand for maritime transport traces international merchandise trade closely. Because of long lead times in the ship building industry, changes in supply of maritime transport services do not always match changes in demand and maritime freight rates can be quite volatile, at times dropping below marginal costs. This has been the rationale for policy intervention in the sector, where international freight carriers in many cases are exempted from anti-trust legislation to dampen fluctuation and ensure a more predictable market for shippers as well as carriers.

37. However, major markets including the European Union and the United States have strengthened anti-trust enforcement in international maritime services recently. EU has let the block exemption for liner conferences expire and replaced it with a temporary block exemption for consortia carrying out common activities primarily to reduce costs (Frühling *et. al.* 2010; WTO, 2010a); in the United States the Ocean Shipping Reform Act of 1999 constrained the ability of liner conferences to regulate the contracting decisions of their members (Federal Maritime Commission, 2012). Also in other countries the tendency is towards limited immunity for shipping agreements. For cargo reservation schemes, those that remain in force seem to have less practical impact. An important reason for this is that the growing size of container ships implies hub and spoke networks with extensive use of transhipment. This makes cargo reservation schemes difficult to enforce.

38. A competitive market for maritime services matters not only for carriers and shippers, but for the global economy. Cost-raising restrictions in the sector increase trade costs and restrains merchandise trade. Lack of competition may prevent the gains in efficiency from benefiting shippers (Hummels *et. al.*, 2009; UNCTAD, 2013).

Road freight transport

39. Road freight transport has been dynamic in recent years as part of developments in networked production and just-in-time supply management, with the related demand for door-to-door services. The sector plays an important role in market integration and is an intermediate input for other kinds of trade, particularly trade in goods but also in other services (e.g. distribution services and logistics). Road freight represents over one third of total inland freight transport (measured in volumes), slightly less than rail transport, though the share differs significantly across countries or regions. In 2007, for instance, road

freight accounted for almost 90% of total inland freight transport in Mexico and 75% in the EU-27, but just below 22% in China (WTO, 2010b; International Road Federation, 2009).

40. Road freight providers face inter-modal competition, particularly with rail and other land-based transport (e.g. inland waterways). Road and rail, in comparison with maritime shipping, transport a relatively small share of freight traded internationally. About one quarter of world trade in value terms occurs between adjacent countries, where surface modes are considered to be predominant. Nevertheless, since land-based transport has a relative advantage in terms of cost per transit-time compared to maritime and air transport, it is expected that demand for international movements through land-based transport will increase in the future (OECD, 2010).

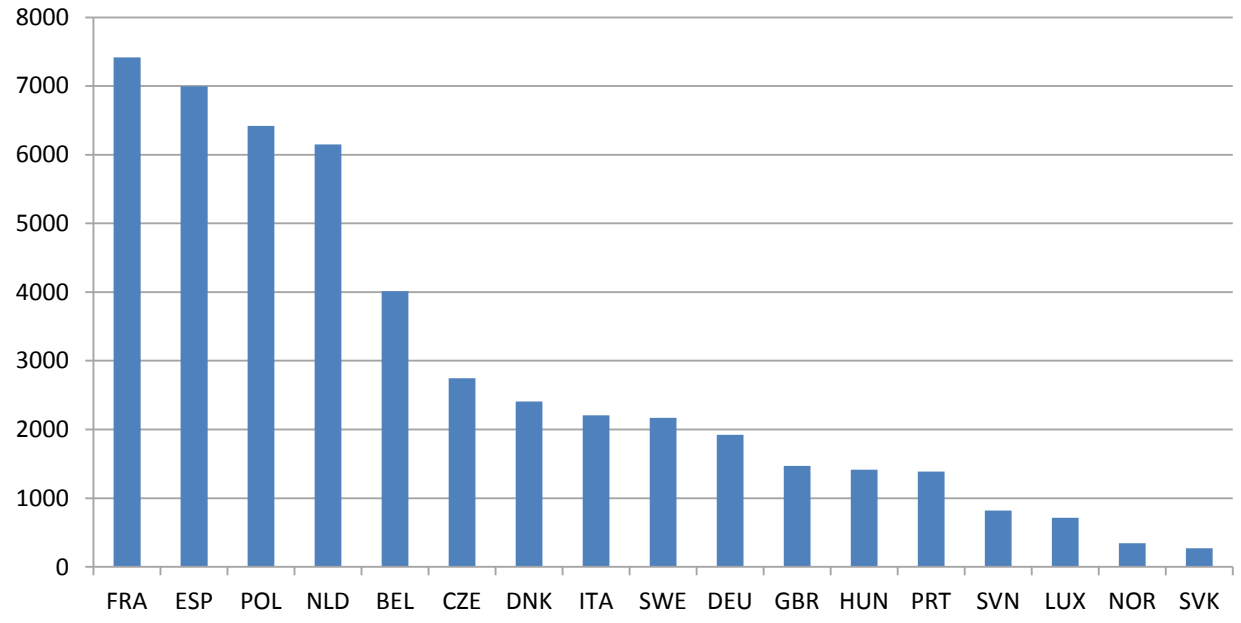
41. Road freight transport is characterised by negligible economies of scale and low market concentration. The sector for the most part consists of a large number of small firms, generally operating domestically or in limited geographical areas. According to the International Transport Union (2007), over one third of road haulage companies is made up of single-owner drivers, and a small share (less than 15%) have more than 10 vehicles. The international market for these services is dominated by a few large firms, which provide road transport as one element of complex logistics services. This segment features larger economies of scale and a high degree of concentration (WTO, 2010b and WTO, 2010c).

42. Road freight services are typically short-haul and hence more important for neighbouring countries or domestically. In the United States and the European Union, for example, the share of domestic (or intra-EU) road freight represented around 95% in 2006 and 2008, respectively.[9] Nonetheless, the share of extra-EU road freight transport is considerably higher for Member States bordering non-EU countries. Establishment abroad to provide domestic road freight transport (mode 3 with accompanying movement of people, mode 4) is thus the predominant mode of supply in this sector. Cross-border trade is primarily intra-regional, exception made for Asia-European routes.

43. Even though statistics on trade in road freight services are limited, exports and imports are available for several EU countries in EBOPS (2002, category 223), which covers cross-border trade. Bearing in mind that for some countries the data are missing, Figures 5 and 6 below present the leading EU exporters and importers of road freight services, indicating that the largest exporters are France and Spain and the major importers are Germany and France. Among the countries bordering non-EU Members, Poland figures as a prominent exporter of road freight services. The Czech Republic, Denmark and Sweden are also non-negligible exporters of these services.

9. The US data exclude transit from foreign countries (US Department of Transport, 2009). For the European Union, the data do not take into account road freight performed in the European Union by non-EU registered operators (European Commission, 2009). See also WTO, 2010b.

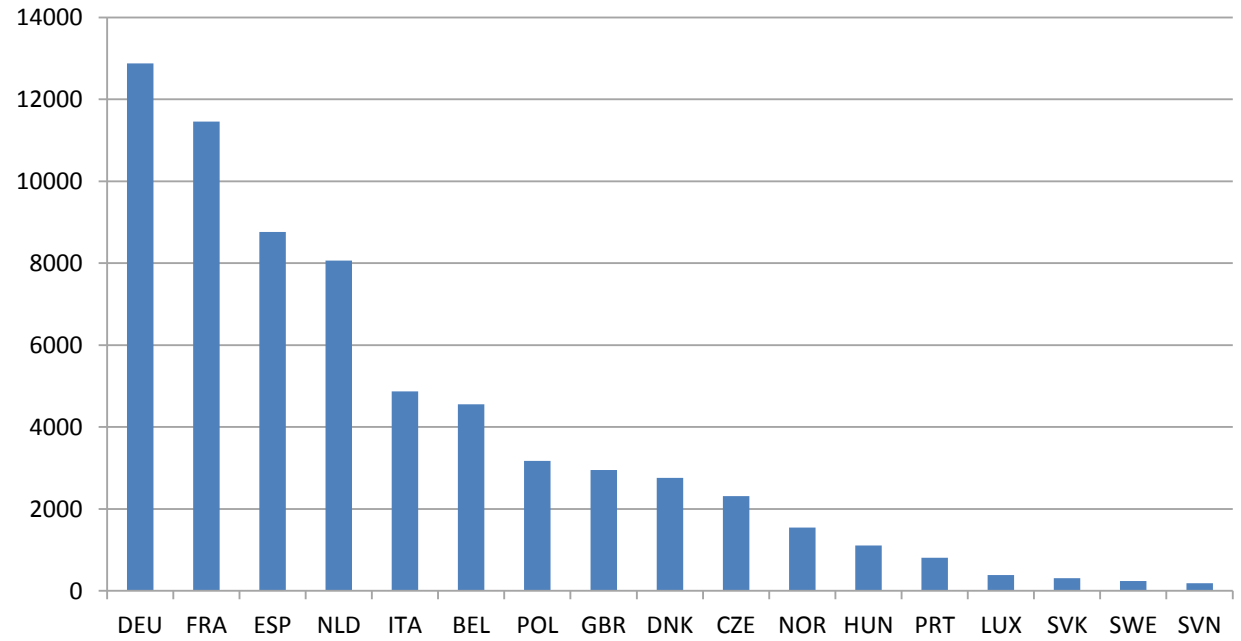
Figure 5. Leading EU road freight exporters, USD millions (2011)



Note: EU countries for which data are available.

Source: OECD.

Figure 6. Leading EU road freight importers, USD millions (2011)



Note: EU countries for which data are available.

Source: OECD.

44. Road freight transport has traditionally been heavily regulated. Domestically, the sector was subjected to a system of quotas, price regulations and other market entry barriers, typically to protect the railways. Over the years, the domestic regulatory framework for road freight has become increasingly more liberal, spurred by deregulation of the sector in the United States and the establishment of the EU Single Market for road transport in the 1980s and 1990s. Reforms involved privatisation of state-owned hauliers and the progressive easing of quotas and other restrictions. Currently, trade through commercial presence is largely affected by horizontal measures.

45. Internationally, trade in road freight remains heavily restricted in several countries. This regime arose in the aftermath of World War II and is made up of bilateral agreements providing for permits, quotas and other impediments. Thus, for these countries cross-border trade takes place through the exchange of permits, for the most part on a bilateral basis. Furthermore, except in the case of bordering countries where only one agreement is required, road traffic rights result from a combination of several bilateral agreements, where transit and triangular permits are necessary.[10] Plurilateral and regional agreements add another layer of regulation in the sector.

Rail freight transport

46. Rail transport is provided over a dedicated network where the rolling stock must match the technical standards of the network. The market structure takes two basic forms:

1. Vertical integration where the same entity operates both the infrastructure and the services operations. There may be one, two or several vertically integrated entities in a national or regional market.
2. Vertical separation where the infrastructure manager is separated from the train operator. Separation can be organisational/institutional (the infrastructure manager is a separate entity from the train operators), functional (the infrastructure manager and services operations are entailed in different divisions of the same legal entity) or accounting separation (the infrastructure management and services operations are kept in separate accounts within the same entity).

47. Also in the vertical separation model there may in principle be one single or several parallel railway networks. In either case there would be competing companies providing transport services over the network. However, the most common market structure observed is one single network whose manager is obliged to separate operations from infrastructure and to allow competing services operators access to the infrastructure on similar terms as its own operations.

48. The market structure depends on topography, market size, population density and history. Among structural factors is to what extent railways prioritise passenger or goods transport. Passenger transport usually requires fast trains that can move without disruptions on the network, whereas slower moving cargo trains may get in the way of competitive passenger transport. Rail transport also competes with other modes of transport including road, air (mainly passengers) and maritime (mainly goods).

49. The basic principles on how to regulate network industries are well known. The cost of building and maintaining the network relative to the cost of providing the service and the synergies between network management and operations/services vary across network industries. If the marginal cost of

10. There is significant variation in the types of international services provided in terms of frequency of trips, distance travelled, and complexity. For instance, road freight trips between adjacent EU countries are regular, short-distance, and quite simple (due to the absence of border controls within the European Union). On the other hand, trips between Europe and Asia tend to be occasional, over very long distances and highly complex (because of the numerous border crossings). See OECD, 2010.

operation is low, synergies between infrastructure management and operations small, and network capacity abundant, then vertical separation is both technically and economically feasible and generates the most competitive market. Telecommunications and electricity are two examples of industries where vertical separation is considered best practice when network providers have significant market power. In the railway sector, however, the marginal cost of providing transport services relative to the cost of operating the network is relatively high. Furthermore, the cost of operating and maintaining the network depends on the density of traffic. These features lead to complementarities and synergies between network maintenance and transport services. In addition, first mover advantage appears to be strong, which implies that access regulation is less effective in triggering entry of services providers than in other network industries (Pittman, 2005).

50. Because of synergies and first mover advantage, there are both costs and benefits of vertical separation. The benefits are increased competition in downstream operations, better performance incentives, at least in downstream operations; and the ability to achieve the gains of specialisation. The costs are related to – as it were – costs of coordination and operation (Mizutani and Uranishi, 2013). The net effect is an empirical question to which there is as of yet no conclusive answer. Ivaldi and McCullough (2008) find that vertical economies are quite strong at least in the U.S. context and that vertical separation would raise costs significantly for freight railways. An interesting recent contribution to the literature finds that vertical separation results in cost savings and higher efficiency when the traffic density is low to moderate, but to higher costs when traffic density is high (Mizutani and Uranishi, 2013). This result is appealing since coordination costs are likely to be lower the less congested the railway. In the event of capacity constraints, optimal allocation of whatever capacity exists may require real time information and flexibility that is better handled within the same organisation. These results do, however, beg the question of to what extent traffic density is endogenous and a function of how well the rail network is managed. The better managed and the more competitive is rail freight, the higher the capacity utilisation, one would presume.

51. Demand for rail transport services, and thus competition for freight, not only depends on the structure of the railway sector and competition from other modes of transport on a particular route. Competitive pressure also comes from transport from different locations to the same destination. For instance if grain producers in the United States, Canada and Australia compete for the same market in Asia, the f.o.b. price will be strongly affected by internal rail transport charges, which in turn affects the volume transported (Cairns, 2013).

52. The jury is still out regarding to what extent and under what circumstances vertical separation reduces the total costs of rail transport. Nevertheless, it is reasonably clear that vertical separation improves efficiency in operations when competition in the sector is weak in the absence of such separation. In the context of the implementation of EU directive 91/440 on the development of the Community's railways, there is evidence that the larger the organisational distance between network and operations, the larger the effect on reducing inefficiencies (Urdanoz Vibes, 2013).[11]

53. Not only are there synergies between infrastructure and operations, there are also synergies between different policy measures. A reform package including vertical separation, access regulation and the establishment of an independent regulator can yield significant efficiency gains and the effectiveness of one policy measure may depend on the presence or absence of the other elements in a package. Thus, the gains from introducing a comprehensive reform package appear to be larger than the sum of the gains from individual measures. Therefore, the STRI considers the presence of all core policy measures in a regulatory package when scoring the measures to calculate restrictiveness indices.

11. A communication from the European Commission (COM(2013) 25 final) proposes institutional separation of infrastructure management and transport operations.

54. Finally, it must be borne in mind that railways have lost market shares mainly to road transport in most countries. Excessive state intervention that distorts incentives for effective and efficient operations as well as restrains the ability to respond to changes in technology and transport market developments have been blamed for the relative decline of railways (Cairns, 2013; Friebel *et al*., 2010; Thompson and Kohon, 2012). Lack of ex ante regulation will therefore not be considered a barrier to competition in the railway sector as long as it is subject to ex post anti-trust regulation.

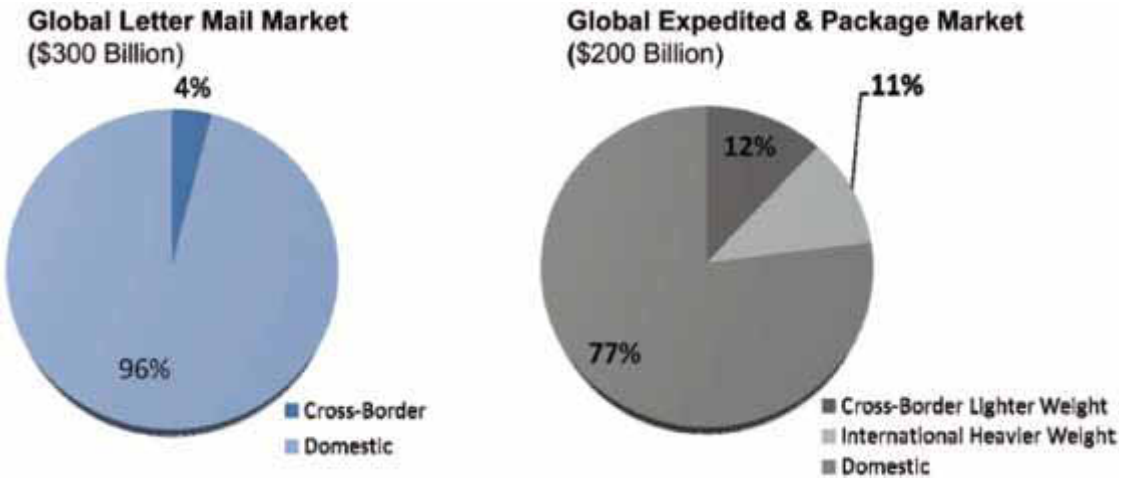
55. Regulation of dominant firms in network industries must consider both static and dynamic efficiency; creating a competitive market today while ensuring that there is sufficient incentives to invest in new technology and infrastructure for a competitive market in future. There may be a trade-off between these objectives and access fees need to be set at a level that encourages entry into operation services but also generates sufficient revenue for the infrastructure manager to maintain and invest in the network. As in telecoms, the trade-offs between long-run and short run efficiency shifts somewhat over time in step with technology and insights from research and evaluation of experience with different models.

56. To conclude, the literature review suggests that there is no one size fits all solution to how rail freight should be structured and regulated. The STRI therefore distinguishes between different types of market structure and does not pass judgement on which one is the better. However, once the market structure is given, there is a higher degree of consensus on what constitutes best practice regulation.

Courier services

57. Figure 7 shows the importance of domestic and cross-border services for the letter mail market on the one hand and for the global express and parcel market on the other hand.[12] International transactions accounted for 23% of the revenues in the express and parcel markets. In the letter market only 4% of revenues stem from cross-border shipments. While DPOs heavily dominate the market for letters, competition is fiercer in the market for express items and parcels. According to a report (Adrenale, 2010) prepared for the Universal Postal Union, the revenue share of DPOs declined from 93% to 85% in the letters market and from 19% to 16% in the express and parcel market between 1998 and 2008.

Figure 7. The cross-border market as a share of the total global letter and package market in 2008



Source: Adrenale, 2010

12. In this study, "light-weight" items are defined as letters and parcels weigh less than 2 kg.

58. While courier services have traditionally been important means for communication, the rise of modern information and communication technologies has contributed to a less frequent use of letters between individuals for communication. On the other hand, there is still an important market for business to consumer and business to business letter mail such as direct mail including hybrid mail,[13] and delivery of printed materials, newspapers and periodicals. The rise of online retail led to an increase in parcel delivery, and the increasing importance of global production networks and just-in-time delivery requires both fast and reliable shipments. Courier services, in particular, express delivery services play a crucial part in modern logistics chains creating strong complementarities and linkages between courier and transport services.

59. Express delivery services can be characterised by short delivery times (1-3 days) and high reliability (guaranteed delivery times) which are achieved through integration of additional value-added logistics services and control of the services required to offer door-to-door delivery.[14] In offering door-to-door delivery, global express delivery firms ship express items predominantly by air and road using their own aircraft and truck fleets and providing additional auxiliary transport services such as freight forwarding, warehousing, customs clearance, cargo handling and tracking. Competition is fierce in the sector where the four largest global express delivery firms – UPS, FedEx, DHL and TNT – dominate the cross-border market for parcels accounting for 55% of the USD 175 billion express market (Oxford Economics, 2009, report prepared for the Global express association). In addition to global express delivery services mentioned above, regional and local courier services such as bike couriers (bicycle messengers) have developed rapidly and offer express delivery services in metropolitan areas.

60. The roles of regulators and the scope of regulated activities differ across countries, often reflecting the market situation. Even within a country, they may differ between uncompetitive and competitive segments of the market. While in some countries where the markets are not effectively liberalised due to the existence of reserved areas or dominant firms, some regulators are in charge of regulating prices and cost accounting for reserved areas and may have some role in monitoring and acting against cross-subsidies, other regulators also regulate new entrants to the market through licensing/authorisation systems. In addition to the role of regulating market dominance, sector specific regulation may be imposed for safeguarding the provisions of universal services where applicable. The competition law often complements sector-specific regulations to ensure effective competition between incumbents and new entrants in the markets by prohibiting predatory pricing, price discrimination, and abuse of dominant position and so on. In other countries where the markets are fully liberalised without the existence of market dominance, which is often the case of express delivery services, competition authorities solely play a role to ensure competition in the market.

3. Identifying measures to be included in the STRI

61. Transport services are subject to a wide range of sector-specific measures. As with the other sectors, the index should include information that is sufficiently specific and detailed that it can inform policy making. But the index should not be so detailed that the primary barriers are overshadowed by less

13. Hybrid mail generally refers to messages sent electronically to the post office, which then prints and delivers them in physical form (WTO, 2010d).

14. The United States and the European Union use the following definitions for express delivery services (WTO, 2005b): "Express delivery services are defined as the collection, transport, and delivery of documents, printed matter, parcels, and/or other goods on an expedited basis, while tracking and maintaining control of these items throughout the supply of the service" (United States) or "Express delivery services may include, in addition to greater speed and reliability, value added elements such as collection from point of origin, personal delivery to addressee, tracing and tracking, possibility of changing the destination and addressee in transit, and confirmation of receipt." (European Union).

important restrictions that add little to the essence of trade restrictiveness. Annex B presents the list of measures included in the STRI for transport and courier services.

62. Governments apply a range of limitations to transport and courier services. These can be sector-specific or can apply to all sectors in the economy. Regulations can explicitly discriminate against foreign providers or, although non-discriminatory, can still affect trade by favouring the local incumbents. As noted, market access via mode 1 in aviation occurs through the exchange of traffic rights largely on a bilateral basis. Without such rights, traffic cannot take place unless the authorities grant it on a discretionary basis. In this sector, therefore, the STRI has to take into account bilateral measures in addition to MFN restrictions.

63. The measures included in the STRI for transport and courier services have been divided into five categories. This typology of measures forms the basis for the creation of the STRI.

Restrictions on foreign entry

64. This category contains barriers to foreign ownership and other impediments to market entry for transport and courier services. Prominent examples of these measures include limitations on foreign direct equity stakes, requirements for foreign investment only through joint ventures, restrictions on the establishment of subsidiaries and limitations on mergers and acquisitions. In the case of air transport, these restrictions can affect airlines in either both domestic and international traffic, or only one type of traffic.[15] The imposition of nationality or residency requirements for board members represents another constraint on market entry for foreign firms, thus impeding trade.

65. Quotas affecting domestic traffic in road freight are also captured here. These relate to a long standing practice consisting of limiting capacity in the sector by instituting transport licenses or permits, with a fixed number of permits for a given time period (usually one year). These measures can concern limitations on the number of service providers, on the number of service operations (including geographical areas or routes), or on the quantity of service output. As noted, however, while prevalent in the past, domestic quotas for road freight transport have been dismantled in most countries.

66. As opposed to many other services sectors, cross-border trade is an important mode of supply in the transport sector. Additional measures that largely affect cross-border trade are therefore included. For maritime services, these are cargo reservation schemes, restrictions on cabotage, and restrictions on chartering of vessels. Cargo reservation schemes reserve certain types of cargo for national vessels. There may also be cargo sharing agreements with trading partners, excluding or restricting third party carriers from transporting certain types of cargo. Cabotage can be provided both cross-border and through commercial presence. A common requirement for cabotage is to register the vessel under the national flag. In cases where the national flag is a gateway to the market, restrictions on such registration are recorded as a market entry barrier.

67. With respect to bilateral or plurilateral market entry restrictions in aviation, they relate first and foremost to the traffic rights granted to the carriers of trading partners. The STRI covers the nine so-called "freedoms of the air" as defined by ICAO (see Box 1). Other important provisions in bilateral agreements

15. Foreign investment limits included here relate to the ability of foreign natural or juridical persons to own shares in domestic airlines for the purpose of providing international and/or domestic traffic. They are to be distinguished from ownership and control rules contained in bilateral agreements, which determine the conditions under which foreign carriers can access the terms of the agreement in question (see below). At the same time, it should be noted that some clauses in bilateral agreements may establish different investment limitations for specific partners. Although such instances are in practice limited, they may have an effect on the calculation of the index for commercial establishment in the sector.

relate to limitations on the number of entry points for the partner country's carriers (i.e. route schedules), to restraints on the number of airlines allowed to operate under the agreement, and restrictions on capacity in terms of traffic volumes, frequency or aircraft type. Another pillar relates to rules on ownership and control, in particular to restrictions on foreign participation. As noted, bilateral air services agreements are similar to preferential trading agreements and require a rule to establish which airlines are eligible for access to the terms of the agreement.

Box 1. Freedoms of the air

First freedom. The right or privilege, in respect of scheduled international air services, granted by one party to another party or parties to fly across its territory without landing.

Second freedom. The right or privilege, in respect of scheduled international air services, granted by one party to another party or parties to land in its territory for non-traffic purpose.

Third freedom. The right or privilege, in respect of scheduled international air services, granted by one party to another party to put down, in the territory of the first party, traffic coming from the home party of the carrier.

Fourth freedom. The right or privilege, in respect of scheduled international air services, granted by one party to another party to take on, in the territory of the first party, traffic destined for the home party of the carrier.

Fifth freedom. The right or privilege, in respect of scheduled international air services, granted by one party to another party to put down and to take on, in the territory of the first party, traffic coming from or destined to a third party.

Sixth freedom. The right or privilege, in respect of scheduled international air services, of transporting, via the home party of the carrier, traffic moving between two other parties.

Seventh freedom. The right or privilege, in respect of scheduled international air services, granted by one party to another party, of transporting traffic between the territory of the granting party and any third party with no requirement to include on such operation any point in the territory of the recipient party, i.e. the service need not connect to or be an extension of any service to/from the home party of the carrier.

Eighth freedom or consecutive cabotage. The right or privilege, in respect of scheduled international air services, of transporting cabotage traffic between two points in the territory of the granting party on a service which originates or terminates in the home country of the foreign carrier or (in connection with seventh freedom) outside the territory of the granting party.

Ninth freedom or stand-alone cabotage. The right or privilege of transporting cabotage traffic of the granting party on a service performed entirely within the territory of the granting party.

Source: ICAO's Manual on the Regulation of International Air Transport (document 9626, Part 4).

68. Additional measures for transport services are regulated access to the network (rail and courier services) and essential facilities at ports, airports, and terminals. In the courier services sector, statutory monopolies (reserved areas) for letters, parcels and express delivery prevent market entry of any suppliers other than the DPOs. Market entry can also be impeded by restrictions on licensing through an economic needs test and limitations on the number of available licenses.

Restrictions to movement of people

69. With the trend towards more open transport and courier regimes in recent years, the movement of people to accompany establishment of a commercial presence is likely to become increasingly significant. Quotas or labour market tests on service providers may delay commercial establishment, impose costs on

foreign firms or discourage local service providers from using e.g. foreign consultants. These measures are usually not sector-specific and are typically contained in the immigration law of most countries.

70. In the context of air transport, limitations on the temporary movement of people are to be distinguished from the right to bring in non-national employment in the host country for the purpose of carrying out international traffic. The latter is part of provisions in bilateral agreements and is captured under *Other discriminatory measures and international standards* (see below).

Other discriminatory measures

71. Restrictions may additionally affect government procurement markets for transport and courier services. This can occur through explicit discrimination between national and foreign providers, or through the establishment of a procurement process which affects the conditions of competition in favour of local suppliers. Other impediments included in the STRI are discriminatory taxes and other forms of subsidies, as well as the imposition of national standards which deviate from international ones, which can increase divergence of requirements across countries. Examples of international standards in transport and courier services are those adopted at the Chicago Convention (particularly in Article 37) for aviation, and those stipulated by the United Nations Economic Commission for Europe (UNECE) for road transport (e.g. on dangerous or perishable goods, as well as on driving and rest times).[16]

72. In maritime services, sector-specific measures under this heading relate to local sourcing requirements in ports and discriminatory tariffs for certain port services. In rail freight transport, interoperability requirements for cross-border transport services are added as sector-specific measures.

73. This category also covers several measures contained in bilateral and plurilateral air services agreements. A prominent one relates to the regulation of fares and tariff filing, which reduce competition and limit the ability of carriers to adjust to changing market conditions. Other provisions include restrictions on ground-handling and a range of other commercial opportunities (e.g. movement of non-national employment or surface transportation in connection with air transport), and on cooperative arrangements (e.g. code-sharing).

Barriers to competition[17]

74. Another layer of restrictions can limit effective competition, distorting the level playing field and discouraging foreign participation in transport and courier services. Public ownership remains in place in several transport sectors. For instance, it is common in aviation, and publicly-controlled major road haulage companies are still in place in some countries. In the courier sector, government ownership or market dominance by the DPO is widespread particularly in the letter delivery market. Measures capture to what extent the DPO enjoys privileges, for example, preferential tax or subsidy treatment including VAT exemption for universal services. If private courier operators are also eligible for such treatment when they provide universal services, it is not considered a limitation on competition.

75. In the air transport sector, non-competitive systems for the allocation of slots, which favour incumbent carriers, represent a significant bottleneck in congested airports, particularly at peak hours. Time schedules for airport use, including total curfews, can additionally affect operations, particularly for all-cargo carriers and integrated express operators since they tend to travel at night. An additional measure covers whether airline alliances are exempted from the national competition law. By adding the latter to

16. For example, the Agreement on the International Carriage of Perishable Foodstuffs and on the Special Equipment to be Used for Such Carriage (ATP).

17. Public ownership, contained in this category of measures, may have the effect of market access restrictions.

whether air carriers are allowed to code-share in bilateral agreements, the STRI captures the fact that alliances can have both benefits and downsides. As noted, these arrangements allow partner airlines to reduce costs by integrating activities and linking existing networks; at the same time, alliances can increase the market power of partner airlines, lead to anti-competitive behaviour and ultimately increase fares.

76. Maritime services enjoy block exemption from anti-trust laws in a number of countries. The extent of such exemptions and the conditions under which they are given vary. If core restrictions such as price fixing or capacity limitations are exempted, the agreements typically must be filed and reviewed. Additional sector-specific measures under this category capture in some detail the nature of anti-trust regulation and enforcement for international maritime transport.

77. Additional measures for the rail industry include regulation on access to the network. Two different scenarios are considered: vertical separation and vertical integration. If a country has adopted the vertical separation model, the sector-specific measures under barriers to competition are related to the independence of the regulatory body, measures prohibiting cross-subsidisation between network and operations, and regulation of access to the network, including terminals, on non-discriminatory terms. In the case of vertical integration anti-cartel regulation is considered in more depth than for more competitive industries included in the STRI. There is also an information item in the database which identifies whether there is a firm with significant market power, as assessed by the regulator or competition authority.[18]

78. Retail price regulation in road freight is covered under this category. Price regulation in domestic road transport has a long history and, as noted, was initially put in place to protect railways from the threat posed by road transport competition. Typically, rates are set or road freight operators cannot charge fees below a certain amount. In other cases rates, though not mandatory, may be recommended through pricing guidelines to operators. As for quotas, though, these measures have been considerably eased in many countries. A further measure captures instances where agreements between road freight transport carriers are exempted from the national anti-trust law, including arrangements to collectively set tariffs.

79. For courier services, other measures to avoid anti-competitive practices and cross-subsidisation are included in this category. DPOs that have a reserved area or that have market power in certain segments of universal services may extract rents from such uncompetitive segments and use these rents to cross-subsidise activities in competitive segments of the market. Price regulation is one tool to address this issue. Another tool is the separation of accounts for universal services and non-universal services, which allows the monitoring of possible cross-subsidisation. An appropriate cost allocation system and control is a base for effective account separation, that is, common costs necessary for providing both universal service and non-universal services need to be allocated appropriately.

80. Courier services are also characterised by the reliance on network infrastructure. The incumbent designated postal operators may control the national postal network and be tempted to grant preferential network access to its own affiliates. Non-discriminatory access to the postal network, i.e. the post code database, post office boxes and the downstream distribution network, is an important regulatory tool that can enhance competition in the market for courier services. The STRI also includes measures on the provision and use of auxiliary transport services. These measures relate to restrictions that hinder the ability of foreign courier operators, in particular express delivery firms, to use auxiliary transport services such as ground-handling and cargo-handling or to self-provide these services.

18. In countries where an independent regulator assesses at regular intervals whether a network owner has significant market power, the regulator's assessment will be used for determining whether or not there is dominance.

81. Additional measures under this category involve dispute resolution, such as whether appropriate mechanisms are in place for foreign providers seeking redress when business practices are perceived to restrict competition. Furthermore, appeal procedures relating to regulatory decisions may not be open to interested foreign parties.

Regulatory transparency

82. Measures concerning regulatory transparency and procedures related to regulations are also included in the STRI. These involve publication and communication of the licensing and regulatory regime in general, as well as administrative practices in business start-ups. Opaque regulatory regimes increase the cost of compliance and uncertainty in business operations, and provide a measure of the overall business climate in the host country. The number and complexity of procedures to register a company can also have an impact on market entry. Furthermore, the time required by customs procedures can constitute significant costs for transport and courier operators. An additional measure thus relates to the days taken between the submission of an accepted customs declaration and customs clearance.

83. Customs procedures are particularly important to trade in courier services. Because provision of such services is often time sensitive, reduction and elimination (where possible) of complex, time-consuming customs procedures are desirable. Thus, in addition to the time required for custom clearance, three other measures capturing general "simplification principles" are included for these services, i.e. pre-arrival processing, a *de minimis* regime, and the release of goods before determination and payment of duties. These three streamlined release procedures are especially important for expedited shipments.

4. Classifying restrictions

84. Classifying regulations under different typologies can increase the usefulness of the STRI by highlighting different dimensions of the data specifically for negotiators, regulators and industry analysts. Annex B lists the measures included in the STRI by policy area. The first column indicates which category according to the GATS classification the measure belongs to; the second column to which mode of supply the restriction applies[19]; the third column whether the measure applies to the establishment of a service supplier or to ongoing operations; whereas the subsequent column indicates whether or not the measure is discriminatory.

85. The GATS terminology should increase the relevance of the indices at the international level. However, as with any classification, it is not always possible to clearly identify to which category of measures certain restrictions belong and there are overlaps in the classification of some barriers. For example, quotas belong to both market access and national treatment when they are discriminatory against foreign providers. Thus, *market access and national treatment* measures are classified together. This grouping also allows making a distinction between restrictions subject to scheduling under the GATS, and consequently to negotiations for their removal; and other largely domestic regulatory measures which do not need to be scheduled. The classification is without prejudice to WTO Members' commitments and obligations under the GATS.

86. Restrictions not captured by either market access or national treatment are classified under *domestic regulation and other*. This category casts a broad net with the aim of capturing the wide range of

19. The GATS classifications are not applied to the air transport sector as the system governing the sector is for the most part excluded from the Agreement. With respect to modes of supply, the measures identified may not necessarily fall under the GATS definitions in that the sector is currently excluded from the Agreement, but they may prove helpful conceptually.

possibly relevant measures. Domestic regulatory measures are subject to both existing disciplines and further negotiations with a view to reinforce them. This negotiating mandate includes further talks on increasing regulatory transparency beyond what is required in existing broader rules on transparency.

87. Indices according to the GATS modes of supply can provide useful information. Separate indices according to modes of service delivery have already been constructed for several services sectors, including some transport sub-sectors (see Nguyen-Hong and Wells, 2003; Dihel and Shepherd, 2007; and Marouani and Munro, 2008). Cross-border trade plays a significant role in transport services. Hence, unlike other sectors covered in the STRI, for the transport sub-sectors there is a distinct category for mode 1 measures. An additional category is also included containing measures affecting all modes of supply, such as those relating to the transparency of regulations.

88. This study further classifies measures according to two distinctions often used in the literature on restrictiveness indices for services: regulations that apply to establishment of firms versus those affecting their ongoing operations; and measures that are discriminatory versus non-discriminatory ones. Establishment restrictions can generally be regarded as impediments to the movement of capital, while those applying to firms' operations constrain service provision after establishment. Non-discriminatory measures affect total demand whereas discriminatory ones typically distort the composition of demand in favour of local suppliers. These classifications could prove useful in helping regulators and industry analysts identifying priority areas for reform given defined economic policy objectives.

5. Methodology for developing the STRI

89. The STRI is derived by aggregating regulations that are potentially trade restricting into a composite measure of restrictiveness. The construction of the index involves decisions concerning three main issues: scoring, weighting and aggregation. Scoring relates to how regulatory measures are recorded. Weighting captures the relative importance of impediments in terms of trade restrictiveness (the higher the weight the more restrictive a category of measures is considered relative to other categories). The aggregation method determines how weights are applied to scores of regulations for calculating the index number. OECD (2011) explains the methodology in detail; a technical paper explaining the alternative methodologies, their advantages and disadvantages and the robustness of the chosen methodology is available for interested readers (OECD, 2009). Here, a brief non-technical summary is presented.

90. The approach taken to scoring in the STRI is to transform qualitative information on regulation into binary variables.[20] A majority of the measures included in the regulatory database are Yes/No questions. Regulatory information of a more complex nature (e.g. foreign equity limits) can easily be transformed into binary variables by introducing multiple thresholds. Therefore, for each type of impediment in a given country a score is assigned either 0 or 1, with the former representing the absence and 1 the presence of the restriction. This method ensures that all variables are measured on the same scale such that comparison across different countries and over time is possible.

91. It is important that the STRI captures as much of the variance in the underlying data as possible. The scoring of foreign equity limits, for instance, should reflect that an equity limit of, say, 49% is more restrictive than a limit of 66%. This is captured by introducing multiple thresholds. For foreign equity the thresholds are less than 33%, less than 50%, and less than 100%. A country with a limit of 49% will receive a score of one on the less than 50% threshold as well as less than 100% (i.e. two scores of one), while the country with a limit of 66% will receive one score of one (on the less than 100% threshold). The

20. When compiling a composite indicator, it is not advisable to include both binary and continuous variables in the same dataset as the resulting indicator would not have a clear interpretation (see OECD, 2008).

same approach is used in the case of other variables for which more detailed information is available (e.g. duration of stay of inter-corporate transferees).

92. The scoring methodology should also account for hierarchies and joint effects of regulations. For instance, if foreign equity in transport and courier operators is not allowed, measures related to foreign firms such as restrictions on establishing subsidiaries become redundant. In addition, sector specificities are captured by scoring methodologies applied to the different sub-sectors.

Scoring methodology

Air transport[21]

93. Several measures contained under the different regulatory spheres in bilateral and plurilateral air service agreements generally represent alternative ways of regulating, and are typically ordered by restrictiveness. As such, if the more restrictive one applies, the other restrictions within the regulatory sphere in question will be automatically turned to one. By the same token, if the liberal provision applies, all regulatory clauses within the policy sphere will be zero.

94. For example, in the case of capacity provisions, if *predetermination* is provided for, there will be two additional scores of one (one for *Bermuda I* and one for *free determination*). If *Bermuda I* applies, there will be one additional score of one. On the other hand, if the agreement in question stipulates free determination, this set of measures will be scored zero. A similar scoring methodology is applied to the following bilateral provisions:

- Capacity
- Ownership and control
- Pricing
- Ground-handling
- Co-operative arrangements

95. Some measures in bilateral agreements will be automatically scored 1 in the presence of restrictions in other categories of measures. Notably, if 5th and 6th freedom rights are not granted, route schedules in relation to intermediate and beyond points will be restricted. Several bilateral agreements also contain asymmetric provisions, i.e. one country provides for more liberal clauses than the other. This is particularly the case for provisions on ownership and control. In such instances, two different databases are created for the country-pair in question, in order to take into account the asymmetry when calculating each country's average level of restrictiveness from its bilateral agreements.

96. Cumulative scoring and linkages between measures are used for the unilateral measures relating to slot allocation as well. If *discretionary allocation* applies, there will be three additional scores of one (*grandfathering*, *first come first served* and *auctioning*); if the system provides for *grandfathering* there will be two additional scores of one (*first come first served* and *auctioning*); if *first come first served* applies there will be one score of one; *first come first served* coupled with *monetary trading* is considered as *auctioning* for the purposes of scoring, i.e. this set of measures will be zero. The latter systems introduce market mechanisms in slot allocation in high demand airports, and are thus treated equally in the STRI. In addition, in the case of slot trading, if *barter trade* is not allowed, *commercial exchange* will be automatically set to one.

21. The detailed scoring methodology for this sector is described in Annex D.

97. Moreover, some measures are linked to each other and have, when combined, a stronger impact on restricting trade as opposed to each measure acting in isolation. As noted, restrictions to foreign direct investment in air transport can apply to domestic and/or international traffic. This has implications for scoring, since when investment in both types of traffic is restricted the impact on other measures is larger. Linkages can also occur between measures restricting different modes of supply. Notably, if limitations on foreign ownership in airlines providing domestic traffic are combined with a restrictive policy on cabotage in bilateral agreements, domestic traffic would be completely closed.

Maritime transport

98. The methodology for scoring maritime transport follows the general methodology. The only adjustment is to merge some measures where otherwise details that do not contribute much to the essence of restrictiveness would overshadow more important restrictions. For instance, there are five measures under the cargo reservation sub-heading. They are scored as follows: If there is a unilateral cargo reservation scheme, the score is one, otherwise zero. The four other measures (bilateral cargo sharing agreements, plurilateral cargo reservations, government cargo, other cargo reservations and preferential schemes) are aggregated into one measure and scored one if there is any cargo reservation scheme (other than unilateral) and zero otherwise.

Road freight

99. The measures in road freight transport are scored largely on the basis of OECD (2011). There are few sector specificities, which are contained in Figure E.1 (Annex E).

Rail freight

100. When designing the scoring system it is always useful to ask oneself whether one or the combination of a few measures would completely close the market for foreign services providers. In the railway sector there are two sets of measures that would completely close the market:

- Foreign equity participation in the sector is zero + foreign branches are not allowed + commercial presence is required + access rights to infrastructure for international services are not granted.
- Services are reserved for a statutory monopoly or granted through concessions on an exclusive basis and the monopoly covers the entire sector + access rights to infrastructure for international services are not granted.

101. In either case entry through commercial presence and cross-border trade is closed. Technically there could still be trade through movement of natural persons, but that would in any case be limited to for instance management consultancy, technical assistance and the like.

102. There are two sets of measures under barriers to competition in the rail sector: vertical separation and vertical integration. The database contains a measure on whether or not vertical separation is imposed. This measure is not scored since it is not clear from the literature and experience under what circumstances vertical separation *should be* imposed. However, once vertical separation has been imposed, it is only effective if all the core elements of regulation are in place. To get a clean score, all of the following regulations must be in place: access for transport operators is mandated; access fees and access capacity are regulated; and access fees and conditions are made public. Ex ante price regulation is, however, not required.

103. It appears that there are few, if any, cases where vertical separation has occurred in unregulated markets. Absence of regulated vertical separation thus brings us to the vertical integration scenario. The

scoring then distinguishes between the case where there is a supplier with significant market power and the case where the market for rail transport services is considered competitive. In the case of market dominance, lack of regulated access to bottleneck services and not mandating running rights and inter-switching is considered barriers to competition, as lack of such regulation would give a dominant supplier space to exploit its market power. As noted above, the benefits of price regulation in the rail transport sector are controversial and absence of price regulation is not seen as a barrier to competition whether there is a dominant supplier or not. In the case of competitive markets in contrast, price regulation is considered a barrier to competition.[22]

104. In the event that there is a vertically integrated state monopoly, the STRI index is set to unity for the market segment that is covered by the monopoly. For instance if domestic traffic (where the entire transport route is within the country) is covered by a statutory monopoly and domestic traffic accounts for 80% of total land transport, the weight of the measures that close the market will be 0.8.[23]

Courier services

105. In the courier services sector, there is sometimes a statutory monopoly covering only parts of the markets covered by the index. A statutory monopoly per definition closes the market to foreign suppliers. If the monopoly covers the entire sector, the STRI index value is one, no matter what the scores on individual measures are. In the courier sector, some countries have a statutory monopoly for delivery of letters, either the whole segment of letters or up to certain weights, while delivery of parcels and express delivery are open to foreign as well as local firms. Other countries have a statutory monopoly for delivery of parcels or express delivery as well. The methodology for dealing with this scenario is to score the market segment to which the monopoly applies unity, while courier services outside the monopoly are scored according to the regulation that applies to the courier sector in general.

106. The scoring of monopoly should consider different thresholds to reflect each country's willingness to open up the market. For delivery of letters, four thresholds are included; a monopoly up to 50 g, up to 1 kg, up to 2 kg, and a monopoly of the whole segment. In the STRI, letters up to 2 kg are assumed to account for 80% of delivery of letters in volume, and 60% for letters up to 50g.[24] When a monopoly is applied up to 1 kg, the STRI assumes that this covers 70% of the letter delivery market. If the whole segment of the delivery of letter is subject to monopoly, it is obvious that the market is completely closed for the letter delivery. To take an example, some countries have reserved delivery of letters up to 50g to a statutory monopoly. The STRI index for these countries are calculated as x/3 + (1-x/3)*the index value for general courier services, where x represents the market share of the letters up to 50g in question, which is 0.6 in this case. If the monopoly applies to the segment of parcels and express delivery as well, the index value is (x+y+z)/3+(1-(x+y+z)/3)*the index value for general courier services, where y and z represent the market share of the parcels and express delivery respectively.

22. There is ample evidence that allowing market-determined prices gives the flexibility needed to optimise capacity, exploit economies of scale and provide incentives for shippers to organise shipments in less expensive way (MacDonald, 2013).

23. The market share of domestic rail traffic depends on regulation, market size and geography. Large countries will for instance typically have a larger share of total land transport entirely within the country. It is therefore suggested to use total land transport for determining the share of the market covered by a monopoly.

24. The Universal Postal Union reports that an estimated 80% of mail items in volume today weigh under 2 kg. The share of letters weighting less than 50 g is 57.7% in the volume of letter post in Belgium according to the report issued by Belgian Institute for Postal Services and Telecommunications.

107. In most countries, the DPO is a dominant supplier of courier services at least for delivery of letters. A memo in the STRI database records whether or not there is a dominant supplier in each of the market segments (letters, parcels and express delivery), and the memo constitutes a switch between the two scoring systems. When there is a dominant player in the market, regulations are necessary to ensure a level playing field between the DPO and private courier services operators in the market. The most commonly found policy measures towards this objective are first to regulate prices. Second, the separation of accounts for universal services and non-universal services together with an appropriate cost allocation system allows the monitoring of possible cross-subsidisation from uncompetitive segments to competitive segments of the market. It is noted that accounting separation and appropriate cost allocation system are bundled together to reflect the complementarities between them. This means that these two measures are scored zero only when both measures are in place. Lastly, non-discriminatory access to the postal network, i.e. the post code database, post office boxes and the downstream distribution network, controlled by DPOs is an important regulatory tool to facilitate the entry of courier services operators in the market.

108. The measures mentioned in the previous paragraph are scored zero when the regulator chooses to impose or maintain the regulation in the case that there is a dominant supplier, since these measures are considered necessary to enhance competition in the market. On the other hand, price regulations are considered a burden and barrier to competition if imposed in a competitive market without any dominant supplier. In addition, the STRI score is zero whether or not *ex ante* price regulation is in place, as long as anti-trust laws apply to the sector. This is because price regulation is just one policy tool to enhance competition, and it is not always the case that *ex ante* price regulation is required when another tool is in place.

109. The STRI for courier services also includes sector-specific measures with regard to custom procedures. The time required for custom clearance is based on the World Bank Doing Business 2013, and the value of one working day has been chosen as the reasonable limit beyond which the administrative process would impact negatively the activity of the courier services provider. Three other measures capturing general "simplification principles" are included, i.e. pre-arrival processing, a *de minimis* regime, and the release of goods before determination and payment of duties. With regard to the scores for a *de minimis* regime, the STRI index value is one if there is no such regime in place or *de minimis* thresholds are less than USD 100.

Weighting and aggregating

110. Aggregating individual restrictions into the STRI consists of two steps. The first step involves assigning weights to the policy measures. The second step involves aggregation into the overall STRI. A number of weighting schemes have been explored to develop the STRI. These are equal weights, expert judgement and random weights. Equal weights are the most common weighting scheme applied for constructing composite indicators. It is a transparent way of creating an index in the absence of any clear alternative. Lack of clear alternatives could be due to insufficient knowledge of causal relationships, absence of an empirical basis for deciding which is more important, or lack of clarity of what the index is supposed to measure. Equal weights are, however, not as free of judgement as is often claimed. With equal weights, the relative importance of each measure depends on how many measures are included and how individual restrictions are organised into sub-indicators, leaving rather a lot to subjective judgement or arbitrariness.

111. As noted, equal weights are used when there is a lack of clear alternatives. For trade restrictiveness indices, however, it is clear that the measures should be weighted according to their contribution to trade costs, which in turn consist of entry costs and operational costs. Services trade data are, however, not sufficiently detailed for estimating the trade cost equivalent of trade barriers and behind the border regulation that affects services trade. Nevertheless, there is a growing literature on measuring

trade costs on the basis of observed trade patterns in services, but usually at a higher level of aggregation than what is required for the STRI (Miroudot *et al*., 2012).[25] Furthermore, the different approaches to measuring trade costs on the basis of observed trade flows have strengths and weaknesses (Nordås, 2011) and as of yet a widely accepted methodology is not available.

112. Being constrained by lack of data, alternative ways of weighting the measures in a way that reflects contribution to trade costs have to be sought. Asking those directly and indirectly involved in services trade is one option. Such expert judgement has the advantage that relative importance can be captured in a realistic and meaningful way. One objection to using expert judgement is subjectivity. As argued above this objection also applies to other methodologies and the problem can be reduced, for instance, by asking a large group of experts.

113. A third methodology for weighting measures is principal component analysis (PCA). This is a statistical methodology that assigns the highest weight to the variables that contribute the most to the variation in the dataset. The disadvantage of PCA is that the assigned weights do not reflect the relative trade restrictiveness of a measure, and the weights are based on the sample of countries for which they are estimated. Thus, when the index is extended to new countries, the scores of countries already included may change. We have therefore chosen not to use PCA.

114. The weighting scheme used for the calculation of the STRI relies on expert judgment. A large number of experts were asked to allocate 100 points among the five policy areas presented above. These are translated into weights by assigning the weight experts allocated to the policy area to each measure that falls under it and correct for differences in the number of measures under the policy areas.[26]

115. Figure 8 illustrates the difference the weighting scheme makes on the different transport and courier subsectors.[27] It depicts the STRI for a hypothetical country which scores one on all the regulatory measures included in the index, thus having the most restrictive regime possible. In all sub-sectors, experts assign the highest weight to *Restrictions on foreign market entry* than the equal weight scenario. In rail freight, air transport and courier services, *Barriers to competition* are also assigned a higher weight by experts.[28]

25. In air transport, the impact of bilateral air services restrictions on air passenger traffic have been estimated by Geloso Grosso (2012), and Piermartini and Rousova (2008). Geloso Grosso and Shepherd (2011) have also assessed the indirect impact of the bilateral regime on air cargo, by quantifying the effects of restrictions on trade in time-sensitive products.

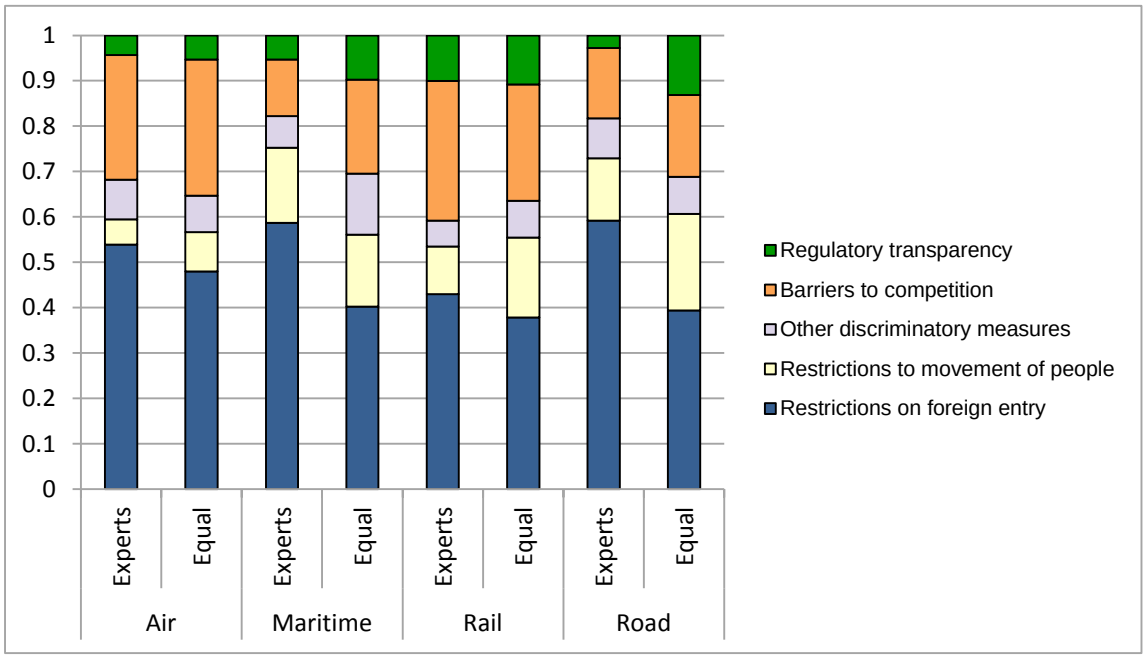
26. The formula for measure *j* under category *i* is the following: $w_{ji} = score_j w_i / \sum_i n_i w_i$ where n_i is the number of measures under category *i* and w_i is the share of the total number of points allocated to policy area *i* by the experts.

27. Equal weights are defined as $w_i = 0.20$ for all *i* in the formula above.

28. In rail freight, the composition of the STRI is presented for the vertically-integrated case. In the vertically-separated case, the category on *Restrictions on foreign market entry* is slightly less important since a few more measures are included under *Barriers to competition.*

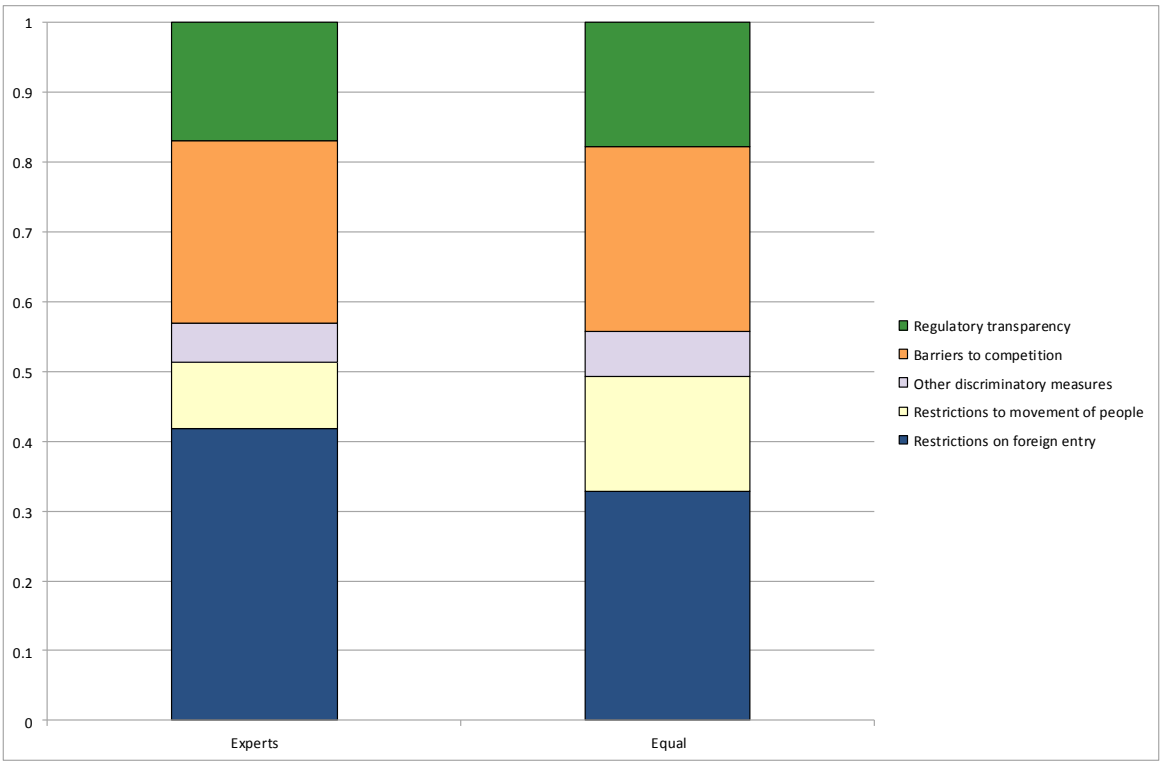
Figure 8. The composition of the STRI for transport and courier services in a totally restrictive country

Panel A. Transport



Note: Air and road transport include commercial establishment only.

Panel B. Postal and courier services



116. The method for aggregating the categories into one single index chosen is linear, taking the weighted average (using the expert judgement weights) of the scores. In the air transport sector, since cross-border trade is governed by bilateral agreements, a restrictiveness index is calculated for each of the agreements for which information is available.[29] As for the unilateral index, the weights are based on those assigned by the experts to the different policy categories.[30] These indices are next aggregated into one index covering cross-border trade for each country using the simple average of all the agreements.

117. An advantage of assigning a unique weight to each measure is that measures can be aggregated in different ways into different classifications in a consistent manner as shown in the charts below. The disadvantage is a high degree of compensation such that a high score in one category can be compensated by a low score on another category, with the result that there is less variation among countries in the aggregate index than in the sub-indicators. It may, however, well be the case that restrictions are complementary rather than additive. This problem has been dealt with through the scoring system creating hierarchies and bundles of complementary measures when they are logically linked as explained in the methodology paper (OECD, 2011).

6. STRI results[31]

Results with the expert judgment methodology

Air transport

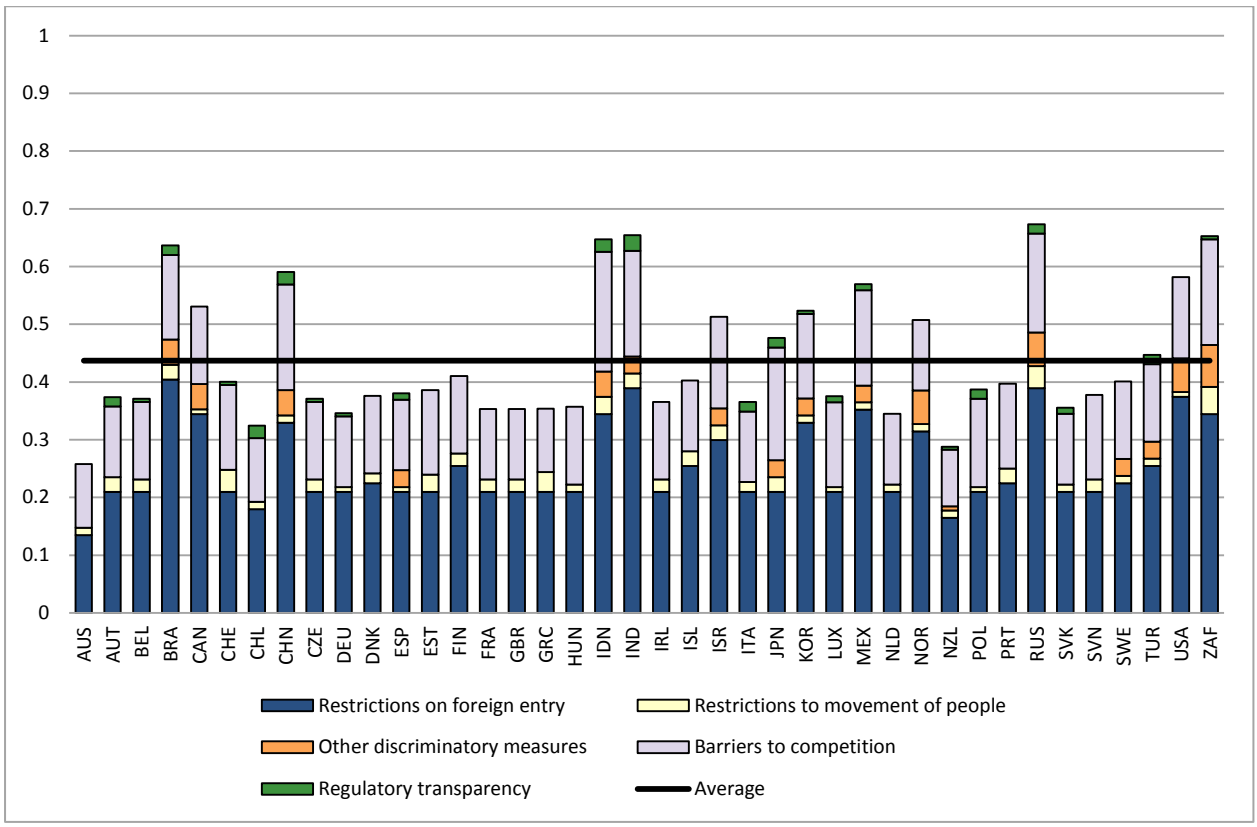
118. Figure 9 below presents the aggregate indices for air passenger and cargo transport using the expert judgment methodology, together with the sample averages. The indices cover only measures affecting commercial establishment and accompanying movement of natural persons. Preliminary results for cross-border trade, which is very significant in this sector, are discussed separately below. The overall level of restrictiveness is quite elevated with an average STRI of 0.43, and a standard deviation of 0.11. The Russian Federation, India and South Africa have the most restrictive regimes in the sector, whereas Australia, New Zealand and Chile are the most open economies.

29. The indices are derived taking the simple average between passenger and cargo transport, since there is little variation between provisions in these two subsectors in bilateral agreements.

30. For bilateral measures, only two categories are relevant: *Restrictions on foreign entry; and Other discriminatory measures.* See Annex B.

31. The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Figure 9. The STRI for commercial establishment in air transport



119. A breakdown of the STRIs by policy category shows that *restrictions on foreign entry* feature prominently, followed by *barriers to competition.* The high levels of restrictiveness reflect a high degree of sector-specific regulations. Most countries restrict foreign equity participation in the sector to (at least) less than 50%. In most cases, the limitations affect airlines in both domestic and international traffic.[32] Ownership restrictions are often coupled with specific limitations on the nationality of board members and managers of air carriers. Several countries maintain public ownership in aviation, usually also restricting foreign ownership in these firms. Non-competitive slot allocation is common as well, with most countries assigning slots in high demand airports based on historical rights, typically forbidding commercial exchange of slots.

120. Preliminary STRIs have also been developed for cross-border trade in air transport, deriving unilateral indices from information contained in bilateral and plurilateral air service agreements (see Figure 10 in Box 2 below). The database on bilateral air services agreements is still under development: almost 550 bilateral and plurilateral agreements are covered in the study which may not be a representative sample. There also are differences in countries' coverage of bilateral agreements and in some cases the information may not be the most up-to-date for reasons of confidentiality. Hence, this is an initial attempt to capture restrictiveness in this mode of supply in light of its importance for trade in the sector. Further investigation will be undertaken in the future as the information base improves.

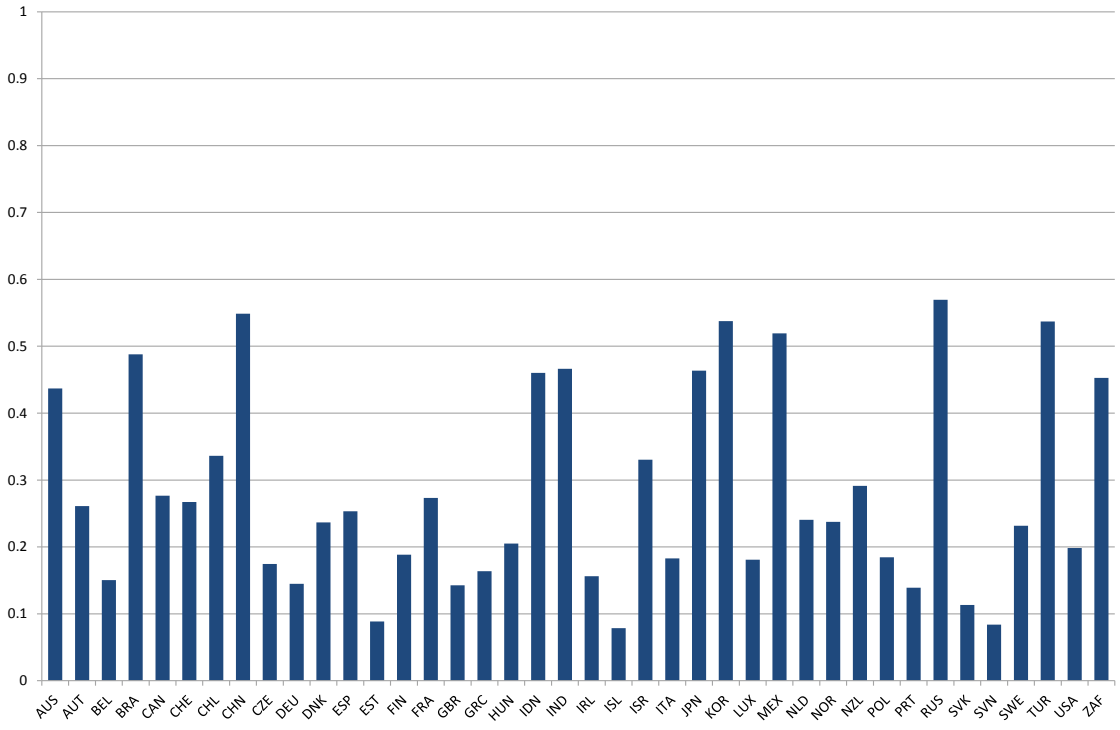
32. A notable exception is Chile which does not apply any limitations on the foreign ownership of domestic airlines. In addition, Australia (with the exception of Qantas) and New Zealand allow 100% foreign ownership in domestic airlines for the purpose of carrying out domestic traffic only.

Box 2. Air services agreements and relationships covered in the STRI

Table C.1 in (Annex C) presents the coverage of air services agreements. A total of 544 bilateral and plurilateral agreements are covered in the analysis. The plurilateral agreements included are:

- The EU Single Aviation Market
- The European Common Aviation Area
- The EU-US Open Skies Agreement
- The EU-Canada Air Transport Agreement
- The EU-Swiss Agreement on Air Transport
- The Euro-Mediterranean Aviation Agreement between the European Union and Israel
- The Multilateral Agreement on the Liberalisation of International Air Transport

Figure 10. Preliminary STRI for cross-border trade in air transport



A threshold has been developed to exclude small countries and make the project more manageable. Countries are ranked according to their GDP; the study includes the first 52 countries for which the total sum of their GDP represents 95% of world's GDP (World Development Indicators, 2012). To these 52 countries, 12 OECD and EU missing countries are added (Bulgaria, Croatia, Cyprus,[33] [34] Estonia, Iceland, Latvia, Lithuania, Luxembourg, Malta, New Zealand, the Slovak Republic and Slovenia). Within this threshold, the selection has been driven by the availability of the agreements to the public.

The reporters are the OECD countries and the key partners. According to the threshold, each reporter may have a maximum of 64 agreements, which none of the countries in the sample has. At the same time, for the calculation of the STRIs, each plurilateral agreement is counted for each bilateral relationship for which it accounts for. So, for example, the EU-US Open Skies Agreement is counted as 28 bilateral relationships between the United States and each of the EU Member States. In practice this means that, although the study covers 544 agreements, there are 787 bilateral relationships which are used in the analysis. Finally, in the calculation of the indices, all agreements which an OECD or a key partner country has with its trading partners are taken into account (i.e. when the country in question is a reporter or a partner).

121. The pattern that emerges from the sample of agreements covered in the study is that, while some progress in easing restrictions has been achieved through open skies agreements, significant limitations remain in place. Restrictions to 5th freedom rights are still common in bilateral agreements, with 7th freedom and cabotage being very rarely granted. In the air cargo segment, though, 7th freedom is more frequent, reflecting the need of modern air cargo services to route cargo and operate capacity in complex global supply chains. Limitations on the number of entry points for the partner country's carriers are prevalent in bilateral agreements as well, including in relation to the ability of carriers to serve intermediate or beyond points. Some agreements also have a more liberal policy for cargo transport in this area.

122. With respect to ownership and control rules, bilateral and plurilateral agreements largely maintain a conservative approach. With the exception of some regional agreements (e.g. the EU Single Aviation Market), the most restrictive substantial ownership and effective control requirement is typically provided for. Though countries have made some headway in liberalising tariff provisions and filing requirements, dual approval of tariffs remain widely in place in bilateral agreements. Provisions on capacity are also restrictive, with Predetermination and Bermuda I clauses making up the majority of bilateral agreements. Finally, cooperative arrangements, particularly code-sharing, are generally allowed, though third-party code-sharing less so.

Maritime transport

123. Figure 11 displays the indices for maritime transport by policy area. Note that landlocked countries are missing from the graph as discussed in Section II. The results show that the sector is generally moderately restrictive with an average STRI index of 0.25, ranging between 0.07 and 0.44, and a

33. Note by Turkey:

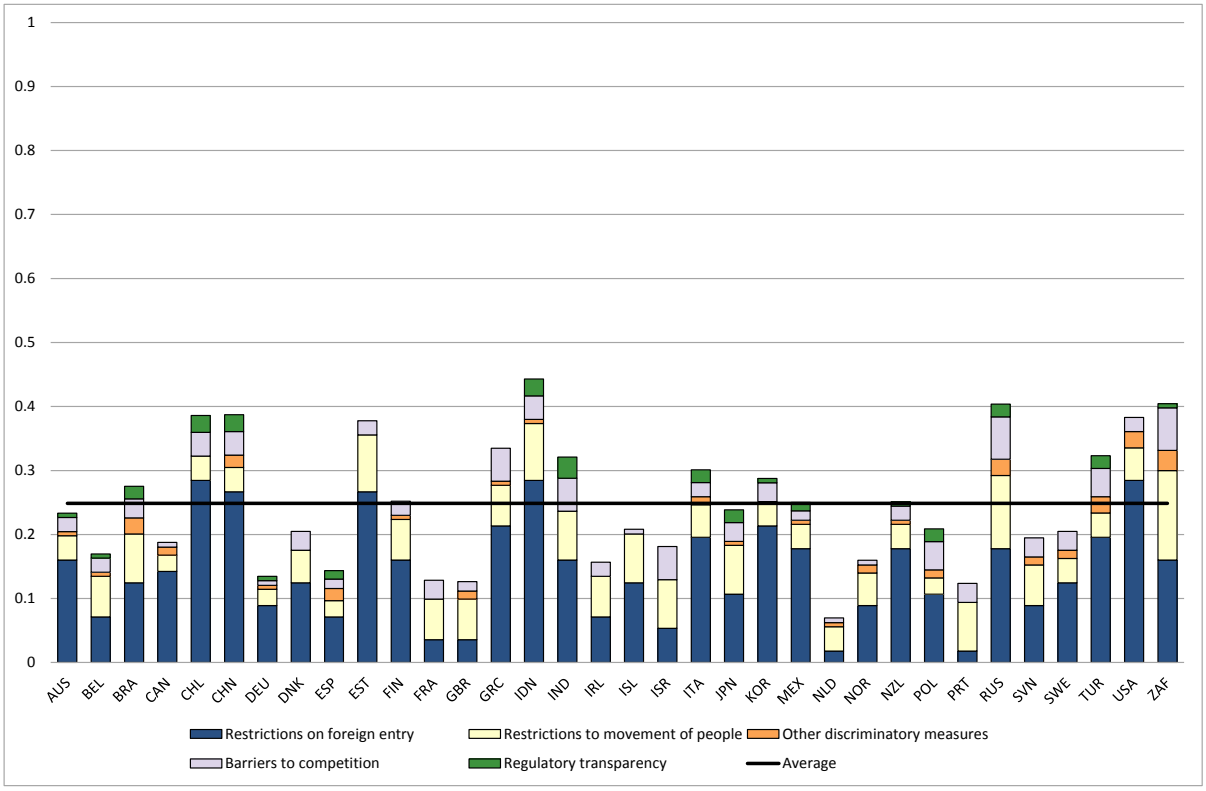
The information in this document with reference to "Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Turkey shall preserve its position concerning the "Cyprus issue."

34. Note by all the European Union Member States of the OECD and the European Union:

The Republic of Cyprus is recognised by all members of the United Nations with the exception of Turkey. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.

standard deviation of 0.099. Indonesia, South Africa and the Russian Federation have the most restrictive regimes, while the Netherlands and Portugal are the most liberal countries.

Figure 11. The STRI for maritime freight transport by policy area



124. *Restrictions on foreign entry* contribute significantly to the index particularly in the countries that score above the average. The measures included in this category are foreign equity restrictions, residency or nationality requirements for board of directors, restrictions on cabotage, port services and cargo reservation schemes. Ten countries restrict foreign ownership in the sector (Australia, Chile, China, Estonia, Greece, Indonesia, Italy, Korea, Mexico, New Zealand). Among the 34 countries included in the STRI for maritime services (note that landlocked countries are not included), only seven have no restrictions on cabotage (Denmark, Ireland, Iceland, Netherlands, Norway, South Africa and the UK).[35]

125. Conditions on flying the national flag are not a trade restriction *per se*, but in cases where flying the flag is a condition for access to certain markets, discrimination related to registering under the national flag is recorded as a restriction. Only seven countries in the STRI database do not have any discrimination in this regard (Brazil, China, France, Italy, Korea, Poland and Sweden). Turning to port services, ten countries have restrictions recorded by one or more of the measures in this area (Brazil, Chile, China, Greece, Ireland, Israel, Poland, the Russian Federation, Slovenia and South Africa). Horizontal measures related to residency or nationality of board members apply to maritime services as well, although a few countries have specific requirements in this regard in maritime services. There are few restrictions on international maritime transport; 11 countries have cargo reservation schemes on their books, even though, as noted above, they may not be strictly enforced.

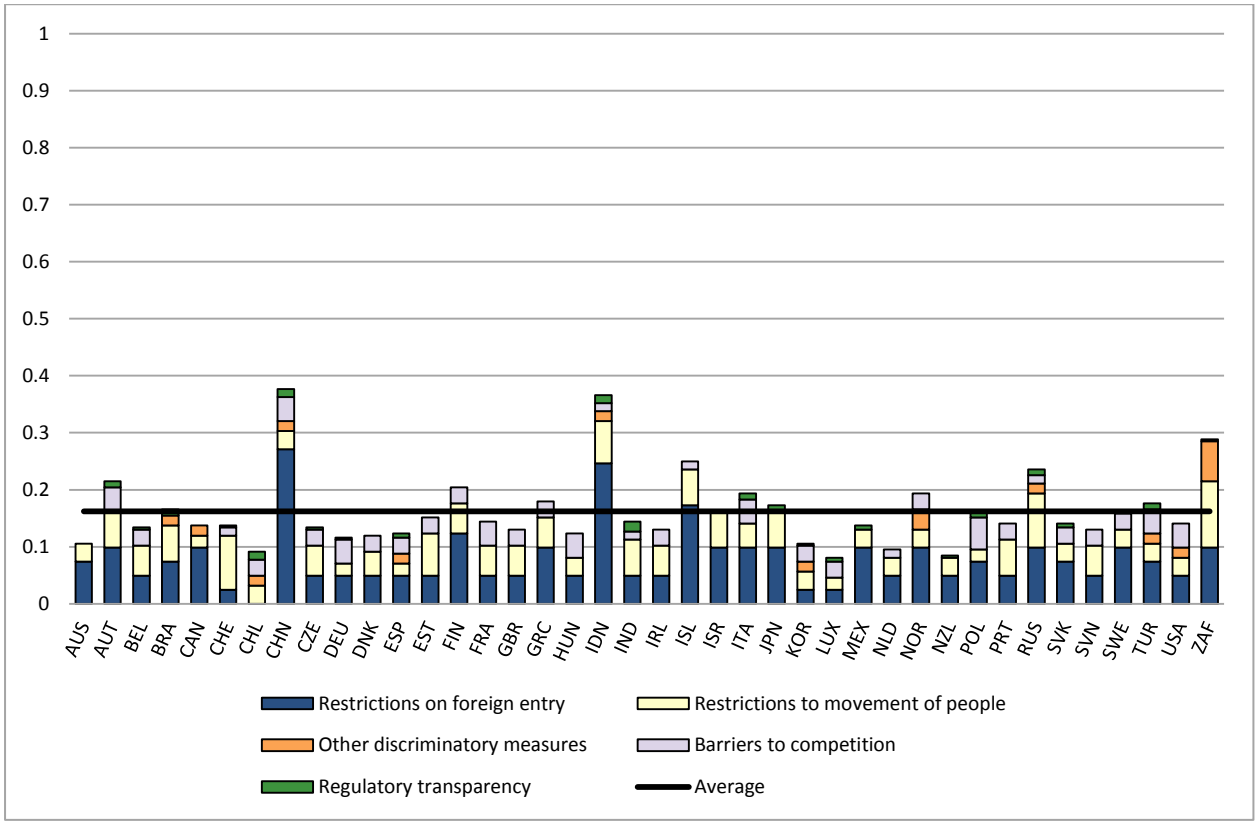
35. Note, however that EU members have no restrictions on providing cabotage in other EU members.

126. The horizontal measures on movement of people contribute significantly to the index in a number of countries, not because there are additional restrictions in maritime services, but because there are few other restrictions. Finally, under barriers to competition, most countries have some exemption for liner codes from competition law.

Road freight

127. Figure 12 presents the results for commercial establishment and accompanying movement of natural persons in road freight transport, using the expert judgment methodology. The overall level of restrictiveness is relatively low, ranging from 0.08 to 0.37, with an average of 0.16. The standard deviation is 0.06, indicating that the STRI captures variation in trade restrictiveness quite well, which is largely due to the more elevated levels of restrictions in some of the key partners. China, Indonesia and South Africa are the most restrictive countries, whereas Luxemburg, New Zealand and Chile have the most liberal regimes.

Figure 12. The STRI for commercial establishment in road freight



128. *Restrictions on foreign entry* and *restrictions to movement of people* contribute the most to the results, followed by *barriers to competition*. As noted, although heavily regulated in the past, the domestic road freight transport regime has been significantly liberalised over the years, and currently commercial establishment in the sector is largely affected by horizontal measures. These include restrictions on board members and managers, screening of investment, quotas or labour market tests on different categories of service providers, and discriminatory access to government procurement markets.

129. Few sector-specific measures remain in place. Two countries (China and Indonesia) restrict foreign equity participation in the sector to less than 50%. Several countries, particularly EU Members, maintain commercial presence requirements in order to provide road freight. Exemptions of road freight carriers' agreements from competition law are also applied in some countries. Quotas and pricing restrictions have largely been eliminated; a few regimes still maintain economic needs tests in order to obtain a permit to practice or pricing guidelines for road freight companies. Finally, some cases remain of government ownership in major road freight hauliers, at times coupled with limitations on foreign ownership in such firms.

Rail freight

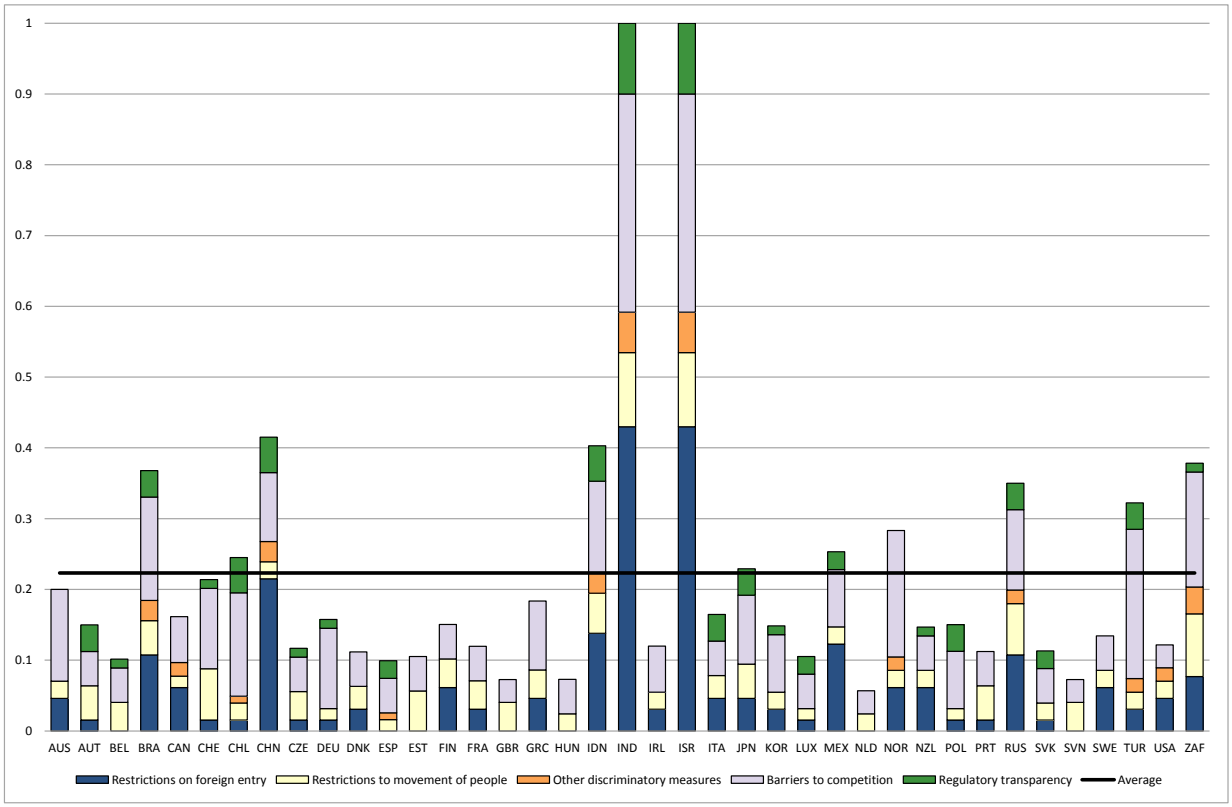
130. Figure 13 depicts the results for rail freight transport by policy area. Note first that Iceland is missing in the graph since it does not have a railway network. The average level of restrictiveness is moderate at 0.22, with a large standard deviation of 0.207. The two most restrictive countries, India and Israel, have statutory state-owned monopoly in the rail transport sector. This explains the index value of one. The Netherlands, the United Kingdom, Slovenia and Hungary have the most liberal regimes.

131. The two areas that contribute the most to the index value are *restrictions on foreign market entry* and *barriers to competition.* This is both because a number of countries limits entry into this sector and competitive markets are not ensured through best practice regulation, and because these two policy areas carry the highest weight in the index. The weighting is similar to other capital-intensive network industries in the STRI project, notably telecommunications and broadcasting.

132. The countries under the vertical separation regulatory regime are all EU Members (except Ireland), Australia, Brazil, Korea, the Russian Federation, Switzerland and Turkey. Vertically integrated railway companies are found in Canada, Chile, China, Indonesia, India, Ireland, Israel, Japan, Mexico, New Zealand, the United States and South Africa. The vertically integrated regimes have on average higher barriers to competition, but this is largely because the two countries where rail services are subject to a statutory monopoly are recorded under this category. If we exclude them, the average barrier to competition score for vertically integrated markets is 0.09, compared to 0.07 for vertically separated markets.

133. The measure where the largest number of countries record a restriction is on transfer and trading in infrastructure capacity where only Australia, Brazil, Korea and Turkey allow such trading among the countries applying the vertical separation regulatory model. Secondary capacity trading is likely to mitigate the well-documented problems with efficient capacity allocation in the vertical separation model. The second most common barrier to competition in the rail sector is government ownership. All major railway companies are privately owned only in six countries (Australia, Canada, Japan, the Netherlands, the United Kingdom and the United States). In nine of the countries where government owns major rail transport companies the government can also overrule the decisions of the rail regulator.

Figure 13. The STRI for rail freight transport by policy category

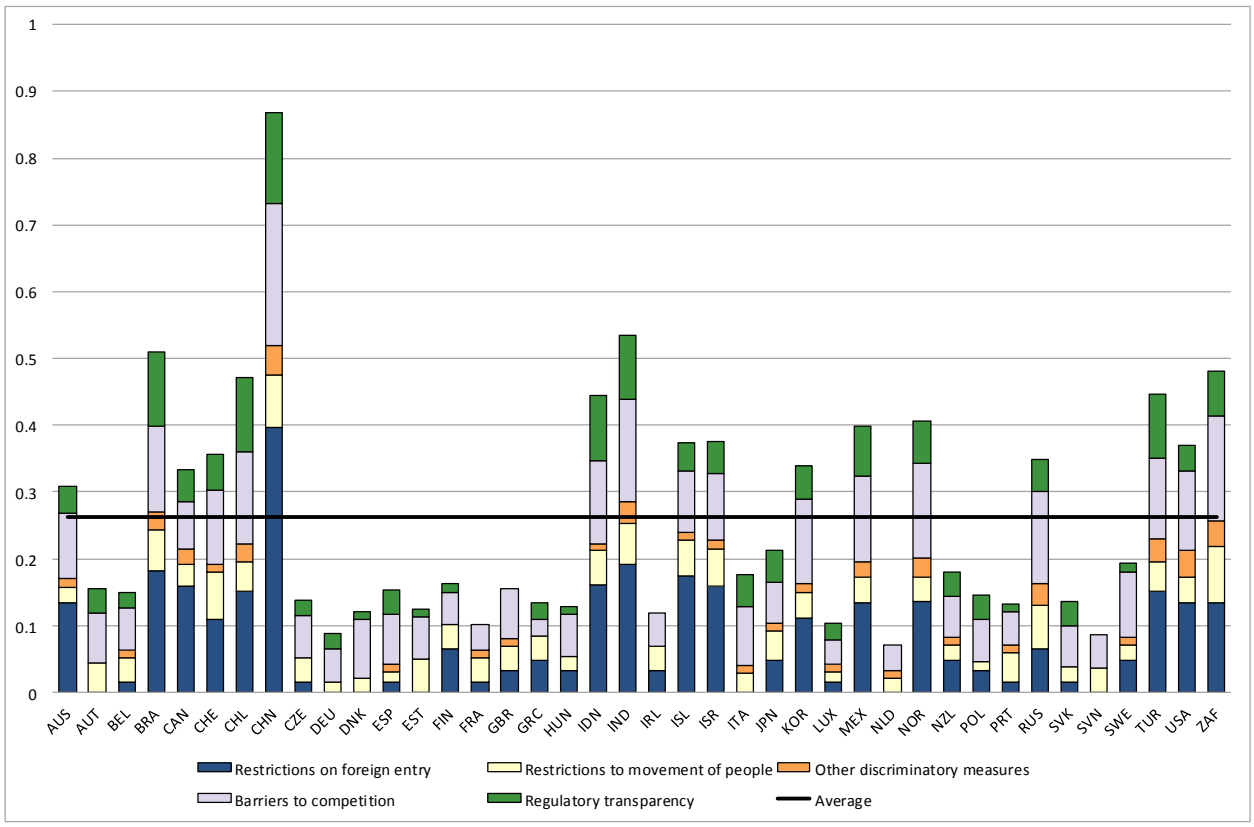


Courier services

134. Figure 14 presents the results for courier services by policy areas, together with a line indicating a sample average of 0.26. The standard deviation is 0.17 and the STRI values range from 0.07 to 0.87, suggesting that there is significant variation in trade restrictiveness among the countries covered by the STRI. The Netherlands has the most liberal regime, whereas China is the most restrictive market for courier services.

135. This figure indicates that the regulatory profile differs across countries. *Restrictions on foreign entry* significantly contribute to the results for 14 countries covered by the STRI. Foreign equity restrictions are found in China for postal services and domestic express delivery of letters, and in Indonesia for mail providers. 15 countries (Australia, Brazil, Canada, Switzerland, Chile, China, India, Iceland, Israel, Korea, Mexico, Norway, Turkey, the United States and South Africa) require a statutory monopoly for delivery of letters, either the whole segment of letters or up to certain weights. This measure alone accounts for an index value of 0.2, 0.23, and 0.33 if there is a monopoly up to 50g, up to 1kg and the whole segment of letters respectively. No monopoly is found in the area of the delivery of parcels. China reserves domestic express delivery services to domestic services providers. Nevertheless, the elevated level of restriction in the first policy area can be also attributed to other investment impediments, such as screening of investments, limitations on board members and managers. Note that seven countries have no restrictions in this first policy area (Austria, Germany, Denmark, Estonia, Italy, the Netherlands and Slovenia).

Figure 14. STRI for courier services (including postal services) by policy category

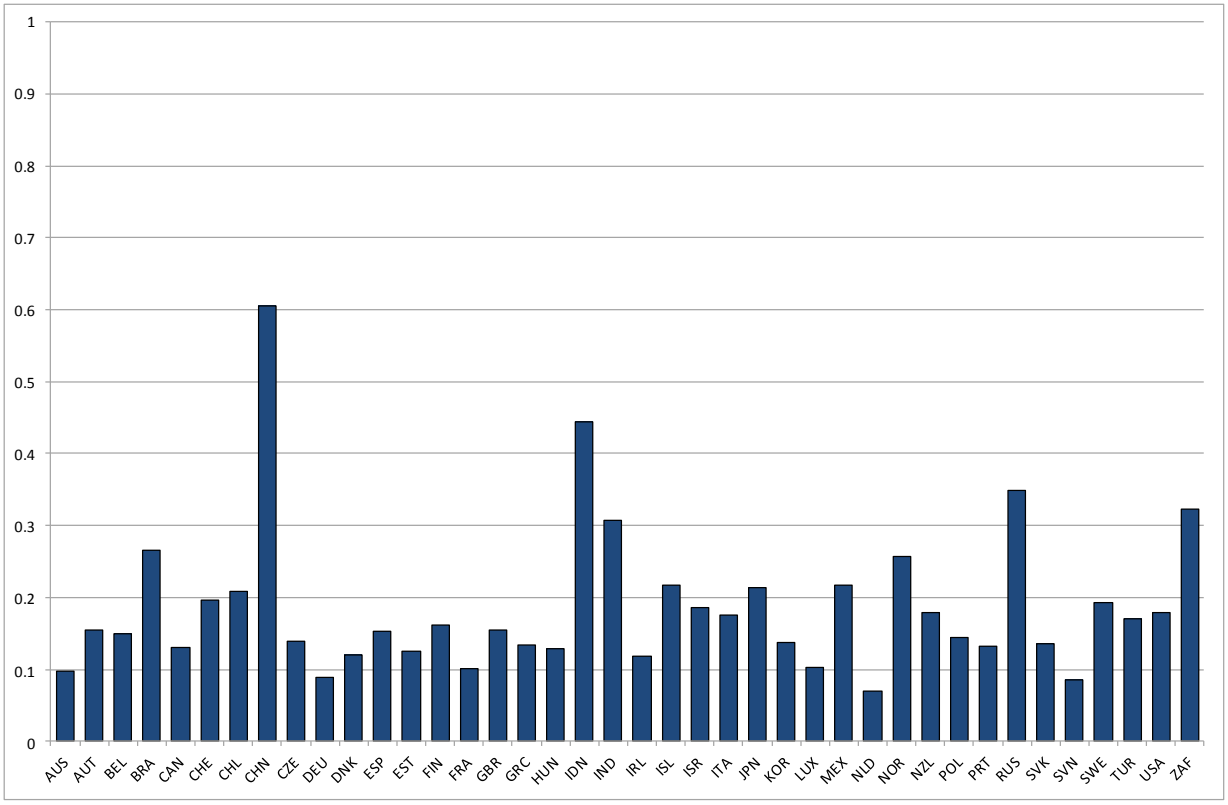


136. The STRI for courier services covers both postal and courier services according to the W/120 classification, which distinguishes between postal and courier not on the basis of the nature of the services provided but on the nature of the services provider.

137. The market position and scope of the postal services vary across countries; from a statutory monopoly for a broad range of services, to a commercial company competing with other courier services providers. In the latter case the DPO may still have a special status and be subject to regulation. The nature of regulation varies from pro-competitive measures aimed at preventing the DPO from abusing a dominant position to protecting the DPO from competition.

138. To illustrate the influence of a statutory monopoly on the STRI for courier services, Figure 15 shows the contribution to the indices for courier services outside the postal monopoly. Among 15 countries with a statutory monopoly, seven countries (Australia, Canada, Switzerland, Israel, Korea, Turkey and the United States) have an index value less than 0.2 for the market outside the monopoly. This suggests that these seven countries have relatively liberal regulatory regimes for the courier market other than the services subject to monopoly. It should be noted that the indices in Figure 20 are not comparable across countries because the definition and scope of postal services and monopoly are different from one country to another.

Figure 15. Courier services outside postal monopoly



139. *Barriers to competition* have also a substantive impact on many countries. In fact, these restrictions represent the most significant component of the indices in almost two thirds of the countries included in the STRI. Preferential tax or subsidy treatment for the DPOs including VAT exemption for universal services, and restrictions on ground or cargo handling are widely observed in European countries. Note that it is not considered a limitation on competition if private courier operators are also eligible for VAT exemption when they provide universal services. Lack of measures to avoid cross-subsidisation is found in about a third of the countries covered by the STRI.

140. *Regulatory transparency* includes sector-specific measures with regard to custom procedures and licensing procedures. The majority of countries included in the STRI have pre-arrival processing and a *de minimis* regime in place, while about a third of countries have *de minimis* thresholds less than USD 100 or do not have such regimes. With regard to licensing procedures, licensing fees are required in more than a third of the countries covered by the STRI.

141. *Restrictions on the movement of people* and *Other discriminatory measures* do not include sector-specific restrictions. Nevertheless, measures of a horizontal nature are shown to affect the trade restrictiveness of these services.

The STRI according to other classifications

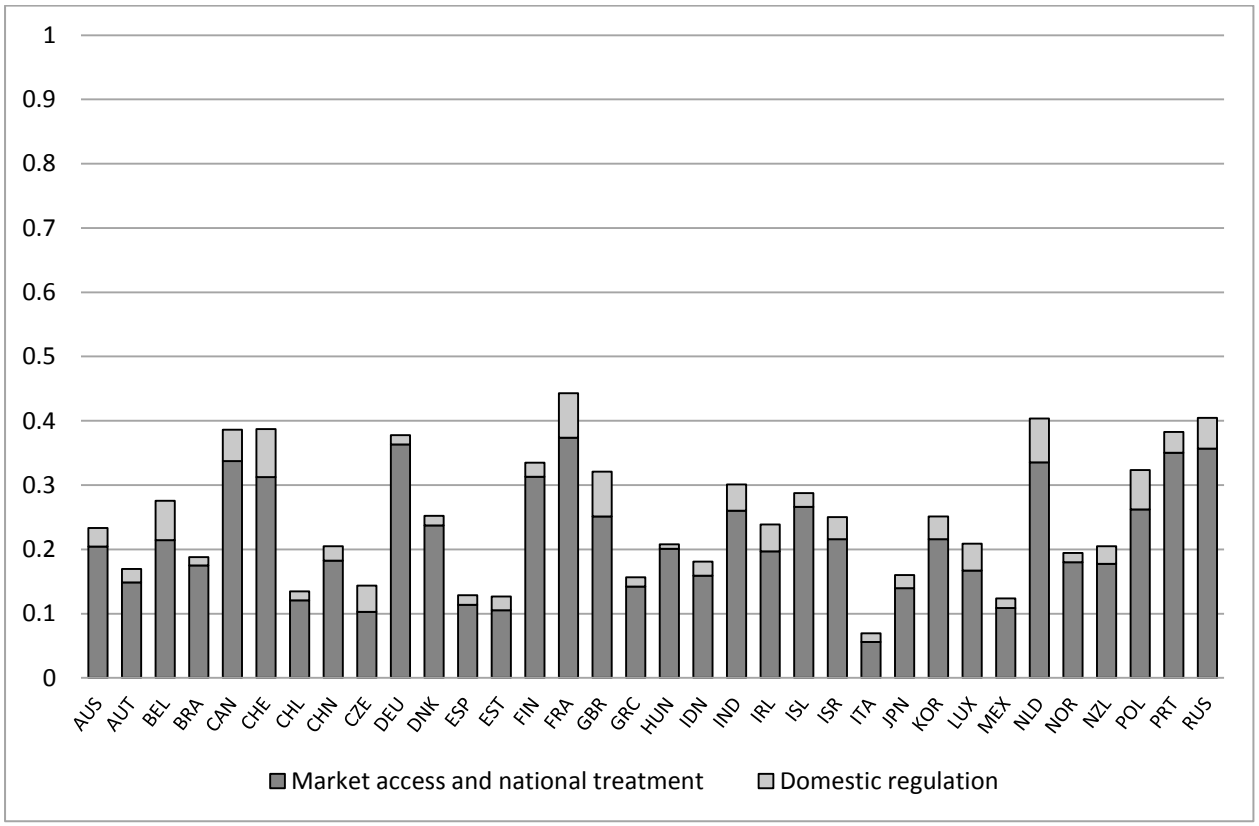
142. A breakdown of the STRI for transport and courier services according to the GATS framework and modes of services supply is presented below in Figures 16 and 17, respectively. Market access and national treatment measures are predominant in maritime and commercial establishment in road freight transport, while domestic regulatory and other measures play a more significant role in rail freight. This is due the importance of barriers to competition for rail transport. In the case of courier services, both

measures are important, while market access and national treatment measures have substantive impacts for restrictive countries.

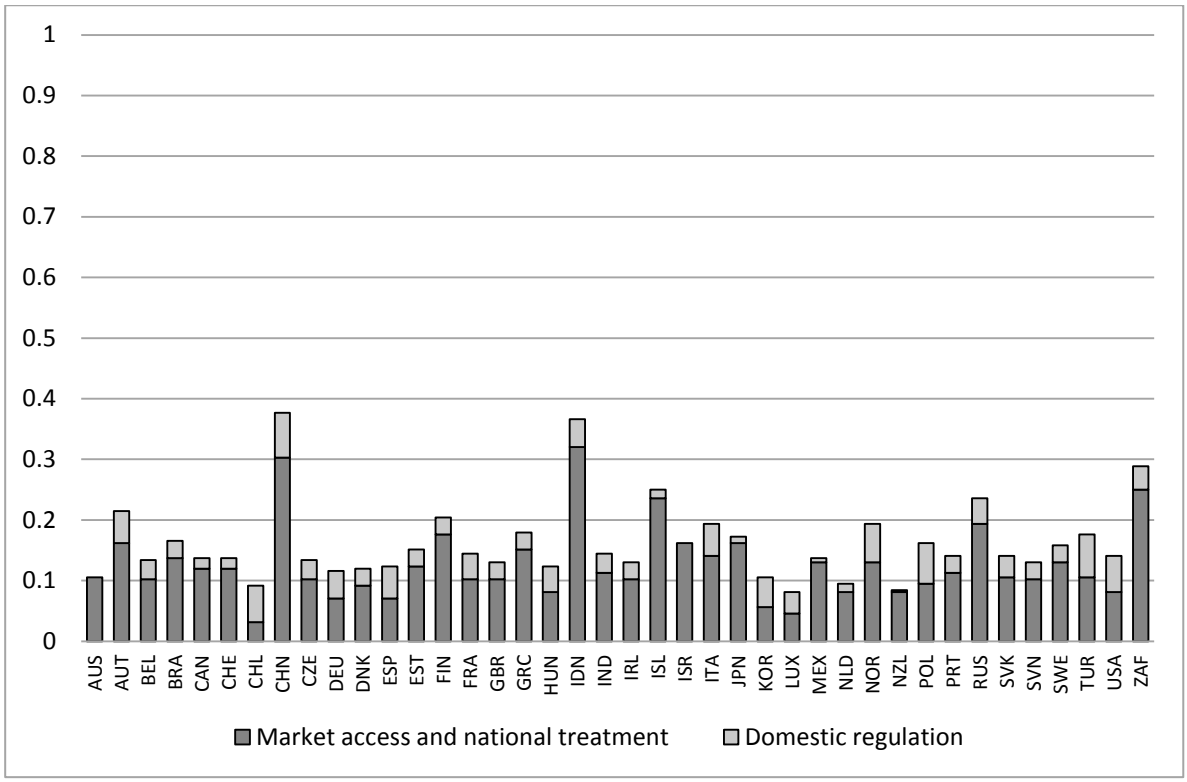
143. With respect to modes of supply, the results show that the majority of restrictions underlining the STRI scores for commercial establishment in air and road, as well as for rail and courier services relate to mode 3 measures. Mode 4 measures are more relevant to maritime services.

Figure 16. The STRI by other classifications: GATS categories

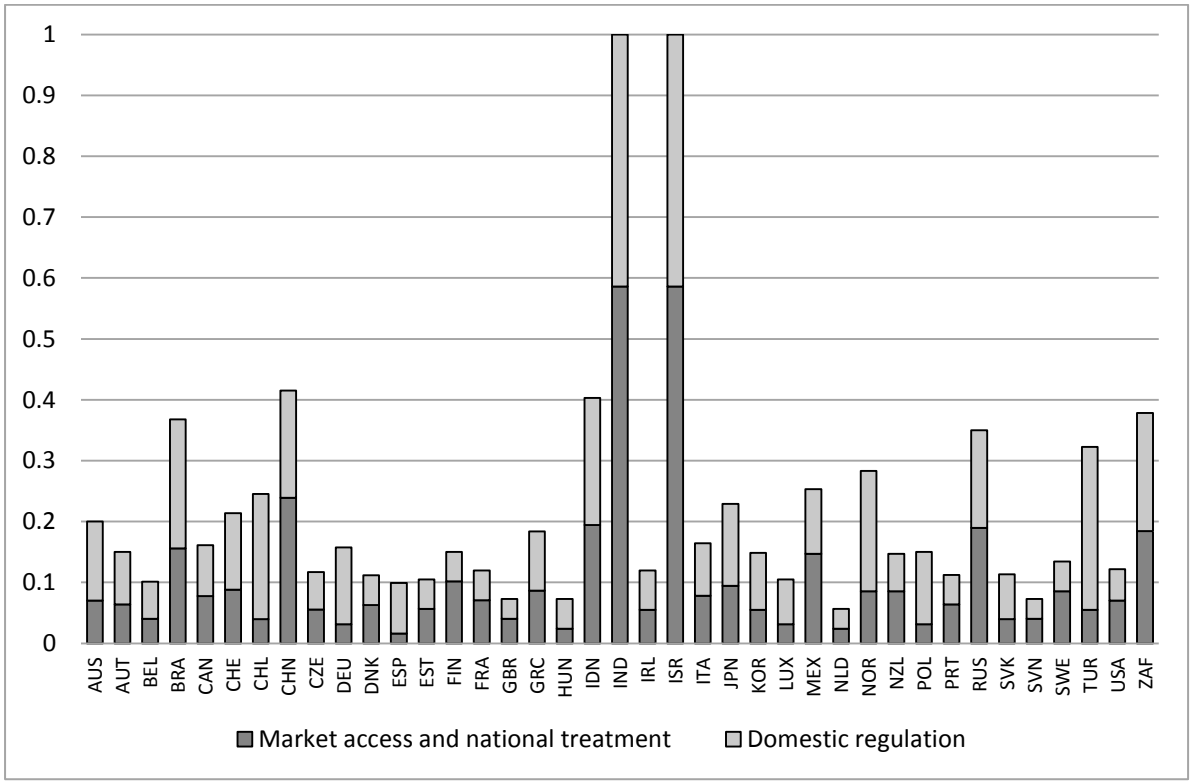
Panel A. Maritime transport



Panel B. Commercial establishment in road freight transport



Panel C. Rail freight transport



Panel D. Courier services (including postal services)

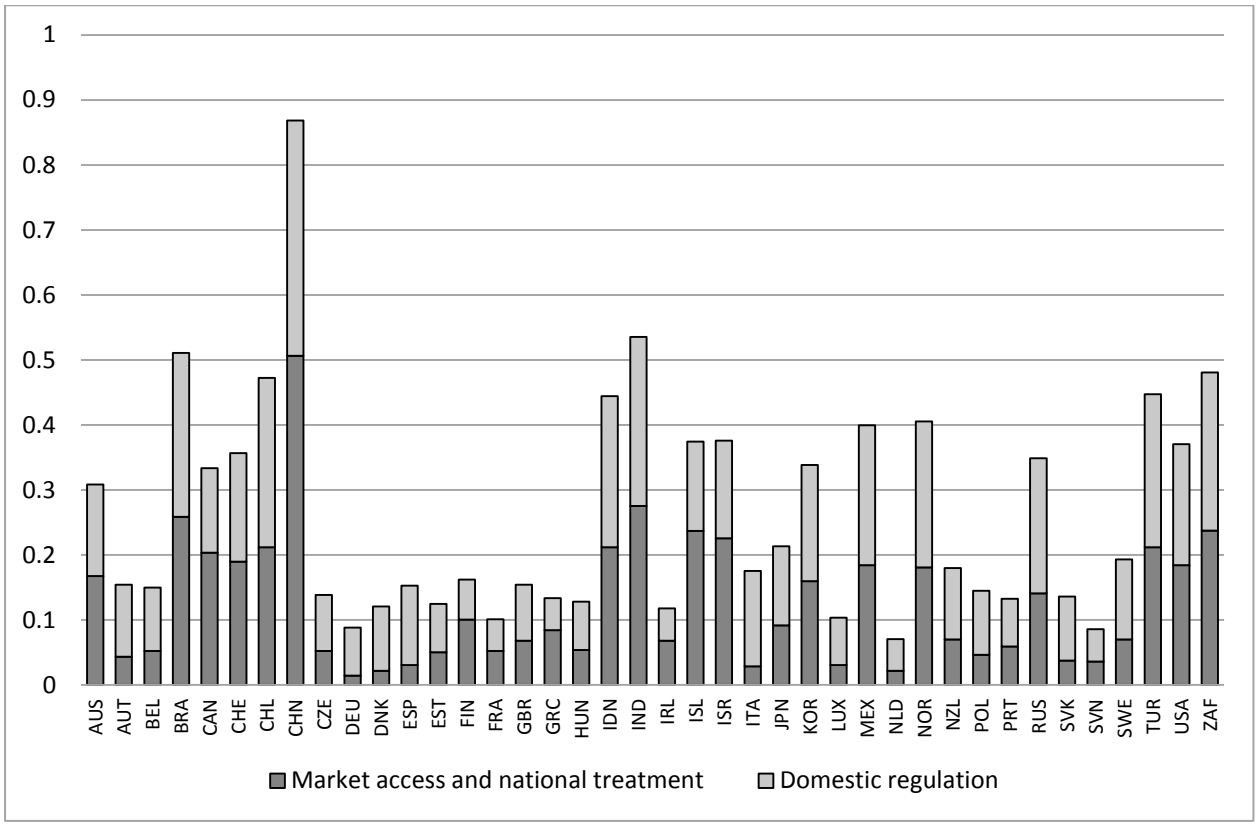
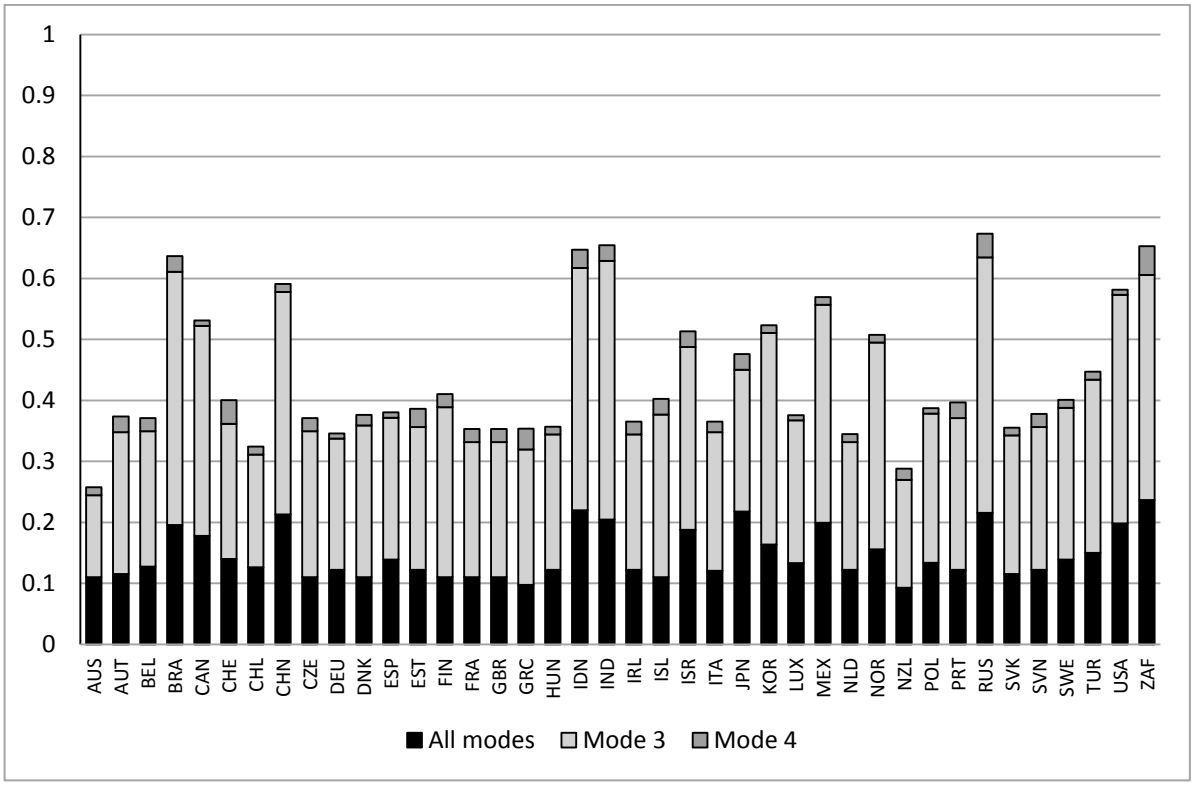
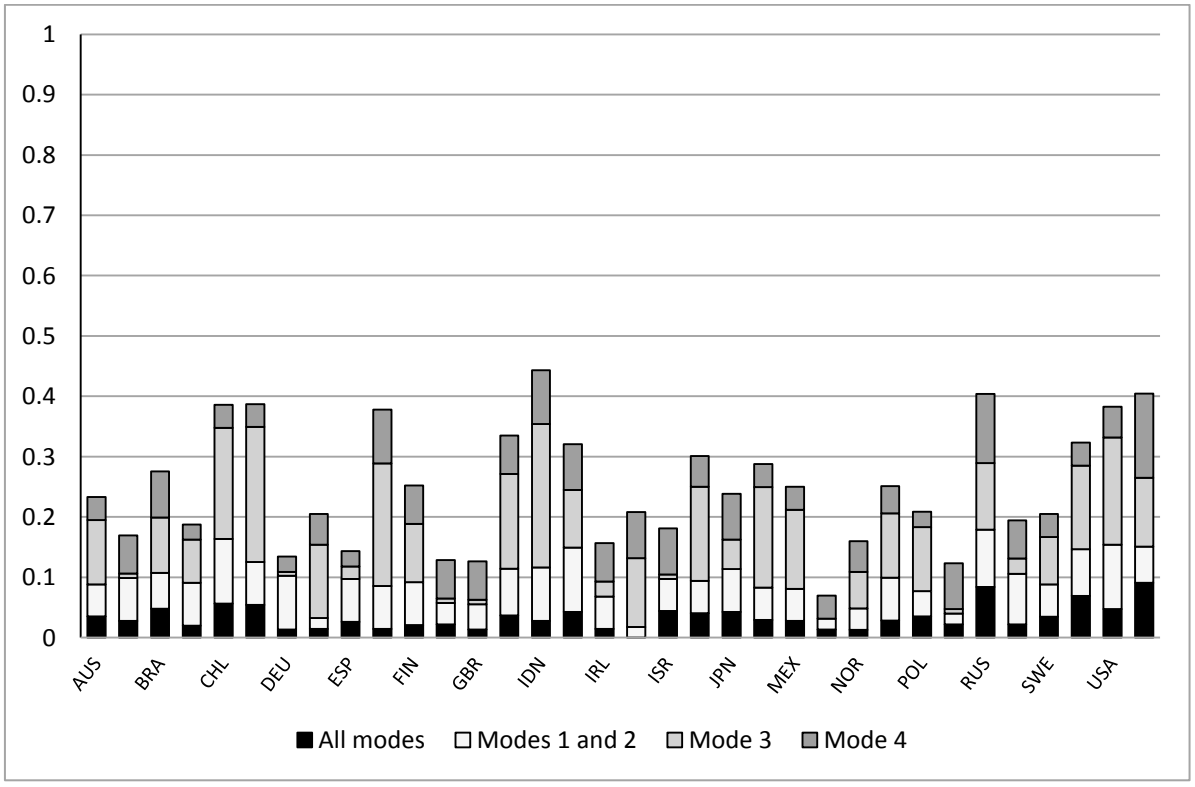


Figure 17. The STRI for transport and courier by other classifications: Modes of supply

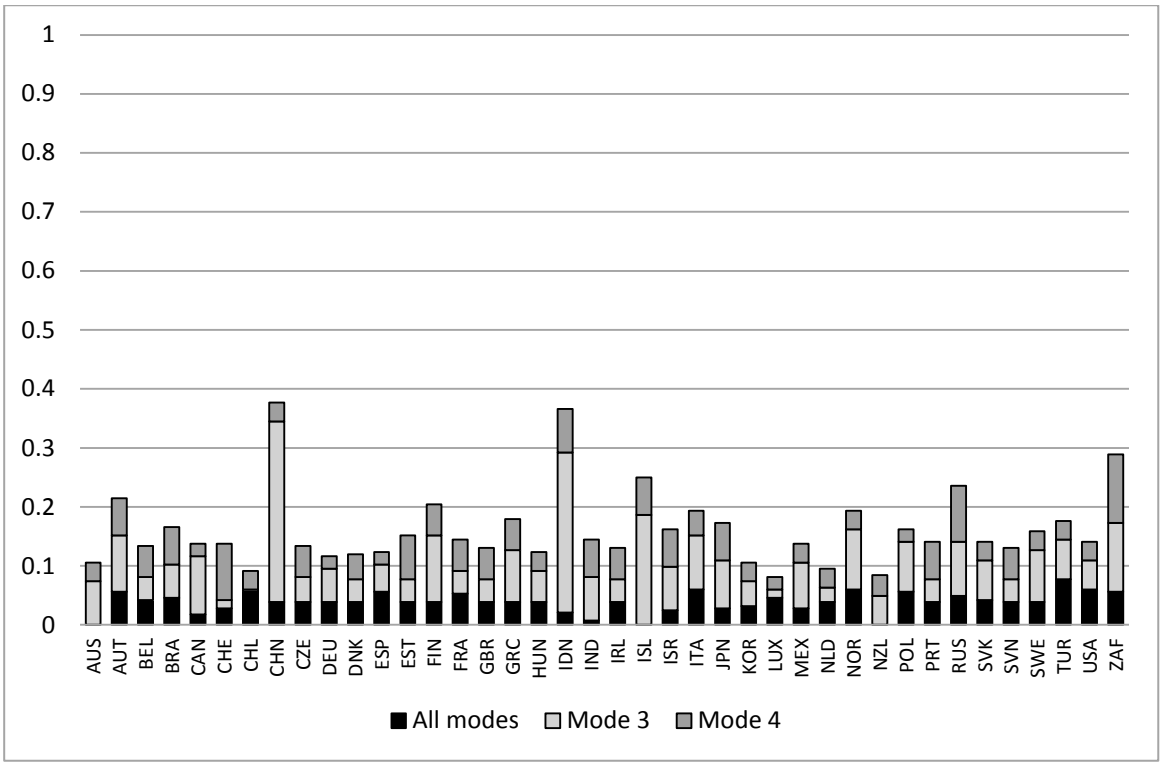
Panel A. Commercial establishment in air transport



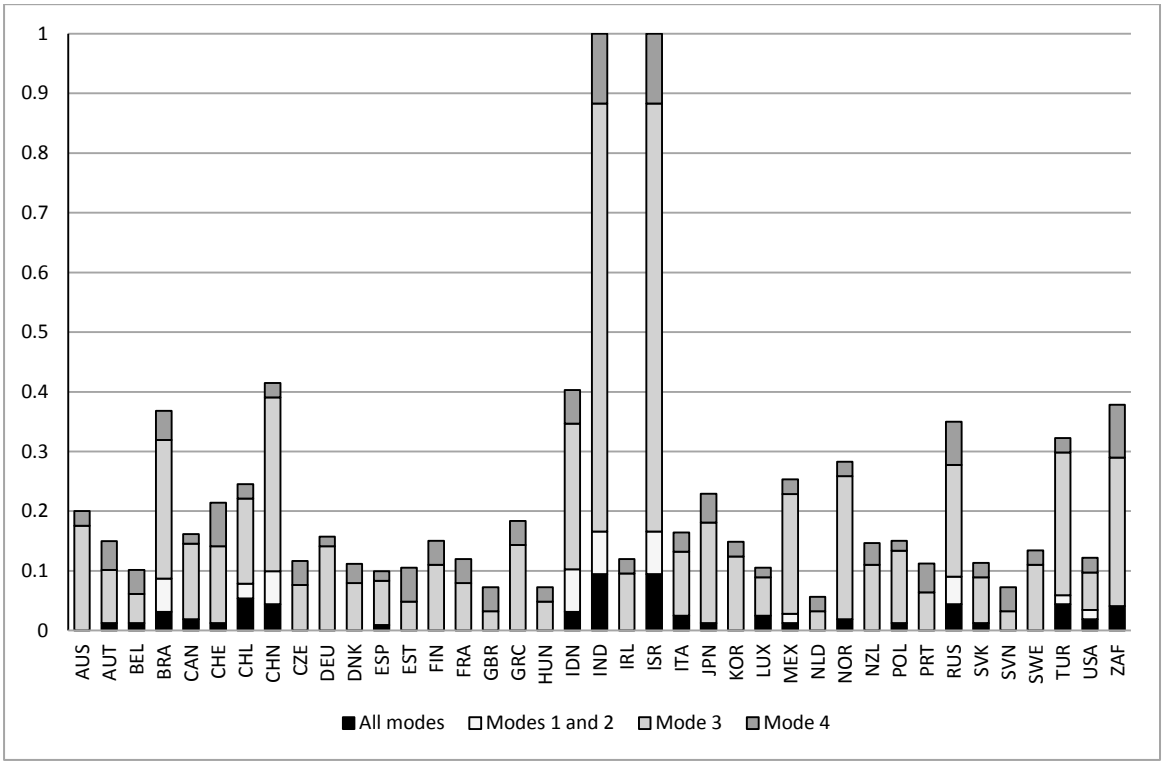
Panel B. Maritime transport

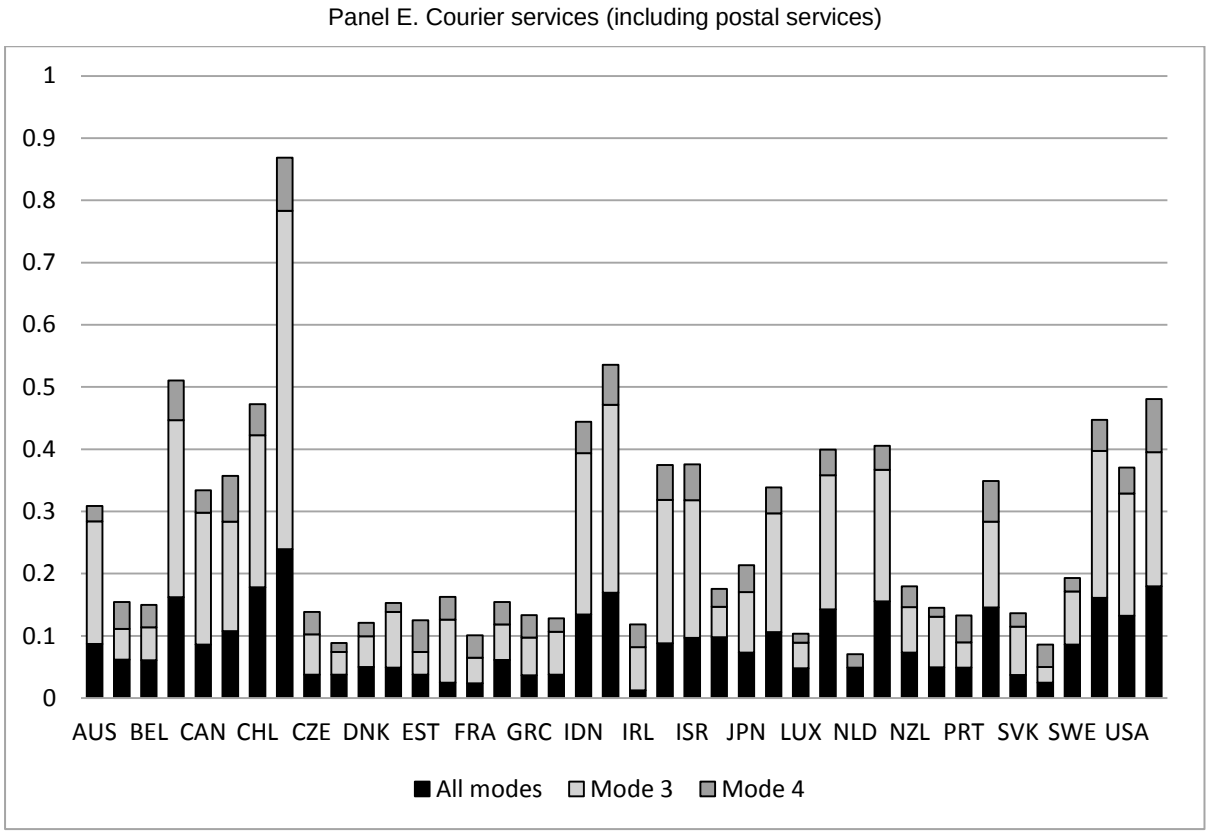


Panel C. Commercial establishment in road freight transport



Panel D. Rail freight transport



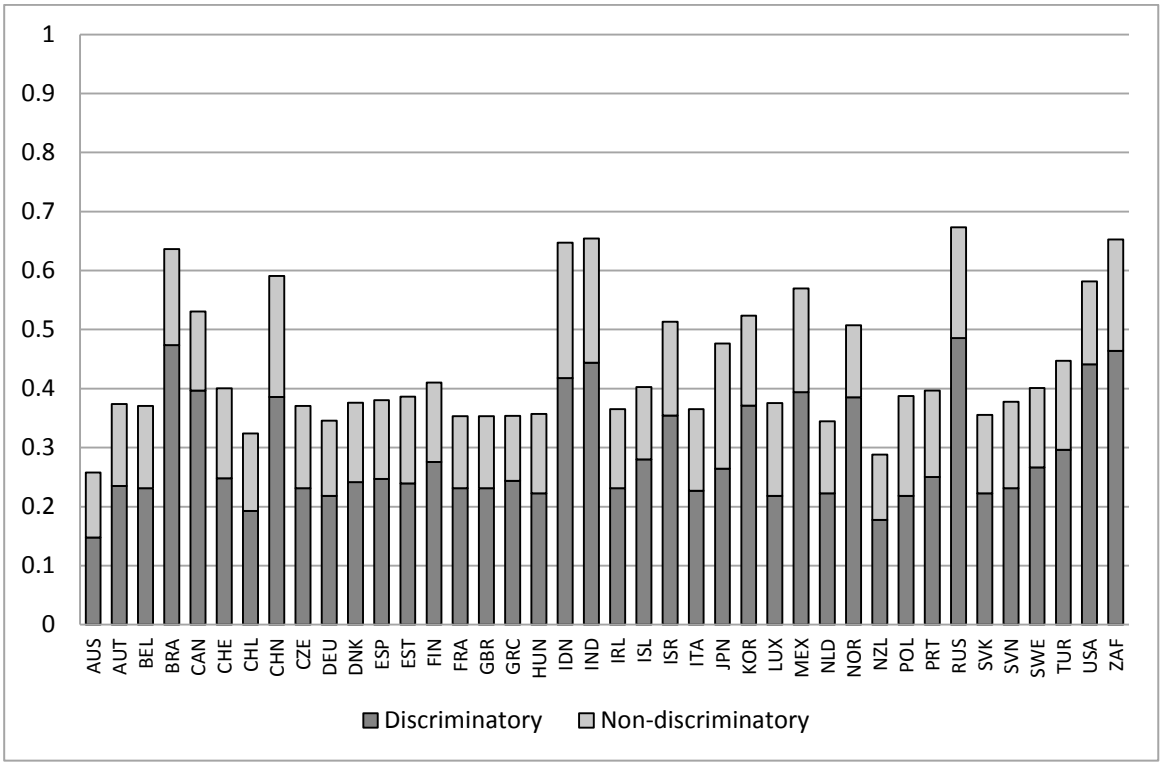


144. Figure 18 depicts the indices decomposed into discriminatory and non-discriminatory measures. Discriminatory measures have a considerable bearing on the results for maritime services and commercial establishment in road freight. In line with the GATS framework, the contribution of non-discriminatory measures is quite important in rail freight and, also in light of the importance of barriers to competition, for the indices on commercial establishment in air transport. For courier services, both discriminatory and non-discriminatory measures are important, while the latter contribute slightly more for most countries.

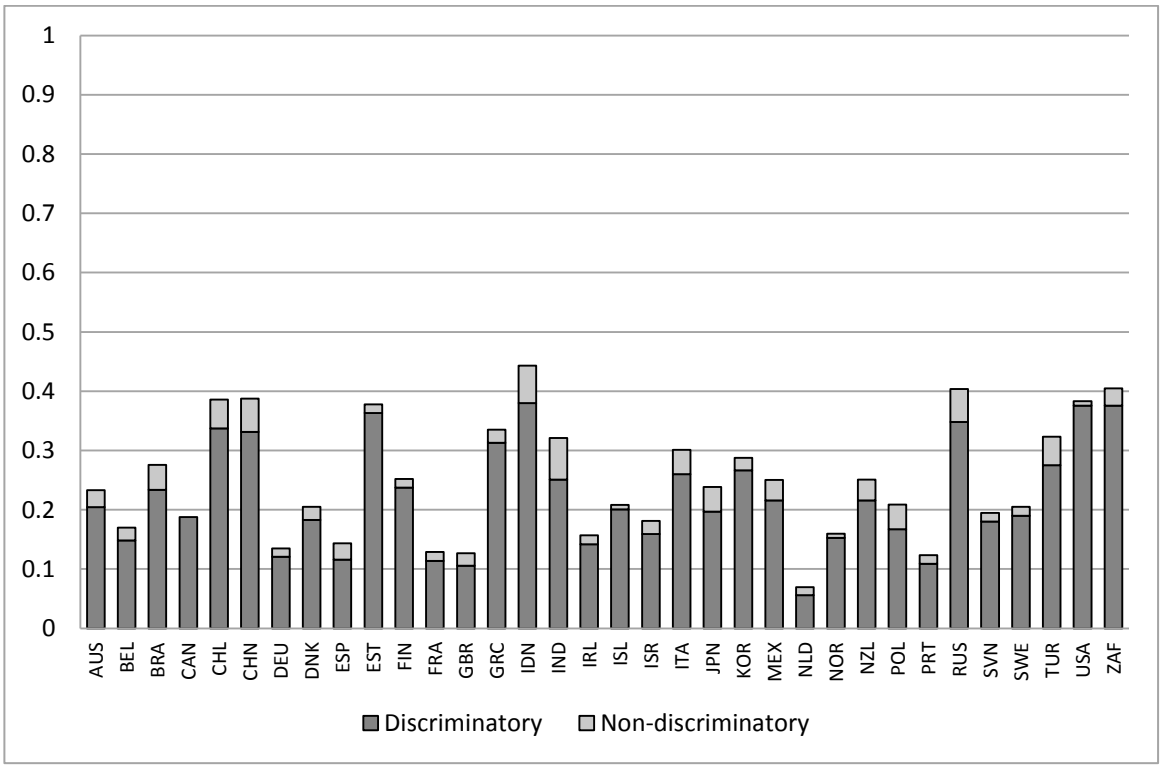
145. Figure 19 shows a similar pattern with respect to restrictions to firms' establishment versus those affecting their ongoing operations; the former play a more important role for maritime and road transport, while the latter contribute more to the STRIs for air and rail transport. In the case of courier services, both types of restrictions play a significant role.

Figure 18. The STRI by other classifications: Discriminatory versus non-discriminatory

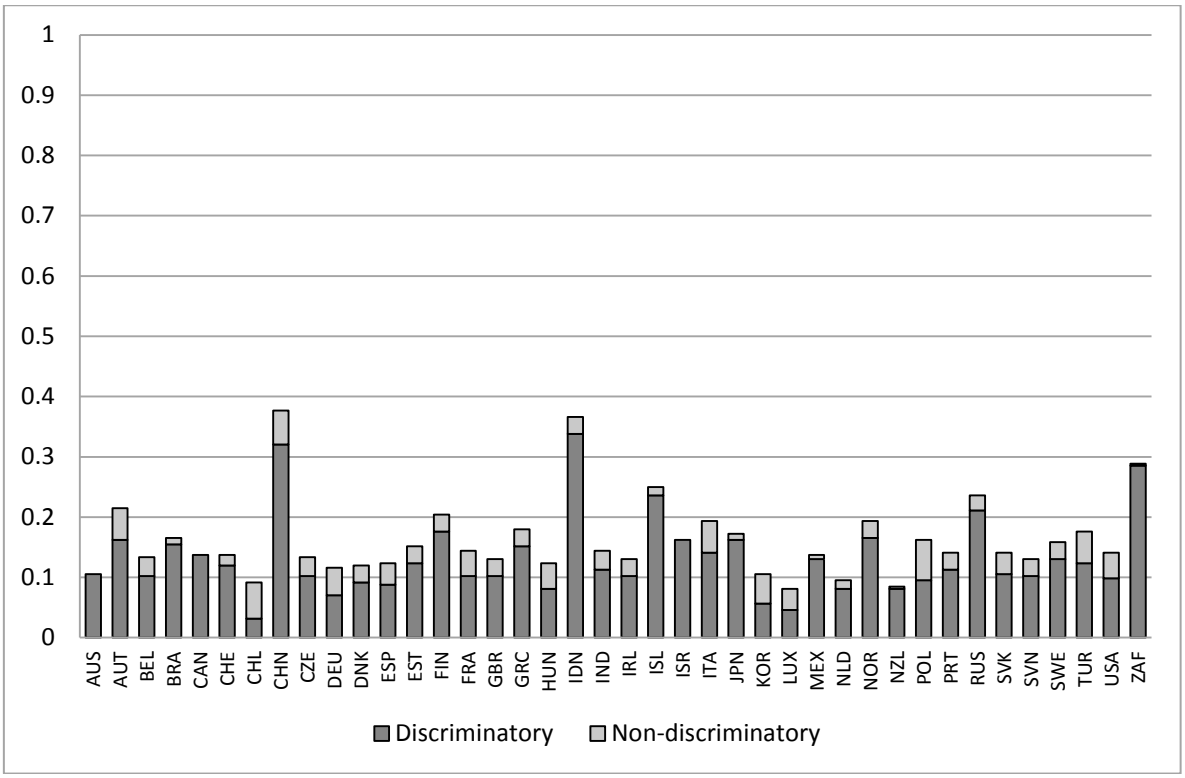
Panel A. Commercial establishment in air transport



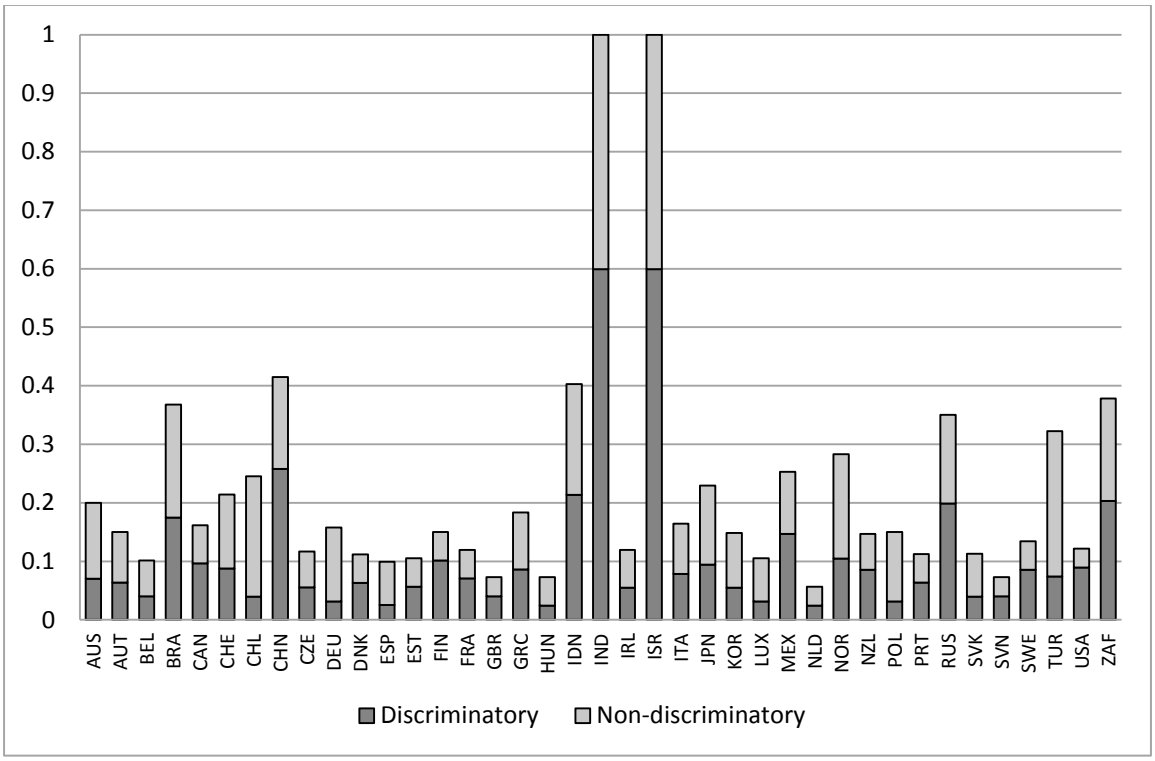
Panel B. Maritime transport



Panel C. Commercial establishment in road freight transport



Panel D. Rail freight transport



Panel E. Courier services (including postal services)

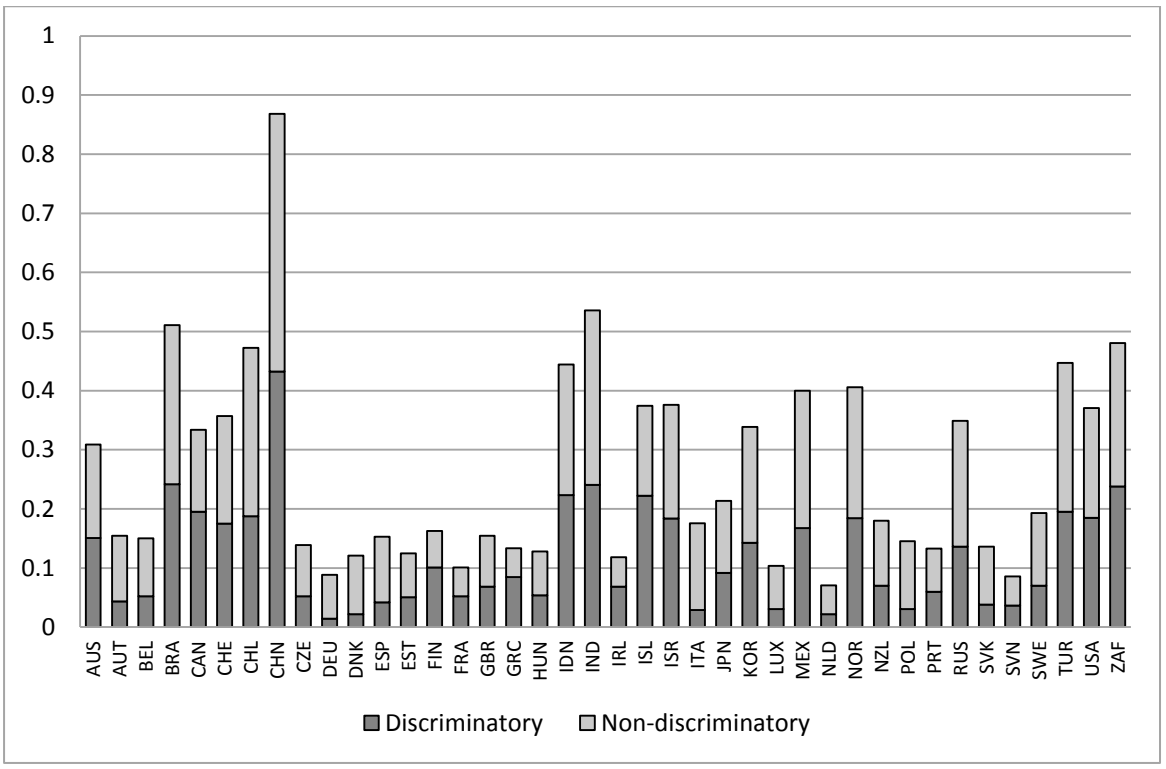
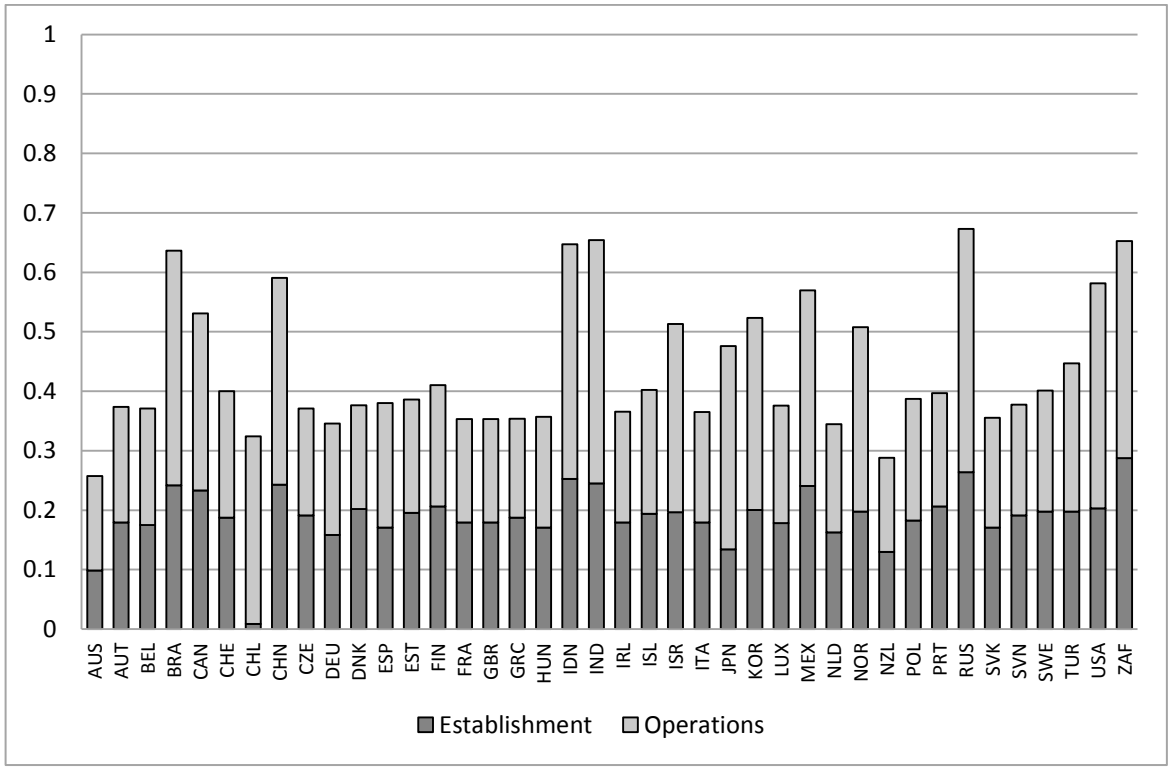
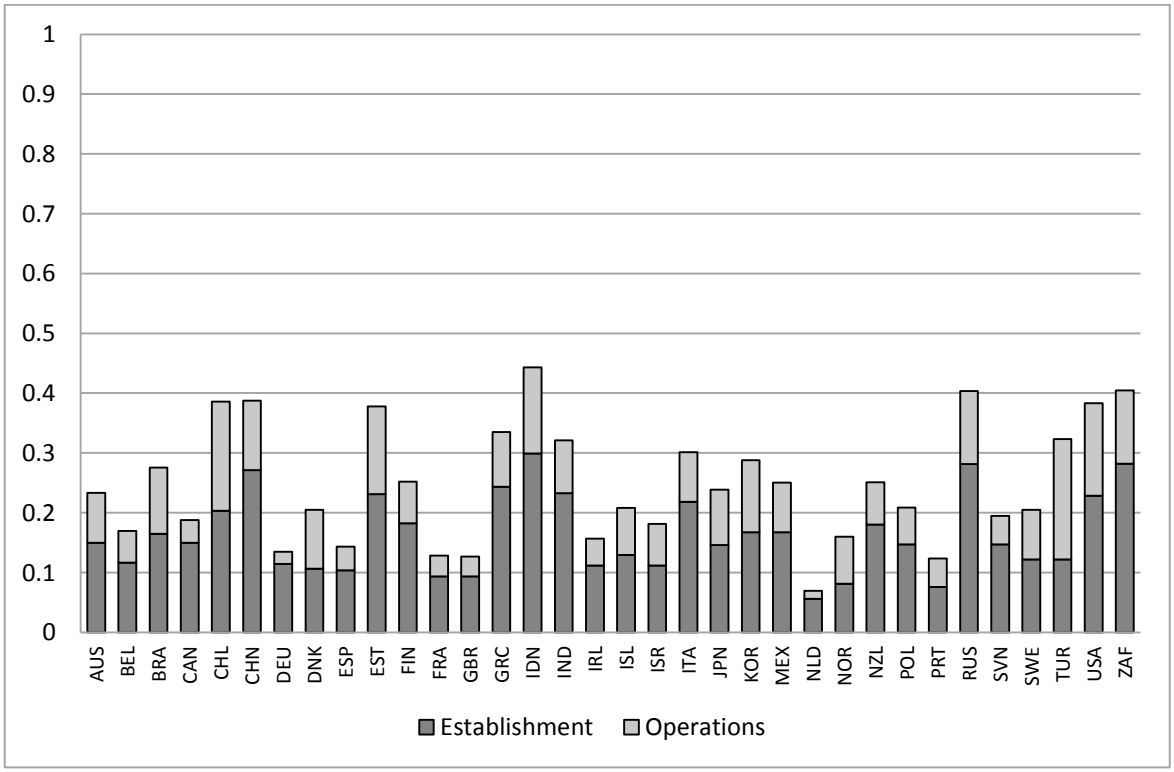


Figure 19. The STRI by other classifications: Establishment versus on-going operations

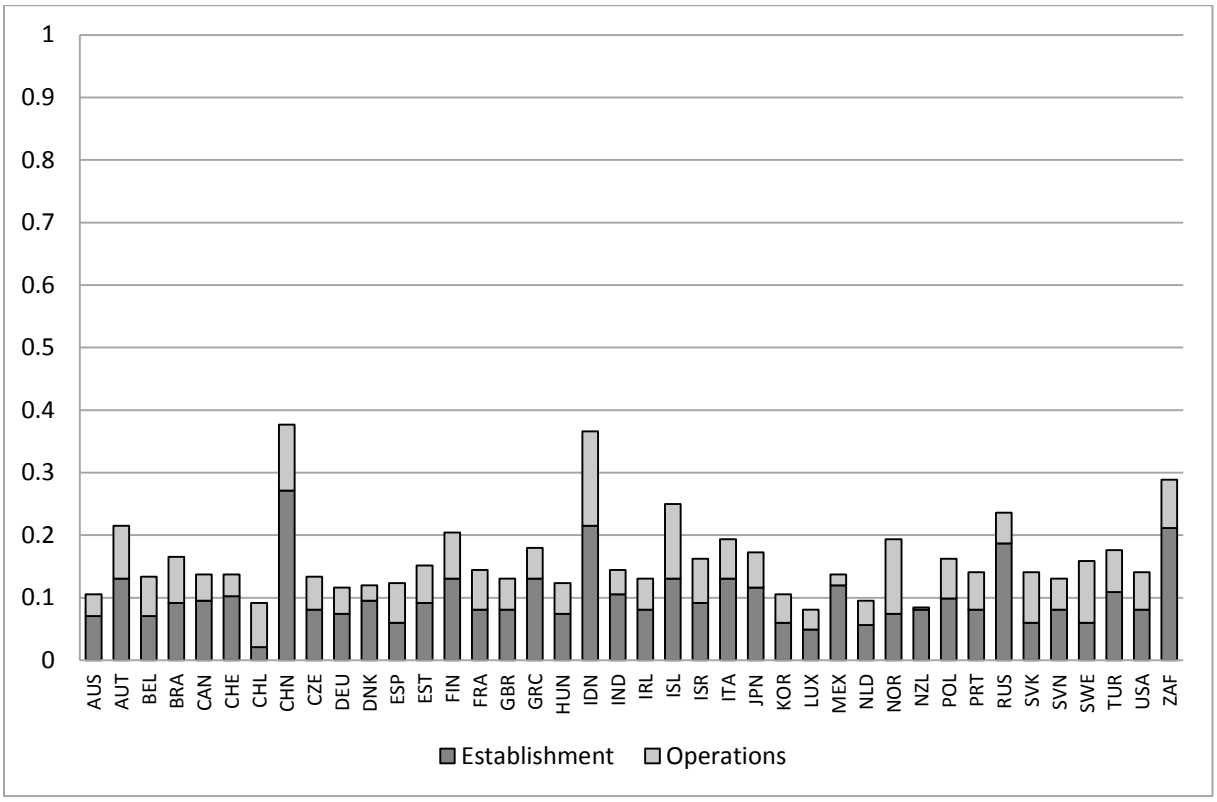
Panel A. Commercial establishment in air transport



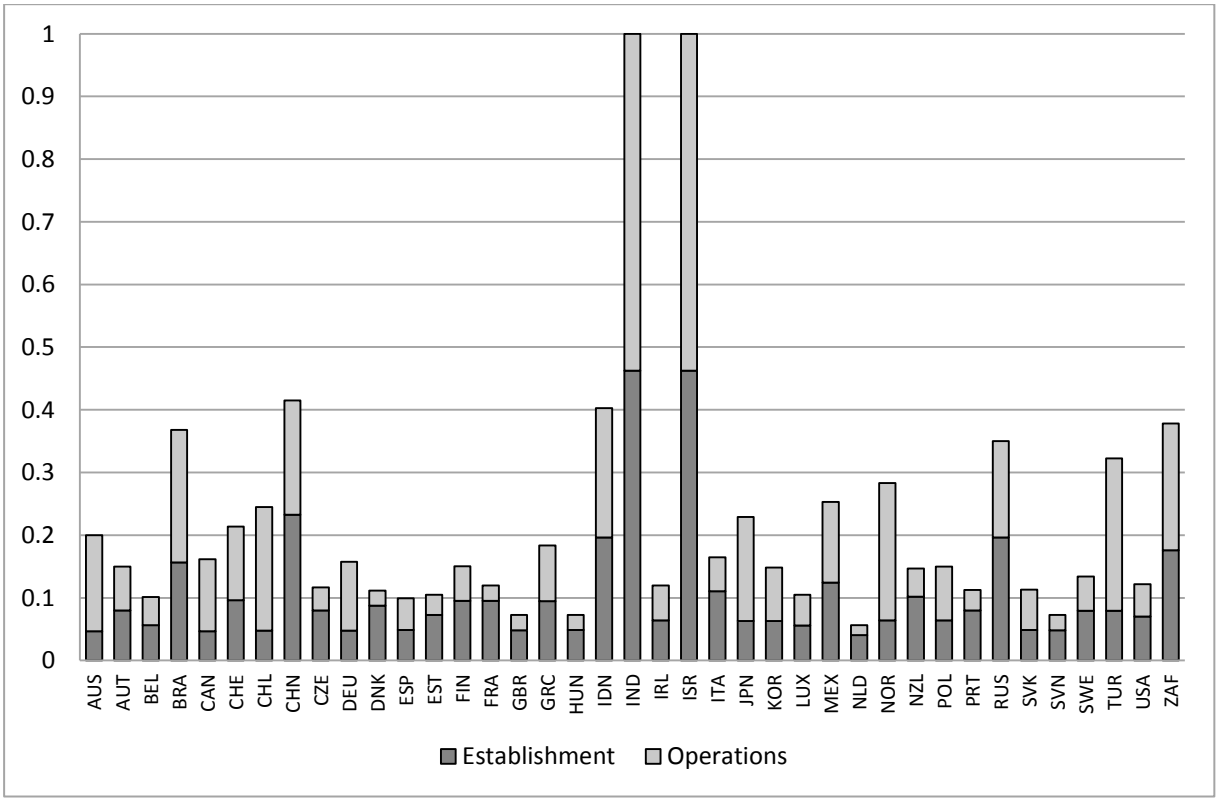
Panel B. Maritime transport

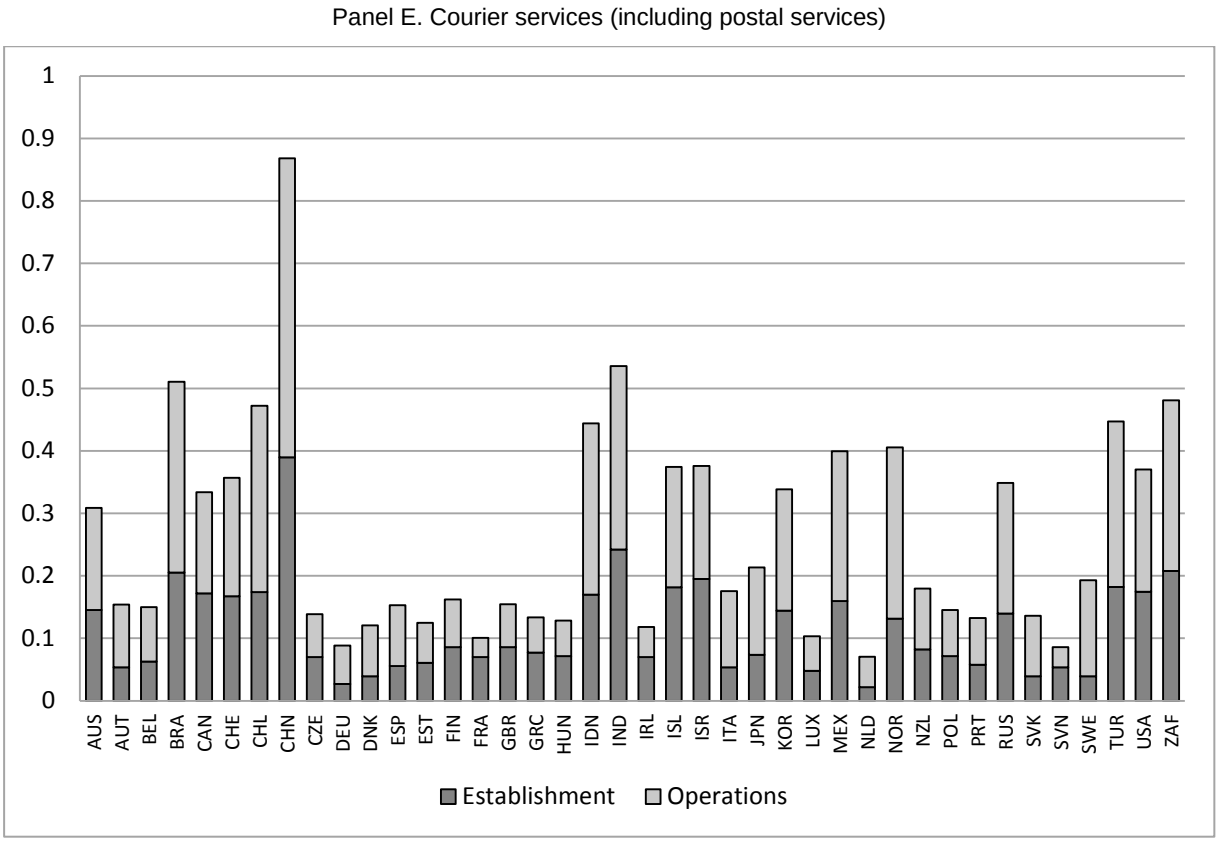


Panel C. Commercial establishment in road freight transport



Panel D. Rail freight transport



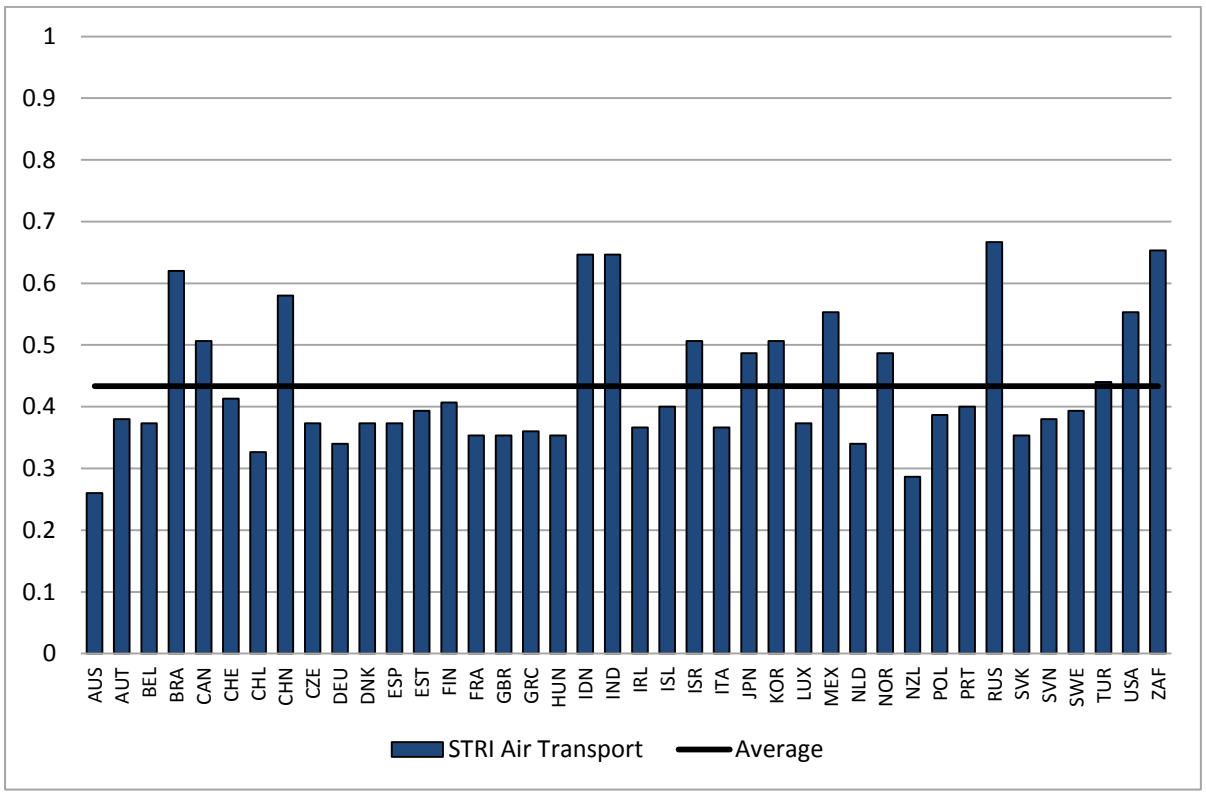


7. Sensitivity analysis

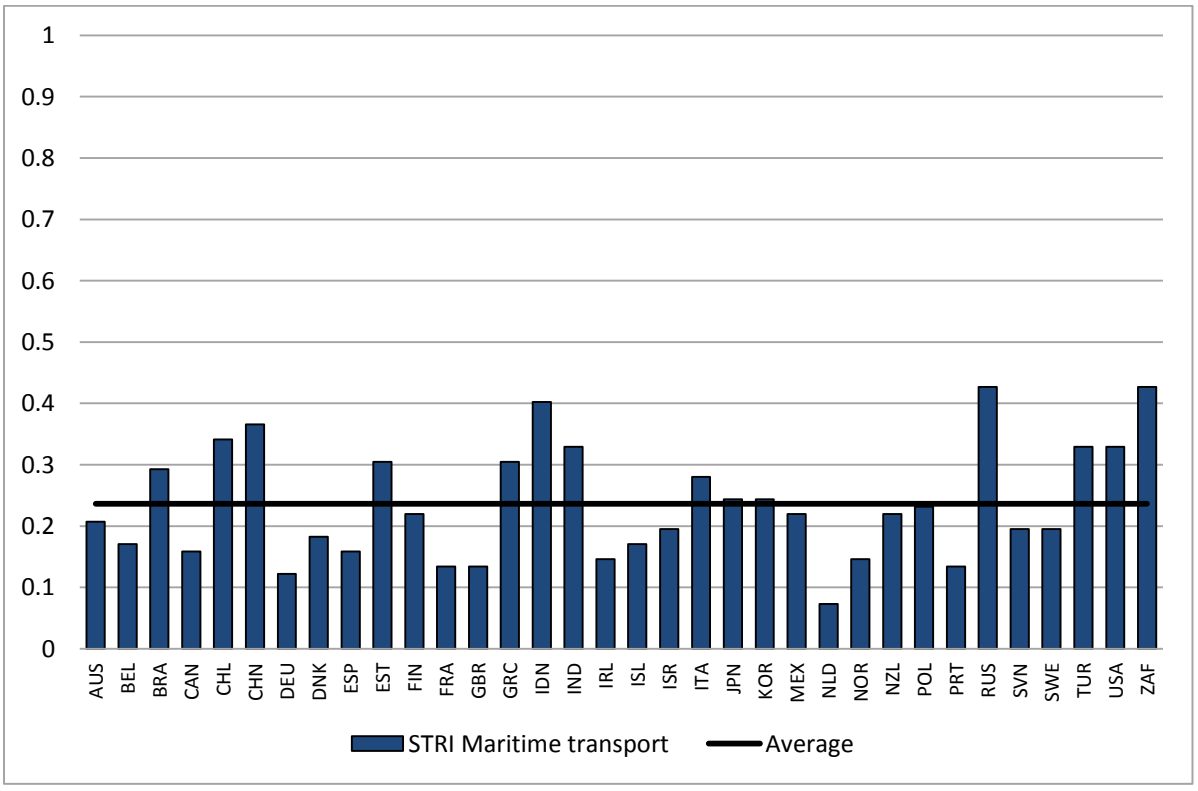
146. This section tests the sensitivity of the results to the weighing scheme that has been chosen. Figure 20 shows the overall STRIs for the four transport subsectors when equal weights are used (the horizontal lines represent the sample averages). The results indicate that STRIs and rankings are not very sensitive to the weighting scheme used, with hardly any movements between the middle and different ends of the spectrum. The Spearman rank correlations between the STRI calculated with expert judgment and equal weights are 0.99 for air transport, 0.97 for maritime, 0.87 for road freight transport, and 0.98 for rail freight transport.

Figure 20. The STRI for transport with equal weights

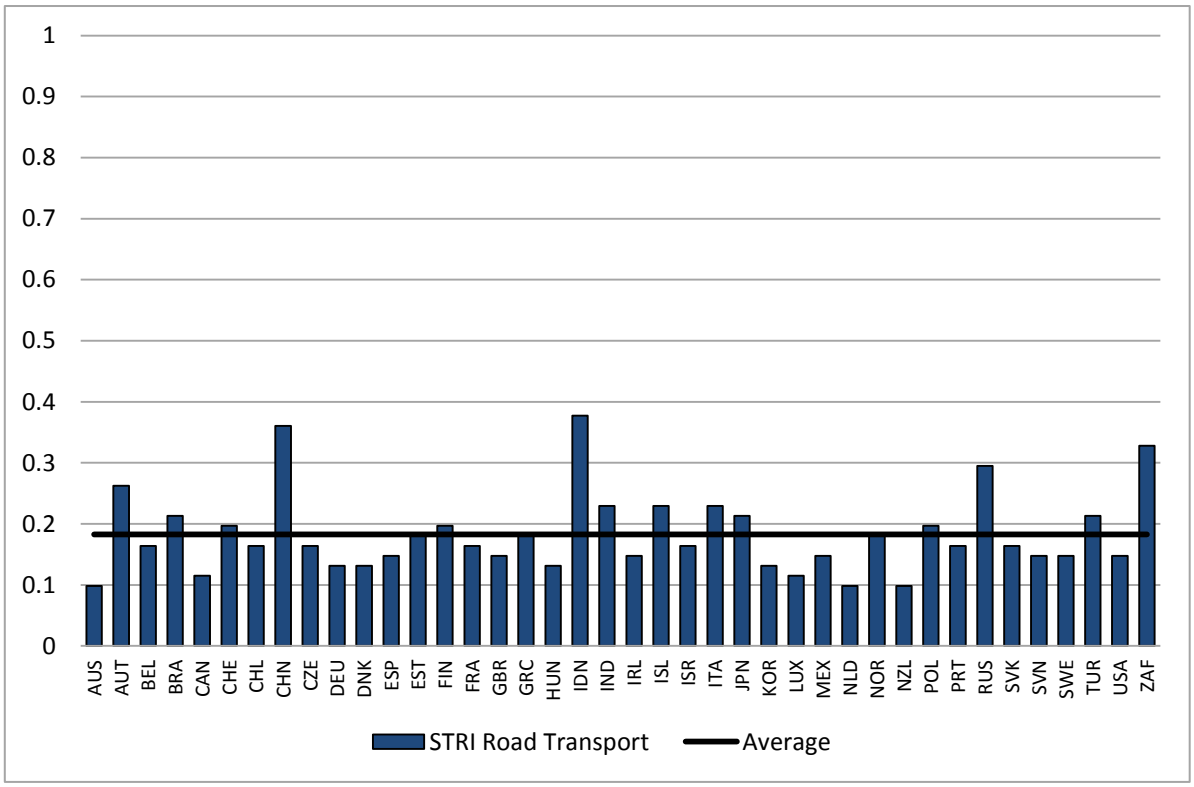
Panel A. Commercial establishment in air transport



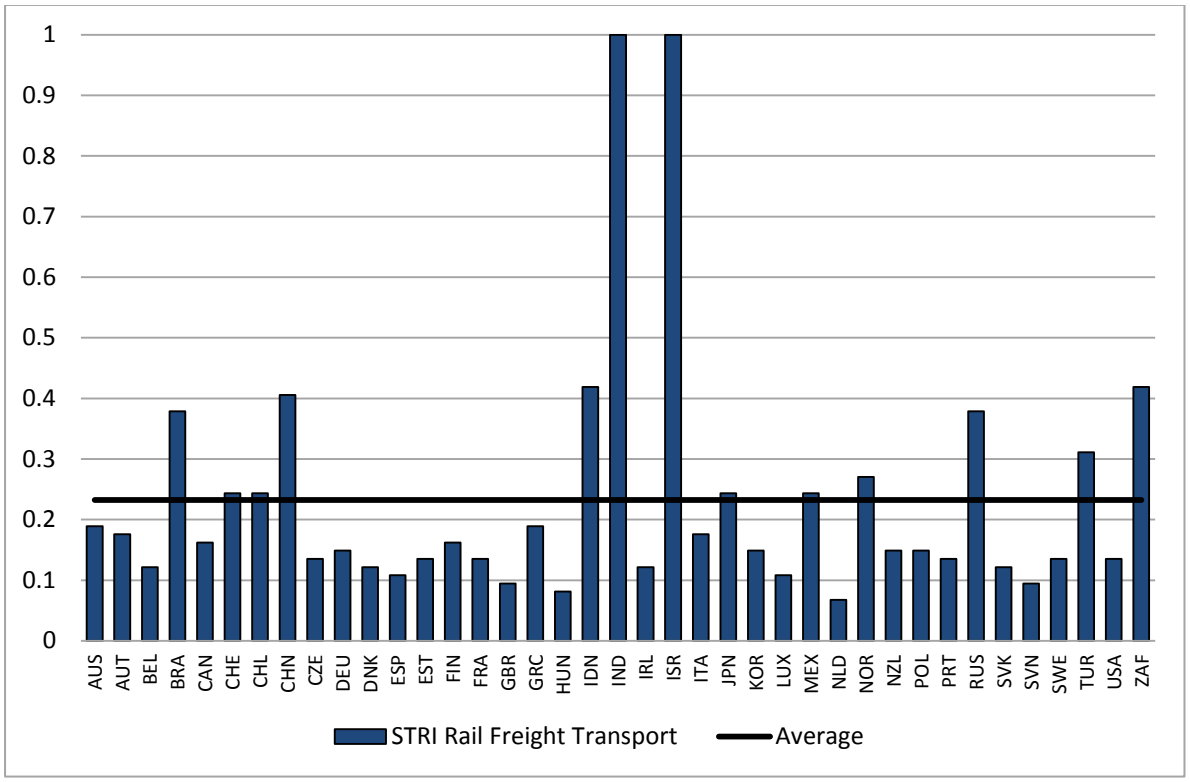
Panel B. Maritime transport



Panel C. Commercial establishment in road freight transport

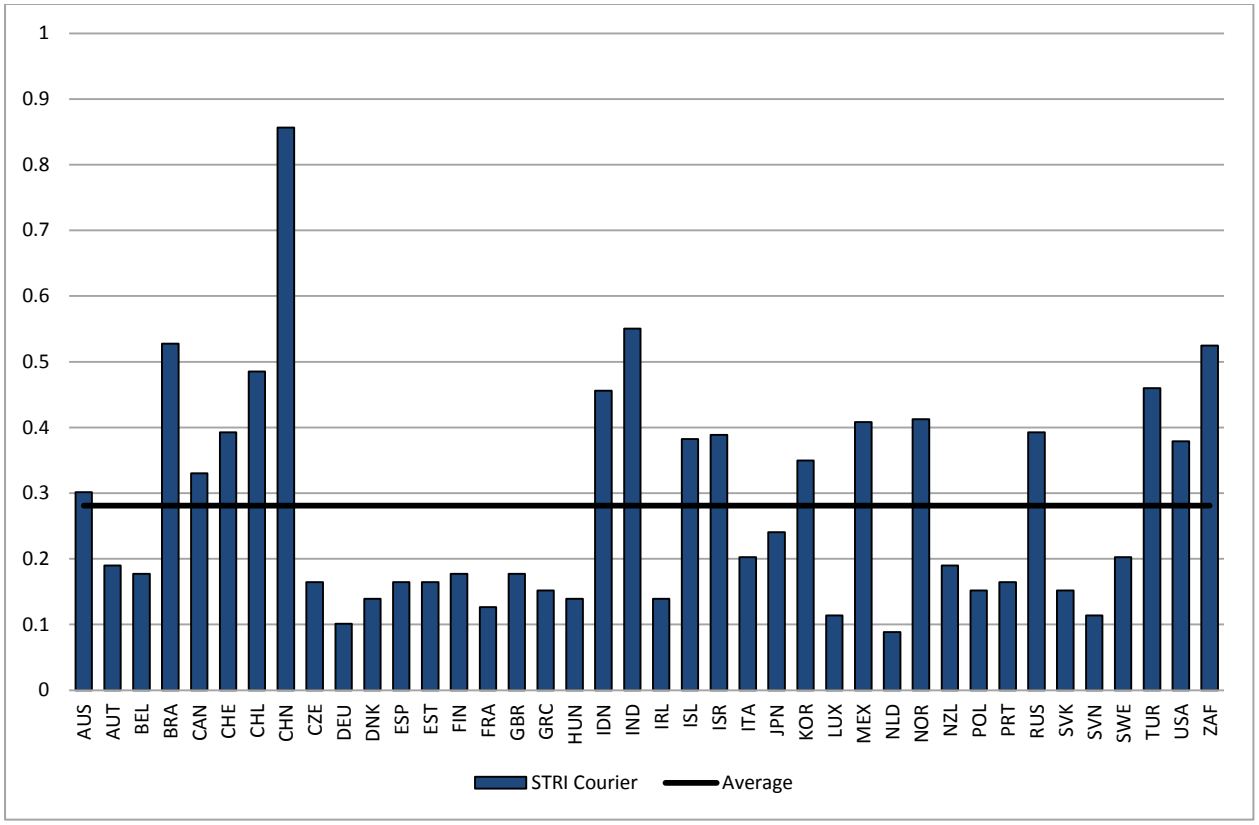


Panel D. Rail freight transport



147. Comparing the equal weights-based indices to the STRIs for courier services (see Figure 21, the horizontal line represents the sample average), it is noticed that both have similar rankings of indices with the exception of countries having restrictions on movement of people. These changes are largely due to the decreased importance given to restrictions falling under movement of people with expert judgement. The Spearman rank correlation between the STRI calculated with expert judgement and equal weights is 0.98.

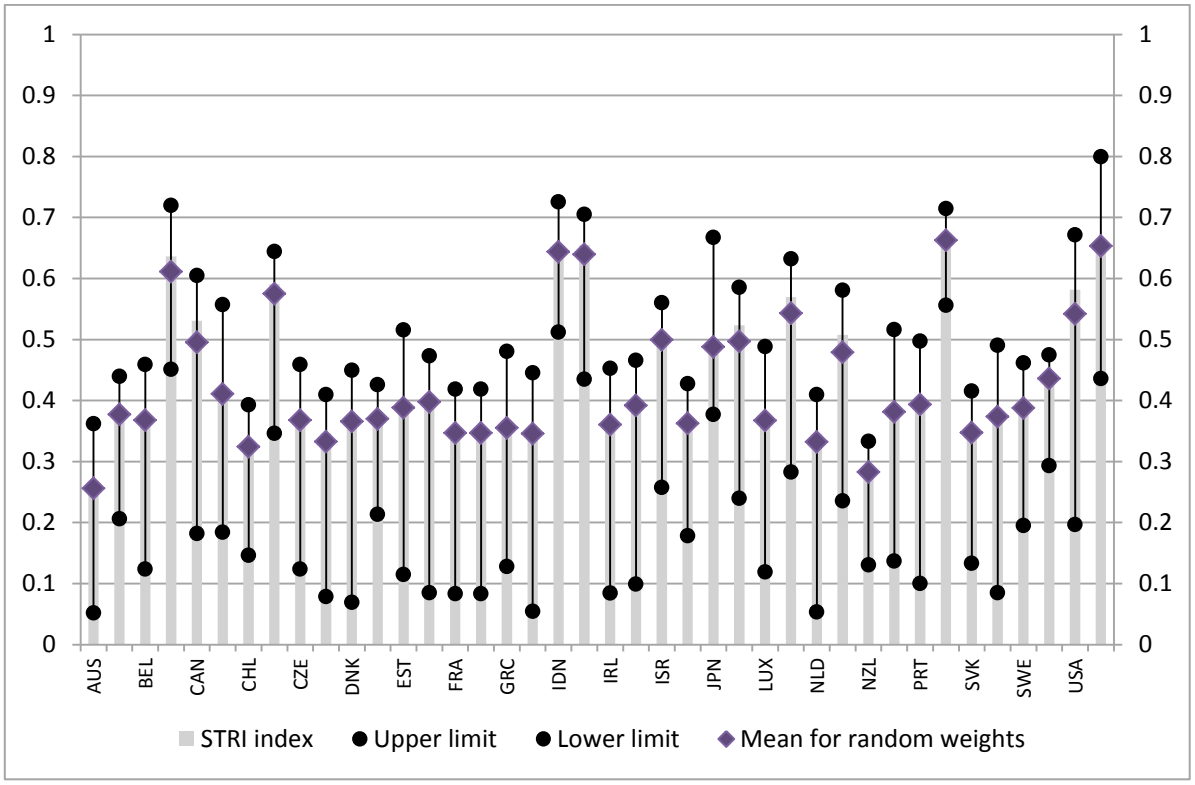
Figure 21. The STRI for courier services (including postal services) with equal weights



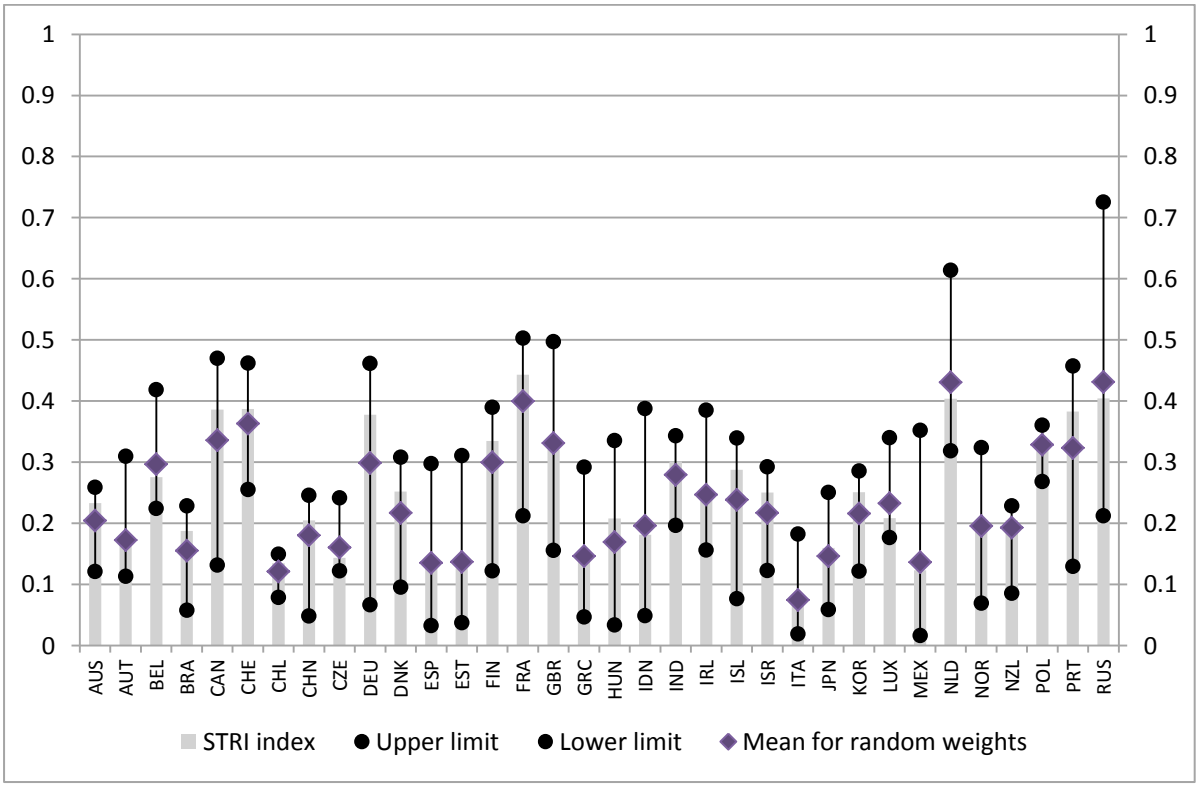
148. Finally, Figure 22 illustrates the results of random weights in transport and courier services, including the mean for all simulations and the lowest and the highest simulation results, from 3000 Monte Carlo simulations. As expected from the results with equal weights, the mean from random weights also aligns closely with the STRIs in these services. A general observation is that the weights matter more for the results in countries and sectors where the regulatory profile is uneven, i.e. when the restrictions are found in a few policy areas. The weights matter less when the overall indicator is high and the restrictions are found in all policy areas. At the extreme, when the index value is one, the weighting system does not matter at all, as illustrated in panel D where two countries have the highest possible index value and there is no variation across weighting schemes.

Figure 22. The STRI for transport and courier with random weights

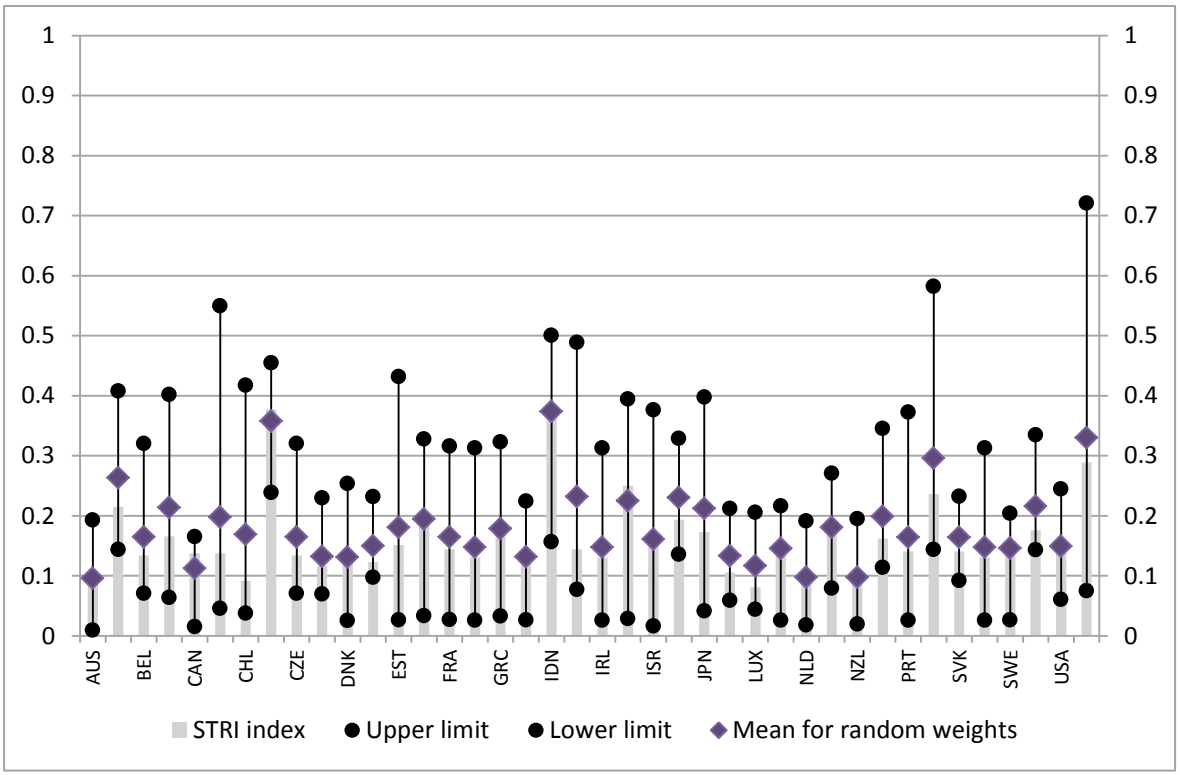
Panel A. Commercial establishment in air transport



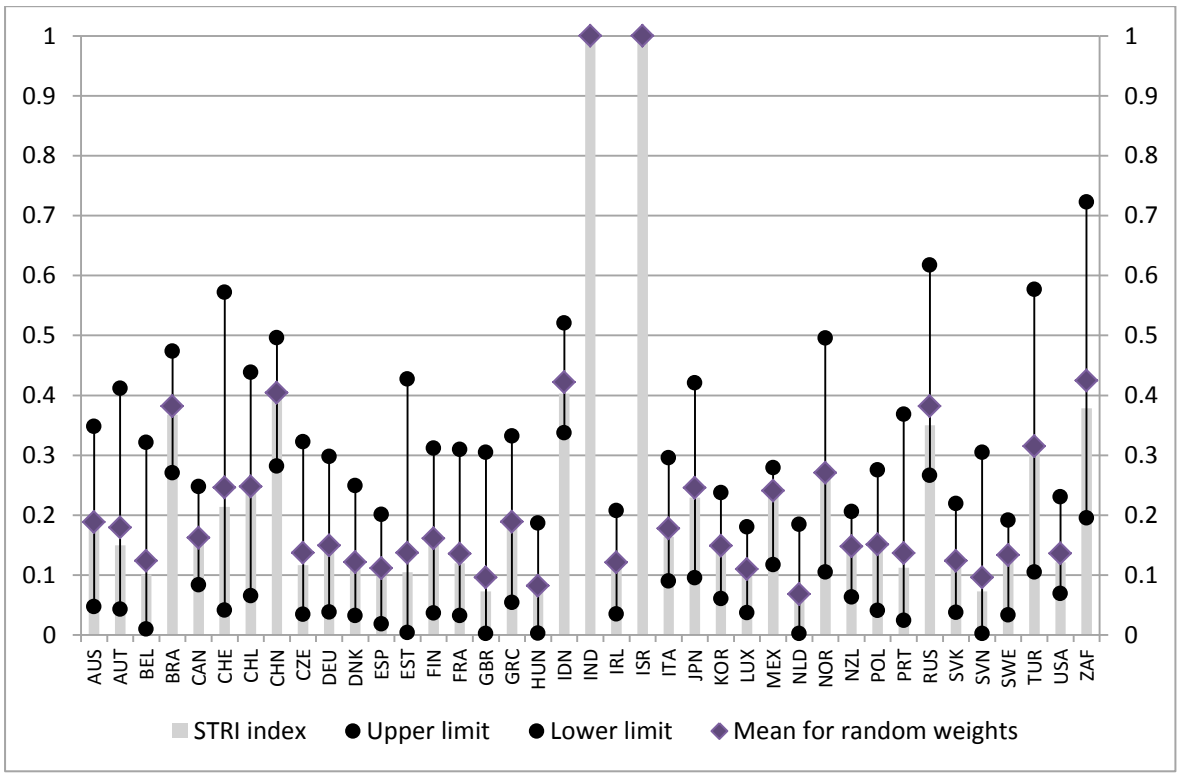
Panel B. Maritime transport



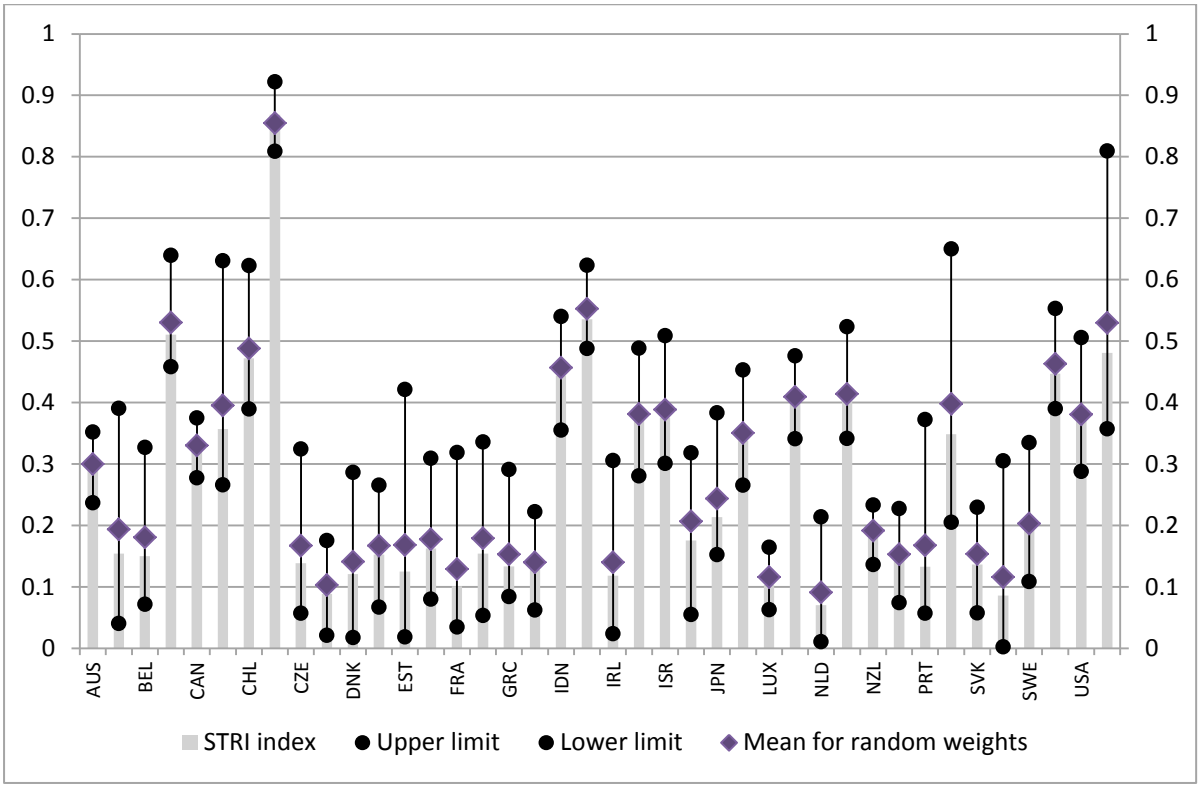
Panel C. Commercial establishment in road freight transport



Panel D. Rail freight transport



Panel E. Courier services (including postal services)



8. Conclusions

149. This paper has presented the STRI for transport and courier services, covering in the transport sector air, maritime freight, and road and rail freight. These services represent a significant determinant of international trade and are at the centre of recent developments towards international integration of economic activity. The STRI supports the view that these services are subject to very different regulatory frameworks and, in some cases, to a relatively elevated degree of regulation.

150. This is particularly the case for air transport, which is affected by restrictions contained in bilateral air services agreements, as well as a range of domestic measures restricting foreign establishment and competition in the sector. Indices covering measures affecting commercial establishment and accompanying movement of natural persons are on average quite high (0.43), with little variation across countries. A preliminary assessment of restrictiveness in cross-border trade has also been made, by deriving unilateral indices from information contained in bilateral and plurilateral air services agreements. The pattern that emerges shows that, while some progress in easing restrictions has been achieved through open skies agreements, significant limitations remain in place.

151. It is too early though to draw conclusions from the findings on the sample of bilateral agreements presented, since the database is still under development. This is an initial attempt to capture restrictiveness in this mode of supply in light of its importance for trade in the sector. Further work will be undertaken in the future as the information base improves.

152. The maritime transport sector is moderately open with an average STRI of 0.25. Foreign equity restrictions are still quite common in the sector and contribute significantly to the index. Most other sector-specific restrictions are found in the cabotage market and in ports. Among the countries included in the STRI for maritime services, only a few have no restrictions on cabotage and impediments in ports are also widespread. There are few restrictions on international maritime transport, even though several countries have cargo reservation schemes on their books. Cargo reservations, however, may not be enforced, due to the difficulties of monitoring compliance in modern shipping hub and spoke networks, with extensive transhipment that have developed to support containerised cargo.

153. In road freight transport, the results confirm that, although heavily regulated in the past, the domestic road freight transport regime has been significantly liberalised over the years, and currently commercial establishment in the sector is largely affected by horizontal measures. The overall level of restrictiveness is relatively low with an average of 0.16, but exhibits pretty large variation. This is for the most part due to the more elevated levels of restrictiveness in some of the key partners. Internationally, though, trade in road transport services remains heavily restricted in several countries, where the sector is governed by a system of bilateral and plurilateral agreements. Restrictiveness in cross-border trade for road freight transport will be subject to future investigation.

154. With respect to rail freight, the STRI also supports the view that considerable reforms have been undertaken in the sector in the past decades. The average level of restrictiveness is moderate at 0.22, although two countries maintain a statutory state-owned monopoly, which implies that the sector is completely closed to foreign suppliers. A number of countries still limit entry into the sector and the establishment of competitive markets. It is clear from the analysis that there is no one size fits all solution to how rail freight should be structured and regulated. The STRI therefore distinguishes between different types of market structure and does not pass judgement on which one is the better. However, once the market structure is given, there is a higher degree of consensus on what constitutes best practice regulation.

155. For courier services, the results show that the overall level of restrictiveness is moderate with a sample average of 0.26. There is, however, large variation in STRI indices among countries ranging from 0.07 to 0.87. The elevated levels of restrictiveness are found in countries where foreign equity restrictions or statutory monopolies exist. Preferential tax or subsidy treatment for the DPOs, and lack of measures to avoid cross-subsidisation also have a substantive impact on many countries.

156. Postal reforms have been undertaken in many countries since the 1990s. The STRI for courier services seems to reflect such liberalisation efforts; however, it also shows that there remains the need to ensure a level playing field between the DPOs and private operators. Courier services play an important role in modern logistics chains and highly depend on physical means of delivery, particularly air and road transport services. An interesting question for further research is to combine the STRI results for transport and courier services with the forthcoming STRI for logistics services to see the overall level of restrictions on seamlessly integrated production and services networks.

REFERENCES

Adrenale Corporation (2010), "Market Research on International Letters, and Lightweight Parcels and Express Mail Service Items", Report submitted to the International Bureau of the Universal Postal Union.

Belgian Institute for Postal Services and Telecommunications, "Communication of the BIPT Council of 22 January 2013 Regarding the Belgium Postal Services Observatory for 2010 and 2011"

Bernhofen, D.M, El-Sahli, Z. and Kneller, R. (2013), "Estimating the effects of the container revolution on world trade", CESifo Working Paper no 4136.

Bisignani, G. (2005), "State of the Air Transport Industry", 61st IATA Annual General Meeting, Tokyo, 30 May 2005, available at: http://www.iata.org/pressroom/speeches/2005-05-30-01.

Borchert, I. B. Gootiz and A. Mattoo (2012), "Guide to the Services Trade Restrictions Database", World Bank Policy Research Working Paper WPS 6108.

Bowen J. T. Jr. and T. R. Leinbach (2002), "Air Cargo Services in Asian Industrialising Economies: Electronics Manufacturers and the Strategic Use of Advanced Producer Services", Papers Regional Science, 82, 309–332 (2003).

Cairns, M. (2013), "Expansion of regulated access to railway infrastructure in North America: Implications for practices and recent experiences with regulated access overseas", *Research in Transportation Business& Management,* 6, 31-44.

Copenhagen Economics (2010), "Main Developments in the Postal Sector", study commissioned by EC DG Markt.

Dihel, N. and B. Shepherd (2007), "Modal Estimates of Services Barriers", *OECD Trade Policy Working Papers*, No. 51, OECD.

European Commission (2009), "Road Freight Transport Vademecum", Directorate General Energy and Transport, Directorate E – Inland Transport, Unit E.1 – Land Transport Policy, March, Brussels, available at:
http://ec.europa.eu/transport/road/doc/2009_road_freight_vademecum.pdf.

European Commission (2013), "Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the regions on the forth railway package- completing the single European railway area to foster European competitiveness and growth", COM(2013) 25 final.

Federal Maritime Commission (2012), "Study of the 2008 Repeal of the Liner Conference Exemption from European Union Competition Law", Bureau of Trade Analysis Staff Report, January.

Frühling, P., C. Whiddington, J. Cassels and E. Decat (2010), "The application of European competition law in the transport sector", *Journal of European Competition Law & Practice* 1, 144-154.

Findlay, C. (2003), "Plurilateral Agreements on Trade in Air Transport Services: The US Model", Journal of Air Transport Management 9, 211-220.

Friebel, G., Ivaldi, M. and Vibes, C. (2010), "Railway (de)regulation: A European Efficiency Comparison", *Economica,* 77, 77-91.

Geloso Grosso, M. (2012), "Air Passenger Transport in the APEC: Regulatory Impacts and Prospects for Asia Pacific Integration", Journal of Economic Integration, 27(2), June 2012; 312-327.

Geloso Grosso, M. and B. Shepherd (2010), "Air Cargo Transport in APEC: Regulation and Effects on Merchandise Trade", Journal of Asian Economics 22 (2011) 203-212.

Hummels, D., Lugovskyy, V. and Skiba, S. (2009) "The Trade Reducing Effects of Market Power in International Shipping", *Journal of Development Economics* 89, 84-97.

International Air Transport Association (2013), "Global Cargo Growth Stabilises – Regional Variances Remain", Press Release No: 58, 30 October, 2013, available at: http://www.iata.org/pressroom/pr/Pages/2013-10-30-01.aspx.

International Civil Aviation Organisation (2013a), "Forecasts of Scheduled Passenger Traffic", ICAO News Released, 2013, available at: http://www.icao.int/sustainability/Pages/eap-fp-forecast-scheduled-passenger-traffic.aspx.

ICAO (2013b), "ICAO Predicts Continued Traffic Growth Through 2015", News Release, 16 July 2013, available at: http://www.icao.int/Newsroom/News%20Doc%202013/COM.24.13.EN.pdf.

International Road Federation (2009), "World Road Statistics, 2002-2007", Geneva.

International Road Transport Union (2007), "Role and Position of Road Transport Operators and Forwarders in the Logistics Chain", Working Paper CTM/G7691/PKR, February, Geneva.

Ivaldi, M. and G. McCullough, (2008), "Subbadditivity tests for network separation with an application to U.S. railroads", *Review of Network Economies,* 7, 159-171.

Kasarda, J. D., S. J. Appold and M. Makoto (2006), "The Impact of the Air Cargo Industry on the Global Economy", study commissioned TIACA and presented at the TIACA Air Cargo Forum, Calgary, Canada, September 13, 2006.

Kunaka, C., V. Tanase, P. Latrille and P. Krausz (2013) "Quantitative Analysis of Road Transport Agreements (QuARTA)", World Bank.

Levinson, M. (2006), *The Box How the Shipping Container Made the World Smaller and the World Economy Bigger,* Princeton: Princeton University Press.

Link, H. (2012), "Unbundling, public infrastructure financing and access charge regulation in the German rail sector", *Journal of Transport Planning & Management,* 2, 63-71.

MacDonald, J.M. (2013), "Railroads and price discrimination: The roles of competition, information and regulation", *Review of Industrial Organization,* 43, 85-101.

Marouani, M. A. and L. Munro (2008), "Assessing Barriers to Trade In Services in the MENA Region", *OECD Trade Policy Working Papers*, No. 84, OECD.

Miroudot, S., J. Sauvage and B. Shepherd (2012). "Trade Costs and Productivity in Services Sectors", *Economic Letters,* 114, 36-38.

Mizutani, F. and Uranishi, S. (2013), "Does vertical separation reduce cost? An empirical analysis of the rail industry in European and Asian OECD countries", *Journal of Regulatory Economics,* 43, 31-59.

Nguyen-Hong, D. and R. Wells (2003), "Restrictions on Trade in Education Services: Some Basic Indexes", Productivity Commission Staff Working Paper, Canberra.

Nordås, H.K. (2011), "Measuring Barriers to Trade and Investment in Services", Chapter 6 in Sauvé, P., G. Pasadilla and M. Mikic (eds.), *Services Sector Reforms, Asia-Pacific Perspectives.* Tokyo: ADBI.

Nordås, H.K., E. Pinali, and M. Geloso Grosso (2006), "Time and Logistics as a Trade Barrier", OECD Trade Policy Working Paper No 35.

OECD (2002), "Liberalisation of Air Cargo Transport", document DSTI/DOT(2002)1/REV1, Paris.

OECD (2007), "Towards a Services Trade Restrictiveness Index (STRI): A Proposal for a Road Map for Future Trade Committee Work on Services", TAD/TC(2007)4.

OECD (2008), *Handbook on Constructing Composite Indicators: Methodology and User Guide*, OECD, Paris.

OECD (2009), "Methodology for Deriving the Services Trade Restrictiveness Index", paper presented to the Services Experts Meeting, 2-3 July 2009, Paris.

OECD (2010), *Globalisation, Transport and the Environment*, OECD, Paris.

OECD (2011), "The STRI Scoring and Weighting Methodology", TAD/TC/WP(2011)30/FINAL.

Oxford Economics (2009), "The Impact of the Express Delivery Industry on the Global Economy", September, Oxford (UK).

Piermartini, R., and L. Rousova (2008), "Liberalisation of Air Transport Services and Passenger Traffic", Staff Working Paper ERSD-2008-06, World Trade Organisation, December 2008.

Pittman, R. (2005), "Structural separation to create competition: the case of freight railways", *Review of Network Economics,* 4, 181-196.

Schwarz G. (2005), "Enabling Global Trade Above the Clouds: Restructuring Processes and Information Technology in the Transatlantic Air Cargo Industry", Graduate School of Geography, Clark University, Worcester, USA.

Talley, W.K. and Ng, MW (2013), "Maritime transport chain choice by carriers, ports and shippers", *International Journal of Production Economies,* 142, 311-316.

Thompson, L.S. and Kohon, J.C. (2012) "Developments in rail organization in the Americas, 1990 to present and future directions", *Journal of Rail Transport Planning & Management,* 2, pp. 51-62.

UNCTAD (2013), *Review of Maritime Transport 2013*, Geneva: UNCTAD.

United States Department of Transportation (2009), "Freight Facts and Figures 2009", Federal Highway Administration, Office of the Freight Management Operations, available at: http://ops.fhwa.dot.gov/freight/freight_analysis/nat_freight_stats/docs/09factsfigures.

United States International Trade Commission (2004), "Express Delivery Services: Competitive Conditions Facing U.S.-based Firms in Foreign Markets", Investigation No. 332-456, USITC Publication 3678, Washington, DC.

Universal Postal Union (2009b), "Status and Structures of Postal Entities in UPU Member Countries", Bern.

Urdanoz, M. and Vibes, C. (2013), "Regulation and cost efficiency in the European railways industry", *Journal of Production Analysis*, 39, 217-230.

WIK-Consult (2010), "Study on the External Dimension of the EU Postal Acquis", study commissioned by EC DG Markt.

WTO (2000), "Developments in the Air Transport Sector since the Conclusion of the Uruguay Round: Part II" – background Note by the Secretariat, document S/C/W/163/Add.1.

WTO (2006), "Second Review of the Air Transport Annex: Developments in the Air Transport Sector (Part II). Quantitative Air Service Agreements Review (QUASAR) (Volumes I and II): Note by the Secretariat", document S/C/W/270.

WTO (2010a), "Maritime Transport Services, Background note by the Secretariat", S/C/W/315.

WTO (2010b), "Road Freight Transport Services: Background Note by the Secretariat", document S/C/W/324.

WTO (2010c), "Logistics Services: Background Note by the Secretariat", document S/C/W/317.

WTO (2010d), "Postal and Courier Services", Background Note by the Secretariat, S/C/W/319.

Zhang, A. and Y. Zhang (2002), "A Model of Air Cargo Liberalisation: Passengers vs. All-Cargo Carriers", Transport Research Part E 38 (2002) 175-191.

Zhang, R. (2008), "Liberalization of Postal and Courier Services: Ready for Delivery?", in Juan Marchetti and Martin Roy (eds.), Opening Markets for Trade in Services; Countries and Sectors in Bilateral and WTO Negotiations, Cambridge (UK), WTO and Cambridge University Press.

ANNEX A. INDEX VALUES BY POLICY AREA

Table A.1. Commercial establishment in air transport (passenger and cargo)

Country	Restrictions on foreign entry	Restrictions to movement of people	Other discriminatory measures	Barriers to competition	Regulatory transparency	Overall indicator
AUS	0.13	0.01	0.00	0.11	0.00	0.26
AUT	0.21	0.03	0.00	0.12	0.02	0.37
BEL	0.21	0.02	0.00	0.13	0.01	0.37
BRA	0.40	0.03	0.04	0.15	0.02	0.64
CAN	0.34	0.01	0.04	0.13	0.00	0.53
CHE	0.21	0.04	0.00	0.15	0.01	0.40
CHL	0.18	0.01	0.00	0.11	0.02	0.32
CHN	0.33	0.01	0.04	0.18	0.02	0.59
CZE	0.21	0.02	0.00	0.13	0.01	0.37
DEU	0.21	0.01	0.00	0.12	0.01	0.35
DNK	0.22	0.02	0.00	0.13	0.00	0.38
ESP	0.21	0.01	0.03	0.12	0.01	0.38
EST	0.21	0.03	0.00	0.15	0.00	0.39
FIN	0.25	0.02	0.00	0.13	0.00	0.41
FRA	0.21	0.02	0.00	0.12	0.00	0.35
GBR	0.21	0.02	0.00	0.12	0.00	0.35
GRC	0.21	0.03	0.00	0.11	0.00	0.35
HUN	0.21	0.01	0.00	0.13	0.00	0.36
IDN	0.34	0.03	0.04	0.21	0.02	0.65
IND	0.39	0.03	0.03	0.18	0.03	0.65
IRL	0.21	0.02	0.00	0.13	0.00	0.37
ISL	0.25	0.03	0.00	0.12	0.00	0.40
ISR	0.30	0.03	0.03	0.16	0.00	0.51
ITA	0.21	0.02	0.00	0.12	0.02	0.37
JPN	0.21	0.03	0.03	0.20	0.02	0.48
KOR	0.33	0.01	0.03	0.15	0.01	0.52
LUX	0.21	0.01	0.00	0.15	0.01	0.38
MEX	0.35	0.01	0.03	0.16	0.01	0.57
NLD	0.21	0.01	0.00	0.12	0.00	0.34
NOR	0.31	0.01	0.06	0.12	0.00	0.51
NZL	0.16	0.01	0.01	0.10	0.01	0.29
POL	0.21	0.01	0.00	0.15	0.02	0.39
PRT	0.22	0.03	0.00	0.15	0.00	0.40
RUS	0.39	0.04	0.06	0.17	0.02	0.67
SVK	0.21	0.01	0.00	0.12	0.01	0.36
SVN	0.21	0.02	0.00	0.15	0.00	0.38
SWE	0.22	0.01	0.03	0.13	0.00	0.40
TUR	0.25	0.01	0.03	0.13	0.02	0.45
USA	0.37	0.01	0.06	0.14	0.00	0.58
ZAF	0.34	0.05	0.07	0.18	0.01	0.65

Table A.2. Maritime transport

Country	Restrictions on foreign entry	Restrictions to movement of people	Other discriminatory measures	Barriers to competition	Regulatory transparency	Overall indicator
AUS	0.16	0.04	0.01	0.02	0.01	0.23
BEL	0.07	0.06	0.01	0.02	0.01	0.17
BRA	0.12	0.08	0.03	0.03	0.02	0.28
CAN	0.14	0.03	0.01	0.01	0.00	0.19
CHL	0.28	0.04	0.00	0.04	0.03	0.39
CHN	0.27	0.04	0.02	0.04	0.03	0.39
DEU	0.09	0.03	0.01	0.01	0.01	0.13
DNK	0.12	0.05	0.00	0.03	0.00	0.20
ESP	0.07	0.03	0.02	0.01	0.01	0.14
EST	0.27	0.09	0.00	0.02	0.00	0.38
FIN	0.16	0.06	0.01	0.02	0.00	0.25
FRA	0.04	0.06	0.00	0.03	0.00	0.13
GBR	0.04	0.06	0.01	0.01	0.00	0.13
GRC	0.21	0.06	0.01	0.05	0.00	0.33
IDN	0.28	0.09	0.01	0.04	0.03	0.44
IND	0.16	0.08	0.00	0.05	0.03	0.32
IRL	0.07	0.06	0.00	0.02	0.00	0.16
ISL	0.12	0.08	0.00	0.01	0.00	0.21
ISR	0.05	0.08	0.00	0.05	0.00	0.18
ITA	0.20	0.05	0.01	0.02	0.02	0.30
JPN	0.11	0.08	0.01	0.03	0.02	0.24
KOR	0.21	0.04	0.00	0.03	0.01	0.29
MEX	0.18	0.04	0.01	0.01	0.01	0.25
NLD	0.02	0.04	0.01	0.01	0.00	0.07
NOR	0.09	0.05	0.01	0.01	0.00	0.16
NZL	0.18	0.04	0.01	0.02	0.01	0.25
POL	0.11	0.03	0.01	0.04	0.02	0.21
PRT	0.02	0.08	0.00	0.03	0.00	0.12
RUS	0.18	0.11	0.03	0.07	0.02	0.40
SVN	0.09	0.06	0.01	0.03	0.00	0.19
SWE	0.12	0.04	0.01	0.03	0.00	0.20
TUR	0.20	0.04	0.03	0.04	0.02	0.32
USA	0.28	0.05	0.03	0.02	0.00	0.38
ZAF	0.16	0.14	0.03	0.07	0.01	0.40

Table A.3. Commercial establishment in road freight

Country	Restrictions on foreign entry	Restrictions to movement of people	Other discriminatory measures	Barriers to competition	Regulatory transparency	Overall indicator
AUS	0.07	0.03	0.00	0.00	0.00	0.11
AUT	0.10	0.06	0.00	0.04	0.01	0.21
BEL	0.05	0.05	0.00	0.03	0.00	0.13
BRA	0.07	0.06	0.02	0.00	0.01	0.17
CAN	0.10	0.02	0.02	0.00	0.00	0.14
CHE	0.02	0.10	0.00	0.01	0.00	0.14
CHL	0.00	0.03	0.02	0.03	0.01	0.09
CHN	0.27	0.03	0.02	0.04	0.01	0.38
CZE	0.05	0.05	0.00	0.03	0.00	0.13
DEU	0.05	0.02	0.00	0.04	0.00	0.12
DNK	0.05	0.04	0.00	0.03	0.00	0.12
ESP	0.05	0.02	0.02	0.03	0.01	0.12
EST	0.05	0.07	0.00	0.03	0.00	0.15
FIN	0.12	0.05	0.00	0.03	0.00	0.20
FRA	0.05	0.05	0.00	0.04	0.00	0.14
GBR	0.05	0.05	0.00	0.03	0.00	0.13
GRC	0.10	0.05	0.00	0.03	0.00	0.18
HUN	0.05	0.03	0.00	0.04	0.00	0.12
IDN	0.25	0.07	0.02	0.01	0.01	0.37
IND	0.05	0.06	0.00	0.01	0.02	0.14
IRL	0.05	0.05	0.00	0.03	0.00	0.13
ISL	0.17	0.06	0.00	0.01	0.00	0.25
ISR	0.10	0.06	0.00	0.00	0.00	0.16
ITA	0.10	0.04	0.00	0.04	0.01	0.19
JPN	0.10	0.06	0.00	0.00	0.01	0.17
KOR	0.02	0.03	0.02	0.03	0.00	0.11
LUX	0.02	0.02	0.00	0.03	0.01	0.08
MEX	0.10	0.03	0.00	0.00	0.01	0.14
NLD	0.05	0.03	0.00	0.01	0.00	0.10
NOR	0.10	0.03	0.04	0.03	0.00	0.19
NZL	0.05	0.03	0.00	0.00	0.00	0.08
POL	0.07	0.02	0.00	0.06	0.01	0.16
PRT	0.05	0.06	0.00	0.03	0.00	0.14
RUS	0.10	0.10	0.02	0.01	0.01	0.24
SVK	0.07	0.03	0.00	0.03	0.01	0.14
SVN	0.05	0.05	0.00	0.03	0.00	0.13
SWE	0.10	0.03	0.00	0.03	0.00	0.16
TUR	0.07	0.03	0.02	0.04	0.01	0.18
USA	0.05	0.03	0.02	0.04	0.00	0.14
ZAF	0.10	0.12	0.07	0.00	0.00	0.29

Table A.4. Rail freight services

Country	Restrictions on foreign entry	Restrictions to movement of people	Other discriminatory measures	Barriers to competition	Regulatory transparency	Overall indicator
AUS	0.05	0.02	0.00	0.13	0.00	0.20
AUT	0.02	0.05	0.00	0.05	0.04	0.15
BEL	0.00	0.04	0.00	0.05	0.01	0.10
BRA	0.11	0.05	0.03	0.15	0.04	0.37
CAN	0.06	0.02	0.02	0.06	0.00	0.16
CHE	0.02	0.07	0.00	0.11	0.01	0.21
CHL	0.02	0.02	0.01	0.15	0.05	0.25
CHN	0.21	0.02	0.03	0.10	0.05	0.42
CZE	0.02	0.04	0.00	0.05	0.01	0.12
DEU	0.02	0.02	0.00	0.11	0.01	0.16
DNK	0.03	0.03	0.00	0.05	0.00	0.11
ESP	0.00	0.02	0.01	0.05	0.03	0.10
EST	0.00	0.06	0.00	0.05	0.00	0.11
FIN	0.06	0.04	0.00	0.05	0.00	0.15
FRA	0.03	0.04	0.00	0.05	0.00	0.12
GBR	0.00	0.04	0.00	0.03	0.00	0.07
GRC	0.05	0.04	0.00	0.10	0.00	0.18
HUN	0.00	0.02	0.00	0.05	0.00	0.07
IDN	0.14	0.06	0.03	0.13	0.05	0.40
IND	0.43	0.10	0.06	0.31	0.10	1.00
IRL	0.03	0.02	0.00	0.06	0.00	0.12
ISR	0.43	0.10	0.06	0.31	0.10	1.00
ITA	0.05	0.03	0.00	0.05	0.04	0.16
JPN	0.05	0.05	0.00	0.10	0.04	0.23
KOR	0.03	0.02	0.00	0.08	0.01	0.15
LUX	0.02	0.02	0.00	0.05	0.03	0.11
MEX	0.12	0.02	0.00	0.08	0.03	0.25
NLD	0.00	0.02	0.00	0.03	0.00	0.06
NOR	0.06	0.02	0.02	0.18	0.00	0.28
NZL	0.06	0.02	0.00	0.05	0.01	0.15
POL	0.02	0.02	0.00	0.08	0.04	0.15
PRT	0.02	0.05	0.00	0.05	0.00	0.11
RUS	0.11	0.07	0.02	0.11	0.04	0.35
SVK	0.02	0.02	0.00	0.05	0.03	0.11
SVN	0.00	0.04	0.00	0.03	0.00	0.07
SWE	0.06	0.02	0.00	0.05	0.00	0.13
TUR	0.03	0.02	0.02	0.21	0.04	0.32
USA	0.05	0.02	0.02	0.03	0.00	0.12
ZAF	0.08	0.09	0.04	0.16	0.01	0.38

Table A.5. Courier services (including postal services)

Country	Restrictions on foreign entry	Restrictions to movement of people	Other discriminatory measures	Barriers to competition	Regulatory transparency	Overall indicator
AUS	0.13	0.02	0.01	0.10	0.04	0.31
AUT	0.00	0.04	0.00	0.07	0.04	0.15
BEL	0.02	0.04	0.01	0.06	0.02	0.15
BRA	0.18	0.06	0.03	0.13	0.11	0.51
CAN	0.16	0.03	0.02	0.07	0.05	0.33
CHE	0.11	0.07	0.01	0.11	0.05	0.36
CHL	0.15	0.05	0.03	0.14	0.11	0.47
CHN	0.40	0.08	0.05	0.21	0.14	0.87
CZE	0.02	0.04	0.00	0.06	0.02	0.14
DEU	0.00	0.01	0.00	0.05	0.02	0.09
DNK	0.00	0.02	0.00	0.09	0.01	0.12
ESP	0.02	0.01	0.01	0.07	0.04	0.15
EST	0.00	0.05	0.00	0.06	0.01	0.12
FIN	0.06	0.04	0.00	0.05	0.01	0.16
FRA	0.02	0.04	0.01	0.04	0.00	0.10
GBR	0.03	0.04	0.01	0.07	0.00	0.15
GRC	0.05	0.04	0.00	0.02	0.02	0.13
HUN	0.03	0.02	0.00	0.06	0.01	0.13
IDN	0.16	0.05	0.01	0.12	0.10	0.44
IND	0.19	0.06	0.03	0.15	0.10	0.54
IRL	0.03	0.04	0.00	0.05	0.00	0.12
ISL	0.17	0.05	0.01	0.09	0.04	0.37
ISR	0.16	0.06	0.01	0.10	0.05	0.38
ITA	0.00	0.03	0.01	0.09	0.05	0.18
JPN	0.05	0.04	0.01	0.06	0.05	0.21
KOR	0.11	0.04	0.01	0.13	0.05	0.34
LUX	0.02	0.01	0.01	0.04	0.02	0.10
MEX	0.13	0.04	0.02	0.13	0.08	0.40
NLD	0.00	0.02	0.01	0.04	0.00	0.07
NOR	0.14	0.04	0.03	0.14	0.06	0.41
NZL	0.05	0.02	0.01	0.06	0.04	0.18
POL	0.03	0.01	0.00	0.06	0.04	0.15
PRT	0.02	0.04	0.01	0.05	0.01	0.13
RUS	0.06	0.07	0.03	0.14	0.05	0.35
SVK	0.02	0.02	0.00	0.06	0.04	0.14
SVN	0.00	0.04	0.00	0.05	0.00	0.09
SWE	0.05	0.02	0.01	0.10	0.01	0.19
TUR	0.15	0.05	0.03	0.12	0.10	0.45
USA	0.13	0.04	0.04	0.12	0.04	0.37
ZAF	0.13	0.08	0.04	0.16	0.07	0.48

ANNEX B. CLASSIFICATION OF TRADE BARRIERS FOR TRANSPORT AND COURIER SERVICES

Table B.1. Air transport services (passenger and cargo)

Measures	Mode	Establishment/ operations	Discriminatory/ non-discriminatory
Restrictions on foreign entry			
Foreign equity restrictions: maximum foreign equity share allowed for domestic traffic (%)	3	E	D
Foreign equity restrictions: maximum foreign equity share allowed for international traffic (%)	3	E	D
There are statutory or other legal limits to the number or proportion of shares that can be acquired by foreign investors in firms that are controlled by national state or provincial governments	3	E	D
Only joint ventures are allowed (domestic traffic)	3	E	D
Only joint ventures are allowed (international traffic)	3	E	D
Foreign companies can establish subsidiaries (domestic traffic)	3	E	D
Foreign companies can establish subsidiaries (international traffic)	3	E	D
Foreign companies can establish branches	3	E	D
Board of directors: majority must be nationals (domestic traffic)	3	O	D
Board of directors: majority must be nationals (international traffic)	3	O	D
Board of directors: majority must be residents (domestic traffic)	3	O	D
Board of directors: majority must be residents (international traffic)	3	O	D
Board of directors: at least one must be national (domestic traffic)	3	O	D
Board of directors: at least one must be national (international traffic)	3	O	D
Board of directors: at least one must be resident (domestic traffic)	3	O	D
Board of directors: at least one must be resident (international traffic)	3	O	D
Manager must be national (domestic traffic)	3	O	D
Manager must be national (international traffic)	3	O	D
Manager must be resident (domestic traffic)	3	O	D
Manager must be resident (international traffic)	3	O	D
Screening: foreign investors must show net economic benefits	3	E	D
Screening: approval unless contrary to national interest	3	E	D
Screening: notification	3	E	D
Restrictions on the type of shares or bonds held by foreign investors	3	E	D
Conditions on subsequent transfer of capital and investments	3	E	D
Restrictions on cross-border mergers and acquisitions (domestic traffic)	3	E	D
Restrictions on cross-border mergers and acquisitions (international traffic)	3	E	D
Licensing/permits are subject to quotas or economic needs tests (domestic traffic)	3	E	D

Measures	Mode	Establishment/ operations	Discriminatory/ non-discriminatory
Licensing/permits are subject to quotas or economic needs tests (international traffic)	3	E	D
Provisions in bilateral/plurilateral agreements			
Grant of traffic rights	1	O	D
Route schedules	1	O	D
Designation	1	O	D
Capacity	1	O	D
Ownership and control	1	O	D
Restrictions to movement of people			
Quotas: intra-corporate transferees	4	O	D
Quotas: contractual services suppliers	4	E	D
Quotas: independent services suppliers	4	E	D
Labour market tests: intra-corporate transferees	4	O	D
Labour market tests: contractual services suppliers	4	E	D
Labour market tests: independent services suppliers	4	E	D
Limitation on duration of stay for intra-corporate transferees	4	O	D
Limitation on duration of stay for contractual services suppliers is limited	4	E	D
Limitation on duration of stay for independent services suppliers is limited	4	E	D
Other discriminatory measures			
Foreign suppliers are treated less favourably regarding taxes and eligibility to subsidies	All	O	D
Restrictions on public procurement: explicit discrimination in favour of local firms (domestic traffic)	All	O	D
Restrictions on public procurement: explicit discrimination in favour of local firms (international traffic)	All	O	D
The procurement process affects the conditions of competition in favour of local firms (domestic traffic)	All	O	D
The procurement process affects the conditions of competition in favour of local firms (international traffic)	All	O	D
Laws and regulations impose national standards that deviate from international standards/conventions	All	O	ND
Provisions in bilateral/plurilateral agreements			
Pricing	1	O	D
Ground-handling	1	O	D
Other commercial opportunities	1	O	D
User charges	1	O	D
Cooperative arrangements	1	O	D
Change of aircraft	1	O	D
Barriers to competition			

Measures	Mode	Establishment/ operations	Discriminatory/ non-discriminatory
When appeal procedures are available in domestic regulatory systems, they are open to affected or interested foreign parties as well	3	O	D
Foreign firms have redress when business practices are perceived to restrict competition in a given market	3	O	D
National, state or provincial government control at least one major firm in the sector	3	E	ND
Publicly-controlled firms or undertakings are subject to an exclusion or exemption, either complete or partial, from the application of the general competition law	3	E	ND
Minimum capital requirements	3	E	ND
Slot allocation systems	All	O	ND
Slot trading	All	O	ND
Schedules for airport use	All	O	ND
Exemption of air carrier alliances from competition law	All	O	ND
Price regulation on domestic routes	All	O	ND
Contracts for universal service obligations are awarded through competitive bidding	All	O	ND
Regulatory transparency			
Regulations are published or otherwise communicated to the public prior to entry into force	All	O	ND
There is a public comment procedures open to interested persons, including foreign suppliers	All	O	ND
Range of visa processing time	4	O	ND
Time to complete all official procedures required to register a company	3	O	ND
Total cost to complete all official procedures required to register a company	3	O	ND
Number of official procedures required to register a company	3	O	ND
Time taken for customs clearance (cargo only)	All	O	ND

Table B.2. Maritime transport

Measures	MA&NT/ DR&Other	Mode	Establishment/ operations	Discriminatory /non-discriminatory
Restrictions on foreign entry				
Foreign equity restrictions: maximum foreign equity share allowed (%)	MA&NT	3	E	D
There are statutory or other legal limits to the number or proportion of shares that can be acquired by foreign investors in firms that are controlled by national state or provincial governments	MA&NT	3	E	D
Only joint ventures are allowed	MA&NT	3	E	D
Foreign companies can establish subsidiaries	MA&NT	3	E	D
Foreign companies can establish branches	MA&NT	3	E	D
Other restrictions on legal form	MA&NT	3	E	D
Board of directors: majority must be nationals	MA&NT	3	O	D
Board of directors: majority must be residents	MA&NT	3	O	D
Board of directors: at least one must be national	MA&NT	3	O	D
Board of directors: at least one must be resident	MA&NT	3	O	D
Manager must be national	MA&NT	3	O	D
Manager must be resident	MA&NT	3	O	D
Screening: foreign investors must show net economic benefits	MA&NT	3	E	D
Screening: approval unless contrary to national interest	MA&NT	3	E	D
Screening: notification	MA&NT	3	E	D
Restrictions on the type of shares or bonds held by foreign investors	MA&NT	3	E	D
Conditions on subsequent transfer of capital and investments	MA&NT	3	E	D
Restrictions on cross-border mergers and acquisitions	MA&NT	3	E	D
Cargo reservation: Unilateral cargo reservations	MA&NT	1	E	D
Cargo reservation: Bilateral/plurilateral cargo sharing agreements	MA&NT	1	E	D
Cargo reservation: Plurilateral cargo reservations (UNCTAD Liner Code of Conduct)	MA&NT	1	E	D
Cargo reservation: Government cargo	MA&NT	1	E	D
Cargo reservation: Other cargo reservations and preferential schemes	MA&NT	1	E	D
Restrictions to own and register vessels under national flags	MA&NT	1	E	D
Cabotage: Exclusion foreign-flagged ships (or other criteria, such as foreign-built ships)	MA&NT	1	E	D
Cabotage: Feedering is prohibited	MA&NT	All	E	D
Cabotage: Repositioning of equipment is prohibited	MA&NT	All	E	D
Statutory monopoly on port services	MA&NT	3	E	D
Restrictions on the number of licenses/concessions	MA&NT	3	E	D
Restrictions on the type of vessels	MA&NT	All	E	D
Restrictions on the type and quantity of cargo transported	MA&NT	All	E	D
Restrictions to establish or operate representative offices	MA&NT	3	E	D
Restrictions on the chartering of vessels	MA&NT		E	D

Measures	MA&NT/ DR&Other	Mode	Establishment/ operations	Discriminatory /non-discriminatory
Restrictions to movement of people				
Quotas: intra-corporate transferees	MA&NT	4	O	D
Quotas: contractual services suppliers	MA&NT	4	E	D
Quotas: independent services suppliers	MA&NT	4	E	D
Labour market tests: intra-corporate transferees	MA&NT	4	O	D
Labour market tests: contractual services suppliers	MA&NT	4	E	D
Labour market tests: independent services suppliers	MA&NT	4	E	D
Limitation on duration of stay for intra-corporate transferees	MA&NT	4	O	D
Limitation on duration of stay for contractual services suppliers is limited	MA&NT	4	E	D
Limitation on duration of stay for independent services suppliers is limited	MA&NT	4	E	D
Other discriminatory measures				
Foreign suppliers are treated less favourably regarding taxes and eligibility to subsidies	MA&NT	All	O	D
Explicit discrimination in favour of local firms for domestic traffic	DR&Other	All	O	D
Explicit discrimination in favour of local firms for international traffic	DR&Other	All	O	D
There are limitations on foreign participation in public procurement for domestic traffic	DR&Other	All	O	D
There are limitations on foreign participation in public procurement for international traffic	DR&Other	All	O	D
There is a formal requirement that regulators consider comparable international standards and rules before setting new domestic standards	DR&Other	All	O	ND
Discriminatory access to use of port services and installations	MA&NT	1	O	D
Discriminatory port tariffs and other port-related fees	MA&NT	1	O	D
Obligation to use local maritime and port services	MA&NT	1	O	D
Discriminatory environmental and/or security standards	MA&NT	All	O	D
Other restrictions	MA&NT	1	O	D
Obligation to use a local maritime port agent	MA&NT	All	O	D
Obligation to use local tug and tow services	MA&NT	All	O	D
Restrictions on cargo-handling	MA&NT	All	O	D
Restrictions on pilotage and towing services	MA&NT	All	O	D
Restrictions on storage and warehouse services	MA&NT	All	O	D
Restrictions on container-station and depot services	MA&NT	All	O	D
Other restrictions on auxiliary services	MA&NT	All	O	D
Restrictions on sale & marketing and organising the ship's call	MA&NT	3	O	D
Barriers to competition				
When appeal procedures are available in domestic regulatory systems, they are open to affected or interested foreign parties as well.	MA&NT	3	O	D
Foreign firms have redress when business practices are perceived to restrict competition in a given market	MA&NT	3	O	D

Measures	MA&NT/ DR&Other	Mode	Establishment/ operations	Discriminatory /non-discriminatory
National, state or provincial government control at least one major firm in the sector	DR&Other	3	E	ND
Publicly-controlled firms or undertakings are subject to an exclusion or exemption, either complete or partial, from the application of the general competition law.	DR&Other	3	E	ND
Minimum capital requirements	DR&Other	3	E	ND
Shipping agreements are partly or fully exempted from price fixing or quantity regulation under the competition law	DR&Other	All	O	ND
Right of independent action and confidential services contracts in shipping agreements are mandated	DR&Other	All	O	ND
Consortia are allowed	DR&Other	All	O	ND
Shipping agreements are subject to review	DR&Other	All	O	ND
Regulatory transparency				
Regulations are published or otherwise communicated to the public prior to entry into force	DR&Other	All	O	ND
There is a public comment procedures open to interested persons, including foreign suppliers	DR&Other	All	O	ND
Range of visa processing time (days)	DR&Other	4	O	ND
Time to complete all official procedures required to register a company (in calendar days)	DR&Other	3	O	ND
Total cost to complete all official procedures required to register a company (in % of income per capita)	DR&Other	3	O	ND
Number of official procedures required to register a company	DR&Other	3	O	ND
Time taken for customs clearance (days)	DR&Other	All	O	ND

Table B.3. Road freight transport services

Measures	MA&NT/ DR&Other	Mode	Establishment/ operations	Discriminatory /non-discriminatory
Restrictions on foreign entry				
Foreign equity restrictions: maximum foreign equity share allowed (%)	MA&NT	3	E	D
There are statutory or other legal limits to the number or proportion of shares that can be acquired by foreign investors in firms that are controlled by national state or provincial governments	MA&NT	3	E	D
Only joint ventures are allowed	MA&NT	3	E	D
Foreign companies can establish subsidiaries	MA&NT	3	E	D
Foreign companies can establish branches	MA&NT	3	E	D
Board of directors: majority must be nationals	MA&NT	3	O	D
Board of directors: majority must be residents	MA&NT	3	O	D
Board of directors: at least one must be national	MA&NT	3	O	D
Board of directors: at least one must be resident	MA&NT	3	O	D
Manager must be national	MA&NT	3	O	D
Manager must be resident	MA&NT	3	O	D
Screening: foreign investors must show net economic benefits	MA&NT	3	E	D
Screening: approval unless contrary to national interest	MA&NT	3	E	D
Screening: notification	MA&NT	3	E	D
Restrictions on the type of shares or bonds held by foreign investors	MA&NT	3	E	D
Conditions on subsequent transfer of capital and investments	MA&NT	3	E	D
Restrictions on cross-border mergers and acquisitions	MA&NT	3	E	D
Licensing/permits are subject to quotas for domestic traffic	MA&NT	3	E	D
Licensing/permits are subject to an economic needs test	MA&NT	3	E	D
Commercial presence required in order to provide road freight transport	MA&NT	All	E	D
Restrictions to movement of people				
Quotas: intra-corporate transferees	MA&NT	4	O	D
Quotas: contractual services suppliers	MA&NT	4	E	D
Quotas: independent services suppliers	MA&NT	4	E	D
Labour market tests: intra-corporate transferees	MA&NT	4	O	D
Labour market tests: contractual services suppliers	MA&NT	4	E	D
Labour market tests: independent services suppliers	MA&NT	4	E	D
Limitation on duration of stay for intra-corporate transferees	MA&NT	4	O	D
Limitation on duration of stay for contractual services suppliers is limited	MA&NT	4	E	D
Limitation on duration of stay for independent services suppliers is limited	MA&NT	4	E	D
Other discriminatory measures				
Foreign suppliers are treated less favourably regarding taxes and eligibility to subsidies	MA&NT	All	O	D
Restrictions on public procurement: explicit discrimination in favour of local firms	DR&Other	All	O	D
The procurement process affects the conditions of competition in favour of local firms	DR&Other	All	O	D

Measures	MA&NT/ DR&Other	Mode	Establishment/ operations	Discriminatory /non-discriminatory
Laws or regulations impose national standards that deviate from international standards/conventions	DR&Other	All	O	ND
Barriers to competition				
When appeal procedures are available in domestic regulatory systems, they are open to affected or interested foreign parties as well	MA&NT	3	O	D
Foreign parties have redress when business practices are perceived to restrict competition in a given market	MA&NT	3	O	D
National, state or provincial government control at least one major firm in the sector	DR&Other	3	E	ND
Publicly-controlled firms or undertakings are subject to an exclusion or exemption, either complete or partial, from the application of the general competition law	DR&Other	3	E	ND
Minimum capital requirements	DR&Other	3	E	ND
Exemption of road freight carrier's agreements from competition law	DR&Other	All	O	ND
Retail prices of road freight services are regulated	DR&Other	All	O	ND
The government provides pricing guidelines for road freight companies	DR&Other	All	O	ND
Freight carriers are required to file tariffs	DR&Other	All	O	ND
Industry representatives are involved in setting entry and pricing regulations	DR&Other	All	O	ND
Regulatory transparency				
Regulations are published or otherwise communicated to the public prior to entry into force	DR&Other	All	O	ND
There is a public comment procedures open to interested persons, including foreign suppliers	DR&Other	All	O	ND
Range of visa processing time	DR&Other	4	O	ND
Time to complete all official procedures required to register a company	DR&Other	3	O	ND
Total cost to complete all official procedures required to register a company	DR&Other	3	O	ND
Number of official procedures required to register a company	DR&Other	3	O	ND
Time taken for customs clearance	DR&Other	All	O	ND

Table B.4. Rail freight transport services

Measures	MA&NT/ DR&Other	Mode	Establishment/ operations	Discriminatory /non-discriminatory
Restrictions on foreign entry				
Foreign equity restrictions: maximum foreign equity share allowed (%)	MA&NT	3	E	D
There are statutory or other legal limits to the number or proportion of shares that can be acquired by foreign investors in firms that are controlled by national state or provincial governments	MA&NT	3	E	D
Foreign companies can establish branches	MA&NT	3	E	D
Only joint ventures are allowed	MA&NT	3	E	D
Foreign companies can establish subsidiaries	MA&NT	3	E	D
Board of directors: majority must be nationals	MA&NT	3	O	D
Board of directors: majority must be residents	MA&NT	3	O	D
Board of directors: at least one must be national	MA&NT	3	O	D
Board of directors: at least one must be resident	MA&NT	3	O	D
Manager must be national	MA&NT	3	O	D
Screening: Foreign investors must show net economic benefits	MA&NT	3	O	D
Screening: Approval unless contrary to national interest	MA&NT	3	E	D
Screening: Notification	MA&NT	3	E	D
Restrictions on the type of shares or bonds held by foreign investors	MA&NT	3	E	D
Conditions on subsequent transfer of capital and investments	MA&NT	3	E	D
Restrictions on cross-border mergers and acquisitions	MA&NT	3	E	D
Services are reserved for statutory monopoly or granted through concessions on an exclusive basis	MA&NT	3	E	ND
Licenses are subject to quotas	MA&NT	3	E	D
Licenses subject to economic needs tests	MA&NT	3	E	D
Commercial presence required in order to provide rail freight transport	MA&NT	1	E	D
Transit rights for international rail transport	MA&NT	1	E	D
Access rights for international combined transport	MA&NT	1	E	D
Access rights for international rail transport	MA&NT	1	E	D
Access rights for rail transport (cabotage)	MA&NT	1	E	D
Restrictions to movement of people				
Quotas: intra-corporate transferees	MA&NT	4	O	D
Quotas: contractual services suppliers	MA&NT	4	E	D
Quotas: independent services suppliers	MA&NT	4	E	D
Labour market tests: intra-corporate transferees	MA&NT	4	O	D
Labour market tests: contractual services suppliers	MA&NT	4	E	D
Labour market tests: independent services suppliers	MA&NT	4	E	D
Limitation on duration of stay for intra-corporate transferees	MA&NT	4	O	D
Limitation on duration of stay for contractual services suppliers is limited	MA&NT	4	E	D
Limitation on duration of stay for independent services suppliers is limited	MA&NT	4	E	D

Measures	MA&NT/ DR&Other	Mode	Establishment/ operations	Discriminatory /non-discriminatory
Other discriminatory measures				
Foreign suppliers are treated less favourably regarding taxes and eligibility to subsidies	MA&NT	All	O	D
Explicit discrimination in favour of local firms	DR&Other	All	O	D
The procurement process affects the conditions of competition in favour of local firms	DR&Other	All	O	D
Discriminatory criteria for issuing licenses	MA&NT	3	E	D
Interoperability/interlinking is required	DR&Other	1	O	ND
Barriers to competition				
When appeal procedures are available in domestic regulatory systems, they are open to affected or interested foreign parties as well	MA&NT	3	O	D
Foreign firms have redress when business practices are perceived to restrict competition in a given market	MA&NT	3	O	D
National, state or provincial government control at least one major firm in the sector	DR&Other	3	E	ND
Publicly-controlled firms or undertakings are subject to an exclusion or exemption, either complete or partial, from the application of the general competition law	DR&Other	3	E	ND
Minimum capital requirements	DR&Other	3	E	ND
The government can overrule the decision of the railways regulator	DR&Other	3	O	ND
Contracts for universal service obligations are awarded through competitive bidding	DR&Other	3	O	ND
*Memo: Vertical separation is required**				
VS: Decisions of the infrastructure manager can be appealed	DR&Other	3	O	ND
VS: Independence of infrastructure managers is required	DR&Other	3	O	ND
VS: There is a prohibition to transfer public funds between services and infrastructure management activities	DR&Other	3	O	ND
VS: Access to railway infrastructure is mandated at the national level	DR&Other	3	O	ND
VS: Access fees are regulated	DR&Other	3	O	ND
VS: Access fees and conditions are developed and made public in advance	DR&Other	3	O	ND
VS: Access capacity is regulated	DR&Other	3	O	ND
VS: Transfer or trading of infrastructure capacity is prohibited	DR&Other	3	O	ND
VS: Track access for supply of services to terminals is mandated	DR&Other	3	O	ND
VS: Track access for supply of services to ports is mandated	DR&Other	3	O	ND
VI: Competitive entry/exit is allowed	DR&Other	3	O	ND
VI: Level of service obligations are imposed	DR&Other	3	O	ND
VI: Rail rates are regulated	DR&Other	3	O	ND
VI: Publication and filing of rail rates is required	DR&Other	3	O	ND
VI: Confidential contracts are allowed	DR&Other	3	O	ND
VI: A dispute resolution mechanism is available	DR&Other	3	O	ND
VI: Terminal running rights are in place	DR&Other	3	O	ND
VI: Rates for terminal running rights are regulated	DR&Other	3	O	ND
VI: Interswitching is mandated	DR&Other	3	O	ND

Measures	MA&NT/ DR&Other	Mode	Establishment/ operations	Discriminatory /non-discriminatory
VI: Interswitching rates are regulated	DR&Other	3	O	ND
VI: Bottleneck services are regulated	DR&Other	3	O	ND
VI: Running rights are mandated	DR&Other	3	O	ND
VI: Running rights are mandated only for bottleneck segments	DR&Other	3	O	ND
VI: Memo: there is market dominance				
Regulatory transparency				
Regulations are published or otherwise communicated to the public prior to entry into force	DR&Other	All	O	ND
There is a public comment procedure open to interested persons, including foreign suppliers	DR&Other	All	O	ND
Range of visa processing time (days)	DR&Other	4	O	ND
Time to complete all official procedures required to register a company (in calendar days)	DR&Other	3	O	ND
Total cost to complete all official procedures required to register a company (in USD)	DR&Other	3	O	ND
Number of official procedures required to register a company	DR&Other	3	O	ND
Time taken for customs clearance	DR&Other	All	O	ND

Table B.5. Courier services (including postal services)

Measures	MA&NT/ DR&Other	Mode	Establishment/ operations	Discriminatory /non-discriminatory
Restrictions on foreign entry				
Maximum foreign equity share allowed (%)	MA&NT	3	E	D
Non-residents are allowed to invest in local courier services firms through minority shares in local investment companies. Maximum foreign ownership in local investment companies (%).	MA&NT	3	E	D
There are statutory or other legal limits to the number or proportion of shares that can be acquired by foreign investors in firms that are controlled by national state or provincial governments	MA&NT	3	E	D
Legal form: only joint ventures are allowed	MA&NT	3	E	D
Board of directors: majority must be nationals	MA&NT	3	O	D
Board of directors: majority must be residents	MA&NT	3	O	D
Board of directors: at least one must be national	MA&NT	3	O	D
Board of directors: at least one must be resident	MA&NT	3	O	D
Manager must be national	MA&NT	3	O	D
Manager must be resident	MA&NT	3	O	D
Screening: foreign investors must show net economic benefits	MA&NT	3	E	D
Screening: approval unless contrary to national interest	MA&NT	3	E	D
Screening: notification	MA&NT	3	E	D
Restrictions on the type of shares or bonds held by foreign investors	MA&NT	3	E	D
Conditions on subsequent transfer of capital and investments	MA&NT	3	E	D
Restrictions on cross-border mergers and acquisitions	MA&NT	3	E	D
Monopoly on letters (kg)	MA&NT	3	E	ND
Monopoly on parcels (kg)	MA&NT	3	E	ND
Monopoly on express delivery (kg)	MA&NT	3	E	ND
The number of available licences for courier firms is limited	MA&NT	3	E	ND
Licences are subject to an economic needs test	MA&NT	3	E	ND
Restrictions on foreign owned firms' establishments	MA&NT	3	E	D
Restrictions to movement of people				
Quotas: intra-corporate transferees	MA&NT	4	O	D
Quotas: contractual services suppliers	MA&NT	4	E	D
Quotas: independent services suppliers	MA&NT	4	E	D
Labour market tests: intra-corporate transferees	MA&NT	4	O	D
Labour market tests: contractual services suppliers	MA&NT	4	E	D
Labour market tests: independent services suppliers	MA&NT	4	E	D
Limitation on duration of stay for intra-corporate transferees	MA&NT	4	O	D
Limitation on duration of stay for contractual services suppliers is limited	MA&NT	4	E	D
Limitation on duration of stay for independent services suppliers is limited	MA&NT	4	E	D

Measures	MA&NT/ DR&Other	Mode	Establishment/ operations	Discriminatory /non-discriminatory
Other discriminatory measures				
Foreign suppliers are treated less favourably regarding taxes and eligibility to subsidies	MA&NT	All	O	D
Explicit discrimination in favour of local firms	DR&Other	All	O	D
The procurement process affects the conditions of competition in favour of local firms	DR&Other	All	O	D
There is a formal requirement that regulators consider comparable international standards and rules before setting new domestic standards	DR&Other	All	O	ND
Barriers to competition				
When appeal procedures are available in domestic regulatory systems, they are open to affected or interested foreign parties as well.	MA&NT	3	O	D
Foreign firms have redress when business practices are perceived to restrict competition in a given market	MA&NT	3	O	D
National, state or provincial government control at least one major firm in the sector	DR&Other	3	E	ND
Publicly-controlled firms or undertakings are subject to an exclusion or exemption, either complete or partial, from the application of the general competition law.	DR&Other	3	E	ND
Minimum capital requirements	DR&Other	3	E	ND
The government can overrule the decision of the regulator	DR&Other	3	O	ND
The legal separation of the regulator and services operators is required	DR&Other	3	O	ND
The designated postal operator obtains preferential tax or subsidy treatment	DR&Other	All	O	ND
The designated postal operators obtains preferential treatment during customs clearance procedures	DR&Other	All	O	ND
The designated postal operator obtains exemptions from transport bans	DR&Other	All	O	ND
Prices for postal services are regulated	DR&Other	All	O	ND
Accounting separation is required	DR&Other	All	O	ND
An appropriate cost allocation system is in place	DR&Other	All	O	ND
Access to the postal network is granted on a non-discriminatory basis	DR&Other	All	O	ND
Restrictions on ground-handling	DR&Other	All	O	ND
Restrictions on cargo-handling	DR&Other	All	O	ND
Restrictions on storage and warehouses	DR&Other	All	O	ND
Quality/performance standards requirements for courier services outside universal services	DR&Other	All	O	ND
A dispute resolution mechanism is available	DR&Other	All	O	ND
The decision by the regulator can be appealed	DR&Other	3	O	ND
Regulatory transparency				
Regulations are published or otherwise communicated to the public prior to entry into force	DR&Other	All	O	ND
There is a public comment procedure open to interested persons, including foreign suppliers	DR&Other	All	O	ND

Measures	MA&NT/ DR&Other	Mode	Establishment/ operations	Discriminatory /non-discriminatory
Range of visa processing time (days)	DR&Other	4	O	ND
Time to complete all official procedures required to register a company (in calendar days)	DR&Other	3	O	ND
Total cost to complete all official procedures required to register a company (in USD)	DR&Other	3	O	ND
Number of official procedures required to register a company	DR&Other	3	O	ND
Time taken between the submission of an accepted customs declaration and customs clearance (days)	DR&Other	All	O	ND
Pre-arrival processing is possible	DR&Other	All	O	ND
A *de minimis* regime is in place (in USD)	DR&Other	All	O	ND
The release of goods is possible before determination and payment of duties	DR&Other	All	O	ND
The scope of the monopoly (reserved area) of the designated postal operator is clearly defined on the basis of objective criteria	DR&Other	3	O	ND
The licensing/authorizing process and appeals process are transparent and are based on objective criteria	DR&Other	3	O	ND
Fees required to obtain a licence/authorisation (in USD)	DR&Other	3	O	ND

ANNEX C. AIR SERVICES AGREEMENTS AND BILATERAL RELATINOSHIPS

Table C.1. Bilateral relationships covered in the STRI

PAR \ REP	AUS	AUT	BEL	BRA	CAN	CHE	CHL	CHN	CZE	DEU	DNK	ESP	EST	FIN	FRA	GBR	GRC	HUN	IDN	IND	IRL	ISL	ISR	ITA	JPN	KOR	LUX	MEX	NLD	NOR	NZL	POL	PRT	RUS	SVK	SVN	SWE	TUR	USA	ZAF
ARE	X	X	X		X	X	X	X				X			X	X	X							X			X		X			X		X				X	X	
ARG		X				X					X	X			X									X		X		X	X	X			X	X			X		X	
AUS		X			X	X	X	X	X	X		X			X	X	X		X	X	X			X	X	X		X	X		X	X					X	X	
AUT	X		X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X		X	X		X	X	X	X	X
BEL		X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
BGR		X	X		X	X		X	X	X	X	X	X	X	X	X	X	X			X	X	X	X		X	X		X	X		X	X	X	X	X	X		X	
BRA		X	X		X		X				X				X			X									X		X								X		X	X
CAN	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X		X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
CHE	X	X	X		X		X	X	X	X	X	X	X	X	X	X	X	X	X		X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	
CHL	X		X	X	X	X		X		X	X	X			X	X							X			X		X	X	X	X			X		X			
CHN	X	X	X		X	X	X		X	X	X	X		X		X		X			X	X	X	X		X			X	X	X	X				X	X	X	
COL				X											X																	X						X		
CYP		X	X		X	X			X	X	X	X	X	X	X	X	X	X			X	X	X	X			X		X	X		X	X	X	X	X	X		X	
CZE	X	X	X		X	X		X		X	X	X	X	X	X	X	X	X			X	X	X	X			X	X	X	X		X	X	X	X	X	X		X	
DEU	X	X	X		X	X	X	X	X		X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X
DNK		X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X		X	X	X	X	X	X	X	X	X	X	X	X
DZA		X				X		X	X			X			X			X								X		X				X	X	X						
EGY		X				X			X		X	X		X			X	X		X			X			X				X		X		X				X		
ESP	X	X	X		X	X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	

REP / PAR	AUS	AUT	BEL	BRA	CAN	CHE	CHL	CHN	CZE	DEU	DNK	ESP	EST	FIN	FRA	GBR	GRC	HUN	IDN	IND	IRL	ISL	ISR	ITA	JPN	KOR	LUX	MEX	NLD	NOR	NZL	POL	PRT	RUS	SVK	SVN	SWE	TUR	USA	ZAF
EST	X	X		X	X			X	X	X	X		X	X	X	X	X			X	X	X	X			X		X	X		X	X	X	X	X	X	X			
FIN		X	X		X	X		X	X	X	X	X	X		X	X	X	X		X	X	X	X	X	X	X	X		X	X		X	X	X	X	X	X	X	
FRA	X	X	X	X	X	X	X		X	X	X	X	X	X		X	X	X		X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
GBR	X	X	X		X	X	X	X	X	X	X	X	X	X	X		X	X		X	X	X	X	X		X	X	X	X	X	X	X	X		X	X	X	X	X
GRC	X	X	X		X	X			X	X	X	X	X	X	X	X		X			X	X	X	X	X	X	X		X	X		X	X	X	X	X	X	X	
HKG	X	X	X		X	X								X	X	X		X	X		X	X	X	X	X	X	X	X	X		X			X			X	X	X	X
HRV		X	X		X	X			X	X	X	X	X	X	X	X	X	X			X	X	X	X			X		X	X		X	X		X	X	X		X	
HUN		X	X	X	X	X		X	X	X	X	X	X	X	X	X	X				X	X	X	X	X	X	X		X	X		X	X	X	X	X	X	X	X	
IDN	X	X				X					X																		X		X						X		X	
IND	X	X			X						X	X		X	X	X					X		X	X		X				X								X	X	X
IRL	X	X	X		X	X		X	X	X	X	X	X	X	X	X	X	X		X		X	X	X			X		X	X	X	X	X	X	X	X	X	X		
IRN		X				X		X			X	X			X		X	X								X			X					X	X				X	
IRQ									X																															
ISL		X	X					X	X	X	X	X	X	X	X	X	X	X			X			X			X		X	X		X	X	X	X	X	X			
ISR		X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X			X	X		X		X	X		X	X	X	X	X	X	X	
ITA	X	X	X		X	X		X	X	X	X	X	X	X	X	X	X	X		X	X	X	X		X		X	X	X	X		X	X		X	X	X	X	
JPN	X		X		X	X				X	X	X		X	X		X	X					X	X		X		X	X	X	X	X		X			X	X	X	X
KOR	X	X			X		X	X		X		X		X	X	X	X	X		X					X		X	X	X					X					X	X
LTU		X	X		X	X			X	X	X	X	X	X	X	X	X	X		X	X	X	X	X			X		X	X		X	X	X	X	X	X		X	
LUX		X	X		X	X			X	X	X	X	X	X	X	X	X	X			X	X	X	X		X			X	X	X	X	X	X	X	X	X	X	X	X
LVA		X	X		X	X			X	X	X	X	X	X	X	X	X	X			X	X	X	X			X		X	X		X	X	X	X	X	X		X	
MEX	X	X	X	X	X	X	X		X	X		X			X	X								X	X	X			X		X	X	X	X	X				X	
MLT	X	X	X		X	X		X	X	X	X	X	X	X	X	X	X	X			X	X	X	X		X	X		X	X		X	X	X	X	X	X		X	
MYS	X	X	X		X	X	X	X	X		X	X			X			X			X			X	X	X	X	X	X		X	X		X				X	

PAR \ REP	AUS	AUT	BEL	BRA	CAN	CHE	CHL	CHN	CZE	DEU	DNK	ESP	EST	FIN	FRA	GBR	GRC	HUN	IDN	IND	IRL	ISL	ISR	ITA	JPN	KOR	LUX	MEX	NLD	NOR	NZL	POL	PRT	RUS	SVK	SVN	SWE	TUR	USA	ZAF
NGA						X					X	X			X			X											X	X				X			X		X	
NLD	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X		X		X	X		X	X	X	X	X	X
NOR		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X		X		X	X	X	X	X	X	X	X	X	X
NZL	X		X		X	X	X	X		X	X	X				X			X		X				X		X	X		X						X	X	X	X	X
PAK		X			X	X		X	X		X	X			X	X		X						X	X	X			X	X		X	X	X			X		X	
PHL		X			X	X		X	X		X	X		X	X			X		X			X	X	X	X		X	X	X	X			X			X		X	
POL	X	X	X		X	X		X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X		X	X	X	X			X	X	X	X	X		X	
PRT		X	X		X	X			X	X	X	X	X	X	X	X	X	X			X	X	X	X			X	X	X	X		X			X	X	X	X	X	X
ROM		X	X		X	X		X	X	X	X	X	X	X	X	X	X	X			X	X	X	X		X	X		X	X		X	X	X	X	X	X		X	
RUS			X		X	X	X		X		X		X	X	X		X	X			X	X	X		X	X	X	X		X		X			X	X	X		X	
SAU		X			X	X		X			X	X					X								X	X	X			X				X			X		X	
SGP	X	X				X	X				X	X		X	X	X	X	X			X		X	X	X	X	X	X	X	X	X			X			X		X	
SVK		X	X		X	X			X	X	X	X	X	X	X	X	X	X			X	X	X	X			X	X	X	X		X	X	X		X	X	X	X	
SVN		X	X		X	X			X	X	X	X	X	X	X	X	X	X			X	X	X	X			X		X	X		X	X	X	X		X	X	X	
SWE		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X		X	X	X	X	X	X	X	X	X	X	X	X
THA	X	X			X	X		X			X	X		X	X		X	X					X		X	X	X	X	X	X		X		X			X		X	
TUR		X				X		X		X	X	X	X	X			X	X			X		X		X		X			X	X		X		X	X	X		X	
UKR		X	X		X	X		X			X	X	X	X	X		X	X			X		X	X		X	X		X	X		X	X	X	X	X	X		X	
USA	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X
VEN						X						X			X													X	X				X	X					X	
ZAF	X	X	X	X						X	X				X	X				X					X	X	X		X	X	X			X			X		X		

ANNEX D. SCORING METHODOLOGY FOR AIR TRANSPORT SERVICES

Scoring methodology

The scoring methodology should account for hierarchies and joint effects of regulations. For instance, if foreign equity in airlines is not allowed, measures related to foreign firms such as restrictions on establishing subsidiaries become redundant. In addition, some measures are linked to each other and have, when combined, a stronger impact on restricting trade as opposed to each measure acting in isolation. In air transport, such linkages can also occur between measures restricting different modes of supply. Notably, if limitations on foreign ownership in airlines providing domestic traffic are combined with a restrictive policy on cabotage in bilateral agreements, domestic traffic would be completely closed.

Cross-border trade

Market access via mode 1 in aviation occurs through the exchange of traffic rights largely on a bilateral basis. Without such rights, traffic cannot take place unless the authorities grant it on a discretionary basis. The STRI covers the nine so-called "freedoms of the air" as defined by ICAO (see Box 1). In this sector, therefore, the scoring system has to take into account also bilateral measures as opposed to only unilateral, MFN restrictions.

The two basic rights are third and fourth freedoms, without these rights no traffic between the two countries can take place. Considering first the two extreme cases, cross-border trade would be completely closed if:

- The country in question does not have any bilateral agreements with its trading partners; or
- Third and fourth freedom rights are not granted in any of its bilateral agreements.

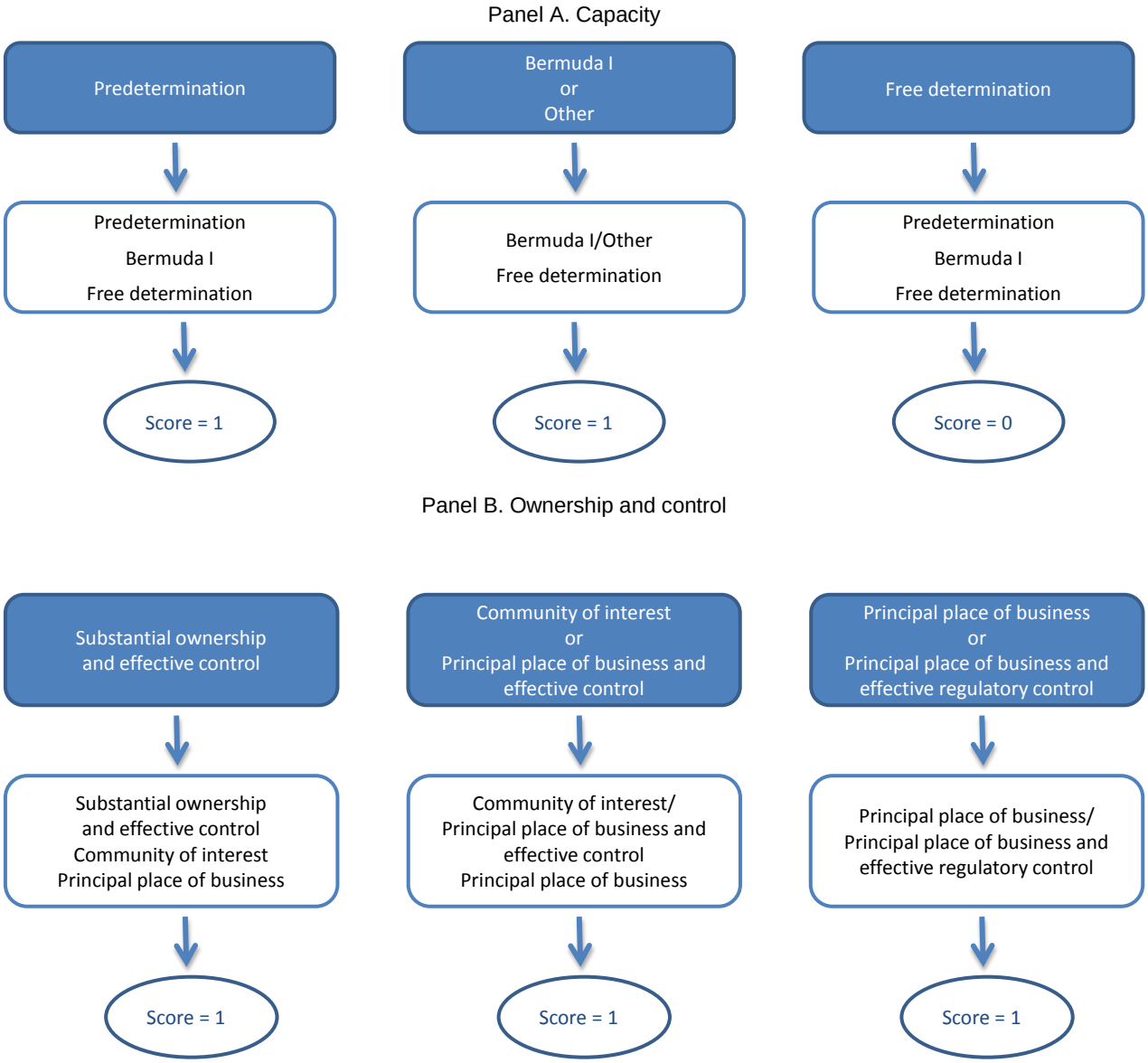
In such cases, all measures related to cross-border trade contained in bilateral agreements will be scored 1. However, such extreme instances are in practice not relevant for the countries covered in the STRI project (and for most countries). Instead, it is common practice to restrict access to the domestic, point-to-point market, or cabotage. In the case of cross-border trade, such market would be closed if the country in question does not grant eighth and ninth freedom rights in any of its bilateral agreements.

Several measures contained under the different regulatory spheres in bilateral agreements generally represent alternative ways of regulating, and are typically ordered by restrictiveness. As such, if the more restrictive one applies, the other restrictions within the regulatory sphere in question will be automatically turned to one. By the same token, if the liberal provision applies, all regulatory clauses within the policy sphere will be zero.

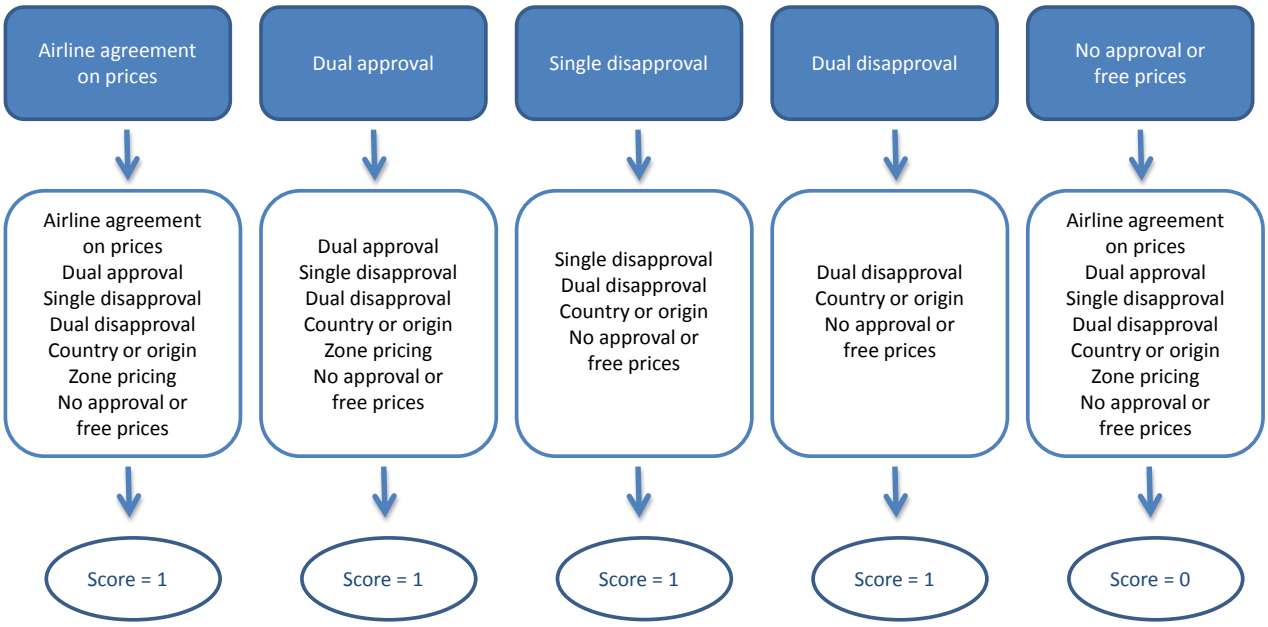
For example, in the case of capacity provisions, if predetermination is provided for, there will be two additional scores of one (one for Bermuda I and one for free determination). If Bermuda I or Other applies, there will be one additional score of one. On the other hand, if the agreement in question stipulates free determination, this set of measures will be scored zero. A similar scoring methodology is applied for bilateral provisions, such as on ownership and control and on prices (see Figure D.1). In addition, some measures will be automatically scored 1 in the presence of restrictions in other categories of measures.

Notably, if 5th and 6th freedom rights are not granted, route schedules in relation to intermediate and beyond points will be restricted.

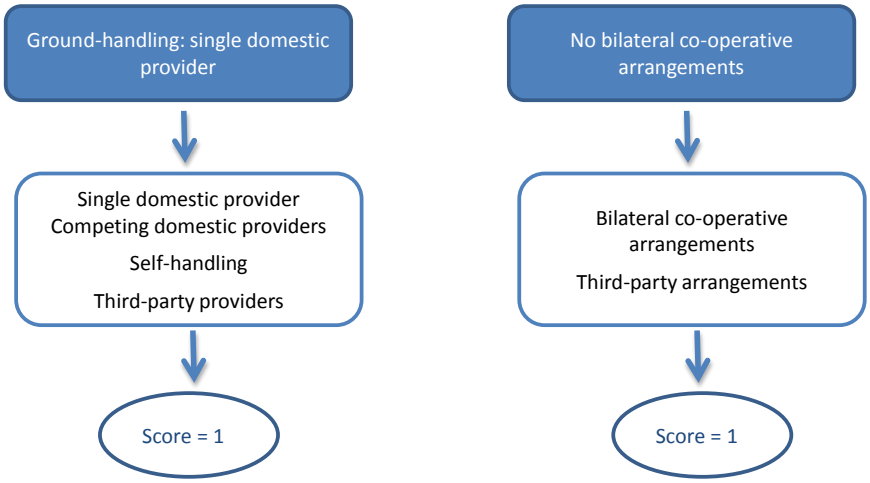
Figure D.1. Cumulative scoring in bilateral air services provisions



Panel C. Pricing



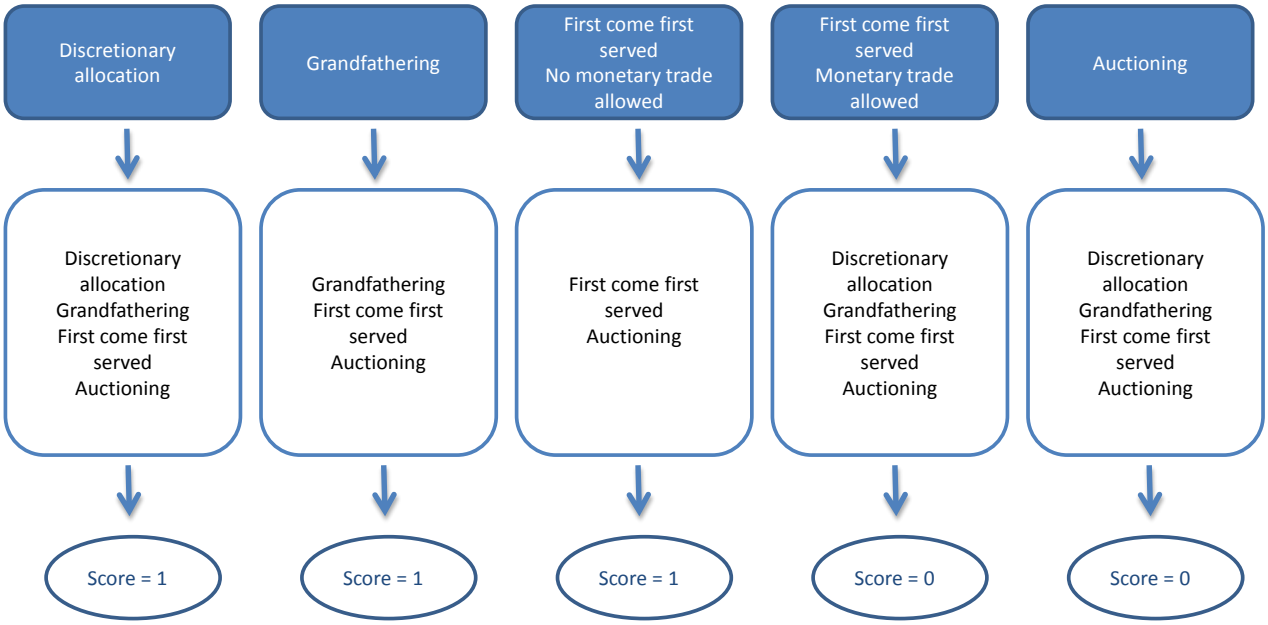
Panel D. Ground-handling and co-operative arrangements



Some bilateral agreements contain asymmetric provisions, i.e. one country provides for more liberal clauses than the other. This is particularly the case for provisions on ownership and control. In such instances, two different databases are created for the country-pair in question, in order to take into account the asymmetry when calculating each country's average level of restrictiveness from its bilateral agreements.

Cumulative scoring is also used for the unilateral measures relating to slot allocation (see Figure D.2 below). If discretionary allocation applies, there will be three additional scores of one (grandfathering, first come first served and auctioning); if the system provides for grandfathering there will be two additional scores of one (first come first served and auctioning); if first come first served applies there will be one score of one; first come first served coupled with monetary trading is considered as auctioning for the purposes of scoring, i.e. this set of measures will be zero. The latter systems introduce market mechanisms in slot allocation in high demand airports, and are thus treated equally in the STRI. In addition, in the case of slot trading, if barter trade is not allowed, commercial exchange will be automatically set to one.

Figure D.2. Cumulative scoring in slot allocation

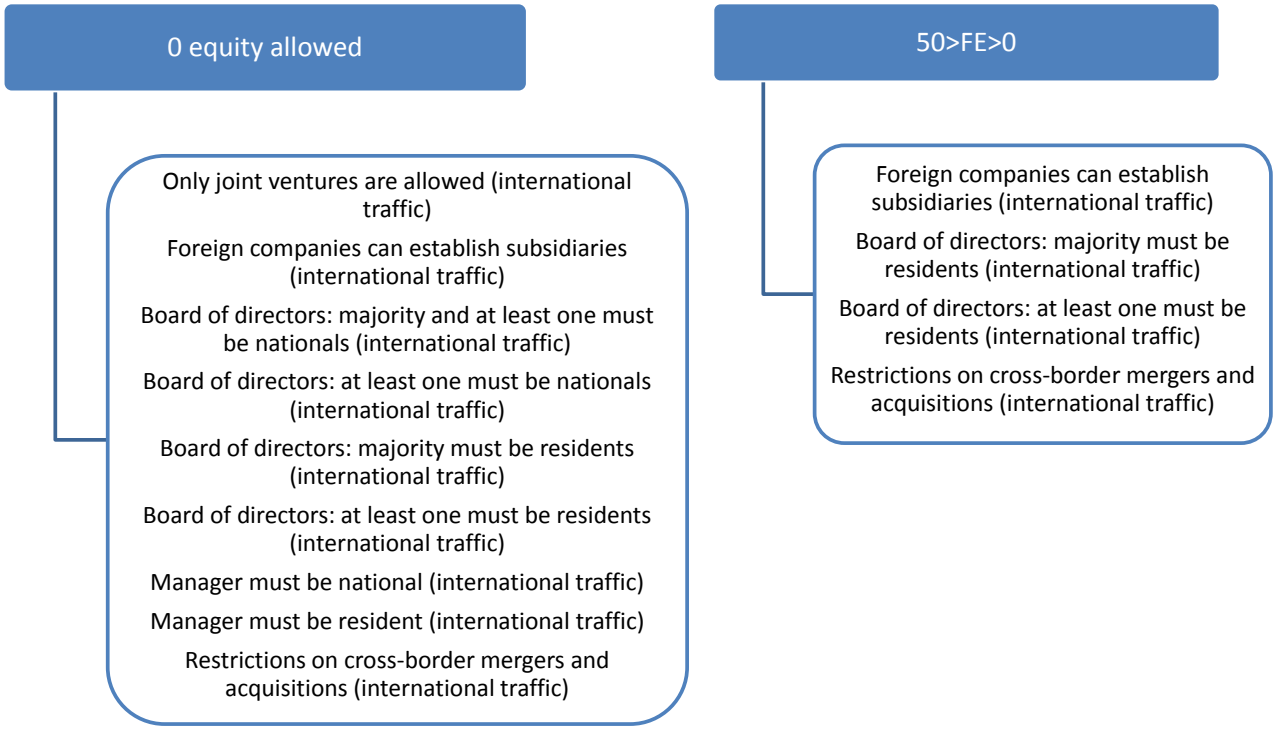


Commercial presence and the link to cross-border trade

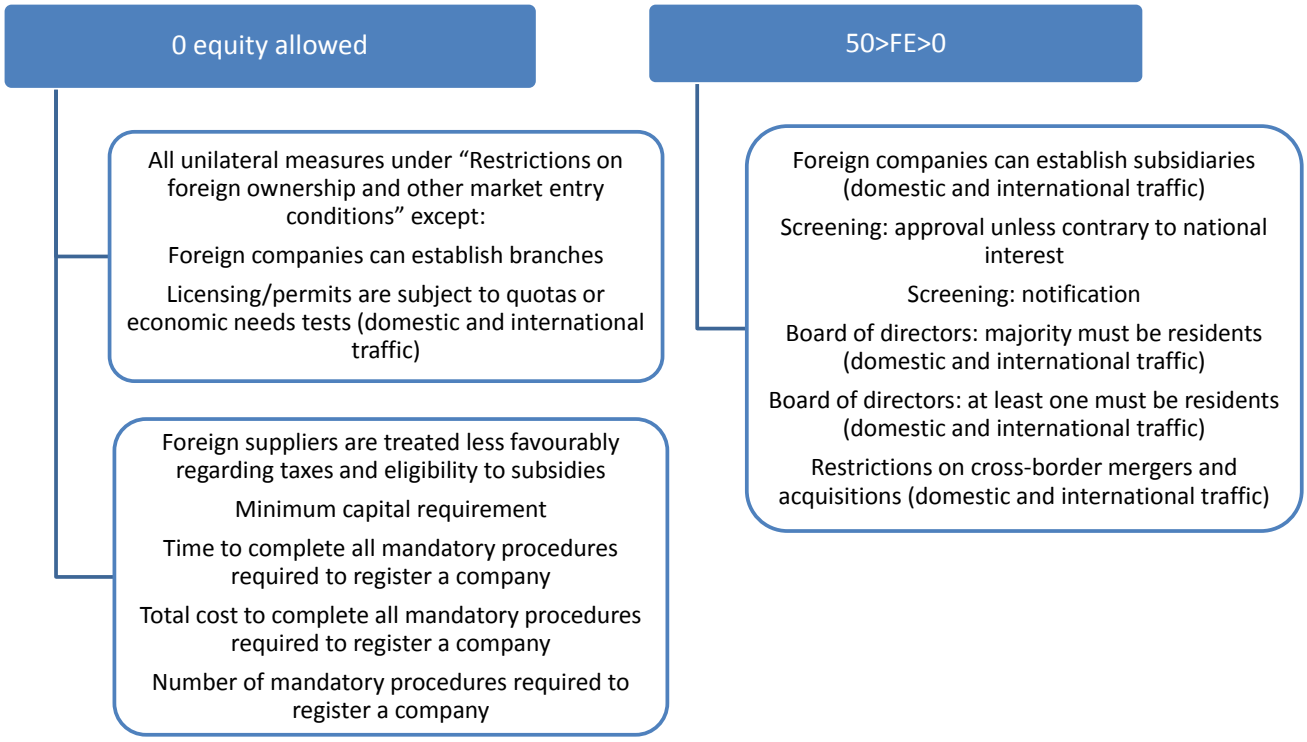
A prominent feature of the aviation regulatory regimes in many countries is a restrictive foreign investment policy; such restrictive regimes can affect airlines in both domestic and international traffic, or only one type of traffic. This has implications for the scoring of other measures. If foreign equity is not allowed with respect to both types of traffic, most measures under "Restrictions on foreign entry", as well as several measures in other policy categories become irrelevant and will automatically be scored 1. If foreign equity is not allowed in, say, international traffic only, the impact on other measures will be more limited (see Figure D.3).

Figure D.3. Measures that are automatically scored one as a consequence of foreign equity limits

Panel A. Foreign equity (FE) limits on international traffic

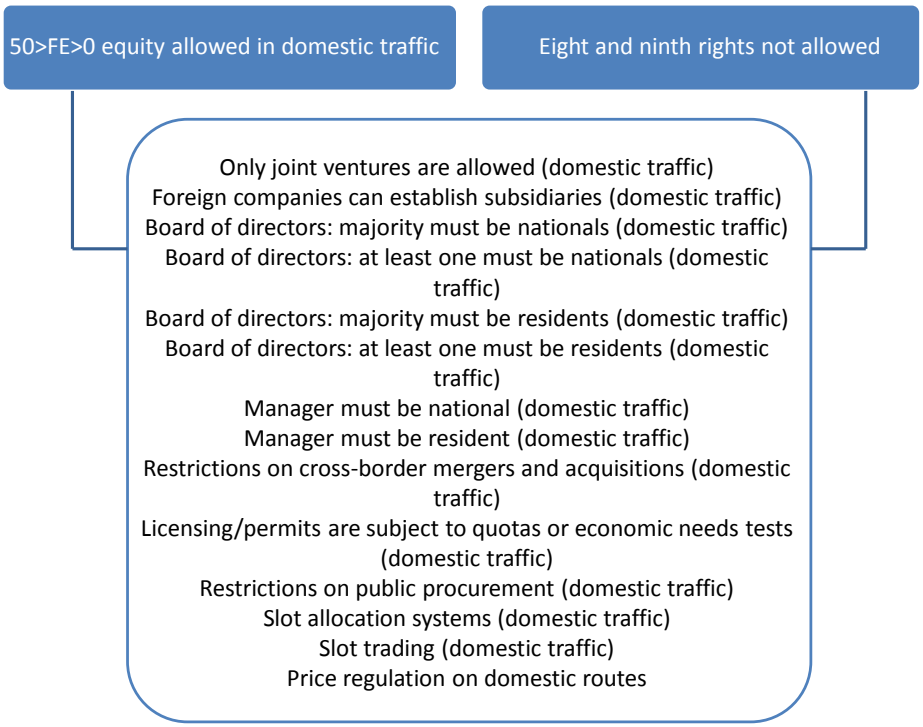


Panel B. Foreign equity (FE) limits on domestic and international traffic



Linkages between measures in different modes of supply are accounted for with respect to both international and domestic traffic. In the extreme cases noted above where a country's cross-border trade is completely closed, if in addition foreign equity is not allowed in relation to both international and domestic traffic, the sector would be completely closed. Again, such extreme cases do not apply to any of the countries covered in the STRI project. On the other hand, if cabotage is not provided for in any bilateral agreements and majority foreign equity is not allowed with respect to domestic traffic, then market entry would be prohibited only in relation to domestic traffic. This case is presented in Figure D.4 below.

Figure D.4. Measures that are automatically scored one when domestic traffic is prohibited



ANNEX E. SCORING METHODOLOGY FOR ROAD FREIGHT TRANSPORT

Figure E.1. Measures that are automatically scored one as a consequence of foreign equity limits

