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BRAZIL

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OECD Competition Assessment Reviews: Brazil

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Preface

This OECD Competition Assessment Review of Brazil presents the outcome of a major project conducted by the OECD in close co-operation with the Brazilian Competition Authority. The review has benefited from inputs by numerous organisations and studies how competition advocacy can help to further develop the ports and civil-aviation sectors in Brazil. Increasing competition in these sectors which are critical to national development can broadly and systematically foster economic productivity, consequently, promote well-being and quality of life throughout society as a whole.

Three complementary reasons make this review particularly important to Brazil: the country's current scenario, the scope of the assessment and its thoroughness.

Firstly, the timing is ideal as Brazil is now in the process of joining the OECD and it is crucial to have OECD analysis on how the country can achieve stronger competition in these sectors vital for development. The ports and civil-aviation sectors are responsible for connecting Brazil to the rest of the world, revealing how the international community sees us and our role in the international arena.

With respect to the scope of the work, the OECD has closely examined significant aspects of these essential sectors with the active participation of the relevant institutions. This includes government bodies, such as the Ministry of the Economy and the Ministry of Infrastructure; regulatory agencies, such as ANAC, the civil-aviation agency and ANTAQ, the water transportation agency; academia, the services sector; and representatives from the civil society. It is, therefore, a comprehensive analysis of the markets that drive most of our foreign trade and employ a considerable number of people.

Finally, this effort involved a rich and detailed analysis. It started by gathering data from Brazilian experts through questionnaires, reports, studies and meetings. After compiling and assessing these contributions, the OECD compared the Brazilian scenario with international best practices. This exercise provided the basis for the recommendations in this report. In other words, the suggestions presented in this document spring from the OECD's long experience in studying the most successful sectoral initiatives around the globe and an analysis of their applicability to specific national cases. Unquestionably, this would not have been possible without an in-depth discussion with Brazilian experts and authorities from the two sectors.

I therefore invite you to go through the pages in this important publication to better understand the functioning of the ports and civil-aviation sectors in Brazil; progress achieved to date; remaining challenges and issues; and the OECD's recommendations on how to face them most effectively.

I would like to express my sincere thanks to the OECD and all the experts who contributed to this project.

Alexandre Cordeiro Macedo,

President, Administrative Council for Economic Defense (CADE)

Foreword

This review examines the impact of regulation on competition in the Brazilian civil-aviation and ports sectors, which together accounted for almost 1.6% of the country's pre-pandemic GDP. The assessment was conducted in co-operation with Brazilian competition authority CADE and in close consultation with relevant Brazilian authorities and local stakeholders.

The Brazilian civil-aviation sector is the largest air-transportation market in Latin America and the tenth largest in the world in terms of passenger numbers. It plays a major role in the economic development of Brazil, as well as in national integration, given the large geographic size of the country. The sector was highly affected by the COVID-19 crisis, with air-passenger numbers dropping by 56% in 2020, and the employee numbers in the civil-aviation industry decreasing by 20% in comparison with 2019.

Similarly, port infrastructure is a key element of Brazil's economic development, as it facilitates domestic and international trade in goods. In 2021, exports and imports by water transportation accounted for more than 98% of Brazilian exports and more than 92% of imports in terms of volume. Furthermore, in 2020, Brazil represented around 7% of the global volume of loaded goods and nearly 4% of the global volume of unloaded goods in maritime trade. Compared to civil aviation, the effects of the COVID-19 pandemic on the port sector were relatively less pronounced. In 2020, the total cargo handled in Brazilian ports increased by 5% in comparison with 2019.

This report identifies aspects of the national regulatory environment that may be hindering the competitive and efficient functioning of these two vital sectors. By applying the OECD Competition Assessment Toolkit's established methodology, it reviews 230 pieces of legislation and identifies 368 barriers where changes could be made to mitigate harm and foster greater competition in these sectors. The OECD has also estimated the benefits of the implementation of certain key recommendations and found that it could lead to benefits of around BRL 1 billion a year for the Brazilian economy. Reducing regulatory barriers to competition and market entry fosters innovation, efficiency and productivity, even beyond the sector in which it is applied. Enhanced competition also leads to more firms and professionals entering the market, which supports more investments and ultimately, job creation. Putting in place a pro-competitive regulatory framework that helps businesses avoid unnecessary costs and enables flexibility will be crucial during the post-pandemic period to aid a sustainable recovery.

This report adds to Brazil's continuous efforts to strengthen its competition policy. The country has been an active member of the OECD Competition Committee for more than 20 years and is currently in the process of becoming a full OECD Member Country. Other initiatives have included the report on *Fighting Bid-Rigging in Brazil: A Review of Federal Public Procurement* (2021) and the *OECD Peer Review on Competition Law and Policy* that enabled the country to become an associate member on the OECD Competition Committee (2019).

Acknowledgements

This report was developed by the OECD in close co-operation with *Conselho Administrativo de Defesa Econômica* (Administrative Council for Economic Defence, CADE) and several Brazilian stakeholders who added great value to the analysis and its findings.

The OECD is grateful to CADE for its co-operation, commitment and support throughout the project. In particular, the authors are thankful to Alexandre Cordeiro, President of CADE, Alexandre Barreto, General Superintendent of CADE, Guilherme Resende, Chief-Economist of CADE, Ricardo Medeiros, Deputy Chief-Economist of CADE, and Bruna Pamplona de Queiroz and Carolina Andrade, Head and former Head of the International Unit of CADE and Pedro de Abreu e Lima Florencio from the International Unit of CADE.

Regulators from the civil-aviation and port sectors made critical contributions to the review. We would like to thank them, in particular, as representatives of their organisations: Juliano Noman, head of the National Civil Aviation Agency (*Agência Nacional de Aviação Civil*, ANAC); Ronei Glanzmann, head the National Civil Aviation Secretariat (*Secretaria Nacional de Aviação Civil*, SAC); Mário Povia, head of the National Ports and Waterway Transports Secretariat (*Secretaria Nacional de Portos e Transportes Aquaviários*, SNPTA); and Eduardo Nery, head of the National Waterway Transportation Agency (*Agência Nacional de Transportes Aquaviários*, ANTAQ).

The OECD would like to thank Ambassador Carlos Márcio Cozendey and the members of his team in Paris and the High-Level Advisory Group that served as a forum for discussing the findings of the analysis throughout the the project. The members were: Juliano Noman, Luiz Gordo and Daiane de Souza, from ANAC; Ronei Glanzmann, Ricardo Rocha and Rodrigo Alencar, from SAC; Eduardo Nery, José Moreira Neto and Sérgio de Oliveira, from ANTAQ; Diogo Piloni, Ana Luiza Salles and Leandro Bernardino, from SNPTA; Geanluca Lorenzon, Alexandre Messa, Patrícia Pereira, Fábio Barbosa and Natasha Miranda, from the Secretariat for Economic Monitoring (S*ecretaria de Acompanhamento Econômico*, SEAE); Martha Seillier, Amanda Pereira and Leonardo Maciel, from the Special Secretariat of the Investments Partnerships Program (*Secretaria Especial do Programa de Parcerias de Investimentos*, SPPI); Luiz de Souza, Bruno Lima, Carlos Modena and José Arthur Silva, from the Federal Court of Accounts (T*ribunal de Contas da União*, TCU). Gilvandro Vasconcelos Coelho de Araujo also contributed valuable insights.

The following authorities and public companies participated in the meetings and provided information, advice and feedback throughout the project:

- Brazilian Airport Infrastructure Company (Empresa Brasileira de Infraestrutura Aeroportuária, Infraero);
- Brazilian Central Bank (Banco Central do Brasil, BCB);
- Brazilian Navy's Ports and Coasts Directorate (Diretoria de Portos e Costas da Marinha do Brasil, DPC/Marinha);
- Brazil's Federal Revenue (Receita Federal do Brasil, RFB);
- Congressman Julio Lopes;
- Federal Data Processing Service (Serviço Federal de Processamento de Dados, Serpro);

- Foreign Trade Chamber (*Câmara de Comércio Exterior*, Camex);
- National Agency of Petroleum, Natural Gas and Biofuels (*Agência Nacional do Petróleo, Gás Natural e Biocombustíveis*, ANP);
- National Department of Business Registration and Integration (*Departamento Nacional de Registro Empresarial e Integração,* DREI);
- Portuguese National Civil Aviation Authority (Autoridade Nacional de Aviação Civil – Portugal, ANAC);
- Santos Port Authority (SPA);
- Secretariat of Foreign Trade (*Secretaria de Comércio Exterior*, Secex).

The following trade associations and private companies were interviewed and provided valuable information:

- Airport Council International (ACI);
- Association of Port Users of Bahia (*Associação de Usuários dos Portos da Bahia*, USUPORT);
- Brasil Terminal Portuário (BTP);
- Brazilian Airlines Association (*Associação Brasileira das Empresas Aéreas*, ABEAR);
- Brazilian Association of Bonded and Warehouse Terminals (*Associação Brasileira de Terminais e Recintos Alfandegados*, ABTRA);
- Brazilian Association of Cabotage Shipowners (*Associação Brasileira de Armadores de Cabotagem*, ABAC);
- Brazilian Association of Port Terminals (*Associação Brasileira dos Terminais Portuários*, ABTP);
- Brazilian Ground Handling Service Providers (*Associação Brasileira das ESATAS*, ABESATA);
- Brazilian Institute of Studies on Competition, Consumer Affairs and International Trade (*Instituto Brasileiro de Estudos de Concorrência, Consumo e Comércio Internacional*, IBRAC);
- Brazilian National Association of Public Container Terminals (*Associação Brasileira de Terminais de Contêineres*, ABRATEC);
- Brazilian Petroleum and Gas Institute (*Instituto Brasileiro de Petróleo e Gás*, IBP);
- Dux;
- ECOSTRAT;
- EC Projetos;
- International Air Transport Association (IATA);
- Maersk;
- Maritime Law Academy (MLaw);
- Mind Consultancy
- National Association of Airport Operators (*Associação Nacional das Empresas Administradoras de Aeroportos*, ANEAA);
- National Association of Brazilian Airport Concessionaires (*Associação Nacional de Concessionárias de Aeroportos Brasileiros*, ANCAB);
- National Cargo Transport Users Association (*Associação Nacional dos Usuários dos Transportes de Carga*, ANUT);
- National Ports Operation Association (*Federação Nacional das Operações Portuárias*, FENOP);
- National Ship Agents Association (*Federação Nacional das Agências de Navegação Marítima*, FENAMAR);
- Neowise;

- Pilotage Santos;
- Pool of port workers from the Port of Santos (OGMO Santos);
- Private Port Terminals Association (*Associação de Terminais de Portos Privados*, ATP);
- Raízen;
- RIOgaleão;
- SP Marine Pilots;
- Terrafirma;
- WFS/Orbital.

The review was prepared by a team co-led by Ania Thiemann, Jordi Calvet-Bademunt and Gaetano Lapenta, composed of Thaiane Abreu, Marcelo Guimarães, Lorena Coutinho and Marina Tovolli, all from the OECD Competition Division, and Camila Sanson and Lucas Motta from CADE. Professors Camila Pires-Alves and Eduardo Pontual provided valuable inputs to the quantification of benefits. The team was under the close supervision of Federica Maiorano (Senior Competition Expert) and Paulo Burnier da Silveira (Senior Competition Expert), with strategic oversight from Ori Schwartz (Head) and Antonio Capobianco (Deputy) of the OECD Competition Division. Tommaso Majer, Richard May, Said Kechida, Despina Pachnou (all from the OECD Competition Division) and Olaf Merk (International Transport Forum) provided valuable inputs.

The report was edited by Tom Ridgway and prepared for publication by Erica Agostinho.

Table of contents

FIGURES

TABLES

Abbreviations and acronyms

ABEAR	Associação Brasileira das Empresas Aéreas (Brazilian Airline Association)
ABESATA	Associação Brasileira das Empresas de Serviços Auxiliares de Transporte Aéreo (Brazilian Ground Handling Association)
Abremar	Associação Brasileira de Cruzeiros Marítimos (Brazilian Association of Maritime Cruises)
ACCC	Australian Competition and Consumer Commission
ACI	Airports Council International
AGU	Advocacia Geral da União (Attorney General's Office)
ANAC	Agência Nacional de Aviação Civil (National Civil Aviation Agency)
ANP	Agência Nacional do Petróleo, Gás Natural e Biocombustíveis (Brazilian National Agency of Petroleum, Natural Gas and Biofuels)
ANTAQ	Agência Nacional de Transportes Aquaviários (National Agency for Waterway Transportation)
ANVISA	Agência Nacional de Vigilância Sanitária (National Health Surveillance Agency)
APEX	Agência Brasileira de Promoção de Exportações e Investimentos (Brazilian Trade and Investment Promotion Agency)
ASA	Aeropuertos y Servicios Auxiliares de Mexico (Mexican Airports and Auxiliary Services)
ASK	Available-seat kilometres
ATC	Air traffic control
ATO	Approved training organisations
ATP	Associação de Terminais Portuários Privados (Association of Private Port Terminals)
AVGAS	Aviation Gasoline
BAA	British Airports Authority
BNDES	Banco Nacional de Desenvolvimento Econômico e Social (Brazilian Development Bank)
BOT	Build-operate-transfer
CAA	UK's Civil Aviation Authority
CADE	Conselho Administrativo de Defesa Econômica (Administrative Council for Economic Defense)
CBA	Código brasileiro de aeronáutica (Brazilian aeronautical code)
CDC	Companhia Docas do Ceará (State of Ceará Dock Company)
CDP	Companhia Docas do Pará (State of Pará Dock Company)
CDRJ	Companhia Docas do Rio de Janeiro (State of Rio de Janeiro Dock Company)
CDRN	Companhia Docas do Espírito Santo (State of Espírito Santo Dock Company)
CENIPA	Centro de Investigação e Prevenção de Acidentes Aeronáuticos (Aeronautical Accidents Investigation and Prevention)
CEPAL	Comissão Econômica para a América Latina (Economic Commission for Latin America)
CFC	Comisión Federal de Competencia (Mexican Federal Competition Comission)
CIAC	Centro de Instrução de Aviação Civil (Civil-aviation Instruction Centre)
CJEU	Court of Justice of the European Union
CMA	Competition and Markets Authority
CNAE	Classificação nacional de atividades econômicas (National Classification of Economic Activities)
CNAP	Comissão Nacional para Assuntos de Praticagem (National Commission for Pilotage Matter)s
CNI	Confederação Nacional da Indústria (National (Confederation of Industry)
CNPJ	Cadastro nacional de pessoa jurídica (National registry of legal entities)
CODEBA	Companhia Docas da Bahia (State of Bahia Dock Company)
CODESA	Companhia Docas do Espírito Santo (State of Espírito Santo Dock Company)
CODESP	Companhia Docas de São Paulo (State of São Paulo Dock Company)
COFECE	Comisión Federal de Competencia Económica (Mexican Federal Economic Competition Commission)

COMAER	Comando da Aeronáutica (Aeronautics Command)
CONAC	Conselho de Aviação Civil (Civil Aviation Council)
CONAERO	Comissão Nacional de Autoridades Aeroportuárias (National Commission of Airport Authorities)
CONAPORTOS	Comissão Nacional das Autoridades nos Portos (National Port Authorities Commission)
CPE	Port-employment centres
DECEA	Departamento de Controle do Espaço Aéreo (Department of Airspace Control)
DEE	Departamento de Estudos Econômicos do CADE (CADE's Department of Economic Studies)
DIEESE	Departamento Intersindical de Estatísticas e Estudos Socioeconômicos (Inter-Union Department of Statistics and Socioeconomic Studies)
DPC	Diretoria de Portos e Costas (Directorate of Ports and Coasts)
DREI	Departamento Nacional de Registro Empresarial e Integração (National Department of Business Registration and Integration)
DTO	Declared training organisations
EBN	Empresa Brasileira de Navegação (Brazilian Navigation Company)
EC	European Commission
ESCAP	Economic and Social Commission for Asia and the Pacific
ETC	Estação de Transbordo de Cargas (Cargo Transhipment Stations)
EVTEA	Estudo de viabilidade técnica, econômica e ambiental (Study of technical, economic and environmental feasibility)
FAA	United States Federal Aviation Administration
FAC	Australian Federal Airports Corporation
FDI	Foreign Direct Investment
FIARC	Frente Intensiva de Avaliação Regulatória e Concorrencial (Front for Regulatory and Competitive Assessment)
FNAC	Fundo nacional de aviação civil (National civil aviation fund)
FOB	Freight on board
FRMS	Fatigue risk-management System
GCI	Global competitiveness index
GDP	Gross domestic product
HHI	Herfindahl-Hirschman Index
IATA	International Air Transport Association
IBAER	Instituto Brasileiro de Direito Aeronáutico (Brazilian Institute of Aeronautical Law)
IBGE	Instituto Brasileiro de Geografia e Estatística (Brazilian Institute of Geography and Statistics)
ICAO	International Civil Aviation Organisation
IGAP	Índice de gestão das autoridades portuárias (Port authorities management index)
ILO	International Labour Organization
INFRAERO	Empresa Brasileira de Infraestrutura Aeroportuária (Brazilian Airport Infrastructure Company)
IPCA	Índice nacional de preços ao consumidor amplo (Broad consumer price index)
Ipea	Instituto de Pesquisa Econômica Aplicada (Institute for Applied Economic Research)
IPR	Intellectual property rights
IPTur	Instalação portuária de turismo (Port Tourism Facilities)
IRT	Índice de reajuste tarifário (Tariff adjustment index)
ITF	International Transport Forum
JFK	John F. Kennedy International Airport
JUHI	Joint-user hydrant installation
KFTC	Korean Competition Authority
LAC	Latin America & Caribbean
LCC	Low-cost carrier
MFP	Multi-factor productivity
MINFRA	Ministério da Infrastrutura (Ministry of Infrastructure)
MoU	Memorandum of Understanding
MP	Medida provisória (provisional measure)
MSC	Mediterranean Shipping Company
MTP	Ministério do Trabalho e Previdência (Ministry of Labour and Social Security)
NAV Brasil	NAV Brasil Serviços de Navegação Aérea (Brazilian Air Navigation Services Company)
NORMAN	Normas da Autoridade Marítima (Standards by the Maritime Authority)
OECD	Organisation for Economic Co-operation and Development
OFT	UK's Office of Fair Trading
OGMO	Órgão de Gestão de Mão de Obra (Pool of Port Workers)

OGU	Ouvidoria Geral da União (Federal Ombudsman Office)
PDZ	Planos de desenvolvimento e zoneamento (Zoning and Development Plan)
PEA	Plano de exploração aeroportuária (Airport exploration plan)
PEC	Certificado de dispensa de praticagem (Pilot exemption certificate)
PGO	Plano geral de outorgas (General National Leasing Plan)
PMR	Product market regulation
PNLP	Plano nacional de logística portuária (National Plan of Port Logistics)
Portobras	Empresa de Portos do Brasil (Brazilian Port Company)
PPI	Programa de Parcerias de Investimentos (Investment Partnerships Program)
RAIS	Relação anual de informações sociais (Annual listing of social information)
RBAC	Regulamento Brasileiro da Aviação Civil (Brazilian Civil Aviation Regulation)
RBHA	Regulamento Brasileiro de Homologação Aeronáutica (Brazilian Aeronautical Homologation Regulation)
RDL	Royal decreto-ley (Royal decree-law)
RPK	Revenue passenger kilometres
SAC	Secretaria Nacional de Aviação Civil (National Civil Aviation Secretariat)
SEAE	Secretaria de Advocacia da Concorrência e Competitividade (Secretariat for Competition Advocacy and Competitiveness)
SENACON	Secretaria Nacional do Consumidor (National Consumer Secretariat)
SICAF	Sistema de cadastramento unificado de fornecedores (Unified suppliers registration system)
SICT	Secretaría de Comunicaciones y Transportes (Mexican Secretariat of Infrastructure, Communications and Transportation)
SME	Small and medium-sized enterprises
SNPTA	Secretaria Nacional de Portos e Transportes Aquaviários (National Secretariat of Ports and Waterway Transports)
SOE	State-owned enterprise
SPU	Secretaria do Patrimônio da União (Secretariat for Federal Heritage)
SSE	Serviço de segregação e entrega de contêineres (Segregation and delivery service fee)
STF	Supremo Tribunal Federal (Supreme Federal Court)
STJ	Superior Tribunal de Justiça (Superior Court of Justice)
STRI	Services trade restrictiveness index
TCU	Tribunal de Contas da União (Federal Court of Accounts)
TDR	Traffic distribution rules
TEU	Twenty-foot equivalent unit
TFEU	Treaty on the Functioning of the European Union
THC	Taxa de movimentação no terminal (Terminal handling charge)
TUP	Terminal de uso privado (private Ports)
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
USUPORT	Associação de Usuários dos Portos da Bahia (Association the State of Bahia Port Users)
VIGIAGRO	Sistema de Vigilância Agropecuária Internacional (System for Agriculture and Livestock International Surveillance)
WASG	Worldwide airport slot guidelines
WWACG	Worldwide airport co-ordinators group
ZP	Zona de praticagem (Pilotage zone)

Executive summary

This competition assessment review was carried out by the OECD, in co-operation with the Brazilian Competition Authority (CADE), to identify rules and regulations that may hinder the competitive and efficient functioning of markets in Brazil in the civil-aviation and ports sectors.

This review analyses regulatory barriers to competition in these two sectors, which are essential for the transport of goods and people, both in the domestic and international markets. The civil-aviation sector plays a fundamental role in the economic development and in the national integration of a large country as Brazil. Similar to the ports sector, it plays a fundamental role in Brazil's foreign trade, as water transportation is responsible for the flow of most Brazilian exports and imports.

This report submits 368 recommendations that can mitigate harm to competition. The OECD has also evaluated the impact that the implementation of specific recommendations would have on the economy and a conservative estimate finds that the savings would be between BRL 700 million to BRL 1 billion a year for the Brazilian economy.

Civil aviation

Brazil has the largest air transport market in Latin America and the Caribbean. Before the COVID-19 pandemic, civil aviation represented 1.4% of GDP and 1.5 million jobs. In the 1990s, Brazil began a process of deregulating the civil-aviation sector, aiming to promote competition by fostering entry and investment; this process accelerated in the early 2000s. Continuous regulatory changes in recent years, such as allowing airlines to explore any desired route and to set ticket prices freely, has contributed to intense sectoral growth.

The key recommendations submitted by the OECD to Brazilian authorities include:

1. Clarify the legislation and ensure proper enforcement towards a genuine open-access regime for jet-fuel supply infrastructures, especially at large international airports that handle more flights with larger, more fuel-consuming aircrafts, where access to hydrant systems can give those firms using them a competitive advantage compared to others using refuelling trucks. Open access should be based on transparent, objective and non-discriminatory criteria, while regulation still ensures other public policy objectives, such as safety, security, environmental protection and recoupment of the investments. Any dispute arising from the enforcement of open-right access should be decided by an independent third party.
2. More effectively monitor prices and the quality of commercial services at airports. For that purpose, ANAC could build upon the current consumer surveys provided for in airport-concession contracts and consider including indicators related to the price-performance ratio of commercial services as a quality factor in future airport concession contracts. Any suspicious behaviour of anti-competitive practices should be duly notified to CADE.
3. Adopt non-exclusivity clauses for commercial contracts in airports, except in justified situations subject to prior ANAC approval.

4. Require airport operators, when defining the lease terms of commercial-concession contracts, to take into consideration the minimum level of investment that will be incurred by the contracting party. If no investment is required, the contract should have short terms.
5. Consider harmonising all airport-concession models, so as to ensure that all players are subject to the same regulatory environment, especially the tariff-regulation regime. Ideally, improvements implemented in the most recent concession rounds should be retrospectively applied to previous concession contracts whenever possible.
6. Implement a structured approach to determining the technical-experience requirements for airport-concession auctions. These requirements should be at the lowest possible levels and based on objective, proportionate and technical criteria, such as the size and characteristics of the airport.
7. Ensure that an entity (or related entities) is not allowed to control competing airports, either in already-awarded or future concessions. Minority holdings should only be accepted in exceptional cases and barred from participation in corporate governance.
8. Consider relaxing the nationality requirement for aircrews, especially for international flights. This should include ANAC issuing guidelines on the transparent, objective, and non-discriminatory assessment of requests for temporary admission of foreign crew members when national labour is short. ANAC should also consider the possibility of extending the flexibility period for longer than six months if no sufficient qualified Brazilian workers can be found in that time frame.
9. Consider reviewing flight-time and duty-period limitations applying to crew members, taking into account the regulations established in other jurisdictions, but also relevant scientific principles and knowledge, past experience, cultural issues and operational nature, in line with ICAO recommendations.

Ports

Ports in Brazil have recourse to two models of management, each with a specific legal framework: the landlord model for public ports and a model for fully privatised ports (private-use terminals – TUPs). In 2021, Brazil had 125 terminals in public ports and 170 TUPs, responsible for handling 34% and 66% of the cargo in Brazilian ports, respectively.

The key recommendations submitted by the OECD to Brazilian authorities include:

10. Abolish the Pool of Port Workers (OGMO) monopoly for the registration and supply of port workers. Brazilian authorities should discuss the necessary considerations for the design of new legislation with unions. In particular, Brazilian authorities should take into account both the unpredictability of the demand for casual port workers and the flexible requirements of today's shipping industry. The outcome should be that Brazilian authorities enable port operators to assign workers and allow them to choose workers who best meet their needs. In addition, Brazilian authorities should introduce flexibility in the set number of workers required to perform each task.
11. Remove OGMO's exclusive management of port workers' training and allow port operators to choose the training most appropriate for their workers.
12. Abolish the single rotation shift for pilotage, in line with the possibilities offered in the Pilotage Law to give pilots a choice of how to provide their own services. In this case, Brazilian authorities should define another way of identifying which pilot will provide the service to ensure service competition between the pilots and their entities while guaranteeing safety. This new scheme should take into account pilot fatigue, exercises for the renewal of pilot qualification, and ensure uninterrupted availability of pilots. Alternatively, if Brazilian authorities maintain the current rotation shift established by the Directorate of Ports and Coasts (DPC), some form of control over prices of

pilotage services would seem appropriate. If this option is chosen, any price-setting body should be independent and use objective criteria in its decisions.

13. Address the lack of legal certainty related to the port fees for the handling of ship containers . Brazil should consider clarifying the current legal framework with transparent, non-discriminatory, and objective provisions to charge port fees including those related to the SSE/THC2 fee.
14. Introduce more flexibility in the rules which lay down the conditions and procedure for delegation of the leasing process to port authorities (currently, Ordinance No. 574/2018) to give more autonomy to port authorities when choosing lessees, whether through tenders or simplified processes for non-complex contracts, while remaining subject to federal legislation on public procurement and port-leasing contracts.
15. Review the regulations and put in place more efficient and speedy processes for contractual changes regarding the use and improvement of space in public ports. Brazilian authorities should also consider the creation of more instruments such as the agreement of investment risk, which make it easier for the operator to change the contract at its own risk with the possibility of a later rebalancing of the contract in cases of public and private interest.
16. Consider reducing the number of bodies involved in the authorisation process to build and operate port facilities. In addition, consider implementing provisional instruments that authorise a request after a fewer number of steps in the authorisation process to allow the requesting entity to move forward without having to wait until the completion of the entire process.

1 Overview

While regulations pursue legitimate policy objectives, when they are overly restrictive or onerous, however, a comprehensive review can help identify problematic areas and develop alternative policies that achieve government objectives without harming competition.

Competition Assessment Projects evaluate market regulations to identify regulatory barriers to competition. These include regulations that restrict entry into a market; constrain firms' ability to compete (for example, by regulating prices); treat competitors differently (for instance, by favouring incumbents); facilitate co-ordination among competitors; or restrict consumers' ability to change suppliers. The methodology followed in this systematic exercise is summarised in Annex A., which also describes the stages of the project and provides full references to the OECD Competition Assessment methodology.

This chapter provides some background information on the Brazil Competition Assessment Project, before summarising the main findings of the literature on the benefits of competition and the estimated economic benefits of implementing the recommendations.

1.1. Background to Brazil's Competition Assessment Project

In November 2020, an agreement was signed between the Brazilian competition authority, Administrative Council for Economic Defense (CADE), and the OECD. This set out how OECD, in co-operation with CADE, would conduct a competition-assessment review of laws and regulations in two sectors of the

Brazilian economy: civil aviation and ports. The project began in January 2021 and concluded with a formal launch of the OECD recommendations and a public report published in September 2022.

Using the methodology set out in OECD's Competition Assessment Toolkit, the project aimed to identify unnecessary regulatory restrictions to competition that act as barriers to sustainable economic growth and innovation in Brazil, and suggested alternative, less restrictive ways to achieve the same regulatory goals.

The OECD Competition Assessment Project in Brazil identified aspects of national regulatory and policy environment that may be hindering the efficient functioning of a competitive market in the two sectors. The project considered the likely consequences of existing regulation and proposed alternatives that may better achieve the policy objective, while ensuring a competitive business climate. The project outcome, which mainly comprises recommendations for regulatory reforms, intends to support the Brazilian Government's priorities by promoting higher productivity and innovation throughout the economy.

The competition-assessment methodology is based on the assumption that there are often several ways to achieve a specific public-policy goal, and that some policies restrict competition more than others. Since consumers generally benefit from more, rather than less, competition, it is essential to identify which restrictions to competition are not strictly necessary for the pursuit of public goals and develop alternative less restrictive policies that still achieve the desired government objectives. The OECD's Competition Assessment Toolkit provides a general methodology for these two tasks. This methodology has been used in several countries and updated based upon lessons learned and global regulatory advances.

This project was carried out against a background of the COVID-19 pandemic crisis which has had a profound impact on Brazil's economy. Putting in place a pro-competitive regulatory framework that helps businesses avoid unnecessary costs and enables flexibility will be crucial for a sustainable recovery. More than ever, it is important to maximise society's well-being without unnecessary burdensome regulatory costs to companies.

The two sectors under review have played and continue to play a significant role in increasing Brazil's economic development. The civil-aviation sector has a fundamental role in the economic development and in the national integration of a country as large as Brazil. Passengers are currently only a small percentage of the country's overall population, in a ratio much lower than in other comparable jurisdictions, suggesting a substantial potential for growth. The ports sector has a fundamental role in Brazilian foreign trade, as water transportation is used for most Brazilian exports and imports. This is particularly relevant since Brazil has an important role in the transport of loaded goods in global maritime trade.

These sectors are also at the core of current structural and regulatory reforms in Brazil. In particular, government policy objectives include:

1. improving economic-policy governance, in order to align Brazil with best international practice
2. updating and improving regulatory frameworks to promote greater market efficiency, quality of services, and legal certainty
3. expanding opportunities for private (both national and foreign) investment
4. developing all modes of passenger and freight transport, in order to promote territorial integration
5. increasing the efficiency of infrastructure, in order to provide safety and mobility for people and cargo
6. improving horizontal regulatory frameworks to avoid legal inconsistency between public entities (Government of Brazil, 2020[1]).

In this context, and after initial research and exchanges with stakeholders, the sectoral analysis focused on 1) cargo handling for ports activities, and 2) passenger traffic in civil aviation. The analysis of the ports sector did not include sea transport, inland waterways, and fluvial transport.

1.2. The benefits of competition and lifting barriers

This competition-assessment project aims to identify regulations that may unduly restrict market forces and, in doing so, harm Brazil's growth prospects. In particular, the project identifies restrictive regulations that:

1. are unclear, and so may be applied in arbitrarily or without transparency
2. prevent or hinder new firms, including small- and medium-sized businesses, from accessing markets
3. allow a limited number of firms (or individuals in the case of regulated professionals) to earn greater profits than they otherwise would, for reasons unrelated to their productivity or the quality of their products or services
4. force consumers to pay more than they otherwise would.

Each restriction is likely to have an impact well beyond individual consumers in the sectors assessed. When customers can choose, firms are forced to compete with each other, innovate more and be more productive (Nickell, 1996[2]; Van Reenen, Griffith and Blundell, 1999[3]; Griffith, Harrison and Simpson, 2006[4]; Aghion et al., 2004[5]). Further, industries in which there is greater competition experience faster productivity growth. These conclusions have been confirmed by a wide variety of empirical studies and are summarised in the OECD's "Factsheet on how competition policy affects macro-economic outcomes" (OECD, 2014[6]). Competition stimulates productivity because it provides the opportunity for more efficient firms to enter and gain market share at the expense of less efficient firms. Other important benefits of competition include lower consumer prices (Griffith and Harmgart, 2008[7]); greater consumer choice (Min, 2014[8]; Autorité de la concurrence, 2020[9]); and higher-quality products and services (Boik and Takahashi, 2020[10]).

In addition to the evidence of competition fostering productivity and economic growth, many studies have shown the positive effects of more flexible product market regulation (PMR).[1] These studies analyse the impact of regulation on productivity, employment, research and development (R&D), and investment, among other variables (Cette, Lopez and Mairesse, 2019[11]). Differences in regulation also matter and can reduce significantly both trade and foreign direct investment (FDI) (Fournier, 2015[12]).

A particularly large body of evidence points to the productivity gains of more flexible PMR. At company and industry level, restrictive PMR is associated with lower multi-factor productivity (MFP)[2] (Nicoletti and Scarpetta, 2003[13]; Arnold, Nicoletti and Scarpetta, 2011[14]).[3] Further, anti-competitive regulations have an impact on productivity that goes beyond the sector in which they are applied and this effect is more important for those sectors closer to the productivity frontier (Bourlès et al., 2013[15]).[4] Specifically, a large part of the impact on productivity is due to investment in R&D (Cette, Lopez and Mairesse, 2017[16]). Innovation and investment in knowledge-based capital, such as computerised information and intellectual property rights (IPRs), are also negatively affected by stricter PMR (Andrews and Criscuolo, 2013[17]; Andrews and Westmore, 2014[18]). Moreover, lowering regulatory barriers in network industries (such as transport) can have a significant impact on exports (Daude and de la Maisonneuve, 2018[19]).

Greater flexibility can also lead to higher employment. A 2004 study found that after road-transport deregulation in France, employment levels in the sector increased at a faster rate than before deregulation (Cahuc and Kamarz, 2004[20]).[5] A 10-year, 18-country OECD study concluded that small firms five years old or less contribute about 42% of job creation on average (Criscuolo, Gal and Menon, 2014[21]). As noted by the OECD, "such a disproportionately large role by young firms in job creation suggests that reducing barriers to entrepreneurship can contribute significantly to income equality via employment effects" (OECD, 2015[22]).

There is some evidence that lifting anti-competitive regulations can also reduce income inequality. One study found that less restrictive PMR improved household incomes and reduced income inequality (Causa, Hermansen and Ruiz, 2016[23]).[6]

Empirical studies show that barriers to competition can contribute to the accumulation of resources by the wealthiest segments of society at the expense of others. A 2018 study assessed the redistributive effects of market power in eight countries (Ennis, Gonzaga and Pike, 2019[24]). It found that market power benefits the wealthiest households by providing them with rents and that the share of wealth of the top 10% of households derived from market power is between 12% and 21%. Finally, a 2018 paper studied the impact of PMR on the persistence of profits in the long term, finding that regulations that raise barriers to entry can protect incumbents' above-average profits (Eklund and Lappi, 2018[25]). The authors found that more stringent PMR, as measured by the OECD PMR indicator, is associated with persistent profits. The results described above hold in a variety of settings, but specific estimates depend on the country. For instance, a 2017 study quantified the impact of structural reforms, including PMR and labour market reform, in a large sample including both OECD and non-OECD countries, and found that "stringent product market regulations will have a three-time larger negative impact on MFP in countries with per capita income lower than about 8 000 USD (in PPP terms)" (Égert, 2017[26]).

In summary, anti-competitive regulations that hinder market entry and expansion may be particularly damaging for a country's economy as they reduce productivity growth, limit investment and innovation, harm employment creation, and may favour certain group of firms over other companies and consumers, with consequences for income inequality.

The objective of this report is to identify regulatory barriers to competition and propose recommendations on possible, less restrictive alternatives. The project was carried out by the OECD with the support of the Brazilian competition authority, Administrative Council for Economic Defense (CADE). The resulting OECD recommendations address specific restrictions and administrative burdens identified in the legislation covering the civil-aviation and ports sectors. The expected benefit from the recommendations is directly linked to lifting those restrictions and the consequent positive effect on competition in the relevant sectors. Expected benefits from implementing recommendations include increasing consumer welfare – for instance, through lower prices – and increasing FDI in the sector. In addition to these benefits, full implementation of the OECD's recommendations can be expected to deliver positive long-term effects for small- and medium-sized enterprises (SMEs) and employment. In particular, given the importance of ports for the performance of many other sectors of the economy, lifting barriers to competition in this sector could have a significant economic impact across the economy and facilitate cross-border trade.

This report includes estimates of possible benefits from implementing selected recommendations (see Annexes 2.B, 3.A and 3.B). These range between approximately BRL 700 million and BRL 1 billion a year for the Brazilian economy, which correspond to around 20 times CADE's annual budget. The main recommendations driving the benefits are those focused on jet-fuel supply, maritime pilotage, and pool of port workers, as set out in Table 1.1. To calculate these estimates, the OECD relied on a framework for evaluating changes in consumer welfare described in Annex A.

These figures are likely to underestimate the actual impact of fully implementing the Brazil Competition Assessment Project recommendations for a variety of reasons. First, it was not possible to quantify the effects of all the individual recommendations, due to insufficient data on specific issues or because of the nature of the recommended regulatory change. Second, the Competition Assessment project focuses on laws and regulations rather than enforcement, and changes in regulation can only have an impact if regulations are enforced. As this is not always the case, the actual benefits of lifting regulatory restrictions can be limited. Third, the estimates do not account for benefits to the business environment arising from improving the quality of legislation; for instance, by implementing recommendations to streamline the body of legislation and to provide more guidance and clarity to businesses. Fourth, the estimation framework focusses on the impact on consumer welfare, which is the standard approach followed by most competition

authorities and is embedded in the OECD Competition Assessment Toolkit (OECD, 2019[27]). In contrast, other benefits, such as increases in employment and improved cross-border trade, are not included in this estimate.

Table 1.1. Summary of estimated annual benefits by sector

Sector: restriction	Benefit (BRL, millions)
Civil aviation: jet-fuel supply	58.40-88.03
Ports: maritime pilotage	502-796
Ports: pool of port workers	137.48
Total	**697.88-1 021.51**

Note: For details on the methodology used, see Annex A.

These highlighted substantial benefits underline the value of competition assessment as an ongoing economic policy tool. In particular, the competition-assessment methodology set out in the OECD's Toolkit can serve as the basis for future regulatory reform efforts in other sectors. The continuing use of competition assessment can help spread awareness among government ministries and regulatory authorities about the value of competition, and the need to ensure that laws and regulations do not unnecessarily restrict competition. Further, the Toolkit can be used as part of ex ante regulatory impact assessments undertaken when developing or revising policy and regulation, so as to examine policy and legislative proposals and assess their potential impacts before they are adopted. Due to its close co-operation and contributions to the OECD project team, CADE (and other relevant public bodies) has acquired experience with the Competition Assessment Toolkit, which will be valuable for future similar exercises.

1.3. Summary of key findings

This competition-assessment review identifies and analyses regulatory barriers to competition as well as administrative burdens in the Brazilian civil-aviation and ports sectors. Both of these sectors play a fundamental role in the national economy.

This chapter provides a summary of the main issues and recommendations. More details can be found in the specific chapters of the report, while a complete list of all the barriers to competition identified and the OECD's recommendations is contained in a spreadsheet published as a standalone document on our dedicated website.

1.3.1. Overview of the sectors

The sectors covered by this review are essential for the transport of goods and people both in the domestic and international markets. Since the 1990s, both sectors have undergone regulatory reforms aimed at promoting competition.

In the ports sector, Brazil had 170 private-use terminals (TUPs) operating under a fully privatised model in 2021; they were responsible for 66% of the cargo handled in Brazilian ports in 2021 (ANTAQ, 2022[28]). Nevertheless, the maritime-transport service sector in Brazil is less open to trade and investment and less efficient than the OECD average or other comparable economies, such as Chile, Colombia, and Costa Rica.

The civil-aviation sector has undergone significant growth both in terms of revenue-passenger kilometres (RPK) and of available-seat kilometres (ASK).[7] However, the sector presents characteristics of potentially high market concentration, such as high fixed costs, exposure to exogenous shocks, particularly fuel-price

fluctuation, and legal barriers related to security standards (CADE, 2017[29]) (ANAC, 2021[30]). Consequently, lifting barriers to competition in these sectors could be expected to have a significant economic impact.

The OECD identified over five hundred potentially harmful restrictions in approximately 230 pieces of legislation, including laws, decrees, ordinances, regulations, public-auction notices, and concession contracts for assessment.

In total, the report makes 368 specific recommendations to mitigate harm to competition (Table 1.2).

These recommendations are listed in spreadsheet published as a standalone document on our dedicated website.

Table 1.2. Summary of the barriers to competition analysed and recommendations made

	Civil aviation	Ports	Horizontal	Total
Potential restrictions identified	324	177	49	550
Recommendations made	203	120	45	368

Note: After the initial screening of legislation in the ports and civil-aviation sectors and a more in-depth assessment, some of the potential restrictions identified were revoked.

Using a specific methodology described in the OECD Competition Assessment Toolkit, the report provides estimates of the impact that the implementation of the recommendations would have. It finds that the implementation of key recommendations would lead to benefits of over BRL 1 billion a year.

1.3.2. Civil aviation

Airport management

Technical-experience requirements

Airport-concession tender notices require bidders to demonstrate appropriate technical experience to participate in the auction. This provision aims to guarantee that the winning bidder is technically qualified to meet the concession's goals and to mitigate potential costs for the government and users. Nevertheless, technical-experience requirements have varied across tenders, and do not always seem proportionate to the contract being tendered.

The OECD recommends the following: Brazilian authorities should implement a structured approach to determining the technical-experience requirements for airport-concession auctions. These requirements should be at the lowest possible levels and should be based on objective, proportionate and technical criteria, such as the size and characteristics of the airport.

Restrictions on horizontal integration

In its privatisation process, Brazil has imposed certain restrictions on airport cross-ownership in order to stimulate competition between airports. The first concession rounds established that the same firm could not be awarded more than one competing airport. More recent concession rounds did not follow this rule, and competing airports may end up being managed by the same player, which is likely to harm competition.

The OECD recommends that Brazilian authorities ensure that an entity or related entities is not allowed to control competing airports, either in already awarded or future concessions. Minority holdings should only be accepted in exceptional cases and should be barred from participation in corporate governance.

Airport-concession contracts

Concession tenders have evolved since their inception and have incorporated lessons learned from earlier rounds. Although many of these changes were positive, successive concession contracts with different clauses, even for similar and competing airports, may affect the level playing field. In practice, this may reflect different incentives and disincentives of each specific concession model used in Brazil – say, concession fees, tariff regulation and mandatory investments – which may influence each concessionaire's total costs and revenue sources.

The OECD recommends the following: Brazilian authorities should consider harmonising all airport-concession models, so as to ensure that all players are subject to the same regulatory environment, especially the tariff-regulation regime. Ideally, improvements implemented in the most recent concession rounds should be retrospectively applied to previous concession contracts. Certain of these changes may be difficult in practice since they may require contractual amendments and re-balancing to take into account any amendment's economic-financial impact.

Airport revenue

Revenues from commercial services

The current design of commercial concession contracts may restrict competition in the provision of commercial services at Brazilian airports. The barriers identified, such as relatively long lease terms and exclusivity agreements, may prevent more aggressive competition between commercial providers inside airports, leading to higher prices for airport users, but also lower quality and reduced variety. Even if the high revenues generated by commercial services may partially cross-subsidise airport tariffs, passengers may still end up spending more in total.

To improve competition in the provision of commercial services at airports, the OECD has three recommendations.

1. ANAC should more effectively monitor prices and the quality of commercial services at airports by building upon current consumer surveys provided for in airport-concession contracts, and consider including indicators related to the price-performance ratio of commercial services as a quality factor in future airport concession contracts. Any suspicious behaviour of anti-competitive practices should be duly notified to CADE.
2. Brazilian authorities should adopt non-exclusivity clauses for commercial contracts in airports, except in justified situations subject to prior ANAC approval.
3. Brazilian authorities should require airport operators, when defining the lease terms of commercial-concession contracts, to take into consideration the minimum level of investment that will be incurred by the contracting party. If no investment is required, the contract should have short terms.

Ground-handling services

Access to jet-fuel supply infrastructure at the airport

In most Brazilian airports, incumbents control storage tanks and – at airports with the system – fuel-pipeline facilities, which makes it difficult for new firms to enter the market. As Brazilian regulations are unclear about the scope of open-access rights to airport space, incumbent firms often do not enable new entrants to access the distribution and fuelling infrastructure,

The OECD recommends the following: Brazilian authorities should clarify the legislation and ensure proper enforcement towards a genuine open-access regime for jet-fuel supply infrastructures, especially at large international airports that handle more flights with larger, more fuel-consuming aircrafts, where access to

hydrant systems can give those firms using them a competitive advantage vis-à-vis others using refuelling trucks. Open access should be based on transparent, objective and non-discriminatory criteria, while regulation still ensures other public policy objectives, such as safety, security, environmental protection and recoupment of the investments. Any dispute arising from the enforcement of open-right access should be decided by an independent third party.

Civil-aviation personnel

Nationality requirement

According to Brazilian legislation, the aircrew of domestic flights must be composed only of native or naturalised Brazilian citizens. For international flights provided by Brazilian airlines, up to a third of flight attendants on board can be foreigners, but pilots and flight mechanics must still be Brazilian citizens. In case of a shortage of Brazilian workers, foreigners may be provisionally admitted, but ANAC's authorisation is required and only valid for the time necessary to qualify new Brazilian aircrew and for a maximum of six months.

By excluding nationals of other countries, Brazilian regulation reduces the number of people able to offer services in the market. The requirement may also make the entry of potential market participants more difficult as a consequence of the difficulty and cost of finding suitable crew.

Although foreigners are allowed to be employed as a last resort (subject to ANAC's authorisation and for a limited time), if no interested national citizens are found to qualify, the shortage of personnel will remain in place. Although Brazil does not face current shortage of aircrew, this may happen in the future.

The OECD has one recommendation. Brazilian authorities should consider relaxing the nationality requirement, especially for international flights. This should include ANAC issuing guidelines on the transparent, objective, and non-discriminatory assessment of requests for temporary admission of foreign aircrew when national labour is short. It should also consider the possibility of extending the flexibility period for longer than six months if no sufficient qualified Brazilian workers can be found within that time frame.

Flight- and duty-time limitations

In line with the Convention on International Civil Aviation, Brazil establishes flight-time and duty-period limitations to manage fatigue and ensure that crew members can safely perform their duties at an adequate level of alertness.

Brazilian regulation appears more restrictive than other jurisdictions, which is likely to increase costs for Brazilian airlines on long-haul flights compared to foreign competitors. These limitations may also prevent Brazilian airlines from providing flights on certain routes, although this has been mitigated by recent regulatory changes providing for a fatigue risk-management system.

The OECD recommends the following: Brazilian authorities should consider reviewing flight-time and duty-period limitations, taking into account the regulations established in other jurisdictions, but also relevant scientific principles and knowledge, past experience, cultural issues and operational nature, in line with ICAO recommendations.

1.3.3. Ports

In Brazil, ports have recourse to two models of management, each with a specific legal framework: the landlord model for public ports and a model applying to fully privatised ports (TUPs). Leasing contracts are the main instrument used to grant terminals in public ports, while authorisations are common for the construction and operation of private port facilities (TUPs).

Centralisation of the leasing process and absence of flexibility in leasing contracts

Centralisation of the leasing process: The Port Secretariat, which is part of the Ministry of Infrastructure, is the central decision-making body for leasing terminals in public ports. The law provides for specific exceptions, by enabling the delegation to specific port authorities of the bidding procedure for port leases, as well as of the execution, management and inspection of such contracts. However, this delegation procedure is yet to be widely adopted.

By giving more autonomy to qualified and responsible port authorities to choose lessees, decentralisation would make the process under the standard procedure faster and more agile.

The OECD recommends the following: Brazilian authorities should consider introducing more flexibility in the rules which lay down the conditions and procedure for delegation of the leasing process to port authorities (currently, of Ordinance No. 574/2018) to give more autonomy to port authorities when choosing lessees, whether through tenders or simplified processes for non-complex contracts, while remaining subject to federal legislation on public procurement and port-leasing contracts.

Absence of flexibility in leasing contracts: The OECD found a lack of flexibility in the ability of public authorities to make changes to the use and improvement of space in public ports. This concern affects changes in the type of cargo and the authorisation for new investments. More agile process for contractual changes may lead to greater efficiency and may diminish private ports' competitive advantage.

The OECD has two recommendations.

1. Brazilian authorities should review the regulations and put in place more efficient and speedy processes for contractual changes.
2. Brazilian authorities should also consider the creation of more instruments, such as the agreement of investment risk, that make it easier for an operator to change the contract at its own risk with the possibility of a later rebalancing in cases of public and private interest.

Duration of the authorisation process to build and operate port facilities

The process of obtaining an authorisation to build and operate port facilities can have up to 18 steps. It usually takes a long time to complete and involves many different entities. The requesting entity must wait for the completion of the process before making any investment.

Considering the length of the process and a need for more agility, the OECD has two recommendations.

1. Brazilian authorities should consider reducing the number of bodies involved in the authorisation process.
2. They should consider implementing provisional instruments that authorise a request after a fewer number of steps of the authorisation process to allow the requesting entity to move forward without having to wait until the completion of the entire process.

Pilotage and the rotation shift

In each pilotage zone in Brazil, pilots wishing to provide their services to ships arriving in a port must follow a rotation shift that follows a list elaborated by the pilots' representative. The requirement to follow the single rotation shift creates an artificial monopoly in the market. Pilots are obliged to accept the assignment that they receive under the single rotation shift, without being able to choose their own clients, while vessels must accept the pilot assigned according to the shift rules. This means that maritime pilots chosen to provide services to a given ship act as monopolists and no other pilot can compete against them.

The OECD has two recommendations.

1. Brazilian authorities could abolish the single rotation shift, in line with the possibilities offered in the Pilotage Law to give pilots a choice about how they provide their own services. If this option is chosen, Brazilian authorities should define another way of identifying which pilot will provide the service to ensure service competition between the pilots and their entities, while guaranteeing safety. This new scheme should take into account pilot fatigue and exercises for the renewal of pilot qualification, while ensuring uninterrupted availability of pilots
2. Alternatively, if Brazilian authorities maintain the current rotation shift established by the DPC, some form of price control of pilotage services would seem appropriate. If this option is chosen, any price-setting body should be independent and use objective criteria in its decisions.

Pool of port workers

In Brazilian public ports, the pool of port workers, known as OGMO, has the monopoly of registering permanent and casual workers, establishing worker teams, and managing port-worker training. In contrast, private ports can freely hire their workers. This regulatory asymmetry creates competitive concerns.

The OECD has four recommendations.

1. The OGMO monopoly of the registration and supply of port workers should be abolished. Brazilian authorities should discuss with unions the necessary considerations for the design of new legislation. In particular, Brazilian authorities should take into account both the unpredictability of the demand of casual port workers and the flexible requirements of today's shipping industry.
2. The Brazilian authorities should allow port operators to assign workers and allow them to choose workers who best meet their needs.
3. Brazilian authorities should introduce flexibility in the set number of workers required to perform each task.
4. Brazilian authorities should remove OGMO's exclusive management of port-worker training and allow port operators to choose the training most appropriate for their workers.

Segregation and delivery-service fee: lack of legal certainty

The segregation and delivery-service fee (SSE or THC2) was firstly introduced in 1996, after the establishment of retroport terminals (also known as "dry ports"), which are areas outside the port used to store goods until their customs clearance. Port operators began charging this additional fee for the handling of containers when these began to be stored in retroports and not in their own storage areas.

For more than 20 years, regulatory agencies and other competent bodies have had and still have diverging opinions regarding the legality of this fee. In addition, the legal regulatory framework seems unclear, which contributes to legal uncertainty for port operators, retroports, and importers.

The OECD recommends the following: Brazilian authorities should address the lack of legal certainty related to the port fees for the handling of ship containers. Brazil should consider clarifying the current legal framework with transparent, non-discriminatory, and objective provisions to charge port fees including those related to the SSE/THC2 fee.

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Notes

[1] The methodology followed in this project is consistent with the product market regulations (PMR) index developed by the OECD. To measure a country's regulatory stance and track progress of reforms over time, the OECD developed an economy-wide indicator set of PMR in 1998 (Nicoletti and Scarpetta, 2003[13]). This indicator was updated in 2003, 2008, 2013 and 2018.

[2] Multi-factor productivity (MFP) is a measure of the "efficiency with which labour and capital inputs are used together in the production process"; see, https://data.oecd.org/lprdty/multifactor-productivity.htm.

[3] One study analysed firm-level data in 10 countries from 1998 to 2004 using the OECD's PMR index at industry level, and found that more stringent PMR reduces firms' multi-factor productivity (MFP) (Arnold, Nicoletti and Scarpetta, 2011[14]).

[4] The study of 15 countries and 20 sectors from 1985 to 2007 estimated the effect of regulation of upstream service sectors on downstream productivity growth. The productivity frontier refers to the most productive countries and sectors in the sample. The farther a sector is from the frontier, the less productive it is.

[5] Employment growth in the road transport sector in France increased from 1.2% a year between 1981 and 1985 to 5.2% a year between 1986 and 1990. Between 1976 and 2001, total employment in the sector doubled, from 170 000 to 340 000.

[6] Using the OECD's summary index of PMR in seven non-manufacturing industries in the energy, telecoms and transport sectors, one study found stringent PMR had a negative impact on household disposable income (Causa, Hermansen and Ruiz, 2016[23]). This result held both on average and across the income distribution, and led to greater inequality. The authors noted that lower regulatory barriers to competition would "tend to boost household incomes and reduce income inequality, pointing to potential policy synergies between efficiency and equity objectives".

[7] RPK increased, for domestic flights, by more than 282% from 25.2 billion in 2000 to 96.4 billion in 2019; and ASK more than doubled from 43.6 billion in 2000 to 116.6 billion in 2019.

2 Civil-aviation sector

This chapter provides an economic, institutional, and legal overview of the civil-aviation sector in Brazil. As flying is the fastest and safest way to travel between Brazilian states, the sector has a fundamental role in Brazilian economic development and national integration. In 2019, before the COVID-19 pandemic, aviation accounted for 1.4% of the Brazilian GDP and 1.5 million jobs. The main institutions responsible for issuing and implementing regulation, and overviewing the sector are the Ministry of Infrastructure, through the National Civil Aviation Secretariat (Secretaria Nacional de Aviação Civil, SAC), and the National Civil Aviation Agency (Agência Nacional de Aviação Civil, ANAC). The civil-aviation sector is highly regulated, including several technical requirements that follow international standards developed to ensure aviation safety and security. The OECD has identified 120 pieces of legislation related to the civil-aviation sector dealing with passenger traffic, on which this project focuses.

2.1. Overview of the civil aviation sector

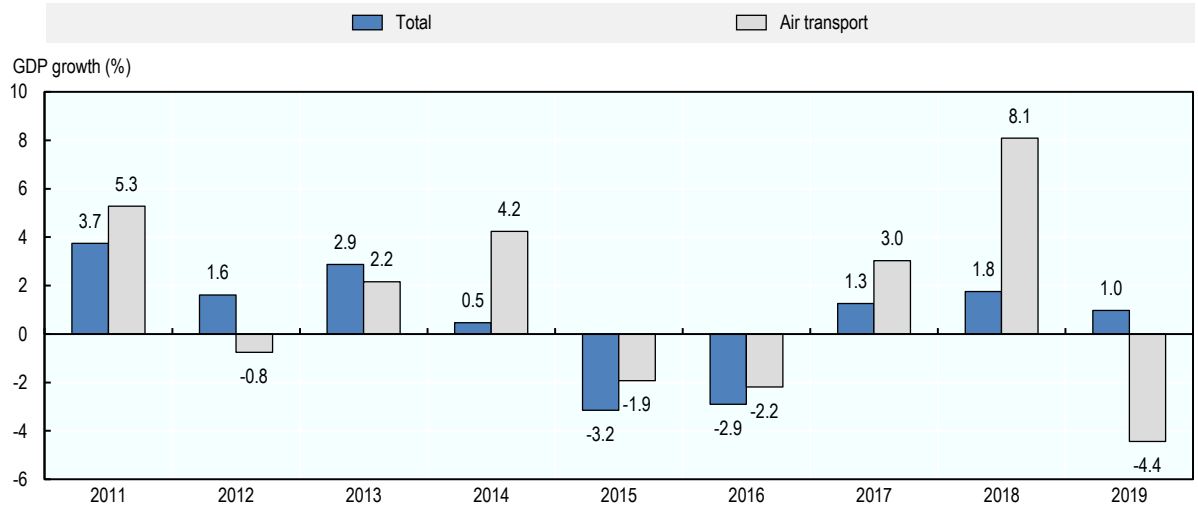
2.1.1. Economic overview

Air-transport services encompass passenger and freight air transport carried domestically or internationally (United Nations Department of Economic and Social Affairs, 2008, p. 198[1]). Service activities incidental to air transportation include those related to air transport of passengers, animals or freight, and operation of terminal facilities such as airway terminals, airport and air-traffic control activities and ground-service activities on airfields. All these activities, alongside others such as aircraft manufacturing, rental and

leasing services and refined petroleum manufacturing, may be considered as the civil-aviation industry. In this report, the term "civil-aviation industry" refers to the passenger-transport sector, the focus of the OECD's analysis.

The civil-aviation sector has a fundamental role in the economic development and national integration of such a large country as Brazil. In fact, with near-continental proportions, flying is the fastest and the safest way to travel between Brazilian states, making air travel a key transport service in the country.[1] In 2019, before the COVID-19 pandemic, civil aviation contributed to 1.4% of GDP and to 1.5 million jobs.[2] The pandemic severely affected the sector and by 2020, this had dropped to 0.3% of GDP and around 400 000 thousand jobs (ABEAR, 2021[2]). Although the civil-aviation sector may not represent a large share of Brazilian GDP, it is an important part of the economy by contributing to inter-industry linkages with both upstream and downstream sectors (OECD, 2020[3]). The performance of the civil-aviation industry tends to follow the performance of the economy, illustrating the linkage between this industry and the Brazilian economy as a whole (Figure 2.1).

Figure 2.1. Brazilian total GDP and air transport's share, 2011-19



Note: Data of air transport services encompass section H – Transportation and Storage, Division 51 (air transport), from the CNAE 2.0 (National Classification of Economic Activities). The data include passenger and freight transport, but not ancillary activities.
Source: IBGE National Account System; www.ibge.gov.br/estatisticas/economicas/contas-nacionais/9052-sistema-de-contas-nacionais-brasil.html?=&t=resultados.

Similarly, employment in the Brazilian civil-aviation sector, which includes air transport and activities incidental to air transportation, tends to follow overall economic trends. The air-transport sector was affected by the 2014 Brazilian economic crisis, losing around 10 000 jobs between 2015 and 2018. Auxiliary activities were less affected by the crisis and recovered more rapidly. In 2019, before the COVID-19 pandemic, civil aviation employed around 108 000 (Table 2.1). In 2020, due to the COVID-19 crisis, formal jobs in the sector fell to 85 000.

Table 2.1. Changes in employment in the civil-aviation sector, in thousands

Description	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Air transport (scheduled passengers)	57.7	62.3	60.9	60.1	62.0	59.5	55.3	55.5	54.0	55.3	41.0
Air-taxi service and crewed aircraft rental	6.1	6.5	6.7	6.9	6.5	6.0	5.7	4.8	5.2	5.3	5.3
Other non-scheduled passenger air-transport services	1.0	1.2	1.4	1.3	1.3	1.2	1.0	0.9	0.7	0.4	0.4
Air transport (cargo)	2.7	2.5	2.1	2.3	1.8	1.8	1.8	1.8	1.9	2.0	1.7
Operation of airports and landing fields	13.9	14.6	15.6	16.6	18.1	17.0	16.0	15.1	14.7	13.2	12.6
Auxiliary air-transport activities	26.7	29.3	27.4	27.5	27.9	28.1	25.4	26.8	30.4	31.4	23.9
Total	**108.1**	**116.5**	**114.2**	**114.8**	**117.7**	**113.7**	**105.2**	**104.9**	**107.0**	**107.6**	**84.7**

Note: The data encompasses section H – Transportation and storage, division 51 – Air transport; section H – Transportation and storage, division 52 – Warehousing and support activities for transportation, group 52.4 – Activities incidental to air transportation. The data include passenger, freight transport and ancillary activities.
Source: OECD calculations based upon MTE (2021), https://bi.mte.gov.br/bgcaged/caged_anuario_rais/anuario.htm.

In addition to contributing to inter-industry linkages, the civil-aviation sector contributes to world connectivity. In 2019, 4.5 billion passengers were transported by air transport globally. In 2020, the civil-aviation industry faced its worst crisis since the Second World War, as efforts to control the spread of COVID-19 closed borders, imposed lockdowns, and severely curtailed freedom of movement (International Air Transport Association, 2020[4]). In 2020, passengers numbers dropped 60% compared to 2019 to 1.8 billion (Table 2.2).

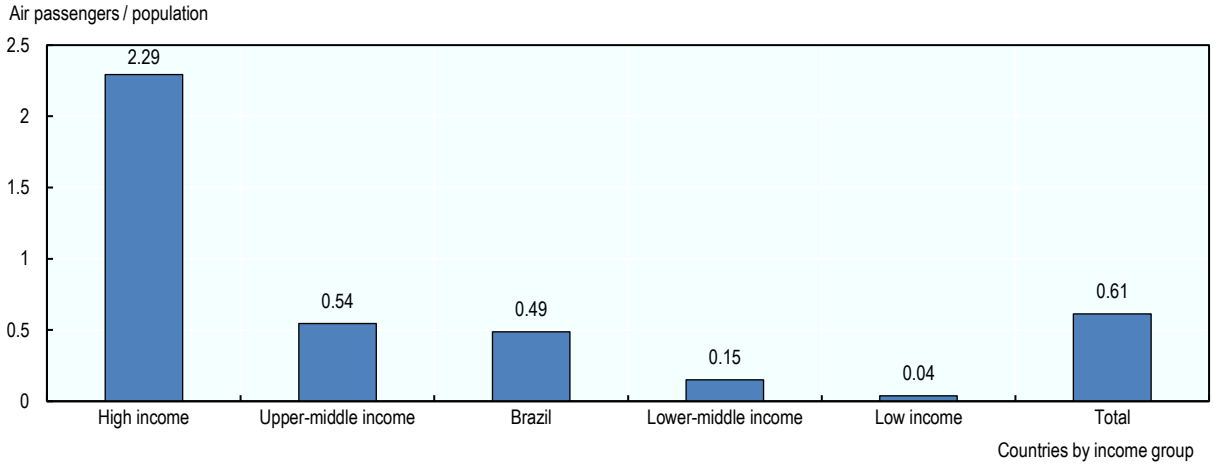
Table 2.2. Air transport passenger numbers, by region, in millions

Region	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
East Asia and Pacific	707	749	809	894	966	1 052	1 156	1 267	1 364	1 415	675
Europe & Central Asia	672	729	750	779	823	887	942	1.016	1.086	1 283	413
Latin America & Caribbean	178	198	217	234	249	264	267	276	293	305	121
Middle East & North Africa	151	160	175	189	205	217	239	258	265	276	98
North America	784	797	807	815	838	878	909	941	981	1 020	397
South Asia	79	91	90	94	102	120	142	163	190	191	80
Sub-Saharan Africa	38	43	45	44	44	48	50	54	65	66	25
Total	**2 609**	**2 767**	**2 894**	**3 048**	**3 227**	**3 466**	**3 705**	**3 974**	**4 242**	**4 558**	**1 809**

Note: Air passengers include both domestic and international aircraft passengers carried by air carriers registered in a country of each region.
Source: OECD calculations, World Bank Open Data, https://data.worldbank.org.

Brazil is the largest air transport market in Latin America and the Caribbean.[3] In 2019, before the COVID-19 crisis, around 103 million passengers were transported by Brazilian air carriers, representing 2.4% of the global total (4.55 billion) and 33.7% of all passengers transported by Latin American air carriers (305 million). In 2020, around 45 million passengers were transported by Brazilian air carriers, a drop of 56% compared to 2019.Passenger numbers in Brazil still represent only a small percentage of the overall population, the ratio of passengers to population was 0.49 in 2019. This rate is lower than regions like Europe and Central Asia (1.41) or North America (2.79), suggesting a substantial potential for growth. A similar comparison can be made by groups of countries aggregated by income level (Figure 2.2).

Figure 2.2. Passenger numbers as ratio of population, by income group, 2019



Source: OECD calculations based upon World Bank Open Data, https://data.worldbank.org.

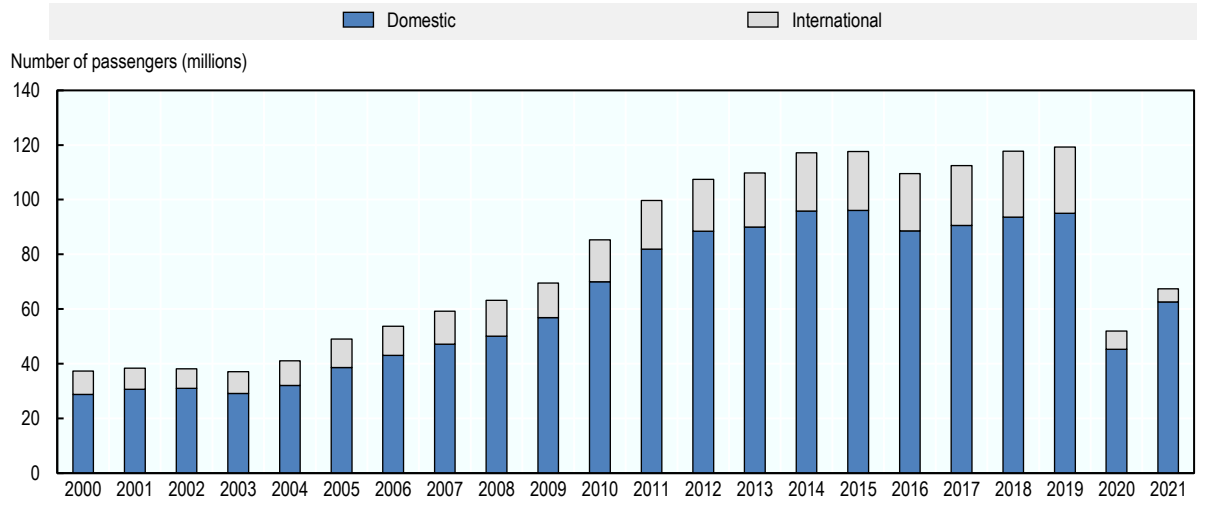
2.1.2. Sectoral growth

In the 1990s, Brazil began a process of deregulating the civil-aviation sector, aiming to promote competition by fostering entry and investment; this process accelerated in the early 2000s. Continuous regulatory changes in recent years, such as allowing airlines to explore any desired route and to set ticket prices freely, has contributed to intense sectoral growth.

Demand, supply and capacity

From the demand side, the civil-aviation industry has undergone significant growth. Passenger numbers for domestic flights[4] more than tripled from nearly 30 million in 2000 to more than 90 million in 2019 (Figure 2.3).[5] With the COVID-19 pandemic, passenger numbers decreased by half, but still remained higher than in the early 2000s at 45 million in 2020 and 63 million in 2021.

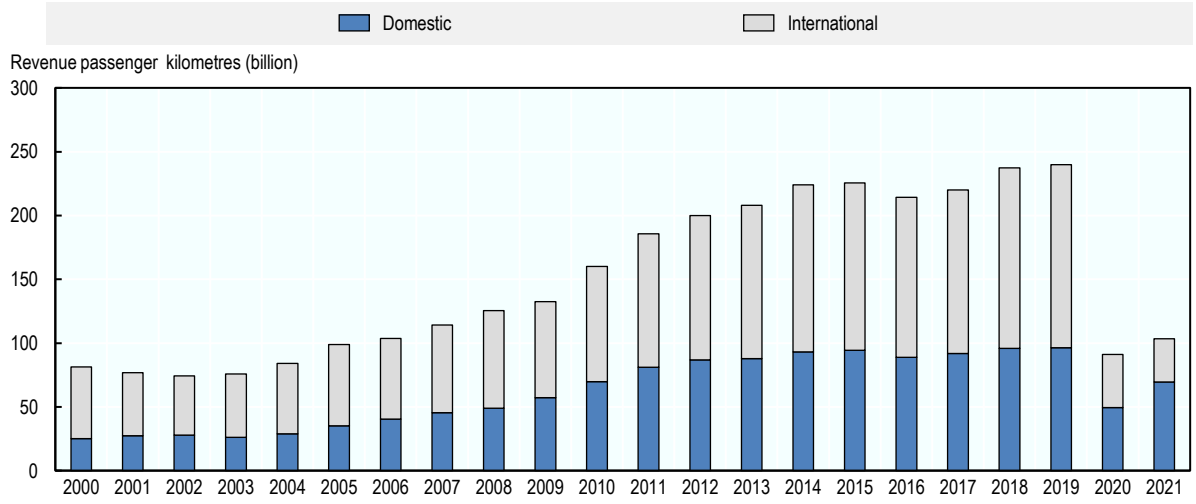
Figure 2.3. Passenger numbers in Brazil, 2000-21



Note: Slight differences exist in total passenger numbers in Brazil between the World Bank database (ICAO) and ANAC statistical data. These do not affect the trend analysis presented.
Source: ANAC Data and Statistics, www.gov.br/anac/pt-br/assuntos/dados-e-estatisticas.

The growth trend is also seen in terms of revenue passenger kilometres (RPK),[6] which for domestic flights increased more than 282% from 25.2 billion in 2000 to 96.4 billion in 2019. In 2020, with the pandemic, the RPK decreased but remained higher than in the beginning of the 2000s at 49.6 billion in 2020 and 69.7 billion in 2021.

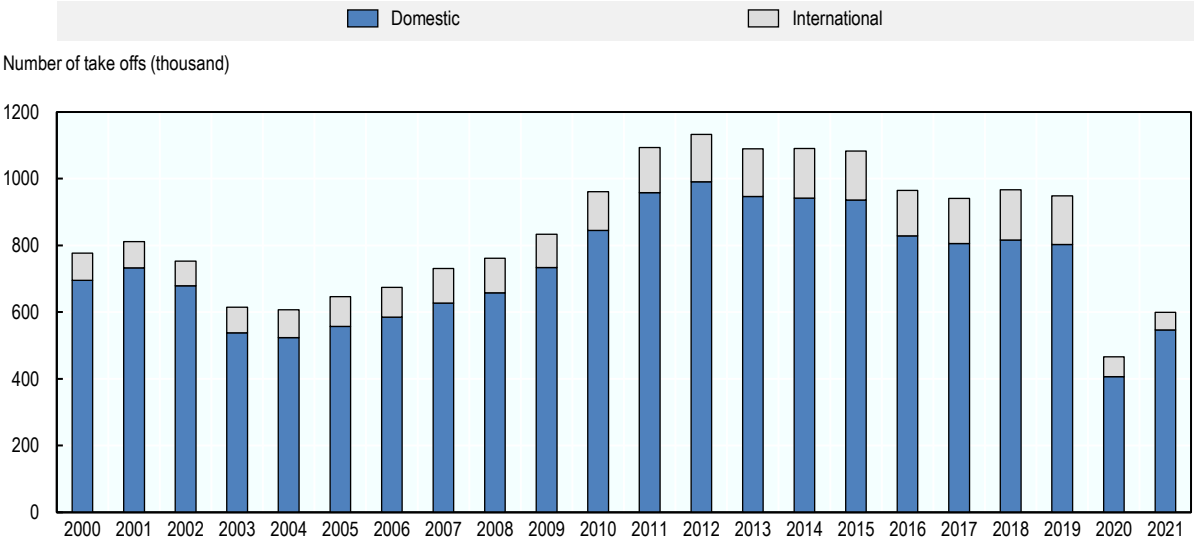
Figure 2.4. Revenue passenger kilometres (RPK) in Brazil, 2000-21



Source: ANAC Data and Statistics, www.gov.br/anac/pt-br/assuntos/dados-e-estatisticas.

On the supply side, the civil-aviation sector has also grown. In 2000, there were nearly 700 000 domestic flights, in 2012, nearly 1 million, and more than 800 000 before the COVID-19 pandemic, when the sector retracted and flight numbers plummeted to just under 400 000 (Figure 2.5).

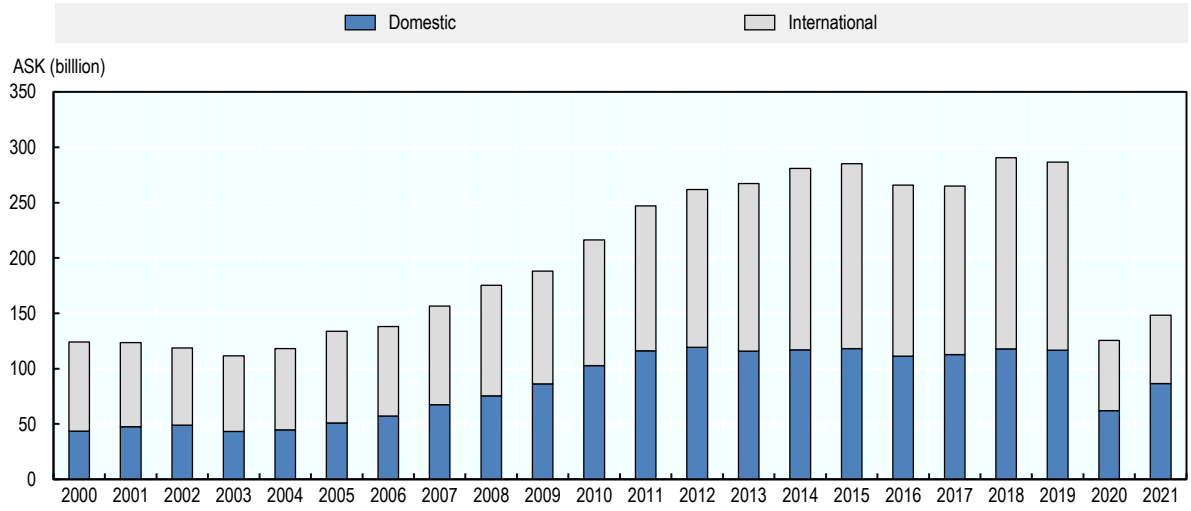
Figure 2.5. Number of flights in Brazil, 2000-21



Source: ANAC Data and Statistics, www.gov.br/anac/pt-br/assuntos/dados-e-estatisticas.

The growth trend is also seen in terms of available-seat kilometres (ASK),[7] which more than doubled from 43.6 billion in 2000 to 116.6 billion in 2019. Despite the pandemic, ASK remained higher in 2020 at 61.9 billion and 2021 at 86.6 billion than in the early 2000s.

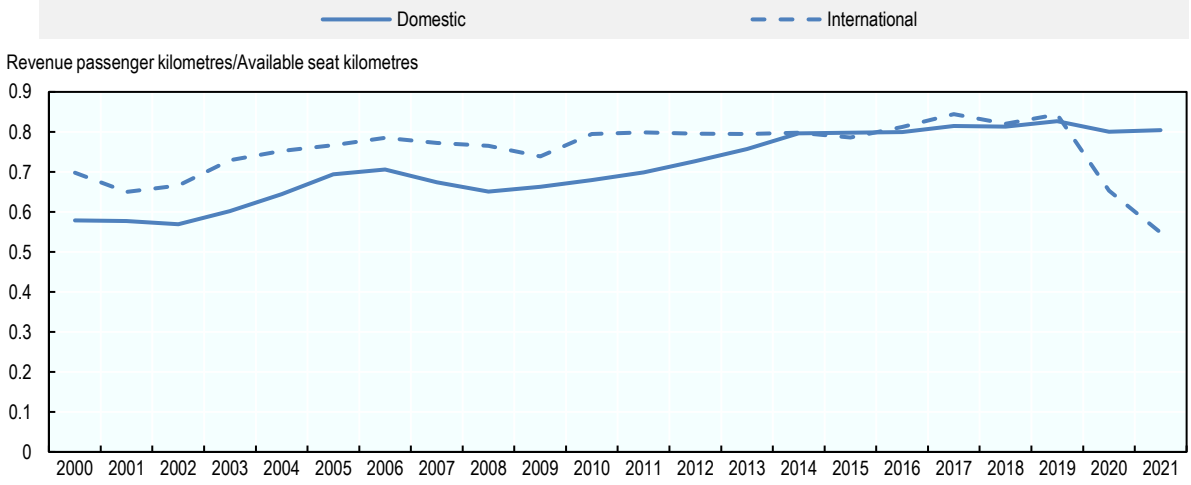
Figure 2.6. Available seat kilometres, Brazil, 2000-21



Source: ANAC Data and Statistics, www.gov.br/anac/pt-br/assuntos/dados-e-estatisticas.

In terms of capacity use, the load factor of domestic flights was 0.58 in 2000 and reached 0.83 in 2019, close to the global average of 0.8 [8] (Figure 2.7) (Gomes and Fonseca, 2014[5]).

Figure 2.7. Load factor, revenue passenger kilometres / available seat kilometres, 2000-21



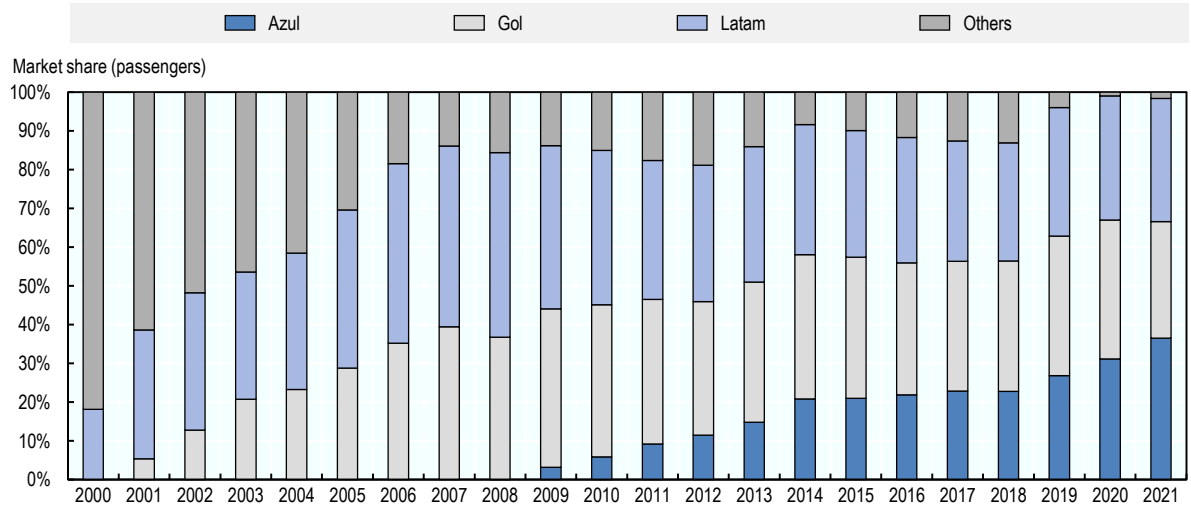
Source: ANAC Data and Statistics, www.gov.br/anac/pt-br/assuntos/dados-e-estatisticas.

2.1.3. Market structure

The air-transport sector presents characteristics of potentially high market concentration, such as high fixed costs, exposure to exogeneous shocks, particularly fuel-price fluctuation, and legal barriers related

to security standards (CADE, 2017[6]) (ANAC, 2021[7]). In 2021, three main airline companies – Latam, Gol and Azul – had a combined domestic market shares of 98%, and have dominated the Brazilian civil-aviation sector in recent years (Figure 2.8).

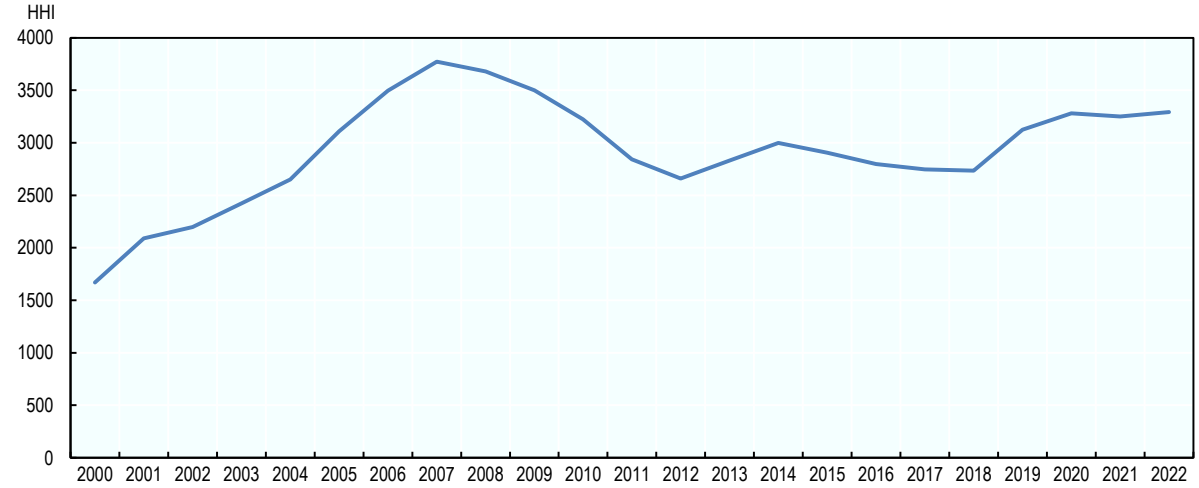
Figure 2.8. Market share of the domestic civil-aviation sector, 2000-21



Source: ANAC Data and Statistics, www.gov.br/anac/pt-br/assuntos/dados-e-estatisticas.

The sector's high levels of concentration is seen when measured on the Herfindahl-Hirschman Index (HHI). In 2000, the sector scored about 1 500 points or cusping on moderately concentrated, but by 2021, that figure had risen to more than 3 000 points or highly concentrated (Figure 2.9).[9]

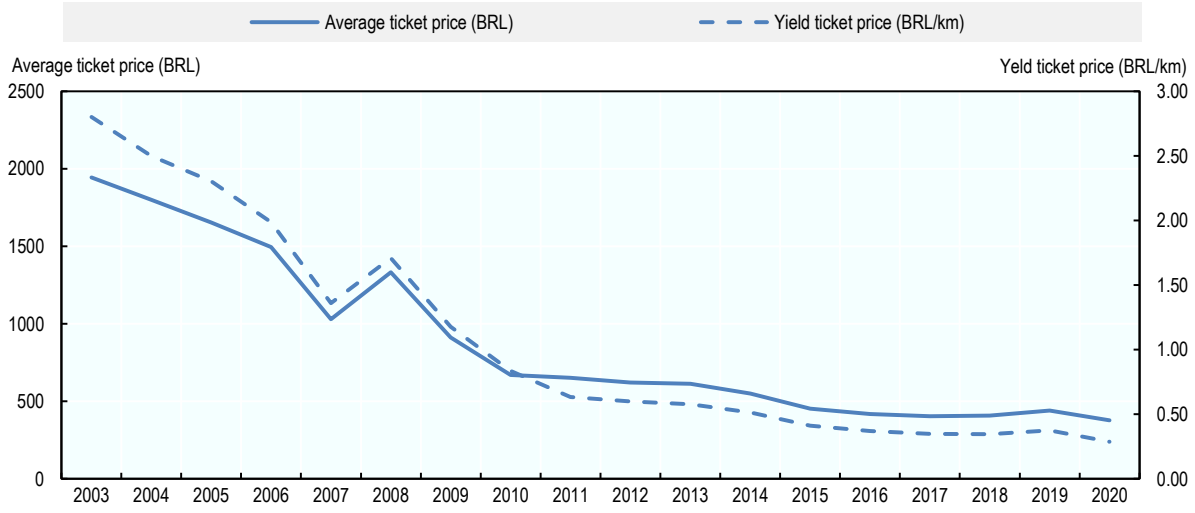
Figure 2.9. HHI score of the Brazilian domestic civil-aviation sector, 2000-21



Source: ANAC Data and Statistics, www.gov.br/anac/pt-br/assuntos/dados-e-estatisticas.

Despite the sector's high levels of concentration, the number of passengers flights has increased, while the average ticket price and yield ticket price have decreased in recent years.[10] While the yield ticket price was BRL 2.8 per kilometre in 2003, it was less than BRL 0.3 per kilometre in 2021 (Figure 2.10).

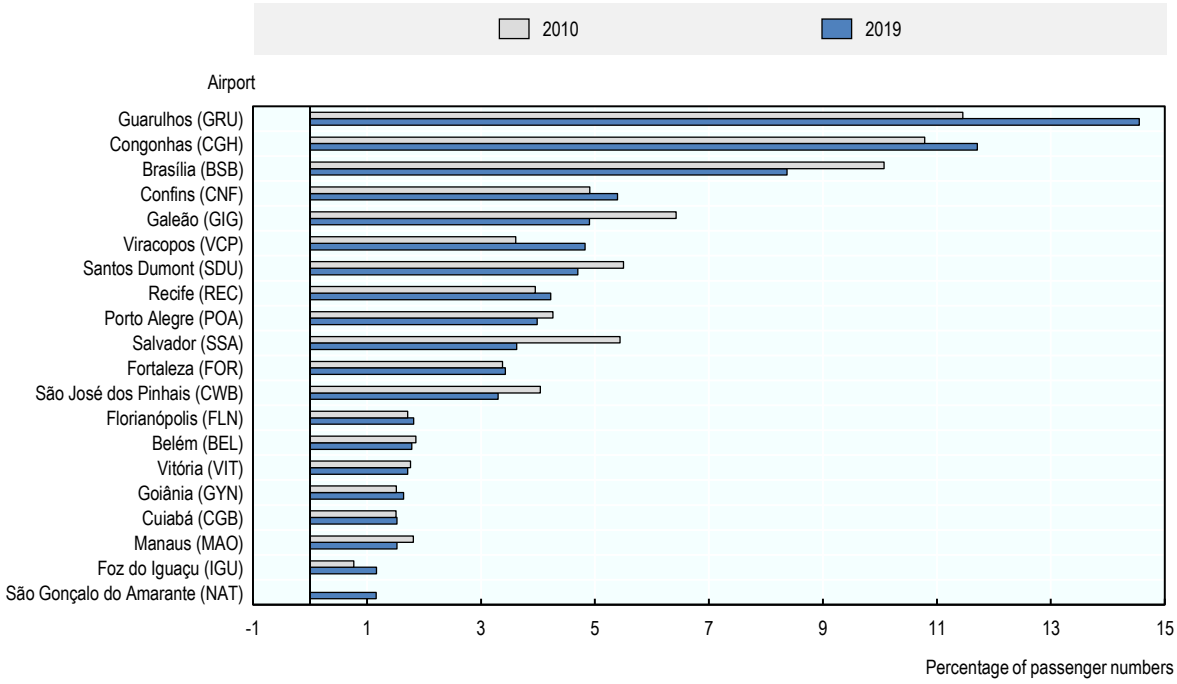
Figure 2.10. Average ticket price and yield ticket price in Brazil, 2003-20



Note: In constant values. Nominal values were adjusted by the broad consumer price index (IPCA) until December 2020, in order to allow the comparisons over time.
Source: ANAC Data and Statistics, www.gov.br/anac/pt-br/assuntos/dados-e-estatisticas.

The sector's concentration can also be seen geographically. The southeast region concentrates the most flights and the main airports of the country. Six of the seven busiest airports, measure by domestic-departure passenger numbers, are located in the southeast region. More than 46% passengers, in domestic flights, boarded at São Paulo Guarulhos; São Paulo Congonhas; Belo Horizonte Confins; Rio de Janeiro Galeão; Campinas Viracopos; and Rio de Janeiro Santos Dumont in 2019. São Paulo State presents the highest number of passengers, with Guarulhos, Congonhas and Viracopos airports accounting for more than 31% of domestic passengers in 2019 (Figure 2.11).

Figure 2.11. Brazil's 20 busiest airports, by domestic-departure passenger numbers, 2010 and 2019



Source: ANAC Data and Statistics, www.gov.br/anac/pt-br/assuntos/dados-e-estatisticas.

The sector's concentration is also particularly high in terms of routes. The 15 main routes, in number of passengers in domestic departures, present a HHI higher than 2 500. On the Rio de Janeiro Galeão to São Paulo Guarulhos route, for example, LATAM accounted for nearly 55% of the passengers and Gol for nearly 38% in 2020.[11]

Recent trends

As previously noted, the Brazilian civil-aviation sector has been undergoing a process of deregulation since the early 1990s, with the promotion of flexible tariffs and discounts, and the signature of the international Sub-regional Air Services Agreement, known as the Fortaleza Agreement, in 1996. As part of this process, the Brazilian Government have adopted policies and regulations that aim to foster investments for the development and expansion of the sector.

In 2011, the country started a process of introducing private-sector participation in Brazil's major airports (see section 2.2). This concession programme has so far been divided into six rounds and generated more than BRL 18 billion in investment (Table 2.3).[12] The second round of concessions, involving Brasilia, São Paulo Guarulhos and Campinas Viracopos airports, raised the most with nearly BRL 10 billion, which represented 53.5% of all investments in the first five rounds.

During these six rounds, 44 airports were awarded to private operators: 10 were individually awarded in the first four rounds[13] and 34 were awarded in six regional clusters in the fifth[14] and sixth[15] rounds (see section 2.2.1). The seventh[16] and eighth[17] rounds are in progress and planned to be completed in the second half of 2022 and first half of 2023, respectively. By the end of the process, all federal airports, which until 2011 were fully controlled by a state-owned enterprise, Infraero, will have been transferred to private-sector management.

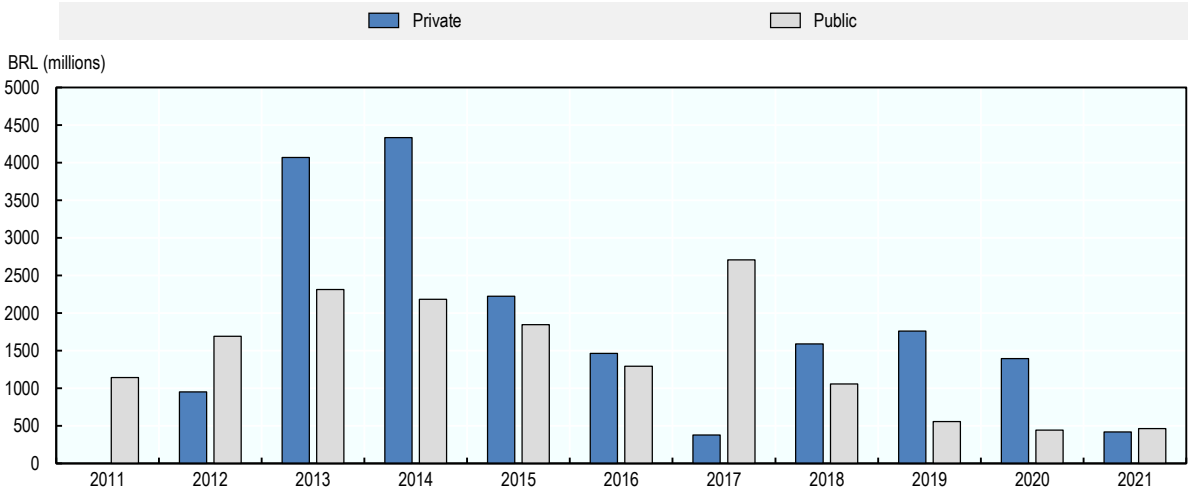
Table 2.3. Investments in airports under concession, by concession contracts, in BRL, millions, 2012-21

	Natal/São Gonçalo (NAT)	Brasília (BSB)	São Paulo/Guarulhos (GRU)	Campinas/Viracopos (VCP)	Belo Horizonte/Confins (CNF)	Rio de Janeiro/Galeão (GIG)	Florianópolis (FLN)	Fortaleza (FOR)	Porto Alegre (POA)	Salvador (SSA)	Northeast cluster*	Midwest cluster**	Southeast cluster***
Concession year	2012	2012	2012	2012	2014	2014	2017	2017	2017	2017	2019	2019	2019
Round	First	Second	Second	Second	Third	Third	Fourth	Fourth	Fourth	Fourth	Fifth	Fifth	Fifth
Contract value (BRL)	650	5 335	17 697	12 984	5 117	12 953	2 270	3 504	4 239	4 561	5 781	1 433	1 579
Expected investment	650	2 850	4 600	8 700	3 500	5 600	961	1 400	1 902	2 350	2 140	763	630
Total investment up to 2021	**638.21**	**1 481.76**	**4 428.54**	**4 038.73**	**971.49**	**2 528.57**	**578.49**	**817.78**	**1 620.30**	**842.35**	**453.97**	**74.60**	**121.16**

Note: Contract values are expressed in constant values following the data of studies used to support the public notices. Investment values are expressed in nominal values.
*Recife International (Guararapes – Gilberto Freyre); Maceió (Zumbi dos Palmares); Santa Maria International (Aracaju); Campina Grande (Presidente João Suassuna); João Pessoa International (Presidente Castro Pinto); and Juazeiro do Norte International (Orlando Bezerra Menezes). ** Cuiabá International (Marechal Rondon); Rondonópolis; Alta Floresta; and Sinop (Presidente João Figueiredo).
*** Vitoria Airport and Macae Airport.
Source: OECD calculations, SAC and ANAC data.

From 2012 to 2021, the total amount of public and private investments in Brazilian airports was nearly BRL 30 billion, of which almost 65% came from concessionaries and nearly 35% was made through public direct investments (Figure 2.12).

Figure 2.12. Public and private investments in federal airports, 2011-21



Note: In nominal values. Federal airports are managed either by Infraero or under concessions.
Source: OECD calculations; Infraero, SAC, Data of the General Budget of the Union (OGU), and SIAFI data.

2.1.4. Institutional overview

The institutions responsible for issuing or enforcing rules, instructions and guidelines in the civil-aviation sector play a significant role in the functioning of the market and can ultimately affect competition.

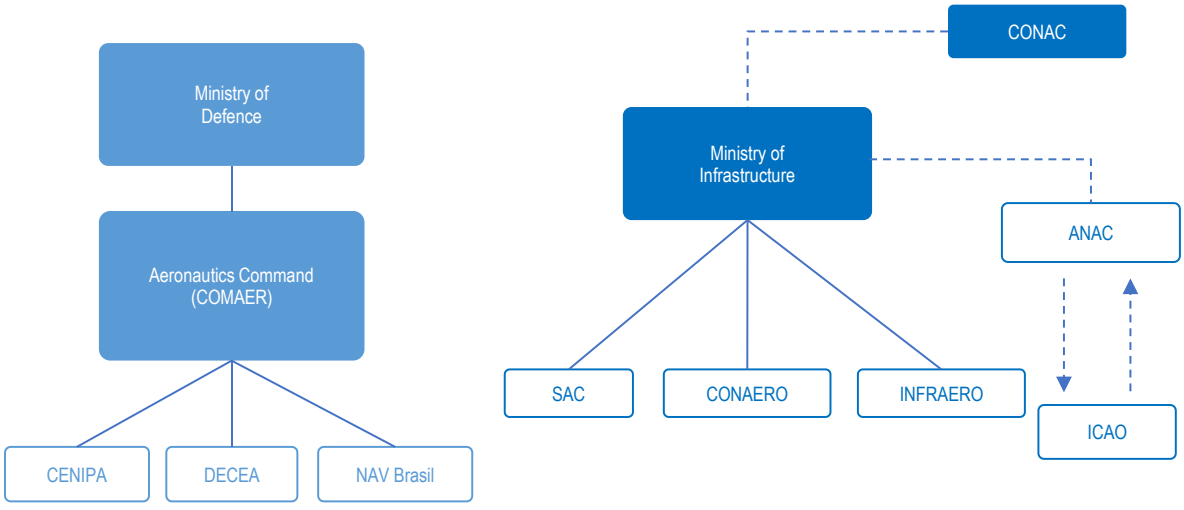
In Brazil, the following institutions are responsible for issuing and implementing regulation, and overviewing the civil-aviation sector.

- The **Civil Aviation Council (CONAC)** is an advisory body to the Presidency of the Republic established to support policy making in Brazilian civil aviation. It is composed of ministries that deal with civil-aviation matters.[18] CONAC has not met since 2010.
- The **Ministry of Infrastructure (MINFRA)**, through the **National Civil Aviation Secretariat (SAC)**, co-ordinates and supervises the institutions of the civil-aviation system. It is responsible for developing guidelines and public policies on civil aviation and airport infrastructure.
- The **National Commission of Airport Authorities (CONAERO)** is the consultative and deliberative forum composed of public bodies that work directly with airport management.[19] Its goal is to harmonise their actions to make airports more efficient.
- The **National Civil Aviation Agency (ANAC)** is an independent regulatory agency responsible for regulating and supervising civil-aviation activities, as well as aeronautical and airport infrastructure, in compliance with the guidelines and policies issued by the Federal Government.
- The **Brazilian Airport Infrastructure Company (INFRAERO)** is a state-owned enterprise charged with developing, managing and operating civil airports assigned by the Ministry of Infrastructure.
- The following bodies are linked to the **Aeronautics Command (COMAER)** of the Brazilian Air Force, which is part of the Ministry of Defence:
    - **Aeronautical Accidents Investigation and Prevention Centre (CENIPA)** is responsible for the investigation and prevention of aviation accidents

- **Department of Airspace Control (DECEA)** is in charge of the management of Brazilian airspace, regulating air-traffic control (ATC) and operating certain ATC units
- **Brazilian Air Navigation Services Company (NAV Brasil)** is a new state-owned enterprise in charge of developing, managing and operating aeronautical infrastructure and providing air-navigation services, assigned by the Aeronautics Command.

Brazil is a member of the UN agency, the **International Civil Aviation Organization (ICAO)**, whose main objective is the maintenance of an administrative and expert bureaucracy to support diplomatic and co-operative interactions between the signatory states of the Convention on International Civil Aviation (also known as Chicago Convention). In addition, ICAO researches new air-transport policy and standardisation innovations as directed and endorsed by its 193 member states. ICAO also provides governments with the best practice and advice to establish new international standards collectively and diplomatically and recommend practices for civil aviation internationally (International Civil Aviation Organization, 2022[8]).

Figure 2.13. Brazilian authorities in the civil-aviation sector



Source: Adapted from (ANAC, 2021[9]).

2.1.5. Overview of the legislation

The OECD has identified 120 pieces of civil-aviation legislation dealing with passenger traffic, including laws, decrees, ordinances, regulations, public-auction notices, and concession contracts. The civil-aviation sector is highly regulated, including several technical requirements that follow international standards developed to ensure aviation safety and security.

The Brazilian Aeronautical Code (CBA, Law No. 7.565/1986) provides the legal framework on civil aviation in Brazil. The CBA covers the majority of relevant issues for civil aviation in the country, such as safety, aircraft manufacturing, air-traffic control, aircraft registration, certification, and legal liability of air carriers, as well as airport infrastructure. Law for over 35 years, the CBA was enacted in a different regulatory environment in which the government controlled almost the entire sector, including routes and prices of flights. Indeed, the CBA predates the current Brazilian Constitution and the institutional framework in place today. This has left many of CBA's rules no longer in line with the current regulatory environment, with many obsolete provisions that while de facto repealed remain in the code. Nevertheless, the CBA has been gradually updated over the years. For instance, the recently enacted Law No. 14.368/2022 has explicitly

repealed most of these obsolete or superseded provisions. Furthermore, since 2016 a bill has been in Congress seeking to establish a new and fully updated aeronautical code.

Other relevant legislation is Law No. 11.182/2005, which created the National Civil Aviation Agency (ANAC), an independent regulatory agency responsible for establishing technical and economic regulation of the civil-aviation sector. The law aims to ensure aviation safety and security and to improve the quality of services, while fostering a competitive market. It also cemented the liberalisation of prices and routes in Brazil, followed by successive processes of modernisation and simplification of sectoral regulation. This has reduced the regulatory burden and improved the quality and effectiveness of regulations. These have included:

- in 2016, ANAC authorised airlines to charge for checked baggage, following international standards (see Box 2.1)
- in 2018, the civil-aviation market was opened to foreign investors (see Box 2.2)
- in October 2020, ANAC and the Ministry of Infrastructure launched the Simple Flight programme, with more than 60 initiatives to simplify civil-aviation regulation to align Brazil with international best practice; the aim of this initiative is to increase connectivity and foster a new business environment, without hampering aviation safety and security. Although the programme focuses on general aviation, commercial air transport may benefit from its outcomes.[20] Among the initiatives is Provisional Measure No. 1.089/2021 (recently converted into Law No. 14.368/2022), which the government has enacted to revoke and amend many outdated provisions in the CBA, and make it easier for foreign airlines to operate in Brazil.

Box 2.1. Regulatory changes in the checked-baggage allowance

Until 2016, airlines operating in Brazil were required to offer passengers one piece of free checked baggage of up to 23 kilogrammes on domestic flights. This was supposed to protect consumers.

The provision increased costs for airlines and passengers, who had to pay for a checked baggage even if they did not have any. It also prevented companies from providing innovative services, as they were not able to offer different types of air tickets that best met users' interests. Furthermore, this requirement enhanced entry costs, especially for foreign firms and low-cost carriers, which considered it as an unreasonable regulatory burden to airlines. In fact, most countries allow airlines to decide whether to include or not checked baggage in the ticket price.

In December 2016, ANAC issued Resolution No. 400/2016, which entered into force in 2017, allowing airlines to charge for checked baggage. Since then, airlines have been able to sell air tickets with different checked-baggage allowances or without any checked-baggage allowance for passengers who choose not to use the service. Airlines must present offers transparently, allowing consumers to compare respective benefits and to select the service for which they wish to pay. In return, the maximum hand-baggage allowance was raised from 5 to 10 kilogrammes.

By unbundling checked baggage allowance from the air fare, airlines were able to offer new products to passengers, following international best practice. The regulatory change appears pro-competitive, with the potential to reduce entry costs and leading to innovative services. Accordingly, this may facilitate new firms entering the market, especially low-cost carriers with different business models.

A law enacted in 2019 to reintroduce a minimum checked-baggage allowance was vetoed by the Brazilian president, in line with an opinion issued by CADE's Department of Economic Studies. Law No. 14.368/2022 has introduced again a minimum checked-baggage allowance, vetoed again by the Brazilian president in June 2022. At the time of finalising this report, the Brazilian Congress has not yet assessed the veto, which may still be withdrawn.

Source: Administrative Proceeding (ANAC) No. 00058.054992/2014-33; (DEE/CADE, 2019[10]).

Box 2.2. Reforms of rules for foreign investment in Brazilian airlines

On 13 December 2018, Brazil implemented significant reforms of the rules for foreign investment in Brazilian domestic airlines through Providencial Measure No. 863/2018. Congress converted the measure into Federal Law No. 13.842/2019 on 17 June 2019, embedding the reforms into the CBA. Key reforms included the removal of a 20% cap on foreign participation in Brazilian airlines, allowing foreign companies full ownership of share capital and management of Brazilian airlines. Restrictions on the issuance and transfer of shares to foreigners were also lifted.

Foreign airlines can now invest in Brazil and hold up to 100% stakes in Brazilian airlines, but they must establish a subsidiary in the country and comply with the Brazilian legislation to operate domestic flights. According to ANAC, the objective for this is to ensure that all airlines operating in Brazil are subject to the same requirements and costs (e.g. taxes and social contributions). In practice, it protects domestic air carriers from foreign competition, ensuring that airlines will pay taxes in Brazil and create national jobs. Concerns of sovereignty and security can also be a reason to restrict domestic flights to national airlines. Furthermore, it can be argued that as cabotage rights are traded on a reciprocal basis, a broad liberalisation would not necessarily ensure the same right to operate domestic flights in foreign countries for Brazilian airlines. This requirement may raise entry costs for foreign firms. The need to operate (and not simply establish) a firm in Brazil may also increase costs for foreign companies willing to operate in the domestic market.

Article 7 of the Convention on International Civil Aviation (Chicago Convention) does not prohibit the freedom to provide cabotage services, which is the right of a carrier from one country to carry passenger and freight traffic exclusively between two points in another country. That provision does allow the contracting states to refuse such a service, however. In this light, the majority of countries prohibit foreign airlines from operating air cabotage (either the so-called consecutive cabotage or stand-alone, pure cabotage), in order to support and protect their national airline industry and a market that they consider to be exclusively their own.

One exception is Chile, which has granted cabotage rights on a unilateral basis since 1979. Cabotage rights are also provided through international agreements, but only among contracting states. For instance, in 1997, full cabotage rights were extended to all EU carriers, meaning that an airline from one EU state can operate domestic flights in another EU country. Other examples of cabotage rights exist between Singapore and the United Kingdom, the United Arab Emirates or Uruguay, between China and Albania, between New Zealand and Australia or Brunei, as well as between members of the West African Economic and Monetary Union: Benin, Burkina Faso, Guinea-Bissau, Ivory Coast, Mali, Niger, Senegal, and Togo.

According to the International Transport Forum (ITF), while liberalising cabotage is legitimate, it remains a sensitive issue across much of the world and little political will exists to pursue it in the foreseeable future. It indicates that the full liberalisation of rights of establishment can be an alternative to cabotage rights, with similar practical effects, however.

Indeed, liberalisation allows airlines incorporated and with their place of business in a given territory to operate domestic flights there, regardless of the nationality of their shareholders. In practice, this can open a domestic market to foreign operators, since they only need to establish a subsidiary in the country. The foreign-owned entity must operate as a domestically regulated carrier employing “localised” workers and abiding by local labour, tax, immigration, registration, safety, security and other laws. Few countries have implemented full liberalisation of rights of establishment, as Brazil did in 2018. Australia has also offered airlines a right of establishment to operate domestic routes since 1999.

Most countries still establish ownership and control restrictions on foreign investment in their air carriers. For example, the United States limits foreign ownership of US airlines to 25% and requires that US citizens control airlines. This is similar to the situation in Canada and Mexico. In the European Union, foreign investment cannot exceed 49% of ownership of an EU airline, which is also the cap in Israel, Morocco, Russia, and Ukraine.

Source: (OECD, 2020[11]); (ITF, 2019[12]); (International Civil Aviation Organization, 2016[13]).

Other issues not directly related to regulatory barriers may increase legal uncertainty and prevent new players from entering the market, such as the high level of litigation between airlines and passengers (Box 2.3).

Box 2.3. Airline-passenger litigation in Brazil

Airlines operating in Brazil both for domestic and international flights face a significant number of consumer lawsuits, due to causes such as baggage loss, flight delays, and cancellations. Indeed, the level of litigation is much higher in Brazil than in other jurisdictions: according to the International Air Transport Association (IATA), there is one lawsuit for every 7 883 flights in the United States, but in Brazil, that figure is one lawsuit every 1.35 flights. The Brazilian Institute of Aeronautical Law (IBAER) indicates that 98.5% of total global consumer claims against airlines are concentrated in Brazil.*

The Warsaw and Montreal Conventions, which establish rules relating to international carriage by air, are enforceable for material damages arising from international flights, following a 2017 ruling by the Brazilian Supreme Court. For national flights, the Consumer Protection Code is usually applicable for both material and moral damages, even when the code conflicts with the provisions of the Brazilian Aeronautical Code and the Warsaw and Montreal Conventions. Rather than granting in re ipsa moral damages, a recent change to the CBA by Law No. 14.034/2020 clarifies that moral damages will only be compensated if the passenger proves an actual occurrence of harm.

The high level of litigation and the legal uncertainty about the interpretation of provisions regarding liability increase airlines' costs and may discourage new entrants. This is likely to reduce competition in the market and lead to higher prices for consumers.

In recent years, the Brazilian Government has implemented measures to reduce litigation in the civil-aviation sector. One of these seeks to encourage consensual conflict resolution, through the official platform Consumidor.gov.br, managed by the National Consumer Secretariat (SENACON), the Brazilian consumer-protection authority. Since 2019, Consumidor.gov.br has been the official platform adopted by ANAC for the registration of consumer complaints against airlines operating in Brazil.

The platform is an online mechanism to connect consumers and companies that aims to solve consumer disputes rapidly without interference from third parties. Airlines operating in Brazil must adhere to the system and commit themselves to certain obligations, such as responding to consumer complaints made through the platform within 10 days. Personal data from consumers are kept confidential but the content of the claim and the answer are disclosed. The companies are also ranked by consumers and listed in general satisfaction level ranking, which also add incentives to co-operate in finding a solution. Consumidor.gov.br has proved relatively successful and has reduced the number of cases before Brazilian courts. In 2021, around 76% of complaints against airlines registered in Consumidor.gov.br were solved.

Note: * Some studies (e.g. (Ávila, 2020[14]) (Pompeu, 2021[15]) (Starling and Villa, 2022[16])) have attempted to explain the main reasons thereof.
Source: (International Air Transport Association, 2021[17]); (ABEAR, 2021[18]); (ANAC, 2021[19]); (Ministério da Justiça e Segurança Pública, 2022[20]); (Militão et al., 2020[21]).

2.2. Airport management

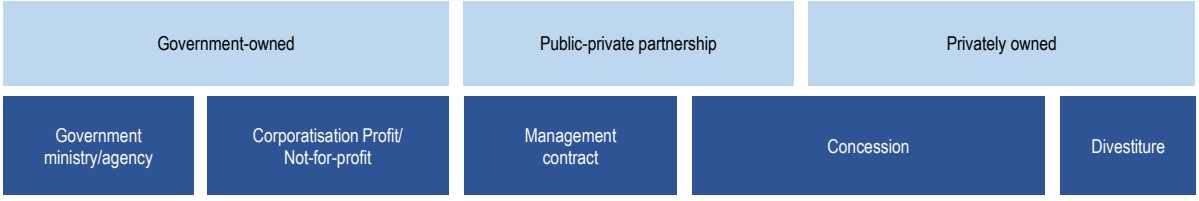
2.2.1. Background: Airport ownership and operating models

The international perspective

Airport ownership and operating models (Figure 2.14) vary substantially across jurisdictions, with different levels of public and private participation (International Air Transport Association and Deloitte, 2018[22]).

- In 2016, 67% of airports worldwide followed the public-ownership model (Steer Davies Gleave, 2016, p. 25[23]). The vast majority of public airports are operated by dedicated state-owned corporations, including Narita International Airport in Tokyo, Berlin Brandenburg Airport, and Changi Airport in Singapore. Other public airports are operated directly by a government ministry or agency, such as John F. Kennedy Airport in New York and Dubai International Airport.
- In 2016, 18% of airports worldwide used a public-private partnership model (Steer Davies Gleave, 2016, p. 25[23]) in which the airport operator is owned by a combination of private investors and public authorities. Generally, the airport operator does not own the land, but has exclusive rights to operate the airport under a fixed-term concession, with average contract lengths around 35 years (Airports Council International, 2018[24]). Examples of airports under a public-private partnership include Brussels Airport and Copenhagen Airport (majority private), Paris Charles de Gaulle and Athens International Airport (majority public) and Düsseldorf Airport (equal public and private participation). In rare cases, the operation of a publicly owned airport may be awarded to a private operator through a management contract, such as is the case at Albany International Airport, New York.
- In 2016, 15% of airports worldwide were fully privatised (Steer Davies Gleave, 2016, p. 25[23]). For the majority of these airports, the fully private operator does not own the land, but operates under a long-term concession contract; this is the case for the main airports in Australia (50 years with a 49-year extension option) and Portugal (50 years). In rarer circumstances, the airport and its land may be permanently divested to a private company, as in the major airports in the United Kingdom, including London's three main airports Heathrow, Gatwick and Stansted.

Figure 2.14. Airport ownership and operating models

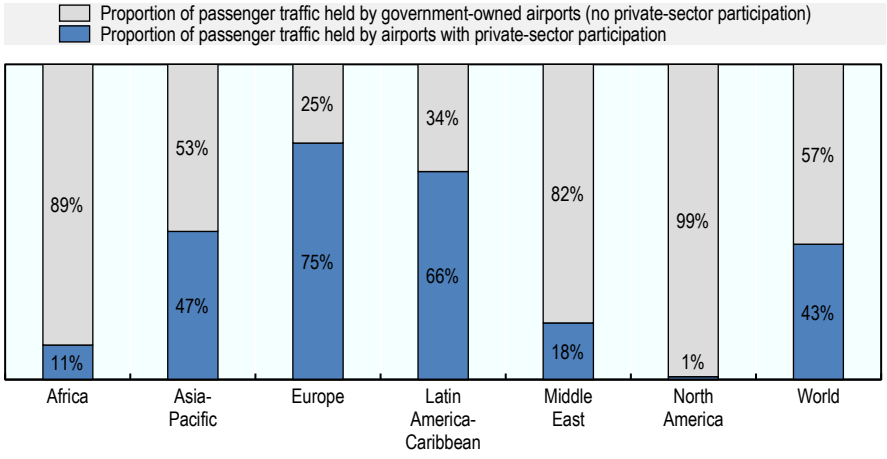


Source: Adapted from (International Air Transport Association and Deloitte, 2018, p. 12[22]).

Despite the current prevalence of fully public airports, there is a growing trend for the private sector to participate in the ownership and operation of large airports, particularly in Europe, Asia-Pacific and Latin America-Caribbean (Airports Council International, 2018, p. 6[24]). In fact, in 2017, 51% of the 100 busiest airports for passenger traffic globally had private-sector participation, and 39% of the top 500 airports were partially or fully privatised (Airports Council International, 2018, p. 5[24]). In the same year, partially or fully privatised airports accounted for 43% of total passenger traffic worldwide, and 75% in Europe, 66% in Latin America, and 47% in Asia-Pacific (Figure 2.15). As governments recognise the ability of the private sector to fund investment in capacity and improve management efficiency, private participation in airport ownership (or at least operations) is likely to keep growing in the future.

The award of airport concessions and privatisations has slowed since 2020, due to the near-collapse of the civil-aviation market during the initial stages of the COVID-19 pandemic, and it may take years to return to previous levels (Graham, 2020, pp. 7-8[25]).

Figure 2.15. Distribution of passenger traffic by ownership structure and region, 2017



Source: (Airports Council International, 2018, p. 6[24]).

The Brazilian airport-ownership and operating model

In Brazil, the Federal Constitution provides that the Federal Executive Branch must operate airports, directly or through concessions.[21] Following international trends of using a state-owned-enterprise (SOE) ownership model, Brazilian airports were historically run by Empresa Brasileira de Infraestrutura Aeroportuária (Infraero), an SOE established in 1973[22] with the purpose of developing, managing and operating civil airports under the Ministry of Infrastructure. In 2011, Infraero managed 66 Brazilian airports, accounting for more than 95% of Brazilian passenger traffic.[23]

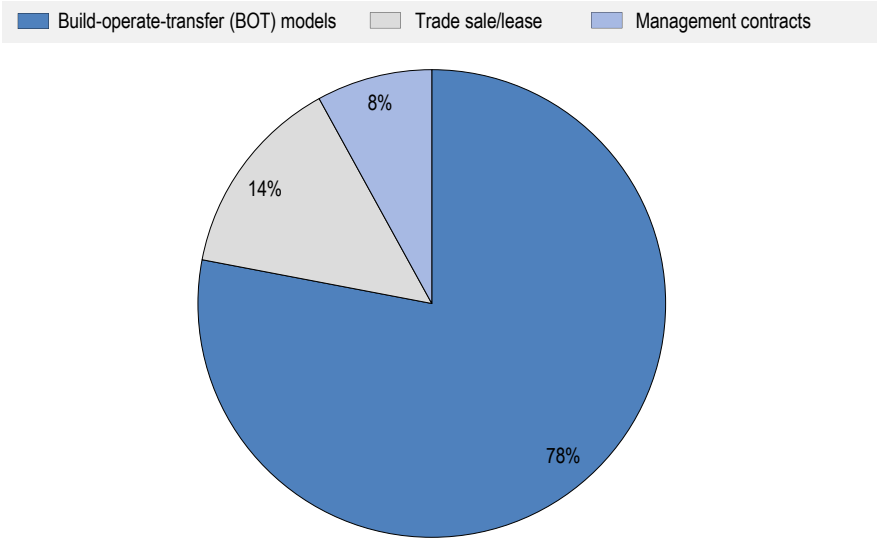
Since 2011, Brazilian airport infrastructure has been undergoing a process to introduce private-sector participation in the provision of airport services. This movement was mainly motivated by the need for large investments in Brazilian airports to cope with a substantial increase in passenger traffic and the limited resources of the Brazilian Government. Indeed, in 2010, many Brazilian airports were already facing operational congestion due to limited capacity of runways, aprons and passenger terminals. These limitations were expected to worsen as Brazil was due to host the FIFA World Cup in 2014 and the Olympic Games in 2016 (McKinsey & Company, 2010[26]).

The process of introducing private capital into airport infrastructure aimed to expand and modernise Brazilian airports and improve service quality to meet international standards, while boosting competition (see Section 2.2.2 Ownership restrictions).

The model chosen by the Brazilian Government was a build-operate-transfer (BOT) concession[24] in which private firms are granted rights to operate an airport for a limited period of time (Box 2.4) and receive the resulting revenue. The concessionaire pays a fee to the concession-granting authority in advance of and during the concession, invests in the airport, provides maintenance services, and collects payments from airport users. The state retains ownership of physical assets, but their use and operation are transferred to the concessionaire. At the end of the contract period, management of the assets reverts back to the government. Under BOT concessions, the risks of financing large capital expenditures are mainly transferred from the government to private investors.

BOT concessions are the most common model for private-capital involvement in airport management. According to industry body Airports Council International (ACI), BOT accounted for 78% of airport privatisations up to 2017, based upon a sample of 172 airports (Figure 2.16).

Figure 2.16. Distribution of major privatisation models worldwide, 2017



Source: (Airports Council International, 2018[24]), based upon a sub-sample of 172 privatised airports globally.

Box 2.4. Duration of concession contracts

Determining the duration of a concession can require trade-offs. Long concessions create appropriate incentives for the concessionaire to make long-term investments including maintenance, at least at the beginning of the concession. Short concessions may not provide sufficient incentives to concessionaires to make investments, while creating the problem of incumbents gaining advantage over other bidders in successive concession tenders. However, short concessions do allow for more frequent competitive tendering, which can facilitate entry and ensure that any benefits from increased competition are reflected more promptly. Since long-term concessions in the Brazilian aviation sector are not subject to renegotiation, short concessions better allow for uncertainty caused by, for example, future price fluctuations to be borne by the concessionaires in a transparent and predictable manner as such changes can be precisely reflected in the bid when these are more frequent. This in general reduces the subsidies or increases the fees gained by the government, since private players can better anticipate uncertainty about market developments, which reduces the need to calculate contingencies, allowing bidders to offer higher prices.

A concession duration is set to allow the recoupment of any investments that the concessionaire is contractually obliged to make, including a sufficient rate of return. Therefore, contract length should be determined and justified based on quantitative financial and economic analysis, and the contract should explicitly establish a minimum level of investment to be made by the operator.

In 2010, the OECD analysed data concerning the durations of concessions involving large infrastructure. It found that in 2008 the average length was around 30 years, though it ranged from 3 years to over 100 years in exceptional cases in the railway and roads sectors. Indeed, the study

indicated that the average duration of concessions was higher in the transport sector, with airport concessions ranging from 27 to 37 years (Araújo and Sutherland, 2010[27]).

According to ACI in 2018, based on a sample of 172 airports, the average length of BOT concessions was 35 years (Airports Council International, 2018[24]). IATA indicates that concession contracts usually last over 30 years, although a longer duration is possible, for instance in Australia (50 years with a 49-year extension option) and Portugal (50 years) (International Air Transport Association and Deloitte, 2018[22]).

The duration of airport concessions in Brazil ranges from 20 to 30 years.

Table 2.4. Airport concession contract length in Brazil

Airport(s)	Contract length (years)	Start of concession
Natal São Gonçalo do Amaranto (NAT)	28	2012
Brasília (BSB)	25	2012
São Paulo Guarulhos (GRU)	20	2012
Campinas Viracopos (VCP)	30	2012
Belo Horizonte Confins (CNF)	30	2014
Rio de Janeiro Galeão (GIG)	25	2014
Florianópolis (FLN)	30	2017
Fortaleza (FOR)	30	2017
Salvador (SSA)	30	2017
Porto Alegre (POA)	25	2017
Northeastern cluster (REC, MCZ, JPA, AJU, CPV and JDO)	30	2019
Midwestern cluster (CGB, OPS, ROO and AFL)	30	2019
Southeastern cluster (VIX and MEA)	30	2019
Southern cluster (CWB, IGU, NVT, LDB, JOI, BFH, PET, URG and BGX)	30	2021
Central cluster (GYN, SLZ, THE, PMW, PNZ and IMP)	30	2021
Northern cluster (MAO, PVH, RBR, CZS, TBT, TFF and BVB)	30	2021

Source: OECD using data from concession contracts, www.gov.br/anac/pt-br/assuntos/concessoes.

SAC states that the different duration of concessions is due to the development of the airport-concession process. Throughout the concession rounds, the government decided to increase the concession period in order to enhance legal certainty that the private sector would recover its invested capital. However, there may have been other considerations, such as the level of investment required in specific airports, given that different durations were awarded for airports during the same concession round.

It is worth noting that concession contracts (more precisely in their Annex 2) clearly state the minimum investments a concessionaire must make throughout the execution of the concession, with objective triggers and deadlines.

Source: (OECD, 2006[28]) (Araújo and Sutherland, 2010[27])

As noted above, the Brazilian airport-concession programme is divided into phases, called rounds, each with its own public auction.

In the two years following the first round of concessions,[25] the second and third concession rounds awarded the operation of five of the largest Brazilian airports,[26] then facing the severest operational congestion, to private operators. In these rounds the government imposed that Infraero retain a 49% share in all winning consortia to ensure the transfer of knowledge from private players to the SOE.

This hybrid governance entailed several drawbacks for private concession holders, since the mandatory participation of Infraero as public shareholder led to more rigid and complex governance. According to the concessionaires, this jeopardised their efficiency and increased their costs. Further, allowing Infraero to hold stakes in multiple airports may bring a risk of competition restriction, since minority shareholding can lead to co-ordination between competitors (Silveira, 2018, p. 552[29]).

In light of these shortcomings, the mandatory 49% Infraero share was removed from the fourth round, held in 2017, for the concessions of four airports.[27] In 2019, Infraero's stakes in the concessionaires of the second and third rounds were included in the scope of both the Investment Partnership Programme (PPI) and the National Privatisation Programme.[28] This means that these stakes will be sold by Infraero to private firms in the near future.

Unlike previous concessions, the fifth round introduced the innovation of awarding airports in clusters (or blocks),[29] instead of individually. Using a cross-subsidy policy, prospective concessionaires were required to bid for groups of airports that included the profitable and unprofitable. This model was also adopted in the sixth round,[30] in 2021, and the same will happen in the seventh round, planned for the second half of 2022.[31]

Although the number of bidders has varied with each rounds, average has been four bidders in each auction (Table 2.5). This level of participation is in line with international experience.[32]

The auctions for airport concession were deemed successful in terms of capital receipts received by the government. Indeed, the winning bidders have generally offered large premiums in addition to the minimum prices established in the public notices, resulting in a total of around BRL 52 billion in nominal values (Table 2.5).

Table 2.5. Total amounts generated by airport-concession auctions, 2011-21

Concession round	Airport(s)	Total amount		Bidders' premium (compared to minimum price)	Number of bidders
		BRL, nominal	BRL, 2021*		
First round (2011)	Natal São Gonçalo do Amaranto (NAT)	170 million	306 million	229%	4
Second round (2012)	Brasília (BSB)	4.5 billion	7.6 billion	674%	8
	São Paulo Guarulhos (GRU)	16.2 billion	27.5 billion	374%	10
	Campinas/Viracopos (VCP)	3.8 billion	6.4 billion	160%	4
Third round (2013)	Belo Horizonte Confins (CNF)	1.8 billion	2.9 billion	66%	3
	Rio de Janeiro Galeão (GIG)	19 billion	30.5 billion	294%	5
Fourth round (2017)	Florianópolis (FLN)	211 million	263 million	58%	3
	Fortaleza (FOR)	1.5 billion	1.8 billion	18%	3
	Salvador (SSA)	1.6 billion	1.9 billion	113%	3
	Porto Alegre (POA)	382 million	476 million	852%	3
Fifth round (2019)	Northeastern cluster (REC, MCZ, JPA, AJU, CPV and JDO)	1.82 billion	2.09 billion	1 010%	5
	Midwestern cluster (CGB, OPS, ROO and AFL)	40.4 million	46.5 million	4 739%	2
	Southeastern cluster (VIX and MEA)	441 million	507 million	830%	4
Sixth round (2021)	Southern cluster (CWB, IGU, NVT, LDB, JOI, BFH, PET, URG and BGX)	2.12 billion	2.12 billion	1 534%	3
	Central cluster (GYN, SLZ, THE, PMW, PNZ and IMP)	754 million	754 million	9 156%	3
	Northern cluster (MAO, PVH, RBR, CZS, TBT, TFF and BVB)	420 million	420 million	777%	2

Note: *BRL in 2021 values. Converted to 2021 using IPCA. The sixth round saw fewer bidders, which may be explained by the COVID-19 pandemic.
Source: OECD, based upon airport-concession auction data, www.gov.br/anac/pt-br/assuntos/concessoes.

Data and stakeholder evidence suggest that concessions have also improved the capacity and quality of airports. Concession contracts establish minimum required investment and efficiency indexes based on quality goals, such as queue time for check-in and security screening, provision of facilities, and restroom cleaning. Since the beginning of the concession process, investments made by concessionaires appear to have reduced capacity constraints and increased passenger traffic (see Section 2.1.1).

Research published in 2019 assessed the airports awarded to private players in the second and third rounds to compare their performance with the airports still managed by Infraero (Castro et al., 2019, p. 120[30]). It concluded that, between 2012 and 2017, airports under concession invested 4.5 times more per passenger and had 10.6 higher gross capital expenditure than airports administrated exclusively by the SOE. In addition, the research showed that airports under private hands have increased by 109% their terminal space, while those still in public hands have increased it by only 31%. The research also highlighted that passenger satisfaction rose in airports where private capital was introduced, which confirms the improvement in the quality of airport services.

Concessions have restructured Brazilian airport infrastructure, modernising and expanding it, while increasing their capacity and quality, bringing it up to international standards. Different players, both national and foreign, have entered the market, once monopolised by a public operator. By the end of 2023, all airports once managed by Infraero will be run by private firms. Nevertheless, the government suggests that Infraero will remain a relevant player in the sector to promote the development of small, financially unsustainable, regional airports, financed by funds from the National Civil Aviation Fund (FNAC; Box 2.5). Furthermore, the Brazilian Government has recently announced that it would use FNAC's budget to develop sponsored public-private partnerships (PPP)[33] for private-sector construction or modernisation, maintenance and operation of small regional airports.

Box 2.5. The National Civil Aviation Fund and the development of regional airports

The National Civil Aviation Fund (FNAC) was created in 2011 by Law No. 12.462/2011, before the first rounds of concession tenders, to receive the airport-concession fees paid by concessionaires. Its main goal is to promote the civil-aviation sector, especially the construction, reform and expansion of regional airports. Indeed, even though concessions have modernised Brazil's major airports, the government believes that the country still requires that airport infrastructure be built in more remote areas of the country, in order to make flights more accessible, and to promote national integration and development.

In 2019, more than 580 airports were registered within ANAC, but only around 120 operated scheduled flights. While this is driven by a complex set of factors, the lack of adequate airport infrastructure is a factor. The government plans to increase the number of airports operating scheduled flights to 200 in 2025, and investment for improving regional airports has been put in place.

In practice, however, most of FNAC's budget has not been used for its main objective, but rather to meet general government expenses, particularly in reaction to severe fiscal restrictions. For instance, between 2012 and 2021, FNAC collected BRL 43.18 billion (in nominal values), but only BRL 14.14 billion (or 32.7%) were used in the civil-aviation sector. Furthermore, in order to reduce the impact of the COVID-19 pandemic, recent changes in the legislation (Law No. 14.034/2020, amending Law No. 12.462/2011) allowed FNAC's budget to be used as loans to airport concessionaires, airlines, and ground-handling service providers, until 31 December 2020, and to support the tourism industry. The government should consider using funds collected by FNAC for their original purpose of improving the civil-aviation sector.

Source: Ministry of Infrastructure. www.gov.br/infraestrutura/pt-br/assuntos/conteudo/execucao-orcamentaria and www.gov.br/infraestrutura/pt-br/assuntos/transporte-aereo/rede-de-aeroportos, CGU, www.portaltransparencia.gov.br/orgaos/62901?ano=2019, and Data of the General Budget of the Union (OGU); SIAFI platform and Siga Brasil.

As noted in the economic overview, the COVID-19 outbreak has had a substantial impact on the civil-aviation sector, greatly reducing expected traffic volumes.[34] Concession contracts pass the risk for events arising from force majeure to the Brazilian Government,[35] meaning ANAC will need to re-establish the original economic and financial equilibrium of such contracts. In this context, predictability is paramount for economic recovery, especially in case of long-term contracts.

2.2.2. Airport concession auctions

The economic consensus is that auctions are the most effective means of awarding concessions (OECD, 2006, p. 8[28]). In Brazil, any concession must be awarded through a competitive bidding process.[36] The design of the auctions is therefore critical for an effective concession.

In addition to common requirements provided in horizontal legislation[37] (see Chapter 4), two relevant potential competition limitations demand further attention: 1) technical-experience requirements, and 2) ownership restrictions.[38]

Technical-experience requirements

Description of the obstacle and policy makers' objective

The airport concession tender notices require the bidders to demonstrate technical experience to participate in the auction (Table 2.6). This aims to guarantee that the winning bidder, either independently or as part of a consortium, has previous experience of operating airports, and is technically qualified to meet the concession's goals.

Table 2.6. Technical experience requirements

Concession round	Airport(s)	Minimum required experience as airport operator, passenger numbers handled	Passenger numbers handled by airport(s) in year before tender notice	Technical operator's minimum stake in consortium
Second round	Brasília (BSB)	5 years' experience operating an airport handling 5 million passengers for at least 1 year in the previous 10 years	14.4 million	10%
	São Paulo Guarulhos (GRU)		25.9 million	
	Campinas Viracopos (VCP)		5 million	
Third round	Belo Horizonte Confins (CNF)	5 years' experience operating an airport handling 12 million passengers for at least 1 year in the previous 5 years	10.3 million	25%
	Rio de Janeiro Galeão (GIG)	5 years' experience operating an airport handling 22 million passengers for at least 1 year in the previous 5 years	16.9 million	
Fourth round	Florianópolis (FLN)	5 years' experience operating an airport handling 4 million passengers for at least 1 year in the previous 5 years	3.7 million	15%
	Fortaleza (FOR)	5 years' experience operating an airport handling 7 million passengers for at least 1 year in the previous 5 years	5.8 million	
	Salvador (SSA)	5 years' experience operating an airport handling 9 million passengers for at least 1 year in the previous 5 years	7.5 million	
	Porto Alegre (POA)		7.7 million	

Concession round	Airport(s)	Minimum required experience as airport operator, passenger numbers handled	Passenger numbers handled by airport(s) in year before tender notice	Technical operator's minimum stake in consortium
Fifth round	Northeastern cluster (REC, MCZ, JPA, AJU, CPV, JDO)	5 years' experience operating an airport handling 7 million passengers for at least 1 year in the previous 5 years	13.2 million	
	Midwestern cluster (CGB, OPS, ROO AFL)	5 years' experience operating an airport handling 3 million passengers for at least 1 year in the previous 5 years	3.3 million	
	Southeastern cluster (VIX and MEA)		3.2 million	
Sixth round	Southern cluster (CWB, IGU, NVT, LDB, JOI, BFH, PET, URG, BGX)	1 year's experience operating an airport handling 5 million passengers for at least 1 year in the previous 5 years	12.4 million	
	Central cluster (GYN, SLZ, THE, PMW, PNZ IMP)	1 year's experience operating an airport handling 1 million passengers for at least 1 year in the previous 5 years	7.3 million	
	Northern cluster (MAO, PVH, RBR, CZS, TBT, TFF, BVB)		4.6 million	

Source: OECD, from data from tender notices for airport concessions and ANAC, www.gov.br/anac/pt-br/assuntos/dados-e-estatisticas/mercado-de-transporte-aereo/consulta-interativa.

Harm to competition

Although the technical experience requirements may limit the participation of certain participants in the auction, they may be justified in light of the complexity of such contracts, which demand technical knowledge, in order to mitigate potential costs for the government and users.

It is worth mentioning, however, that tender notices have varied from round to round, and the technical requirements do not always seem proportionate to the contract being tendered. For example, the second round required bidders to prove 5 years' experience as airport operator and having handled at least 5 million passengers for at least 1 year in the previous 10 years.[39] This condition was required for the three concerned airports (Brasília, São Paulo Guarulhos and Campinas Viracopos), despite their large differences and levels of passenger traffic (Table 2.6).

From the third round, notices introduced specific experience conditions to participate in the bidding, more proportionate to the size of the airport (or group of airports) being put out to tender. Over the years, the requirements seem to have been relaxed (Table 2.6) and entry barriers reduced. For instance, the 2017 auction for Salvador (SSA), which had handled around 7.5 million passengers in the year prior to the tender notice's publication, required previous experience operating an airport handling 9 million passengers at least 1 year in the previous 5. In 2020, when the Central cluster was auctioned, bidders had to demonstrate they had previously operated an airport handling 1 million passengers. The traffic at all airports in that cluster in the year before the tender notice's release was 7.3 million passengers, similar to the traffic Salvador registered when it was tendered.

For foreign companies, technical-experience requirements made it necessary to bid as part of a consortium in the initial tender rounds. Because Infraero was a monopolist before the airport concession programme, no other Brazilian firm was able to comply with the technical conditions (Steer Davies Gleave, 2016, p. 43[23]).[40]

The rules require that the firm with demonstrated experience as an airport operator holds a minimum stake in any consortium.[41] This was intended to enhance an operator's commitment to the management of an airport, ensuring that its know-how would be effectively applied in the execution of the concession.

The sixth round introduced a new way of demonstrating technical qualifications. Rather than having previous experience, a bidder could submit a commitment to hire a technical provider that complied with the minimum technical experience requirement.[42] In order to prevent co-ordination among competitors, a technical provider was forbidden from participating twice in the same auction lot, even as part of a different consortium, and could not provide assistance to another bidder. The provision as a whole reduced entry barriers to potential bidders, allowing more players to take part in the auction, such as investment and pension funds. This was especially relevant due to the impact of the COVID-19 pandemic on the civil-aviation sector, which could have prevented airport operators from participating in the bidding procedure.

Recommendations

The OECD has two recommendations.

1. Brazilian authorities should implement a structured approach to determining the technical-experience requirements for airport-concession auctions. These requirements should be at the lowest possible levels and should be based on objective, proportionate and technical criteria, such as the size and characteristics of the airport.
2. The possibility of alternative ways to demonstrate technical-experience requirements – such as the submission of a commitment to hire a technical provider complying with the minimum technical-experience requirement – should be maintained.

Ownership restrictions

Another set of restrictions provided in airport concessions relates to ownership and aims to limit vertical and horizontal integration.

Restrictions on vertical integration

Description of the obstacle and policy makers' objective

Brazilian tender notices for airport concessions contain provisions that aim to prevent vertical integration between airport operators and airlines, following international practices, such as those in use in Australia and Mexico.[43]

Airlines and their related companies[44] were not allowed to participate in airport auctions, except as part of a consortium, and only with a reduced stake and no participation in corporate governance. Concession rounds have established different maximum stakes for airlines in consortia: 10% (first round); 2% (second round); 4% (third round); and again 2% (fourth to sixth rounds).

Since the third concession round, firms with ties to airlines[45] are allowed to take part in a consortium with a stake higher than the maximum established by the general rule, but only if they are also the company meeting the technical-experience requirement. Unlike these linked companies, an airline itself cannot be part of a consortium.

Furthermore, according to concession contracts from the first and second rounds, transactions that involve an increase of airlines' stakes in a concessionaire during the first five years of a concession are subject to approval by ANAC.[46] Since the third round, the concession contract expressly states that ANAC approval of such transactions is required at all times.

Additionally, concessionaire shareholders are also prevented from holding, either directly or indirectly, voting capital of airlines higher than the maximum stake provided in the general rule (10% in the first round; 2% in the second, fourth, fifth and sixth rounds; and 4% in the third round). Since the fourth round, a new

provision in the tender notice states that after the first five years of a concession the participation of the concessionaire's shareholders in the capital of an airline will be subject to prior approval by ANAC.

Although the participation of airlines in the auctions has been restricted, concession contracts do allow the transfer of shares between airport concessionaires (and their shareholders) and airlines during the execution of the concession.

Harm to competition

Research has noted that airlines may have incentives to restrict competing firms' access to an airport, especially at hub airports. Allowing vertical integration between airlines and airport operators could create a so-called "fortress effect", through which an airline could dominate an airport and increase barriers for competing airlines to enter the market or to increase their market share. This could reduce possible expansion of routes and frequencies, as well as increase prices for consumers (Pereira Neto et al., 2016, p. 14[31]) (Kuchinke and Sickmann, 2007[32]).

The United States Federal Aviation Administration (FAA) highlighted that providing access to new entrants and to carriers expanding their services is paramount to maintaining airline competition. The FAA has also indicated that fares in local markets at connecting hubs dominated by one major air carrier are considerably higher than comparable markets where there is no dominant airline at a hub airport (Federal Aviation Administration/Office of the Secretary of Transportation Task Force, 1999, p. 30[33]).

On the other hand, it should be mentioned that in some cases vertical integration between airports and airlines may lead to positive efficiency effects, such as the removal of double-marginalisation, co-ordination of optimal production and inventory in supply chains (Oum and Fu, 2008[34]).

In Brazil, the transfer of shares between airport concessionaires and airlines are subject to prior approval by ANAC, which seems justified in order to prevent any vertical integration that could harm competition at the airport.

Recommendation

The OECD recommends that the Brazilian authorities ensure that airport operators and airlines are not vertically integrated, either in concession contracts already in force or in future concessions, unless justified by significant proven economic efficiencies.

Restrictions on horizontal integration

Description of the obstacle and policy makers' objective

The creation of competition between airports has been one of the main reasons highlighted by the Brazilian Government to support airport concessions. With airports around the world are increasingly competing with each other (Box 2.6), international experience has shown the rationale for ensuring that different airports are operated by competing firms as opposed to horizontally integrated firms (Box 2.7).

Box 2.6. Competition between airports

Since the 1980s, economists have been challenging the idea that airports are natural monopolies not subject to competitive forces, but rather largely passive service providers that could do little to increase demand for their services or divert demand from other airports (Tretheway and Kincaid, 2005, p. 1[35]). This shift in the way airports have been perceived was motivated in large part by the deregulation of the aviation industry, which has led to airlines being less tied to specific airports and passengers having with more choice. Unlike in the past, airports now compete with each other for passengers and airlines, resulting in more commercially focused airports and a more dynamic and competitive airport market (Copenhagen Economics, 2012, p. 16[36]).

Airports are two-sided business engaged in a commercial relationship with both airlines and passengers. They seek to attract both customers when defining services and rates. Furthermore, passengers and airlines' decisions are interconnected, since air carriers seek to operate in airports that attract the greatest number of potential passengers, while travellers choose airports offering the most convenient and cheapest flights (Pereira Neto et al., 2016, p. 10[31]).

In 2012, one study based on empirical data from the European aviation market showed that airports of all sizes had been facing more competition, and as a result their individual market power had decreased (Copenhagen Economics, 2012, p. 80[36]). The report indicated that 96% of all European airports were actively marketing their airports to air carriers. In addition, many airports had responded to the increased competition by boosting quality and reducing prices. In 2017, these trends were confirmed by a study of the European aviation market that indicated competition between airports was both widespread and on the increase (Oxera, 2017, p. 74[37]).

Therefore, there seems to be potential or effective competition for different services and market segments, which vary on a case-by-case basis, including:

- catchment areas between airports serving a shared local market
- cargo traffic
- connecting passengers between airport hubs
- airlines' operating bases
- destinations
- service facilities, such as maintenance
- non-aeronautical services, such as retail and car parking
- means of transportation, such as high-speed trains.

Source: (Forsyth, Gillen and Niemeier, 2010[38]) (Tretheway and Kincaid, 2005[35]) (Copenhagen Economics, 2012[36]) (Pereira Neto et al., 2016[31])

Box 2.7. International experiences in restricting horizontal concentration of airports

United Kingdom

In the mid-1980s, the United Kingdom began a process of full divestiture of seven state-owned airports, including London Heathrow, which were managed by British Airports Authority (BAA). The UK Government privatised BAA as a single entity with all of its existing airports in 1986, with the aim of providing adequate airport capacity to meet expected demand and to support airline competition. By 2005, the seven airports operated by BAA accounted for over 60% of all British passenger numbers, including 90% of passengers in south-east England and 84% of Scottish passengers. In 2009, the UK Competition Commission (now the Competition and Markets Authority, CMA) concluded a market investigation into BAA and found that the common ownership of airports in south-east England and lowland Scotland had produced anti-competitive effects by preventing rivalry between potentially competing airports. This reduced incentives for investment in infrastructure capacity, better services and lower prices. The authority imposed a package of remedies, including the divestiture of London Gatwick and London Stansted airports (to different purchasers), as well as one of Edinburgh or Glasgow airports (Competition Commission, 2009[39]). In 2016, the CMA assessed the initial impact of the Competition Commission's interventions, and strong evidence was found to indicate positive changes at divested airports, partially as a result of having separated ownership of airports. For example, these airports increased the passenger traffic beyond other UK airports, which has improved connectivity and choices for passengers. Divested airports also enhanced the efficiency of their capital investment in facilities and services, improving their operational efficiency over time. In addition, service quality to passengers and airlines improved, including at London Heathrow, which implemented new commercial strategies after the airport's divestiture. Moreover, divested airports are now competing individually to attract airlines and passengers rather than acting as part of the BAA group. Further, the introduction of competition has led to more efficient use of existing capacity, especially because airport tariffs have been restructured in order to attract additional flights in off-peak hours (Competition and Markets Authority, 2016[40]).

Australia

In Australia, between 1997 and 2003, the operation of 22 federal airports managed by the Federal Airports Corporation (FAC) – including the country's largest airports, Sydney, Melbourne, Brisbane and Perth – was privatised using long-term leases in a competitive tender process (Commonwealth of Australia, 2009[41]). The Airports Act 1996 limits cross ownership of major airports (Sydney and Melbourne; Sydney and Brisbane; Sydney and Perth) to 15%, which allowed effective competition among these airports (Australian Productivity Commission, 2011[42]). Since 2002, these airports are subject to a light-handed regulation and are required to provide the Australian Competition and Consumer Commission (ACCC) with annual financial statements in relation to the provision of aeronautical services and non-aeronautical services, including car park. Annually, ACCC monitors the market to assess whether airports are pricing, investing and operating efficiently, in order to prevent abusive behaviour (Competition Commission, 2009[39]). In 2020, the Australian Competition and Consumer Commission (ACCC) reported that the monitored airports had made significant investments between 2018 and 2019, and that they maintained a rating of "good" for their overall quality of services in the period (Australian Competition and Consumer Commission, 2020[43]).

Mexico

Mexico began a process of airport privatisation in 1998. The 35 major Mexican airports, then managed by an SOE, Aeropuertos y Servicios Auxiliares (ASA), were split into four clusters. One company was incorporated to operate each cluster, and 50-year concessions were awarded. Firstly, between 1998

and 2000, a 15% stake in each operating company was sold to strategic private partners, through an auction. Later, in the 2000s, the remaining 85% was sold on the stock market. In this second stage, the Mexican Government imposed restrictions on cross-ownership, and strategic partners were prohibited from holding a stake in any other airport operator (Comision Federal de Competencia, 2007[44]). Mexico City International Airport has not been fully privatised and remains managed by an SOE (El Economista, 2020[45]).

In 2007, the then Mexican competition authority Comisión Federal de Competencia (CFC) conducted a market study of the Mexican airports sector. It proposed several recommendations in order to increase competition where possible and to make regulation better able to mitigate the exercise of market power. Among other measures, CFC recommended that the government progressively sell its share in Mexico City's other airport operators. It suggested that these airports should be managed by different players, which could compete for the regional market, and so increase economic efficiency, and improve quality and lower prices for users (Comision Federal de Competencia, 2007[44]).

In 2011, CFC prohibited the operator of Cancun airport from participating in the public tender for Riviera Maya airport, a greenfield project in the same region. The CFC aimed to prevent market concentration and promote competition between both airports, increasing service quality and reducing prices (Expansión, 2011[46]).

Most efficiency gains in airport privatisation stem not from the tender itself but rather from the permanent exposure of potential concessionaires to competition. Besides specific cases such as natural monopolies, introducing in-the-market competition in the operation of the service is more important than ensuring competition for the market (Bronchi, 2003[47]) (OECD, 2019[48]).

Brazil has imposed certain restrictions on airport cross-ownership. The second concession round established that a single player (and its related companies, individually or in a consortium[47]) could bid for all three airports, but could only be awarded one of them. The third concession round also restricted a firm to one airport and stated that shareholders of airports awarded concessions in the second round and their related companies[48] could not participate in the auction (except in a consortium, with a maximum stake of 15% and without participation in corporate governance). Finally, the fourth round provided that a same firm or consortium could bid for all airports being auctioned, but could only be awarded one airport in each region.

These restrictions were designed in light of qualitative and quantitative evidence supporting the existence of potential or actual competition among the airports being auctioned, especially for connecting passengers in hubs and, in some cases, for cargo traffic. Furthermore, the government intended to encourage the entry of a greater number of players into the Brazilian market, aiming to implement yardstick competition in regard to best practices for airport management.[49] In the fourth round, the tender notice did not establish any restriction for the concessionaire of Natal São Gonçalo do Amaranto airport and its related companies to bid for the airports of the Northeast region (Salvador and Fortaleza), although there seemed to be potential competition among these airports (Secretaria de Aviação Civil/Presidência da República, 2015[49]). In practice, however, the airports were awarded to different firms.

In the second round, the concession contract prevented any share transfer involving the shareholders of other concessionaires[50] and their related companies[51] in the first five years of concession. After that period, any transactions were subject to prior approval by ANAC. The third and fourth rounds loosened the cross-ownership prohibition. In the first five years of concession, any share transfer less than 15% related to shareholders of other concessionaires[52] and their related companies[53] were permitted, as long as ANAC approved. After the fifth year, ANAC only needs to authorise transactions involving share transfers higher than 15%.

Harm to competition

Although the concession contracts of the second, third and fourth rounds allowed transfer of shares between the concessionaires – which were awarded the airport in those rounds – and the shareholders and their related companies – which won the concession in other airports – during the execution of the concession, some of these transactions are subject to prior approval by ANAC.[54] This seems justified in order to ensure that the ownership restrictions imposed for the auction are not bypassed and so guarantee competition between airport operators.

Moreover, the fifth and sixth concession rounds did not include any cross-ownership restrictions, either among the clusters of each round or among a cluster and the airports awarded in the previous rounds. In theory, one could argue that there could be potential or actual competition among some of the airports. For instance, some airports from the Northeastern cluster (sixth round) could compete with Natal São Gonçalo do Amaranto (first round), Fortaleza or Salvador (fourth round), and some airports from the Southern cluster (sixth round) could compete with Florianópolis or Porto Alegre (fourth round). Nevertheless, according to ANAC, these rounds had a different rationale, namely awarding a set of airports together in order to favour cross-subsidisation between profitable and unprofitable ones. In the Central cluster, the airports were even spread over more than one region. Also, the airport market was already well diversified, with different players operating in the country. Although prohibiting cross-ownership could have been defensible from a competition point of view, the policy aimed to ensure the effective implementation of the concession programme, assuming that a competitive market already existed.

Additionally, there has been recent debate about multi-airport systems or cities served by more than one airport, for which the potential for competition between airports could be even clearer. For example, although the city of Belo Horizonte is served by two airports, Belo Horizonte Confins (CNF) and Belo Horizonte Pampulha (BHZ), the latter is currently restricted to general aviation and regional scheduled air services.[55] Pampulha was delegated to the State of Minas Gerais, which conducted an auction in 2021 to award a concession to a private operator. There was no restriction on the participation of Belo Horizonte Confins's concessionaire, and a shareholder of that operator won the bid. It is not clear whether the limitation to the operations of Belo Horizonte Pampulha will be maintained in the future. In any case, this outcome seems to be contrary to previous Brazilian tenders, as well as to the economic literature and international best practices on competition between airports. It could be argued, however, that under certain circumstances, especially in cases of low demand, introducing competition between airports may compromise the efficiency of a multi-airport system that may justify co-ordinated management.

The seventh concession round will auction Congonhas (CGH) in São Paulo, a city also served by two airports operated by private firms, Guarulhos (GRU) and Viracopos (VCP). Although in the upcoming public tender Congonhas will be part of a cluster with ten other airports across the country, the government has not restricted the participation of concessionaires of airports in São Paulo (and their related companies). Doing so would ensure that all airports in São Paulo are managed by different players, enhancing competition in several market segments.[56]

A discussion about the city of Rio de Janeiro's multi-airport system, a city currently served by two airports, arose during the design the seventh round of concessions. Galeão (GIG) is already run by a private firm, while the other Santos Dumont (SDU) is managed by Infraero and was set to be awarded to a private operator through a concession contract in the seventh round. Certain stakeholders have argued that introducing competition between both airports would be economically inefficient as there would be insufficient demand for both. In the meantime, financial difficulties led the concessionaire of Galeão to return the airport before the end of the contract term. Finally, in in early 2022, the government decided to withdraw Santos Dumont from the seventh round, and both airports are now set to be tendered together in 2023.

This outcome again appears to go against the Brazilian Government's policy in past concessions of promoting competition between airports. Despite other issues beyond competition possibly arising when

designing public policy, such as the availability of a multi-airport system, as well as socio-economic development and urban-planning issues, the potential benefits from a competitive environment for airports should not be neglected. In the absence of ownership restrictions in the oncoming auctions, competing airports may end up being managed by the same player, which is likely to harm competition.

Further, as stated above, Infraero's stakes in the concessionaires of the second and third concession rounds will be sold to private firms in the near future. If there are no cross-ownership restrictions when designing the sale, the public policy on competition between airports advocated by the government in the past may be compromised. There is a risk that a single firm acquires Infraero's shares in all concessionaires or a cross-ownership arrangement between concessionaires of the second and third rounds.

Recommendation

The OECD recommends that the Brazilian authorities ensure that one entity or related entities is not allowed to control competing airports, either in already awarded or future concessions. Minority holdings should only be accepted in exceptional cases and should be barred from participation in corporate governance.

2.2.3. Airport concession contracts

Description of the obstacle and policy makers' objective

As noted above, concession tenders have evolved since their inception. Many of these changes were positive, the result of incorporating lessons learned from earlier rounds. Nevertheless, successive concession contracts with different clauses may affect the sector's competitive environment.

For instance, the rules for defining how the concessionaire must pay the due fees have changed in recent rounds (Box 2.8). The first concession rounds were designed when the Brazilian economy was forecast to grow steadily alongside increasing demand for air transport, which led to extremely high bids in the initial rounds[57] (Table 2.5). Since 2014, however, the Brazilian economy has fallen into deep recession, worsened by the COVID-19 pandemic. This has deeply impacted upon airport operators, with certain concessionaires facing serious difficulties to pay concession fees.

As the original agreements stated that concessionaires were responsible in cases of demand-side shock – unless in cases of force majeure, such as the COVID-19 pandemic – the concession model has played a role in the current situation. In fact, three airport operators have recently requested that a concession contract be rebid (*relicitação*), based upon Law No. 13.448/2017. In practice, this has seen the concessionaire return the airport before the contract term, and a public tender awarded to a new private player with a revised concession contract in line with the most recent concession rounds.

The government seems to recognise these shortcomings, and some relevant changes in the concession model were implemented in later rounds to avoid the initial pitfalls.

Box 2.8. Airport-concession fees

Concession fees for the right to operate an airport or a set of airports are paid by the concessionaire to the National Civil Aviation Fund (FNAC), acting for the Federal Government.

Airport-concession auctions award a contract to the bidder that offers the highest amount above the minimum price defined in the tender notices. How the winner pays this amount has varied across different rounds, however.

In the first three rounds, the fixed fees – minimum price, plus bidders' premium – were divided by the number of years of the concession, with the concessionaire liable each year for the corresponding fraction, adjusted for inflation. This model has proved to be a risk for airports' investment and operation due to the substantial impact of the fixed fees on the concessionaires' budget. This was made worse by the collapse of the Brazilian economy in the mid-2010s, which saw forecasts of traffic growth and the accompanying revenue fail to materialise. In 2017, in view of concessionaires' precarious financial situations, and with the aim of ensuring the continuity of contracts and the provision of their relevant services, Law No. 13.499/2017 was passed to allow the rescheduling of payments by concessionaires of the first three rounds, based upon maintaining the net value of the fixed fees at the time of the auctions.

In the fourth round, the winning bidder was required to pay 25% of the minimum price plus 100% of the bidder's premium upon signature of the concession contract. The remaining 75% of the minimum price must be paid annually, but only from the sixth year of the concession, in a staggered and increasing fashion, until the tenth year, when the instalments become equal until the end of the contract. The grace period granted to concessionaires aimed to alleviate the financial burden of the largest investments being required in the first years of a concession.

Finally, from the fifth round on, the fixed fees were abolished and the winning bidder was required to pay 100% of the minimum price and the premium upon signature of the concession contract. As a result, the concessionaire did not have to pay a substantial amount at the same time as capital expenditure.

In addition to auction-related fees, concessionaires (except the first-round winner) must pay a variable annual fee, comprising a percentage of their revenue. This also evolved as the rounds progressed to establish the most suitable model with the best incentives. In the second, third and fourth rounds, the variable fee was due from the first year of concession. The percentage was the same for the entire concession period, while each airport had a different percentage: 10% for São Paulo Guarulhos; 5% for Campinas Viracopos; 2% for Brasília (second round); 5% for Rio de Janeiro Galeão and Belo Horizonte Confins (third round); and 5% for Florianópolis, Fortaleza, Salvador and Porto Alegre (fourth round).

From the fifth round on, a grace period of five years was established, and the percentage of revenues was staggered, increasing until the tenth year of concession, when it is fixed. The percentage also varies with each cluster of airports (from 0.04% to 8.16%), in light of economic viability.

Source: OECD, based upon airport concession contracts and (Machado et al., 2019[50])

Airport-tariff regulation has also varied substantially across concession rounds, from price-cap regulation in the first tender rounds to revenue-cap and light-touch regulations in the most recent (see section 2.3). Since airport tariffs are a relevant source of concessionaires' revenue, the regulatory approach has an impact on how firms can run their businesses. Some regimes are more flexible than others, allowing for more efficient management.

Concessionaires from the second and third rounds were also forced to have Infraero as a shareholder, which led to more complex governance and possibly to reduced efficiency according to stakeholders. Further, these contracts provided for certain obligatory Infraero engineering works, which had not been completed by the SOE. Concessionaires remain in discussions with ANAC about the issue.

The level of required investment is another issue. The first concession rounds – unlike later rounds – did not provide for objective triggers and deadlines for the realisation of mandatory investments resulting in an unbalanced relationship between investment and demand. As ensuring service quality is one of the reasons for investments and infrastructure investments are subject to depreciation and increased fixed costs, the results of any investments, such as infrastructure and new machines, should ideally be tied to their subsequent effective use to avoid idle capacity and unnecessary costs. Indeed, according to IATA, predetermined, fixed and overly rigid capital-investment plans do not meet demand for the right infrastructure at the right pace and price. It recommends that investments are linked to traffic volumes, not financial years (International Air Transport Association, 2020[51]).

This is particularly relevant for the early concession tenders, since pre-auction forecasts of traffic growth failed to materialise due to the 2014 economic crisis in Brazil, which was then aggravated by the COVID-19 pandemic. Despite the fact that these contracts have been amended by ANAC in recent years, establishing triggers related to increases in demand, certain investments remain that must be made before the end of the concession, without any link to demand. Further, whenever these changes are made to the contract, it is necessary to ensure the re-establishment of the original economic and financial balance of the concession contract in favour of the granting authority (Machado et al., 2019, p. 33[50]).

The most recent concession contracts do provide that mandatory investments be associated to demand triggers. The rationale is to allow concessionaires to determine the necessary investments for maintaining minimum quality standards related to facilities' capacity, such as aircraft movements on the runway and apron, and passenger terminal services such as check-in, security, immigration, baggage reclaim, and the number of gates.

Recently, ANAC has been working to harmonise concession contracts, either through contract amendments or through broader regulation. However, these changes focus more on ANAC's monitoring activities, rather than on substantial concessionaire duties.

Harm to competition

The differences between concession contracts across rounds, albeit justifiable, can subject concessionaires to distinct regulatory regimes, even for similar airports, which may compromise the level playing field. In practice, this may reflect different incentives and disincentives of each specific concession model used in Brazil – say, concession fees, tariff regulation and mandatory investments – which may influence the total costs and revenue sources faced by each concessionaire. This may affect the competitive environment for airports, running counter to the Brazilian Government's goal of creating a competitive airport market.

Ideally, all players operating in the market should be subject to the same rules to maintain a level playing field. Providing some stakeholders with advantageous tools to manage their concession may raise costs and disadvantage for others. For instance, setting distinct tariff regulation for certain concessionaires allows them to use a more flexible approach, enhancing the potential efficiency of their operations. This puts those whose concession term prevents flexible tariff setting at a competitive disadvantage, as they will not able to set tariffs in a more efficient fashion, such as implementing peak-load tariffs.

The anticompetitive impact may be more severe in multi-airport systems, such as that of the city of São Paulo, where the potential for competition between airports is clearer, as they serve a shared local market and may compete in the same catchment area, in addition to other market segments (such as connecting passengers and cargo). That city currently has two airports[58] subject to different rules of, say, tariff

regulation as one is managed by a private operator and the other by Infraero. In the near future, the airport run by the SOE will be awarded to a private player, which has the potential to further increase competition between both airports. This might leave the previous concessionaire in a disadvantaged position compared to the recent one.

Recommendation

The OECD recommends that the Brazilian authorities consider harmonising all airport-concession models, so as to ensure that all players are subject to the same regulatory environment, especially the tariff-regulation regime. Ideally, improvements implemented in the most recent concession rounds should be retrospectively applied to previous concession contracts. Certain of these changes may be difficult in practice since they may require contractual amendments and re-balancing to take into account any amendments' economic-financial impact.

2.3. Airport revenue

In general, airports' revenue structure is comprised of two sources: 1) charges for aeronautical services, known as airport tariffs; and 2) revenue from non-aeronautical sources. Aeronautical services include access to runways for take-off and landing, and to aircraft parking sites and taxiways, safety and ground handling services, including passenger check-in, arrivals and departures, and ramp services, such as passenger and baggage handling, fuelling, aircraft maintenance, water cartage, and cabin cleaning. Non-aeronautical services comprise concessions and other commercial services, such as supply of food, beverages and retail in terminal buildings, car parks, airport transfer services, office rentals, and other activities in airport buildings and on airport land.[59]

The regulation of airport tariffs varies substantially across jurisdictions and largely depends on an airport's ownership and operating model. In countries where airports are owned and managed by the government, tariffs are often either unregulated or directly set by the government. There are exceptions to this rule, including Ireland and the Netherlands, where government-owned airports are regulated by independent authorities. In countries where airports are privately owned or managed by a private company, airport charges are almost always regulated by an independent authority, since airports are assumed to possess market power in aeronautical services (Czerny, 2009[52]). In Brazil, airport tariffs are regulated in both privately managed (the vast majority) and SOE-managed airports by ANAC, an independent authority.

There are two main methods for regulating airport tariffs which differ as to the incentives they provide to regulated agents to minimise their costs (Marques and Brochado, 2008[53]):

- The first is rate-of-return regulation, where the regulated tariff is variable and conditional on observed costs and demand, enabling the airport operator to earn a fixed rate of return on its investment
- The second corresponds to incentive regulation, such as price caps or revenue caps. In that case, the maximum tariff or revenue is fixed for an entire regulatory period (usually three to eight years), taking into consideration expected costs and productivity gains over that period.

The large majority of forms of airport regulation are a variation of these two methods, with the exception of certain jurisdictions that apply a more "light-handed" regulatory approach.

Regulatory methods can also be classified as single till or dual till, depending on whether aeronautical services and commercial activities are treated as a single or separate businesses (Reynolds et al., 2018[54]) (Varsamos, 2016[55]). Single-till regulation consists of setting a tariff or rate of return for aeronautical

services that covers all agglomerated airport costs, deducted from the revenue of commercial activities. Under such an approach, aeronautical fees are generally lower, as they are cross-subsidised by commercial activities. Dual-till regulation sees the aeronautical charges fully cover the airport's infrastructure costs, without taking commercial services into account. Under the dual-till approach, authorities can choose to regulate only aeronautical services or both separately. Certain jurisdictions have adopted a hybrid-till approach in which a portion of non-aeronautical revenue covers aeronautical costs.

Box 2.9. International approaches to regulating airport tariffs

At present, the most common regulatory method appears to be price-cap regulation. While many airports apply a single-till price-cap, including London Heathrow, a dual-till approach is increasingly common in large airports where commercial services play an important role, including in Paris, Brussels, Copenhagen, Vienna, Rome, and Mexican airports. India, Singapore and Portugal apply a hybrid approach, whereby portions of commercial revenues are allocated to the regulatory till. Rate-of-return regulation is becoming less common as it has not tended to provide adequate incentives for cost efficiency, though it is still in use in countries including Switzerland, the Netherlands and Greece. Light-handed regulation applies mostly in several German cities, as well as in New Zealand. In Australia, the largest airports are subject to price monitoring, while the others are free of any control. Finally, there is no economic regulation at all in several countries where airports are owned and managed by the government, including Sweden and Finland. In the United States, although the FAA can regulate prices of airports, this power has rarely been exercised, since many airports are owned and managed by municipal governments through not-for-profit entities, and are considered to lack incentives to set unfair prices.

Source: (Reynolds et al., 2018[54]) (Varsamos, 2016[55]) (Oum and Fu, 2008[34]).

In general, Brazil has adopted a dual-till regulatory model, with ANAC regulating airport tariffs, both in airports under concession and those operated by Infraero (see section 2.3.1).[60] The adoption of a dual-till approach was justified since the main reason for airport concessions was the need for large investments in a time of fiscal restrictions on public investments (Resende and Caldeira, 2020[56]), and dual till tends to create better incentives for an operator to invest in airport infrastructure (Oum and Fu, 2008[34]).

In Brazil, non-aeronautical charges are not subject to any form of economic regulation, as prices are directly negotiated between airport operators and private firms providing commercial services in and around the airport.

2.3.1. Aeronautical revenue

Background

Airport tariffs cover services and infrastructure related to aircraft-movement areas and passenger-processing areas. Although airport tariffs may vary from one airport to another, in general they can be classified into four broad categories: 1) landing tariffs; 2) passenger-processing tariffs; 3) parking charges; and 4) other tariffs (Varsamos, 2016[55]).

At present, there are six different airport tariffs in Brazil, concerning different aeronautical services provided by airport operators[61] to passengers (boarding and connection tariffs), to airlines (landing and parking tariffs), and to other companies (storage and handling tariffs), the last related to cargo transport. Airport operators are prevented from creating their own airport tariffs.[62]

There are currently four different regimes for the economic regulation of airport tariffs in Brazil: 1) price-cap regulation (used in the first three airport-concession rounds); 2) price-cap regulation with possibility of tariff management (fourth concession round); 3) revenue-cap regulation (fifth and sixth concession rounds, and by Infraero for large and mid-sized airports and scheduled and non-scheduled air services, except air taxis); and 4) light-handed regulation (fifth and sixth concession rounds, and by Infraero for small airports, air taxis and general aviation). Each of these approaches offers more or less flexibility to the airport operator (see Table 2.7).

Table 2.7. Regimes for airport-tariff regulation in Brazil

Airport-concession round	Regulation regime	Flexibility	Parameters for setting tariffs	User consultation	ANAC intervention
First round	Price cap	Charge tariffs below the price-cap	Objective criteria, previously disclosed (if tariffs are below the price-cap)	N/A	N/A
Second round					
Third round					
Fourth round		Tariff management: reduce or increase tariffs up to 100% of the price-cap	Objective and non-discriminatory criteria	In case of raising tariffs beyond the price-cap	ANAC may refuse the revision of tariffs if it considers an airport operator's justification for the increase does not lead to a more efficient use of the airport infrastructure or is not objective and non-discriminatory, or if a relevant stakeholder was not consulted by the concessionaire
Fifth round	Revenue cap for large and mid-sized airports, scheduled and non-scheduled air services, except air taxis or light-touch regulation for small airports, air taxis and general aviation	Constructive engagement: airport operator and airlines may establish different revenue cap and alternative tariffs, as well as other relevant concession elements, if approved by ANAC	Best practices for pricing airport services: ICAO, IATA and ACI examples, and objective, non-discriminatory criteria	In case of increasing tariffs: users must be informed of the changes at least 30 days before their implementation	ANAC may suspend tariff changes if it deems that the justification for the modification does not meet requirements (international best practices and objective and non-discriminatory basis), and if they can potentially harm final users
Sixth round					

Note: The airports not yet subject to concessions and still managed by Infraero follow the regime set in the fifth and sixth rounds (Resolution ANAC No. 508/2019)".
Source: OECD, with data from airport concession contracts, https://www.gov.br/anac/pt-br/assuntos/concessoes.

Description of the obstacle and policy makers' objective

The increasing flexibility for setting tariffs introduced by ANAC throughout the concession rounds (including tariff management, revenue-cap regulation, light-handed regulation and constructive engagement) was intended to allow operators to improve efficiency and cost-effectiveness in the provision and operation of airport services.

Including stakeholders in this process through consultations aims to reduce potential risk of abuse of market power and to produce a mutually agreed solution, as recommended by ICAO.[63] After all, airport operators and other market players (such as airlines and ground-handling service providers) are better informed than the regulator about the costs of services and other relevant issues for the management of airports. In any case, ANAC should monitor the implementation of these mechanisms, and may intervene if any requirement is not met by the airport operator.

Since the fourth concession round a user consultation is required for airport operators to increase tariffs, and ANAC is entitled to intervene in case of potential abusive behaviours. Yet the current regulation does not ensure that all interested parties can play a proper role in the consultation procedure. In fact, it provides no guidelines for user consultations, such as standards for defining which stakeholders should be consulted.

According to the ICAO, airport operators must establish a clearly defined, regular consultation process (International Civil Aviation Organization, 2012[57]). It also recommends that users be given notice of revision of charges at least four months in advance, and they should be provided with transparent and appropriate financial, operational and other relevant information to allow them to make informed comments. Further, airport operators should take users' views into account in their decision, which must indicate its rationale, especially when comments from users have not been accepted (International Civil Aviation Organization, 2020[58]). In fact, consultations should not only be considered a procedural step, but rather an opportunity for parties to effectively seek to achieve mutual understanding.

Harm to competition

As currently conducted, the process of user consultation brings a risk of favouring the views of incumbent airlines operating at the airport at the time and who might attempt to increase entry costs for (actual or potential) competitors. These procedures do not offer an opportunity for the interests of final users – passengers – to be taken into account, although ANAC is supposed to consider whether their interests are harmed when assessing the consultation implementation. In some cases airports and airlines have reached agreements to gain and share rents, not necessarily to the benefit of consumers (Oxera, 2007[59]).

Additionally, the current regulations provide no details on how airport operators should conduct a user consultation, such as procedures to be followed and standards for defining which stakeholders should be consulted. This may increase legal uncertainty.

Moreover, although it is crucial that ANAC carefully assesses any proposal arising from user consultation or constructive engagement, the provisions establishing when the regulator may intervene are vague and ambiguous. For instance, ANAC may step in if it considers that the justification given by the airport operator for increasing tariffs does not lead to a more efficient use of the airport infrastructure or is not objective and non-discriminatory; if a relevant stakeholder was not consulted by the concessionaire; or if final users might be potentially harmed. Nevertheless, there is no guidance as to *how* ANAC should assess these issues, which in practice may lead it to commit discretionary behaviour. For example, it is not clear what a more efficient use of the airport infrastructure might actually entail, neither how to determine when a proposal might harm final users. The most recent concession rounds did include requirements that concessionaires and ANAC must follow international practices, such as those issued by ICAO, IATA and ACI, when assessing consultations. While this has indeed reduced the discretion of concessionaires and ANAC, a degree of vagueness still remains.

Recommendations

The OECD has two recommendations.

1. ANAC should clarify the regulation regarding user consultation, including the procedures to be followed, in order to ensure that it is implemented correctly. Potential new entrants and consumers should also take part in the consultation.
2. ANAC should establish minimum standards for refusing a proposal. These should be transparent, objective and non-discriminatory.

2.3.2. Non-aeronautical revenues

Background

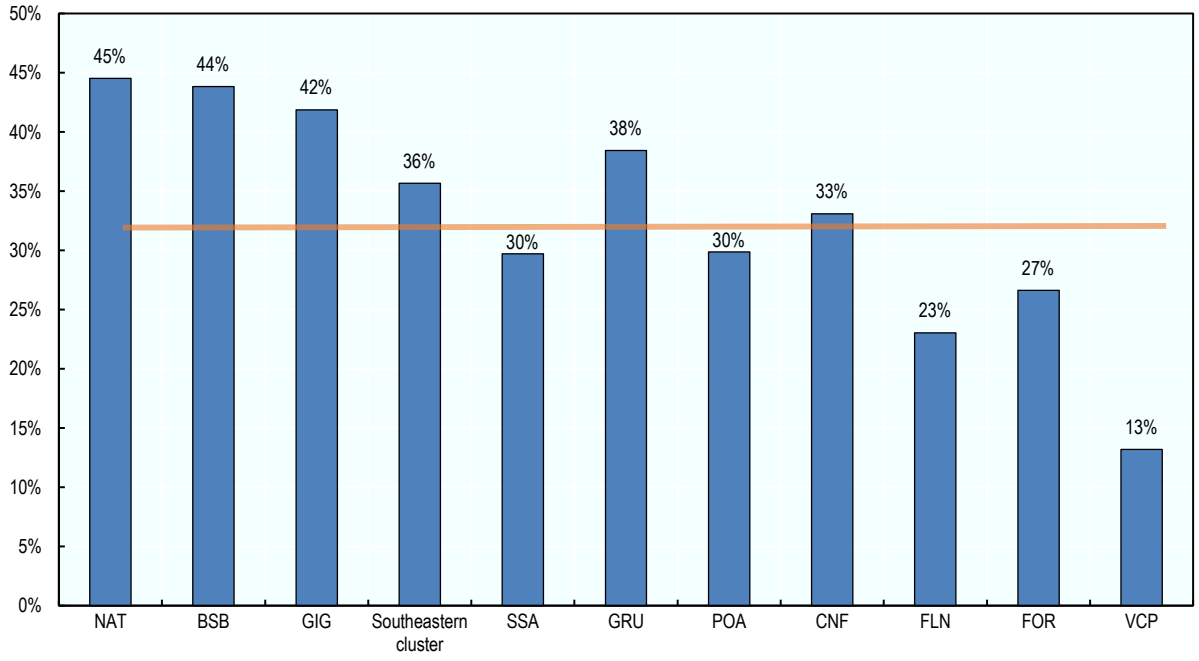
Commercial services are an increasingly important component of airport operations, comprising the provision of food, beverages, retail, currency exchange, transfers, car rental, car parks, and other income derived from airport buildings and development of airport land. As noted, there are also several activities related to aeronautical services that are not directly provided by airport operators, especially ground-handling services; these services are usually considered as non-aeronautical.

Technically, Brazilian regulations refer to tariff and non-tariff revenues, the latter comprising any charge other than airport tariffs. This includes commercial services, but also other airport operational services not charged through tariffs, such as different ground handling services, including passenger check-in, ramp services, fuelling, and aircraft maintenance, as well as rentals of hangars and other airport operational areas (Section 2.3.2. Revenues from operational services).

Historically, aeronautical revenue is the primary source of revenue for airports. Nevertheless, airports have increasingly been seeking other sources of revenues (Air Transport Research Society, 2019[60]). Since aeronautical charges are often regulated, non-aeronautical services, which are generally non-regulated, allow airports to increase their total revenue (Oum and Fu, 2008[34]). This can also allow airports to reduce aeronautical charges to attract more passengers and airlines, which in turn may enhance demand for commercial services and the non-aeronautical revenues (as previously noted, airports are two-sided businesses).

In 2019, at Brazilian airports under concession, non-aeronautical revenues accounted on average for 33% of airports' total gross revenue[64] (Figure 2.17), lower than the 2019 global average of 40.2%.[65] Three Brazilian airports under concession had non-aeronautical revenue share above the global average: Natal (NAT) with 45%; Brasília (BSB) with 44%; and Rio de Janeiro Galeão (GIG) with 42%.

Figure 2.17. Non-aeronautical revenue share for Brazilian airports, 2019



Note: The horizontal line represents the average non-aeronautical revenue share of the Southeastern cluster and 10 Brazilian airports under concession: Natal (NAT); Brasília (BSB); Galeão (GIG); Salvador (SSA); Guarulhos (GRU); Porto Alegre (POA); Confins (CNF); Florianópolis (FLN); Fortaleza (FOR); Viracopos (VCP).
Source: OECD, based upon ANAC, www.gov.br/anac/pt-br/assuntos/concessoes/aeroportos-concedidos.

Revenues from commercial services

Description of the obstacle and policy makers' objective

For the majority of commercial services, the airport operator awards private suppliers with exclusive rights to operate in a designated area, generally through a concession contract,[66] although the airport operator may also provide some of these services – such as car parking – directly to airport users.

In Brazil, commercial services are governed by private law, so are freely negotiated by airport operators and private firms as long as they meet obligatory safety and quality standards. Discriminatory and abusive practices are expressly prohibited.[67]

For airports managed by Infraero, the term of these contracts should be up to 120 months (contracts without investment) or 240 months (contracts with investment).[68] In either case, the costs a firm must incur to execute the contract are taken into account when defining its length.[69]

As for airports under concession, the duration of commercial contracts may last as long as the concession but there are no criteria for determining how long these contracts should take (for example, depending on the level of investment incurred by the operator). Nevertheless, these contracts may in exceptional circumstances be longer than the duration of the concession, if SAC issues an authorisation.[70] In such cases, it is necessary to prove that a longer term is required for a contract's economic feasibility and the recoupment of investments. For that purpose, documents must be submitted to SAC, such as the economic outlook of the project, and there are several requirements and limitations for the contract, including periodic remuneration, in equal or increasing instalments.[71] These requirements and limitations may prevent concessionaires from signing contracts that may harm the interests of any future concessionaire.

According to airport-concession contracts, ANAC may require information of commercial concession contracts at any time and they may be publicly disclosed, as long as they contain no competitive sensitive information. ANAC is yet to do so.

Harm to competition

The current design of commercial concession contracts may restrict competition in the provision of commercial services at Brazilian airports. The barriers identified may prevent more aggressive competition between commercial providers inside the airport, leading to higher prices for airport users, but also lower quality and reduce variety. Even if the high revenues generated by commercial services may partially cross-subsidise airport tariffs, passengers may still end up spending more in total.

The relatively long lease terms of commercial-concession contracts may limit the frequency with which bidders compete for the market, preventing the timely entry of more efficient operators with better offerings. Long lease terms can be justified if contracting parties must undertake substantial investments. In these cases, the contract length should be sufficient to guarantee that the contracting firm can recoup investments and obtain a return on invested capital under normal operating conditions. By contrast, if commercial concession contracts do not impose any minimum investment requirements, these contracts should have short terms.

Furthermore, airport operators are free to determine the optimal tenant mix at the airport, including potentially strong tenants, such as popular chain stores, to satisfy the needs of passengers and increase overall consumption at the airport and so its revenue. However, this may restrict market entry and increase prices in case of exclusivity agreements that prevent competing firms from operating at the airport (Box 2.10). Except in special circumstances and duly justified based on economic grounds, airport operators should promote competitive markets at the airports to lower prices and improve products and services for consumers.

Box 2.10. Exclusive contracts in duty-free shops in Korea

A 2012 market study by KFTC, the Korean competition authority, on duty-free shops in Incheon International Airport (ICN) showed a sharp increase in prices of liquor and tobacco just after ICN Corporation, the SOE that rented retail space in the airport, consolidated its contracting and awarded one corporation an exclusive contract for duty-free liquor and tobacco sales in the airport from 2008 to 2013. Comparing prices before and after changing to monopoly contract, the price of 30 kinds of liquor and tobacco increased by an average of 9.8% in one year (2008-2009). KFTC recommended that ICN Corporation change the procurement regulation to allow more companies to operate duty-free liquor and tobacco shops in the airport, just as for cosmetics or electronics. ICN Corporation duly contracted with two companies for duty-free alcohol and tobacco from March 2013.

Source: (OECD, 2019[61])

Among the quality indicators monitored by ANAC in airport-concession contracts (through consumer surveys) are a number related to commercial services, including quality, variety, and price-performance ratio of restaurants, retail shops and car parks.[72] The price-performance ratio of such services is not considered as a quality factor (Q factor),[73] which is used to increase or reduce the tariff or revenue cap, and therefore incentivise airport operators to achieve better outcomes.

Recommendations

The OECD has three recommendations.

1. ANAC should more effectively monitor prices and the quality of commercial services at airports. For that purpose, ANAC could build upon the current consumer surveys provided for in airport-concession contracts, and consider including indicators related to the price-performance ratio of commercial services as a quality factor in future airport concession contracts. Any suspicious behaviour of anti-competitive practices should be duly notified to CADE.
2. Brazilian authorities should adopt non-exclusivity clauses for commercial contracts in airports, except in justified situations subject to prior ANAC approval.
3. Brazilian authorities should require airport operators, when defining the lease terms of commercial-concession contracts, to take into consideration the minimum level of investment that will be incurred by the contracting party. If no investment is required, the contract should have short terms.

Revenues from operational services

Description of the obstacle and policy makers' objective

Certain services comprising aeronautical activities are rarely provided directly by the airport operator, particularly ground-handling services, such as dispatch of aircrafts, passengers and luggage, aircraft loading and unloading, fuel and oil handling, and aircraft maintenance, which are usually provided by third parties or airlines and therefore considered as non-aeronautical services (see section 2.4). To provide these activities, firms need to have access to airport facilities, which may require leasing an airport space, such as hangars and other operational areas.

As with the regime for commercial services, the cost for the use of operational areas is not set by regulation. Rather, parties are free to negotiate prices and other conditions, and their contractual relationship is governed by private law. Regulatory differences between renting airport spaces for commercial services and for operational activities do exist, however, as the latter are directly related to aeronautical services.

A competitive tender for allocating airport space to airlines and ground-handling service providers is not necessary, even if the airport is managed by Infraero.[74] The rationale for this approach is to ensure that anyone willing to enter the market for providing air transport services or ground-handling services can do so, enhancing competition at the airport. The airport operator is responsible for determining the location at and area of the airport required by companies to provide their activities.[75]

Nevertheless, in case of shortage of physical spaces to allocate to all companies operating scheduled air transport, the regulation provides specific non-exhaustive criteria to assist airport operators with the task of in distributing space. First, at least 10% of existing areas for activities of dispatch of aircrafts, passengers and luggage should be allocated for shared use by all airlines operating or intending to operate at the airport.[76] This aims to ensure that all airlines can operate at the airport by ensuring the permanent availability of airport infrastructure to potential new entrants, while preventing the maintenance of idle spaces.

The airport operator must then limit the allocation of exclusive-use areas for activities of dispatch of aircrafts, passengers and luggage using a ratio of the number of passengers handled by the airline at the airport and the total number of passengers handled at the airport in the six months preceding the request.[77] The exclusive-use areas for aircraft loading and unloading and aircraft maintenance and related services

should be allocated according to the ratio of the number of take-offs and landings of the airline at the airport and the total number of take-offs and landings at the airport in the 12 months preceding the request.[78]

These rules are based upon objective criteria for allocation of airport space and aim to ensure a more efficient use of airport infrastructure, with spaces allocated to each airline in proportion to the numbers of services it provides. The allocation of spaces for each airline is regularly reviewed according to its market share at the airport. Moreover, newcomers will always be able to enter the market, since there is a minimum percentage of space available for shared use.

The airport operator may limit access of ground-handling service providers if there is no available space or capacity for allocation to all firms. In these cases, the airport operator must present a justification for such a restriction to ANAC, as well as possible measures to reduce the constraints. The concession contracts also provide that in case of shortage of space for ground-handling service providers, the concessionaire must require ANAC authorisation to restrict the number of players, and ANAC may establish a minimum number of providers. This intends to prevent abusive and discriminatory behaviour, as well as to ensure a minimum level playing field at the airport. Nevertheless, it should be noted that when the entry of ground-handling service providers is not possible, airlines may still hire the services of those firms, which can operate in *their* allocated spaces.[79]

As noted, airport operators and suppliers are free to negotiate the fees for the use of airport space. Since the fourth concession round, contracts have stated that these fees must follow objective and non-discriminatory criteria, such as service level, available facilities and investment forecasts. The setting and modification of prices must be subject to user consultation. This is especially relevant when leasing airport space to ground-handling service providers, because airport operators may also perform these activities and could therefore have incentives to discriminate against competitors in the downstream market (see section 2.4). To this end, concession contracts require that concessionaires keep separate accounts for their airport-management activities and the supply of ground-handling services, in order to maintain fair competition.

Unlike the contracts for leasing airport space for commercial services, ANAC can mediate potential conflicts between parties of rental contracts.[80] It operates upon receipt of complaints and then seeks to identify whether the airport operator was involved in any abusive practices. ANAC may assess prices and compare them with market rates, including prices for similar spaces at airports in Brazil and abroad, as well as carry out cost analyses. As a last resort, in cases of abusive and discriminatory behaviour, ANAC may introduce economic regulation for leasing of operational spaces, either through a price cap, revenue cap or another regulatory mechanism.[81]

Finally, airport-concession contracts establish that a concessionaire may enter into contracts with airlines for the construction, maintenance or use of airport terminals or parts thereof, in an exclusive or preferential manner. Since the third concession round, however, ANAC must authorise such agreements, in order to prevent anti-competitive practices.

Harm to competition

It seems reasonable not to require airport operators to use competitive tenders to select firms for leasing airport space for the provision of operational services, and this seems in line with international practices (Box 2.11). Yet, with no rules determining the allocation process for airport spaces among all players, including airlines and ground-handling service providers, airport operators are allowed a discretion that may lead to discriminatory behaviour, especially against ground-handling service providers. As airport operators may also provide these services, although this is not common in Brazil, they may have incentives to allocate less attractive spaces to their competitors.

Box 2.11. Direct awards for leasing airport spaces

Direct awards for leasing airport spaces are common in other jurisdictions. For example, in the European Union, an invitation to tender is required only when the number of ground-handling service providers is limited at an airport (Article 11 (1) "b" of Council Directive No. 96/67/EC of 15 October 1996). In fact, the EU allows member states to limit the number of suppliers authorised to provide certain categories of ground-handling services for safety, security, capacity and available-space constraints. That number may not be fewer than two for each category of service, and one must be an independent and not related to the managing body of the airport or to an incumbent airline (Article 6 of Council Directive No. 96/67/EC). In line with EU law, leases for most ground-handling services in Portugal can be directly awarded by an airport operator (Article 11, paragraph 3 of Decree-Law No. 254/2012).

In the United States, an airport operator may lease airport space without seeking competitive proposals when it is in the best interest of the airport or community and described or offered as part of a vision document such as an airport master plan.

Source: (Airport Cooperative Research Program, 2011, p. 70[62])

In practice, holding an airport space is a barrier to entry for ground-handling service providers, as this requires signing a contract with the airport operator, which is in turn subject to price negotiation, space and time constraints. Although these firms may still offer services to airlines if they do not have a leasing contract, in these cases they can only access the airport if they present a contract with an airline, and they are charged every time they enter the airport facilities. According to stakeholders, this is much more expensive than a leasing agreement, which in practice makes such operations unfeasible from an economic point of view. Ensuring a transparent and impartial procedure for selecting suppliers of ground-handling services is crucial where the number of such firms is limited, as recognised by the European Union regulation (see Box 2.12).

Box 2.12. Selection of ground-handling service providers for limited spaces at EU airports

In the European Union, at airports where the number of ground-handling providers is limited, an airport operator is required to launch an invitation to tender, and airport users must be consulted on the selection of suppliers due to their interest in the quality and price of services. However, when the airport operator also provides similar services or has direct or indirect control over any undertaking providing such services, the selection must be conducted by an independent body. Where the number of ground-handling service suppliers is limited, it may also be necessary to establish a maximum contract length to ensure competition. In the EU, these contracts should not exceed a duration of seven years.

Source: Article 11 (1) "b", "c" and "d", of Council Directive No. 96/67/EC of 15 October 1996.

In addition, although airport concessionaires may enter into exclusive-use or preferential-use contracts with airlines, such arrangements may restrict competition, even though the airport operator has always to ensure any airline can enter the market. In fact, dominant airlines could use their monopsony power to influence airport operators to discriminate against competing airlines or to create barriers to entry for new firms or for expansion of airlines already operating at the airport (Pereira Neto et al., 2016, p. 14[31]).

Box 2.13. Exclusive-use or preferential-use contracts between airport operators and airlines in the United States and the European Union

In the United States, an airport is prohibited from awarding an exclusive right to conduct a particular aeronautical activity (U.S.C. 40103(e) and 47107(a)(4)). This is driven by the concern that an exclusive right may limit the usefulness of the airport and deprive the public of competitive benefits. However, the current understanding of the US regulation is that exclusive-use, long-term leases do not contravene the prohibition against granting an exclusive right when there is no intent to exclude other reasonably qualified airlines. Such leases, though, should be limited only to such space as is demonstrably needed by the airline to which an exclusive-use agreement is granted. In any case, airport managers have a legal obligation to accommodate all qualified airlines that wish to serve their airport (Federal Aviation Administration/Office of the Secretary of Transportation Task Force, 1999, pp. 22-22[33]).

In this regard, the US FAA indicates that certain contractual arrangements between airports and airlines, especially long-term, exclusive-use gate-lease agreements, may create a barrier to entry or to expansion, especially at concentrated hub airports. Certain stakeholders defend such agreements as a necessary means of financing the construction of new and improved facilities. According to the FAA, however, such agreements often give incumbent airlines the right to use the facilities regardless of their gate usage, even allowing them to decide on sublease terms and conditions, as well as the sub-lessees themselves.

As a way to promote more competition at airports, in 1999 the FAA already suggested requiring airport operators that sign exclusive-use agreements to submit a plan demonstrating how they will provide for access to new entrants and for expansion by airlines with a limited presence at the airport. The FAA has also concluded that an airport manager generally has the authority to require an exclusive-use airline tenant to share or sublet unused gate space when requested by another airline. Indeed, this is necessary to prevent inefficient use of airport infrastructure. The FAA also pointed out that the popularity of exclusive-use leases had dropped over the years in favour of preferential-use leases. Unlike traditional exclusive-use lease arrangements, preferential-use contracts afford the airport explicit contractual authority to use a tenant's gates for new entrants or carriers wishing to expand operations (Federal Aviation Administration/Office of the Secretary of Transportation Task Force, 1999[33]).

In the European Union, exclusive-use agreements between airport operators and airlines are deemed lawful when they do not preclude other airlines from entering the market. For example, in May 2011, the European General Court did not rule on the complaint of an airline against the European Commission for its failure to act against an alleged abuse of dominant position by the operator of Munich Airport, which had entered into an agreement with an airline for the exclusive use of one terminal. Even though the Court did not deliver a substantive decision, it concluded that the applicant did not demonstrate it had been precluded from entering the airport as it had been offered the use of a terminal used by other airlines (Judgment of the General Court (Fifth Chamber) of 19 May 2011. Case T-423/07).

Furthermore, the European Commission has indicated that an airport manager does not necessarily confer an economic advantage on an airline by providing it with the exclusive use of all the check-in desks and office space at a terminal. It has noted that this could only be the case if an airport operator grants exclusive use of space in excess of what an airline needs, which could prevent other airlines from using physically available capacity or when an abnormally low rent is charged. The EC has also stated that it was expected that low-cost carriers (LCCs) would require exclusive allocation of gates, sales and check-in counters, which has actually happened (Commission Decision (EU) 2015/506 of 20 February 2014. Case C 27/07).

In Brazil, as noted, exclusive-use agreements between airport operators and airlines are possible, but ANAC must authorise them, in order to prevent anti-competitive or discriminatory practices. However, there are no clear guidelines for assessing these contracts, nor the need to consult CADE on their potential anti-competitive effects. This may lead to legal uncertainty and discretionary treatment by ANAC, but also to arrangements that may hamper competition at the airport.

Recommendations

The OECD has four recommendations.

1. ANAC should consider requiring airport operators to follow transparent, objective and non-discriminatory criteria for allocating airport areas for the provision of operational services.
2. ANAC should require airport operators to follow a transparent, objective and non-discriminatory procedure for selecting ground-handling service providers where their number is limited by an ANAC authorisation. Airport users should be consulted in these procedures. ANAC should also consider establishing a maximum duration for these contracts, in order to ensure competition.
3. ANAC should consider issuing guidelines for the analysis of exclusive-use or preferential-use lease agreements between airport operators and airlines. Accordingly, ANAC should establish minimum requirements for these agreements, such as requiring the airport operator to demonstrate that other airlines' entry and expansion of operations will be ensured. Exclusive-use lease agreements should be required to include minimum operations or gate-usage requirements, as well as the possibility of making underused facilities available to other airlines. Furthermore, preferential-use lease agreements should provide transparent, objective and non-discriminatory criteria for accommodating other air carriers. CADE should also be consulted to provide its technical expertise on the existence of potential anti-competitive effects of such agreements;
4. Airports should report periodically to inform ANAC of how their compliance with this guidance and competitive principles.

2.4. Ground-handling services

According to Annex 6 to the Convention on International Civil Aviation, ground handling is all the services necessary for an aircraft's arrival at and departure from an airport, other than air-traffic services. This includes ground administration and supervision; passenger handling; baggage handling; freight and mail handling; ramp handling; aircraft services; fuel and oil handling; aircraft maintenance; flight operations and crew administration; surface transport; and catering services (International Civil Aviation Organization, 2019, pp. 79-81[63]). In Brazil, ground-handling services also comprise activities related to aviation security – such as screening of passengers, aircrew and baggage; searching and checking aircraft; protection of aircraft; access control to security restricted areas; and security controls of cargo – as well as to air-freight forwarding.[82]

Ground-handling services are usually provided by one (or a combination) of the following methods: 1) directly by the airport operator; 2) handled by airlines themselves; or 3) by third-party, independent ground-handling companies. Although models for providing ground-handling services varies across the world,[83] there has been a trend towards third-party ground-handling service providers. In fact, according to the ICAO, around 75% of all ground-handling operations worldwide are outsourced to third-party handlers (International Civil Aviation Organization, 2019, p. 16[63]).

In Brazil, despite the fact that the legislation provides for the three aforementioned alternatives for the provision of ground-handling services,[84] most airlines use third parties, with the exception of one major airline, which self-handles around 90% of its own operations (Steer Davies Gleave, 2016, p. 48[23]). In fact, in 2015, around 70% of total commercial flights in Brazil involved a third-party ground-handling service provider at some point (ABESATA, 2016, p. 41[64]).

The ground-handling market was liberalised in Brazil in 2009,[85] and since then an authorisation is no longer required for providing such services (except for aviation-fuel supply, as discussed in section 2.4.3). Indeed, there are no relevant regulatory restrictions to enter the market. As noted in section 2.3, to access an airport a ground-handling service provider does not need to hold an airport space,[86] only a contract with an airline. In addition, the provider must demonstrate compliance with airport regulations and the airport's operations manual, especially for aviation safety and security requirements. Further, the firm is required to provide insurance to cover any damage to people and goods arising from its operations. The supplier's personnel must also hold the appropriate qualification for the duties to be performed, and they must hold an airport identification card.

Ground-handling services are generally not directly regulated in most jurisdictions, and therefore there are no globally applicable regulatory provisions for these activities. This had led to the creation of industry-developed and implemented standards for the management and operation of ground-handling services and standardised operational procedures (International Civil Aviation Organization, 2019, p. 16[63]).[87]

2.4.1. Provision of ground-handling services by airlines

Description of the obstacle and policy makers' objective

In Brazil, airlines are not allowed to provide ground-handling services to other air carriers, unless they operate codeshare flights.[88] At the time the provision was enacted the objective was to stimulate the development of specialised companies providing ground-handling services in Brazil. CADE stated that allowing airlines to provide ground-handling services to their competitors could also reduce competition between them, including facilitating co-ordination. However, considering the current market situation, the OECD could not find the objective of the provision. According to ANAC, this is a historical prohibition, but there appear no technical or economic reasons for the restriction.

Harm to competition

Restricting airlines to perform only their own ground-handling services limits their ability to expand their operations and to take advantage of economies of scale and scope. This may reduce the number of suppliers at a given airport, which may lead to higher prices.

The provision of ground-handling services by airlines to other air carriers is unlikely to reduce competition in their core business activity – provision of air transport – as ground-handling services represent just a small fraction of airlines' total operating costs (ABESATA, 2016[64]) (ABEAR, 2021[2]). In other jurisdictions, it is also common that airlines provide ground-handling services to other air carriers, and this may lead to more players providing these services, possibly resulting in lower prices and higher quality.

Box 2.14. International experience of the provision of ground-handling services by airlines

In the European Union, an airline may be involved in the ground-handling process as a customer, as a self-handler or as a third-party handler, the last when it strives to optimise opportunities for economies of scale and scope by offering ground handling on behalf of other airlines. This process may be further enhanced by closer co-operation within the context of strategic alliances (of which codesharing is one possible arrangement), although airlines do not need to have had any previous relationship (Meersman et al., 2011, pp. 128-129[65]).

In the United States, the provision of ground-handling services is dominated by the major airlines' own operations, either directly or through subsidiaries, which typically operate at regional airports. Even though these operations primarily exist to supply services to their parent companies, they also offer services to other airlines, and are considered as competitors by international ground handlers (Steer Davies Gleave, 2016, p. 157[23]).

In India, the major airlines also provide ground-handling services to other air carriers. Likewise, in Japan it is common for foreign airlines to request local air carriers to perform ground-handling services (Steer Davies Gleave, 2016, pp. 67, 79[23]).

Recommendation

The OECD recommends that Brazilian authorities allow airlines to provide ground-handling services to other air carriers, regardless of whether there is any code-share arrangement between them.

2.4.2. Provision of ground-handling services by third parties

Description of the obstacle and policy makers' objective

Brazilian regulation establishes that the corporate purpose of third-party ground handlers can only be the provision of ground-handling services, and that these firms can only provide services related to activities regulated by ANAC, except for the supply of aviation fuel (which is also regulated by ANP, as discussed in section 2.4.3).[89] These companies are able to hold shares in any other undertakings.

As with the previous restriction, according to ANAC, there are no technical or economic reasons for the limitation. Its historical justification was to stimulate the development of specialised companies providing ground-handling services in Brazil.

Harm to competition

Requiring independent ground-handling suppliers to provide only ANAC-regulated services may represent a barrier to entry, since some firms already providing similar services will be prevented from entering the ground-handling market or face higher costs in order to be able to offer such services. Moreover, the restriction may also prevent ground-handling service providers to diversify their activities in other related markets, and this may reduce the number of participants in the market over time, which would likely lead to higher prices and lower innovation.

Performing activities not covered by ANAC's regulation would not exempt firms from meeting the requirements for providing ground-handling services, including mandatory insurance and qualified personnel, which ensures aviation safety and security.

In any case, according to some stakeholders, the provision is not being applied, and many firms performing activities other than ground-handling services (and therefore not regulated by ANAC) are operating in the market. This is particularly common in the provision of surface transport, catering services and security activities (ABESATA, 2016, pp. 34-35[64]).

Nevertheless, obsolete or inactive legislation can give rise to legal uncertainty and discriminatory behaviour from competent authorities. Further, such provisions potentially raise regulatory and compliance costs for suppliers and market players, notably increasing legal costs. This may lead to extra cost for operators willing to enter the market, and may discourage new entrants.

Recommendation

The OECD recommends that the Brazilian authorities allow third-party ground handlers to provide services not regulated by ANAC.

2.4.3. Aviation-fuel supply

Background

There are two main types of aviation fuel: jet fuel and aviation gasoline (AVGAS). The two most commonly used jet fuel types for commercial aviation are Jet A and Jet A-1, while aviation gasoline is used in smaller aircraft. More recently, the industry has been developing aviation biofuel (also known as "sustainable aviation fuel") as an alternative to conventional fossil-based aviation fuels (Davidson et al., 2014, p. 3[66]).

In Brazil, the main aviation fuel used is Jet A-1, while aviation gasoline accounts for only a small percentage of fuel used in the country (Figure 2.17). Since October 2021, the sale of Jet A has been permitted in Brazil (Box 2.15).

Table 2.8. Aviation fuel sales in Brazil, cubic metres

Aviation fuel type	2017	2018	2019	2020
Jet A-1	6 694 000	7 164 000	6 980 000	3 546 000
Aviation gasoline	51 000	48 000	43 000	39 000

Source: (ANP, 2021, p. 140[67]).

Box 2.15. Liberalisation of sales of Jet A

Jet A is primarily used in the United States and Jet A-1 is used in most of the rest of the world. Aircraft operators may use both fuels interchangeably, the main difference being the freezing point: Jet A-1 freezes at -47ºC and Jet A at -40ºC. Jet A is also simpler to produce than Jet A-1, and therefore usually cheaper. According to the Brazilian National Agency of Petroleum, Natural Gas and Biofuels (ANP), the oil sector's independent regulator, Jet A could reduce fuel costs up to 0.6%.

In October 2021, ANP liberalised the sales of Jet A in Brazil, allowing it to be produced in and imported into Brazil. The objective of the regulatory change was to increase the offer of jet fuels in the market, which might lower costs for airlines and ultimately, passengers.

Source: Resolution ANP No. 856/2021 and (Ministério da Infraestrutura, 2021[68]).

The jet-fuel supply chain is a complex process, from extraction plant to aircraft, in a process that includes jet-fuel production (or import), storage and transport. Although the Brazilian oil sector has officially been fully liberalised since the early 2000s, in practice, an SOE, Petrobras, holds a quasi-monopoly in the production and import of fuels, including jet fuel. Petrobras also controls most pipelines for transportation of fuel from production sites to airport fuel-storage facilities, which exist in few airports, or more frequently, intermediate storage facilities (Subcomitê de Abastecimento de Combustíveis de Aviação, 2021[69]). A recent divestment agreement signed between Petrobras and CADE might increase competition at these stages of the supply-chain process (Box 2.16).

Box 2.16. Petrobras refinery divestments

In 2019, CADE and Petrobras signed a cease-and-desist agreement, amid ongoing investigations by the Brazilian competition authority into the alleged abuse of dominant position by Petrobras in the refinery market.

Under the agreement, Petrobras committed to sell eight refineries, including assets related to fuel transportation, which accounted for around 50% of Petrobras' national fuel-refining capacity at the time. It should be noted that some of these refineries produce jet fuel.

The agreement aimed at boosting competition in the refinery market, by allowing new firms to enter the market. The agreement also prevented the sale of refineries located in the same geographical region to the same player, in order to ensure a more competitive environment.

The divestment of the refineries was due to have been completed by 30 December 2021, but CADE authorised the deadline extension in view of internal and external circumstances that have impacted the sector, as well as ongoing negotiations with potential purchasers.

Source: (CADE, 2020, p. 24[70]) (CADE, 2022[71]) and Administrative Proceeding No. 08700.002715/2019-30.

Furthermore, just three firms control more than 99% of the jet-fuel distribution market in Brazil. In general, they transport jet fuels from the intermediate storage facilities to the airport, mostly by tanker trucks, but in a few cases, pipelines transport jet fuel directly to the airport. At the airport, each distributor may have its own storage tank or may operate a shared storage tank under a joint-venture agreement (Subcomitê de Abastecimento de Combustíveis de Aviação, 2021[69]).

After the fuel reaches an airport's storage tank, it is delivered to an aircraft in two ways: a hydrant system or refuelling truck. The first method is operated at airports with underground-pipe networks connecting the storage tanks to each gate, and a special dispenser vehicle used to connect aircraft-tank inlets with the underground system. The second method uses a truck designed to carry fuel and transfer it to aircraft directly. The type of system used at a given airport usually depends on the rate of aircraft movements (Airport Cooperative Research Program, 2010, p. 120[72]). The hydrant system is used to fuel aircraft at most large commercial airports worldwide (Airport Cooperative Research Program, 2015, p. 25[73]) (Chevron, 2007, p. 76[74]). In Brazil, however, few airports have these facilities; those that do are amongst others São Paulo Guarulhos, Rio de Janeiro Galeão, Brasília, Recife, Fortaleza and Salvador. Most airports use refuelling trucks.

According to Brazilian regulations, both distributors and resellers[90] (which buy the fuel from a distributor or other reseller) can sell aviation fuels to aircraft operators, and could therefore compete. However, in practice, most air carriers obtain jet fuel from one of the three major distributors, while other distributors and resellers compete for the provision of aviation fuel in the general aviation segment (CADE, 2020, p. 42[75]). Although there is no regulatory restriction on airlines buying and supplying the fuel for their own aircraft, those operating in Brazil appear to have no interest in using this model (ANP/ANAC, 2019, p. 15[76]).

It should be noted that jet-fuel prices in Brazil are higher than the international average. For example, jet fuel in Brazil is between 30% to 40% more expensive than in the United States, based on data up to December 2020 (ABEAR, 2021, p. 55[2]). For that reason, jet fuel accounts for around 30% of total operating expenses of Brazilian airlines, which is also higher than the international average (see Table 2.9).

Table 2.9. Jet-fuel cost share of major Brazilian airlines and international average

Airline	2017	2018	2019	2020	2021
Latam	26.88%	33.64%	31.79%	19.47%	*
Gol	31.53%	36.96%	34.50%	27.66%	23.36%
Azul	26.69%	31.50%	32.79%	20.80%	32.83%
International average	19.8%	23.5%	23.5%	16.2%	19%

Note: *Data unavailable at time of writing.
Source: OECD, based upon airlines' financial statements, www.latamairlinesgroup.net/pt-pt/tam-sa-financial-statements; https://ri.voegol.com.br/conteudo_pt.asp?idioma=0&conta=28&tipo=53858; https://ri.voeazul.com.br/informacoes-e-relatorios/resultados-trimestrais/; and Statista www.statista.com/statistics/591285/aviation-industry-fuel-cost/#statisticContainer.
In addition to the fact that the market is highly concentrated (in all stages of the supply chain), the tax regime for jet fuel also plays a relevant role for the high costs of the product in Brazil.

Aviation-fuel supply is regulated by ANP and ANAC; the former regulates the production, distribution, storage and sales of aviation fuels, the latter is responsible for regulating activities within airports. In light of this project's scope, the OECD has focused on the final stage of the supply chain, namely how jet fuel is received into an airport storage and delivered to an aircraft, known as into-plane supply or retail supply.

In order to become an aviation-fuel distributor or reseller a firm must obtain an authorisation from ANP, which assesses, among other things, if it has suitable facilities to ensure compliance with the technical and quality-control requirements.[91] Distributors and resellers can only sell aviation fuel to final users if they have a storage tank at the airport, which may be jointly operated with other firms. However, a new entrant may face severe difficulties accessing an airport's infrastructure for storage and delivery of jet fuel.

Access to jet-fuel supply infrastructure at the airport

Description of the obstacle and policy makers' objective

According to Brazilian regulations, airport operators are required to allow access to their operating areas to all qualified firms, including ground-handling service providers, such as jet-fuel suppliers, willing to enter the market, except if there is a shortage of physical infrastructural space. Abusive or discriminatory practices are forbidden.[92] In the event of infrastructure limitations, the airport operator must submit a justification to ANAC, indicating the measures it will implement to reduce such constraints.[93]

The airport-concession contracts provide similar provisions, but go further and establish that concessionaires need to request authorisation from ANAC to restrict the number of ground-handling service providers at the airport, and the regulator may set a minimum number of providers.

In addition, since the fifth airport-concession round, the contracts also indicate that ANAC has the power to determine that a concessionaire must limit or prohibit companies operating jet-fuel pipeline and hydrants to also supply jet fuel at the airport, in order to promote more competition. Moreover, the concessionaire must submit to ANAC all contracts involving the construction and operation of jet-fuel pipelines and hydrants, prior to the signature of such agreements, for analysis and the adoption of appropriate measures, if any.

Despite the legislation currently in place that aims to enhance entry to the airport, in general, and at the jet-fuel supply infrastructure, in particular, many stakeholders have said that the provisions are unclear about whether an open-access right to new entrants exists.

Harm to competition

In most Brazilian airports, incumbents control storage tanks and – at airports with the system – hydrant facilities, which makes it difficult for new firms to enter the market. This is one important reason for the market concentration, since incumbent firms often do not enable new entrants to access the distribution and fuelling infrastructure (Subcomitê de Abastecimento de Combustíveis de Aviação, 2021[69]).

Brazilian regulations are unclear about the scope of open-access rights to airport space. For instance, there is ambiguity about whether an airport operator is required to allocate a suitable space for new entrants to operate at the airport or if an airport operator must ensure new firms gain access to pre-existing jet-fuel supply infrastructure, for example, through their becoming members of a joint venture responsible for managing the infrastructure or on a fee-for-service basis. Even if it is assumed that open-access rights comprise all relevant airport infrastructure, new entrants could face significant barriers when attempting to use infrastructure, since the legislation states neither who assesses any request for entry nor the requirements for such a request. In practice, this has seen incumbent firms running facilities needing to agree to a new firm's terms of access. This raises concerns about potential conflicts of interest, because incumbents have clear incentives to deny potential competitors market entry. At best, incumbents have a relevant margin of discretion in fixing prices and terms of access for new entrants.

This is especially relevant at airports with a hydrant system, which usually is jointly managed by incumbent distributors, and can present a clear competitive advantage, especially for fuelling aircraft operating international flights, over refuelling trucks. Indeed, the hydrant system is an optimal fuelling method as it provides a fast and reliable refuelling method, and has with overall positive impact on the safety and efficiency of daily airport operations (Hromádka and Cíger, 2015, p. 62[77]).

Some stakeholders argue that the construction of hydrant facilities is expensive and may be operationally impractical to implement due to space limitations at an airport, or at least financially unsustainable (ACIL Allen Consulting, 2018, p. 7[78]). Whether having access to these facilities is necessary for effective competition should be assessed on a case-by-case basis, in light of an airport's characteristics and

operational requirements. Box 2.17 provides an overview of international experience of access to these facilities and the competitive issues that may arise.

Box 2.17. International experience of access to jet-fuel supply infrastructure

In the EU, pursuant to Article 8 of Council Directive No. 96/67/EC of 15 October 1996, member states may reserve for the airport operator or for another body the management of centralised infrastructure used for the supply of ground-handling services whose complexity, cost or environmental impact does not allow division or duplication. This includes fuel-distribution systems. Suppliers of ground-handling services may be required to use this infrastructure, making it necessary to ensure that the management of centralised infrastructure is transparent, objective and non-discriminatory and that it does not hinder access for ground-handling services suppliers.

Nevertheless, the European Commission has already recognised the inappropriate legal framework for the management of centralised infrastructure under this regulation (European Commission, 2011, p. 15[79]). It sees Council Directive No. 96/67/EC as unclear about what the centralised infrastructure necessary for the execution of ground-handling services actually covers and how it is managed. The absence of a clear legal framework can lead to competitive distortions in the market; for example, as the management of centralised infrastructure is often reserved for incumbent suppliers, in the case of fuel distribution, oil companies, which also provide third-party ground handling services, fees levied for its use can deter competitors.

The Australian Productivity Commission has also highlighted the existence of potential competition concerns in the jet-fuel supply market, which is found to be generally characterised by a small number of vertically integrated suppliers, with high barriers to accessing infrastructure at multiple points in the supply chain (Australian Productivity Commission, 2019, p. 33[80]). This made it difficult for new jet-fuel suppliers to establish a supply chain at some airports, and was likely to lead to higher fuel prices. For that reason, Australian airports have been introducing lease arrangements for specialised infrastructure known as joint-user hydrant installation (JUHI), which incorporates open-access for third-party fuel suppliers and could allow them to gain supply-chain access and increase competition.

At Melbourne Airport, for example, all JUHI users, whether equity and non-equity holders, are charged the same reference tariffs, which cover the operating costs of airport storage and distribution, a return on capital investments in airport infrastructure, and off-airport-to-airport delivery fees, if applicable. Potential JUHI users are also charged an application fee, but if access is granted the fee is offset against reference tariffs in the first 12 months of use (ACIL Allen Consulting, 2018, p. 11[78]).

The Commission also recognised that infrastructure owners need certainty, including long-term leases with airport operators, to make investments in jet-fuel infrastructure. Further, long-term investment should be supported by good planning and consultation with all stakeholders, including fuel suppliers, airport operators and airlines (Australian Productivity Commission, 2019, p. 33[80]).

In New Zealand, jet-fuel supply infrastructure is also operated by joint venture, with participants responsible for the importation, storage, transfer and sale of jet fuel at each stage of the supply chain. According to a 2019 government inquiry, this could give rise to a conflict of interest, since incumbent joint-venture participants have an incentive to deny or inhibit access to new entrants that will compete as jet-fuel providers (New Zealand Government, 2019, pp. 111-114[81]). The inquiry also highlighted the lack of transparency around the decision-making processes for access to on-airport fuel infrastructure, which may make it more difficult for new firms to enter the market. It concluded that open access to infrastructure in the supply chain is likely to reduce barriers to entry.

Open-access fuel supply was successfully implemented at Hong Kong International Airport in 1998. Any fuel supplier or airline with its own supply and meeting certain qualification requirements now has the right to bring fuel to the airport and have it stored and handled for its customers' aircraft in return for a transparent, fair and reasonable fee, regardless of their stake – or lack of one – in the facilities. The introduction of this system increased competition in fuel supply at the airport, as the market grew from 7 fuel suppliers to 13, 6 of which hold no stake in the fuel facilities (Board of Airline Representatives of Australia, 2018, pp. 25-26[82]).

In Mexico, in March 2022, competition authority COFECE presented the preliminary findings of a 2019 investigation into the jet-fuel sector, including retail sales to aircraft operators. COFECE found the existence of barriers preventing entry and growth of market participants. In addition to a concentration in bulk sales and fuel storage outside airports, COFECE identified a monopoly in in-airport fuel storage and retail sales, held by the Mexican state-owned aircraft maintenance company Aeropuertos y Servicios Auxiliares (ASA). COFECE recommended that the Secretariat of Infrastructure, Communications and Transportation (SICT) modify airport licences to eliminate the exclusivity clauses that granted ASA the provision of airport fuel storage and retail sales to airlines. This aimed to allow other fuel suppliers to sell to airlines and other aircraft operators, which was thought likely to lead to better prices for consumers (Comisión Federal de Competencia Económica, 2022[83]).

Note: JUHI infrastructure consists of an extensive list of specialised assets, including storage tanks and hydrant infrastructure (Airports Council International, 2018, p. 6[24]).

The Brazilian Government has attempted to improve the regulatory framework in the most recent concession contracts. For that purpose, concessionaires are required to submit to ANAC all contracts involving the construction and/or operation of jet-fuel pipelines and hydrants, prior to the signature of such agreements, for analysis and possible remedial measures. While this may be useful for preventing potential anti-competitive arrangements, no established criteria have been established for this assessment, which may lead to discretionary treatment and legal uncertainty.

In addition, ANAC may, for competition purposes, restrict vertical integration between firms operating in the jet-fuel supply market by determining that a concessionaire must limit or prohibit companies operating jet-fuel pipelines and hydrants to also supply jet fuel at the airport. According to ANAC, this intervention in the market might reduce entry barriers and enhance market contestability, but only in specific cases. Despite the fact that such restriction could be a regulatory measure to promote competition in the jet-fuel supply market, it may lead to discretionary treatment and legal uncertainty, as there are no established criteria indicating when and how ANAC should use it. In fact, ANAC itself recognised that it did not set a specific limitation because this would require further studies.

Recommendations

The OECD has five recommendations.

1. Brazilian authorities should clarify the legislation and ensure proper enforcement towards a genuine open-access regime for jet-fuel supply infrastructures, especially at large international airports that handle more flights with larger, more fuel-consuming aircraft, where access to hydrant systems can give those firms using them a competitive advantage vis-à-vis others using refuelling trucks. Open access should be based on transparent, objective and non-discriminatory criteria, while regulation still ensures other public policy objectives, such as safety, security, environmental protection and recoupment of the investments. Any dispute arising from the enforcement of open-right access should be decided by an independent third party.
2. Authorities should issue guidelines on an assessment methodology for contracts involving the construction and/or operation of jet-fuel pipelines and hydrants.
3. Authorities should develop technical reports to monitor the open-access regime and to identify potential measures for continuous improvements.
4. Authorities should clarify potential measures and corresponding conditions that may be adopted when assessing contracts involving the construction and/or operation of jet-fuel pipelines and hydrants.
5. Authorities should clarify the regulation currently allowing the restriction of vertical integration between companies operating jet-fuel pipelines and hydrants and those providing jet-fuel supply at the airport.

2.5. Slot allocation

Airport capacity determines the number of take-offs and landings allowed in any given period of time. Since it depends on the configuration of runways, the size of the apron and terminal infrastructure, an airport may not be able to accommodate all requests for take-offs and landings (Pellegrini, Castelli and Pesenti, 2012, p. 1009[84]).

Capacity restrictions can be eased by increasing capacity. This can be done by building new facilities, which involves costly, long-term projects and may not be possible, due to geographical, environmental or socio-economic constraints. The alternative is establishing demand-management strategies, which are any administrative or economic policies and regulations restricting airport access to users. Those strategies, which may be categorised as administrative controls and market-based mechanisms, can be used to restore demand capacity with little investment and within a short-time horizon (Vaze and Barnhart, 2012[85]).

The solution adopted by most jurisdictions in this regard has been an administrative mechanism known as slot allocation. The airline trade association International Air Transport Association (IATA) has developed Worldwide Airport Slot Guidelines (WASG), which are followed by Brazil and many other countries. The WASG are not a legally binding instrument, and jurisdictions can follow their own local rules for allocating slots, or complement the WASG with specific additional rules (Egeland and Smale, 2017, p. 26[86]).

Since 2020, the WASG have been jointly published by IATA, airport-operator group Airports Council International (ACI) and slot co-ordinators, the Worldwide Airport Co-ordinators Group (WWACG), which now work together to provide and enhance global standards in airport slot allocation (Airports Council International, International Air Transport Association and World Wide Airport Coordinators Group, 2020[87]).

Applying a mechanism based upon the WASG can reduce congestion and, if appropriately designed, achieve significant welfare benefits for aviation users. Indeed, the WASG provide a mechanism to balance the benefits of competition and of slot concentration, which largely reflects current industry consensus (Egeland and Smale, 2017, p. 26[86]).

An airport slot is defined as "a permission given by a co-ordinator for a planned operation to use the full range of airport infrastructure necessary to arrive or depart at a Level 3 airport on a specific date and time" (Airports Council International, International Air Transport Association and World Wide Airport Coordinators Group, 2020, p. 10[87]). Level 3 or co-ordinated airports are those in which the demand for airport infrastructure – such as runways, aprons and terminals – significantly exceeds the airport's capacity, and this cannot be solved through expansion in the short term or voluntary schedule adjustments.[94]

According to IATA, there are more than 200 slot co-ordinated airports over the world, accounting for 43% of global traffic, and this number is expected to rise (International Air Transport Association, 2022[88]).[95] To land or take off in a slot co-ordinated airport, airlines and other aircraft operators must have a slot allocated by the local airport co-ordinator.

In a Level 3 airport, the slot-allocation process has three main actors: 1) the airport operator, which sets the supply-side inputs, i.e. the airport capacity for the given period or the available slots per hour; 2) the airlines, which define the demand side, seeking to obtain slots to operate at the airport; and 3) the slot co-ordinator, an independent authority responsible for allocating the slots according to WASG rules (Jiang and Zografos, 2021, p. 2[89]).

In general, slots are allocated for a six-month "season", and requests usually consist of a set of demands for the same time, normally on the same day of the week and for a period of at least five weeks. After defining the co-ordination parameters, which include the maximum capacity available for allocation at a given airport, the co-ordinator proposes an initial allocation of slots to airlines based on their requests. Airlines and co-ordinators then meet at the biannual IATA slots conference, where airlines have the opportunity to discuss schedule adjustments with co-ordinators and may trade slots, thorough bilateral approaches. Following the slot conference, slot allocation may continue until the beginning of the season, either for new requests or modification or exclusion of existing requests (Fairbrother, Zografos and Glazebrooka, 2020, p. 116[90]).

Concerning the criteria for slot allocation, the WASG establish a principle of historic precedence (also known as a grandfather clause), according to which "an airline is entitled to retain a series of slots for the next equivalent season if they were operated at least 80% of the time during the period for which they were allocated" (Airports Council International, International Air Transport Association and World Wide Airport Coordinators Group, 2020, p. 33[87]).

Slots are therefore first allocated to airlines that had the corresponding series of slots in the preceding season, as long as they complied with minimum slot usage of at least 80%, the so-called "use it or lose it" rule. Incumbent airlines are also entitled to request a change to the time of a slot. Only after meeting the slot-allocation requests from incumbent airlines are remaining slots allocated to new entrants. An airline is considered a new entrant when it does not have significant presence at the airport (Fairbrother, Zografos and Glazebrooka, 2020, p. 116[90]).

The slots remaining after the initial allocation of historical slots constitute the slot pool. According to the guidelines, 50% of the slots from this slot pool should be allocated to new entrants and the other 50% should be allocated to non-new-entrant requests, unless the corresponding requests are less than 50%.

The WASG also state that when slots cannot be allocated through the criteria outlined above, co-ordinators should consider a set of factors to determine how to allocate the remaining slots. Those factors include the effective period of operation, operational factors, type of consumer service and market, connectivity, competition and environment (Airports Council International, International Air Transport Association and World Wide Airport Coordinators Group, 2020, pp. 35-36[87]).

"Slot mobility" through the swapping or transferring of slots between airlines in a secondary process, whether for compensation or free of charge, is not prohibited by WASG. However, special attention should be given to newly allocated slots, namely in the case of transfers, in order to prevent airlines taking advantage of an enhanced priority to obtain slots simply to transfer them to another airline (Airports Council International, International Air Transport Association and World Wide Airport Coordinators Group, 2020, pp. 35-36[87]).

2.5.1. Slot allocation in Brazil

Description of the obstacle and policy makers' objective

Brazil uses an administrative mechanism that follows WASG for managing congested airports with slot allocation currently regulated through Resolution No. 338/2014, issued by the National Civil Aviation Agency (ANAC), the slot co-ordinator in Brazil. The main goal of the mechanism is to allocate scarce capacity in the most efficient possible way, with slots allocated to those airlines that can use them to the greatest benefit of aviation users (Egeland and Smale, 2017, p. 25[86]).

The slot-allocation process is primarily based on precedence: slots allocated to an airline in the previous equivalent season entitle it to claim the slots the next year season.[96] To retain historical slots, airlines must comply with the "use it or lose it" rule: a minimum regular operation of not less than 80% and a maximum tolerated delay in arrival or departure of not more than 15 minutes.[97]

Use of allocated slots is monitored by ANAC,[98] and if the minimum-usage requirement is not met, the respective slots are returned to the slot pool for the next equivalent season.[99] Slot monitoring also intends to prevent "slot hoarding" or misuse of slots by incumbent airlines, which can include use of airport infrastructure at a co-ordinated airport to operate a flight without an allocated slot, operation of a flight in a significantly different way to the allocated slot (such as a different aircraft type, capacity or time), and holding slots that the airline does not intend to operate.[100] According to Resolution ANAC No. 338/2014, in case of misuse of slots an airline loses its precedence.[101]

After the allocation of slots to incumbents, any remaining slots in the pool – usually around 50% – are distributed between incumbents and new entrants.[102] When ANAC designates an airport as co-ordinated or Level 3, it establishes the percentage of slots from the pool that needs to be allocated to new entrants. The minimum percentage is 50% (in line with the WASG), but ANAC may determine a higher number.[103] ANAC must also determine the criterion for the definition of new entrants. Resolution ANAC No. 338/2014 provides that airlines holding at most five slots on a specific day at a co-ordinated airport are considered new entrants. Nevertheless, ANAC may establish that airlines holding more than five slots are also considered new entrants.[104]

The remaining slots from the pool (usually 50%) are allocated to new entrants and incumbents. Requests for the continuation of the previous season's slots are prioritised over new operations.[105] If there are similar requests based on the same grounds – either for continuation or for new operations – the slots are allocated equally among all airlines that presented a request.[106]

Resolution ANAC No. 338/2014 forbids the sale or lease of slots, even fee free, but regulatory changes have recently been made.[107]

Allocated slots may be exchanged between air carriers, however, but only one for one and each transaction is subject to ANAC approval. Slot swaps may be annulled by ANAC if one of the airlines does not effectively use the corresponding slot. Resolution ANAC No. 338/2014 prohibits swapping slots allocated to a new entrant, unless 1) the series of slots have been operated for two equivalent seasons; 2) both airlines are new entrants; or 3) the swap benefits the airport infrastructure, at the discretion of ANAC.[108]

At the time of drafting this report, ANAC was in the process of approving Resolution ANAC No. 682/2022 to replace Resolution ANAC No. 338/2014, which occurred in June 2022.[109] The new resolution retains the main features of the old regulation, but makes two important changes.

First, slot trading becomes legal, with ANAC approval. Only slots operated for three equivalent seasons are allowed to be traded. If an airline transfers its slots, it will not be entitled to obtain new slots from the pool for three equivalent seasons, unless no other airlines are interested. These limitations aim to prevent speculation and distortions through a market-based mechanism.

Second, when designating a given airport as co-ordinated, ANAC may establish a slot cap for each airline, unless no other airlines are interested in obtaining the slots. When this is the case, the ceiling also applies to slots acquired through trading and mergers. This intends to limit concentration and foster market contestability.

Harm to competition

Economic literature and international experience

Although administrative-demand management strategies, particularly WASG scheme, aim to reduce delays and increase the efficient use of airport infrastructure, several competition problems may arise from the current system.

The main issue concerns the grandfather clause, which grants incumbent airlines more favourable treatment, possibly preventing (or at least restricting) new entries. In fact, the need for slots is the most critical barrier deterring entry into congested airports, especially on certain routes, since in these cases most of slots are already allocated to incumbent airlines (OECD, 1999, p. 11[91]) (OECD, 2014, p. 15[92]) (Egeland and Smale, 2017, p. 26[86]).

Indeed, incumbent airlines are the leading firms at the largest co-ordinated airports in Europe and in the United States, controlling most slots at these airports (Table 2.10).

Table 2.10. Market share of leading airline at major Level 3 airports in Europe and the United States, 2017

Airport	Dominant airline	Percentage of total flights
Amsterdam Schiphol (AMS)	KLM	48.61%
Barcelona El Prat (BCN)	Vueling Airlines	39.87%
Frankfurt (FRA)	Lufthansa	64%
Istanbul Atatürk (IST)*	Turkish Airlines	78.86%
London Heathrow (LHR)	British Airways	47.76%
London Gatwick (LGW)	easyJet	43%
Madrid Barajas (MAD)	Iberia	31.48%
Moscow Sheremetyevo (SVO)	Aeroflot	79.60%
Munich (MUC)	Lufthansa	58.07%
Paris Charles de Gaulle (CDG)	Air France	49.21%
Rome Fiumicino (FCO)	Alitalia	39.64%
New York John F. Kennedy (JFK)	Delta Air Lines	26.09%
New York LaGuardia (LGA)	Delta Air Lines	40.03%
Washington Ronald Reagan (DCA)	American Airlines	52.20%
Total average		**49.88%**

Note: In April 2019, all scheduled commercial passenger flights were transferred from Istanbul Atatürk airport to the new Istanbul airport. The IATA airport code (IST) was also transferred to the new airport.
Source: (Air Transport Research Society, 2019[93])

One 2013 study indicated that the non-availability of slots at major airports was perceived as the most severe entry barrier to aviation markets by managers of airlines from the European Union and European Free Trade Association states (Kappes and Merkert, 2013, p. 62[94]).

Due to the grandfather clause, slot mobility is low at many congested airports. A 2011 study for the European Commission indicated that at the most congested airports in the European Union, only one – London Gatwick, then in the EU – had undergone a relevant change in slot holdings in the previous five years (Steer Davies Gleave, 2011, p. 123[95]).

Furthermore, the current system contributes to the market's low contestability, since the new-entrant rule results in schedule fragmentation, allocating a small, post-incumbent number of slots to a large number of airlines, which may not have sufficient presence at the airport to be able to provide effective competition (Steer Davies Gleave, 2011, p. 196[96]). Indeed, mid-sized incumbents, already holding a set of slots, are a stronger competitive threat to dominant airlines than smaller new entrants, with no or only few slots (Haylen and Butcher, 2017, p. 13[97]).[110]

From a competitive perspective, the present model may also lead to sub-optimal or undesirable mergers and acquisitions, which may contribute to market concentration. A merger or acquisition consolidates all slots previously held by the airlines involved in the transaction. Although concentrations may create synergies, they may also be used by the buyer solely as a means to acquire slots, without any further efficiency arising from the merger. Even if competition authorities might require divestiture of certain acquired slots, the others remain available for use by the acquiring airline to develop its own route portfolio (Gillen and Starkie, 2015, p. 8[98]).

Besides the lack of contestability, the slot-allocation system is criticised as inefficient from an economic point of view. Indeed, the mechanism may discourage airlines from optimal use of available airport infrastructure as the regulations may allow incumbent airlines to cancel unprofitable flights systematically, while retaining the ability to deter the entry of potential rivals at congested airports (Miranda and Oliveira, 2018, p. 201[99]). The "use it or lose it" rule may not be enough to ensure the efficient use of the infrastructure, since airlines may not have incentives to cede slots out of fear of rival entry (Avenali et al., 2015, p. 27[100]).

In fact, the literature points out several cases of so-called "slot hoarding" behaviour (also known as "slot babysitting"), when airlines use slots sub-optimally by operating low load factors or small aircraft at highly congested airports, in order to preserve their slots. This limits the total number of passengers transported and may lead to higher fares (Haylen and Butcher, 2017, p. 12[97]).

Moreover, the current slot-allocation mechanism is insulated from market forces (Ball, Berardino and Hansen, 2018, p. 190[101]). Airports are not allowed to charge market-clearing prices for slots, which means airlines with the greatest willingness to pay have no opportunity to do so, and incumbents may pay less than a possible market price, thus earning economic rents (Haylen and Butcher, 2017, p. 12[97]). This prevents efficient outcomes, such as the possibility of creative use and novel business models (Ball, Berardino and Hansen, 2018, p. 193[101]).

Slot allocation can also lead to higher prices for consumers (Ball, Berardino and Hansen, 2018, p. 190[101]) (Oliveira, 2016, p. 44[102]). For example, one 2014 study found that routes involving slot-controlled airports have airfares 7.0% higher on non-stop routes and 4.3% higher on one-stop routes, which suggests the scarcity value of airport slots (Zou and Hansen, 2014, p. 63[103]).[111]

In 2017, the International Transport Forum (ITF) held a roundtable to discuss how to improve the efficiency of airport-infrastructure use, and promote a more competitive environment at congested airports (Box 2.18).

Box 2.18. ITF roundtable on capacity building through efficient use of existing airport infrastructure

In March 2017, ITF held a roundtable discussion on capacity building through the more efficient use of existing airport-infrastructure, during which different measures were examined to improve the efficiency of airport capacity.

Experts agree that the WASG have worked, albeit not perfectly, where airport capacity is managed with administrative slot allocation. Two specific weaknesses of the WASG were highlighted: failure to re-allocate some of the existing capacity to new entrants and failure to deliver new capacity to new entrants in practice.

Pairing WASG with market-based mechanisms, such as secondary slot trading and auctioning, was seen as a way to increase economic efficiency, even if they might lead to extreme disruption to airline businesses and the reallocation of windfall rents. Peak pricing was also considered as a policy option, but its use in practice has not produced the desired outcomes.

The introduction of traffic distribution rules (TDRs) was also discussed. Banning specific types of aviation – say, general or military – from civil-aviation airports may have positive impacts on air connectivity. For instance, London Heathrow airport has banned general aviation flights completely and freight-only flights at peak times. Paris Le Bourget now serves general aviation and business jets, freeing up capacity at Paris's two other airports, Charles de Gaulle and Orly, for additional scheduled passenger services.* On the downside, segregating traffic usually leads to poor efficiency and air-connectivity outcomes. If TDRs are introduced, they should be easy to understand and non-discriminatory, with interventions targeted and proportionate, implemented in a transparent fashion with independent and impartial overseers.

Furthermore, developing technical innovations to improve use of available airport capacity may foster more efficient use of existing airport infrastructure, especially reducing the need for policy restrictions that constrain capacity in order to reduce adverse impacts of aviation activity, particularly in terms of noise and air pollution. Accordingly, there may be room for relaxing policy constraints on airport capacity in view of technological advancements enabling production of quieter, more environmentally friendly aircraft.

In addition, technological advancements to improve airport efficiency should also be considered. These include collaborative decision making; co-ordinated arrival-departure management; implementation of time-based separation rather than distance-based separation for aircraft arrivals; and better airside and landside co-ordination through simulation modelling.

Moreover, if incentivising the use of larger aircraft by airlines might reduce capacity pressure at more congested airports, then any airport charging higher charges for bigger aircraft should review its policies.

Finally, a discussion was held about how governments could increase efficiencies of multi-airport systems by redistributing traffic across different airports in the same city conurbations, namely by removing access barriers to airports, particularly in relation to surface access.

Note: *A similar idea was suggested by SEAE for Brazilian airports in 2021 (Secretaria de Advocacia da Concorrência e Competitividade, 2021[104]).
Source: (Egeland and Smale, 2017[86]).

The Brazilian market

Today, Brazil has 5 Level 3 or co-ordinated airports: Belo Horizonte Pampulha (PLU), São Paulo Congonhas (CGH), São Paulo Guarulhos (GRU), Recife (REC), and Rio de Janeiro Santos Dumont (SDU).[112]

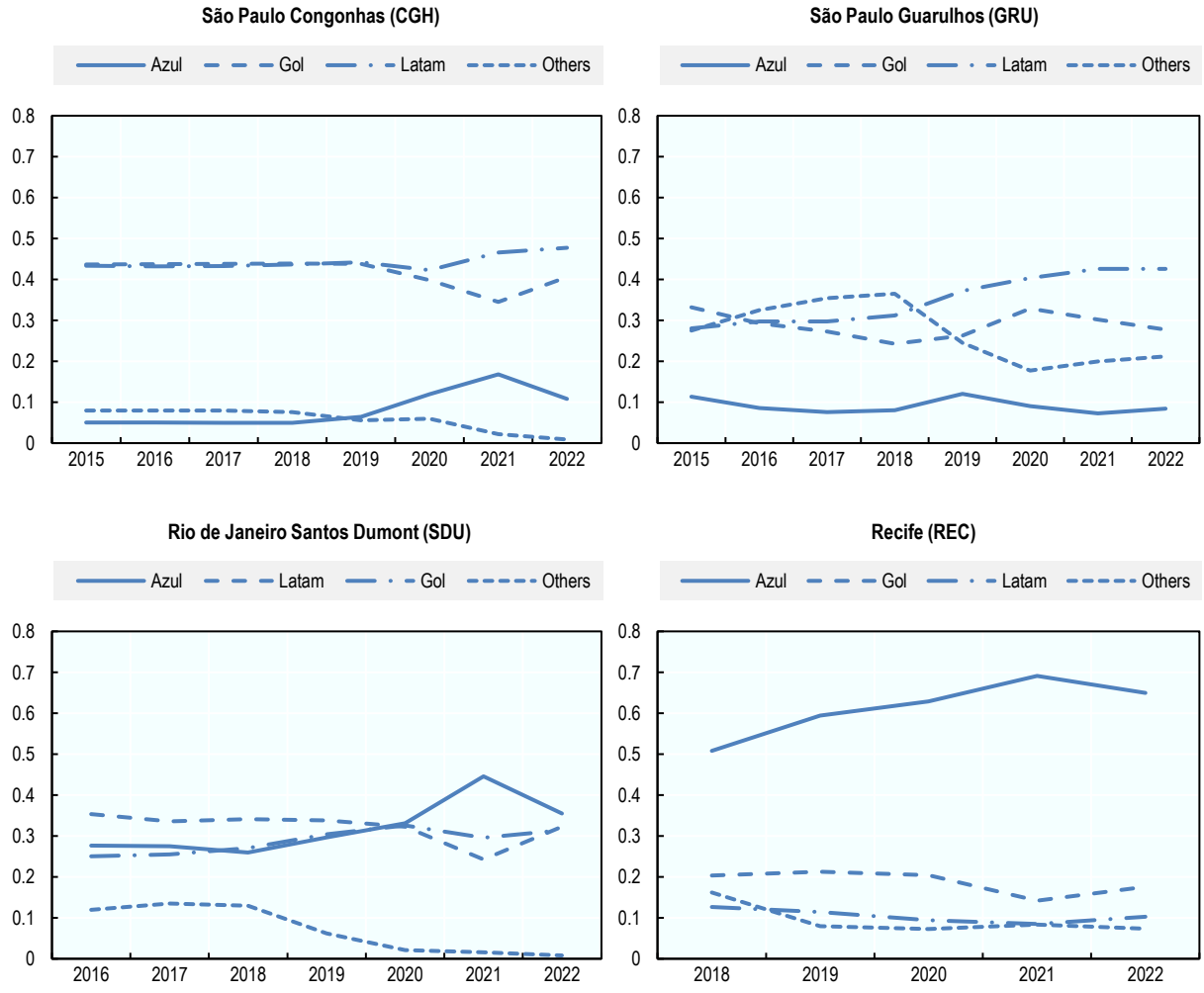
The concerns raised in academic literature and international experience of slot allocation also apply to Brazil. Indeed, the current system may actually be increasing concentration, enhancing market power of incumbents, preventing new airlines from entering the market, and promoting inefficient use of airport infrastructure.

São Paulo Congonhas airport (CGH) is the most congested airport in Brazil. It is located in the centre of the country's largest city and economic capital, which prevents any further increase of its capacity. Congonhas was the second busiest airport in Brazil in 2019, third busiest in 2020, and fourth busiest in 2021 (ANAC, 2022[105]). This makes discussions about slot allocation particularly important at Congonhas.

Two major carriers have traditionally provided most flights at Congonhas: Varig and Tam in the early 2000s, and Tam (later Latam) and Gol from the mid-2000s. In 2007, Varig was acquired by Gol, allowing the latter to access its once-competitor's slots at Congonhas (Box 2.20). From 2008 to 2013, Tam/Latam and Gol together accounted for around 90% of all flights at the airport, a concentration that remained similar until 2018 (Miranda and Oliveira, 2018, p. 206[99]) (DEE/CADE, 2019, p. 9[106]). In 2019, Avianca, at the time the fourth-largest airline in Brazil with the third-largest market share at Congonhas, went bankrupt. This allowed ANAC to take innovative decisions to increase competition at that airport, even if the two dominant air carriers maintained their market share (Box 2.19).

Figure 2.18 demonstrates how slots were allocated at four Brazilian co-ordinated airports from 2015 to 2022, and shows that the main Brazilian airlines holding large market shares at these airports has changed little over this time.

Figure 2.18. Allocated slots at co-ordinated Brazilian airports, 2015-22



Source: ANAC, https://sistemas.anac.gov.br/dadosabertos/Voos%20e%20operapercentageC3%A7%C3%B5es%20apercentageC3%A9reas/Slots%20Alocados/2021/..

Box 2.19. Reallocation of Avianca's slots at São Paulo Congonhas airport, 2019

In 2019, a discussion on slot allocation emerged after the bankruptcy of Avianca. At São Paulo Congonhas airport, Latam held 236 slots; Gol, 234; Avianca, 41; and Azul, 26. According to the general rule provided in Resolution ANAC No. 338/2014, an airline with more than five slots at a given airport is considered an incumbent. This meant that at Congonhas Azul had no right to preferential treatment over Latam and Gol for Avianca's slots. In practice, following that rule would have seen Latam and Gol further increase their (already large) share of slots.

In line with opinions issued by CADE's Department of Economic Studies and the Brazilian consumer-protection authority, SENACON, and based on the flexibility provided in Resolution ANAC No. 338/2014 for the definition of certain slot-allocation parameters, ANAC took the innovative decision to allocate Avianca's slots to new entrants first (DEE/CADE, 2019[106]) (Secretaria Nacional do Consumidor, 2019[107]). This was possible following Resolution ANAC No. 338/2014, which allowed the agency to establish the percentage of slots from the pool that shall be distributed to new firms at the airport (not less than 50%).

Furthermore, ANAC changed the criterion for defining new entrants. Instead of a maximum of 5 slots, an airline at Congonhas would be considered a new entrant even if it held up to 54 slots a day (or the equivalent to 10% of the airport's total slots).

In doing this, ANAC took into account the hypothesis that the new-entrant rule then in place resulted in schedule fragmentation by allocating a small number of slots to a large number of airlines, many of which were without the economic scale to compete effectively at the airport.

With the new rules, Azul was considered a new entrant and the new allocation procedure left it with 41 slots at Congonhas. Two small airlines obtained the remaining slots: Passaredo finished with 14 and Map with 12. Latam and Gol acquired no new slots. This solution promoted more competition at the airport, albeit in a limited way.

ANAC had previously fixed the minimum slot usage ("use it or lose it") at CGH at 90%, and that level was left in place.

The decision also indicated that ANAC was willing to review Resolution ANAC No. 338/2014 in order to evaluate new mechanisms that aimed to reduce entry barriers and promote competition at congested airports. The issue was part of ANAC's regulatory agenda for 2021/2022 and resulted in June 2022 in Resolution ANAC No. 682/2022. ANAC has also re-established the parameters for slot allocation at Congonhas, including: 1) reducing the minimum slot usage to 80%; 2) setting the level that an airline is considered a new entrant at up to 18 slots a day; 3) establishing that 100% of slots from the pool are first allocated to new entrants; and 4) establishing that one airline must not hold more than 45% of the airport's total slots.

Source: (ANAC, 2021[108]) and Proceeding No. 00058.047435/2020-12.

The issue of slots at co-ordinated airports has been highlighted by CADE as a relevant barrier to entry in the airline market. For instance, Brazil has experienced mergers whose main goals appeared to be the acquisition of airport slots, such as Gol's acquisition of Varig in 2007. In particular, a merger may be a practical solution to bypass the prohibition of trading slots. Box 2.20 illustrates how CADE has assessed airport slots in some merger-control cases involving airlines.

Box 2.20. CADE analysis of airport slots in merger cases

Over the past two decades, following the liberalisation and deregulation of the civil-aviation sector, the Brazilian market has changed, with airlines merging and forming alliances. When assessing transactions between airlines, allocated slots were considered by CADE and in certain cases justified the designation of remedies.

Varig/Gol case, Proceeding No. 08012.003267/2007-14

In 2007, CADE cleared Gol's acquisition of Varig, imposing only the exclusion of a non-competition clause covering cargo transport, which was not part of the relevant market at stake. Once the largest Brazilian air carrier, Varig had at the time of the transaction been experiencing severe financial problems for several years. Its remaining profitable assets were purchased by Gol, then an emerging Brazilian low-cost airline. CADE paid special attention to analyse the situation at São Paulo Congonhas, at which Gol was set to acquire a large set of slots. In spite of the slot concentration at the airport, CADE's Tribunal decided that airfares charged by airlines operating at the airport indicated the existence of a competitive market. Besides, competing airlines had idle capacity and would be able to compete with Gol.

TAM/LAN case, Proceeding No. 08012.009497/2010-84

In 2010, Chilean airline LAN and Brazilian TAM merged to form LATAM, the largest carrier group in South America. The case raised competition concerns about the availability of airport slots to competing airlines at São Paulo Guarulhos airport. CADE and the Chilean competition court cleared the transaction subject to remedies, including the exchange of four pairs of daily slots with another airline allowing new flights between São Paulo and Santiago in Chile.

Gol/Webjet case, Proceeding No. 08012.008378/2011-95

In 2011, Gol acquired Webjet, another Brazilian low-cost carrier. At the time of the transaction, Gol had 37.5% of domestic market share and Webjet 5.5%. CADE assessed operations at congested airports, and competition concerns were detected at Rio de Janeiro Santos Dumont airport. The transaction was finally approved subject to a behavioural remedy involving commitments to operate the allocated slots efficiently at Rio de Janeiro Santos Dumont. Among the commitments, Gol had to use allocated slots at Santos Dumont at least 85% of the time every three months or the slots would be returned to ANAC.

Azul/Trip case, Proceeding No. 08700.004155/2012-81

In 2012, Azul and Trip merged. At that time, Azul had 10% of domestic market share and and Trip 4.5%. Most of the routes on which both airlines directly competed before the merger were at regional airports, without capacity constraints, the only exception being Rio de Janeiro Santos Dumont. CADE approved the transaction subject to a behavioural remedy similar to that imposed in the Gol-Webjet case to ensure the efficient operation of allocated slots at Santos Dumont, under penalty of returning the unused or underused slots to ANAC.

TAM/Iberia/British Airways case, Proceeding No. 08700.004211/2016-10

In 2017, LATAM through TAM and International Consolidated Airlines Group (IAG) through Iberia and British Airways signed a joint business agreement comprising air passenger and cargo transport between Europe and South America. In practice, the case represented a metal-neutrality joint venture, a comprehensive economic sharing agreement in which costs and revenue are shared between each partner airline regardless of which one actually carries the passenger. The transaction raised competition concerns related to the route between São Paulo and London, since it would have been

monopolised by the merging parties and there were severe slot restrictions in London, especially at Heathrow. Among the remedies imposed by CADE, the merging airlines were required to lease free of charge for ten years a pair of slots at London Heathrow or London Gatwick airports to another air carrier, allowing a new flight on the São Paulo-London route.

Source: (CADE, 2017[109]).

There is no minimum aircraft capacity – the number of seats on each flight – to operate at congested airports in Brazil. In fact, smaller airlines can obtain slots to operate low-capacity aircraft, which means that fewer people can be transported at the congested airport, potentially reducing overall consumer welfare. Also, it is unclear whether allowing small airlines to enter the market to operate such flights actually poses a competitive threat and substantially enhances competition. When reallocating slots at Congonhas in 2019, limiting slot allocation to a minimum aircraft capacity was expressly refuted by ANAC, which stated the need to ensure new entry in the market, regardless of the total number of passengers transported.

In light of the slot-allocation model implemented by ANAC, one study evaluated Congonhas from 2002 to 2013 using an econometric model (Miranda and Oliveira, 2018[99]). It found evidence that market concentration on a given route is likely to reduce flight disruptions such as delays and cancellations, as more intense competition tends to force airlines to improve their service quality to passengers. Moreover, airlines strategically manage flight disruptions and employ schedule padding, adding extra time to a flight's scheduled arrival time to reduce the risk that the flight is considered delayed by the authorities. It was also pointed out that flight-disruption costs appeared to be passed onto consumers.

The study also noted that airport slots may have a role in strengthening the internalisation of congestion costs by dominant airlines. Although slot concentration may induce "slot hoarding" behaviour by airlines, the assessed period showed that those practices were not effective. In fact, over the study's duration, the number of flight delays at Congonhas dropped by 50% and flight cancellations by 69%. Nevertheless, the study found evidence that the average aircraft size decreased over the period, which may indicate a potentially inefficient use of airport infrastructure.

In conclusion, the paper stated that a traditional model of slot allocation (grandfather clauses combined with the "use it or lose it" rule) would be sufficient to lead to the internalisation of congestion externalities (some of which are currently borne by consumers, such as flight cancellations or delays) by dominant airlines (Miranda and Oliveira, 2018[99]).

A more recent study by a consulting firm contracted by the Brazilian Ministry of the Economy, with support from the United Nations Development Programme (UNDP), to propose regulatory solutions for an optimisation of airport slot allocation in Brazil, seems to be in line with the earlier paper (LL Advogados and PEZCO, 2021[110]). The study developed an econometric model to assess whether Resolution ANAC No. 338/2014 had impacted consumers. The results showed that slot concentration at Congonhas (as already noted, the most restricted airport in Brazil) has relevant, but specific effects on fares in the São Paulo region. This suggests that not all cases of slot concentration are detrimental to price competitiveness. Although in some cases slot concentration produces market power, in others it may generate pro-competitive effects. Indeed, the current regulatory framework has allowed the market to increase consistently, including with lower prices for consumers. However, the study highlighted that market shares of incumbent airlines have now stabilised, which indicates a need to focus on market contestability.

Other studies have been carried out by the Brazilian Government in order to evaluate whether and how Resolution ANAC No. 338/2014 should be amended or replaced. For example, SEAE and the World Bank have carried out a study on slot allocation regulation in Brazil, concluding that the current regulation did not reduce market concentration at congested airports (Secretaria de Advocacia da Concorrência e Competitividade, 2021[104]).

Another issue that may limit competition in Brazil is the restriction on transferring slots. Until recently, only free transfer between airlines belonging to the same economic unit or free one-for-one swaps not involving new entrants, were allowed. Slots may have different economic values, and the restriction of swapping one slot for more than one may prevent transactions that would be mutually beneficial for the parties and that could improve efficiency.

The WASG do not prohibit slot transfers between airlines, whether or not for compensation or consideration, although they highlight that national law may prohibit such transactions (Airports Council International, International Air Transport Association and World Wide Airport Coordinators Group, 2020, p. 40[87]). At least in theory, the inclusion of a market mechanism could enhance competition and efficiency, even though it seems reasonable to keep some sort of regulatory control, especially to prevent abusive behaviour by dominant airlines (see Annex 2.A). As previously noted, in the recently approved Resolution ANAC No. 682/2022, ANAC has allowed airlines to trade slots, under certain circumstances.

In summary, competition concerns related to airport slot allocation in Brazil seem to be aligned with concerns already identified in the economic literature and verified in other jurisdictions. This is the case of increasing market concentration and market power, as well as the inefficient use of airport infrastructure. This is not surprising since Brazil follows the WASG, which is also used by most jurisdictions.

Recommendation

The OECD recommends that the Brazilian authorities review the current regulation on slot allocation, in order to increase competition at congested airports. For that purpose, they should consider the following changes:

- improvements to the current administrative mechanism, such as, for example, making the grandfather clause more flexible; establishing a percentage higher than 50% of slots from the pool that need to be allocated to new entrants;[113] adopting a maximum number of slots an airline can hold at a given airport; determining expiry dates on grandfather clauses, after which the slots are returned to the pool and then reallocated to other airlines; revising the rule for new entrants;[114] and improving the determination of airports' declared capacity.[115]
- adoption of market-based mechanisms, such as congestion pricing,[116] slot auctions and slot trading, to replace the WASG model or as an additional feature to the current system.

2.6. Civil-aviation personnel

The personnel working in civil aviation includes employees from the entire air-transport industry, with airlines, air-navigation service providers, airports, and the civil-aerospace sector (Air Transport Action Group, 2020, p. 19[111]). This includes pilots, cabin-crew members, flight dispatchers, air-traffic controllers and ground-handling and aircraft-maintenance staff, jobs that in many cases require specialised qualifications, such as a licence, and a significant amount of training.[117]

A licence, according to the International Civil Aviation Organisation (ICAO), is a way that a state can authorise its holder to perform specific activities that, unless performed correctly, could jeopardise aviation safety. Therefore, the licence provides evidence that the issuing state is satisfied that the holder has demonstrated an internationally acceptable degree of competency (International Civil Aviation Organization, 2012, p. 22[112]). In Annex 1 to the Convention on International Civil Aviation, ICAO also provides international standards and recommended practices for licensing flight crews[118] and other personnel.[119]

Accordingly, licensed aviation professions are subject to regulations that seek to promote aviation safety.[120] These requirements vary according to the specific profession, but usually comprise training, practical experience, examinations, and characteristics such as age, citizenship and language competence.

2.6.1. Licensed civil-aviation personnel in Brazil

Background

In Brazil, the following civil-aviation professions are regulated by ANAC:[121]

1. pilots[122]
2. flight mechanics[123]
3. flight attendants[124]
4. flight dispatchers[125]
5. aircraft-maintenance technicians.[126]

The first three professions compose the aircrew, which provides services on an aircraft during a flight, with pilots and flight mechanics comprising the flight crew and flight attendants the cabin crew.[127] The number of members of a flight and cabin crew varies according to the type of aircraft.

On the ground, flight dispatchers are responsible for the control and supervision of flight operations and aircraft-maintenance technicians ensure the continuing airworthiness of an aircraft (International Civil Aviation Organization, 2007[113]).

In line with Annex 1 to the Convention on International Civil Aviation, there are different kinds of pilot licences: 1) private; 2) commercial; 3) multi-crew; 4) airline transport; 5) glider; and 6) free balloon. The total number of civil-aviation licences issued by ANAC between 2010 and 2022 is presented in Table 2.11.

Table 2.11. Civil-aviation licences issued in Brazil, 2010-2022

Type of licence	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Airline transport pilot (aeroplane)	651	837	531	197	257	444	404	440	352	382	249	208	58
Airline transport pilot (helicopter)	185	180	201	167	153	79	41	25	52	33	12	36	22
Commercial pilot (aeroplane)	1 292	1 640	2 043	1 712	1 534	1 273	991	895	864	959	806	939	305
Commercial pilot (helicopter)	401	433	628	753	615	318	180	165	146	110	80	103	31
Private pilot (aeroplane)	2 310	2 680	3 754	2 885	2 439	2 308	1 753	1 442	1 369	1 615	1 448	1 517	422
Private pilot (helicopter)	680	639	1009	911	727	558	293	186	177	185	130	178	60
Other pilots*	416	625	639	406	413	352	324	242	354	775	362	369	88
Flight attendant	2 896	2 360	1 354	384	435	686	211	766	801	839	237	85	235
Flight mechanic	3	12	5	0	0	4	0	1	1	0	0	0	0
Aircraft-maintenance technician	NA	NA	NA	NA	NA	NA	NA	NA	NA	661	329	481	NA
Flight dispatcher	NA	NA	NA	NA	NA	NA	NA	NA	NA	13	4	2	NA
Others**	27	60	165	17	15	21	6	8	11	0	2	3	0
Total	**8 861**	**9 466**	**10 329**	**7 432**	**6 588**	**6 043**	**4 203**	**4 170**	**4 127**	**5 572**	**3 659**	**3 921**	**1 221**

Notes: * Glider pilots, free-balloon pilots and sport pilots. ** Others include specialised operators and designated examiners, for example.
Source: OECD calculations, based upon (ANAC, 2022[114]) and other data provided by ANAC, up to 1 May 2022.

Each type of licence has different requirements (Table 2.12).

Table 2.12. Requirements for civil-aviation personnel licensing

Licence/ requirement	Pilot*	Flight mechanic	Flight attendant	Flight dispatcher	Aircraft-maintenance technician
Minimum age	18 and 21 for airline-transport pilot	21	18	21	18
Educational level	Secondary school	Secondary school	Secondary school	Secondary school	Secondary school
Language proficiency	Portuguese + English to operate a Brazilian aircraft outside Brazilian airspace	Portuguese	Portuguese	Portuguese	Portuguese
Medical fitness	Class 1 medical certificate for commercial pilot, multi-crew pilot, and airline transport pilot or Class 2 medical certificate for private pilot	Class 2 medical certificate	Class 2 medical certificate	N/A	N/A
Theoretical knowledge	Course for commercial pilot + technical examination	Course + technical examination	Course + technical examination	Experience or course + technical examination	Course or specific degree + technical examination
Experience	Training course, including minimum flight hours: – private pilot: 40 hours – commercial pilot: 200 hours – multi-crew pilot: 240 hours – airline transport pilot: 1 500 hours	Training course, including at least 100 flight hours	Training course, including at least 14 flight hours	Minimum service experience	Minimum service experience
Practical skills	Test	Test	Test	Test	Test

Note: * Glider and free-balloon pilots excluded.
Source: RBAC No. 61, RBHA No. 63, RBAC No. 65, and RBAC No. 67.

Although many of the requirements for obtaining civil-aviation licences in Brazil are in line with Annex 1 to the Convention on International Civil Aviation, there is room for regulatory reforms that would be effective in promoting market entry and competition.

Civil-aviation instruction centres

Description of the obstacle and policy makers' objective

Applicants for a civil-aviation licence must undergo practical training at a civil-aviation instruction centre (CIAC). Additionally, they may also be required to receive theoretical instruction at a CIAC, depending on the requested licence. A CIAC must be certified by ANAC to provide courses for licences for pilots, flight mechanics, flight attendants, flight dispatchers, and aircraft-maintenance technicians. For that purpose, it must demonstrate compliance with requirements related to the training programmes, facilities, equipment, personnel and training material, according to the courses it intends to offer.[128] This aims to ensure that training courses meet instructional quality and safety criteria, and are in line with the standards set out in Annex 1 to the Convention on International Civil Aviation.

In addition, if the CIAC also gives flight instruction on board an aircraft, it requires an ANAC authorisation to operate, since flight training of aircrew is a specialised air service.[129] This rule intends to guarantee that the firm will follow all technical requirements when providing such a service, in order to protect aviation safety.

Since 2017, Law No. 13.475/2017 states that a flight instructor on board an aircraft must be hired by the training organisation on an employment contract.[130] This aims to enhance their employment protection.

Further, to be allowed to give skill tests, a CIAC must be authorised by ANAC and one or more of its instructors certified as an examiner. For that purpose, an instructor must meet different requirements, including: 1) minimum experience (for aeroplane examiners, at least 500 hours of aeroplane flight instruction); 2) a valid licence and ratings for the type of licence to be examined; 3) completed an examiner training course given by ANAC or an organisation authorised by it; and 5) passed a skill test as a certified examiner.[131] These rules aim to ensure that examiners have appropriate qualifications and experience to assess whether an applicant is able to hold a licence, based on objective, transparent and non-discriminatory criteria.

Currently, 333 training organisations are certified as a CIAC in Brazil, although 13 of them have their certification suspended (ANAC, 2022[115]).

Training organisations are free to offer their services in the market and to establish their own prices.

Harm to competition

Requiring a training organisation to be certified by ANAC seems reasonable to guarantee a minimum level of training programmes, and so aviation safety. Indeed, many jurisdictions also require such an approval by the civil-aviation authority, following Annex 1 to the Convention on International Civil Aviation. Nevertheless, this may be burdensome, and increase entry costs, especially for SMEs.

The European Union has introduced an alternative system for training general-aviation personnel that is more appropriate for and proportionate to the needs of these activities. The requirements applicable to approved training organisations (ATOs) were considered too demanding for small general-aviation training providers, mainly run by private flying clubs or private individuals (Euripean Aviation Safety Agency, 2016[116]). Since 2018, what are known as declared training organisations (DTOs) can provide training for non-commercial pilot licences (including private pilot licences) on the basis of a declaration submitted by the representative of the organisation, confirming that it has implemented a safety policy and will comply with the applicable requirements.[132]

This solution is believed to lessen the costs for obtaining a non-commercial pilot licence (Euripean Aviation Safety Agency, 2016[116]). In the long term, this outcome is also likely to reduce the costs of getting a commercial-pilot licence, since obtaining a private-pilot licence is mandatory for becoming a commercial pilot.

As for the need for an authorisation by ANAC to provide flight instruction on board an aircraft – in addition to the required certification – it is worth noting that recent regulation issued by ANAC[133] no longer requires an authorisation for a Brazilian firm to provide air transport services, including specialised air services such as on board training. Instead, a national airline must only be certified by ANAC and operate an aircraft in an airworthy condition and compatible with the intended service. Hence, provisions that demand an authorisation to provide flight training are obsolete. This can raise regulatory and compliance costs facing market players. Furthermore, it can lead to extra costs for operators willing to enter the market, and may discourage new entrants.

Additionally, obliging a CIAC only to hire flight instructors to provide flight training on board an aircraft through an employment contract increases their costs, and so the cost of obtaining a pilot licence. This also prevents commercial pilots holding a flight-instructor certificate from doing freelance work, which could increase their flight experience more flexibly. This may be crucial to becoming a more competitive pilot in the job market, as a higher number of flight hours is usually decisive for getting a job, as well as helping these commercial pilots to achieve the required hours to obtain an airline transport pilot licence. According to ANAC, this is not a technical requirement and does not enhance aviation safety. In fact, before Law No. 13.475/2017 was enacted in 2017 doing freelance work was a common practice.

Recommendations

The OECD has three recommendations.

1. Brazilian authorities should implement a more flexible and less burdensome system for civil-aviation instruction centres delivering training for non-commercial pilot licences, such as allowing them to self-declare their fitness as training organisations.
2. Brazilian authorities should update the legislation requiring an ANAC authorisation for a CIAC to provide flight instruction on board an aircraft. Training organisations should only need to obtain a certification from ANAC and operate an aircraft in an airworthy condition and compatible with the intended training.
3. Brazilian authorities should review the requirement of a training organisation to hire flight instructors only on an employment contract.

Theoretical courses

Description of the obstacle and policy makers' objective

To obtain certain licences, an applicant must take a theory course at a CIAC before taking the technical examination. This is the case for licences for commercial pilots, flight mechanics, flight attendants, flight dispatchers and aircraft-maintenance technicians. For a flight-dispatcher licence, the theoretical course may be substituted by two years of service as an airline-transport pilot or flight mechanic. Those holding a bachelor's degree in aeronautical, electrical, electronics, mechanical or aeronautical-mechanical engineering may be exempted from the technical course for obtaining an aircraft-maintenance technician licence. Applicants for pilot licences (except commercial-pilot licences) must only pass the technical examination.

Harm to competition

The need to take a theoretical course at a CIAC before taking the technical examination increases the costs of getting a licence, and might reduce the number of licensed professionals in Brazil. The examination aims to ensure that applicants have the necessary knowledge of the privileges granted to the holder of the requested licence. Yet requiring a theoretical course may prevent applicants from using self-study methods, which could be both more affordable and satisfactory. For instance, certain licences (such as private pilot and airline-transport pilot licences) do not require a theoretical course.

Annex 1 to the Convention on International Civil Aviation only establishes that the applicant must demonstrate a level of knowledge appropriate to the privileges granted to the licence holder. This gives each signatory state the right to decide how the required level of knowledge is assessed.

In Australia, for example, applicants to private, commercial and air-transport pilot licences, as well as to aircraft-engineer licences only require a theory exam, which can be self-taught.[134] New Zealand similarly only requires an examination for private, commercial and airline transport pilot licences and aircraft-maintenance engineer licences.[135]

Recommendation

The OECD recommends that ANAC considers testing the theoretical knowledge of a licence applicant only through a technical examination, abolishing the requirement of taking a theoretical course at a CIAC and allowing alternative ways of training, including self-study methods.

2.6.2. Nationality requirement

Description of the obstacle and policy makers' objective

According to Brazilian legislation, the aircrew of domestic flights must be composed only of native or naturalised Brazilian citizens.[136] For international flights provided by Brazilian airlines, up to a third of flight attendants on board can be foreigners.[137] In that case, the flight crew – including pilots and flight mechanics – must still be Brazilian citizens. There is no nationality requirement for flight dispatchers and aircraft-maintenance technicians.

Although there is no official recital on the objective of this requirement, it can be assumed that it is intended to support the national labour market and ensure that Brazilian workers acquire the necessary skills to perform as aircrew members. Furthermore, it also seeks to establish a Brazilian workforce to prevent dependence on foreign aircrews. According to ANAC, there are no technical reasons for the nationality requirement.

In case of a shortage of Brazilian workers, foreign instructors may be provisionally admitted, but an ANAC authorisation is required and only valid for the time required to qualify new Brazilian aircrew members and for a maximum of six months. The rationale is to ensure that Brazilian airlines can operate, even without sufficient domestic personnel, but only until enough qualified crew members have been employed.

Foreigners may also be admitted by Brazilian airlines as aircrew members in case of bilateral agreement between Brazil and the country of the workers' nationality, on the basis of reciprocity.[138] However, only a few specific examples of such agreements, with particular airlines and with limited impact, are currently in force.

Harm to competition

The Brazilian nationality requirement is discriminatory. Excluding nationals of other countries reduces the number of people able to offer services in the market. Moreover, the requirement may make the entry of potential market participants more difficult as a consequence of the difficulty and cost of finding suitable crew.

For international flights, even though one-third of cabin crew members may be foreigners, all pilots and flight mechanics must be Brazilian citizens. The nationality requirement only applies to Brazilian airlines, and therefore foreign air carriers providing international flights to and from Brazil and competing with Brazilian firms on the same routes can hire foreign workers. In case of shortage of Brazilian manpower, foreign companies will not be affected, and Brazilian firms will be put at a competitive disadvantage on the routes on which they face foreign competition. Furthermore, multinational crew members can be commercially attractive and constitute a competitive advantage, especially for international flights.

In addition, Brazilian legislation allows foreigners to be employed as a last resort (in case of shortage of Brazilian personnel), but this requires an authorisation from ANAC for which there are no established criteria for assessing such requests, especially how to determine when there is a shortage of workers. This may lead to discretionary decisions and legal uncertainty. Moreover, as the authorisation for hiring foreign workers is limited to the period necessary for instructing new Brazilian aircrew members (up to six months), if no interested national citizens are found to qualify, the shortage of personnel will remain in place.

There appears to be no current shortage of aircrew members in Brazil, and the flexibility on the nationality requirement does not seem to have been applied in practice. On the other hand, Brazilian airlines may not have access to a sufficient supply of aviation personnel in the future. ICAO estimates predict that Brazil will require 9 807 new pilots and 15 922 flight attendants by 2037 (International Civil Aviation Organization, 2018[117]). According to one 2021 study, despite the uncertainties about the recovery of the civil-aviation industry from the COVID-19 crisis, a global pilot shortage will emerge in some regions in the years ahead. Although Latin America is likely to remain closer to equilibrium for pilot supply and demand, Brazilian crew members may be recruited to supply demand in regions facing a pilot shortfall (Murray, 2021[118]).

In most jurisdictions, nationality is not a requirement for working as an aircrew member, but foreigners willing to work in a third country must have the right to work in that country (in addition to hold the appropriate licences or certifications). For example, this is the case in the United States, Canada, the European Union, Chile, China, United Arab Emirates, and Qatar. In Argentina, foreigners can also work as a pilot or flight attendant, but only foreigners with permanent residency can work as a flight mechanic.

Recommendation

The OECD recommends that Brazilian authorities consider relaxing the nationality requirement, especially for international flights. This should include ANAC issuing guidelines on the transparent, objective, and non-discriminatory assessment of requests for temporary admission of foreign crew members when national labour is short. It should also consider the possibility of extending the flexibility period for longer than six months if no sufficient qualified Brazilian workers can be found in that time frame.

2.6.3. Outsourcing aircrew

Description of the obstacle and policy makers' objective

Aircrew cannot be outsourced in Brazil: cabin and flight crew members must be directly hired by the aircraft operator, through an employment contract.[139] This restriction aims to protect workers, especially considering that these activities concern airlines' core business. Where it is allowed outsourcing has resulted in less advantageous working conditions marked by lower union penetration, lower wages, and reduced benefits (International Transport Forum, 2015, p. 20[119]).

Harm to competition

Outsourcing aircrew may be a competitive advantage for airlines, and may reduce their costs. Indeed, in order to increase cost efficiency, flexibility and access to resources, airlines have been increasingly outsourcing functions to third-party organisations (Steer Davies Gleave, 2015, p. 181[120]). Outsourcing aviation personnel is not unlawful in several other jurisdictions, such as the United States and the European Union.

Although in the past few airlines outsourced flight and cabin crew employment, this has been changing in recent years, for example, in the United States and in the European Union (Rutner and Brown, 1999[121]) (Callaci, 2020[122]) (European Parliament, 2016[123]). For instance, in Europe, certain low-cost carriers and even a network carrier were outsourcing flight and cabin crew in 2015 (Steer Davies Gleave, 2015, p. 188[120])

Outsourcing can be especially relevant for small regional air carriers and new entrants, since it allows greater flexibility (as the services are only paid when required) and reduces costs for hiring and training

specialised personnel. This might increase the number of players in the market and ultimately reduce air fares to consumers.

Recent changes in Brazilian labour law have allowed outsourcing even for firms' core business activities.

Recommendation

The OECD recommends that Brazilian authorities consider authorising airlines to outsource aircrew members, in line with national labour law and international practices. Safeguards can be introduced to ensure respect of work conditions, including minimum wages, or collective bargaining.

2.6.4. Flight- and duty-time limitations

Description of the obstacle and policy makers' objective

Part I of Annex 6 to the Convention on International Civil Aviation provides that member states shall establish regulations for the purpose of managing fatigue,[140] with the aim of ensuring that flight- and cabin-crew members can safely perform their duties at an adequate level of alertness.

Indeed, academic literature highlights that the absence of tight regulations can compromise safety standards. The number of fatigue-related safety incidents has grown, and crew fatigue and sleep loss are often the causes of operational errors (Efthymiou et al., 2021[124]).

Fatigue management may be implemented by: 1) prescriptive regulations for flight time, flight duty-period limitations, and rest-period requirements;[141] and 2) authorising operators to use a fatigue risk-management system (FRMS).[142]

The ICAO's "Guidance Material for Development of Prescriptive Fatigue Management Regulations" indicates that limitations for flight times and duty periods should be divided by time periods (International Civil Aviation Organization, 2011, p. 3[125]). For instance, many countries prescribe daily, monthly and yearly flight-time limitations, as well as cumulative duty limitations for specified periods. However, the time periods established by countries vary substantially, according to the perceptions as to what is acceptable. ICAO recommends member states consider the results of relevant scientific principles and knowledge, past experience, cultural issues, and the nature of operations, as well as to examining other states' practices.

Brazil has adopted a prescriptive fatigue-management system, establishing flight-time and duty-period limitations, as well as rest-period requirements.[143] Airlines may mitigate these limitations by introducing an FRMS, which comprises ongoing risk assessment and monitoring, and can develop FRMS that establish other maximum values for flight times and duty periods, based upon data, scientific principles and operational experience to ensure that crews operate at an adequate level of alertness. To be implemented, a FRMS must be approved by ANAC.[144] If an FRMS provides a duty period longer than 12 hours or a rest period of fewer than 12 hours for operations with the minimum required crew, it must be negotiated between airlines and unions thorough a collective labour agreement.[145]

Harm to competition

Although establishing flight-time and duty-period limitations is necessary to prevent fatigue impacting upon aircrew performance and so aviation safety, Brazilian regulation seems to be more restrictive than other jurisdictions, including neighbouring countries (Table 2.13).

Table 2.13. Flight-time, flight-duty period and duty-period limitations

Jurisdiction	Flight-time limitations	Flight-duty-period limitations	Duty-period limitations
Brazil	In the same duty period: – 8 to 10 hours, depending on time of the day and number of landings (with a 2-pilot flight crew) – 10.5 to 14.5 hours, depending on time of the day and rest facilities (with a 3-pilot flight crew) – 11.5 to 16.5 hours, depending on time of the day and rest facilities (with a 4-pilot flight crew) – 90 hours in 28 consecutive days (turbojets) – 900 hours over 365 consecutive days (turbojets)	N/A	–9 to 13 hours, depending on time of the day and number of landings (with a 2-pilot flight crew) – 12 to 16 hours, depending on time of the day and rest facilities (with a 3-pilot flight crew) – 13 to 18 hours, depending on time of the day and rest facilities (with a 4-pilot flight crew) – 60 hours in 7 consecutive days – 100 hours in 14 consecutive days – 176 hours a month – 176 hours in 28 consecutive days
European Union	– 100 hours over 28 consecutive days – 900 hours a calendar year – 1 000 hours over 12 consecutive calendar months	– 9 to 13 hours, depending on time of the day and number of sectors for operations with the minimum required flight crew, extendable up to 3 hours in case of augmented flight crew	– 60 duty hours in 7 consecutive days – 110 duty hours in 14 consecutive days – 190 duty hours in 28 consecutive days
United States	– 8 to 9 hours, depending on time of day (with the minimum required flight crew) – 13 hours (with a 3-pilot flight crew) – 17 hours (with a 4-pilot flight crew) – 100 hours over 672 consecutive hours – 1 000 hours over 365 consecutive days	– 9 to 14 hours, depending on time of day and number of sectors (operations with the minimum required flight crew) – 13 to 17 hours, depending on time of day and rest facilities (with a 3-pilot flight crew) – 13.5 to 19 hours, depending on time of day and rest facilities (with a 4-pilot flight crew)	N/A
Canada	– 8 hours in 24 consecutive hours (operations with a single pilot) – 112 hours in 28 consecutive days – 1 000 hours over 365 consecutive days	– 8 to 13 hours, depending on flight duration, time of day and number of sectors (with a 2-pilot flight crew) – 14 to 15 hours, depending on rest facilities (with a 3-pilot flight crew) – 15.25 to 18 hours, depending on rest facilities (with a 4-pilot flight crew)	– 60 or 70 hours in 7 consecutive days, depending on time off-duty – 192 hours in 28 consecutive days – 2 200 hours over 365 consecutive days
Argentina	– 8 hours in 24 consecutive hours (with a 2-pilot flight crew) – 13 hours in 24 consecutive hours (with a 3-pilot flight crew) – 17 hours in 24 consecutive hours (with a 4-pilot flight crew) – 90 hours a month and 860 hours a year (with a 2-pilot flight crew) – 100 hours a month and 1 000 hours a year (with a 3-pilot flight crew) – 100 hours a month and 1 000 hours a year (with a 4-pilot flight crew)	- 13 hours (operations with a 2-pilot flight crew) - 17 hours (operations with a 3-pilot flight crew) - 22 hours (operations with a 4-pilot flight crew)	N/A
Chile	– 8 hours in 24 consecutive hours (with minimum required flight crew) – 34 hours over 7 consecutive days – 100 hours a month – 1 000 hours a year	– 12 hours (with a 2-pilot flight crew) – 18 hours (with a 3-pilot flight crew) – 20 hours (with a 4-pilot flight crew)	N/A

Note: Longest periods provided in the Brazilian legislation (i.e. Appendix B of RBAC No. 117).
The segment of a flight duty period between an aircraft first moving for the purpose of taking off until it comes to rest after landing and taxiing to the designated parking position.
Source: Brazil (RBAC No. 117); EU (Commission Regulation (EU) No. 83/2014 of 29 January 2014); US (14 CFR Part 117); Canada (SOR/96-433, Part VII, Division III); Argentina (National Decree No. 877/2021); Chile (Resolution 889 EXENTA).

For example, while the maximum flight time for aircrew in Brazil is 16.5 hours (with a 4-pilot crew), in Argentina and the United States, it is 17. The Chilean regulation provides that the maximum flight duty period can be up to 20 hours with a 4-pilot crew, a period longer than the 18 hours in Brazilian legislation. Additionally, the annual flight-time limitation set out in Brazilian legislation is lower than comparable jurisdictions, such as Canada, Chile and the United States.

These limitations increase costs for Brazilian airlines on long-haul flights compared to foreign competitors. These limitations only apply to Brazilian airlines, which means that foreign air carriers providing international flights to and from Brazil are not subject to the Brazilian flight-time limitations. This reduces Brazilian competitiveness compared to neighbouring countries, and may discourage foreign investors from entering the Brazilian market.

According to stakeholders, these restrictions have already prevented Brazilian airlines from providing flights on some routes, because the flight could not be operated, even with four-pilot crews. Although ANAC has recently mitigated these outcomes through RBAC No. 117 (which provides longer flight-time and duty-period limitations under the scope of a fatigue risk management), these limits are still below other countries. Also, despite the fact that since 2020 Brazilian airlines may establish an FRMS with the aim of derogating flight-time limitations, stakeholders suggest that implementing such a system may be costly. In any case, many countries also provide for a FRMS, which does not mitigate the impact of the higher flight-time and duty-period limitations set by the Brazilian legislation.

Recommendation

The OCED recommends that Brazilian authorities consider reviewing flight-time and duty-period limitations, taking into account the regulations established in other jurisdictions, but also relevant scientific principles and knowledge, past experience, cultural issues and operational nature, in line with ICAO recommendations (International Civil Aviation Organization, 2011, p. 3[125]).

Annex 2.A. Slot auctions and slot trading

This annex will further analyse slot auctions and slot trading, which are two of the most discussed solutions for increasing competition in the process of allocating slots. Both options have advantages and disadvantages.

Airport slot auctioning

Advantages

Slot auctioning may allow the allocation of scarce airport capacity to those airlines that value it most (or are most willing to pay) and so will provide more innovative and competitive services (Egeland and Smale, 2017, p. 27[86]) (Bichler et al., 2021[126]).

If the auction is appropriately designed and managed, it may allocate slots in a way that increases efficiency and encourages competition between airlines (Egeland and Smale, 2017, p. 27[86]). Indeed, auctioning slots may reduce barriers to entry, increase regulatory stringency, and prevent the possibility of windfall profits (Pertuiset and Santos, 2014, p. 67[127]).

Auctioning slots would improve overall system performance, as regards the available options between city-pair markets, the daily flight delays, as well as financial considerations for both passengers and airlines (Ball, Berardino and Hansen, 2018, p. 187[101]). Furthermore, auctioning slots could raise funds for the development of new infrastructure to help ease the problem of scarce airport capacity, where expansion is feasible (Egeland and Smale, 2017, p. 27[86]).

Slot auctions may completely or partially replace the current slot-allocation mechanism. Auctions may involve all slots (eliminating the grandfather clause) or only selected slots (such as slots from the pool, slots withdrawn from incumbents, or newly created slots).

Designing smart slot auctions is, nevertheless, a great challenge. They must be allocatively efficient to maximise the value of the allocation and incentive compatible, giving airlines and airports the necessary incentives to take part and bidders an interest in reporting their valuation honestly. They also need to be flexible, allowing airlines to develop a strategy to schedule take-offs and landings, as well as understandable, easily implementable and transparent (Pertuiset and Santos, 2014, p. 67[127]).

Academic literature suggests different approaches to designing slot auctions. One paper, for instance, proposes a Vickrey-Clarke-Groves auction mechanism, which would result in a division of the set of the auctioned slots across several bidders, maximising the seller's income (Pertuiset and Santos, 2014[127]).

Another paper notes that auction markets have been used around the world in similarly challenging environments with successful outcomes (Bichler et al., 2021[126]). Moreover, the authors emphasise the recent advances in economic modelling, computation and algorithms, which should improve the auction design, and consequently allocative efficiency.

Nevertheless, without a periodic reallocation of slots, the same outcomes produced by the present slot allocation model would be reproduced. In other words, an auction allocating unrestricted slot ownership would result in a new status quo, similar to the current one. Periodic slot reallocation through auctions would therefore achieve a vibrant, competitive environment, allowing a new or growing airline to obtain slots at congested airports (Bichler et al., 2021[126]) (Ball, Berardino and Hansen, 2018, p. 192[101]).

Another study used an economic model to investigate the effectiveness of airport slot auction and showed that a slot-auction mechanism is more effective than alternative allocations by a regulator when there is

substantial demand uncertainty (Sheng et al., 2015[128]). Furthermore, although auctioning some slots can improve social welfare, the marginal effect may decrease quickly. In conclusion, the paper indicated that regulators should carefully chose the number of slots to be auctioned, because the acquisition of slots from current users may cause operational disruption and generate transaction costs.

Disadvantages

Despite the advantages, studies have highlighted several limitations of slot auctions (Avenali et al., 2015, pp. 32-33[100]) (Sheng et al., 2015, p. 82[128]). The main criticism is that bids in a slot auction would not reflect slots' social value, but rather issues of market power. Usually, an auction is driven by bidders' profits, which do not take into account consumer welfare (and expected consumer surplus would hardly be measured beforehand). In addition, bidders' valuations rely upon the market structure (such as the degree of competitiveness in a given market) and how the auction was designed, including factors such as the number of available slots, how the bids can be made, and incentives to collude.

The strong complementarity between slots in origin and destination is also relevant, and airlines may manipulate the auction. In fact, the literature has described how when multiple complementary objects are sold that will subsequently be used by winning bidders to compete against each other in downstream markets (such as rights for electricity and gas transmission, mobile licences, and airport slots), auctions can behave in problematic ways, as they can be manipulated by bidders to build market power (Jehiel et al., 2003[129]). In those cases, valuations made by bidders for the multiple auction objects are interdependent, and allocations to one bidder create negative externalities for others. Severe conflicts may be produced between different goals of the auction, especially between revenue maximisation and efficient allocation. Therefore, auctioning slots could lead to rents to dominant air carriers to the detriment of passenger interests (Sheng et al., 2015, p. 82[128]).

The implementation of a slot-auction system may also be difficult from a political point of view. Incumbent slot holders have strong vested interests against change and it might be necessary to consider compensation for grandfather clauses (Ball, Berardino and Hansen, 2018, p. 201[101]). In addition, the withdrawal of slots from incumbents carries the risk of extreme disruption in the airline market, especially for airlines' route scheduling and for airports that rely on long-term airline partners for their business. This could also significantly affect airlines' business values (Egeland and Smale, 2017, p. 28[86]).

International experience

In 2008, the United States Federal Aviation Administration (FAA) endeavoured to auction off 10% of the slots at New York's three major airports: JFK, LaGuardia and Newark.[146] The proposition met with strong criticism, especially from IATA, incumbent airlines, and the airports' operators, who argued that the auction would produce an adverse effect on airport operation, airline services, and the quality of consumer services. The proposal was challenged before the US Court of Appeals for the District of Columbia Circuit and later completely dropped (Avenali et al., 2015, p. 28[100]) (Sheng et al., 2015, p. 81[128]).

In 2015, China announced it would, for the first time, use a market approach to allocate 50% of newly created slots for domestic flights at Guangzhou Baiyun and Shanghai Pudong airports.[147] At Guangzhou Baiyun, nine pairs of slots were auctioned for a three-year period. The winning bidders were the four largest, state-owned Chinese airlines and their subsidiaries, even though some privately owned carriers participated in the proceeding. A lottery ("lucky draw plus charge" model) was used at Shanghai Pudong airport for the allocation of the available slots, and six Chinese airlines obtained slots, including some small carriers. In both cases, winners were allowed to transfer, lease and sell the slots throughout the allocation period (Wen, 2015[130]) (Ballantyne, 2016[131]) (Civil Aviation Administration of China, 2016[132]) (Civil Aviation Administration of China, 2016[133]). This experience showed that auctioning slots does not necessarily lead to more competition in the market, albeit this can be a possible outcome.

Airport slot trading

Advantages

Secondary slot trading may be an alternative for improving the slot allocation at congested airports without changing the primary allocation (the traditional administrative scheme). Monetised slot trading could exert market pressure to alleviate inefficient slot utilisation and enhance economic efficiency, since airlines valuing slots the most would be able to purchase them, regardless of the initial allocation (Haylen and Butcher, 2017, p. 18[97]) (Egeland and Smale, 2017, p. 28[86]). The increased efficiency of this regime would incentivise long-haul over short-haul services and larger over smaller aircraft, and would enhance the average number of passengers per slot.[148] Indeed, the literature indicates that there are greater efficiencies in using slots for larger aircrafts over longer distances with higher payloads of passengers (de Wit and Burghouwt, 2008, p. 154[134]) (Mott MacDonald and European Commission, 2006, pp. 1-11[135]).

Slot trading would allow airlines to recognise the opportunity cost of slots, including the cost of keeping slots in low-value uses. This would establish a market for slots, and it would be easier for new airlines to enter the market and for smaller air carriers to expand their services, promoting more slot mobility (Guiomard, 2018, p. 132[136]).

Allowing slot trading may also prevent mergers aiming to incorporate slots from a third firm, without any further efficiency, which is common in jurisdictions where trading slots is unlawful.

In addition, the ability to participate in a secondary-slot market may lead to an uplift in equity values of airlines as they would be able to include slots valuations as assets on their balance sheets. Moreover, airlines may obtain greater access to debt markets if slots could be collateralised, which could be particularly relevant to air carriers facing financial difficulties (Mott MacDonald and European Commission, 2006[135]). However, this may end up favouring incumbent airlines controlling most slots and so simply further increase their market power.

Disadvantages

There are several concerns about slot trading's ability to achieve a more efficient and competitive distribution of slots. One is that a set of factors may restrict the contestability of the secondary slot market, for example, airlines may hoard slots and not cede prominent slots to rivals. Furthermore, dominant airlines could engage in predatory bidding for slots to keep entrants out of the market and reinforce their dominance at congested airports (Haylen and Butcher, 2017[97]) (Starkie, 2003, p. 59[137]) (Egeland and Smale, 2017, p. 28[86]). Yet, according to the UK's Office of Fair Trading (OFT) – now the Competition and Markets Authority (CMA) – this outcome is unlikely to be produced in cases where the airline does not already have a strong position prior to the secondary trading and would not be the result of secondary trading itself (Office of Fair Trading, 2005[138]).

A potential solution for this concern would be the establishment of a slot cap for each airline at a given congested airport. This restriction would prevent companies from buying slots if they already have a relevant market share at the airport (Secretaria Nacional de Aviação Civil, 2020[139]). Care should be taken on this measure, however, since it may undermine a more efficient distribution of slots, which is slot trading's main goal. Other possible conditions on slot trading in order to promote competition and efficiency are auctions, congestion or peak-load pricing, and trading through a clearing house (OECD, 2014, p. 17[92]). Introducing conditions allowing a new entrant to sell its slots to incumbent airlines may also contribute to the level playing field.

Other potential pitfalls of slot trading are indicated in the economic literature. For example, due to information asymmetry and lack of transparency, potential buyers and sellers may be unable to meet each other. Moreover, as slots give air carriers flexibility regarding future network developments, airlines may

be induced to keep their slots, even if they are not necessary at the moment. Further, airlines may not sell slots due to uncertainty on the stability of the slot-management regime (Avenali et al., 2015, p. 33[100]).

International experience

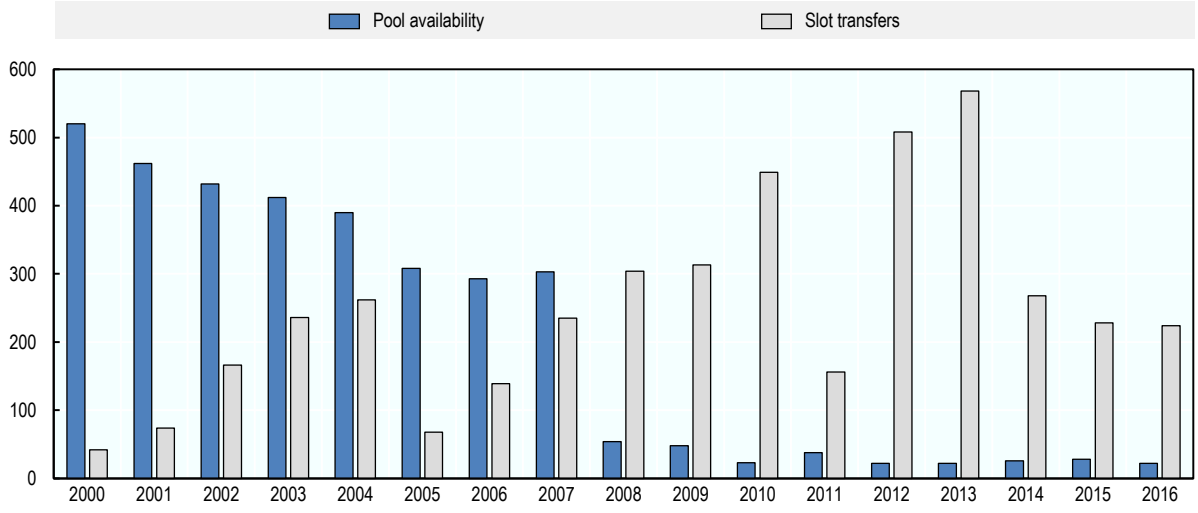
In the European Union, Council Regulation (EEC) No. 95/93, amended by Regulation (EC) No. 793/2004, does not expressly prohibit secondary slot trading. Although financial compensations for slot trading were mostly considered illegal, in the Guernsey case, heard in 1999, UK courts deemed the practice to be legal and in line with Regulation No. 95/93 (Guiomard, 2018, p. 130[136]). Since then, a grey market of secondary trading and monetary exchange has developed, especially at London Heathrow. In 2008, the European Commission issued a clarification of Regulation No. 95/93, in line with the UK model (Pertuiset and Santos, 2014, p. 67[127]).

A 2011 report indicated that it was unclear whether secondary trading was taking place in other EU airports, and that slot trading seemed to be mostly limited to London Heathrow and London Gatwick airports (then in the EU), even though this conclusion may be partly due to lack of transparency (Steer Davies Gleave, 2011, pp. 84-85[95]).

The UK Civil Aviation Authority (CAA) asserts that the secondary market helps airlines enhance their presence at congested airports, such as London Heathrow, since those airports are operating at full capacity, and only a very small number of pool slots are available for allocation (Civil Aviation Authority, 2014, pp. 84-85[140]).

For instance, at London Heathrow, in 2016, only 22 slots were made available by the pool, but 224 slots were traded in the secondary market (Haylen and Butcher, 2017, p. 6[97]). Annex Figure 2.A.1 indicates the number of traded slots, as well as slots available at the pool, from 2000 to 2016. It shows that slot trading has increased in recent years, while pool slots have significantly dropped.

Annex Figure 2.A.1. Annual slot transfers at London Heathrow, 2000-16



Source: (Haylen and Butcher, 2017, p. 7[97]) and Airport Co-ordination Limited (ACL, https://docplayer.net/45802381-Acl-slot-co-ordination.html.

Prices paid by airlines on the secondary market vary considerably by time and day. A 2017 study found reported slot prices at London Heathrow airport were around GBP 15 million for an early-morning slot pair; GBP 10 million at midday; and GBP 5 million in the evening. In past cases, airlines have already paid up

to USD 75 million for a pair of slots, although many transactions are not publicly reported (Haylen and Butcher, 2017, p. 7[97]).

Empirical evidence from London Heathrow airport shows that a secondary market has helped dominant airlines, such as British Airways, to increase market share at the airport, but has also aided strong second-tier airlines, including Virgin Atlantic, to emerge and compete effectively with them. Slot trading has also allowed a more efficient use of airport capacity, since traded slots were used for flights with higher average seat capacities and longer average stage lengths (Avenali et al., 2015, p. 33[100]) (de Wit and Burghouwt, 2007, pp. 51-52[141]).

Mixed results from slot trading have also been seen at US congested airports where secondary slot markets have been introduced. On the one hand, congested airport capacity was used in a more efficient fashion, and slot mobility grew, resulting in a relatively fluid and dynamic market. Slots have become a valuable asset, which may be particularly relevant during economic downturns. On the other hand, trading slots was associated with consolidation and market concentration, especially at Chicago O'Hare, the hub of American Airlines and the United Airlines. At that airport, some suggest that slots have not been used efficiently, since they have been employed for the operation of regional jets in the two airlines' hub-and-spoke systems rather than being limited to long-haul flights with larger aircrafts (de Wit and Burghouwt, 2007, pp. 52-53[141]).

This outcome at US airports in general is not straightforward. For example, a 2007 paper highlighted that an airport's characteristics may also play a role (de Wit and Burghouwt, 2007, pp. 48, 53[141]). For instance, at Chicago O'Hare, slots continued to accommodate small regional jets following the introduction of secondary trading. This would be in line with the airport's economic orientation which is to be a national hub for two US major airlines, allowing them to take advantage of network economies and resulting in a more efficient airport use. At New York LaGuardia, an increase in the aircraft size was seen after the implementation of slot trading, which is justified since it is a domestic airport, served by many US airlines. The authors also doubted whether secondary slot trading had had a causal relationship with concentration at constrained airports in the US. In their view, other factors are at stake, such as the consolidation in the US airline industry.

Over the years, the European Commission has conducted several studies into the effects of trading slots on the EU slot-allocation mechanism to inform a potential regulatory reform on the issue. In general, this research has indicated substantial gains from implementing market schemes for slot allocation. For example, a 2006 study, based on an assessment of eight heavily congested EU airports, estimated that secondary slot trading would improve consumer welfare by up to EUR 31 billion annually and producer welfare by up to EUR 1 billion annually, at 2006 rates (Mott MacDonald and European Commission, 2006[135]).[149] It also estimated an improvement in finances of major airports by around 7% and strong benefits for economies around such airports. However, the conclusions of the impact on airline competition are mixed. Existing dominant airlines are expected to increase the share of slots from an average 47% to around 49%. Consequently, competition between major European hubs is likely to be increased. Long-haul flights tend to be more competitive than intra-EU flights. A slight rise in diversity of users at airports on the different route types is also foreseen. Besides, impact on routes to peripheral points is predicted to be negative, unless they are protected, since they may be forced out of congested airports to secondary airports.

To mitigate some anti-competitive effects, the study proposes measures such as banning of restrictive covenants in slot-exchange contracts that prohibit using slots in competition with the seller; active policing by competition authorities in the slot market; and operating "blind" slot trading, preventing participants from knowing from whom they are buying available slots (Mott MacDonald and European Commission, 2006, pp. 10-18[135]).

Annex 2.B. Quantification of the impact on airfare of facilitating entry into jet-fuel distribution markets

The OECD recommends changes to jet-fuel distribution regulation in Brazil in order to reverse restrictions on new entry. One recommendation is that airport operators must ensure open access for new fuel suppliers. It is expected that this access policy should address safety, security and environmental protection. The policy would guarantee that incumbents should provide access to competitors at the same time that the investments are recoupable. These regulatory changes, if implemented, are expected to affect jet-fuel markets by promoting entry and lowering prices through more competition.

Lower jet-fuel costs would lead to likely reductions in airfare prices, the ultimate goal of the regulatory changes. Their estimated impact on the benefits or surplus of airfare passengers can be calculated by:

$$CB = (\rho + \frac{1}{2}|\epsilon|\rho^2)R_i$$

Equation 1

CB is the measure of consumer (passenger) benefit or surplus in Brazilian reals (BRL); ρ the percentage change in airfare prices related to entry in the fuel-distribution market; *R* the airfare revenue at location *i*; and $|\epsilon|$ the absolute value of price elasticity of demand for air travel (OECD, 2019[61]) (OECD, 2019[142]).

The simulation assumes that there will be a pass-through from the fuel-cost reduction to the airfares. Pass-through from costs to prices has been studied in detail in the literature for airlines and jet fuel. A recent and best estimate suggests a pass-through elasticity of 0.66 (Gayle and Lin, 2021[143]).[150]

Passenger benefits from a change in the regulations were calculated for selected international airports: Guarulhos (GRU) in São Paulo State; Galeão (GIG) in Rio de Janeiro State; and Brasília (BSB) in Federal District. These airports were selected because they are or will soon be directly connected to jet-fuel pipelines[151] and together are responsible for about a third of regular journeys with a Brazilian airport as their origin (28% of national take-offs and 34% of passenger volume in 2019), according to National Civil Aviation Agency (ANAC) Database.[152]

Annex Table 2.B.1 shows the results of ANAC's data aggregation for airfare revenues. The data present the value of aggregated revenues for 2019 for routes in which the respective airport was the origin for both domestic and international destinations. The seat and fare data released by ANAC used to calculate annual ticket revenues are monthly for each company, airport of origin, and destination.[153] Data from 2019 was used as the baseline for the simulations, as the air-travel sector has been particularly affected by the COVID-19 pandemic since 2020.

Annex Table 2.B.1. Airfare revenues, in million BRL, by origin airport, 2019

Airport	2019
São PauloGuarulhos (GRU)	2 423
Brasília (BSB)	1 069
Rio de Janeiro Galeão (GIG)	902

Source: OECD, based upon ANAC data.

Market estimates of the price change after entry into an airport market for jet-fuel distribution were obtained from a market test conducted by the Brazilian Competition Defense System (SBDC) in a Brazilian merger case (Annex Table 2.B.2).[154] The information obtained reflects the perception of the market player after entry in selected geographical relevant markets, Galeão (GIG) in Rio de Janeiro and Brasília (BSB). Annex Table 2.B.2 shows that after entry the players obtained a reasonable market share and were able to affect market conditions. The OECD estimates the jet-fuel price decrease in these markets to be 2 to 3% in real terms.

Annex Table 2.B.2. Air BP's estimates of changes in jet fuel price occurred after entry

Airport	Entry date	Fuel distributor	Share obtained	Jet-fuel price change
Galeão (GIG)	May 2008	Air BP	5-10%	**~ -2%**
Brasília (BSB)	October 2005	Esso/Cosan	10-15%	**~ -3%**
Brasília (BSB)	October 2006	Air BP	5-10%	**~ -3%**

Source: AIR BP – Doc no. 10,840/2009/GOGCE/SEAE/MF – AC 08012.004341/2009-73. Disclosed by Commissioner César Mattos in his vote. AC 08012.004341/2009-73, vol. 3, doc no. 0047153, p. 671.

These price-reduction estimates are relevant since, as an example, the average gross-margin percentage of final price in jet-fuel distribution was 10% between January 2017 and 2018, ranging from around 8% to 12% (ANP/ANAC, 2019, p. 13[76]).

The value of ρ for airfares is calculated by taking the product between the 2 to 3% jet-fuel price decrease and the 0.66 pass-through rate from jet fuel to airfare prices. Therefore, after successful implementation of the regulatory changes, the estimated airfare price decreases would be in the range of 1.3% to 2.0%. Both estimates are shown in Annex Table 2.B.3.

The absolute value of price elasticity of demand for airfares used in the analysis range from 1.15 to 0.99, which follows literature estimates for the Brazilian industry that are in line with international estimates, as seen in Annex Table 2.B.3. Both alternative values are also included in our consumer benefits estimates in the Annex Table 2.B.4.

Annex Table 2.B.3. Air travel demand price elasticity estimates, literature review

Paper	Demand elasticity
Pompermeyer et al. (2019), "Elasticidade-Preço e Elasticidade-Renda de Passageiros por Modo de Transporte para Projeção de Matrizes Origem-Destino Nacional", *RADAR*, no. 61, 29-31 December, http://repositorio.ipea.gov.br/bitstream/11058/10128/1/Radar_61_elasticidade-prepercentageC3%A7o.pdf.	-1.151
Frazão, J. and A. Oliveira (2020), "Distribuição de renda e demanda por transporte aéreo: uma especificação de modelo econométrico para o mercado doméstico brasileiro", *Transportes* 28:3, pp. 1-13.	-0.99
European Commission, Directorate-General for Mobility and Transport (2019), *Taxes in the field of aviation and their impact: final report*, Publications Office, p. 55.	-1.12 to -0.80

Annex Table 2.B.4. Consumer (passengers) Benefit quantification, by airport, considering 2019 data

Airport	Jet-fuel price change	Airfare price change	Revenue (in millions, BRL)	Airfare demand elasticity (absolute value)	Consumer benefit (in millions, BRL)
São Paulo Guarulhos	3%	2.0%	2 423.62	1.15	**48.53**
	2%	1.3%	2 423.62	1.15	**32.23**
	2%	1.3%	2 423.62	0.99	**32.20**
	3%	2.0%	2 423.62	0.99	**48.46**
Rio de Janeiro Galeão	3%	2.0%	902.33	1.15	**18.07**
	2%	1.3%	902.33	1.15	**12.00**
	2%	1.3%	902.33	0.99	**11.99**
	3%	2.0%	902.33	0.99	**18.07**
Brasília	3%	2.0%	1 069.82	1.15	**21.42**
	2%	1.3%	1 069.82	1.15	**14.23**
	2%	1.3%	1 069.82	0.99	**14.21**
	3%	2.0%	1 069.82	0.99	**21.39**

Source: OECD estimates based upon ANAC data and literature parameters.

Annex Table 2.B.5. Total consumer benefit, considering 2019 data

Jet-fuel price change	Airfare price change	Airfare demand elasticity	Total consumer benefit (in millions, BRL)
3%	2.0%	1.15	**88.03**
2%	1.3%	1.15	**58.46**
2%	1.3%	0.99	**58.40**
3%	2.0%	0.99	**87.89**

Source: Annex Table 2.B.4 estimates.

The annual benefit to passengers of a potential entry into the jet-fuel distribution market resulting from the increase in competition in the three most relevant airports in Brazil is estimated between BRL 58.40 million and BRL 88.03 million a year.

This benefit may increase over the years with economic growth and the increase in passenger demand for air travel. The Ministry of Transportation of Brazil has estimates on the growth of passenger travel by airport, ranging from 3.9% to 5.4% depending on the year and airport (Ministério dos Transportes, 2018[144]). The OECD has used these annual airport growth rates to calculate the benefits up to 2032 (Annex Table 2.B.6).

Annex Table 2.B.6. Consumer benefit, 2022-32

3% fuel price decrease and 1.15 price elasticity				2% fuel price decrease and -0.99 price elasticity			
Year	BSB	GIG	GRU	Year	BSB	GIG	GRU
2022	24.44	19.93	53.26	2022	16.22	13.22	35.33
2023	25.45	20.83	55.62	2023	16.88	13.82	36.90
2024	26.47	21.75	58.03	2024	17.56	14.43	38.50
2025	27.52	22.69	60.51	2025	18.26	15.06	40.14
2026	28.59	23.66	63.05	2026	18.97	15.70	41.83
2027	29.69	24.65	65.65	2027	19.70	16.36	43.56
2028	31.06	25.88	68.86	2028	20.60	17.17	45.69
2029	32.63	27.27	72.53	2029	21.65	18.09	48.12
2030	34.29	28.75	76.42	2030	22.75	19.07	50.70
2031	36.05	30.31	80.52	2031	23.92	20.11	53.42
2032	37.89	31.96	84.85	2032	25.14	21.20	56.29
Total 2022-2031	334.07	277.68	739.28	Total 2022-2031	221.64	184.24	490.49
Total: BRL 1 351 million				**Total: BRL 896 million**			

Source: OECD estimates based upon ANAC data and literature parameters.

> *The estimated aggregated consumer benefit over the next 10 years (from 2022 to 2032) varies from BRL 896 million to BRL 1 351 million.*

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Notes

[1] The Brazilian territory covers an area of 8 547 403 km².

[2] Accounting for direct, indirect, induced and catalysed jobs (ABEAR, 2021[2]).

[3] According to IATA, Brazil was the sixth largest domestic market in the world in 2019 considering the single origin-destination (O-D) air-travel market (74 million passengers). The US domestic passenger market continued to be the world's largest (614 million passengers), followed by China (550 million passengers), India (125 million passengers), Japan (87 million passengers) and Indonesia (83 million passengers) (International Air Transport Association, 2020[4]). 2020).

[4] Comprising only paying passengers, i.e. excluding passengers traveling free of charge such as persons traveling on tickets purchased at rates or discounts available to airline employees or children who do not occupy a seat, for example.

[5] The decrease in passenger numbers in 2016 and 2017 was driven by the Brazilian recession that began in the second trimester of 2014 and lasted until the fourth trimester of 2016; see, http://portalibre.fgv.br/codace.

[6] RPK corresponds to the number of revenue passengers multiplied by the distance flown of each flight.

[7] ASK is the number of seats multiplied by the distance flown by each flight.

[8] The effect of spare capacity on firms' pricing behaviour is not straightforward: "on the one hand, where firms hold spare capacity they will have strong unilateral incentives to reduce prices to fill that capacity. On the other hand, the existence of spare capacity, particularly when distributed systematically, may promote co-ordinated behaviour. There is also a relationship between spare capacity and entry deterrence. The existence of spare capacity enables incumbent firms to threaten to increase supply and lower price in the event of entry, which may deter potential entrants if they are aware of the existence of the spare capacity" (OECD, 2021, p. 47[155]).

[9] HHI ranks markets below 1 500 as unconcentrated; between 1 500 and 2 500 as moderately concentrated; and above 2 500 as highly concentrated (CADE, 2016[145]). The European Commission, for example, generally considers no horizontal competition concerns in a "merger with a post-merger HHI between 1000 and 2000 and a delta below 250, or a merger with a post-merger HHI above 2 000 and a delta below 150, except where special circumstances". See, https://eur-lex.europa.eu/legal-content/EN/LSU/?uri=celex:52004XC0205(02).

[10] The average ticket price represents the average cost paid by passengers for a one-way flight calculated from the weighted average of commercialised domestic air tickets and the corresponding number of commercialised seats. The yield ticket price represents the average cost paid by passengers per flown kilometres and is calculated by dividing the average ticket price by the average direct distance between the passenger's origin and destination. For that reason, it is commonly used to compare prices between flights with different distances (ANAC, 2018[146]).

[11] ANAC Data and Statistics, www.gov.br/anac/pt-br/assuntos/dados-e-estatisticas.

[12] Although the sixth airport concession round took place in 2021, private operators only assumed control of the airports in 2022. For that reason, data on investments do not include airports from that round.

[13] First round: Natal São Gonçalo do Amaranto (NAT). Second round: Brasília (BSB), São Paulo Guarulhos (GRU), Campinas Viracopos (VCP). Third round: Belo Horizonte Confins (CNF), Rio de Janeiro Galeão (GIG). Fourth round: Florianópolis (FLN), Fortaleza (FOR), Salvador (SSA), Porto Alegre (POA).

[14] Northeast cluster: Recife (REC), Maceió (MCZ), João Pessoa (JPA), Aracaju (AJU), Campina Grande (CPV), and Juazeiro do Norte (JDO). Midwest cluster: Cuiabá (CGB), Sinop (OPS), Rondonópolis (ROO), Alta Floresta (AFL). Southeast cluster: Vitória (VIX), Macaé (MEA).

[15] Southern cluster: Curitiba (CWB), Foz do Iguaçu (IGU), Navegantes (NVT), Londrina (LDB), Joinville (JOI), Bacacheri (BFH), Pelotas (PET), Uruguaiana (URG), Bagé (BGX). Central cluster: Goiânia (GYN), São Luís (SLZ), Teresina (THE), Palmas (PMW), Petrolina (PNZ), Imperatriz (IMP). Northern cluster I: Manaus (MAO), Porto Velho (PVH), Rio Branco (RBR), Cruzeiro do Sul (CZS), Tabatinga (TBT), Tefé (TFF) and Boa Vista (BVB).

[16] General aviation cluster: Rio de Janeiro Jacarepaguá (RRJ) and São Paulo Campo de Marte (RTE). Northern cluster II: Belém (BEL), Macapá (MCP). SP-MS-PA-MG cluster: São Paulo Congonhas (CGH), Campo Grande (CGR), Corumbá (CMG), Ponta Porã (PMG), Santarém (STM), Marabá (MAB), Carajás Parauapebas (CKS), Altamira (ATM), Uberlândia (UDI); Montes Claros (MOC), Uberaba (UBA).

[17] Rio de Janeiro Santos Dumont (SDU) and Rio de Janeiro Geleão (GIG).

[18] According to Article 3 of Decree No. 3.564/2000, CONAC is composed of the Ministry of Defence; Ministry of Foreign Affairs; Ministry of the Economy; Ministry of Development, Industry and Foreign Trade; Ministry of Tourism; Chief of Staff of the Presidency; Ministry of Planning, Budget and Management; Ministry of Justice and Public Security; Ministry of Infrastructure; and Commander of the Brazilian Air Force. The Decree is partially outdated as certain of these ministries no longer exist.

[19] According to Article 3 of Decree No. 10.703/2021, CONAERO is composed of the following bodies: Ministry of Infrastructure (Executive Secretariat); Executive Office of the President of Brazil; Ministry of Justice and Public Security; Ministry of Defence (Department of Airspace Control of Aeronautics Command); Ministry of Economy (Federal Revenue); Ministry of Agriculture, Livestock and Food Supply; Brazilian Health Regulatory Agency (ANVISA); and National Civil Aviation Agency (ANAC).

[20] According to ICAO, general aviation operations refer to all civil-aircraft operations other than a commercial air-transport operation and aerial-work operation. This includes, for example, operations involving air taxis and private aircraft (International Civil Aviation Organization, 2007[113]).

[21] Besides concessions, moral persons may also operate private aerodromes – those without commercial purpose – or public aerodromes providing private air services, specialised air services, and air taxis under an authorisation system.

[22] Law No. 5 862/1972.

[23] The remainder were operated by states and municipalities, by the air force, and by private firms.

[24] According to the ACI, "the build-operate-transfer (BOT) model and its variations are used when a specific investment in the airport is needed, but the government is unwilling or unable to invest in or construct the capital asset required, such as a new terminal" (Airports Council International, 2018, p. 8[24]).

[25] Brazil launched the first concession tender as a pilot project in 2011 with Natal São Gonçalo do Amaranto (NAT), a mid-sized airport in the northeast of Brazil.

[26] Second round: Brasília (BSB), São Paulo Guarulhos (GRU), and Campinas Viracopos (VCP). Third round: Belo Horizonte Confins (CNF) and Rio de Janeiro Galeão (GIG).

[27] Florianópolis (FLN), Fortaleza (FOR), Salvador (SSA), and Porto Alegre (POA).

[28] Decree No. 9 972/2019.

[29] Northeast cluster: Recife (REC), Maceió (MCZ), João Pessoa (JPA), Aracaju (AJU), Campina Grande (CPV), and Juazeiro do Norte (JDO). Midwest cluster: Cuiabá (CGB), Sinop (OPS), Rondonópolis (ROO), and Alta Floresta (AFL); Southeast cluster: Vitória (VIX), and Macaé (MEA).

[30] Southern cluster: Curitiba (CWB), Foz do Iguaçu (IGU), Navegantes (NVT), Londrina (LDB), Joinville (JOI), Bacacheri (BFH), Pelotas (PET), Uruguaiana (URG), and Bagé (BGX). Central cluster: Goiânia (GYN), São Luís (SLZ), Teresina (THE), Palmas (PMW), Petrolina (PNZ), and Imperatriz (IMP). Northern cluster I: Manaus (MAO), Porto Velho (PVH), Rio Branco (RBR), Cruzeiro do Sul (CZS), Tabatinga (TBT), Tefé (TFF) and Boa Vista (BVB).

[31] General aviation cluster: Rio de Janeiro Jacarepaguá (RRJ) and São Paulo Campo de Marte (RTE). Northern cluster II: Belém (BEL) and Macapá (MCP). SP-MS-PA-MG cluster: São Paulo Congonhas (CGH), Campo Grande (CGR), Corumbá (CMG), Ponta Porã (PMG), Santarém (STM), Marabá (MAB), Carajás Parauapebas (CKS), Altamira (ATM), Uberlândia (UDI); Montes Claros (MOC) and Uberaba (UBA). An eighth round is planned for 2023, aiming at awarding together Rio de Janeiro Santos Dumont (SDU) and Rio de Janeiro Geleão (GIG), both profitable airports.

[32] According to ACI, from a sample of 127 airports worldwide, the average number of bidders at the final bid stage for concession contracts was 4 (Airports Council International, 2018[24]).

[33] According to Law No. 11.079/2004, these are concessions in which the government pays a complementary revenue to the concessionaire, in addition to the ordinary revenue sources obtained from the exploitation of the service (i.e. tariffs charged to users).

[34] The economic crises that hit Brazil from 2014 affected the sector; its slow recovery was halted by the COVID-19 pandemic.

[35] In April 2020, the Attorney General's Office (AGU) concluded that the COVID-19 pandemic was a force majeure or an act of God event, allowing the amendment of transport infrastructure concession contracts in order to maintain their initial economic and financial balance (AGU Advisory Opinion No. 261/2020/CONJUR-MINFRA/CGU/AGU).

[36] Article 175 of the Federal Constitution and Article 14 of Law No. 8.987/1995.

[37] These can include bid bonds, performance guarantees, insurance policies, minimum capital, and specific requirements for foreign bidders, such as sworn translations, a representative in Brazil, and authorisations to operate in the country.

[38] Another example is the requirement for bidders to submit a statement issued by a financial institution on an offer's economic viability, which aims to allow ANAC to verify the economic feasibility of an offered project. This even though the tender notice already required other documents to prove bidders' economic qualification. The need of an additional document raised unnecessarily entry costs and was removed in the sixth round.

[39] The first round required bidders to prove they employed professionals with a college degree and experience in specific activities: 1) at least 1 professional with at least 5 years' experience in administrative management; 2) at least 1 professional with a year's experience of risk management in transport operations; 3) at least 1 professional with at least 5 years' experience in management of airport handling at least 1 million passengers a year; 4) at least 1 professional with 5 years' experience in airport, aircraft and/or industrial-maintenance management; 5) at least 1 professional with 5 years' experience in aviation-security management; and 6) at least 1 professional with 5 years' experience in execution or inspection of works on airport passenger terminals.

[40] In practice, in the first airport-concession rounds the technical-experience requirements prevented Brazilian companies to bid independently as Infraero (as the historical incumbent) was the only firm with necessary years of experience. Only in 2019 an entirely Brazilian consortium managed to win a cluster, in the fifth concession round.

[41] The obligation of the technical operator to hold a minimum stake in the consortium seems reasonable, otherwise the technical experience requirement could be bypassed by an insignificant stake in the consortium. However, it should be noted that the required minimum share of the technical operator in the consortium has varied across concession rounds: 10% in the second round; 25% in the third round; and 15% since the fourth round (Table 2.6).

[42] Other companies in the consortium financially would support the experienced operator while also gaining experience that would allow them to bid in future concession rounds.

[43] Division 4 of Part 3 of the Australian Airports Act 1996 establishes a 5% limit on ownership by airlines of airport-operator companies, while Article 29 of the Mexican Airports Law limits vertical integration between airlines and airport operators to a 5% stake.

[44] This includes their parent companies, subsidiaries and related companies, as well as the subsidiaries and related companies of their parent companies and subsidiaries.

[45] A parent company, subsidiary or related company to an airline or subsidiary or related company to its parent companies and subsidiaries.

[46] A prior authorisation from CADE may also be required if the Brazilian merger control threshold is fulfilled.

[47] Including parent companies, subsidiaries and related companies.

[48] Including their parent companies, subsidiaries and related companies, as well as the subsidiaries and related companies of their parent companies and subsidiaries.

[49] "There is no precise definition of what is called yardstick competition, given that the associated theory has led to various ways of implementation, as described in chapter 3. However, we can distinguish two main senses given to the term 'yardstick competition'. On the one hand, this expression refers to a regulatory framework, based on comparisons. It is a virtual form of competition between similar regulated firms, like Shleifer's proposal (see next page). It consists in estimating what should be the best prices and subsidies, by comparing the performances of various regulated firms. The regulator, by setting the correct prices and subsidies, can lead the firms to produce an effort that increases the welfare. On the other hand, yardstick competition refers to the basic and relatively informal use of comparisons by a regulator who wants to improve its expertise and reduce the informational asymmetry he [sic] faces. In that sense, yardstick competition is an additional expertise tool used by the regulator to improve the efficiency of another regulatory framework (franchising, for example)" (ECMT, 2006, p. 75[156]).

[50] Of airports from the second round.

[51] Including parent companies, subsidiaries and related companies.

[52] Of airports from the second or third rounds (in case of the second round) or from the other airport at the same region (in case of the fourth round).

[53] Including parent companies, subsidiaries and related companies.

[54] A prior authorisation from CADE may also be required, if the Brazilian merger control threshold is fulfilled.

[55] Resolution CONAC No. 01/2017. For a definition of general aviation, see endnote 20.

[56] This was also highlighted by SEAE on its opinion on this airport concession round (Secretaria de Advocacia da Concorrência e Competitividade, 2021[150]).

[57] Certain stakeholders have suggested that this was at least partially due to "winner's curse" when bidders overestimate an object's value at auction.

[58] São Paulo also has a third airport, Viracopos (VCP), located in the nearby city of Campinas.

[59] Although ground-handling services are related to aviation activities at an airport, they are generally not considered to be a core business activity, and are often not directly provided by airport operators. For that reason, revenue from ground-handling services can be considered as non-aeronautical (although technically part of aeronautical revenue). Furthermore, the rental of hangars and other operational areas is considered as part of aeronautical services, but charges vary substantially across airports and tend to represent a small fraction of an airport's aeronautical revenue (Air Transport Research Society, 2019[60]). In Brazil, these services are not charged through airport tariffs and so their prices fall under airports' non-aeronautical revenue, as discussed in more detail in Section 2.3.2.

[60] The only exception is Natal São Gonçalo do Amaranto (NAT), the first airport offered for concession, for which the contract establishes that if the ratio between non-tariff revenues and the total revenue exceeds 35%, part of the non-tariff revenue will be used to reduce airport tariffs.

[61] Resolutions ANAC No. 350/2014, No. 392/2016, No. 432/2017 and No. 508/2019, as well as Ordinance Aeronautics Command No. 219/GC-5/2021.

[62] In addition to airport tariffs, there are tariffs covering air-navigation services (including air-traffic control, meteorological services and aeronautical telecommunications). In Brazil, air-navigation services are not provided by airport operators, but two main service providers. The first is the Department of Airspace Control (DECEA), subordinated to the Aeronautics Command (COMAER), which is linked to the Ministry of Defence, which is responsible for regulating these activities (including setting air navigation tariffs), as well as providing services related to national defence and sovereignty. The second provider for the remaining air navigation services is an SOE, NAV Brasil Serviços de Navegação Aérea.

[63] This mechanism has been included in concession contracts since the fourth round, as well as in Resolution ANAC No. 508/2019, which establishes the airport-tariff regulation for airports managed by Infraero.

[64] Considering only concessions with available and detailed data. The Midwestern cluster, Central cluster, Northern cluster and Southern cluster are not included in the analysis.

[65] According to Airports Council International (ACI) data for financial year 2019; see, www.wsp.com/en-GL/insights/fuelling-airport-recovery-via-non-aeronautical-revenue.

[66] "Concession in its original context means the payment that the airport authority charges the owner or manager of an operation to conduct commercial activities in the airport, whereas rent or lease refers to the right to occupy certain defined premises or a specific area of realty. In general, however, concessions confer all commercial activities to sell goods and services in the airport, and sometimes the meaning of concession, rent and lease is used indiscriminately" (Vojvodić, 2008[148]).

[67] Article 1 of Resolution ANAC No. 302/2014.

[68] Article 49 of Infraero's Internal Bidding and Contract Regulation.

[69] Articles 25 to 29 of Infraero's Internal Rules No. 13.13/2020.

[70] Article 4 of Ordinance SAC No. 93/2020.

[71] Articles 5 and 6 of Ordinance SAC No. 93/2020.

[72] Annex 2 to the concession contracts (Airport Exploration Plan or PEA).

[73] According to airport-concession contracts, tariffs are annually updated by ANAC following a formula that takes into account an inflation index, as well as a productivity factor (X factor) and a quality factor (Q factor). The productivity factor refers to efficiency savings, which is subtracted from the final cap, in order to share productivity gains with users. The quality factor comprises service quality indicators, such as how the services have been performed, the availability of equipment and facilities, as well as a passenger satisfaction survey.

[74] Article 40 of Law No. 7.565/1986 (Brazilian Aeronautical Code).

[75] Article 2, paragraph 2 of Resolution ANAC No. 302/2014.

[76] Article 6, item I, of Resolution ANAC No. 302/2014.

[77] Article 6, item II, of Resolution ANAC No. 302/2014.

[78] Article 6, item IV, of Resolution ANAC No. 302/2014.

[79] Article 8 and Article 9, paragraphs 1 and 2 of Resolution ANAC No. 302/2014.

[80] According to stakeholders, ANAC has recently engaged in this activity, which has led to many disputes being resolved out of courts.

[81] Article 11 of Resolution ANAC No. 302/2014.

[82] Annex to Resolution ANAC No. 116/2009.

[83] For instance, in the United States the ground-handling market is dominated by the major airlines' own operations, which provide the services either directly or through subsidiary companies (Steer Davies Gleave, 2016, p. 157[23]). In Europe, many airports still provide extensive ground-handling services (Air Transport Research Society, 2019[60]).

[84] Article 2 of Resolution ANAC No. 116/2009.

[85] Resolution ANAC No. 116/2009.

[86] Holding space at an airport seems to be paramount for the provision of more competitive services. Indeed, in practice, the majority of ground-handling service providers sign a leasing agreement with the airport operator.

[87] For example, the Brazilian ground-handling association (ABESATA) has recently developed a certification programme, aimed at ensuring compliance of ground-handling service providers with the legislation (comprising regulatory, financial, operational, labour and environmental, social and corporate-governance dimensions). The certificate is issued by an independent organisation and can be obtained by any firm which demonstrates that it meets the minimum requirements (ABESATA, 2022[147]).

[88] Article 2, item II of Resolution ANAC No. 116/2009.

[89] Article 2 of Resolution ANAC No. 116/2009.

[90] According to ANP, Brazil currently has more than 250 jet fuel resellers.

[91] The requirements to be qualified as an aviation-fuel distributor and/or reseller are established, respectively, by Resolution ANP No. 17/2006 and Resolution ANP No. 18/2006. Furthermore, as aviation-fuel supply is a type of ground-handling service, and since suppliers need access to airport operating areas to provide the service, it is also covered by Resolutions ANAC No. 116/2009 and No. 302/2014, as well as the airport-concession contracts.

[92] Article 1, paragraph 1 of Resolution ANAC No. 302/2014. Although the regulation does not indicate any examples of what could constitute an abusive or discriminatory practice, they could include, for example, refusing access to the airport, imposition of unreasonable requirements, and price discrimination between competitors.

[93] Article 9, paragraph 2 of Resolution ANAC No. 302/2014.

[94] The WASG classifies airports in three categories. Besides co-ordinated or Level 3 airports, these are: 1) non-co-ordinated or Level 1 airports, where the infrastructure capacity is adequate to meet the demands of airport users at all times; 2) schedule-facilitated or Level 2 airports with the potential for congestion during some periods of the day, week, or season that requires schedule adjustments mutually agreed between the airlines and the facilitator (Airports Council International, International Air Transport Association and World Wide Airport Coordinators Group, 2020, p. 20[87]).

[95] Only three airports in the United States follow the WASG; these are New York JFK, New York LaGuardia and Washington Ronald Reagan. At all other airports, airlines can generally schedule flights as they wish, in co-ordination with airport operators. On the one hand, the absence of an interventionist approach is likely to lead to delays created by airlines over-subscribing airport slots during the busiest periods of the day. On the other hand, some argue that the marginal costs of delays at airports dominated by an air carrier or an alliance are often overstated, since these costs would be internalised by that airline or alliance. In practice, though, it is unlikely that all flights at Level 2 airports such as Chicago O'Hare, Los Angeles, San Francisco, and Newark Liberty are completely freely scheduled by airlines, as they are expected to seek and obtain schedule approval from the Federal Aviation Administration (FAA). Otherwise, if the airport becomes Level 3, the airline will not receive priority for any of the non-approved flights (Egeland and Smale, 2017, p. 25[86]).

[96] According to WASG, equivalent seasons are "consecutive summer seasons (two summers) or consecutive winter seasons (two winters) as opposed to two consecutive seasons (a summer and a winter season)" (Airports Council International, International Air Transport Association and World Wide Airport Coordinators Group, 2020, p. 62[87]).

[97] Article 8, paragraph 3 of Resolution ANAC No. 338/2014. The criterion on maximum delay is not contained in the WASG.

[98] ANAC has developed a system to monitor slots that feeds a database allowing any interested party to follow slots usage; see, https://sas.anac.gov.br/sas/samu/(S(bwv0mwd0lgb5c5fs222425vd))/view/frmConsultaBases.

[99] Article 38 of Resolution ANAC No. 338/2014.

[100] Article 2, item XVI-A of Resolution ANAC No. 338/2014.

[101] Article 43, item II of Resolution ANAC No. 338/2014. It is worth noting that misuse of slots constitutes an administrative infringement, as long as an airline's intent can be proven. This aims to prevent airlines from losing slots for circumstances beyond their control, such as weather conditions. In case of misuse of slots, besides the loss of historical precedence, ANAC may inflict a fine from BRL 7 000 to BRL 90 000 for each flight, although this has not been common practice. In theory, misuse of slots could also be considered an anticompetitive practice, and CADE could investigate and impose sanctions basing on Law No. 12 529/2012 (Brazilian Competition Act). According to the OECD, however, only rarely can a slot-trading tactic amount to a restrictive agreement or an abuse of dominance (OECD, 2014, p. 17[92]). In Brazil, no such case has ever been prosecuted.

[102] Article 22 of Resolution ANAC No. 338/2014.

[103] Article 8, paragraph 2 of Resolution ANAC No. 338/2014.

[104] Article 2, item XIII, and article 8, paragraph 4 of Resolution ANAC No. 338/2014.

[105] Article 22 of Resolution ANAC No. 338/2014.

[106] Article 22, paragraph 3 of Resolution ANAC No. 338/2014.

[107] Article 31 of Resolution No. 338/2014. According to ANAC, this rests on the premise that slots are permission given by the regulator to an airline, free of charge, for a planned operation, and comprise no property rights; i.e. airlines do not own slots. This makes slots public assets, from which airlines can take no financial advantage. Only the co-ordinator can allocate a slot, according to the established criteria. The only exception is slot lease between companies belonging to the same economic group, as they already function as a single economic entity (Article 31, paragraph 1 of Resolution ANAC No. 338/2014).

[108] Article 32 of Resolution ANAC No. 338/2014.

[109] Resolution ANAC No. 338/2014 will continue to apply until the winter season 2022.

[110] The fact that many slots allocated to new entrants are returned to the pool after only one season might illustrate this. In addition, at the most congested airports in the European Union (at the time of the study), such as London Gatwick, Düsseldorf and Frankfurt, less than 50% of slots were allocated according to the new entry rule, partly because there were no requests that met the criteria (Steer Davies Gleave, 2011, p. 5[96]).

[111] However, one study signalled that the main goal of allocating slots is not to reduce average fares, but to ensure that airport infrastructure is used efficiently and that downstream airline markets operate at the highest level of economic efficiency (Valdes and Gillen, 2018, p. 257[158]). It also suggested that reallocating slots to smaller airlines does not necessarily lead to higher consumer welfare. Indeed, outcomes depend on the current distribution of slots, which routes lose services, which routes gain services from which airline, as well as how market power is exercised at the route level.

[112] It should be noted that Belo Horizonte Pampulha airport (PLU) is currently restricted to general aviation and regional scheduled air services.

[113] SEAE, for example, proposes that 100% of slots from the pool should be firstly allocated to new entrants in all co-ordinated Brazilian airports (Secretaria de Advocacia da Concorrência e Competitividade, 2021[104]).

[114] For example, the current new-entry rule could be replaced to consider an airline holding less than 10% of slots at the airport, across the airline's entire ownership group and even any joint-venture partners, as a new entrant. This would allow some airline-ownerships groups to build up a major slot holding, and be more able to compete with large dominant airlines (Steer Davies Gleave, 2011, p. 11[96]).

[115] In Brazil, the declared capacity is determined by the airport operator, in line with DECEA, which is responsible for managing Brazilian airspace. Since 2019, DECEA has been reviewing the capacity declaration for most Brazilian airports to refine the methodology for the determination of runway capacity. This has resulted in increased capacity for many airports, including some co-ordinated ones (Eurocontrol and DECEA, 2021, pp. 19-20[149]).

[116] Through congestion pricing, rather than slots, fees would be set on flight operations, which would vary throughout the day. By charging higher prices during congested periods, airlines would be encouraged to operate flights in less congested periods or to reduce their overall number of flights (Ball, Berardino and Hansen, 2018, p. 186[101]). This mechanism would ensure that air fares reflect the commercial value of the slots they are associated with and therefore represent an efficient use of slots. However, the competitive equilibrium of prices only exists when slots are (perfect) substitutes for all airlines, which is not always the case (Kociubiński, 2013, p. 45[157]). Incentivising flights to spread across the day may also dampen hub connectivity. Further, implementing congestion pricing may be difficult, since the difference between peak and off-peaks pricing needs to be extremely large for airlines to accept the operational inconvenience of using the airport at off-peak times (Egeland and Smale, 2017, p. 29[86]). See Annex 2.A. Slot auctions and slot trading for a further analysis of slot auctions and slot trading, including their advantages, disadvantages and corresponding international experiences.

[117] It is worth mentioning that although no specific licensing requirement for cabin-crew members exist in ICAO's provisions, Annex 6 to the Convention on International Civil Aviation does provide training and competency requirements for the profession. In certain jurisdictions, flight attendants are required to hold a qualification other than a licence to prove their qualifications to perform duties related to the safety of passengers and flight during operations. For instance, in the United States, flight attendants must hold a certificate of demonstrated proficiency issued by the Federal Aviation Administration (49 USC 44728); in the European Union, they are required to hold an attestation, issued upon application, with which the applicant has demonstrated that he or she complies with the essential requirements (Articles 22 and 23 of Regulation EU No. 2018/1139 of 4 July 2018); Argentina requires a certificate of competency issued by the aeronautical authority (RAAC 64). In other jurisdictions, such as Chile (DAR 01), Colombia (RAC 63), Mexico (Reglamento para la expedición de permisos, licencias y certificados de capacidad del personal técnico aeronáutico), and Brazil (Law No. 13 475/2017), a licence issued by the civil-aviation authority is required to perform cabin-crew duties.

[118] Pilot, flight navigator, and flight engineer (known in Brazil as flight mechanic).

[119] Aircraft maintenance, including technicians, engineer, and mechanics; air-traffic controller; flight-operations officer and flight dispatcher, and aeronautical-station operator.

[120] Besides holding a licence, operating certain types of aircraft may also require holding a type rating to ensure that the holder has knowledge and skills to operate that specific aircraft type.

[121] In addition, the Department of Airspace Control (DECEA) regulates the professions related to air-navigation services, and a licence is required to be an air-traffic controller; aeronautical information professional; aeronautical meteorology professional; aeronautical station operator; offshore radio operator; and air-traffic manager (ICA 63-31, approved by Ordinance DECEA No. 137/DGCEA, of 27 September 2021). However, considering that air-navigation services are provided either directly by DECEA or through NAV Brasil, an SOE, only civil servants from these organisations are allowed to perform these activities. This report will not assess the requirements for these professions.

[122] RBAC No. 61.

[123] RBHA No. 63. This activity is likely to disappear in the near future. Today, according to ANAC, only one type of aircraft (for the provision of air cargo transport) requires a flight mechanic.

[124] RBHA No. 63.

[125] RBAC No. 65.

[126] RBAC No. 65.

[127] Articles 2 and 3 of Law No. 13.475/2017.

[128] RBAC No. 141.

[129] Articles 180 and 201 of Law No. 7.565/1986 (Brazilian Aeronautical Code), both recently revoked by Provisional Measure No. 1.089/2021, converted into Law No. 14.368/2022.

[130] Article 5, paragraph 1, and Article 20 of Law No. 13.475/2017.

[131] Item 141.91 of RBAC No. 141.

[132] Commission Regulation (EU) No. 2018/1119 of 31 July 2018 amended Commission Regulation (EU) No. 1178/2011 of 3 November 2011, laying down technical requirements and administrative procedures related to civil-aviation aircrew pursuant to Regulation (EC) No. 216/2008 of the European Parliament and of the Council.

[133] Resolution ANAC No. 659/2022.

[134] Part 61 and Part 66 of the Australian Civil Aviation Safety Regulations 1998, and (Civil Aviation Safety Authority, 2022[154]).

[135] Part 61 and Part 66 of the New Zealand Civil Aviation Rules.

[136] Article 156, paragraph 1 of Law No. 7 565/1986 and Article 6 of Law No. 13.475/2017.

[137] Article 156, paragraph 3 of Law No. 7 565/1986 and Article 6, paragraph 1 of Law No. 13.475/2017.

[138] Article 157 of Law No. 7 565/1986 (Brazilian Aeronautical Code).

[139] Article 20 of Law No. 13 475/2017.

[140] According to Annex 6 to the Convention on International Civil Aviation, fatigue is "a physiological state of reduced mental or physical performance capability resulting from sleep loss, extended wakefulness, circadian phase, and/or workload (mental and/or physical activity) that can impair a person's alertness and ability to perform safety-related operational duties".

[141] Flight time is the total time from the moment an aeroplane first moves for the purpose of taking off until the moment it finally comes to rest at the end of the flight (Annex 6 to the Convention on International Civil Aviation). Flight duty period is a period that commences when a flight or cabin crew member is required to report for duty that includes a flight or a series of flights and that finishes when the aircraft finally comes to rest and the engines are shut down at the end of the last flight on which he or she is a crew member (Annex 6 to the Convention on International Civil Aviation). Duty period is a period which starts when a flight or cabin crew member is required by an operator to report for or to commence a duty and ends when that person is free from all duties (Annex 6 to the Convention on International Civil Aviation). Rest period is a continuous and defined period of time, subsequent to and/or prior to duty, during which flight or cabin crew members are free of all duties (Annex 6 to the Convention on International Civil Aviation).

[142] Fatigue Risk Management System (FRMS) is a data-driven means of continuously monitoring and managing fatigue-related safety risks, based upon scientific principles and knowledge, as well as operational experience that aims to ensure relevant personnel are performing at adequate levels of alertness (Annex 6 to the Convention on International Civil Aviation).

[143] Law No. 13 475/2017 establishes the main flight-time, duty-period and rest period-limitations. However, section 117.61 and Appendixes B and C of RBAC No. 117 also set limits for flight-time, duty-period and rest-period limitations, the so-called fatigue risk-management rules. These rules are also prescriptive, but they are more detailed than those provided in Law No. 13 475/2017, since they take into account different variables, such as the start time of the duty period and on board rest facilities provided to the crew. This allows longer periods than those stated in Law No. 13 475/2017.

[144] Section 117.63 of RBAC No. 117.

[145] Article 19, paragraph 4 of Law No. 13 475/2017.

[146] According to the US Federal Aviation Administration (FAA), Newark Liberty is today a Level 2 airport and no longer a Level 3 airport; www.faa.gov/about/office_org/headquarters_offices/ato/service_units/systemops/perf_analysis/slot_administration/slot_administration_schedule_facilitation/level-2-airports. As explained in endnote 103, this means that today the airport has potential for congestion during some periods of the day, week, or season that requires schedule adjustments mutually agreed between the airlines and the facilitator.

[147] Newly created slots for international flights continued to be allocated through an administrative scheme; www.gdjv.cn/article/8626852.

[148] This outcome has been seen at London Heathrow airport, where commercial slot transfers seem to have increased the average aircraft size by around 80%, from 139 to 250 seats for each slot. Furthermore, there is evidence at the same airport to indicate that airlines operating short-haul routes have tended to

sell slots either to the dominant airline or to other airlines operating long-haul routes (Mott MacDonald and European Commission, 2006, pp. 3-35-8-4[135]).

[149] Other studies suggest greater benefits from market-based mechanism in general. One indicated that secondary slot trading, higher runway charges, slot auctions or combinations of these would ensure a more efficient use of slots, leading to an increase in passenger numbers at congested airports of about 7%, equivalent to around 52 million additional passengers per year at those airports (National Economic Research Associates, 2004[152]). In the Impact Assessment accompanying the Proposal for a Regulation of the European Parliament and of the Council on common rules for the allocation of slots at European Union airports (Recast), the European Commission estimated that adopting a market-based mechanism expressly allowing slot trading across the EU would result in an average annual increase of 1.6% (or 23.8 million) in the number of passengers carried, a net economic benefit of EUR 5.3 billion, and an increase in employment of up to 62 000 full-time jobs (European Commission, 2011[151]). The legislative proposal to review Regulation No. 95/93 was published in December 2011, the Council adopted its general approach in October 2012 and the European Parliament adopted its first reading position in December 2012. At present, the proposal is waiting for the Council's first reading position and remains blocked; www.europarl.europa.eu/legislative-train/theme-transport-and-tourism-tran/file-allocation-of-slots-at-eu-airports-common-rules-recast.

[150] Estimating pass-though elasticity is notoriously difficult as 1) data limitations do not match flight dates with airfare dates; and 2) airlines have a variety of financial tools to hedge fuel and oil price uncertainty. Gayle and Lin's recent paper takes these factors into account and is able to rationalise the unexpectedly lower estimates previously obtained in the literature (Gayle and Lin, 2021[143]).

[151] Brasília International Airport will soon be directly connected through fuel pipelines. The test phase has started and the project is expected to be operational in October 2022; https://tnpetroleo.com.br/noticia/petrobras-leva-querosene-de-aviacao-por-duto-para-brasilia.

[152] ANAC, www.anac.gov.br/acesso-a-informacao/dados-abertos/areas-de-atuacao/voos-e-operacoes-aereas/dados-estatisticos-do-transporte-aereo.

[153] ANAC, www.anac.gov.br/acesso-a-informacao/dados-abertos/areas-de-atuacao/voos-e-operacoes-aereas/tarifas-aereas-domesticas. The annual airfare revenue by airport was calculated by placing ANAC's national and international fare data into a single base; revenue from airline tickets was calculated by multiplying the value of the fare charged and the number of seats sold for the respective value for each company, month and departing airport, aggregated to the year and airport level.

[154] AC 08012.004341/2009-73 – Cosan/Shell.

3 Ports sector

This chapter provides an economic, institutional, and legal overview of the ports sector in Brazil. The water transport sector has a fundamental role in Brazil's foreign trade and in its economic development: it is responsible for the flow of more than 98% of Brazilian exports and more than 92% of imports in terms of volume. Three main bodies are responsible for the creation of policies and guidelines for the port sector, while specific state-owned enterprises are responsible for exercising the functions of port authorities in public ports, and the Agência Nacional de Transportes Aquaviários as an independent regulatory agency is in charge of implementing the Ministry's policies for ports and waterways.

3.1. Overview and definition of the ports sector

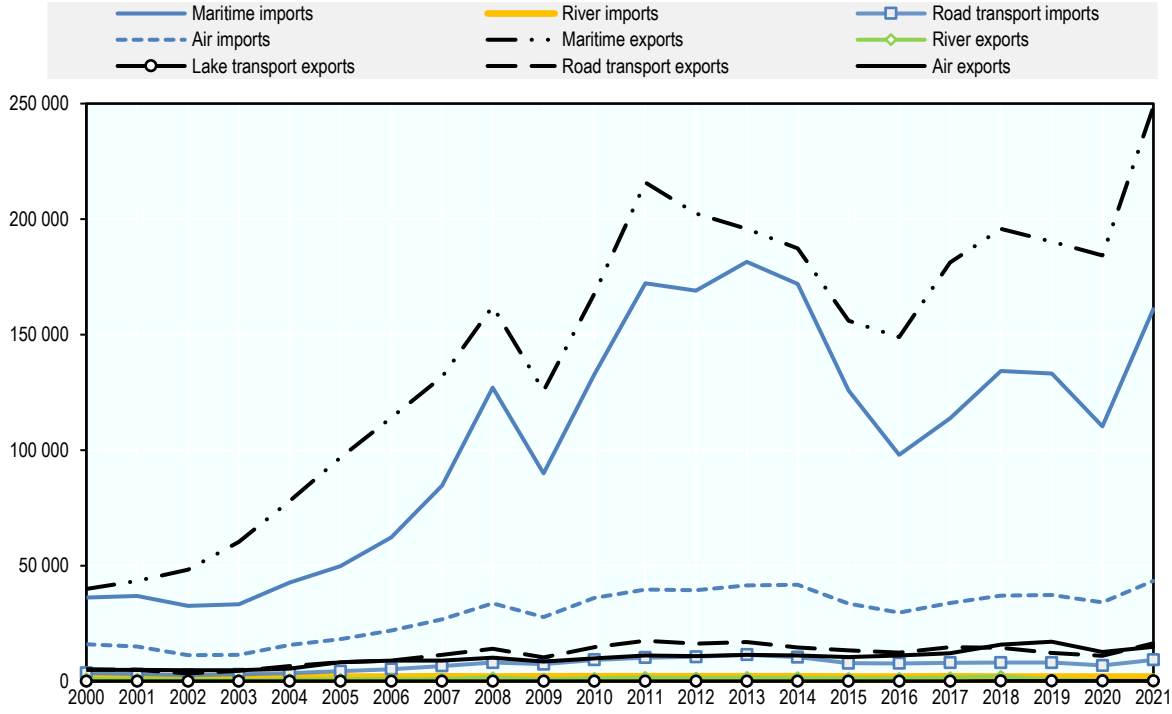
3.1.1. Economic overview

Ports can be defined as places "having facilities for merchant ships to moor and to load or discharge goods or passengers to or from seagoing vessels" (OECD, 2002[1]). Whether maritime, inland or river, ports play an important function in the economic development of countries and regions by facilitating large-scale domestic and international trade in goods. Port infrastructure supports customers such as freight shippers, ferry operators and private boats (OECD, 2011[2]).

Although it may not represent a large portion of GDP (0.16%),[1] the water transport sector has a fundamental role in Brazil's foreign trade and in its economic development.[2] It is responsible for the flow of more than 98% of Brazilian exports and more than 92% of imports in terms of volume. In 2021, exports and imports by maritime transport amounted to more than 851 billion net kilogrammes and USD 409 billion

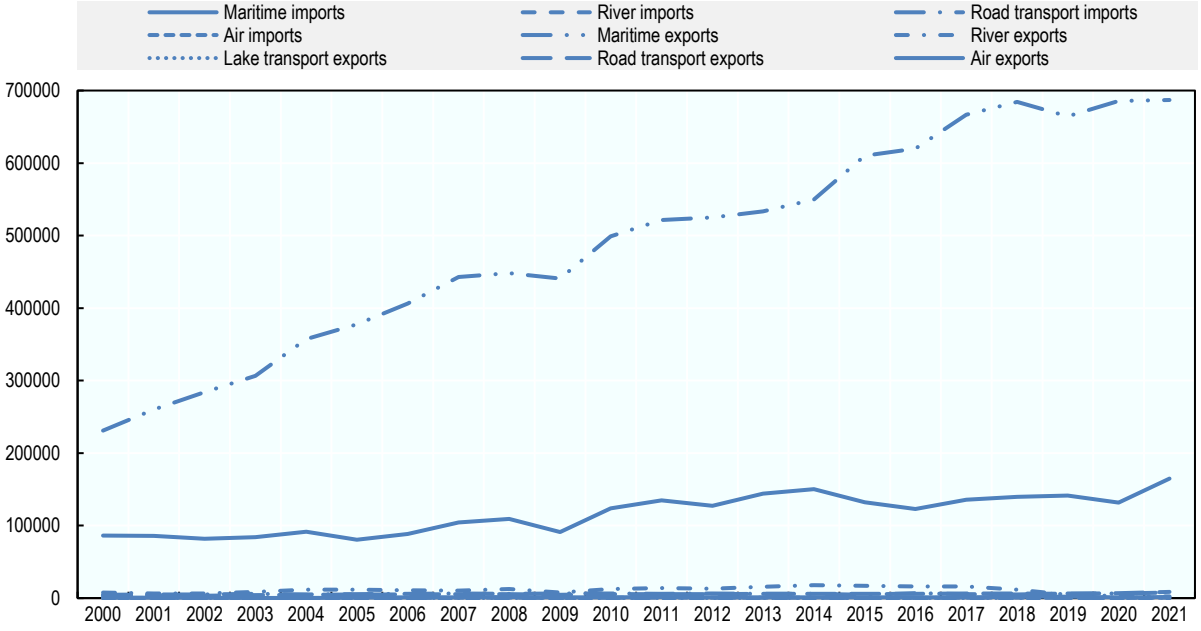
freight on board (FOB), an increase of 169% and 438%, respectively compared to 2000 data (Figure 3.1 and Figure 3.2).

Figure 3.1. Transport methods of imports and exports (USD in millions, FOB), 2000-21



Source: (Ministério do Comércio Exterior, 2022[3]).

Figure 3.2. Transport methods of imports and exports (net kilogrammes, in millions), 2000-21



Source: (Ministério do Comércio Exterior, 2022[3]).

In comparison to other regions and countries, Brazil plays an important role in world trade. In 2020, it accounted for 776 million tonnes or 7.3% of the global volume of loaded goods in maritime trade (Table 3.1). This volume saw 6.36% growth between 2014 and 2020, above the average of developing countries in the Americas and in Africa, but below those in Asia.

Table 3.1. Maritime trade

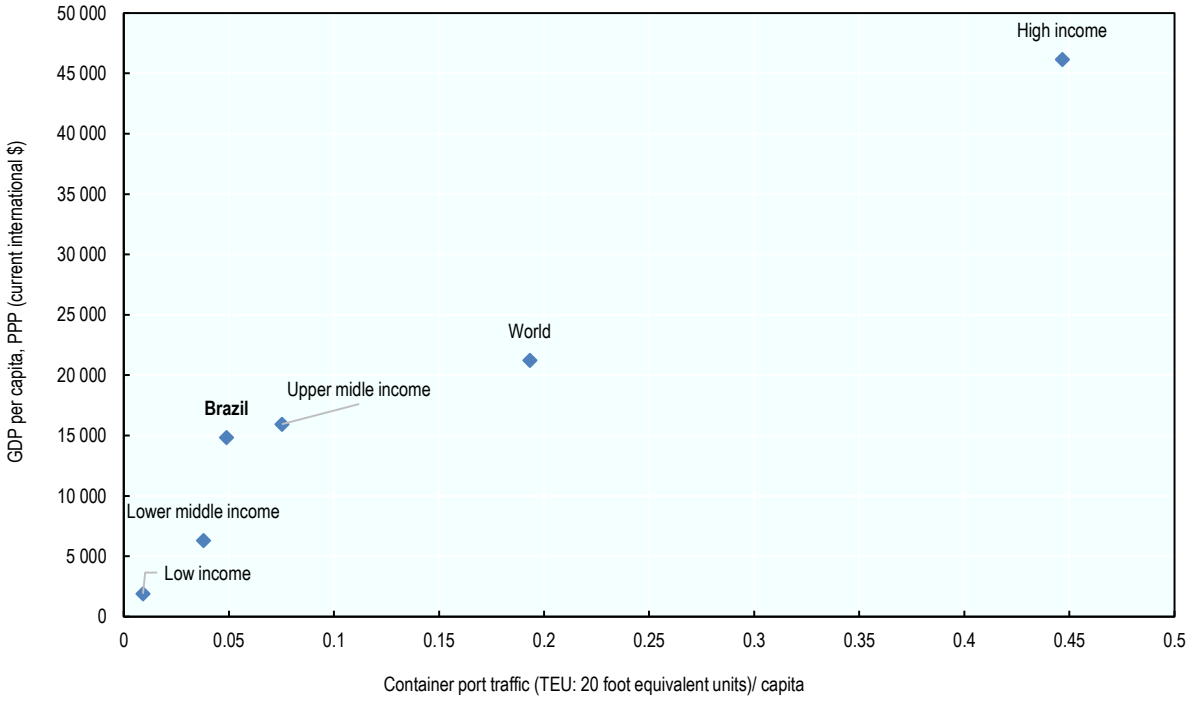
	Loaded volume (as percentage of global total)		Unloaded volume (as percentage of global total)	
	2014	**2020**	**2014**	**2020**
World totals	9 816	10 648	9 719	10 631
Latin America and the Caribbean	13.3%	12.9%	5.9%	5.6%
South America	11.2%	11.0%	3.7%	3.3%
Brazil	**6.5%**	**7.3%**	**3.4%**	**3.6%**
Developing regions (M49)	60.2%	59.5%	59.8%	59.4%
Developed regions (M49)	39.8%	40.5%	40.2%	40.6%

Note: UN M49 is a Standard Country or Area Codes for Statistical Use by the United Nationals. For UNCTAD definition of developing economies, see https://unctadstat.unctad.org/EN/Classifications/DimCountries_DevStatus_Hierarchy.pdf.
Source: (UNCTAD, 2022[4]) and (ANTAQ, 2022[5]).

Prior to the COVID-19 pandemic in 2020, container shipments in seaports had continually grown between 2001 and 2020 around the world (except in 2009, after the 2008 crisis) both in terms of gross tonnage and the number of 20-foot equivalent units (TEUs). In 2020, nearly 750 million TEUs were loaded and unloaded in countries for which data were available, with Brazilian ports accounting for around 1.3% of total TEUs handled around the world in 2020.

Containerised trade is positively related to GDP growth. The number of TEUs transported has a positive effect on trade flow between countries, which in turn has a positive impact on real GDP growth (CEPAL, 2020[6]) (Michail and Batzilis, 2021[7]). Figure 3.3 shows this positive correlation between countries with higher container port throughput and those with the highest GDP per capita.

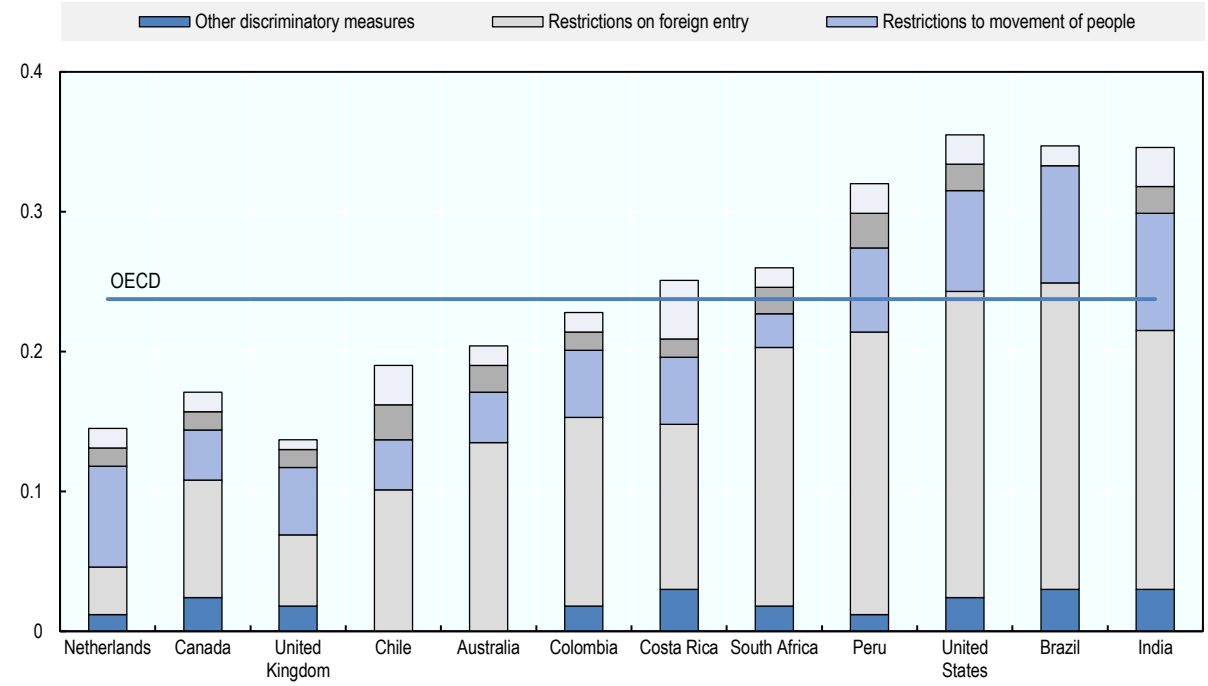
Figure 3.3. Port throughput of containers (TEU, in millions) and GDP per capita, by region and income, 2020



Source: (UNCTAD, 2022[4]) and OECD calculation.

Regarding the regulatory environment, the maritime transport service sector in Brazil appears to be less open to trade and investment than the OECD average or other comparable economies, such as Chile, Colombia, and Costa Rica. This is shown by the OECD Services Trade Restrictiveness Index (STRI), which provides information on regulations affecting trade in services in different sectors.[3] The STRI scores Brazil above other countries (Figure 3.4). In this respect, restrictions on foreign entry play an important weight on the composed result.[4]

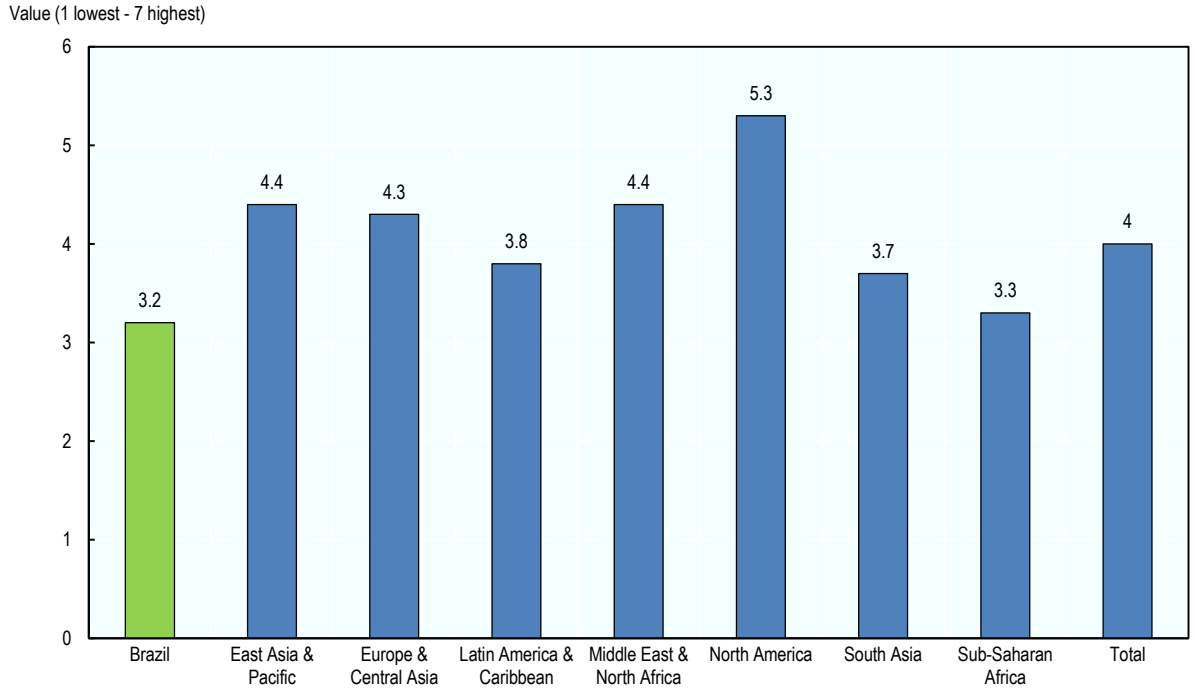
Figure 3.4. STRI in maritime transport services, by policy area, 2021



Source: (OECD, 2022[8]).

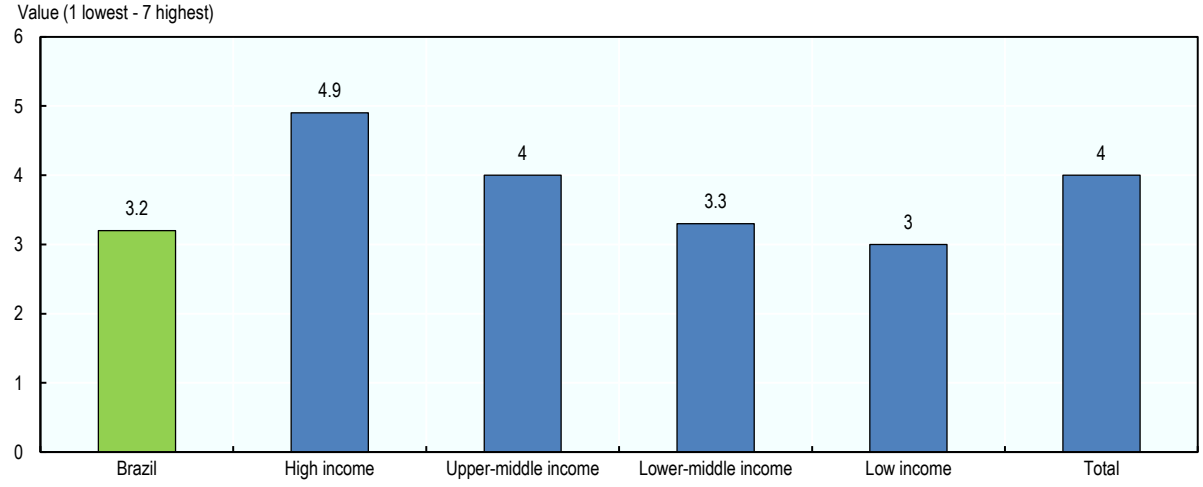
Brazil's performance indicators for maritime transport are low. The World Economic Forum's Global Competitiveness Index (GCI)[5] ranks the efficiency of Brazilian seaport services at 104 out of 138 analysed countries, with a score of 3.2 on a scale of 1 (worst) to 7 (best). This is below both the average of all other regions in the world and below the world average of 4.0 (Figure 3.5). This inefficiency can also be seen in the GCI's ranking of countries by income level (Figure 3.6). Brazil scores below average of other countries in its income group (upper-middle income), which was 4 in 2019.

Figure 3.5. GCI 4.0: Efficiency of seaport services, 2019, by region



Note: Data from 2019 are the most recent available.
Source: (World Economic Forum, 2020[9]); OECD calculation.

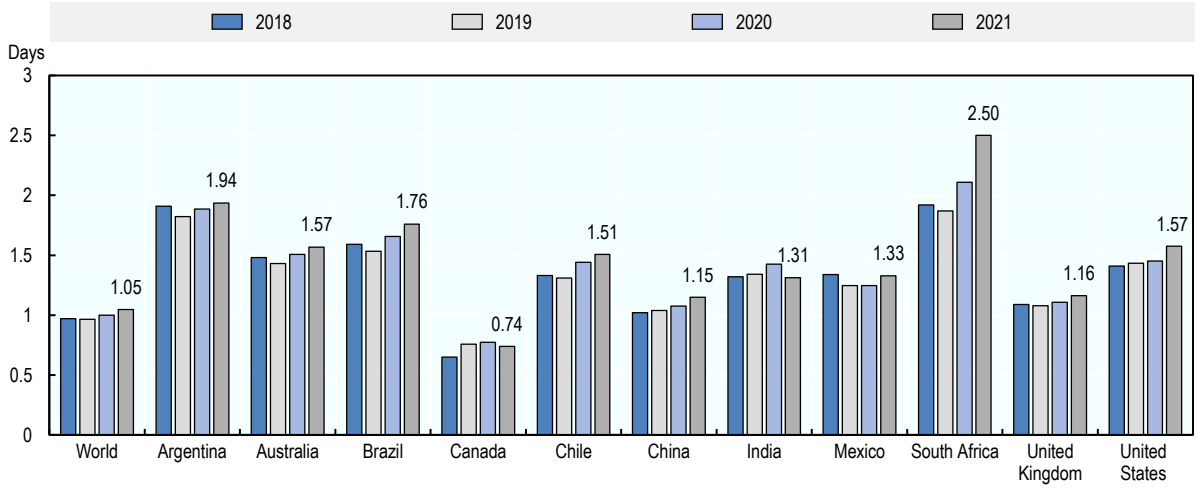
Figure 3.6. GCI 4.0: Efficiency of seaport services, 2019, by income group



Note: Data from 2019 is the most recent available.
Source: (World Economic Forum, 2020[9]); OECD calculation.

An alternative proxy measure of efficiency is time spent in ports; shorter times signal possible stronger port efficiency and trade competitiveness (UNCTAD, 2022[4]). Ships spent on average 1.76 days in Brazilian ports in 2021; this compared with a global average of 1.05 days; 0.74 days in Canada; 1.15 in China; and 1.16 in UK ports (Figure 3.7). Among the main reference countries, only South Africa (1.94 days) and Argentina (2.5 days) performed worse.

Figure 3.7. Median time spent in ports (days)



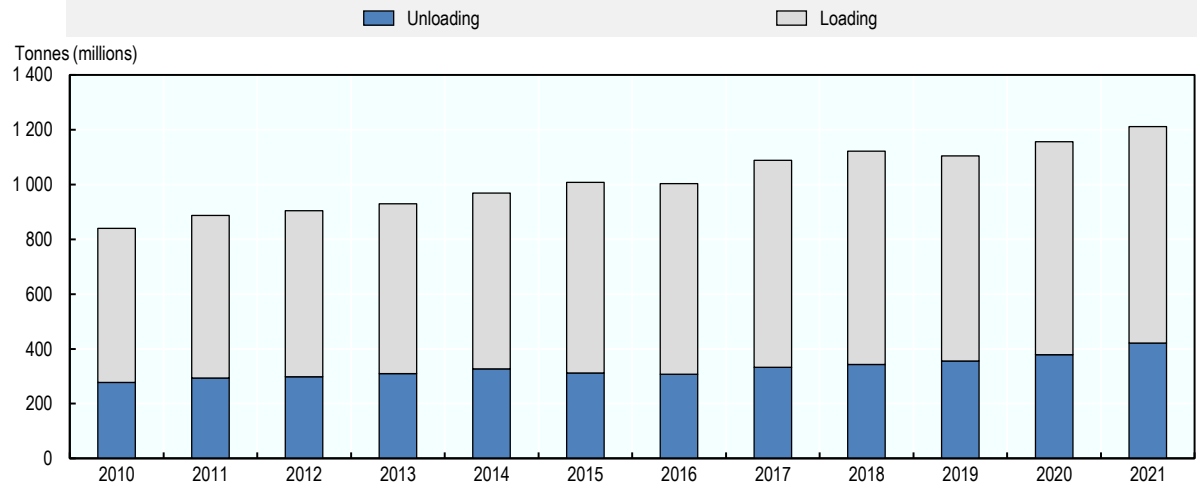
Source: (UNCTAD, 2022[4]).

Growth of the sector

In the early 1990s, Brazil undertook a reform process for the ports sector, aiming to promote competition by fostering entry and investment. The extinction of Portobrás, a state-owned company that had centralised ports' administrative activities since 1975, and the enactment of Law No. 8.630/1993 enabled the private sector to invest in, lease and operate national maritime ports (AZEREDO, 2004[10]) (SILVA and FILHO, 2013[11]) (CADE, 2017[12]). In 2001, the creation of the National Agency of Waterway Transport (ANTAQ) enhanced legal certainty and fostered investor confidence. Continuing this process, in 2013, Brazil established a new regulatory framework (Law No. 12 815/2013) for the ports sector aiming to further enhance competitiveness and increase private-sector involvement in the supply of port infrastructure.

This new regulatory framework was a response to a lack of sectoral investment and growth. Since these reforms, the volume of cargo handled in Brazilian ports has increased and reached more than 1 200 million tonnes, an increase of 45% compared to 2010 levels (Figure 3.8).

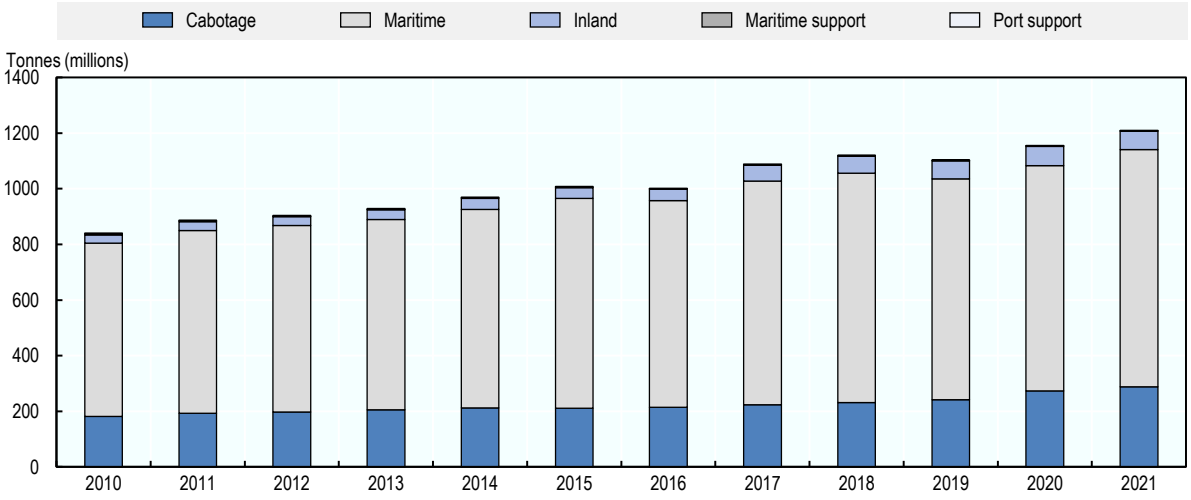
Figure 3.8. Cargo handled in Brazilian ports (tonnes), by direction, 2010-21



Source: (ANTAQ, 2022[5]).

Maritime cargo is the main contributor to the overall amounts handled in Brazilian ports. In 2021, 71% of cargo handled in Brazilian ports was transported by maritime vessels, followed by domestically transported cargo (cabotage), which accounted for 24% of the total (Figure 3.9).

Figure 3.9. Cargo handled in Brazilian ports (tonnes), by type of navigation, 2010-21

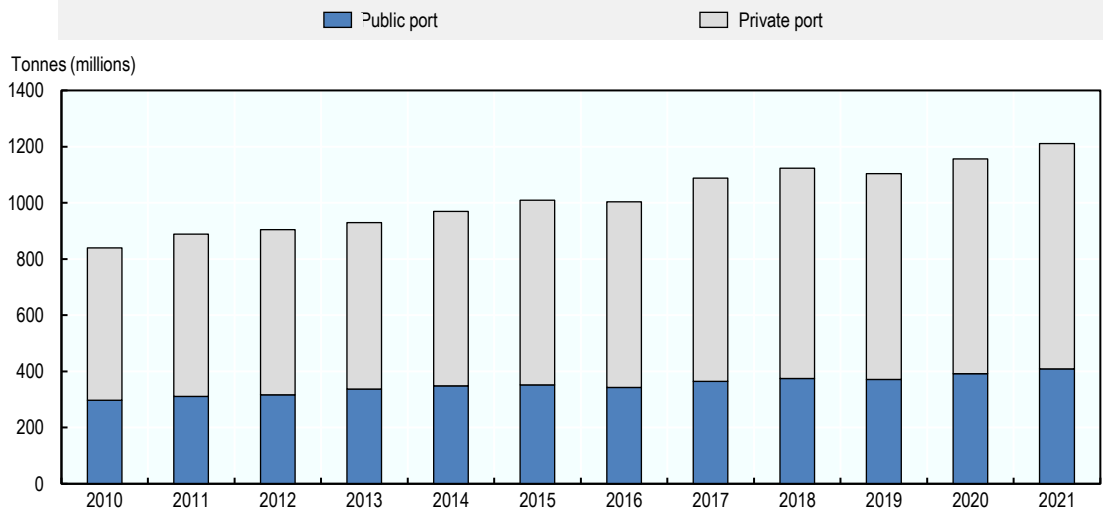


Source: (ANTAQ, 2022[5])

Market structure

The regulatory framework enacted in the 1990s resulted in an increase in the number of authorisations for the construction of private-use terminals. In 2021, Brazil had 170 private-use terminals (TUPs) in operation subject to a fully privatised model and 125 terminals in public ports under a landlord model (ANTAQ, 2022[5]).[6] Private ports were responsible for 66% of the cargo handled in Brazilian ports in 2021, against 34% for public ports (Figure 3.10).

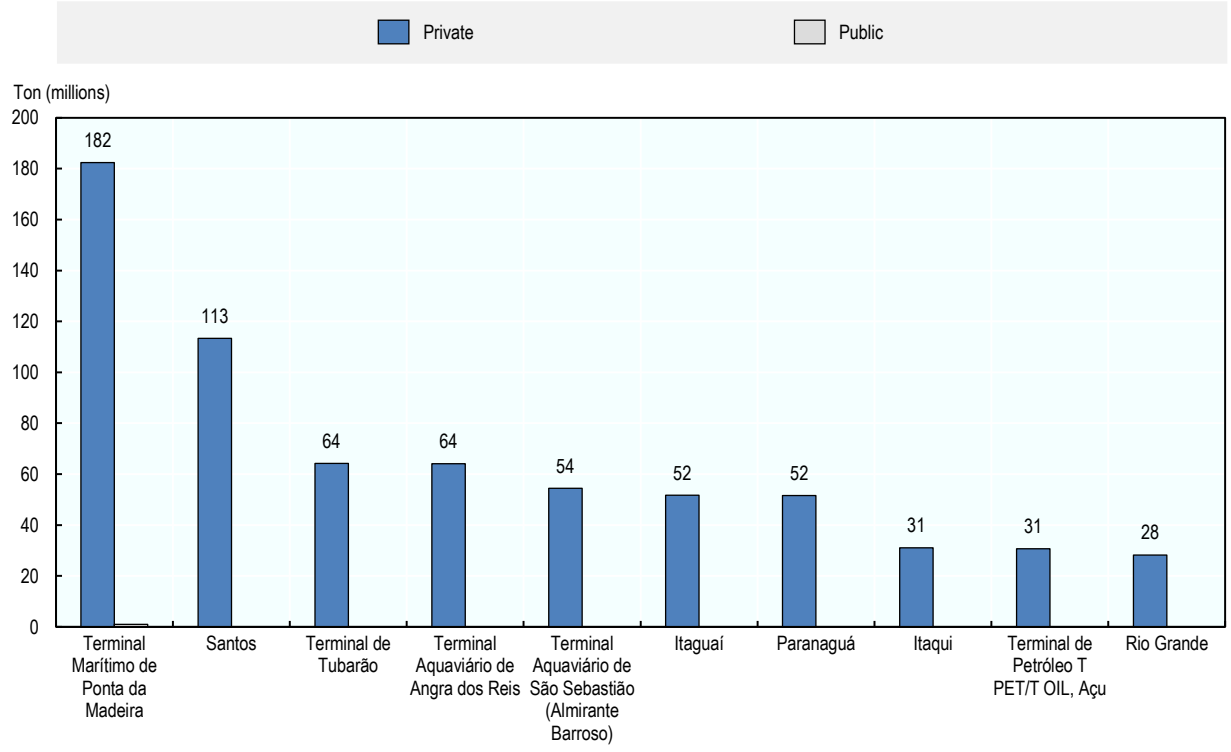
Figure 3.10. Cargo handled in Brazilian ports, by type of port, 2010-21



Source: (ANTAQ, 2022[5]).

Among the ten main ports in Brazil (measured in gross tonnage handled), five are public ports and five private terminals (Figure 3.11). The leading private port is the Ponta da Madeira maritime terminal, located in the northeast of the country, which specialises in handling ore and has experienced rapid growth since 2014. The Port of Santos, southwest of São Paulo, has the largest container throughput in the country, accounting for around 30% of all containers handled in Brazil in 2021.

Figure 3.11. Main public and private ports in Brazil, in gross weight, 2020



Source: (ANTAQ, 2022[5]).

The port sector is becoming increasingly vertically integrated From 1996 to 2016, 24 of the 81 merger cases related to port services analysed by CADE involved vertical integration. The most common cases of vertical integration in port industry are the ones related to production and export of bulk of plant origin (agricultural commodities) and the storage and movement services of these products in port terminals. It is common, in these markets, that large exporters of commodities hold equity interests, or even full control, in port terminals for production flow, which may be for captive use by shareholders or may be offered to some extent to store goods of other independent exporters (CADE, 2017[12]).

Vertical integration in Brazil has different roots that vary depending on the type of cargo. Before 2013, the regulation of private terminals established that the latter needed to prioritise their own cargo and were not allowed to handle only third-party cargo. Such regulatory evolution is one of the reasons why a considerable number of private terminals are still today part of vertically integrated companies in Brazil. For example, Vale integrates and manages most of the logistics chain for exporting minerals in Brazilian territory, including extraction, rail transport, movement in port terminals in maritime transport in own ships. In the vegetable bulk segment, which accounts for 264 million tonnes or 20% of the cargo handled in Brazilian ports in 2021 ((ANTAQ, 2022[5]) the logic of vertical integration also plays an important role. Companies like Bunge, ADM and Cargill have their own terminals in different regions of the country. In addition, they invest in other structures in the supply chain such as warehousing and intermodal

transhipment (Bunge) and, river transport (ADM) (CADE, 2017[12]). As to liquid bulk terminals, vertical integration is also widespread, with companies producing commodities acting in the port operation and in other segments of the production chain (Coutinho, 2014[13]).

In line with this worldwide trend, in the Brazilian containerised cargo market, vertical integrations occurred between large domestic and foreign cargo shipping companies. For instance, TIL (in which MSC has a 60% stake) operates the Portonave private terminal, in Navegantes – SC, located in Itajaí Port Complex, region where the public terminal is also leased to APM Terminals. Maersk and MSC are partners in the port of Santos but compete directly in the containerised cargo market in Santa Catarina. Also, in the State of Santa Catarina, the private terminal of Itapoá has Aliança Navegação e Logística (belonging to the shipping group Hamburg Sud, now part of Maersk) among its shareholders (Jucá, 2021[14]). Other container terminals (partly) operated by shipping lines are in Rio de Janeiro (TIL), Pecém (Maersk) and Natal (CMA CGM).

The tendency of vertical integration is a world phenomenon which is also related to the increase of the use of mega-vessels. Given the amount of cargo transported, port operations may have the potential to create bottlenecks, eroding service reliability and limiting the efficiency in the use of this type of vessels. Aware of such relevance and aiming to boost operational performance and reduce physical bottlenecks (e.g. undersized infra- and superstructures, nautical accessibility), shipping companies have started to acquire container terminal facilities around the world. By acquiring terminals, carriers have also the opportunity to have more control of the manpower costs and invest in correlated business (OECD, 2017[15]) From 2002 to 2016, the share of carrier-controlled terminal operators has increased from 18% to around 38% globally (ITF, 2018[16]). This share is around 14% in Latin America.

While, as mentioned, vertical integration gives carriers the possibility to better co-ordinate their shipping activities as part of a whole logistics chain, it can lead to discriminatory treatment – as the carrier can, as terminal, towage or logistics operator, provide worse services to competing carriers, especially in concentrated markets. For example, carriers often use their terminals as leverage to cut rates in independent terminals and play out ports against each other (ITF, 2018[16]).

When looking at CADE's decisional practice, from 1998 to 2018, 8 of 13 mergers cases related to container terminals involved some form of vertical integration. The main concern is the possibility of foreclosing upstream or downstream markets and induce rivals' cost increases. If the port terminal of a group started to offer less efficient services for ships belonging to rival groups, this could lead to subsequent delays and cost increases for transporters. However, the possibility of such conduct was ruled out due to the reasons raised in the cases such as the existence of container terminals in nearby ports. The existence of idle capacity at container terminals would allow absorption of demand deviations in the event of a terminal closure to rival companies; it would not be economically viable for port terminals to operate only with cargo from the company of its economic group, as these would not have enough volume; in ports where corporate control is shared, market foreclosure of some shipowners would not be of in the interest of the other partners which do not operate maritime transport; in cases of Vessel Sharing Agreement, the choice of ports of passage is made jointly by the parties, so there would be no certainty that all participants in the agreement would agree to use integrated terminals owned by one of the participating companies. (CADE, 2018[17])There is an investigation on going (08700.003945/2020-50) about an allegation of practices of direct and indirect discrimination arising from the vertical relationship between ship owners and terminals, evidenced by dominant position at the port of Santos.

Generally, vertical integration is subject to merger control rules. In general, the acquisition of controlling stakes in other parts of the transport chain should thus be notified to the competent national competition authority, which will evaluate whether there are any possible antitrust concerns with the transaction (OECD, 2021[18]) In Brazil, the Law 12.529/2011 establishes an ex ante control of concentrations and imposes a duty to notify to CADE acts of economic concentration.

Concerning to the legislation, OECD countries have different strategies to deal with the vertical integration's risks. Some countries define explicit port hierarchies that help focus public infrastructure investments and prevent shipping companies or large shippers from playing off ports against each other. (OECD, 2021[18])In Brazil, there is no legislation specifically restricting vertical integration between port terminals and carriers. Brazilian regulation seems to analyse vertical integration concerns on a case-by – case basis, rather than imposing general restrictions.

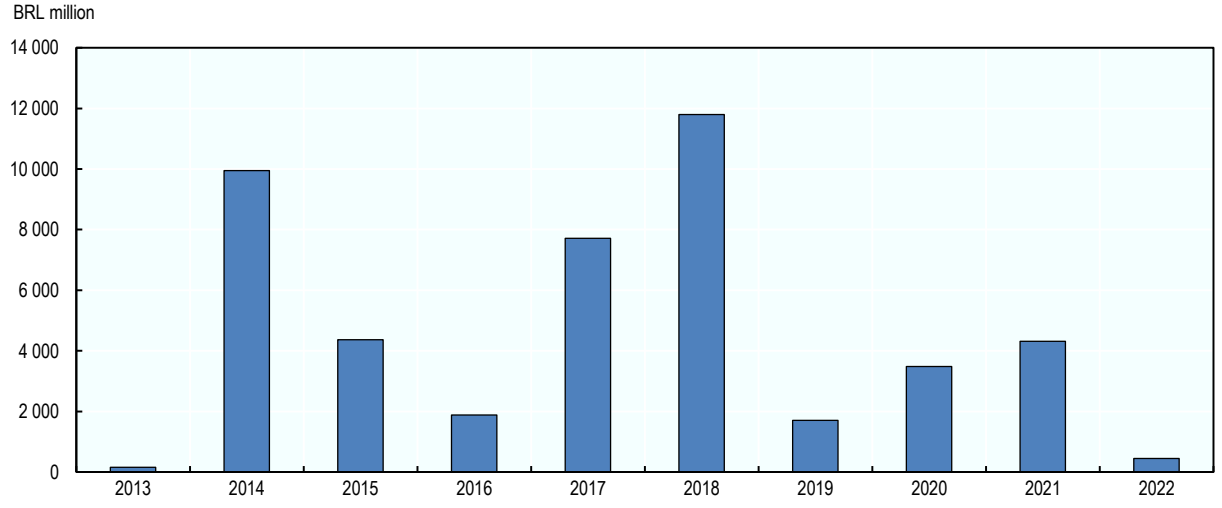
The Law 10233/2001 (which created ANTAQ) allows the transfer of ownership of concession or permission granted, preserving its object and contractual conditions if it is authorised by ANTAQ. The Brazilian legal system includes regulators of sectorial activities (regulatory agencies) and a horizontal competition defence system that is responsible for "prevention and repression of infringements against the economic order" (Article 1 of Law No. 12 529/11).

ANTAQ tried to introduce some form of regulation of vertical integration in 2014, when it sent to public consultation the Resolution 3 708 (which has never come into force). Article 18 established that the public notice may restrict or prevent the participation of companies' members of economic groups that already operate in the organised port area; in the area of influence of the organised port; or in other economic activities that represent forms of vertical integration. In addition, to prevent the risks of vertical integration, the lease of terminals in public ports was subject to safeguards to avoid creating intra- and inter-port links, giving a regulatory role to ANTAQ, the Federal Court of Accounts and SEAE.

Recent trends

Private port terminals have been the main investment driver in the Brazilian port sector in recent years, particularly after 2013 and the enactment of the Ports Law (see Box 3.1). According to data from the Association of Private Port Terminals (ATP), founded in 2013 to represent the interests of the private port sector, the investment portfolio of private ports since the law has totalled BRL 45.83 billion, of which BRL 43.6 billion (95.9%) were investments in private-use terminals (TUPs); BRL 1.5 billion (3.35%) were in cargo transhipment stations (ETC); and BRL 333.8 million (0.73%) were in port tourism facilities (IPTur).[7]

Figure 3.12. Annual investment portfolios in private terminals (in millions), 2013-22



Note: In nominal values.
Source: (ATP, 2022[19]).

3.1.2. Institutional overview

The institutions responsible for issuing or enforcing rules, instructions and guidelines in the ports sector play a significant role in the functioning of the market and can ultimately affect competition.

This section provides an overview of institutions responsible for issuing and implementing regulations and overseeing the ports sector in Brazil.

Three main bodies are responsible for the creation of policies and guidelines for the port sector.

- Ministry of Infrastructure (Ministério da Infraestrutura), responsible for issuing guidelines and policies for the development and promotion of the port sector and maritime, fluvial and lacustrine port installations. The ministry is also responsible for the execution and evaluation of programmes, measures and projects that support the superstructure[8] and infrastructure development of ports and maritime, fluvial and lacustrine port installations.
- National Commission of Port Authorities (CONAPORTOS), responsible for co-ordinating and evaluating the efficiency of measures related to activities performed by public bodies and entities in ports and port facilities. Restructured by Decree No. 10.703/2021, it is composed of several public bodies[9] and chaired by the Ministry of Infrastructure.
- National Secretariat of Ports and Waterway Transports (SNPTA), responsible for establishing guidelines for awarding grants and for tax proposals in the waterway transport sector; proposing priorities in the investment programme to aid the creation and implementation of the Ministry of Infrastructure's strategic planning regarding waterway and port transport; and elaborating grant plans and proposals for the infrastructure and service exploitation in the port sector and maritime, fluvial and lacustrine port installations.

Six state-owned port enterprises (*Companhia Docas*), linked with the Ministry of Infrastructure, are responsible for exercising the functions of port authorities in public ports, and the management and supervision of port facilities and public infrastructure within ports. The six *Companhia Docas* are: Companhia Docas do Pará; Companhia Docas do Ceará; Companhia Docas do Rio Grande do Norte; Companhia das Docas do Estado da Bahia; Companhia Docas do Rio de Janeiro; and Companhia Docas do Estado de São Paulo. Companhia Docas do Espírito Santo was recently privatised (see Section 3.1.3).

Box 3.1. Integration between bodies

Based on a review of the regulation and the procedures of a significant number of institutions in the federal government, there has been an effort since 2011 to integrate the procedures of the governmental bodies into a project called Porto Sem Papel (port without paper). It consists of a digital database that centralises the information and documentation necessary to speed up the passage of goods through Brazilian ports. This single window allows companies to submit information (such as declarations, electronic consents for vessel stay, and certificates of origin and invoices) simultaneously to all relevant entities: the port authorities; National Health Surveillance Agency (ANVISA); the Federal Police (Polícia Federal); Ministry of Agriculture; the system for agriculture and international livestock surveillance (Vigiagro); the Brazilian Navy's Maritime Authority; and the Brazilian Federal Revenue Service's Customs Authority (Receita Federal). By 2021, the system had been implemented in 34 Brazilian ports (Ministério da Infraestrutura, 2021[20]). In the Port of Santos, the system resulted in a reduction of waiting times and congestion, which before its introduction was costing BRL 115 million a year (OECD, 2016[21])**.** The expansion of the project could lead to the integration of further governmental bodies, which will continue to reduce the administrative burden.

The National Agency of Waterway Transportation (ANTAQ), an independent regulatory agency of the federal government, is in charge of implementing Ministry of Infrastructure policy on ports and waterways in accordance with the principles and guidelines established by legislation (see Box 3.2). It is also responsible for inspecting, regulating and controlling the provision of services of waterway transport, and the operation of port and waterway infrastructure. In addition, ANTAQ examines the activities performed by the administration of public ports (referred to as "organised ports" in Brazilian legislation), port operators, leaseholders, and authorised port installations. The majority of sectoral regulations are issued by ANTAQ.

Box 3.2. ANTAQ's independence as a regulator

Regulatory agencies often find themselves under pressure from sectoral stakeholders and interest groups, which can subject them to different forms of control. Independence is crucial to ensure that the regulator can efficiently exercise its mandate to promote widespread access to services at competitive prices in its specific market (OECD, 2016[21]).

As defined by Law No. 10.233/2001 and Law No. 13.848/2019, ANTAQ has formal administrative independence in the decision-making process from the Ministry of Infrastructure. This independence is achieved thanks to different factors in line with international best practices. First, directors in charge of the agency have a fixed mandate, which prevents them from being influenced by political pressures and allows them to fulfil the objectives set by the legislation that created the regulatory agency. The designation of directors follows a centralised process, in which they are proposed and appointed by the president after Senate approval.

Second, ANTAQ has a multi-member decision making body. In general, boards are considered more reliable for decision making with collegiate decisions ensuring a greater level of independence and integrity than decisions taken by individuals, which are potentially subject to greater pressure from government and regulated industries (OECD, 2016[21]) One of ANTAQ's major differences from other regulatory agencies in Brazil is that its collegiate board consists of a director general and two directors; all other regulatory agencies are composed of a director general and four directors. Stakeholders say that the reduction, occurred before the creation of the agency, during the legislative discussions, from five to three directors, which took place due to budgetary restrictions, could facilitate "regulatory capture" of ANTAQ by regulated industries. The organisational structure also includes an attorney, an ombudsman and an inspector general, whose duty is to supervise the agency's functioning and its administrative and disciplinary proceedings. To solve this issue, in June 2022 the Provisional Measure 1120/2022 was proposed to introduce the possibility to have more directors in the collegiate board. The proposal is currently being discussed before the Brazilian Congress.

Third, in line with international best practices, ANTAQ leaders must go through a "cooling off" period before accepting jobs in either the government or regulated sector after their term of office. Having no restrictions on pre- or post-employment of agency staff increases the risk of "revolving doors" and conflicts of interest with industry (OECD, 2016[21]).

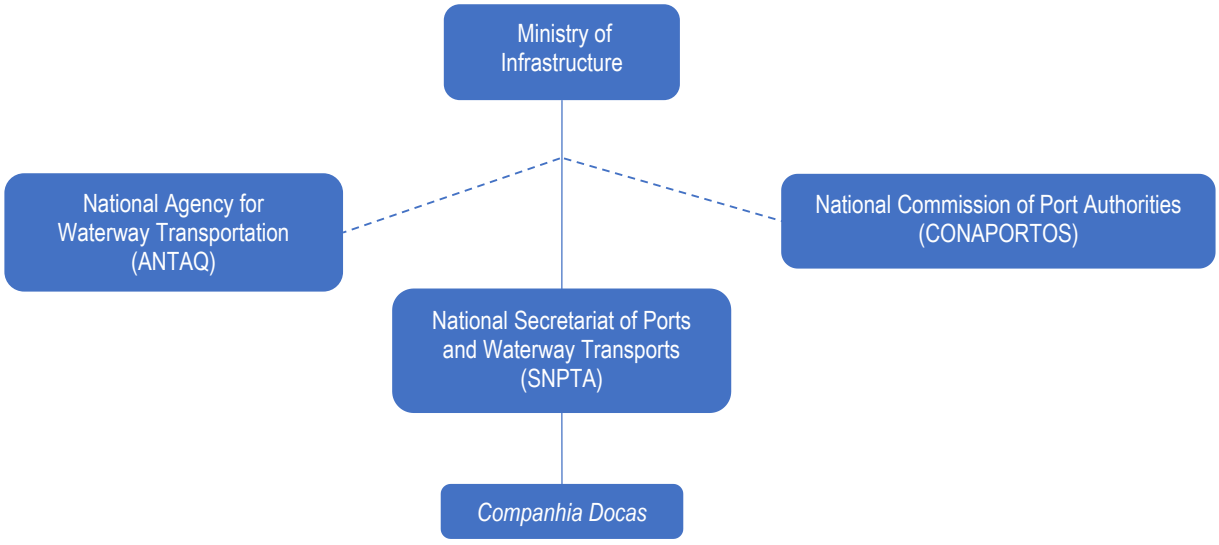
In selecting a regulator's leadership, international best practice suggests transparency in the nomination and appointment process. According to the *OECD Regulatory Policy Outlook 2021*, 47% of regulators in OECD countries are now appointed by an independent panel (OECD, 2021[22]).

Promoting a culture of independence in regulatory agencies throughout the different phases of the regulatory cycle generates competition between regulatory agencies and thus economic efficiency. One important landmark, contained in Law No. 13.848/2019 (Law of the Regulatory Agencies), was the legal establishment of the model interaction between regulatory agencies and the bodies of competition defence. The law established ANTAQ as incumbent monitor of market practices of agents in the regulated sectors, in order to assist competition bodies in complying with relevant legislation. CADE is

responsible for applying competition legislation in regulated sectors, for analysing mergers, and instituting and instructing administrative proceedings to investigate infringements. The regulatory agency may also help with technical opinions.

Figure 3.13 summarises the hierarchy and relation between regulatory bodies in the ports sector.

Figure 3.13. Regulatory bodies in the ports sector



Note: A dotted line is used between ANTAQ and Conaportos as there is no hierarchical relation between these institutions and the Ministry of Infrastructure.
Source: (Ministério da Infraestrutura, 2021[23])

3.1.3. Overview of the legislation

The OECD has identified 77 pieces of legislation related to the ports sector. It should be noted that the sector is heavily regulated and that the services provided in publicly operated ports are more regulated than the services in private ports (TUPs). Since the provisions regulating public ports are more restrictive than those for private ports and in light of the purpose of this project, which aims to identify unnecessary regulatory restraints on market activities and develop alternative measures that still achieve government policy objectives, the OECD has found more restrictions concerning public ports (53 provisions) than private ports (16 provisions).

Law No. 12.815/2013 (Ports Law) provides the legal framework for the port sector in Brazil. It regulates the direct or indirect operation by the federal executive branch of ports and port facilities, and the activities of port operators. It covers the majority of the relevant issues for ports, such as the definition of terms, leasing and authorisation instruments, and issues related to 1) the administration of the public ports; 2) port operation; and 3) port workers.

The Ports Law establishes two different regimes: one for public ports, another for private ports (TUPs). Law No. 12.815/2013 provided for private terminals to operate outside public ports for the first time.[10] More specifically, terminals within public ports operate under a public-lease regime, while terminals in private ports are subject to a different regulatory regime and authorisation process. This regulatory asymmetry gives rise to competition concerns when TUPs operating in a private and less regulated regime compete against more regulated terminals located within public ports (see Box 3.7).

Public ports operate under a landlord model that was first established by Law No. 8.630/1993. This model, which is still in use today, sees the federal executive branch provide port infrastructure, highway and waterway access and grant usage rights. Federal port companies – or *Companhias Docas* – are the port authorities within public ports. As noted in Section 3.1.2, these 100% state-owned companies are responsible for managing public ports, including those in Rio de Janeiro, Santos, Salvador, and Belém. In some cases, public ports are managed by federal states or municipal governments, which establish their own management entities – such as companies or government divisions – as is the case for the ports of Rio Grande, Itaqui, Suape, Paranaguá, among others.

The 2013 law's main objective was to attract private investments by enabling the private-sector operation of port activities. It provided that private ports be subject to a fully privatised model that includes all investment in superstructure, infrastructure and equipment. Port operation and administration are also provided by the private stakeholder.

Table 3.2. Models of port-activity operations in Brazil

	Public port concession	Terminal leasing	TUP, fully private port
Legal instrument	Concession contract	Lease contract	Authorisation
Type	Public-service contract granted to the private sector	Public-service contract granted by the public administration to the private sector	Private economic activity requiring authorisation
Period	Up to 70 years	Up to 35 years (extendable up to 70 years)	25 years (extendable, as long as port activity is maintained, and the authorisation holder makes the necessary investments for the expansion and modernisation of port facilities).
Management	Functions granted to the private sector	Public port terminal operator	TUP owner
Infrastructure	Managed by private investor during concession and returned to government when concession expires		Private and constituted with authorisation from ANTAQ
Berths and hinterland area	Negotiated between the concessionaire and the private-port operator	Direct operation by the lessee	Held by the TUP owner
Labour	The pool of port workers (OGMO) is responsible for the registration, allocation, management and payment of port workers. All port operators, when operating within a public port, are obliged to hire port workers through OGMO.		Hiring labour is independent, according to general work legislation

Source: Adapted from (BNDES, 2021[24]).

While the Ports Law allowed for public-port concessions in 2013, the first concession in Brazil was not granted until 2022, with others concessions scheduled (Box 3.3).

Box 3.3. Privatisation of port-related SOEs

Following the publication of the Federal Development Strategy in October 2020, Brazil is planning to privatise the *Companhias Docas*, the state-owned enterprises (SOEs) active in the ports sector. These mixed-capital companies were created to operate in port management and until 1990 were linked to Portobrás. From 1990 to 2007, they were controlled by the Ministry of Transport, before moving under the aegis of the Secretary of Ports of the Presidency of the Republic from 2007 to 2016. They are currently tied to the Ministry of Infrastructure (CADE, 2017[12]).

In 2020, the *Companhias Docas* only invested BRL 35.8 million, the lowest amount in the last decade. This was, for example, less than 10% of total investment in 2014 of more than BRL 492.8 million (Table 3.3). This decrease in investments can be explained by the lack of resources, since these companies have accumulated significant losses in recent years, a trend that was reversed in 2019 and 2020, with the professionalisation of their management, a preparatory step towards their privatisation.[11]

Table 3.3. Annual investments by *Companhias Docas*, nominal values (in thousands, BRL)

Companhia docas	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Companhia Docas do Ceará (CDC)	18 787	79 812	102 857	69 706	30 766	8 165	4 632	3 589	1 755	23
Companhia Docas do Espírito Santo (Codesa)[1]	17 073	94 401	73 653	47 470	67 076	49 483	40 226	41 626	14 193	4 667
Companhia Docas do Estado da Bahia (Codeba)	6 134	17 276	38 035	24 569	14 677	7 521	4 938	3 158	2 218	6 365
Companhia Docas do Estado de São Paulo (Codesp)	34 345	113 076	184 321	287 104	209 799	112 476	84 322	15 717	4 565	2 010
Companhia Docas do Pará (CDP)	80 127	40 735	6 128	19 627	12 918	3 621	3 044	2 013	5 861	9 354
Companhia Docas do Rio de Janeiro (CDRJ)	5 137	2 750	19 243	9 621	26 045	31 499	26 948	25 709	17 591	4 843
Companhia Docas do Rio Grande do Norte (Codern)	120 954	34 888	36 533	34 773	5 291	18 870	793	2 362	6 366	8 557
Total	**277 038**	**382 938**	**460 771**	**492 871**	**366 572**	**231 635**	**164 902**	**94 174**	**52 549**	**35 821**

Source: (Senado Federal, 2022[25]); OECD calculations.

The first privatisation of a *Companhia Docas* took place in March 2022 with a 35-year concession of the Companhia Docas do Espírito Santo (Codesa), the owner of the port complex of Vitória, south-east Brazil.[12] The second concession will be the Port of Santos, the largest port in Latin America, with a total throughput of more than 107 million tonnes (BNDES, 2021[26]), which is scheduled for the second semester of 2022. The draft of the public notice, among other documents, was discussed at a public hearing and consultation in March 2022. A public hearing for a third concession, for the Port of Itajaí, took place in April 2022. São Sebastião Port will also be conceded, and the public consultation and public hearing took place in February 2022. The next scheduled concessions are for the Ports of Salvador, Aratu-Candeias and Ilhéus, including the privatisation of Codeba, an SOE and port authority in north-east Brazil. The Brazilian Development Bank (BNDES) is conducting studies to this end and public hearings were scheduled for the second semester of 2022 (BNDES, 2022[27]).

The Ports Law has been gradually updated over the years, and relevant changes that aim to reinforce freedom of pricing in port operations have been implemented since 2020 (Box 3.4).

Box 3.4. New mini-reform in Brazilian Ports Law

Aiming to attract more competition and dynamism to the sector, the Federal Government has made several changes to the Brazilian Ports Law (Law No. 12.815/2013) and decree (Decree No. 8.033/2013). The amendments were provided for in Law No. 14.047/2020 and Decree No. 10.672/2021.

The new law introduced important changes that aimed to bring greater efficiency and dynamism to the management of public ports. The changes brought by the 2020 law reinforced the logic of freedom of pricing in port operations and sought to limit practices harmful to competition (PPI, 2020[28]).

In order to simplify the leasing contracts of the port facilities, some contract clauses (e.g. on reversal of public assets) are no longer considered as essential (PPI, 2020[28]).

The new amendments also provided the regulator ANTAQ with more tools to encourage the use of idle areas in ports and allow interested parties to test the feasibility of operating there for a maximum period of 48 months. If more than one company is interested and it is not possible to grant them all the temporary use of such areas, the port administration can promote a simplified selection process to choose the project that best meets the public and port interests. After the expiration of the contract, if the cargo activity is considered viable in the formerly idle area, the government will hold a standard tender for the lease. The change lifted one barrier to competition, which had been a limited number of suppliers (PPI, 2020[28]).

Other amendments include the possibility of not running a competitive tender when it is proven that only one stakeholder is interested in exploring an area after a public call issued by the Port Authority. Finally, there was a point of legal uncertainty that the new law sought to solve by making explicit that the contracts signed between the concessionaire of the public port (exercising the role of port administration) and third parties are subject to the regulations for private ports (PPI, 2020[28]).

To reinforce the changes, in April 2021, Decree No. 10.672/2021 incorporated the regulatory simplification measures provided by Law No. 14.047/2020 and amended Decree No. 8.033/2013 that regulates the Ports Law. The simplification measures seek to facilitate investments and business activities in Brazilian ports (APEX, 2021[29]).

Source: (PPI, 2020[28]) and (APEX, 2021[29]).

Decree No. 8.033/2013 is important as it specifies the provisions of the Ports Law, detailing the operation of port facilities within the public-port area – such as how to design the public notice, leasing and concessions contracts and contracts of temporary use – and lays down provisions on authorisations and port workers.

The main instruments for planning in the sector are the Zoning and Development Plan (PDZ) for each port complex, the National Plan of Port Logistics (PNLP), the General National Leasing Plan (PGO), and the master plans for each port complex,

Other relevant legislation includes Law No. 10.233/2001, which created the National Agency of Waterway Transportation (ANTAQ), the independent regulatory agency responsible for inspecting, regulating and controlling the provision of services of waterway transports, and the operation of port and waterway infrastructures. In addition, ANTAQ examines activities performed by the administration of public ports, port operators, leaseholders, and authorised port installations. It also issues the majority of resolutions regulating the sector.

New legislation, Law No. 14.301/2022, introduced in January 2022, aims to lift regulatory restrictions on cabotage. Among its objectives are encouraging competition and competitiveness in the provision of cabotage transport services (SNPTA, 2021[30]) (see Box 3.5).

Box 3.5. New Brazilian framework on cabotage

Maritime cabotage is sea shipping operating exclusively between ports in the same country. Historically, foreign vessels had restricted access to cabotage routes, which was often justified for security reasons; more recently, restrictions have been more related to maintaining national fleets and for employment reasons. Concerns about relaxing these regimes are often related to how opening cabotage to foreign operators may reduce operating costs, change employment practices, and weaken labour and safety standards for seafarers (UNCTAD, 2017[31]).

In 2022, the introduction of Law No. 14.301/2022 reformed the cabotage sector's regulatory framework. It introduced new provisions alongside those of Law No. 9.432/1997, which reserved certain markets for the Brazilian maritime industry. The new regime aims to modernise the sector, mainly by lifting barriers to foreign entrants (PPI, 2019[32]). Research and international case experience suggest that the relaxation of cabotage regimes will improve competition and reduce prices in Brazil (Ipea, 2020[33]).

The main change provided for by the new regime concerns permits to simplify the expansion of cabotage and the entrance of new companies. Pursuant to the new provisions, Brazilian navigation companies (EBN), legal entities created according to Brazilian laws, with headquarters in the country, and no restriction on the nationality of the capital, will be allowed to charter vessels rather than owning them (SNPTA, 2021[30]).

Another amendment concerns the nationality of the crew. The old legislation established that on Brazilian-flagged vessels, the commander, the chief engineer and two-thirds of the crew had to be Brazilian nationals; the new regime relaxed this restriction and established that the commander, cabotage master, chief engineer, and chief engineer must Brazilian.

The expected results from the reform are an increase of 40% of the supply of cabotage vessels and 30% in annual cabotage growth (SNPTA, 2021[30]). However, to the best of the OECD's knowledge, in the absence of implementing measures, the new regime is not yet applicable.

Sources: (UNCTAD, 2017[31]), (PPI, 2019[32]), (Ipea, 2020[33]), (SNPTA, 2021[30])

3.2. Provision of port services

3.2.1. Background

While port management models vary across countries, there are four main models depending on the role that the public and private sectors play (Table 3.4).

Table 3.4. Main differences between basic port management models

	Ownership of infrastructure	Ownership of superstructure	Cargo-handling operations	Other operations
Public-service port	Public	Public	Public	Public
Tool port	Public	Public	Private	Public or private
Landlord port	Public	Private	Private	Public or private
Fully privatised port	Private	Private	Private	Private

Note: A tool port is a public port in which cargo-handling is privately run, but the terminal equipment is still owned by the public port authority. Tool ports are sometimes transitional models between public-service and landlord ports.
Source: (OECD, 2018[34]).

The landlord model, in which the port's land remains public but its infrastructure is leased long term to a private operating company, is the most common model in OECD countries, particularly for large and medium-sized ports (OECD, 2018[35]).

In Brazil, ports have recourse to two models: the landlord model for public ports – with a specific legal framework – and a model applying to fully privatised ports (TUPs), with its own legal framework. In 2021, there were 127 terminals in 25 public ports (out of a total of 35 public ports) subject to the landlord model and 170 TUPs in operation under the fully privatised model (ANTAQ, 2022[5]).

Box 3.6. International experiences on private participation in ports

In general, despite reforms in recent decades that have opened port services to private participation, international experience shows that it remains more common for the ownership of port authorities to be in public hands. (Notteboom, Pallis and Rodrigue, 2022[36])

Australia has a two-model system similar to Brazil ports. It has a majority of public ports, and only a few private ports that can only deal with one type of cargo (ore). (Chen, Pateman and Sakalayen, 2016[37]).

New Zealand has a different model with full private ownership in which one or more private parties own both the port infrastructure and the land. (Notteboom, Pallis and Rodrigue, 2022[36])

The Mexican model combines elements of the landlord and the private port. Mexican ports are managed by private companies through an entity (Administración Portuária Integral), which is a concessionaire of the Ministry of Communications and Transport (SCT). Alongside the existence of public regulation and supervision, concession agreements also encompass the operation of ports, which is therefore carried out by private players. The institutional port framework is not rigid and different port management models coexist. (Netherlands Enterprise Agency, 2019[38]) In fact, in the two main Mexican ports, the Port of Veracruz, on the Gulf of Mexico, and the Port of Manzanillo, on the Pacific coast, private companies offer all services.

The landlord model is the most common in Europe. For example, the Port of Piraeus in Greece was a tool port until 2002, when it moved to a public landlord model, with the construction of a private terminal with its own physical and operational area within the port. (Britto et al., 2015[39]) The main exception is the United Kingdom, where the model is unique, characterised by significant private participation. There are three main models of port ownership in the UK: (i) private ownership (the government has no ownership interest in this kind of model, it ranges from ports owned by international groups to ports owned by private companies); (ii) trust ports (these are independent bodies which cannot be owned by other companies or shareholders, they are financially and strategically independent statutory corporations); and (iii) local authority owned ports (also operating on a competitive and commercial basis) (Maritime UK, 2022[40]).

Box 3.7 below provides an overview of the regulatory asymmetry that has resulted from Law No. 12.815/2013 and the main differences between leased terminals in public ports and private terminals (TUPs).

Box 3.7. Regulatory asymmetry between public and private ports

Regulatory asymmetry is one of the reasons why investors prefer to have a private terminal instead of competing in a tender to become lessees in public ports (Tribunal de Contas da União, 2020[7]).

Since the enactment of Law No. 12.815/2013, in light of their location within public ports, leased terminals in public ports have been subject to more regulations than privately run terminals (TUPs),

which have greater freedom and more flexibility. This asymmetry was motivated by the objective of attracting more private investment, which was the main goal of the law.

Table 3.5. Regulatory differences between leased terminals in public ports and private terminals

	Leased terminals in public ports	Private terminals (TUPs) outside public ports
Award process	Bidding process	Authorisation
Location	Inside the public ports	Outside the public port area
Maximum duration of the contract	35 years, extendable once for a maximum term of 70 years, depending on the performance of the lessee	25 years, renewable without limits
Cargo	Established in the public notice of bidding; can be changed after an official request to ANTAQ	Defined by the port investor; may be changed after a simple notification to ANTAQ
New investment by private investor	Requires ANTAQ approval	Simple notification to ANTAQ
Port workers	Hired through OGMO	Freely contracted
Port tariffs	Defined by ANTAQ after request of port authority	Freely negotiated
Contractual flexibility to change cargo profile	Authorisation by ANTAQ	Without authorisation
Submission of the private investor to the port authority	Submission	No submission

Source: Adapted from (Tribunal de Contas da União, 2020[41])

Nevertheless, the legislator needs to balance the fulfilment of public-policy objectives – stimulating competition in ports – with the need to avoid harming the provision of public-port services, an objective established by the constitution. This balance is extremely important since competition is not a goal in and of itself and should not jeopardise the achievement of constitutional objectives. These asymmetrical regulations may distort competition between private and public ports and possibly even lead to anticompetitive outcomes in a market with high barriers to entry and a strong tendency towards vertical integration (Fernandes, 2016[14]).

As summarised in Box 3.7, private terminals have a number of advantages over public ports. For instance, the cargo profile is defined by the port investors and may be changed after a communication to ANTAQ, whereas in public ports it is defined in the public notice and changing it requires an authorisation from ANTAQ. In addition, in private ports, workers are freely hired, and tariffs are freely negotiated while in public ports, port workers need to be hired through OGMO (see 3.3.2) and tariffs are set by ANTAQ. In order to guarantee a level playing field between public and private ports and increase competition in the ports sector the restrictions imposed by the legislation on public ports should be removed. This report used the OECD Competition Assessment Toolkit to identify the main legislative restrictions on public ports.[13] They are the:

- duration of the process for reviewing tariffs in public ports (Section 3.2.2)
- rules governing the leasing of public ports (Section 3.2.3)
- obligation, for public ports, to hire workers through OGMO (Section 3.3.2).

3.2.2. Duration of the process for reviewing tariffs in public ports

Description of the obstacle and policy makers' objective

In Brazil, private ports can freely set their own tariffs. By contrast, ANTAQ sets the tariffs in public ports for each type of services provided by the port authority, such as those to vessels, port operators or owners of goods. Tariffs are fixed based on the specific characteristics of each public port and cover total costs and

a profit margin for investors (Mello and Monteiro, 2020[42]). Tariffs are subject to annual readjustments, based on the Broad Consumer Price Index (IPCA), taking account the percentage variation of price indices incurred in the previous calculation period and any expected productivity gains. Private lessees within public ports are subject to tariff regulation under their respective concession and lease agreements.

Once ANTAQ has set the tariffs, it may also subsequently review them.[14]

Tariff reviews are common in ports worldwide. A 2015 survey of 67 ports from five continents showed that 60% revised their tariffs annually; 18% had no specific timeline for revisions; and 10% rarely revised their port tariffs (Bandara and Nguyen, 2016[43]).

Box 3.8. Port tariffs around the world

Fixing tariffs by type of service is common practice in ports around the world. (ESCAP, 2003[44])

In Vietnam, the government provides a price framework, and a port operator can choose to raise or reduce tariffs within this maximum-minimum range (OECD, 2021[45]).

In Mexico, according to the Ports Law, the Secretariat of Infrastructure Communications and Transportation is the competent body to establish the basis for tariff regulation if in a port there is only one terminal dedicated to a specific cargo or one service supplier. For this purpose, the Secretariat may request an opinion from the Competition Commission on this issue (Congreso de los Estados Unidos Mexicanos, 1993[46]).

In Thailand, Singapore, Brunei Darussalam, and South Africa, tariffs are set by a national body, such as the national port authority (Port Regulator of South Africa, 2022[47]). In Malaysia and Cambodia, local port authorities in each port set their own tariff (OECD, 2021[45]).

In Germany, shipowners can enter into civil-law agreements with a port operator and define different tariffs for its use of the port; for instance, it can negotiate discounts if its vessels regularly visit a port. In the Port of Gothenburg, Sweden, individual port authorities establish tariffs and the national government can intervene through regulations of general application (OECD, 2021[48]).

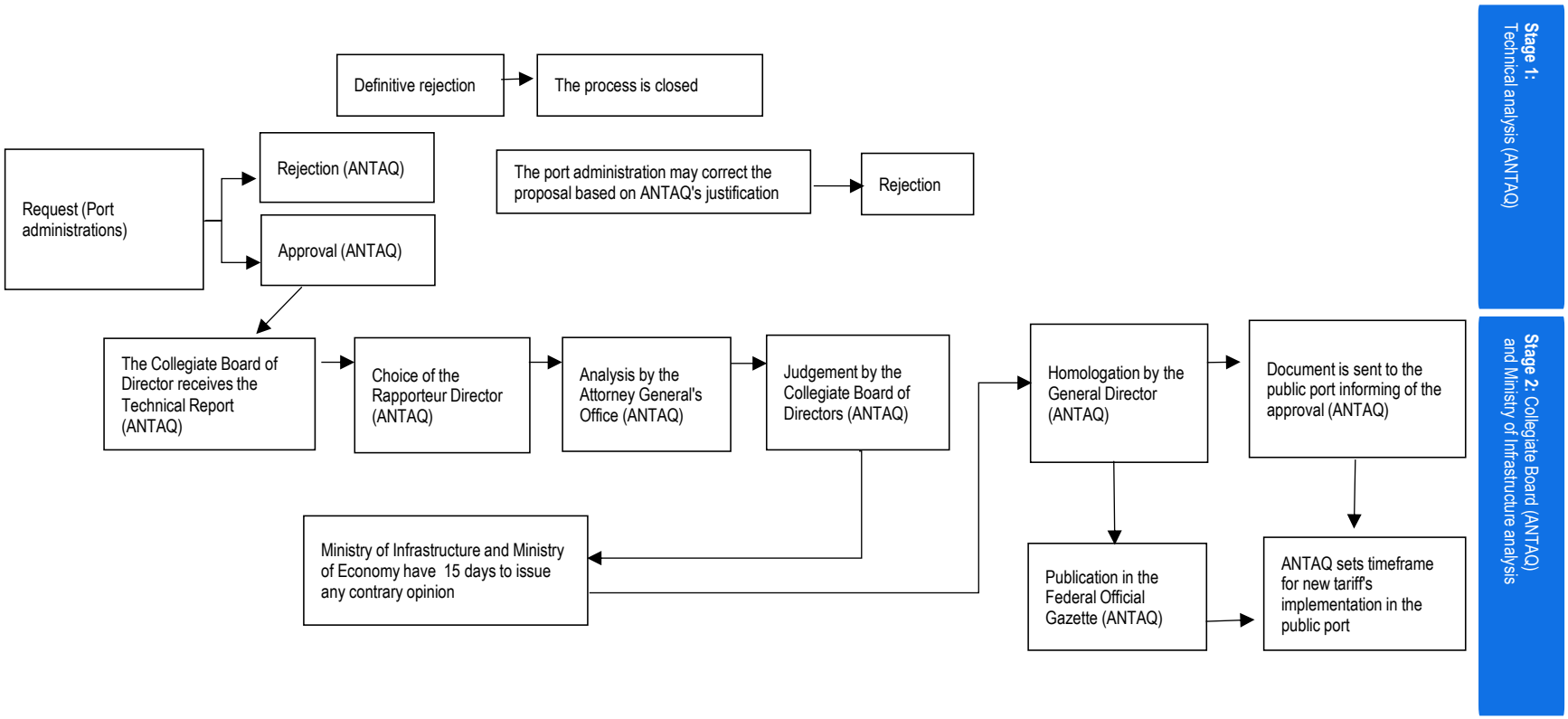
In Portugal, tariffs for port services provided directly by port authorities are regulated by Decree-Law No. 273/2000, which establishes tariff-setting formulas, exemptions and discounts. Each port authority then publishes annually its own tariffs within the rules of that law. If the services are provided by private operators, tariffs are determined in the respective concession and licensing contracts (OECD, 2018[34]).

Although tariff regulation may restrict a port authority's ability to set tariffs, it may be justified in traditional monopoly sectors where a counterweight is needed to the lack of competing alternatives. The regulation introduced by ANTAQ may prevent port authorities from abusing any market power they hold through their monopoly on the provision of the services in the specific port.

Private ports handle 66% of the total cargo handled in Brazilian ports, although the majority of containerised cargo is handled in public ports as shown in Section 3.1 Market Structure. However, the relevant market is defined by CADE by type of cargo in each port complex and CADE notes that certain ports face significant competition, while others are not subject to any competitive pressure. Due to this fact regulations applying to public ports may be burdensome (e.g. prior price notification as opposed to price regulation) in the event specific public ports are subject to sufficient competitive pressure from TUPs located outside the public port.

In addition, the process of reviewing tariffs in public ports is complex,[15] as it is long and involves ANTAQ, SNPTA, and the Ministry of Economy (Figure 3.14). ANTAQ launches the tariff-review process by giving prior notice to the granting authority at least 15 working days in advance. It analyses proposals received from port administrations for approval and may request additional information and clarifications; it then informs the granting authority and the port administrations about the tariff adjustments.

Figure 3.14. The tariff review process



Source: (ANTAQ, 2021[49])

Port administrations must provide ANTAQ with a justification of their review proposals, showing that the cost increases cannot be absorbed by increases in productivity or operational efficiency and need to be passed on to users of the facilities or service recipients.

Harm to competition

Since the tariff must be approved by ANTAQ and it takes a long time (Table 3.6) for the approval, the proposed tariff may become outdated and based on past costs. A tariff based on past costs may generate a decrease in the quality of the service since the cost cannot be covered. In addition, such lower quality service may lead the user to choose another port (Tribunal de Contas da União, 2020[41]).

Service quality, efficiency and tariffs are key drivers of competition between private and public ports (Tribunal de Contas da União, 2020[41]). Since TUPs outside public ports compete with lessees within public ports, but only the latter are subject to the long and complex tariff-review process described above, public ports may suffer from a competitive disadvantage compared to private ports. This creates another asymmetry which harms competition.

Table 3.6. Duration of tariff review process (10/2019 – 01/2022)

Public port	Time of technical analysis (days)	Time with unchanged tariff (days)	Total time (days)	Tariff Adjustment Index (IRT) *
São Sebastião	113	1 480	162	38.03%
São Francisco do Sul	126	2 136	163	12.76%
Paranaguá	106	1 125	177	26.42%
Antonina	106	1 125	177	79.24%
Itaqui	169	2 238	190	31.36%
Vitória	84	438	117	13.99%
Santos	168	1 286	207	13.19%
Suape	329	665	380	19.87%
Fortaleza	284	993	324	35%
Itajaí	55	993	81	40.42%
Average	**154**	**1247.9**	**197.8**	**29.62%**

Note: *The Tariff Adjustment Index is the monetary restatement of the tariff, having as reference the application of the percentage variation of price indices incurred in the previous calculation period and the expected productivity gain.
Source: (ANTAQ, 2021[49])

The risk of competitive disadvantage is even more serious since the enactment of Law No. 12815/2013. Following the repeal of the prohibition for private terminals to deal with third-party cargo (see 3.1, Market structure), public port authorities must face indeed competition from private ports (more specifically, from TUPs located outside public ports area) (Mello and Monteiro, 2020[42]). The asymmetrical regulation described in Box 3.7 may translate into an advantage for private ports. For example, given the length of the review process, a tariff based on outdated costs may lead to a decrease in service quality as costs can no longer be covered (Tribunal de Contas da União, 2020[41]). Reduced service quality in turn may then divert users to a competing port.

By contrast, private ports have the flexibility and agility to revise their tariffs quickly whenever needed. As a result, tariffs based on actual costs allow ports to keep their users and attract new ones since port tariff is an important factor in the choice of a port (Bandara and Nguyen, 2016[43]) (De Souza and Pitombo, 2021[50]).

Recommendations

With a need for a more agile process in public ports, the OECD recommends that Brazilian authorities consider reviewing the regime so as to simplify and speed up the revision process for port tariffs. A faster review process may in turn avoid the risk of reduced quality, while removing a competitive disadvantage for public ports when compared to private terminals.

Brazilian authorities may also consider imposing even less stringent regulation (such as prior price notification currently applicable also to TUPs) whenever specific public ports face sufficient competitive pressure.

3.2.3. Instruments to grant private port zones and facilities

Regulatory framework

Three solutions were put in place by Law No. 12 815/2013 for private participation in ports:

- concession of public ports
- lease of zones within public ports
- authorisation to create and exploit private ports in zones outside the public port

In the concession model for public ports the concessionaire acts as both port administrator and port authority, while under the leasing model, the lessee acts only as port operator of zones within public ports.[16]

The first concession in the country was awarded in March 2022 (Box 3.9).

Box 3.9. Port concessions in Brazil

The first concession awarded in Brazil was part of the privatisation of the Companhia Docas do Espírito Santo (Codesa), the authority of the port complex in Vitória, southeast Brazil (BNDES, 2021[24])

The chosen model is a combination of concession and privatisation. All Codesa's shares held by the federal government were sold and it will become a private-sector company. The privatisation process was conducted by the sale of all shares held by the federal government following the signature of a concession contract between the executive branch and the company for the operation of the Ports of Vitória and Barra do Riacho for 35 years (Governo do Brasil, 2022[51]).

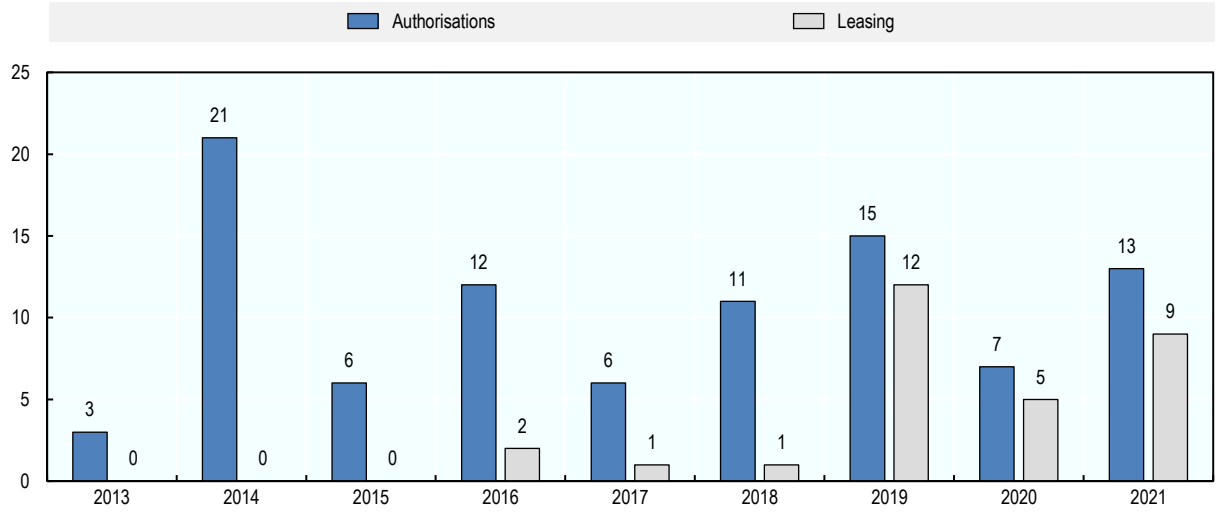
BNDES conducted preliminary studies and recommended an adaptation of the classic landlord system with a hybrid public-private management system for port terminals awarded through concessions to the private sector. The port authority would be private, but the public administration would still be responsible for strategic planning and assuring national interests (BNDES, 2021[24])

The concession of the Port of Santos, the largest in Latin America, is expected for the second semester of 2022. The draft of the Public Notice for Port of Santos Concession establishes limitations to participation in the bidding, namely that at least 60% of the concessionaire's capital must be held by economic groups with no conflict of interest related to operations in the Port of Santos; this restriction to ownership extends to the entirety of any economic group (ANTAQ, 2022[52]). The study conducted by BNDES highlights that this limitation aims to maintain a concessionaire's independence in relation to public ports' main infrastructure contractors. This keeps the premise of the private landlord model, in which the public-port concessionaire does not intervene directly in port operations since the winning bidder – the future port authority – will not be a company with interest related to operations in the port (ANTAQ, 2022[52]) (BNDES, 2021[26]).

If competition in the market seems impossible or inefficient, the possible solution to deliver advantages to the consumers and address the market failure of a natural monopoly may be competition for the market (OECD, 2019[53]). In such situations, the selection process of operators is vital to preserving the benefits of competition. Leasing is useful in cases where competition in the market may not be viable, for instance, where there are space constraints or safety, security or public-interest concerns as in public ports (OECD, 2021[45]).

In Brazil, as in the majority of Latin American countries – Chile, Mexico, Costa Rica, Ecuador, Guatemala, Honduras, and Jamaica – leasing is granted after public tenders (Suárez-Alemán, A., 2020[54]). In Brazil, from 2013 to 2021, 30 leasing contracts of cargo terminals in public ports were signed – with the highest number being 12 in 2019.

Figure 3.15. Annual authorisations (TUPs) and leasing



Source: (ANTAQ, 2022[5]) and (ANTAQ, 2022[6]).

In the leasing, only the management of contracts and assets are delegated to the private concern for a period of up to 35 years, extendable once for a maximum total of 70 years. It is also awarded through a public tender. At the end of the contract, all contracts and assets return to the Federal Executive Branch.

The authorisation requirement is justified by the importance of port services for the economy and because of the use of the national waters. The state can exercise regulation and inspection in activities closely linked to the public interest. Due to their importance to the public interest and their spill over effects for the economy, these types of activities – such as port activities – need regulations that grant the public administration the control of the way these services are offered to guarantee that their provision in the best possible way (Moreira Neto and de Freitas, 2015[55]).

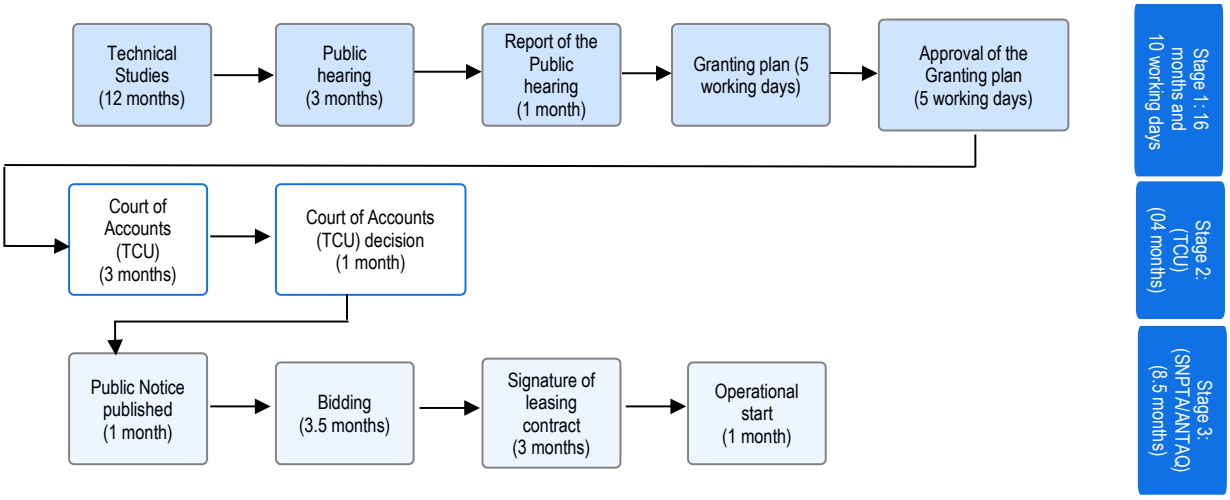
Leasing

Leasing is the instrument established by Law No. 12.815/2013 for the operation and indirect management of public port areas and facilities. The use of leasing aims to allow for the expansion and development of ports while in theory removing the financial and risk burden from governments, encouraging efficiency and reducing monopoly shortcomings (World Bank, 2007[56]). Promoting a competitive bidding process to select the most efficient company is important because leasing grants exclusive rights to operate a specific asset within the public port. In this situation the lessee acts as a monopolist for that the specific area or terminal (OECD, 2014[57]).

Unclear access and participation criteria for bidding can prevent the identification of the most efficient company to hold the leasing contract, while more efficient companies may be excluded from the market, with consequences on service quality (OECD, 2021[18]).

The process for leasing organised port areas and terminals follows the planning guidelines contained in the National Plan for Port Logistics (PNLP), the Master Plan, and each port's Development and Zoning Plan (PDZ). These documents contain detailed information on the handling and storage capacity at public ports and an analysis of whether such capacity meets current and projected future demand for all load profiles. Figure 3.16 provides an overview of the main steps in a leasing procedure, a process that takes 28 months on average.

Figure 3.16. The port-leasing process



Source: OECD, based on (Tribunal de Contas da União, 2020[41])

The leasing process may itself be creating barriers and limiting investment, with some requirements raising barriers to competition and not promoting efficiency and quality in port services.

Any requirements of potential port operators must provide legal certainty and ensure competitiveness, in line with broader port policies. To this purpose, there must be no disproportionate entry barriers or exorbitant clauses in the business relationship between the parties (public body and private lessee). The OECD found four areas that posed barriers to competition:

1. centralisation of the bidding process
2. duration of the leasing contracts
3. requirement to have headquarters in Brazil
4. absence of flexibility of the contracts.

Centralisation of the bidding process

Description of the obstacle and policy makers' objective

Before Law No. 12.815/2013, port authorities controlled the leasing of terminals. In order to ensure stronger control over leasing in public ports, Law No. 12.815/2013 established the Federal Executive Branch, specifically the Port Secretariat of the Ministry of Infrastructure, as the granting body for leasing of terminals in public ports. The objective of this provision was to centralise decision-making in the Port Secretariat, partly to ensure an integrated view of sectoral public policy and to develop sectoral expertise.

Since the reform, however, the process for assigning leasing contracts in public ports – from technical studies to start of operations – now takes an average of 28 months (Tribunal de Contas da União, 2020[41]).

The main instrument applied to Brazilian public ports is the traditional leasing process described above. However, in order to mitigate the lengthiness of this process, which could result in idleness in public ports, new instruments have been recently introduced. These include the simplified leasing process (established in the art 6 Decree No. 8033/2013) and temporary use contracts (art. 5-D Law 12.815/2013).

The simplified leasing instrument facilitates and speeds up investments in small areas or areas with little economic relevance or that are not on the federal government's list of priority terminals to be included in the Investment Partnerships Program – PPI. This modality can be applied to contracts of up to 10 years, and the studies are based on unit values for exploration of areas in organised ports (ANTAQ, 2021[58]). The "simplified" process is expected to take six months. Until July 2022, this procedure was applied to two bidding procedures.[17] In July 2022, there were 10 applications for a simplified bidding process being analysed by ANTAQ.

The temporary use contracts, introduced by the "mini-reform in Brazilian Ports Law" (Box 3.4), allow interested parties to test the feasibility of moving cargoes without a consolidated market through a contract with a maximum term of 48 months (PPI, 2020[28]). If no formal tender procedure is launched and if more than one company is interested and it is not possible to grant the areas to only one of them, the port administration can promote a simplified selection process to choose the project that best meets the public and port interests. In this way, the area to handle a cargo (which would have no investors) becomes more attractive and this mitigates risks of possible idleness. Until July 2022, 22 temporary use contracts were signed, two of them after the enactment of the Law No. 14047/2020, which added the temporary use contract to the Law No. 12 815/2013.

In 2018, in order to mitigate the effects of this centralisation, the Ministry of Infrastructure published Ordinance No. 574/2018. As an exception to the leasing procedure described in Figure 3.16, this delegated to specific port authorities not only the bidding procedure for port leases, but also the execution, management and inspection of such contracts. According to the ordinance, a delegation of decision-making power is not automatic and must be formalised by a specific agreement signed between the Ministry of Infrastructure and the entity responsible for the administration of the respective port, with the involvement of ANTAQ. To take advantage of the opportunities created by the ordinance, regain their autonomy and begin awarding leases for their areas and terminals, the administration of each Brazilian public port must meet the requirements of the Ministry of Infrastructure and the ministry must agree to the request and sign a formal agreement. The main requirements include a schedule foreseeing the main actions planned for the next three years, the establishment of the port authority in accordance with the Law of SOE's (Law 13.303/2016), updated master and zoning plans with ISPS-Code certification and a minimum score in the port authorities management index (Índice de Gestão das Autoridades Portuárias – IGAP). The requirement of this score shows that, to have the delegation, the port authority must have an adequate level of management.

So far, only two port authorities had these functions delegated and the first leases signed by port authorities in accordance with the new ordinance only took place in March 2022 (Ministério da Infraestrutura, 2022[59]).

Harm to competition

The centralisation of decision-making power and the number of participating bodies prolong and slow the bidding process. During the lengthy leasing procedure, a terminal can often lie idle, and any potential lessee may lose opportunities. This situation may also prevent companies from even entering the bidding process.

In addition, the centralisation of planning, decision-making and running of bidding processes for all public ports creates administrative bottlenecks. Despite their expertise, responsible teams within centralised

entities may simply not have enough time to conduct all the processes simultaneously. They also have less knowledge of the day-to-day operations or specificities of each port than local administrators.

This situation results in a bidding process for port leasing that is incompatible with the agility needed to optimise the use of public space. This may result in lost opportunities for the port and potential lessees, and a loss of revenue for port authorities due to low occupancy rates; this may in turn lead to financial unsustainability and an inability to invest. In addition, this might result in financial damage to the state due to the underutilisation of infrastructure and a port's public assets, as well as the need for monetary support to the port authorities. Overall, a loss of efficiency in the system will ultimately result in higher costs of cargo handling and so in the wider Brazilian economy (Tribunal de Contas da União, 2020[41])

Despite the decentralisation attempt, as said, only two port authorities had the delegation, which has left in place barriers arising from the length and inefficiency of the centralised leasing procedure.

Recommendation

Brazilian authorities should consider introducing more flexibility in the rules of Ordinance No. 574/2018 to give more autonomy to port authorities when choosing lessees, whether through tenders or simplified processes for non-complex contracts, while remaining subject to federal legislation on public procurement and port-leasing contracts.

Box 3.10. International experience in leasing space in ports

Internationally, many port authorities have the autonomy to issue calls for port operators and then to conduct the selection process.

In the United Kingdom, the Port of London Authority conducts the selection of port operators itself following the *PLA Investment Plan*., a document in which the Port Authority presents its strategy, vision, investment categories and their characteristics, the criteria by which they are evaluated and claims to be open to receiving proposals from potential partners.

In Australia, the Port Authority of New South Wales, which is owned by the state Government of New South Wales, publishes online instructions on the presentation of a project and the necessary documents. After the submissions, the port authority decides if it approves or not the project.

In the Port of Rotterdam (which belongs 70% to the city of Rotterdam and 30% to the central government), commercial partners are selected through a process defined by the managers, who decide the most convenient procedure to use from a variety of possible methods, including individual invitation and a public call.

The authority of the Port of Antwerp-Bruges, an SOE, has three different processes to select its partners: public bidding; non-public selection; and upon a company's initiative. The projects are selected considering criteria such as a company's financial health, the amount of the proposed investment, project quality, and number of potential jobs generated. There is no public transparency on the reasons for awarding a contract.

At Port Houston, which belongs to the state of Texas, the selection process is dependent on the duration of a contract. For those of less than 50 years, no tender is required, and the authority can choose freely. For contracts of more than 50 years, a tender process is needed, although the process is fast and 90% of tenders are concluded in four to eight months. The port also has contracts called "month-to-month

leases" that are the equivalent of monthly rental agreements. This type of contract was created for urgent or transit cargo or for areas where no previous leasing contract existed. The objective of this instrument is to respond quickly to the changes in the market and not to lose business opportunities.

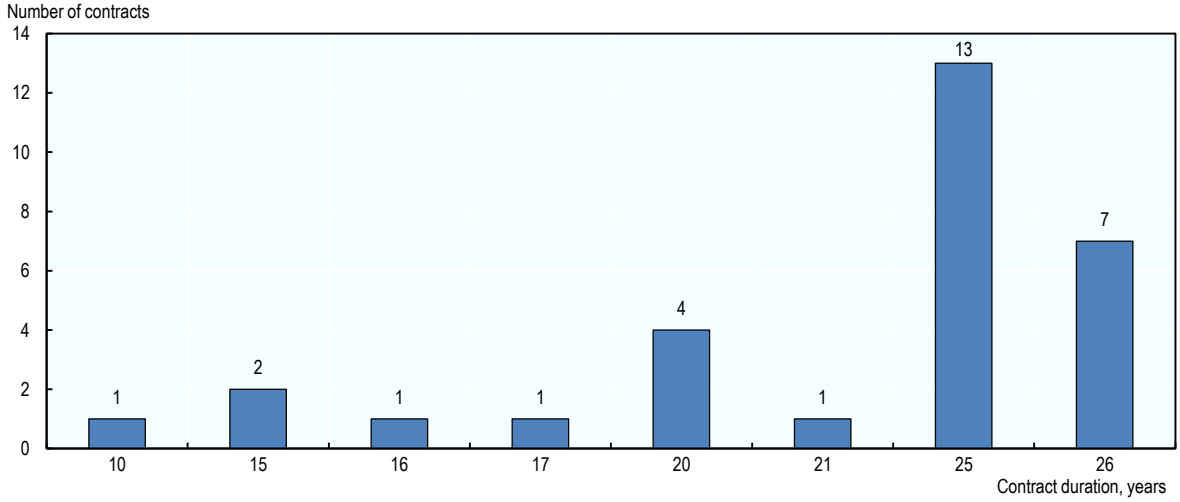
Source: (Tribunal de Contas da União, 2020[41])

Duration of leasing contracts

Description of the obstacle and policy makers' objective

In Brazil, Law No. 12815/2013 establishes that the initial maximum length of a leasing contract for public ports is 35 years, extendable once for a maximum term of 70 years, depending on the performance of the lessee. The OECD has analysed 30 leasing contracts, signed after 2013, and more than half were granted for 25 years, as this was the maximum initial term set in the legislation before 2017 (Figure 3.17).

Figure 3.17. Duration of port-leasing awards, 2013-22



Note: The data used was obtained from (ANTAQ, 2022[60]) and the duration considered refers to the period from the signing of the contract until the end of its validity (the public data available at the website) and not the duration between the date of transfer of the area and the end of its validity.
Source: (ANTAQ, 2022[60])

Harm to competition

A long-lease contract allows a lessee to engage in long-term investment. Indeed, "longer concessions are sometimes preferred as this ensures that the capital investment made by the concessionaire has a stable long-term period of revenue returns to ensure its financing" (World Bank, 2018[61]). On the other hand, long-term contracts prevent new tenders, while shorter contracts generate more frequent competitive tenders that "can facilitate entry and ensure that any benefits of increased competition are reflected more promptly" (World Bank, 2018[61]).

Box 3.11. International benchmarks for port-lease contract duration

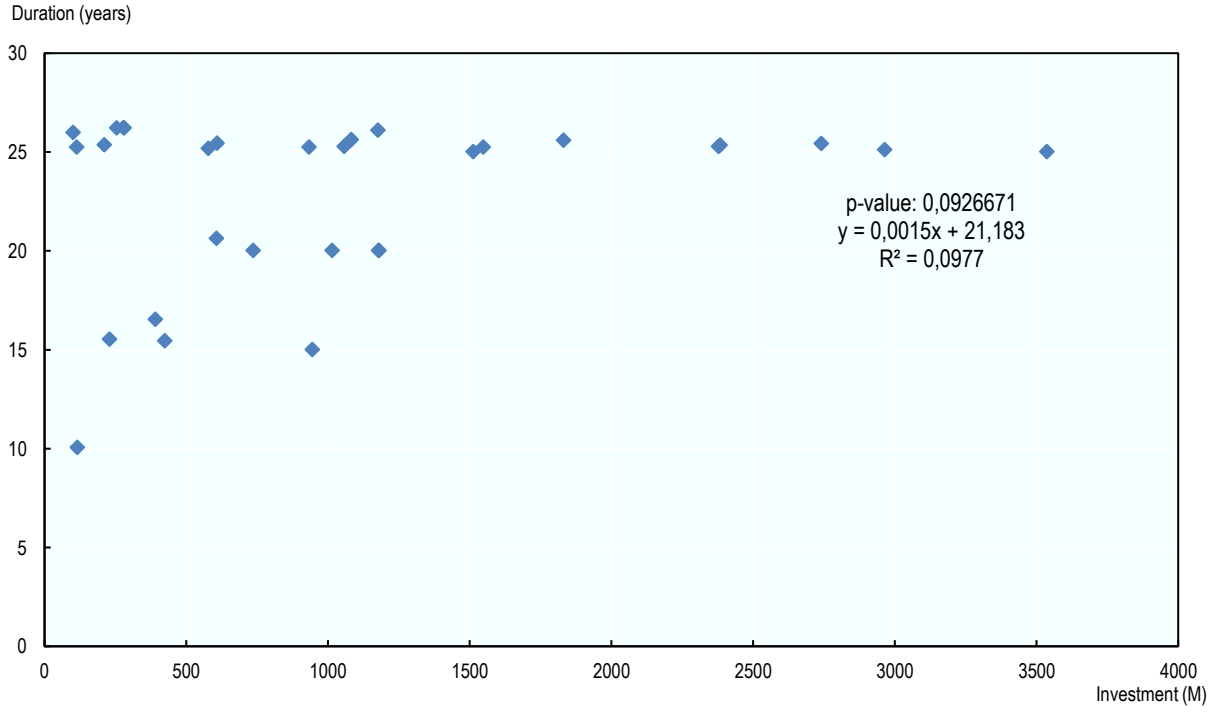
Contract lengths and possible extensions vary from country to country. In Latin America, 57% of contracts are between 15 and 25 years, while the minimum length is 10 years (Manzanillo in the Dominican Republic). Medium-length contracts are between 24 and 26 years in more than half of the countries, but in Colombia, Ecuador, Jamaica, and Peru they are between 29 and 30 years. In 11 of 20 of the contracts analysed the contracts do not allow an extension; 8 of 20 do; and in 2 (Balboa and Cristóbal in Panama), the extension is automatic if the lessee fulfils its obligations (Suárez-Alemán, A., 2020[54]).

Analysis by the ITF/OECD of a dataset of more than 730 contracts shows that leases on container terminals have an average duration of 32.5 years. In Portugal, port authorities set the duration of the contracts for towing services at no more than 10 years and concessions of cargo-handling services at no more than 30 years. Lengths may vary inside the same port and across ports. (OECD, 2018[34])Around 90% of contracts for European terminals over 100 hectares are awarded for durations of 30 to 65 years. (Notteboom, 2008[62])

Sources: (Suárez-Alemán, A., 2020[54]) (OECD, 2018[34]) (Notteboom, 2008[62]).

Empirical evidence suggests that, even though the duration of the leasing in Brazil is 25 years and in line with the average contract length in Latin America (Box 3.11), certain leasing contracts have been awarded for a longer time than the period needed to recover the capital invested (Figure 3.18). Data available for 30 terminal-leasing contracts reveals a weak correlation between the duration of a terminal award and the volume of accumulated investment by the private sector, given factors other than duration that can affect investment choices.

Figure 3.18. Correlation between investment and lease duration in Brazilian ports



Source: (ANTAQ, 2022[60]).

The European Directive No. 2014/23/EU on the Award of Concession Contracts establishes that, in contracts lasting more than five years, the level of the investment should be linked to the maximum duration of the contract. EU legislation establishes that the duration of a concession should be limited to avoid market foreclosure and restriction of competition. However, long durations may be justified if it is indispensable for the recoupment of investment (European Parliament, 2014[63]).

The European regulation provides that when estimating contract length any initial and later investments necessary to operate the concession, including expenditure on infrastructure, copyrights, patents, equipment, logistics, hiring, training of personnel and initial expenses should be taken into account (European Parliament, 2014[63])

Recommendations

Brazilian authorities should review the regulations to establish clear criteria that ensure that the duration of a contract takes into account the level of investment. The duration of a lease should be determined on a case-by-case basis and expressly tied to the minimum number of years required to repay the capital invested in each case.

More specifically, the period of validity of leasing contracts should be established to allow amortisation of and a return on the investment for the lessee. At the same time, it is recommended that the leasing contract include the appropriate mechanisms to allow for early termination in the event of any changes of market circumstances and conditions not provided for in the initial contract (OECD, 2018[34]).

Absence of flexibility in leasing contracts

Description of the obstacle and policy makers' objective

The OECD has found two main obstacles related to the limited flexibility of public authorities when considering changes to the use and improvement of spaces in public ports. These concern the change in the type of cargo and the authorisation for new investments.

Change in cargo type

In Brazil, Ministry of Infrastructure Ordinance No. 530/2019 regulates changes in cargo profile for public ports. The regulation establishes that any change in the type of cargo that an operator can handle and store in the terminal is based upon on information it must produce. The provisions require the involvement of the port authority and ANTAQ, as well as an examination of possible rebalancing of the contract in case of force majeure or of fortuitous circumstances.[18]

The lessee must apply to the granting authority with a justification of the claim, accompanied by an investment plan that contains the following information:

1. information and data regarding the current capacity and performance of the leasing
2. revised capacity and performance estimates for the port leasing if the proposed contractual amendment were to be approved
3. information about services that the lessee intends to add or exclude from the contract
4. information on possible competition impacts in the port's region of influence that would result from the intended contractual change (Ministério da Infraestrutura, 2020[64])The lessee may also include any other information that it considers relevant to its claim.

In public ports, a change in cargo type handled will be approved if it is compatible and coherent with the public policies defined for the port sector and the public port's overall planning (Ministério da Infraestrutura, 2020[64]).

Unlike public ports, private ports do not face such a burdensome process. The cargo profile of a private port can be changed by an operator simply informing ANTAQ.

Authorisation for new investments

Receiving authorisation for new investments in public ports, using the ordinary process,[19] can be a lengthy process. During a 2019 consultation by the Federal Court of Accounts, SNPTA stated that it had had 16 requests from port operators for approval of new investments waiting for analysis, the oldest dating back to 2016 (Tribunal de Contas da União, 2020[41]). Authorisation for new investments is in the Decree No. 8.033/2013 and in Article 8 of Ministry of Infrastructure Ordinance No. 530/2019. The article of the Ordinance establishes that whenever there is justified public interest, the relevant authority may approve the realisation of investments not originally foreseen in port-leasing contracts, after analysis by ANTAQ.

The lessee must present ANTAQ an executive project document accompanied by a note of technical responsibility at least six months before the start of the work. In the case of works implemented in stages, the lessee may present partial executive projects for each stage, at least six months prior to the start of any work.

Implementation of an investment plan can only begin after a favourable opinion from ANTAQ that confirms the plan's compatibility with and approved study of technical, economic and environmental feasibility (EVTEA), any addendum (including contractual conditions signed by the lessee and the granting authority), and the market values of new investments. If the executive project document presented to ANTAQ is incompatible with the approved EVTEA, the lessee may make the necessary adjustments. If ANTAQ believes that the estimated value of the investment is lower than foreseen in the project document, then it can follow Ministry of Infrastructure guidelines to present alternative scenarios that ensure the contract's continued economic-financial balance. The lessee must execute the work according to the approved executive project document. Any changes in the executive project previously approved by ANTAQ require a new analysis and a statement confirming its compatibility with the approved EVTEA, the amendment, and market values. If considered compatible with these conditions, the pre-existing amendment remains in place (Ministério da Infraestrutura, 2020[64])

According to stakeholders, the Ordinance No. 530/2019 has improved the situation thanks to its provision of an agreement of investment risk. This instrument is used in specific circumstances that authorise immediate and urgent investments not provided for in the initial contract of lease and prior to ANTAQ analysis.[20] When signing an agreement of investment risk before an authorisation is granted, the port operator assumes the risk that: 1) the investment plan will be later rejected, if the granting authority finds it incompatible with public policy; 2) the investment plan will need to be revised later to gain approval; 3) ANTAQ will reject the submitted EVTEA study of technical, economic and environmental feasibility; 4) in any other risks may be discriminated in that agreement.

Private ports are not required to go through a burdensome process to undertake new investments. Instead of requiring an authorisation, they simply need to inform ANTAQ of any new investment (Ministério da Infraestrutura, 2020[64]).

Harm to competition

Port terminals require constant investment and, given the dynamism of international trade and the frequent technological innovations, prospective port operators cannot foresee in the bidding phase all potential needs that may arise throughout the contract duration to keep the business efficient and competitive. This is the reason why legal instruments concerning port leases require flexibility in order to allow timely

contractual adaptations to competitive commercial and technological changes, and so allow fast way to investments to those ends.

In Brazil, as has been noted, port lease contracts for public ports do not grant the necessary flexibility to allow lessees to adapt to the dynamism of market. It is complicated to amend leasing contracts even if it would benefit the public interest and the lessee. This is also because the principle of abidance obliges the administration and the bidders to comply with the criteria and rules established in the notice for tender. Delays in amendment approval generate costs to companies that can lose contracts and opportunities and cannot adapt their business to the reality and modernity of the port sector. This absence of flexibility generates difficulties for the management of contracts and reduces their efficiency.

These difficulties in implementing new investments put public ports at a competitive disadvantage compared to private ports, which have more autonomy.

Box 3.12. Flexibility in contracts in ports worldwide

In Rotterdam, a terminal operator needs authorisation from the port authority to change the type of cargo that it is entitled to handle. Stakeholders report that the process is rapid. Likewise, at Port Houston, the authority authorises cargo profile modifications as long as they are judged in the interest of the port.

For new investments, if a lessee in Rotterdam invests more than initially agreed, the term of the lease may be extended, but not necessarily changed, as efficiency and raised cargo-handling capacity are prioritised to increase revenues. In Houston, any claim for new investment, such as extending the term or reducing the value of the lease, is made by the terminal operator and results in detailed monitoring of the budget and project execution.

Source: (Tribunal de Contas da União, 2020[41]).

Recommendations

The OECD recommends that Brazilian authorities review the regulations and put in place more efficient and speedy processes for contractual changes.

Brazilian authorities should also consider the creation of more instruments such as the agreement of investment risk, which make it easier for the operator to change the contract at its own risk with the possibility of a later rebalancing of the contract in cases of public and private interest.

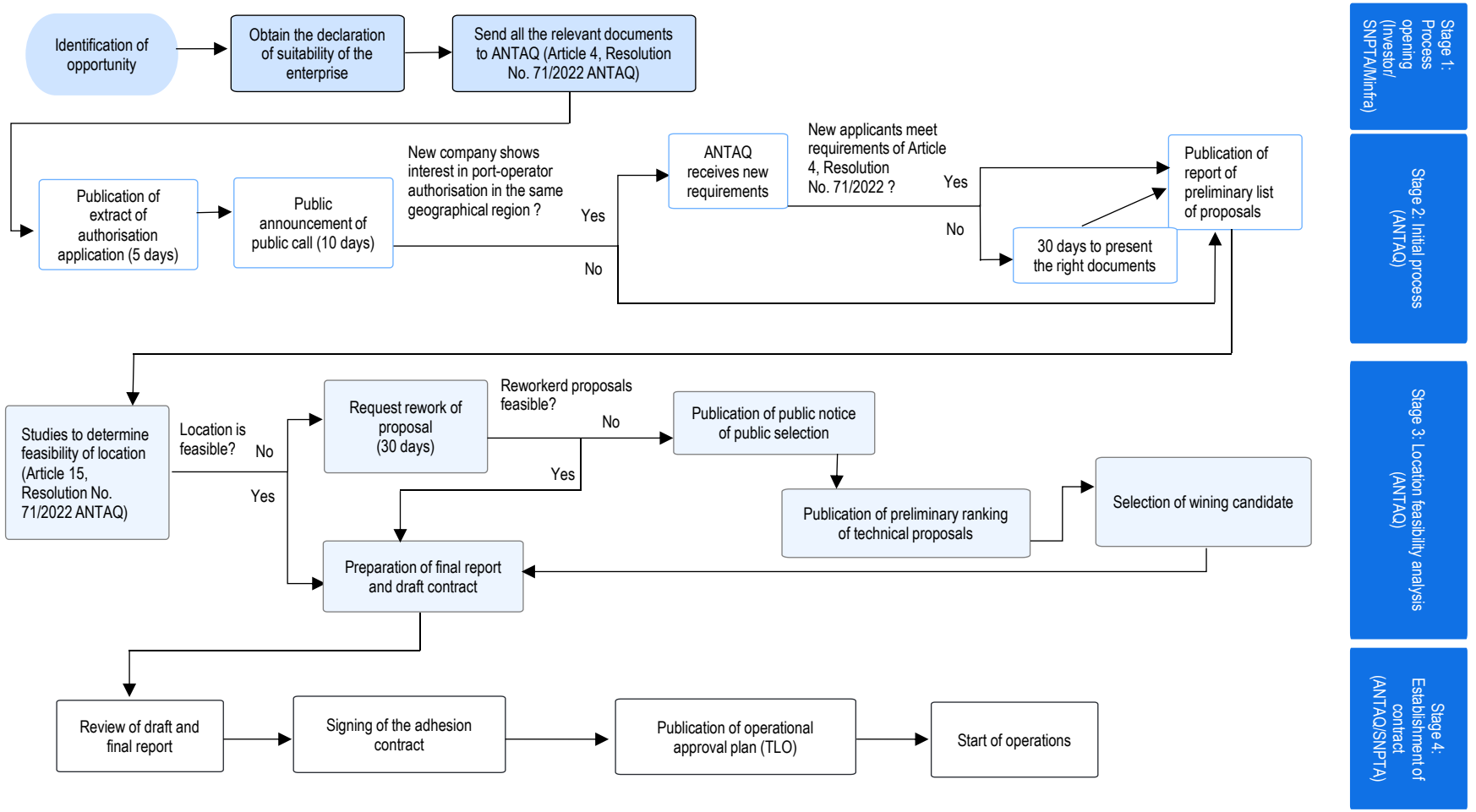
3.2.4. Authorisations to build and operate port facilities

Regulatory framework

In Brazil, it is possible to build private port facilities outside the area of a public port, provided that an authorisation is obtained from federal authorities. The Federal Constitution of 1988, in its art. 21, item XII, item “f”, establishes the competence of the Federal Executive Branch to exploit, directly (through the public administration) or indirectly (via operators which act upon delegation of obligations and rights, through the instruments of authorisation, concession or permission) sea, river and lake ports. Law No. 12.815/2013 establishes that the indirect exploitation of port facilities located outside the public port area will take place upon authorisation. The instrument for the authorisation is called “adhesion contract”.

Figure 3.19 below provides an overview of the authorisation process.

Figure 3.19. Private port (TUP) authorisation process



Source: OECD, based on (Tribunal de Contas da União, 2020[41])

The OECD found that the main barriers to authorisation were related to performance guarantees, bid bonds, and technical requirements to participate in the public selection (which will be analysed in Chapter 4). In addition, the process of obtaining an authorisation excludes foreign companies and imposes administrative burdens and other costly requirements.

Duration of the process to obtain the declaration of adequacy

Description of the obstacle and policy makers' objective

Companies interested in obtaining an authorisation to build new private port facilities must submit an application to the National Secretariat of Ports for an assessment of whether the plan meets planning guidelines and port-sector policies. Issuance of this declaration of adequacy, the first step before the launch of the authorisation process described in Figure 3.19, can take 100 working days (Presidency of Republic of Brazil, 2022[65]).

Harm to competition

While the provision that an interested party must comply with planning guidelines and port policies is reasonable, the duration of the declaration process is currently excessively long. Investors must wait more than five months to obtain a declaration of adequacy, which is necessary to submit an authorisation request to ANTAQ. As a result, competition may be reduced due to potential entrants being blocked from entering the market for a significant period of time and consequently losing business opportunities.

Recommendation

Brazilian authorities shall consider speeding up processes used to analyse submitted claims.

Alternatively, a provisional, fast-track declaration that allows parties to start the authorisation process with ANTAQ immediately could be introduced. If, upon subsequent analysis, SNPTA finds that the project to build new port facilities is inadequate, then the original adequacy declaration would be withdrawn, and the authorisation process stopped.

Duration of the authorisation process

Description of the obstacle and policy makers' objective

As shown in Figure 3.19, the process to obtain an authorisation may have 18 steps, and according to the Federal Court of Accounts, between 2013 and 2018, took between 6 to 26 months (Tribunal de Contas da União, 2020[41]). The authorisation must be granted by ANTAQ's technical staff and Collegiate Board, and SNPTA, and involves a series of administrative agents in the decision-making process.

The need of authorisation is justified by private terminals undertaking economic activity with a public interest and so must follow the sectoral guidelines and policies (Justen Filho, 2019[66]).

To start the authorisation process to build and exploit a port installation a company must first submit a request to ANTAQ presenting specific documents, including its declaration of adequacy for port-sector planning guidelines and policies and documents describing access, polygonal areas (areas of the terminal) and equipment and devices for vessel loading and unloading, and cargo movement in storage installations. In addition, it must submit the physical and financial schedule for building a port installation; an estimate of cargo or passenger movements; and the total value of the investment. Also necessary is a land-

ownership certificate, occupation registration, cession contract or any other legal instrument granting the right to use and profit from the land.

When an area belonging to the Federal Executive Branch is indispensable for the establishment of the port facility, which happens in most of the cases according to stakeholders, a potential operator must obtain a certificate issued by the Secretariat for Federal Heritage (SPU) guaranteeing the right of land use and declaring the land's availability to the entrepreneur authorised by the Ministry of Infrastructure.

Harm to competition

A requesting entity must wait on average 16 months to invest, far longer than in other jurisdictions as the involves many different entities. For instance, in Philippines, a licence to build and explore private ports is granted within 60 to 85 days (Philippine Ports Authority, 2021[67]). The requirements and processing time reduce a company's incentives to compete in the market. In addition, a company may lose business opportunities while waiting for a decision.

Recommendation

The OECD has two recommendations for the authorities.

1. Consider reducing the number of bodies involved in the authorisation process.
2. Consider implementing provisional instruments that authorise a request after a fewer number of steps of the authorisation process to allow the requesting entity to move forward without having to wait until the completion of the entire process.

Requirement to have headquarters and administration in Brazil

Description of the obstacle and policy makers' objective

Article 3 of ANTAQ Normative Resolution No. 72/2022 establishes that only companies or entities incorporated under Brazilian law, with headquarters and administration in the country may apply for authorisation to build new private port facilities. The provision aims to guarantee that the requesting entity will fulfil the contract as it is easier to take legal action against a company established in Brazil.

Harm to competition

The requirements of being constituted under Brazilian law and have headquarters and administration in Brazil limits the ability of foreign suppliers to provide their services In Brazil and may raise entry costs.

Recommendation

The OECD recommends that Brazilian authorities accept foreign companies to request the authorisation to construct and operate a port by a simple commitment of establishing a subsidiary or local company after an authorisation is possibly granted for this purpose.

3.2.5. Pilotage

Maritime pilotage consists of a service provided to vessels by a person with expert local knowledge of a specific port, which enables him or her to navigate and manoeuvre vessels entering, leaving or moving inside it (OECD, 2011[2]). This activity is extremely important due to the risks that unsafe navigation inside a port may pose to other to port users, cargo, port infrastructure, and the environment (OECD, 2021[18]).

While pilotage services vary across the jurisdictions, they are generally offered by:

1. federal or local governments
2. government-controlled entities, such as a port authority or other public entity
3. the private sector (OECD, 2021[18]).

The depth of involvement of the three players may differ significantly depending on the model for the allocation of responsibilities. These depend on who bears commercial risks, conducts daily operations, and owns assets (such as ships and docks). Ten models can be identified for the provision of pilotage services, as shown in Table 3.7.

Table 3.7. Overview of models for the provision of pilotage services

Model	Description
1	Federal government
2	State-owned enterprise (SOE)
3	Municipal, regional or provincial government
4	Stand-alone entity
5	Port model
6	Licensed pilots' part of a regulated monopoly
7	Licensed pilots tied to regulated competing organisations
8	Corporation part of a regulated monopoly
9	Corporation with regulated competition
10	Shipowners

Source: (Government of Canada, 2018[68]).

Models six and seven are the most common pilotage service systems around the world. In model six, governments have no operating responsibilities and the service is provided through a regulated monopoly by licensed pilots with incentives to improve their service. In model seven, some form of regulated competition within the market aims to stimulate innovation, efficiency gains and ultimately lower user costs (Government of Canada, 2018[68]).

3.2.6. Regulatory framework

Law No. 9 537 of 11 December 1997 establishes the legal framework of maritime pilotage in Brazil, regulating the safety aspects of waterway traffic in domestic waters. It defines pilotage services as an essential activity for the country, which means they must be permanently available in all pilotage zones in Brazil.

To this aim, the Pilotage Law establishes that pilots cannot refuse to perform services, under penalty of suspension of their qualification certificate, or, in case of recurrence, its cancellation. In addition, with a view to guaranteeing full availability of pilotage services, the Maritime Authority may fix the price of services in each pilotage zone and set the precise number of pilots in each zone.[21]

The Pilotage Law gives the Navy the role of the Maritime Authority. Within the Navy, it is the Directorate of Ports and Coasts (DPC) that acts as the representative of maritime authority, for instance by issuing

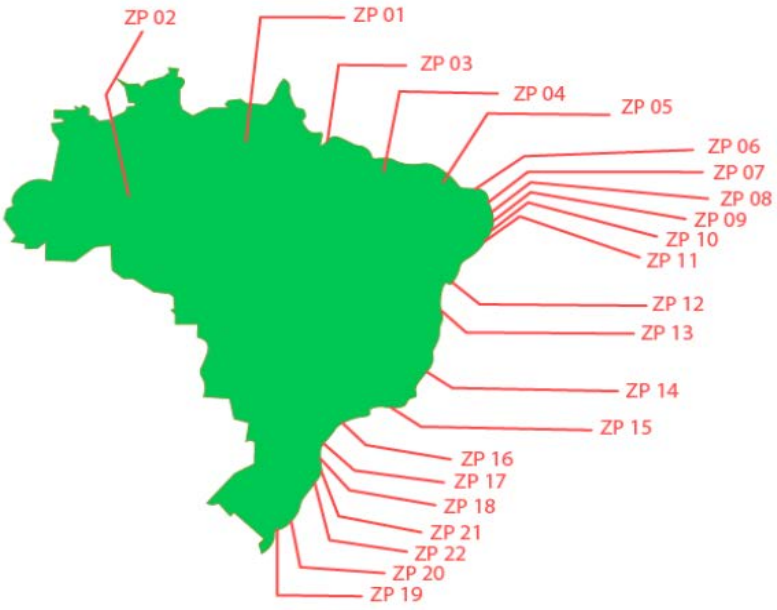
regulations of pilotage services in Brazil, defining pilotage zones where recourse to pilotage services is mandatory, and specifying the vessels exempted from hiring pilotage services.[22] DPC also has port captaincies, agencies and delegations as local units of the Maritime Authority in specific areas. These are responsible for monitoring and detailing the regional parameters in the respective areas of activity (Marinha do Brasil, 2021[69]).

Besides the management of maritime pilotage, DPC is also charged with vessel registration, maritime-personnel registration, maritime aid, naval coastal police, and professional training of maritime and fishing personnel.[23]

In 2011, DPC issued the regulation NORMAM 12/DPC to co-ordinate the aspects of pilotage services that were not yet provided for within the Pilotage Law; it has since been updated and modified 23 times. Local specificities are addressed in the rules and procedures issued by local port captaincies.[24]

NORMAM 12/DPC defines a pilotage zone (ZP) for pilotage as the "geographical area delimited due to local specificities that make it difficult for the free and safe movement of vessels, requiring the establishment and uninterrupted operation of a pilotage service for that area. It falls to the DPC to establish a ZP."[25] Figure 3.20 provides a map of the current 20 pilotage zones in Brazil.

Figure 3.20. DPC-established pilotage zones in Brazil



Note: ZP 11 and 13 were abolished and their pilots re-distributed between the other ZPs in 2022.
Source: (LS Prático, 2017[70]).

In all pilotage zones, pilots must be hired by transportation companies to assist ship captains during the arrival of a vessel in the port and its docking at a berth. The same obligation applies when the vessel leaves the port or when changing terminals within the same port (Secretaria de Acompanhamento Econômico do Ministério da Fazenda, 2005[71]).

In NORMAM 12/DPC, DPC set out exceptions to the obligation to hire pilotage services for small vessels[26] or for certain optional stretches within pilotage zones.[27]

3.2.7. Access to the piloting profession

Description of the obstacle and policy makers' objective

Potential pilots in Brazil must sit an exam organised by the DPC, and if successful, must then undergo a minimum of one year's training. Following this, they must pass a technical exam before fully qualifying as a "pilot practitioner".

To sit the initial exam, a candidate must:

1. be a Brazilian national aged 18 or over
2. hold a graduate diploma officially recognised by the Ministry of Education
3. have a certification as a seafarer or as a master-amateur, as defined in the regulation.
4. not be an ex-military officer retired due to permanent disability or a civilian retired due to disability.

A person meeting these criteria then begins the four phases of the pilot-selection process: 1) a written exam; 2) submission of documents to attest the requirements of moral integrity and a record of good conduct, as well a psychological and physical-fitness test; 3) a review and scoring of relevant qualifications provided by applicants; and 4) a practical oral test, including a test in a simulator (Diretoria de Costas e Portos, 2011[72]).

In general terms, the requirements to become a pilot practitioner do not seem restrictive. However, requiring pilots to be Brazilian nationals may be restrictive. According to the DPC, the reason behind this requirement relates to national security and the need to ensure knowledge of specific ports in Brazil. Such a nationality requirement is common around the world. Argentina and some US states also demand this nationality requirement.[28] Other countries, such as the UK, by contrast, do not impose any nationality requirement to become a pilot (South Shields Marine School, 2021[73]). Similarly, in Portugal, the applicant may be a Portuguese or EU national, or a national of the European Economic Area or of countries that reciprocally allow Portuguese nationals to exercise professional activities in their jurisdictions (República de Portugal, 2002[74]).[29]

Yet, there seems to be no clear and direct link between the legal provision and the above-mentioned policy objective, however. Maritime pilots assist the vessel captain to enter the port. Captains who conduct their vessels through the same port several times a year with the support of a maritime pilot will inevitably acquire knowledge on the safest routes to enter a given port. Technological advancements also make circulation in ports easier. Yet, nationality requirements may prevent captains with sufficient expertise to obtain a licence and become pilots.

For the process of accessing the pilot profession, the DPC (as the representative of the Maritime Authority) determines when the selection takes place and the number of vacancies in each pilotage zone.[30] The most recent call for pilots took place in 2012. Over the past 10 years, the DPC has called successful candidates in that 2012 selection process to take their functions as pilots.[31]

DPC also sets the number of pilots of each pilotage zone (Diretoria de Costas e Portos, 2011[72]). According to the latest version of NORMAM 12/DPC, there are currently a total of 624 pilots in Brazil, active across 20 pilotage zones. In 2020, two pilotage zones were abolished (ZPs 11 and 13) and their pilots relocated to other ZP, at the sole discretion of the DPC. If reassigned, pilots must re-join the qualification programme and pass an exam to qualify in the new piloting area.[32]

Table 3.8. Location of maritime pilots by pilotage zones

Pilotage zone	Scope of the pilotage zone	Number of pilots
1	Fazendinha-Itacoatiara (States of Amapá and Amazonas)	160
2	Itacoatiara-Tabatinga (State of Amazonas)	45
3	Belém and Complexo Portuário Vila do Conde and surroundings (State of Pará)	36
4	Itaqui, Alumar and Ponta da Madeira (State of Maranhão)	33
5	Fortaleza and Pecém (State of Ceará)	15
6	Areia Branca (State of Rio Grande do Norte)	4
7	Natal (State of Rio Grande do Norte)	6
8	Cabedelo (State of Paraíba)	4
9	Recife and Suape (State of Pernambuco)	18
10	Maceió/Terminal Químico and Redes/Terminal Marítimo Inácio Barbosa (States of Alagoas and Sergipe)	05
12	Salvador, Portos and Terminals of Baía de Todos os Santos, and Ilhéus (State of Bahia)	33
14	Vitória, Tubarão, Praia Mole, Barra do Riacho and Ubu (State of Espírito Santo)	31
15	Rio de Janeiro, Niterói, Sepetiba, Ilha Guaíba, Ilha Grande (TEBIG), Angra dos Reis, and Forno, Açu, Barra do Furado and Macaé (State of Rio de Janeiro)	65
16	Santos, Baixada Santista, São Sebastião and TEBAR (State of São Paulo)	65
17	Paranaguá and Antonina (State of Paraná)	33
18	São Francisco do Sul and Itapoá (State of Santa Catarina)	13
19	Rio Grande (State of Rio Grande do Sul)	26
20	Lagoa dos Patos, Rios, Portos, and Terminais Interiores (State of Rio Grande do Sul)	09
21	Itajaí and Navegantes (State of Santa Catarina)	17
22	Imbituba (State of Santa Catarina)	06

Source: Annex 2-I, NORMAM 12/DPC.

DPC has no obligation to review the number of pilots in each pilotage zone unless it deems it necessary.[33]

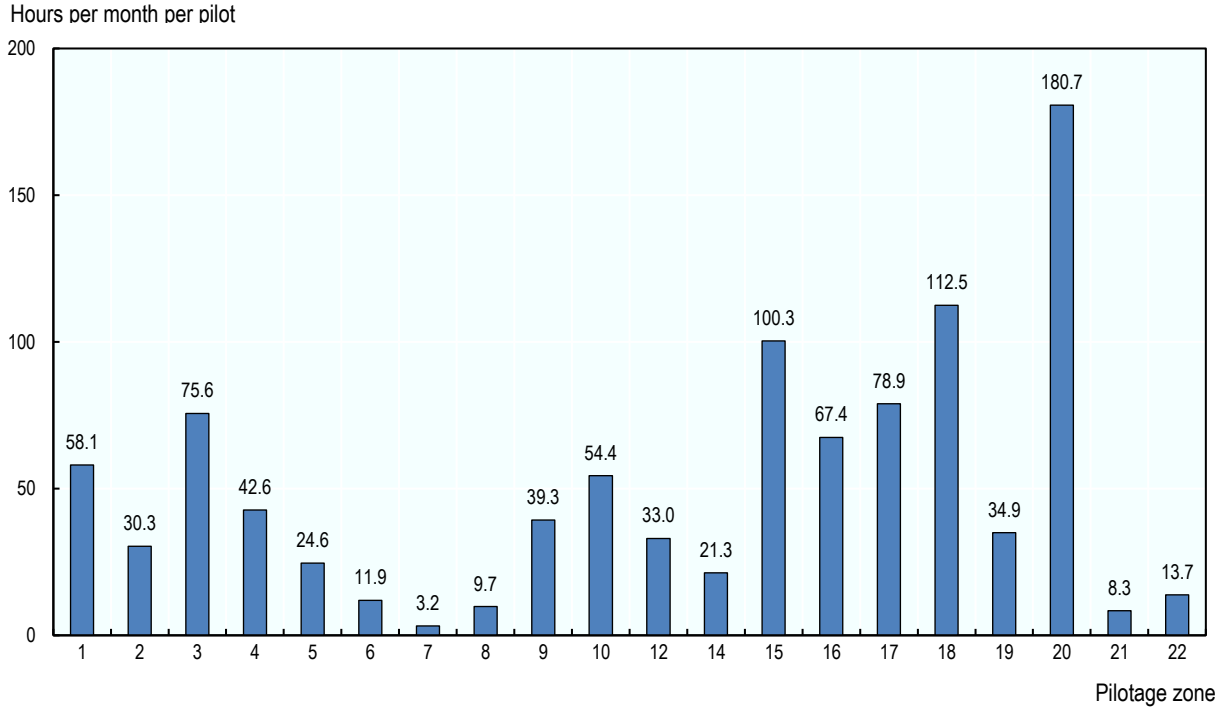
Harm to competition

The requirement to have Brazilian nationality is discriminatory. By excluding nationals of other countries, fewer people are able to offer services in the market. Moreover, the refusal of foreign nationals can reduce the quality of the service; for instance, employing foreign nationals as maritime pilots in Brazil could facilitate the exchange of best practices and so improve services provided within the pilotage zones.

For the process of access to the piloting profession, DPC enjoys broad discretion. It has the power to open new selection processes whenever it deems it necessary without any external control from another body. The same applies to its discretion to reviewing the effective number of pilots in each zone. With no legal provision for when the DPC needs to carry out such a review, coupled with the establishment of a fixed number of pilots, the number of pilots can easily lag.

As an illustration, Figure 3.21 shows that the total duration of manoeuvres for pilots varies significantly in different pilotage zones. This may suggest a need to review the numbers of pilots in each zone more frequently. As an example, pilots from ZP 18 and 20 provide more than 100 hours of effective work – carrying out actual manoeuvres – each month without counting their warning periods (see Section 3.2.8), whereas pilots in ZP 7 and 21 only provide less than 10 hours a month.

Figure 3.21. Total manoeuvre duration for each pilot in each Pilotage zone



Source: OECD, with data provided by Brazilian Navy of total number of pilotage manoeuvres in Brazil between January 2017 and October 2021.

Setting a fixed number of pilots for each zone may give rise to allocative inefficiencies. Considering that vessel traffic will fluctuate in pilotage zones, for example, it is important that they do not have a fixed number of qualified pilots, and that this number can easily adjust to real-time needs. This, combined with the rapid hiring of experienced pilots (subject to their training in the specific pilotage zone, when necessary in light of local conditions), possibly from other countries, would prevent the risk of shortage or overload of pilots in certain pilotage zones.

Recommendations

The OECD has two recommendations.

1. Review the requirement for pilots to be Brazilian nationals. A proficient knowledge of Portuguese could be required for foreign applicants, just as a knowledge of English is currently required for the Brazilian applicants.
2. The Brazilian authorities should not define a precise or maximum number of pilots in each pilotage zone. As an alternative, authorities should stipulate a period to review whether the number of pilots in each pilotage zones are adequate.

3.2.8. Price-setting alternatives for pilotage services

Description of the obstacle and policy makers' objective

Law No. 9537/1997 allows maritime pilots to offer services either individually or organised under associations or as employees of companies. Pilotage services in Brazil can be offered freely by private operators[34] and in the majority of pilotage zones, two or more pilot entities offer services.

These entities do not compete with each other in practice, however, due to NORMAM 12/DPC, the DPC's technical pilotage regulations. This effectively eliminates competition by establishing a single rotation scheme for each pilotage zone with all the licensed pilots, irrespective of their operational organisation.[35] This scheme divides the pilots into three groups.

1. **Active pilots.** Pilots are active and available for work for a specific number of consecutive hours or days. Each period is subdivided into a "service period", during which the pilot is effectively on duty, and a "warning period", during which the pilot is not providing pilotage services but must remain available.
2. **Resting pilots.** Pilots have an uninterrupted amount of time following an active period during which they cannot be requested to carry out pilotage work, except in an emergency or in a situation where there is a risk to human life
3. **Unavailable pilots.** When pilots are unavailable, they cannot be requested to carry out any pilotage duties under any circumstances; in general, a pilot is unavailable when on leave or serving a temporary suspension.

In practice, the single rotation shift functions following a list elaborated by the representative of pilots from each pilotage zone.[36] When a vessel needs the assistance of a pilot to enter or leave the pilotage zone, the first active-period pilot on the list is assigned to that vessel. When this pilot concludes the duty, she or he will return to the bottom of the list and be placed in the warning period until returning to the top of the list. When pilots are resting, they are not included on the list until their rest period is over. A pilot assigned to a vessel during the single rotation shift cannot refuse to perform the duties under penalties of suspension.

Maritime transportation companies' vessels are obliged to hire pilotage services to enter or leave a port; they must accept the assigned pilot by the single rotation shift. This means that the rotation shift creates an artificial monopoly of the first pilot due to the absence of competition among competitors as no other pilots may offer their services to the maritime transportation companies.

Moreover, maritime transportation companies have no bargaining power in such a situation, as they are obliged to hire the services. In theory, pilots assigned to perform piloting services for a particular vessel are not constrained when setting prices, unless they are obliged to charge a price based on an agreement concluded by their union and their respective maritime transportation companies.

In practice, pilots' representatives establish wide agreements with maritime-agent unions to price services for any type and size of ship. These agreements normally serve as reference prices for any ships of foreign or Brazilian companies that do not have specific pilotage price agreements (Tribunal de Contas da União, 2020[75]).

In addition, professional pilot associations also sign specialised agreements with companies or associations of shipping companies establishing different prices than the reference prices for a determined period. When these contracts approach expiry, the reference prices are used as bargaining chips to increase the prices of specialised contracts during their renegotiation. This is because the courts themselves use these reference prices as guides in the event of a lawsuit concerning the price of pilotage manoeuvres (Tribunal de Contas da União, 2020[75]).

The pilot is assigned when a shipping company informs the pilots' representative in a pilotage zone that one of its ships will need pilotage services to enter or leave the port at a certain time. Based on the schedule given by the company, the pilots' representative will designate the pilot on duty to that ship, based on the rotation schedule. At this point, the shipping company will be informed whether the price will be based upon specifically negotiated contracts or upon the price lists set by the pilotage representatives.

Until 2012, the DPC set prices when maritime transportation companies and pilots disagreed on prices,[37] using reference prices for each pilotage zone set in ordinances and based upon the last negotiated prices between the pilots of a given pilotage zone and the maritime companies, and were periodically readjusted.[38] Decree-Law No. 7 860 of 6 December 2012 revoked the legal provision establishing the Maritime Authority's competence to fix prices and created the National Commission for Pilotage Matters (CNAP), which, among other objectives, prepared proposals on price regulation. Composed of representatives from the Ministry of Defence (Maritime Authority and DPC), Ports Secretariat, ANTAQ, Ministry of Transport, and the Ministry of the Economy, CNAP was accorded the competence to set: 1) a methodology for pilotage price regulation; 2) maximum prices for pilotage services in each pilotage zone; 3) measures to improve the regulation of pilotage service in each pilotage zone; and 4) coverage of each pilotage zone. CNAP published Resolution No. 3 of 23 September 2013 to establish a predefined methodology of regulation of pilotage prices. In addition, CNAP established maximum price tables for three pilotage zones: ZP 12, ZP14, and ZP16. This proposed methodology raised several legal disputes, however, and the commission was abolished with Decree No. 9 679 of 2 January 2019.

With CNAP abolished and Decree-Law No. 7860/2012 revoked, the DPC's competence to resolve disputes regarding prices was left in a regulatory vacuum. Law No. 9537/1997 regarding pilotage allows the Maritime Authority to establish prices where there is a dispute but, unlike Decree-Law No. 7860/2012, it does not *oblige* it to do so. Indeed, DPC has not set prices since 2012, when the obligation was revoked. The only times that the Maritime Authority has continued to set prices has been when the courts have obliged it to do so.[39] In light of this vacuum, pilots and their associations no longer face any constraints when negotiating their prices.[40]

The use of the single rotation shift meets the DPC's main goal of ensuring the safety of port operations. Indeed, Brazil is one of the countries with one of the lowest number of accidents related to pilotage services (Tribunal de Contas da União, 2020[75]). In addition, in line with NORMAM 12/DPC, the single rotation shift aims to guarantee uninterrupted availability of pilotage service within the pilotage zones, as well as ensuring that pilots will not be tired when performing their duties. Moreover, the single rotation shift seeks to maintain pilots' abilities to perform their duties, as all are entitled to work within the single rotation shift, except when unavailable or resting (Marinha do Brasil, 2021[69]).

Harm to competition

The necessity to follow the single rotation shift creates an artificial monopoly in the market. Pilots are obliged to accept the assignment that they receive under the single rotation shift, without being able to choose their own clients, while vessels must accept the pilot assigned by the single rotation shift. This means that maritime pilots chosen to provide services to a given ship acts as monopolists, in the sense that no other pilot can compete against them.

This regulatory framework removes all competition among pilots. In this way, the single rotation shift may increase prices and lower the overall quality of services. The fact that the DPC does not set prices in cases of disagreement between the pilots and maritime transportation companies and leaves resolution to the courts incentivises pilots to exploit their monopoly to keep raising prices without major constraints.

In addition, there is a lack of transparency in the definition of prices and in justifications for increases. (Tribunal de Contas da União, 2020[75]). Indeed, the OECD struggled to find updated pilotage prices for the years 2021 and 2022 as price lists and contracts are often confidential.

One complaint received by the OECD from stakeholders was that even though pilotage prices in Brazil were already too high when compared to other countries in 2019, these prices have continued to rise.

Pilotage prices in Brazil are indeed among the highest in the world. In 2016, the Brazilian Association of Maritime Cruises (Abremar), in a public audience before the National Congress Road and Transport Commission, presented a comparison of prices for pilotage services between Brazil and the rest of the world. In particular, while the average global price of a single in-out pilotage operation was USD 7 870, the same in-out operation in Brazil cost USD 32 500 (Brazilian Association of Maritime Cruises, 2016[76]). (See Table 3.9.)

It is also important to mention that several legal disputes concerning pilotage prices between pilots and maritime transportation companies have finished in Brazilian courts. The OECD discovered lawsuits before 2012 and cases questioning the prices charged by pilots in 1999 remain pending.

Box 3.13. Judicial and administrative proceedings concerning pilotage

Judicial proceedings

Over the past few years, several lawsuits related to pilotage and the price of services in several pilotage areas in Brazil have been filed. More than 30 lawsuits were found in several state courts in Brazil concerning the price of pilotage services in various pilotage zones in the country. The most common issues are the discussion of the price charged by pilots and the inclusion of additional charges by pilots without the shipping company's agreement on the final value of a service provision.

In 2017, the Superior Court of Justice of Brazil ruled that the Maritime Authority cannot set maximum values for the prices of pilotage services provided in port areas for an undetermined period, but left public authorities the possibility of intervening to ensure service continuity. The case started upon a lawsuit filed by the Union of Pilots of the Paraná State demanding the court to refrain from all initiatives to allow the Navy to set maximum prices concerning pilotage services. The court observed that the Pilotage Law only allows the Navy to set prices occasionally when there is no agreement between a pilot and a maritime shipping company. This case is still ongoing and has had its referral on appeal to the Federal Supreme Court, Brazil's Supreme court.

Administrative proceedings before CADE

In 1999, an investigation was opened against the Association of Pilots of the State of Paraná (APEP) after a complaint made by the Union of Maritime Shipping Agencies in Paraná (SINDAPAR). In particular, the alleged conducts were related to the arbitrary increase in profits and abuse of a dominant position. In 2006, CADE dismissed the proceeding due to the absence of evidence to corroborate with the complaint.

In 2019, CADE received another complaint by a pilot in the pilotage zone in Santos, in which he alleged that the dominant pilot association in Santos had the control and management of traffic in the port of Santos and uses this power, without any control or supervision by the Maritime Authority, to harm the competing association insofar as it would delay the larger ships to be manoeuvred by pilots of their own association. CADE is still investigating the alleged conducts.

Sources: (Superior Court of Justice, 2017[77]); (CADE, 2006[78]);

Table 3.9. Pilotage prices presented by Abremar, 2016

City, country	Price in 2016 (USD)
Salvador, Brazil	44 062
Angra dos Reis, Brazil	37 500
Ilha Grande, Brazil	37 500
Santos, Brazil	36 875
Rio de Janeiro, Brazil	32 500
Fortaleza, Brazil	30 625
Recife, Brazil	26 562
Maceió, Brazil	17 187
Newark, USA	14 300
Miami, USA	11 000
Xiamen, China	11 000
Ostend-Bruges, Belgium	10 000
Sydney, Australia	9 700
Lisbon, Portugal	8 200
Venice, Italy	7 700
Valparaíso, Chile	6 900
Montevideo, Uruguay	6 800
Okinawa, Japan	5 600
Barcelona, Spain	4 080
Athens, Greece	3 600

Note: Costs based upon for pilot services for a cruise ship with a gross weight of 139 000 tonnes.
Source: (Brazilian Association of Maritime Cruises, 2016[76]).

Similarly, TCU also compared Brazilian pilotage prices with the international benchmarking in 2019 (Table 3.10). The results were similar to those presented by Abremar. When comparing these prices, TCU found a percentage difference of approximately 529% between prices worldwide and in Brazil.

There are currently bills in the Brazilian Congress proposing to change the Pilotage Law in order to address the price issues (see Box 3.14).

Table 3.10. Pilotage prices for two port manoeuvres, worldwide and Brazil, 2019, BRL

Global Prices				
Port, country	65 000 mt	92 000 mt	138 000 mt	153 000 mt
Dubai, AE	-	6 577	8 164	8 164
Barcelona, Spain	-	13 573	14 563	14 563
Lisbon, Portugal	-	7 760	9 481	10 002
Civitavecchia, Italy	-	8 737	11 833	12 865
Genoa, Italy	-	19 054	26 522	30 256
Hamburg, Germany	-	13 823	13 823	13 823
Miami, USA	27 480	33 096	42 647	42 836
Fort Lauderdale, USA	25 329	30 575	39 530	40 422
Vancouver, Canada	-	26 000	38 440	41 392
Average	21 427			
Prices in Brazil				
City, state	62 000 mt	92 000 mt	138 000 mt	153 000 mt
Angra dos Reis, Rio de Janeiro	-	70 380	154 680	154 680
Rio de Janeiro, Rio de Janeiro	-	58 234	127 938	127 938

Santos, São Paulo	63 051	89 107	132 694	147 682
Ilhabela, São Paulo	66 417	93 952	139 908	155 711
Salvador, Bahia	-	121 225	190 882	214 719
Ilhéus, Bahia	-	121 225	190 882	214 719
Maceió, Alagoas	-	66 755	89 669	89 669
Recife, Pernambuco	-	102 243	177 012	201 612
Average	134 729			

Source: (Tribunal de Contas da União, 2020[75]).

Box 3.14. Pilotage-related bills

In March 2022, Bill No. 757/2022 was presented to the National Congress to amend the Pilotage Law. The project provides for the transfer to ANTAQ of the economic regulation of the pilotage services, including setting service prices and monitoring service-quality compliance. It envisages a collegiate body, set up by act of the Executive Branch, establishing the parameters that ANTAQ will observe in its economic regulation of pilotage services to correct market failures and guarantee service quality. The bill also provides that pilotage service will be performed by duly qualified pilots, individually or through an incorporated company, who will provide any information requested by ANTAQ.

Other bills in the Brazilian Congress concerning pilotage include, notably, Bill No. 4392/2020 that aims to grant ANTAQ competence to act in the economic regulation of pilotage services. In particular, price limits in each pilotage zone would be fixed by ANTAQ. In addition, rather than leaving it with the pilots' representative, Bill No. 1565/2019 seeks to introduce the Navy's obligation to establish a rotation shift with all pilots in certain pilotage zones.

Source: (Agência Câmara de Notícias, 2022[79]); (Câmara dos Deputados, 2022[80]); (Câmara dos Deputados, 2020[81]); (Câmara dos Deputados, 2019[82]).

The absence of price regulation or control coupled with the single rotation shift may result in higher prices and lower overall service quality.

Recommendations

The OECD has two recommendations for enhancing competition in the pilotage sector.

1. Brazilian authorities could abolish the single rotation shift, in line with the possibilities offered in the Pilotage Law to give pilots a choice of how to provide their own services. If this option is chosen, Brazilian authorities should define another way of identifying which pilot will provide the service to ensure service competition between the pilots and their entities while guaranteeing safety. This new scheme should take into account pilot fatigue, exercises for the renewal of pilot qualification, and ensure uninterrupted availability of pilots
2. Alternatively, if Brazilian authorities maintain the current rotation shift established by the DPC, some form of control over prices of pilotage services would seem appropriate. If this option is chosen, any price-setting body should be independent and use objective criteria in its decisions.

3.2.9. Pilot exemption certificates

Description of the obstacle and policy makers' objective

A pilot exemption certificate (PEC) allows the holder to navigate and manoeuvre within a compulsory pilotage area without using the services of a maritime pilot, and so avoid pilotage costs (OECD, 2018[35]).

In Brazil, Article 13, paragraph 4 of Law No. 9537/97 establishes that the Navy may authorise captains of Brazilian-flagged ships to manoeuvre vessels under their command within a specific pilotage zone (or a section of it) in which they will be considered as pilots. NORMAM 12/DPC lays down the basic requirements demanded by the DPC to grant a PEC.[41] Passenger or cruise ships, oil, gas and chemical tankers, and ships with packaged cargo that presents a mass explosion hazard cannot manoeuvre in a pilotage zone without a pilot.

In addition, section VII of NORMAM 12/DPC indicates that a PEC is granted only after the DPC has taken into account the captain's experience and knowledge, vessel size, the specific pilotage zone, and the port and terminal requested. If any of these criteria changes, the PEC will be revoked. Also, in a pilotage zone more than 30 miles of length, piloting services are mandatory even if a captain possesses a PEC. The PEC holder may, however, replace one of the pilots who should be on board.

If captains fulfil the necessary conditions and hold the necessary certificates of health and maritime competence, they can request a PEC by addressing a letter to the competent harbourmaster. The proceeding to obtain such a licence has the following phases: 1) providing documents that attest to meeting qualification conditions (see endnote 33); 2) preparation of a risk-management plan; 3) simulation; and 4) onboard exams (Diretoria de Costas e Portos, 2011[72]).

These provisions aim to ensure that a captain has the necessary knowledge to perform pilotage services, and so guarantee port safety.[42] NORMAM 12/DPC sets no deadlines for each phase, which can lead to unreasonable processing periods, which reduce incentives to apply for the exemption. The third and fourth phases foresee evaluations carried out in simulator and on board ships to examine the captain's technical skills as a pilot, whereas, in these two phases, NORMAM 12/DPC indicates that it is the examining board that establishes the evaluation criteria for the captain, including which and how many piloting exercises will be evaluated, as well as the basis of the scoring criteria used for approval (Diretoria de Costas e Portos, 2011[72]). Such subjective evaluation may lead to discriminatory treatment between captains within the same pilotage zone, but also between geographically similar zones.

Moreover, considering that the examination board is generally composed of maritime pilots, the regulation should avoid any conflict of interest between the maritime pilots and captains during evaluations.

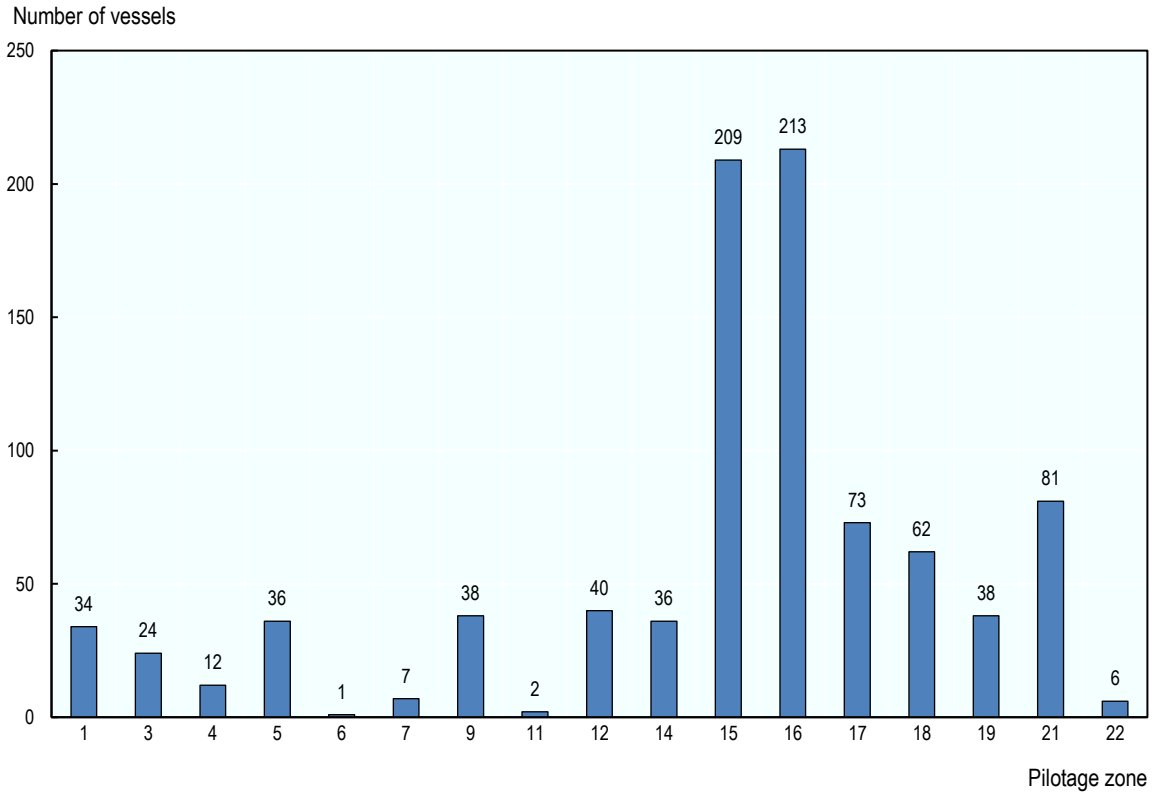
While the law has provided DPC with the possibility of awarding PECs since 1997, it did not implement the option until 2020 after a report by the TCU, which ordered it to develop an action plan to make the PEC process in Brazil more transparent, faster and viable. In consequence, DPC amended NORMAM 12/DPC (Tribunal de Contas da União, 2020[75]).

Ordinance No. 53/2020 provided that DPC adopt rules that stated for a captain to qualify for a PEC he or she must have undertaken a minimum of 18 pilotage manoeuvres in ports in the previous 24 months accompanied by a qualified pilot. NORMAM 12/DPC had previously required a total of 72 pilotage tasks in two consecutive semesters, which was even higher than the minimum manoeuvres demanded for fully qualified pilots in certain pilotage zones.

The OECD interviewed stakeholders about the issuance of PEC in Brazil after the 2020 reform, and to the best of its knowledge, no PEC has yet been granted. This despite, according to OECD calculations (Figure 3.22), under current requirements more than 200 captains of vessels could have been granted PECs in ZPs 15 and 16 alone after 2017. Extrapolating from this figure would suggest that if PECs were

to be awarded, almost 1 000 captains would be eligible.[43] This number would be in line with other countries, such as Sweden, Germany and Finland (see Table 3.11).

Figure 3.22. Number of vessels having performed 18 manoeuvres in each pilotage zone, 2017-21



Note: Excludes cruise ships and oil, gas and chemical tankers; data for PZ 2 not included.
Source: OECD, based on data from the Brazilian Navy about the total number of pilotage manoeuvres in Brazil between January 2017 and October 2021.

Table 3.11. Number of PECs approved in European countries, 1995-2011

Country	2011	2010	2009	2008	1995
Belgium	112	107	103	9	0
Cyprus	0	0	0	0	0
Croatia	0	0	0	0	0
Denmark	158	167	182	-	0
Finland	857	1 185	1 405	1 659	1 900
France	224	228	236	233	500-1 000
Germany	1 267	1 269	1 180	-	20
Ireland	113	118	111	-	80
Netherlands	315	317	309	203	60
Norway	2 800	2 800	2 800	2 866	-
Portugal	5	5	5	-	0
Spain	375	375	375	-	0
Sweden	1 200	1 100	1 200	1 100	-
United Kingdom	815	-	-	-	1 000

Source: (PwC and Panteia, 2012[83])

Harm to competition

After TCU lobbying, the legal requirements to obtain a PEC in Brazil changed in 2020 and DPC modified the number of pilotage manoeuvres required from captains as a way to facilitate PEC issuance in Brazil. Nonetheless, to the best of the OECD's knowledge, since the modifications, not a single PEC has been granted.

The recently modified criteria still do not reflect the peculiarities and needs of each pilotage zone. In particular, the need to complete exactly the same number of manoeuvres in each piloting zone seems unreasonable due to the peculiarities of each area. For example, crossing certain stretches of pilotage zones on the Amazon and its tributaries can take up to two days, while others take just a few hours. Due to the difficulty in obtaining a PEC in Brazil, some captains with long experience of navigating within a pilotage zone are unnecessarily forced to use piloting services. This can have the effect of increasing costs for vessels, leading to an inefficient allocation of shipping companies' resources.

In addition, a risk of conflict of interest exists as DPC, which is the entity with responsibility for regulating piloting services, is also the body charged with granting PECs in Brazil. This situation has the potential to create incentives to restrict the number of PECs granted, potentially also causing inefficient allocation of shipping companies' resources. Many European countries give the competence of issuing PECs to transportation authorities or agencies.

Recommendations

The OECD has two recommendations for reinforcing the viability of PECs in Brazil.

1. Revisit the criteria for each pilotage zone and the DPC-established procedure to propose modifications to how PECs are issued. This should a) include proposing reasonable analysis periods for each phase of the PEC qualification process; and b) introduce objective, relevant and proportionate evaluation criteria in each pilotage zone to avoid possible conflicts of interest and discriminatory treatment.
2. In light of DPC's competence for establishing PEC-qualification criteria, the responsibility for granting PECs should be attributed to an entity other than DPC. If DPC remains the granting authority for PECs, the Brazilian authorities should establish a new governance model within DPC to ensure that PEC approval is feasible without conflict-of-interest concerns.

3.3. Pool of port workers

3.3.1. Background

A labour pool is an employee organisation run as a network of individual workers in the same industry and region. Workers tied to the pool are sent to wherever employers need them. This system is used as a way of managing activity with peaks and troughs (Eurofund, 2022[84]). In the Brazilian port sector, this pool is organised by a labour management body, the Pool of Port Workers (Órgão Gestor de Mão de Obra, OGMO).

Generally, the objective of labour pools in the port sector – such as OGMO – is "to share available dock labour among different terminals in the same port so that workers can be deployed from the pool depending on demand. This increases efficiency as it allows terminals to deploy more workers if there is peak demand and fewer workers if there is little demand" (ITF, 2021[85]).

Pools of workers – or other mechanisms that allow for flexibility in the provision of workers – are particularly useful when demand is unpredictable. Although the containerisation of maritime transport has reduced demand unpredictability, as sailing schedules have become more predictable, port work continues to be irregular, especially in small ports and for break-bulk shipments (OECD, 2014[57]). In addition, peaks related to megaships and alliances (i.e. co-operation agreements on a global scale between liner shipping companies) require labour flexibility in ports (ITF, 2021[85]).

Pools of workers were widely used to organise work in ports in the 1960s, with no workers outside a pool allowed to work. In the 1980s, ports entered an era of gradual modernisation and liberalisation, which changed this exclusivity and the mandatory registration. In many ports globally, this meant that workers outside the pool were allowed to work (Cooper, 2007[86]). Certain countries (e.g. the port of Le Havre in France) replaced the system of casual employment of registered pool workers with regular employment under long-term contracts with an individual employer. In other countries (as it was in Spain before the RDL 9/2019), pool workers signed permanent employment contracts with the pool agency itself. In both cases, the transition to stable employment links during the 1980s was defined as a period of "regularisation" (Van Hooydonk, 2014[87]). Currently, many governments (such as the Netherlands and the UK) consider that port labour can be adequately, efficiently and safely organised based on general labour law.

Box 3.15. Port-worker registries around the world

Internationally, major differences exist in the use of pools of port workers. The International Labour Organization's Convention 157 on the Maintenance of Social Security Rights Convention, 1928 (No. 157) establishes that registers for all occupational categories of dockworkers should be determined by national law or practice. The convention also establishes that registered dockworkers should have priority of engagement for work.

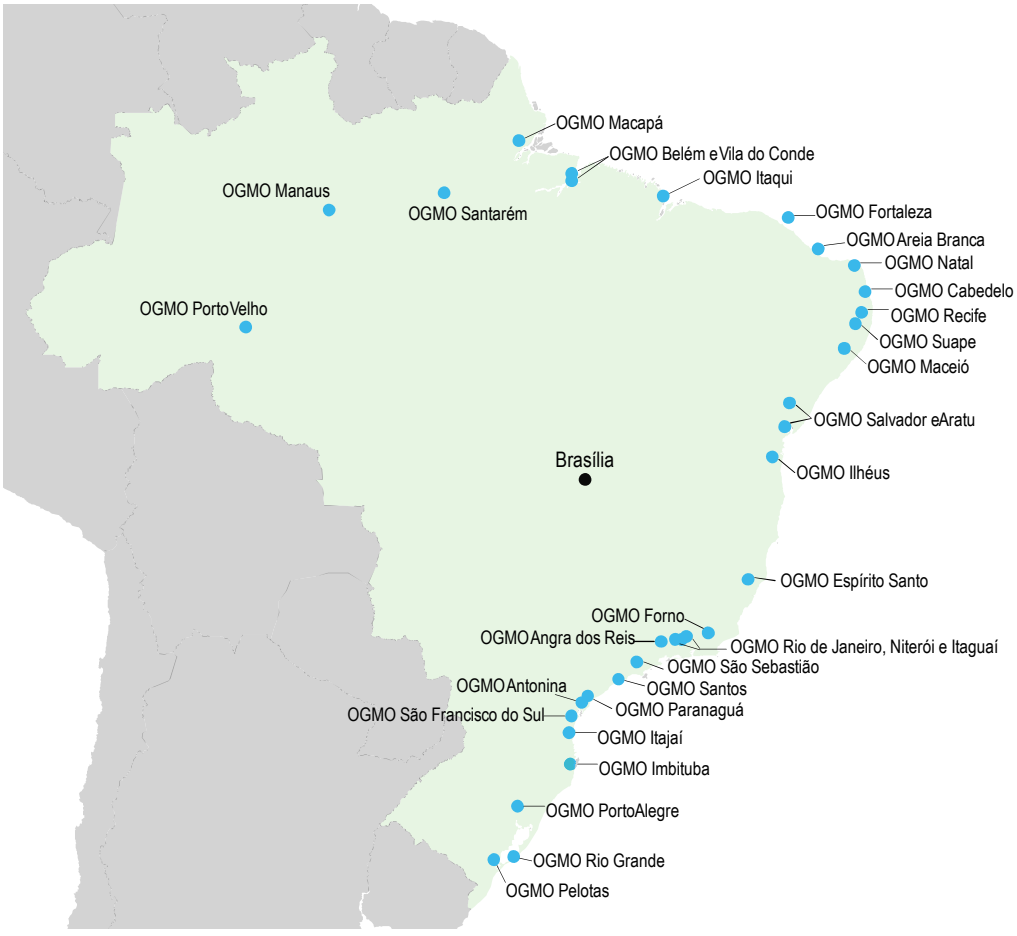
In the EU, in 11 Member States the pool systems have preferential rights and so priority for work (OECD, 2021[18]).

- In Germany, employers can hire permanent employees directly from the external labour market, but any occasional labour must be hired from a regulated labour pool. In some schemes, excess-capacity workers from port operators can be included in the labour pool (Van Hooydonk, 2014[87]). This is the case in Hamburg where the dock labour pool acts as a transfer point for surplus dock workers. For example, operators can offer their surplus workers to the pool, which is not obliged to take them (Notteboom, 2018[88]).
- In the Netherlands, there is no national registration requirement for dockworkers. Dockers have never had to register, nor have they needed to hold a membership card to perform their port duties. In Rotterdam, however, dockers without a job can register with Rotterdam Port Services (RPS), a temporary employment agency, but will receive no compensation unless they work. Directly employed workers are hired individually on a permanent or temporary basis (Ministry of Infrastructure and the Environment of the Netherlands, 2014[89]).
- In the port of Le Havre, France, a pool system was introduced in 1947 with permanent workers *professionnels*, who were guaranteed 300 half-day shifts a year, and casual *occasionnels*, who had no work guarantee. In 1992, the pool system was abolished and dockers became ordinary salaried employees. This reform was pushed as essential to opening French ports to global terminal operators. In 2008, the port authority of Le Havre was renamed Grand Port Maritime du Havre and dock workers were transferred to stand-alone operating companies (Notteboom, 2018[88]).
- The Portuguese system – which inspired OGMO – was reformed in 1993 in order to facilitate the hiring and qualification of the port workforce. The country created a transitional regime to

hire port workers, after which the labour pool became port-labour companies. The same law permits the creation of port-labour companies as associations and co-operatives to foster competition (Tribunal de Contas da União, 2020[41]). If the port labour companies are not enough to satisfy the demand for casual work, they can hire workers from temporary work agencies (OECD, 2018[34]), which do not exist in Brazilian system. Thus, the Portuguese legal regime enables temporary work agencies to supply labour indirectly to cargo handling operators, by using an existing port labour company as an intermediary or by creating their own port labour company an intermediary (OECD, 2018[34]). Contrary to Brazil, in Portugal, the registry of permanent workers in the port labour companies is not a legal obligation (OECD, 2018[34]).

Law No. 12815/2013 establishes that in public ports only members of an OGMO can provide port worker services.[44] Non-profit entities created by port operators in public ports, OGMO have supervisory, administrative and professional roles, and are responsible for the management and supply of port workers, both casual and permanent. Port operators maintain and create an OGMO in public ports pursuant to a legal obligation. Each public port has an OGMO – 30 in total – which holds a monopoly in the registration of all port workers. Figure 3.23 presents the location of the OGMOs in Brazil. Private ports are not bound by the OGMO regime and so their workers are not obliged to be part of one.

Figure 3.23. OGMO location



Source: Based on (Ministério do Trabalho e Previdência, 2022[90])

3.3.2. Monopoly of port-worker registration

Description of the obstacle and policy makers' objective

All workers in public ports, whether they have a permanent contract or are registered only for temporary work, must be part of OGMO. The Law No. 12.815/2013 gives OGMO exclusive rights in public ports to register and select permanent and casual workers, as well as manage their hire by port operators. OGMO is a non-profit entity collectively created and financed by all the port operators as an obligation established by law. There is just one OGMO per public port, collectively managed by all the ports operators. It is possible that an OGMO acts in more than one public port (e.g. OGMO Aratu e Salvador). However, no port operator can invest in a different separate labour-pool company other than the OGMO of the port in which it operates. OGMO cannot provide services to third parties (only to the port operators of the determined public port) or carry out any activity not linked to the management of labour.

Harm to competition

OGMO's monopoly of the registration and supply of labour constitutes a limitation on trade imposed on port operators in public ports. It also excludes other companies with different corporate activities, such as temporary work agencies, from the market. The establishment of exclusive rights restricts the level of competition in the port labour market, increasing costs of labour for port operators and potentially leading to fewer job opportunities for casual workers. Indeed, the National Confederation of Industry (CNI) has pointed out that mandatory hiring through OGMO prevents port operators from accessing the labour market fully, restricts labour supply, and raises costs, which can affect the final user price (CNI - Confederação Nacional da Indústria, 2018[91]). Port operators interviewed by the OECD expressed similar concerns.

The obligation to hire workers through the OGMO labour pool is one of the issues most often highlighted by operators of Brazilian public ports as a competitive disadvantage when compared with private ports, which are not subject to this requirement. Stakeholders in public ports pointed out that it makes their operating costs higher than those in private terminals. This can distort competition by creating competitive asymmetry with clear benefits for the private terminals that do not hire casual workers through OGMO, as well as failure to provide adequate service (Quadros, 2022[92]). This happens because the leased terminals within public ports will have more costs and will compete with the private terminals which do not have to bear the same burden.

For example, a 2020 study by TCU, looked at the economics of hiring workers through OGMO in the Port of Santos. In each terminal, the feasibility study estimated 31% of the terminal's revenue was used to cover expenses incurred through labour hired through OGMO.

European Union member states have successfully removed almost all the restrictions in the port labour market. Box 3.16 explains how restrictions to the port labour market have been addressed in Spain as a result of a complaint lodged by the European Commission.

Box 3.16. Procedures against the dockworker pool system in Spain

In 2014, the European Commission began assessing the closed and, sometimes, exclusive character of certain labour pools; this led to procedures against dockworker pool systems in Belgium and Spain.

After a complaint lodged by the European Commission, the Court of Justice of the European Union (CJEU) found in 2014 that in Spain the obligations for terminal operators to register with a port labour pool company and to employ pool workers preferentially was against Article 49 of the Treaty on the Functioning of the European Union (TFEU) (Notteboom, 2018[88]) which states that restrictions on the freedom of establishment of nationals of a Member State in the territory of another Member State shall be prohibited. This resulted in a reform which established the freedom to hire port workers, while also creating port-employment centres (CPE) which could serve as pools facilitating the sharing of workforce among companies. The resulting Decree-Law No. 9/2019, which regulates the CPE, aims to promote a more balanced approach to the profession's precarity, taking into account its nature as casual labour but also the specific sector to which it belongs (OECD, 2021[18]).

Recommendation

The OECD recommends that the OGMO monopoly for the registration and supply of port workers be abolished. Brazilian authorities should discuss with unions necessary considerations for the design of new legislation. In particular, Brazilian authorities should take into account both the unpredictability of the demand of casual port workers and the flexible requirements of today's shipping industry.

3.3.3. The monopoly in establishing worker teams

Description of the obstacle and policy makers' objective

In public ports, neither port operators nor OGMO choose the specific workers to perform each task because workers provide their services following a pre-established rotation system. In addition, neither can choose the number of casual workers needed to perform each task as team numbers are set out in a collective agreement signed by unions and port operators, and commonly valid for one or two years.

For instance, in a public port the collective agreement provides that the task called *conexo* – the lashing and unlashing of containers – requires five workers. The port operator cannot hire a different number to perform this task even when it is preferable, for example, due to specific technical equipment employed by the company or because there is no safety issue. During each shift, the worker determined by the rotation system must be hired and will then work for a single operation in a team with the number of workers established in the collective agreement. The amount earned by the workers is also fixed in these collective agreements. The rotation systems were established to prevent unions from manipulating worker teams; before the system, mainly workers with relations with unions were hired by port operators.

Harm to competition

According to the academic literature the rotation schedule creates inefficiency, as it allows casual workers to participate in the work schedule, with mandatory hiring by leased terminals, without any possibility for the contracting party to select professionals (Tribunal de Contas da União, 2020[41]).

The rotational schedule, without encouraging more productive workers, also generates low interest in professional development among casual workers. Research by the TCU in terminals highlighted that many of the training courses offered by OGMO (which are the legally responsible entities for the qualification of port workers) attract only a few interested workers as workers know they will be hired even if they are not the best choice for that job vacancy, given that employers cannot select workers for their competencies or qualifications (Tribunal de Contas da União, 2020[41]). The TCU also pointed to a study that concluded that the port work done by casual port workers hired by OGMO could be done with 40% of the workforce, which shows that hiring casual port workers through OGMO is 150% more costly that directly hire a casual worker (Tribunal de Contas da União, 2014[93]). International benchmarking shows that the freedom to choose the worker to hire is accepted in many jurisdictions, including in Argentina and Peru in South America. In Spain, the composition of the teams is subject to negotiation for each port. Before the RDL 9/2019 which allowed negotiations, the teams were generally bigger than what was needed, and this had effects on productivity at scale. Therefore, the Royal Decree has expressly provided that the company holding the cargo handling port service licence has the power to designate the personnel needed to perform each of the port activities (OECD, 2021[18]).

In port labour pools internationally, employees and employers generally define the number of workers required for each operation (ITF, 2021[85]). This aims to determine the overall labour supply needed in a port to meet current and future traffic needs, while generating efficiency and ensuring that sufficient labour is always available.

Private terminals have the freedom to select their workers and to set the number of workers required in each activity. In 2020, dock workers' hourly wages in private ports were on average 30% lower than those earned by a casual worker in a public port. This would appear to show that flexibility in choosing worker numbers in each team and the possibility of port operators freely selecting their workforce leads to them paying significantly lower wages to increase efficiency. In addition, Brazilian labour legislation has mechanisms to protect workers from earning less than the minimum wage.

All these sources of inefficiency harm competition when a public port with its OGMO-registered workers competes with a private port and its freedom to choose the most efficient workers.

Table 3.12. Numbers and salaries of port workers in OGMO and private ports, 2020

Occupation	Private Terminals		Public Ports – OGMO		Difference %
	Number	Avg. Monthly Salary (BRL)	Number	Avg. Monthly Salary (BRL)	
Estivadore	1 441	3 317.7	13 313	5 396.2	-62.6%
Loading and unloading checker	822	4 400.6	447	9 640.0	-119.1%
Loader (warehouse)	517	1 383.9	102	915.4	33.9%
Loader (ground transportation vehicles)	263	2 485.9	-	-	-
Crane operator (fixo)	186	5 543.5	-	-	-
Night guard	262	2 417.5	177	2 895.8	-15.8%
Others	17 493	4 358.8	769	3 846.0	11.0%
Total	20 298	4 178.4	14 808	5 383.1	-28.8%

Source: Ministry of Labour and Social Welfare (2020).

Recommendations

The OECD has two recommendations.

1. The Brazilian authorities should allow port operators to assign workers to allow them to choose workers who best meet their needs.
2. Brazilian authorities should introduce flexibility in the set number of workers required to perform each task.

3.3.4. Exclusivity in the management of port-worker training

Description of the obstacle and policy makers' objective

In public ports, registration as a port worker depends on a prospective worker's prior professional qualifications and training by OGMO or by an OGMO-appointed entity. As explained below, OGMO has exclusivity in the management of port workers. Port workers can register and work in public ports only if they have been trained by OGMO or by and entity appointed by them.

The legislation gives OGMO exclusive management of port-worker training in public ports. In particular, OGMO must support the professional training of permanent and casual port workers, adapting it to the modern processes of cargo handling and operation of port machinery and equipment.

OGMO's exclusive management of training for the casual workforce constitutes a limitation imposed on port operators in public ports since private terminals do not have to pass through OGMA for training.

Box 3.17. Port-worker training: an international perspective

Globally, the bodies that commonly manage port-worker training include: 1) a public agency, the state, or port authority; 2) joint worker-employee organisations, or 3) employee or employer organisations (Van Hooydonk, 2014[87]). Brazil falls within the third group as OGMOs – managed by the port operators pursuant to the obligation laid down in the Law 12.815/2013 – have exclusive control of worker training.

Ports where the exercise of port activities is controlled (such as through a system of registration of workers) often invest heavily in worker training. At the Port of Antwerp-Bruges, for example, workers must undergo rigorous initial training before starting work. About one-fifth of the training period is theoretical; the rest is practical work, such as load handling (Tribunal de Contas da União, 2020[41])

The main international reference for training in the port sector is the International Labour Organization's *Guidelines for training in the port sector*, published by the ILO in 2012 (International Labour Organisation, 2012[94])These identify the competencies required for all functions along the transport and logistics chain (OECD, 2021[18]) (Van Hooydonk, 2014[87]).

In "Communication on a European Ports Policy", published in 2007, the European Commission proposed setting common standards for the training of port workers. However, as of 2021, no specific regulation at an EU level has been introduced, except the Bulk Terminals Directive (2001/96/EC), which requires safety training for all staff at solid-bulk terminals (OECD, 2021[18]).

In Italy, a national law establishes training and certification of all workers, and while labour pools are required to provide training, they do not have the monopoly. In other countries, including Finland and Denmark, equipment operators, such as crane drivers or workers handling dangerous goods, must hold a special training certificate. Finally, Croatia, Estonia and Ireland, have no specific training requirements other than the mandatory occupational health and safety training (Van Hooydonk, 2014[87]). None of the studied countries has a monopoly training body for port workers similar to Brazil.

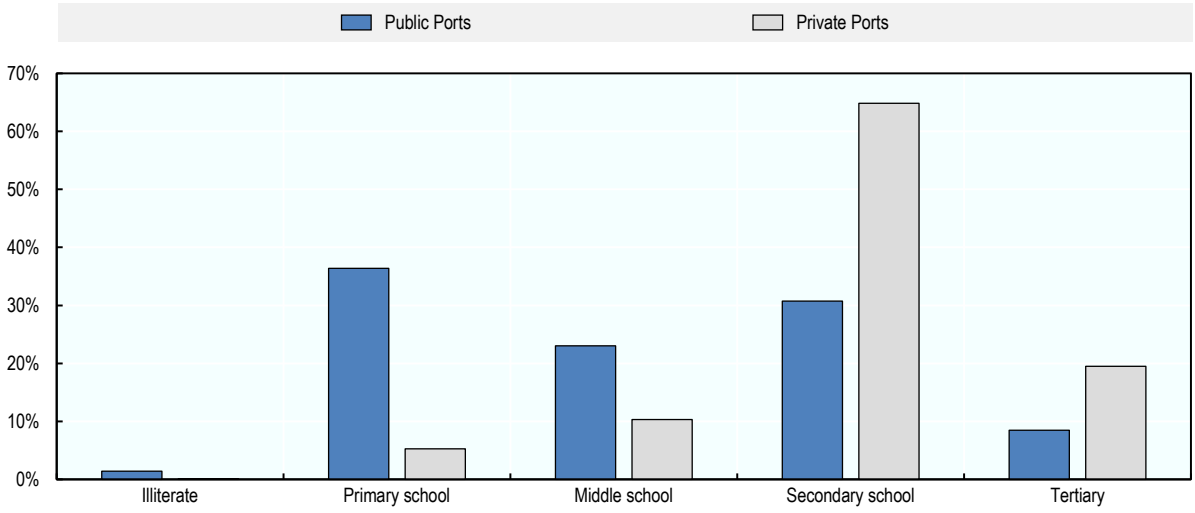
Harm to competition

Through its control on training, OGMO can determine who can become a port worker as training is a prerequisite to becoming a registered port worker. In this sense, OGMO's control of training constitutes a barrier to market access.

In addition, the fact that OGMO manages the training and not the employer might lead to less efficient workers since the individual training needs of each one may not be detected.

Regarding the educational level, as shown in Figure 3.24, workers hired through OGMO have lower educational levels than those at private terminals. This may be due to the rotational shift system, as port operators must hire the registered worker next in the rotational shift and cannot help workers strengthen their skills and knowledge.

Figure 3.24. Educational level of workers at public ports and private terminals, 2020



Source: (Ministério do Trabalho e Previdência, 2022[90]).

In addition, adequate training is an important variable for the physical well-being of the workers and for port productivity (Notteboom, 2010[95]). According to the ILO, training helps safeguard occupational safety and health in ports and is a way of intensifying the welfare and skills of port workers who can then better use new technologies for port operations (International Labour Organisation, 2012[94])

Recommendation

The OECD has the following recommendation. Brazilian authorities should remove OGMO's exclusive management of port-worker training and allow port operators to choose the training most appropriate for their workers.

3.4. Segregation and Delivery Service Fee

The segregation and delivery service fee (SSE) is a fee charged by port operators – both public and private – for the handling of containers inside the port terminal. A legal definition is provided by Resolution No. 72, of 30 March 2022, issued by ANTAQ.[45] SSE relates, among other activities, to the cargo movement service from storage to the vehicle at the port terminal gate for importation (ANTAQ, 2022[96]).[46]

Until the 1990s, the ports sector in Brazil had a model marked by strong state intervention, with the administration, co-ordination, and operation of ports carried out by a state company, Empresa de Portos do Brazil (Portobrás). It controlled the dock companies (which were also state-owned entities) responsible for each port. With the abolition of Portobrás by Law No. 9029/1990, the operation and administration of Brazilian ports passed exclusively to the dock companies (CADE, 2016[97])After the enactment of Law No. 8 630/93, the operation of public ports[47] was no longer exclusive to dock companies, as the law implemented the landlord model in Brazil, a form of port management that aims for the progressive transfer of port activities from the port authority to the private sector. This governance model sees the port authority owning the port infrastructure and the port area, but leasing the infrastructure to private players (Ferreira dos Santos, 2019[98]).[48] Under the landlord model, private operators are responsible for implementing and

developing port equipment, but also for managing their businesses, including hiring the docks and administrative workforce, for the security of their facilities, and for the development of other business-related activities (CADE, 2005[99]). With the landlord model, competition for port services takes place in two ways: 1) interport competition between infrastructure providers who compete with other port facilities to attract volumes to their port; and 2) intra-port competition in downstream markets for services such as cargo loading and unloading, provided by terminal operators (OECD, 2011[2]).

Port operators usually have contracts with different maritime-transport operators related to services for berthing, stowage and horizontal handling services in the port. Port operators are responsible for unloading and loading all cargo of a certain ship destined to a certain port (Soares Coelho, 2013[100]).

Port operators are remunerated by their clients – shipowners – through a fee called "box rate", which includes vertical movements[49] (covered by liner-terms contracts that set out the costs of the service provided by the shipping company to the shipper or end clients) and horizontal movements[50] (not included in liner terms contracts) of containers. When the box rate is added to the freight handled on behalf of shipowners, this tariff is called the terminal handling charge (THC) or wharfage price.

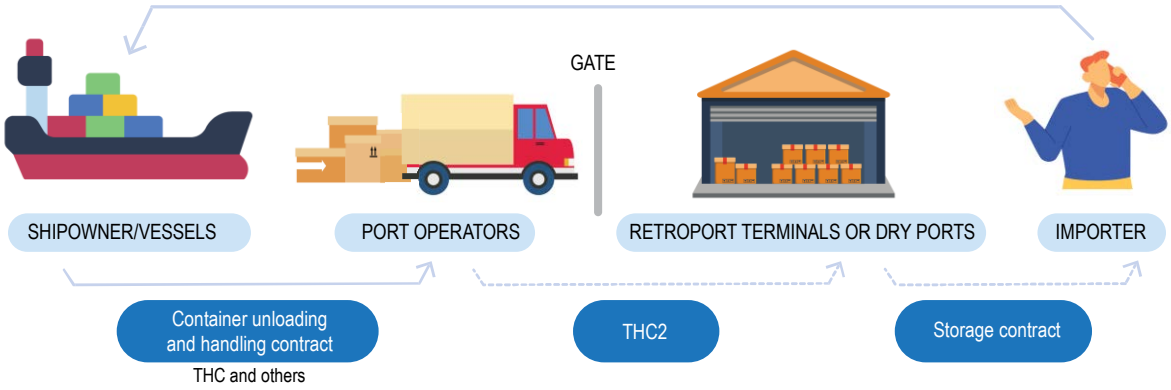
After unloading cargo from vessels, port operators move the cargo to storage terminals, where it waits until delivered to importers. Port operators usually keep these warehouses within the public port. This service is covered by an additional fee (Oliveira Fernandes, 2015[101])

A new segregation and delivery service fee (SSE) or THC2 was created after the establishment of retroport terminals, also known as dry ports, by Decree No. 1910 of 21 May 1996. These were "installations for the provision of public services for the movement and storage of imported and exported goods, not located in a port or airport area".[51] They are authorised by the Federal Revenue Service of Brazil as customs facilities (just like port operators),[52] and so are also able to store imported goods until customs clearance.[53] The main difference between the port terminal and the retroport terminal is that the former only handles transfers of cargo to the whips, while the latter is a facility that also performs services up to customs controls to facilitate the transit and logistics of the port terminal. It was a solution by the Federal Revenue Service itself to improve overloaded terminals, so the retroport terminal is often located a long distance from the port terminal.

Retroport terminals began to compete with the port operators in the cargo storage market, which led to operators demanding additional fees not initially foreseen in cargo-handling charges from users of port services (Secretaria de Advocacia da Concorrência e Competitividade, 2021[102]). The justification for SSE/THC2 was that the segregation of cargo destined for customs facilities located outside the port would involve additional costs not covered by the usual THC fee (Oliveira Fernandes, 2015[101]).

In contrast, retroport terminals argued that port operators were effectively offering no service other than the horizontal movements already covered by the THC. According to them, port operators have artificially created a fee for a service (that was already covered by existing charges) only to increase retroport terminals' costs (Prata de Carvalho and Frazão, 2020[103]). Figure 3.25 shows graphically the cargo importation flow and the imposition of the SSE/THC2.

Figure 3.25. Cargo importation flow with the imposition of the SSE/THC2



Source: OECD based on (R. Amaral Advogados, 2021[104])

Box 3.18. Diverging views on SSE/THC2: ANTAQ, CADE, SEAE and TCU

ANTAQ resolutions

Since its establishment in 2001, ANTAQ has been charged with developing norms for the provision of transport services and operation of waterway and port infrastructure. In 2003, ANTAQ looked into the legality of SSE/THC2 and concluded that cargo-handling services for retroport terminals were fully covered by the THC. In 2019, however, ANTAQ's directors council considered SSE/THC2 a legitimate fee, clarifying that there were additional costs related to the separation and delivery of containers to retroport terminals.

In 2012, ANTAQ published the Normative Resolution No. 2389/2012, based upon the conclusions of a working group created to resolve differences on the subject. The Resolution found that, on the importation regime, the THC tariff would only remunerate the movement between the side of the vessel and the placement of cargo in a port operator's terminal warehouse.

Finally, in 2019, ANTAQ published Normative Resolution No. 34/2019, revoking Resolution No. 2389/2012. The new norm provides that "the SSE on imports is not part of the services remunerated by the box rate, nor of those whose expenses are reimbursed through the THC, unless otherwise provided for in the contract". In other words, this provision expressly provides for the possibility of charging SSE/THC2 and concludes that such a fee does not overlap with the THC.

CADE

CADE reached a decision on the first case about SSE/THC2 in 1999, finding that the imposition of SSE/THC2 fees artificially increased rival costs and constituted an abuse of dominant position. Until 2021, there were around nine administrative procedures before CADE's Tribunal involving port fees related to the service of segregation of goods from importation in several ports throughout Brazil. In June 2022, CADE's Economic Department released an opinion divergent from CADE's Tribunal case-law, namely by concluding that the SSE/THC2 fees are justified from an economic perspective.

TCU

TCU, which is the competent authority to inspect regulatory agencies' activities, issued an opinion in 2018 that concluded that the resolution creating the THC2 (Resolution No. 2389/2012) had to be revised by ANTAQ, as it directly violated the Brazilian Competition Act at the time by regulating the collection of THC2.

In June 2022, TCU decided that ANTAQ shall annul all provisions of the new resolution that allows a fee to be charged for the SSE/THC2 fee. The reporting Minister concluded that the current version of the regulation contains 'express deviation' and 'defect of purpose'. The Minister considered that, in issuing Resolution 72/2022, which allows port terminals to charge SSE on retroport terminals, the agency enacted regulation that failed to comply with the principle of avoiding abuse of regulatory power,[54] which would incentivise the creation of 'market privilege by favouring an economic or professional group through regulation, to the detriment of other competitors'.

SEAE opinion

In January 2022, Brazilian competition-advocacy entity SEAE released an opinion assessing the effects of ANTAQ's Normative Resolution No. 34/2019 on competition and other incentives for economic efficiency, in particular its permission to charge the SSE/THC2 fee. In its conclusion, SEAE recommended the amendment of the resolution, due to "strong indications of presence of regulatory abuse that leads to competitive distortion".

Note: The SSE/THC2 is not the only disputed fee between port operators and retroport terminals. Indeed, CADE has already investigated and ruled on cases concerning the ISPS code and faithful deposit fees (Secretaria de Advocacia da Concorrência e Competitividade, 2021[102])
Source: (Brasil, 2001[105]) (ANTAQ, 2003[106]) (ANTAQ, 2005[107]) (Oliveira Fernandes, 2015[101]) (ANTAQ, 2022[96])

The legal and competitive implications of SSE/THC2 have been subject to debate for more than two decades in Brazil. Several Brazilian public bodies have looked into the matter in recent years. ANTAQ has assessed SSE/THC2 from a regulatory perspective, while CADE and SEAE have analysed its competition implications (see Box 3.18).

In 2019, ANTAQ published its Normative Resolution No. 34/2019, in which it provides different definitions of THC and SSE and thus states that SSE/THC2 does not overlap with the THC and relates to different services paid by the importer to the port operator (Prata de Carvalho and Frazão, 2020[103]). Moreover, Normative Resolution No. 34/2019 provided that port operators are free to negotiate the remuneration concerning SSE/THC2, but the maximum prices must be previously disclosed in price lists, observing the commercial conditions stipulated in the leasing agreements and ANTAQ's rules.[55]

While in the past CADE and ANTAQ traditionally adopted divergent positions regarding SSE/THC2, in June 2021, they signed the Memorandum of Understanding No. 01/2021 regarding co-operation procedures in the analysis of SEE/THC2 (ANTAQ and CADE, 2021[108]).[56] The MoU provides that the SSE/THC2 is not an illegal fee per se, but in certain circumstances, it can be abusive when it is possible to verify for example: 1) the abusiveness of the values (i.e. the amount charged through the SSE/THC2); 2) its discriminatory nature; 3) the lack of economic rationale; 4) double charging for items already covered by other fees, such as the terminal handling charge (THC); and 5) charging by service without effective performance of an additional service, among others.

Both agencies committed to making efforts to co-operate and establish procedures to identify abusive behaviours. Moreover, CADE and ANTAQ will inform each other about the initiation of new proceedings concerning this fee and will promote an exchange of experiences to improve regulation of SSE/THC2 collection (ANTAQ and CADE, 2021[108]).

3.4.1. Lack of legal certainty

Description of the obstacle and policy makers' objective

Several stakeholders have stressed concerns related to the legal uncertainty arising from SSE/THCs fee issues. The legal uncertainty seems partially related to the lack of a clear legal framework – due to frequent

changes in ANTAQ regulations – that defines the scope of services provided by port operators for handling containers in the port terminals and their remuneration mechanisms.

Harm to competition

Such an unclear legal framework may enable port operators to raise costs in the container-storage market by charging for artificial services. It allows port terminals to leverage their market power to implement abusive conduct toward retroport terminals, which may have negative implications for competition and potentially higher prices for importers who deal with retroport terminals (and so indirectly their consumers).

The current legal framework may create disincentives for retroport terminals and put them at a competitive disadvantage since they face higher costs compared to storage services in public and private port terminals. In this context, port operators would be able to offer integrated services including storage, without customers incurring any additional fees.

At the same time, port-service fees should reflect actual business costs in order to protect port operators' investments and profit expectations. As described, port operators are subject to concession contracts signed with the Brazilian Government that contain terms and conditions designed to protect investments and maintain economic incentives for contract performance in addition to preserving private interest in future concession rounds.

Finally, importers may be unable to assess properly the cost of imports given the legal uncertainty on port fees due to SSE/THC2.

Brazil would benefit from more legal clarity and stability on this matter, which would also have possibly positive implications for foreign investments and the overall competition framework in the country. Joint efforts may also help mitigate legal uncertainties, such as the MoU recently signed by ANTAQ and CADE regarding the legality of the SSE/THC2 fees. Moreover, objective, transparent and non-discriminatory regulatory provisions may also reduce risks of abusive conducts in the relationship between port operators and retroport terminals.

Recommendation

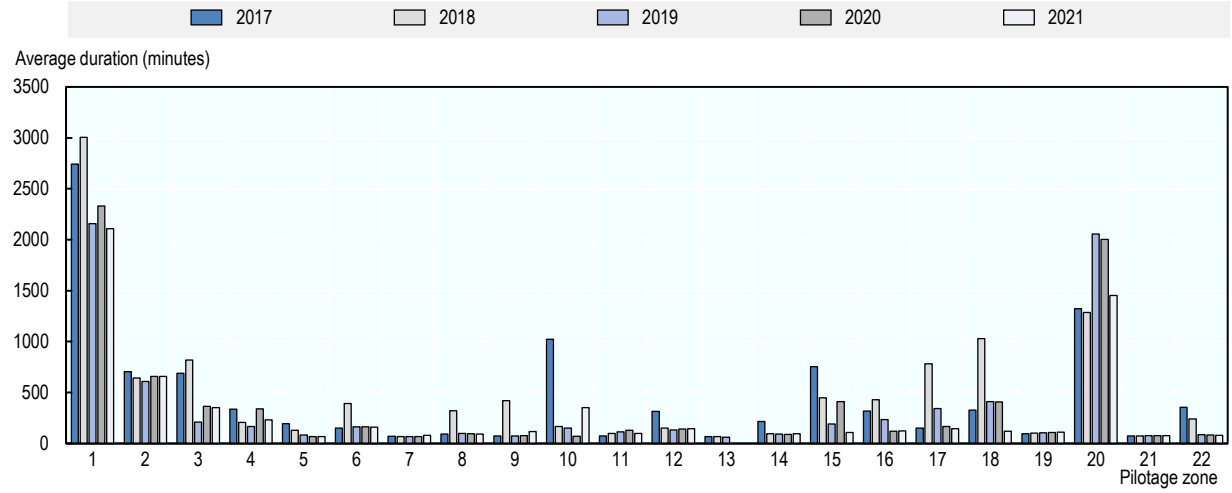
Brazilian authorities should address the lack of legal certainty related to the port fees for the handling of ship containers. Brazil should consider clarifying the current legal framework with transparent, non-discriminatory, and objective provisions to charge port fees including those related to the SSE/THC2 fee.

Annex 3.A. Quantification on pilotage

To calculate the benefits associated with the implementation of the recommendations, the OECD gathered data on all pilotage manoeuvres in Brazil between January 2019 and October 2021. This amounted to information about 328 000 manoeuvres, as well as data on vessels' characteristics, including the flag register, cargo type and gross tonnage. The OECD also obtained data on average prices charged in Brazil and in comparison countries, either from Brazilian authorities or the private sector, which were then aggregated to preserve confidentiality when applicable.

For safety reasons, the Brazilian Navy has established pilotage zones along the country's coastline and Amazon River in which professionals provide pilotage services. Brazil's 7 300-kilometre coastline has 624 pilots allocated by the DPC (under the Brazilian Navy), according to the needs of each of the 20 pilotage zones, as presented in Table 3.8. Three pilotage zones are notably distinct: PZ 1 encompasses the ports of Itacoatiara and Fazendinha, which lie over 1 000 kilometres inland on the Amazon river; PZ 2 is also located in the Amazon and serves the port of Manaus, over 1 200 kilometres up the Amazon River from the Atlantic Ocean; and, in the extreme south, PZ 20 serves the city of Porto Alegre, 315 kilometres from the mouth of the Lagoa dos Patos. These characteristics are observed in the average manoeuvre duration of these pilotage zones, as shown in Annex Figure 3.A.1; for example, in 2018, the average manoeuvre duration in PZ 1 was 3 000 minutes.

Annex Figure 3.A.1. Average manoeuvre duration in pilotage zones, 2017-21



Source: OECD calculations based upon Brazilian Navy data.

To guarantee availability of those professionals and allow them adequate rest periods, the DPC defines technical standards to be followed by the pilots, including a rotational shift. As described in Section 3.2.8 above, this regulation obliges an incoming vessel to hire the next pilot in line and limits competition between pilots. This setup leads to a monopoly-like market-power, as there is only one pilot to be hired at a given time, and equally splits the incoming vessels among the pilots. As an additional result, respecting the break period, the regulation also seeks to ensure pilots' availability at any time.

Pilotage prices in Brazil are significantly higher than in international ports for vessels of different gross tonnage, as shown in Annex Figure 3.A.2.

To quantify consumer benefit, assuming a constant elasticity of demand, the approach proposed in (OECD, 2019[109]) is:

$$\boldsymbol{CB = (\rho + \frac{1}{2}|\epsilon|\rho^2)R_r} \qquad \textbf{Equation 2}$$

Where ρ is price difference (%)

R_r is revenue

ϵ is elasticity.

Using this data, the revenue (r) and the price difference (p) can be estimated to calculate consumer benefits, as set out in the OECD Toolkit, which takes into consideration that:

1. prices are averaged for an entry-exit port visit, and include all manoeuvres made from entry into the port until departure
2. prices are given for gross-tonnage categories
3. prices were not provided for all ports
3. the database does not specify the type of manoeuvre, such as entry, exit or anchoring.

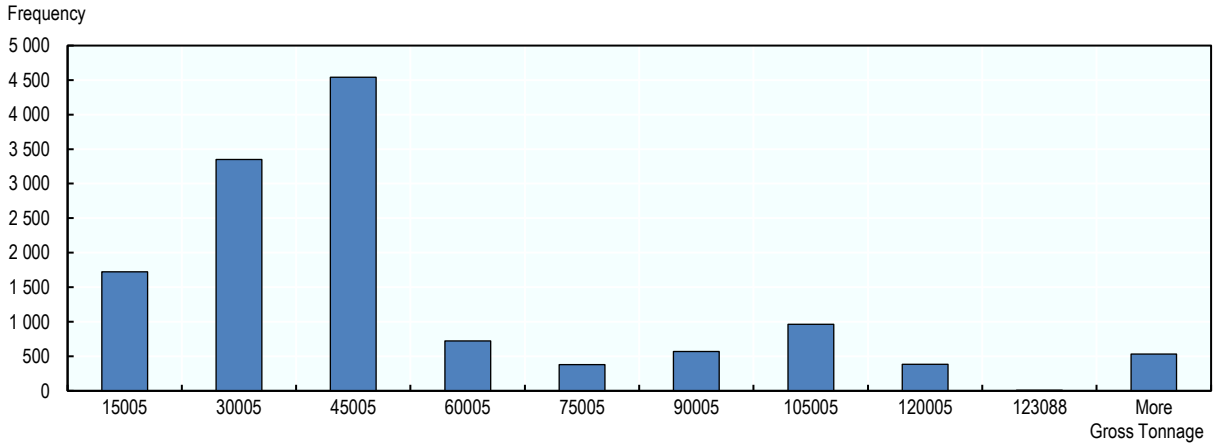
To estimate the price difference (ρ), the port with the highest price for each size category was selected as a benchmark to arrive at a conservative estimate of any price change due to the implementation of the recommendation. The selected ports for each gross tonnage category are displayed in Table 3.A.1 below. The ports and pilotage zones for which data are available in Brazil are presented in Annex Figure 3.A.3. For others the country average was used to estimate the revenue.

Annex Table 3.A.1. Pilotage zone and ports in the price database

Pilotage zone	Port, state
9	Recife, Pernambuco
10	Maceió, Alagoas
12	Salvador, Bahia
12	Ilhéus, Bahia
15	Angra dos Reis, Rio de Janeiro
15	Rio de Janeiro, Rio de Janeiro
16	Santos, São Paulo
16	Ilhabela, São Paulo
17	Paranaguá, Paraná
18	Itapoá, Santa Catarina
19	Rio Grande, Rio grande do Sul
21	Itajaí, Santa Catarina

Vessels entering Brazilian ports have on average lower gross tonnage than observed price categories (Annex Figure 3.A.2) in the gathered data, so to calculate the manoeuvre revenue, first a “dollars per gross tonnage” ratio was computed, which then was multiplied by vessels’ gross tonnage. Given those prices, the lowest price difference between the average price charged in Brazil and the highest price observed internationally is 71%. The TCU itself calculated an average price difference of 528% between Brazilian and international ports.

Annex Figure 3.A.2. Gross tonnage distribution of Vessels entering Brazilian ports, 2017-21

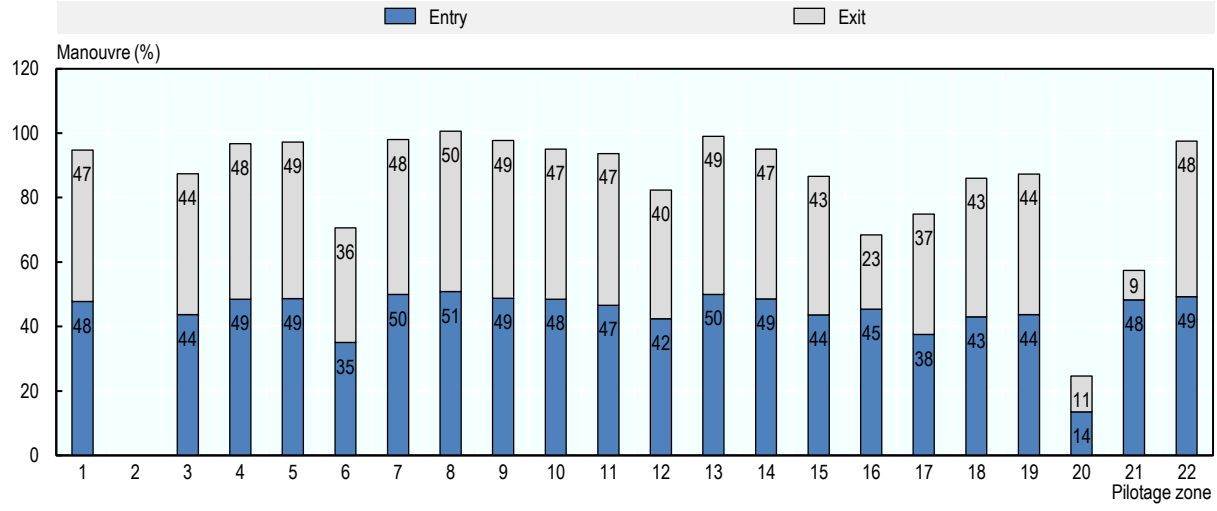


Source: OECD calculations, based upon Brazilian Navy data.

Before entering a pilotage zone, vessels are required to wait at a predetermined location for a pilot's arrival. In the opposite direction, a vessel departing a pilotage zone is directed to a specific spot where the pilot disembarks and the ship continues to its next destination. This information was used to define vessels' entry and exit into specific pilotage zones and to calculate the number of entry-exit cycles that could be multiplied by prices to estimate eventual revenue.

Annex Figure 3.A.3 shows the percentage of manoeuvres identified as an entry or exit in each pilotage zone, which was used to define the quantities of cycles. The DPC does not specify a specific waiting zone for PZ 2, but rather establishes that the vessels should wait in proximity to Itacoatiara port, reflecting the difficulty of identifying cycles.[57] For PZ 2 national averages of entry and exit were used, which is 83.1% of manoeuvres. PZ 6, 20 and 21 have different overall percentages, which might be the result of local specificities. Based on available data, PZ 16 had a relatively low number of exits compared to entries, so, in order to correct such data inconsistency, the number of entries was used. An annual average of 30 024 cycles in all the Brazilian pilotage zones was calculated; when multiplied by the lowest price charged in Brazil for pilot services and taking into account each vessel's gross tonnage, gives revenue of BRL 757 million or BRL 3 million each month and pilotage zone.

Annex Figure 3.A.3. Entry and exit manoeuvre at pilotage zones, 2017-21



Source: OECD, based upon Brazilian Navy data.

Considering the average number of cycles and lowest price differences, we estimate a yearly revenue of BRL 757 million.

> *Using different hypothesis for the Demand Price-Elasticity, the benefit of implementing the recommendations was calculated as ranging from BRL 502 million to BRL 796 million a year.*

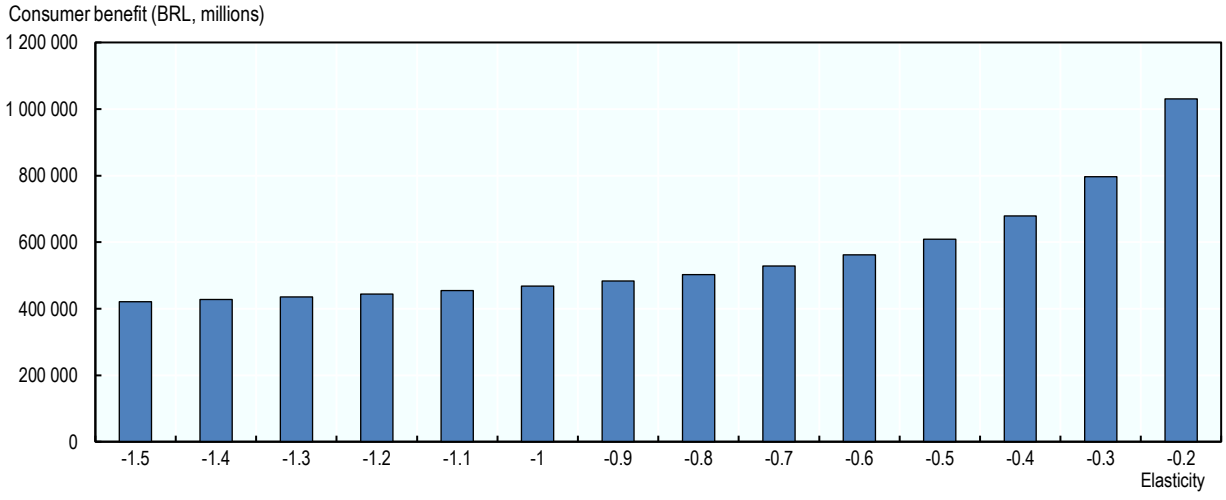
The estimation refers to direct estimated impacts on the price of the studied market and excludes dynamic effects such as of innovation or productivity.

Annex Table 3.A.2. Annual consumer benefit results

Number of cycles	Lowest price difference	Revenue (BRL)	Elasticity	Benefit (BRL)
30024	-43.1%	757 406 032.55	-0.8	502 752 688.07
			-0.3	796 250 857.26

To evaluate the sensitivity of the estimates to changes in elasticity, Annex Figure 3.A.4 presents estimates calculated using a wide range of elasticity. The estimates vary from around BRL 400 million with an elasticity of -1.5 to just over BRL 1 billion with an elasticity of -0.2.

Annex Figure 3.A.4. Benefit depending on elasticity



Annex 3.B. Quantification on pool of workers

To assess the expected impact of the implementation of the recommendations the OECD evaluated the potential cost reduction in public container-handling terminals. Using the collective agreement signed between the unions and the terminals in the Port of Santos (Brazil's largest), the cost incurred by the public terminals for each container handled was estimated. As a benchmark, average salary was calculated and a set of hypotheses used to estimate the costs incurred by private ports in Brazil.

Data were collected from RAIS, an annual social information report containing demographic, occupational and income data, between 2014 and 2020 to characterise workers' profiles and the demand for work in Brazilian ports. As the RAIS database registers information on all employment relationships between workers and companies, including occupation, salary, age, and qualifications, and companies' locations, it was possible to identify companies based on their economic activity code, as presented in Annex Table 3.B.1or their unique registrations.

The economic activity codes for port-sector activities are classified in CNAE Class 52.31-1, under Port Management (52.31-1/01) and Terminal Operation (52.31-1/02), which includes public and private terminals. The activities are also listed under ISIC Rev. 4 Class 5222.

Annex Table 3.B.1. CNAE and ISIC codes associated with port activities

Division	Group	Class	Subclass		ISIC Rev.4
52				Warehousing and support activities for transportation	52
	52.3			Service activities related to water transportation	5222
		52.31-1		Port and terminal management	5222
			5231-1/01	Management of port infrastructure	5222
			5231-1/02	Terminal operations	5222

Source: IBGE and United Nations, 2008.

Given that information in the RAIS database is self-declared, there may be a certain level of accidental misreporting of CNAE codes or occupations. This could lead to miscalculations of the number of workers in terminal operations or management of port activities. To minimise this issue, the Inter-Union Department of Statistics and Socioeconomic Studies (DIEESE) filters in companies located in cities with ports, as presented in Annex Table 3.B.2, to which the OECD added a number of extra locations.

Annex Table 3.B.2. Selected port cities and states

City, State	City, State
Angra dos Reis, Rio de Janeiro	Manaus, Amazonas
Antonina, Paraná	Natal, Rio Grande do Norte
Arraial do Cabo, Rio de Janeiro	Paranaguá, Paraná
Bélem – Vila do Conde, Pará	Pelotas, Rio Grande do Sul
Cabedelo, Paraíba	Porto Alegre, Rio Grande do Sul
Vitória, Espírito Santo	Recife, Pernambuco
Fortaleza, Ceará	Rio de Janeiro – Sepetiba – Forno – Niterói, Rio de Janeiro
Ilhéus, Bahia	Rio Grande, Rio Grande do Sul
Imbituba, Santa Caterina	Salvador – Aratu, Bahia
Itaguaí, Rio de Janeiro	Santarém, Pará
Itajaí, Santa Caterina	Santos, São Paulo
Itaqui, Maranhão	São Francisco do Sul, Santa Caterina
Macapá, Amapá	São Sebastião, São Paulo
Maceió, Alagoas	Suape, Pernambuco

Source: DIEESE (2020) and OECD.

A different method was required to identify employees registered with OGMO, as they can be assigned to multiple CNAEs. Using the same approach as above would have resulted in an overestimation of the employment in the port sector, as other sectoral unions share the same CNAE codes. For that reason, 30 OGMO's were identified using the Brazilian register of legal entities, CNPJ, to acquire data on employment characteristics (Annex Table 3.B.3).[58]

Annex Table 3.B.3. OGMO workers in Brazilian public ports

Region	State	Pool of port workers	Region	State	Pool of port workers
North-East	Alagoas	OGMO Maceió	North-East	Paraíba	OGMO Cabedelo
North-East	Bahia	OGMO Ilhéus	North-East	Pernambuco	OGMO Recife
North-East	Bahia	OGMO Salvador e Aratu	North-East	Pernambuco	OGMO Suape
North-East	Ceará	OGMO Fortaleza	North-East	Rio Grande do Norte	OGMO Areia Branca
North-East	Maranhão	OGMO Itaqui	North-East	Rio Grande do Norte	OGMO Natal
North	Amazonas	OGMO Manaus	North	AC	OGMO Cruzeiro do Sul
North	Amapá	OGMO Macapá	North	Pará	OGMO Santarém
North	Pará	OGMO Belém e Vila do Conde	North	Rondônia	OGMO Porto Velho
South-east	Espírito Santo	OGMO Espírito Santo	South-east	São Paulo	OGMO Santos
South-east	Rio de Janeiro	OGMO Angra dos Reis	South-east	São Paulo	OGMO São Sebastião
South-east	Rio de Janeiro	OGMO Forno	South-east	Rio de Janeiro	OGMO Rio de Janeiro, Itaguaí and Niteroi
South	Paraná	OGMO Antonina	South	Rio Grande do Sul	OGMO Rio Grande
South	Paraná	OGMO Paranaguá	South	Santa Catarina	OGMO Imbituba
South	Rio Grande do Sul	OGMO Pelotas	South	Santa Catarina	OGMO Itajaí
South	Rio Grande do Sul	OGMO Porto Alegre	South	Santa Catarina	OGMO São Francisco do Sul

Data from 2020 indicates that over 13 000 employees hired by OGMO are port workers (stevedores), who can be assigned as casual workers and represent about 90% of the OGMO workforce. As shown in Table 3.12 (Section 3.3.3), 94.9% of all employees registered with OGMOs are employed in just four types of roles. Under CNAE code Operation of Terminals Activities (private terminals), stevedore is the most common position with 1 441 professionals with an average salary of BRL 3 317.

Cost comparisons

According to the collective agreement established between the operators of the public Port of Santos and its OGMO, the OGMO provides a fixed sized team of nine stevedores, four of whom work on lashing and unlashing activities and five perform loading and unloading tasks. Moreover, the collective agreement establishes that the stevedores lashing and unlashing are paid a fixed rate for a six-hour work shift, while the stevedore responsible for the loading and unloading activities is paid for each container handled, with differentiated prices for full or empty containers. The contract also establishes that the workflow is in a rotating system, so the team used by one company for one shift will not be the same for the next shift.

The total average cost of a six-hour shift is given by:

$$C_{shift} = C_{Lashing} + C_{Loading}$$

Equation 3

$C_{Loading}$ is given by:

$$C_{Loading} = Containers\left(prop_{full} * p_{full} + prop_{empty} * p_{empty}\right)$$

Equation 4

Where:

containers is average number of containers handled by a fixed stevedore team.

prop is proportion of full or empty containers handled in the terminal.

p is price paid by full or empty container handled.

Using the contract parameters and certain hypotheses, C_{shift} can be calculated, which when divided by the average number of containers equals the average cost per container or $C_{container}$:

$$C_{container} = \frac{C_{shift}}{containers}$$

Equation 5

From the collective agreement the value of the following variables can be identified:

- a six-hour lashing shift costs: BRL 12 833 for each worker
- cost for a full container: BRL 5.03
- cost for an empty container: BRL 1.35

The hypotheses are:

- number of containers handled by a team in a six-hour shift: 150
- share of empty containers: 25%

$$C_{Loading} = 150 * (75\% * 5.03 + 25\% * 1.35)$$

Equation 6

This adds up to BRL 3 476.05 for a six-hour shift, or BRL 23.17 per container. Adding in an additional 120% in social-security and pension contributions, using casual port workers leads to an average cost for each container of BRL 50.98.

Private terminals have the flexibility to define their own teams, both in terms of size and in the proportions of each lashing or loading team. According to documentation shared with the OECD, a fixed team in a

private port averages five stevedores, of whom four work lashing and one is loading. These directly hiring stevedores can also be reused in the same team in subsequent activities (subject to the requirement to comply with mandatory breaking times requirements but without any obligation to respect a rotating scheme), which leads to a higher work productivity, or a higher number of containers handled in a six-hour shift. According to studies shared with the OECD, on average, 300 containers are handled during each six-hour shift in private terminals.

The average stevedore's monthly salary in a public port is BRL 5 194.84 or BRL 173.16 for each six-hour shift, meaning a team of five in a six-hour shift costs BRL 865.81(Annex Table 3.B.4). This figure is likely biased by the Port of Santos being far above the national average regarding both, the average salary and percentage of containers handled.[59] The average cost for each container handled in a shift equals BRL 2.89 or BRL 6.35 with social contributions. Moreover, adding in a 10% idleness cost, directly hired stevedores' average cost for each container is BRL 6.98. The average difference in cost between the two hiring methods equals BRL 44.

To evaluate how many containers are handled by casual workers, the number of casual port workers (14 039), and the regular workers (2 930) were counted. Considering the number of containers by private-port workers as the double of those handled by fixed workers, 70.5% of containers were found to be handled by casual workers. This was multiplied by the number of containers handled in the Brazilian public ports in 2020 – 4 432 180 – which equals 3 124 687 containers. Finally, the number of containers was multiplied by the price difference.

> *It is estimated that the employment of casual workers has an average annual cost of BRL 137.5 million.*

Annex Table 3.B.4. Comparison between casual and fixed workers

	Containers handled during each shift	Team size	Cost for each container	Number of containers handled by casual workers in 2021	Yearly additional cost for the use of casual workers
Casual	150	9	BRL 50.98	3 124 687	BRL 137 480 355.61
Fixed team	300	5	BRL 6.98		

Data from ANTAQ show that in 2021, the number of containers handled in Brazilian public ports was 4 815 278, 73.4% of which were full and 26.6% empty.[60] Private terminals handled 2 272 856 containers, with a similar ratio of full (77.8%) and empty (22.2%) containers.

Annex Table 3.B.5 presents a sensitivity test for estimates of price differences that fixes casual workers' cost and varies private-port costs through changes in team size and the number of containers handled during shift. It is worth noting that the estimates presented decrease with increases of the number of containers handled while they increase with raises in the team size. Furthermore, when considering the number of containers handled and team size in the public ports, the private terminals' cost reaches BRL 25 per containers, which represent about half of the public ports' cost under the same hypothesis, as shown in Annex Table 3.B.4.

Annex Table 3.B.5. Sensitivity test for price differences between ports

Containers handled by shift	1	2	3	4	5	6	7	8	9	10	11	12	13
400	1.05	2.10	3.14	4.19	5.24	6.29	7.33	8.38	9.43	10.48	11.52	12.57	13.62
375	1.12	2.23	3.35	4.47	5.59	6.70	7.82	8.94	10.06	11.17	12.29	13.41	14.53
350	1.20	2.39	3.59	4.79	5.99	7.18	8.38	9.58	10.78	11.97	13.17	14.37	15.56
325	1.29	2.58	3.87	5.16	6.45	7.74	9.03	10.32	11.60	12.89	14.18	15.47	16.76
300	1.40	2.79	4.19	5.59	6.98	8.38	9.78	11.17	12.57	13.97	15.37	16.76	18.16
275	1.52	3.05	4.57	6.10	7.62	9.14	10.67	12.19	13.71	15.24	16.76	18.29	19.81
250	1.68	3.35	5.03	6.70	8.38	10.06	11.73	13.41	15.09	16.76	18.44	20.11	21.79
225	1.86	3.72	5.59	7.45	9.31	11.17	13.04	14.90	16.76	18.62	20.49	22.35	24.21
200	2.10	4.19	6.29	8.38	10.48	12.57	14.67	16.76	18.86	20.95	23.05	25.14	27.24
175	2.39	4.79	7.18	9.58	11.97	14.37	16.76	19.16	21.55	23.95	26.34	28.73	31.13
150	2.79	5.59	8.38	11.17	13.97	16.76	19.56	22.35	25.14	27.94	30.73	33.52	36.32
125	3.35	6.70	10.06	13.41	16.76	20.11	23.47	26.82	30.17	33.52	36.88	40.23	43.58
100	4.19	8.38	12.57	16.76	20.95	25.14	29.33	33.52	37.71	41.91	46.10	50.29	54.48
75	5.59	11.17	16.76	22.35	27.94	33.52	39.11	44.70	50.29	55.87	61.46	67.05	72.64
50	8.38	16.76	25.14	33.52	41.91	50.29	58.67	67.05	75.43	83.81	92.19	100.57	108.95

Private-port team size

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Notes

[1] This figure of 0.16% is from 2019, before the COVID-19 pandemic, and is the most recent available data. The volume of services provided by water transportation has a close relationship to ports' cargo handling skills and capacities (IBGE, 2022[99]). The data of water transportation encompass section H -Transportation and Storage, division 50 – Water transportation, from the CNAE 2.0 (National Classification of Economic Activities). The data from 2019 is the most recent available for the level of segregation.

[2] One measure of a sector's importance to an economy is the level of employment it requires to function. Employment in the Brazilian sector of water transportation and activities incidental to water transportation has increased in recent years. In 2006, the sector had nearly 51 000 jobs; by 2002, this had risen to nearly 89 000, a 75% increase. Support navigation was the main reason for this increase: jobs rose from less than 2 000 in 2006 to more than 18 000 in 2020 (an 851% increase) (Ministério do Trabalho e Previdência, 2022[90]). The data covers section H – Transportation and storage, division 50 – Water transport; section H – Transportation and storage, division 52 – Warehousing and support activities for transportation, group 52.3 – Service activities incidental to water transportation, from the CNAE 2.0 (National Classification of Economic Activities).

[3] The OECD's STRI identifies restrictions across five policy categories – barriers to competition; regulatory transparency; restrictions to movement of people; restrictions on foreign entry; and other discriminatory measures – in 19 major services sectors in 45 countries. STRI scores on a scale of 0 (complete openness to trade and investment) to 1 (completely closed to foreign services). See https://stats.oecd.org/Index.aspx?DataSetCode=STRI.

[4] The composed result considers the five categories of restrictions: restrictions on foreign entry, restrictions to movement of people, other discriminatory measures, barriers to competition, and regulatory transparency.

[5] The World Economic Forum calculates the Global Competitiveness Index (GCI) using statistics from international organisations and an executive opinion survey. The GCI is composed of 103 indicators, organised into 12 pillars. The infrastructure pillar encompasses 12 indicators including the "efficiency of seaports services" to measure business leaders' perceptions of the efficiency (frequency, punctuality, speed, price) of seaport services, including ferries and ships in a given economy. (Landlocked countries are assessed by their access to seaport services.) It varies from 1 (extremely inefficient and the worst in the world) and 7 (extremely efficient and the best in the world). See https://govdata360.worldbank.org/indicators/

[6] In the landlord model a port authority is public and is in charge of basic and operational infrastructure, while terminals are leased or conceded to private terminal operators. In the fully privatised model, the services and assets are owned by private entities and the port is managed by a single private company (World Bank, 2007[56]).

[7] Annual investments made in TUPs are not disclosed by ANTAQ; however, the Association of Private Port Terminals (ATP) publishes data on its website about planned investments in private terminals.

[8] Port superstructure is a facility or port terminal "constructed on the port surface, according to the types of goods to be handled", for example, containers for general cargo, vehicles and other goods, such as agricultural products, minerals and fluids. These terminals are supported by fixed (warehouses, pipelines) and mobile (cranes, vehicles) equipment, elements that constitute the port superstructure: they stand on the infrastructure and allow cargo to be handled in the port (OECD, 2011[2])

[9] Ministry of Infrastructure (Executive Secretariat); Executive Office of the President of Brazil; Ministry of Justice and Public Security; Ministry of Defence (Navy); Ministry of Economy; Ministry of Agriculture, Livestock and Food Supply; Brazilian Health Regulatory Agency (ANVISA); and National Agency for Waterway Transportation (ANTAQ).

[10] Before the Law 12.815/2013 TUPs could be located inside the public ports area. For this reason, some of them contracted before the Law still remain inside the public port area. In December 2021, there were 18 TUPs inside public ports.

[11] The six SOEs responsible for managing public ports made losses of BRL 1.042 billion in 2018. In 2019, they had a BRL 911 million surplus and in 2020 the surplus was BRL 162.3 million, as they had to assume extraordinary expenses, such as the agreement to remedy the Portus pension fund's actuarial deficit and voluntary redundancy programmes.

[12] Codesa is responsible for managing the ports of Vitória and Barra do Riacho. According to preliminary studies conducted by BNDES, the four ports managed by Codesa have a diversified cargo profile (liquid fuels, dry bulk, pig iron, fertilisers, and containers), handle about 7 million tonnes of gross weight annually, and had BRL 155 million in total revenues in 2019.

[13] The OECD's Competition Assessment Toolkit helps governments to eliminate barriers to competition by providing a method for identifying unnecessary restraints on market activities and developing alternative, less restrictive measures that still achieve government policy objectives; see www.oecd.org/competition/assessment-toolkit.htm.

[14] Two types of tariff reviews exist: ordinary and extraordinary. An ordinary tariff review is carried out periodically, every three or, at most, every five years, according to a calendar determined by ANTAQ. An extraordinary review of the tariff can take place upon the initiative of ANTAQ or a request from the port authority affected by an economic and financial imbalance caused by the tariff structure in place; for example, unforeseen circumstances beyond the port administration's control may occur and affect the inputs upon which the setting of the tariff was based.

[15] ANTAQ highlights that the first tariff revisions in light of the Law 12.815/2013 have been more thorough and lengthier, as historical liabilities were being eliminated and the entire commercial strategy of each port had been re-discussed, which led port managers to carefully rethink their business.

[16] Brazilian legislation establishes that port concession is the granting of the port administration and operation for a certain period. The basic difference, in Brazilian regulation, between concession of public ports and lease lies in the fact that the concessionaire is responsible for the port administration and exercises the function of port authority, while under a leasing model, the lessee only acts as port operator. There are certain differences between Brazil's definition of port concession and leasing and the definition found in global academic literature. For international comparisons, the general sense of "concession" is applied in Brazil to the legal definition of "leasing.

[17] Auction 11/2021 – IMB05 – Contract 02/2022 and auction 04/2021 – SSD09 – contract to be signed.

[18] The economic-financial rebalancing, price recomposition or revision are instruments to restore the balance of the financial equation of the relationship signed between the Administration and the contractor, harmed by an unpredictable or predictable event, but with incalculable, delaying or impeding consequences on the execution of the agreement, or even, in case of force majeure, fortuitous event or fact of the prince, configuring extraordinary and extra-contractual economic circumstances, in accordance with the rules established by Law 8666/1993 (Universidade Federal de São Carlos, 2021[112]).

[19] After 2021, with the addition of the paragraph 9th to the Article 42 of the Decree 8.033/2013 and the paragraph 1st to the Article 8 of the Ordinance 530/2019, there is an "extraordinary process" in which the lessee may make investments not provided for in the contract, without the approval of the granting authority and prior analysis by Antaq, provided that they are exclusively at their own expense and without altering the economic-financial balance of the contract.

[20] There are three situations that can permit a granting authority to authorise investments immediately and urgently prior to ANTAQ analysis: 1) investment necessary to comply with requirements of bodies or entities of the public administration with competence to intervene in port operations; 2) investment needed to restore the port facility to operability due to a supervening situation that prevents or hinders the provision of port services; 3) investment to increase operational efficiency or expand the capacity of the port facility when the measure has been proved urgent for users (Ministério da Infraestrutura, 2020[64]).

[21] Article 14, sole paragraph, Law No. 537/1997.

[22] Article 0103, NORMAM 12/DPC.

[23] Article 5, item f, Law No. 1 658 of 4 August 1952.

[24] Article 0102, NORMAM 12/DPC.

[25] Article 0122, NORMAM 12/DPC.

[26] Annex 4-F, NORMAM 12/DPC.

[27] Annex 4-D, NORMAM 12/DPC.

[28] (Florida Harbor Pilots, 2022[111]); (Subsecretaría de Formación, Capacitación y Titulación del personal embarcado de la Marina Mercante, 2021[117]).

[29] Article 12(1) (B), Decree-Law No. 48/2002.

[30] Article 0201, item b, NORMAM 12/DPC.

[31] See www.marinha.mil.br/dpc/processo-seletivo-categoria-de-praticante-de-pratico.

[32] Article 0405, NORMAM 12/DPC.

[33] Article 0245, NORMAM 12/DPC.

[34] According to the Superior Tribunal Court, pilotage is a private service entrusted to individuals that satisfy requirements established by the Maritime Authority for their selection and qualification (Superior Court of Justice, 2017[77]).

[35] Article 0226, NORMAM 12/DPC.

[36] The Pilots' Representative of the Pilotage Zone is the pilot that gathers all the Pilots of a PZ and that represents them before the Navy. When there is more than one pilotage entity, it will be the one indicated by consensus among the qualified pilots. If there is no agreement, it will be up to the Navy to choose this representative (Article 0 120 of NORMAN 12/DPC.

[37] Decree-Law No. 2 596 of 18 May 1998.

[38] For example, Ordinance No. 135/DPC of 7 July 2010 and Ordinance No. 84/DPC of 22 September 2003.

[39] For instance, see Ordinance No. 383/DPC, of 25 October 2019.

[40] Prices for pilotage are not paid when the vessel arrives or leaves. Where there is no payment agreement, ships can still enter or leave the port, but they may refuse to pay and pilots may then file a lawsuit demanding payment.

[41] PECs are subject to the following conditions: 1) captains must have been in their role on the vessel for at least 24 months; 2) within the port and terminal of interest, the captain must have performed a minimum of 18 pilotage tasks, including 12 mandatory berthing-unberthing manoeuvres, in the previous 24 months, and hold proof of these tasks; and 3) according to the specificity of each pilotage zone, the harbourmaster may establish additional requirements.

[42] While hiring piloting services adds to shipowners' costs, relying on pilots' specialised services can lower risk perception and reduce insurance costs, which might be significant when compared to the overall transportation cost. For iron ores transported to or from Brazil, insurance costs reached 10% in 2016, while OECD estimates show that aggregated insurance costs range from 0.6% to 4.6% in 2016. In case of an accident, in addition to the vessel and its cargo, there are third-party costs, such as those related to port operations that might be incurred by the shipowner.

[43] Given that part of the tasks performed on a vessel did not necessarily have the same captain, this figure is in the upper range of the number of PEC licenses that could be granted in the period 2017-21.

[44] In Brazil, the term "port worker" includes workers who perform foremanship, stevedore, cargo checking, cargo repair, vessel surveillance and maintenance (cleaning and upkeep of merchant vessels and their tanks, including rust beating, painting, minor repairs and related services) (Ministério da Infraestrutura, 2014[116]).

[45] Article 2 of ANTAQ Resolution No. 72/2022.

[46] The other activities consist of the management of risks of dangerous cargo, the registration of companies or people, the permanence of vehicles for removal, the release of documents or circulation of agents.

[47] According to Article 1, Law No. 8630/93, the organised – or public – port is one "built and equipped to meet the needs of navigation, the movement of passengers or the movement and storage of goods, granted or operated by the Executive Federal Branch, whose traffic and port operations are under the jurisdiction of a port authority".

[48] There were three instruments provided in Law No. 8 630/93 provided for delegation of the port services to private undertakings: leasing, concession, and authorisation.

[49] Movements from the deck or hold of the ship to its side.

[50] Movement on land, from the side of the ship to the terminal gate.

[51] Article 1 of Decree No. 1910/96. After the issuance of Decree No. 4543/2002, retroport terminals were also called as “dry ports”.

[52] Customs clearance means the conclusion of a container’s “nationalisation”, comprising document analysis and container checks by a Federal Revenue Service of Brazil inspector (Receita Federal do Brasil, 2014[114]).

[53] For the competences of the retroport terminals, see (Receita Federal do Brasil, 2022[115]).

[54] Article 4 of Law No. 13 874/2019.

[55] Article 5, Normative Resolution No. 34/2019.

[56] The MoU No. 01/2021 was also co-signed by the Minister of Infrastructure.

[57] See www.marinha.mil.br/dpc/sites/www.marinha.mil.br.dpc/files/NORMAM%2012%20-%20MOD%2023_0.pdf.

[58] Dieese (2020) identifies 31 OGMO across the country; see www.dieese.org.br/perfildecategoria/2013/perfilTrabalhadorPortuarioRAIS2013.html.

[59] In 2020 the Port of Santos handled 1992 541 containers, or about 44% of total containers handled by public ports.

[60] ANTAQ, “Estatístico Aquaviário 2.1.4”, http://ea.antaq.gov.br/QvAJAXZfc/opendoc.htm?document=painel%5Cantaq%20-%20anuário%202014%20-%20v0.9.3.qvw&lang=pt-BR&host=QVS%40graneleiro&anonymous=true.

4 Horizontal findings on the civil aviation and ports sectors

Several regulations that apply to both civil aviation and ports sectors pose challenges to competition. These norms are related to public procurement and procedures for foreign firms to operate in Brazil. This chapter makes recommendations for reform.

Further to the examination of legislation that deals specifically with the civil-aviation and ports sectors presented in Chapters 2 and 3, this chapter covers the barriers identified in horizontal legislation that applies across both sectors. In particular, this chapter covers issues related to:

- regulatory simplification
- authorisation for foreign companies to operate in Brazil
- bids and public contracts.

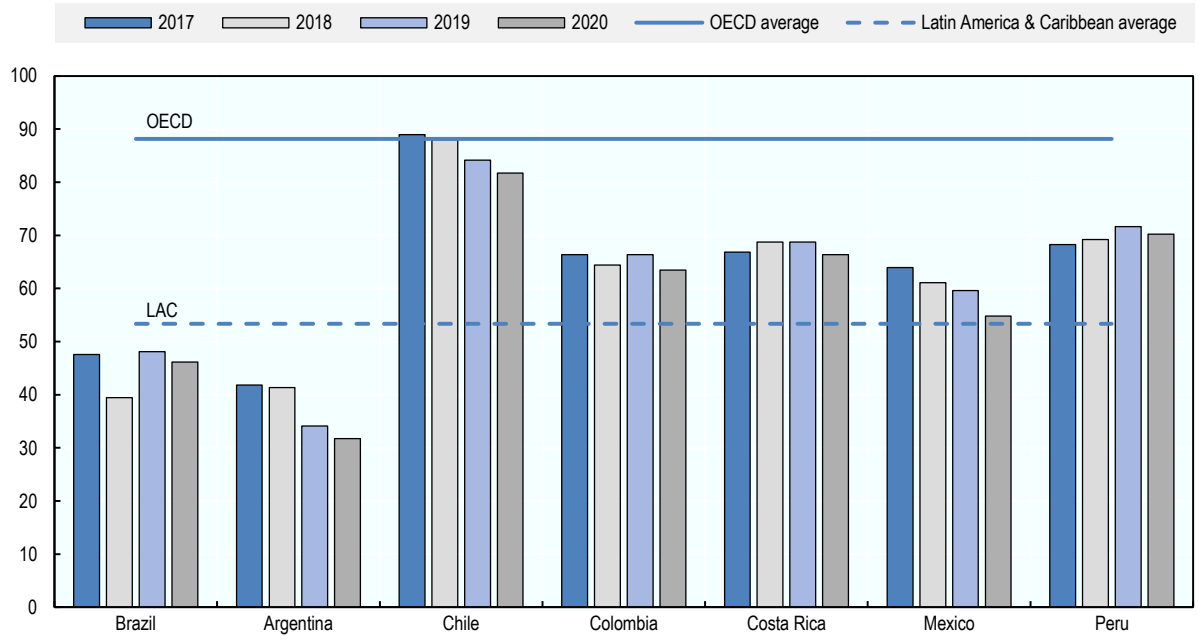
4.1. Regulatory simplification

4.1.1. Description of the obstacle

The regulations reviewed in this project are often scattered across legal texts and sometimes repeated in different pieces of legislation. To determine the applicable rules, businesses need to identify the relevant provisions in each separate text, and understand how these provisions interact with each other. New legislation does not always explicitly repeal previous provisions. For example, the Brazilian Aeronautical Code, which gathers legislation applicable to the civil-aviation sector, contains several obsolete or superseded, but not explicitly repealed, provisions.[1] The recently enacted Law No. 14.368/2022 has explicitly repealed most of these obsolete or superseded provisions. Other provisions identified by the OECD team as obsolete are available in a separate Excel spreadsheet available on our dedicated website.

Shortcomings in regulatory quality are reflected in Brazil's score in the World Bank's Worldwide Governance Indicator (Figure 4.1). This estimate of regulatory quality captures the perception of a government's ability to formulate and implement sound policies and regulations that permit and promote private-sector development. Brazil scores below the average for Latin America and Caribbean.

Figure 4.1. World Bank Governance Indicator regulatory quality percentile ranking, 2017-20



Note: The percentile rank ranges from 0 (lowest) to 100 (highest). The solid line is the average percentile rank of OECD countries (88) and the dashed line the average percentile rank of the Latin America & Caribbean (LAC) countries (53).
Source: World Bank Worldwide Governance Indicators, http://info.worldbank.org/governance/wgi

The Brazilian Government has recently made certain regulatory improvements. Since 2019, it has implemented a programme that aim to revise and consolidate regulations, including explicitly abolishing obsolete provisions, removing inconsistencies and ambiguities, simplifying legal drafting, and harmonising terms. These efforts have seen more than 74 000 regulations reviewed by 79 public bodies, and around 31 500 regulations being revoked (Secretaria Geral da Presidência da República, 2022[1]). In addition, a public Legislative Portal is available; this legal database includes consolidated versions of all texts of laws, including their respective subsequent amendments.[2]

Nevertheless, the OECD's analysis has shown that the problem of obsolete legislation persists.

4.1.2. Harm to competition

The difficulty in identifying applicable legislation in force, in particular due to the existence of obsolete or superseded provisions, can act as a regulatory barrier to entry. It creates legal uncertainty, and so potentially raises regulatory and legal compliance costs for market players.

By contrast, a clear and easily accessible regulatory framework is essential for new entrants not necessarily familiar with the national legal framework, and for small businesses, for which compliance costs and administrative burdens are relatively more important than for larger companies.

4.1.3. International comparison

The transparent development and implementation of regulations is one of the key tenets of regulatory quality (see Box 4.1). Transparency and accountability to the public are among the requirements for the sound governance of regulators (OECD, 2014[2]), as transparency enhances accountability and confidence in the regulator. In addition, clarity helps regulated firms understand regulators' policies and expectations, and anticipate how these will be monitored and enforced.

Box 4.1. What is regulatory quality?

Regulations are the rules that govern the everyday life of businesses and citizens. They are essential but they can also be costly in both economic and social terms. In that context, "regulatory quality" is about enhancing the performance, cost effectiveness and legal quality of regulatory and administrative formalities. The notion of regulatory quality covers process – the way regulations are developed and enforced – which should follow the key principles of consultation, transparency and accountability, and be evidence-based. The concept of regulatory quality also looks at outcomes to understand if regulations are effective at achieving their objectives, efficient (do not impose unnecessary costs), coherent (when considered within the full regulatory regime), and simple (regulations themselves and the rules for their implementation are clear and easy to understand for users).

Building and expanding on the *OECD Recommendation of the Council on Improving the Quality of Government Regulation*, adopted in 1995, regulatory quality can be defined as regulations that:

1. serve clearly identified policy goals, and are effective in achieving those goals
2. are clear, simple, and practical for users
3. have a sound legal and empirical basis
4. are consistent with other regulations and policies
5. produce benefits that justify costs, considering the distribution of effects across society and taking economic, environmental and social effects into account
6. are implemented in a fair, transparent and proportionate way
7. minimise costs and market distortions
8. promote innovation through market incentives and goal-based approaches
9. are compatible as far as possible with competition, trade and investment-facilitating principles at domestic and international levels.

Source: (OECD, 2015, pp. 23-24[3]).

To improve regulatory quality, the OECD recognises the need for governments to undertake a comprehensive programme that includes systematically reviewing existing regulations to ensure their efficiency and effectiveness, and to lower the regulatory costs for citizens and businesses (OECD, 2012[4]).[3]

Recommendation

The OECD recommends that superseded legislation is explicitly abolished. In the longer term, consolidated versions of laws in force should always be made publicly available.

4.2. Authorisation for foreign companies to operate in Brazil

4.2.1. Description of the obstacle and policy makers' objective

A foreign firm wishing to operate in Brazil through a branch must obtain prior authorisation from the federal government,[4] through the National Department of Business Registration and Integration (Departamento Nacional de Registro Empresarial e Integração, DREI), which is part of the Ministry of Economy.[5] Similarly, changes in a foreign company's bylaws must be approved by DREI to be effective in Brazil.[6] Obtaining such an authorisation requires a formal, registration-like procedure, even if DREI checks only whether the foreign company has submitted all the required documents listed in the legislation[7] and makes no substantial analysis of the company's future operations in Brazil.

After obtaining DREI-issued authorisation, a foreign firm must then submit certain of the same documents to the Board of Trade,[8] which carries out its own formal analysis, to ensure that all documents necessary for registration have been submitted.[9] A Board of Trade registration is a requirement for all companies in Brazil (including a branch or an agency), whether national or foreign.

Following a 2019 reform aimed at simplifying the authorisation procedure,[10] foreign businesses can now request the authorisation online through the Federal Government Service Portal.[11] Furthermore, pursuant to Normative Instruction No. 82/2021, it is possible to obtain digital authentication of corporate documents by national commerce registries, further simplifying the procedure for foreign enterprises. These changes have substantially reduced the time required to issue such an authorisation (from 45 to 3 days). Finally, Law No. 14.368/2022 has recently amended Article 225 of Law No. 7.565/1986 (Brazilian Aeronautical Code), establishing that foreign air carriers no longer need to obtain the aforementioned authorisation from DREI to operate in Brazil.

When assessing how Brazil scores in the OECD Foreign Direct Investment (FDI) Regulatory Restrictiveness Index, the air and maritime sectors do not have any restrictions for screening and prior-approval requirements (Table 4.1).

Table 4.1. Screening and prior approval requirements, OECD FDI Regulatory Restrictiveness Index, 2020

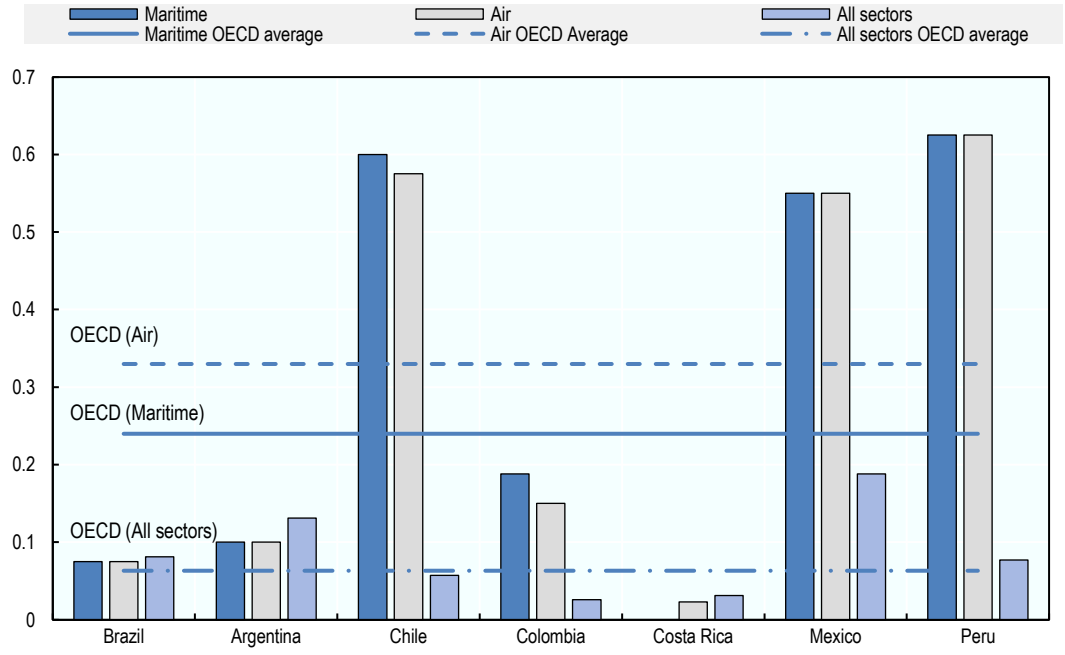
Country	Maritime	Air	All sectors
Brazil	0.000	0.000	0.009
Argentina	0.000	0.000	0.000
Chile	0.000	0.000	0.000
Colombia	0.000	0.000	0.000
Costa Rica	0.000	0.000	0.000
Mexico	0.100	0.100	0.100
Peru	0.000	0.000	0.000
OECD countries	0.021	0.021	0.015

Note: Index scale 0 to 1, with 1 being the most restrictive. Screening mechanisms applicable only to foreign investors. At their most restrictive, they may apply economic needs, net economic benefit or national interest tests to both start-ups and acquisitions. In other cases, they are automatic and amount to little more than a pre-notification requirement for investors (OECD, 2010[5]).
Source: OECD, https://stats.oecd.org/Index.aspx?datasetcode=FDIINDEX#.

The OECD FDI Regulatory Restrictiveness Index measures four types of statutory restrictions on foreign direct investment; these are 1) foreign equity restrictions; 2) screening and prior-approval requirements; 3) rules for key personnel; and 4) other restrictions on the operation of foreign enterprises. For these, Brazil also scores below the OECD average and that of other neighbouring countries, especially in the air and

maritime sectors, which means that Brazil is more open to foreign investors than these reference countries, except Costa Rica (Figure 4.2).

Figure 4.2. Restrictions, all types, OECD FDI Regulatory Restrictiveness Index, 2020



Note: Index scale 0 to 1, with 1 being the most restrictive. The horizontal lines correspond to the average of all OECD countries for maritime (0.24), air (0.33) and all sectors (0.06).
Source: OECD, https://stats.oecd.org/Index.aspx?datasetcode=FDIINDEX#.

Although there is no official recital of the objective of these provisions, the OECD team assumes that they are aimed at ensuring that foreign companies can only operate in Brazil if they comply with national legislation, such as corporate, tax and labour law. However, as previously mentioned, with no substantial assessment of requests, it appears that the provision cannot ensure that the policy objective is achieved. According to DREI, in the past, these provisions also enabled the government to keep track of all foreign companies entering the Brazilian market.

4.2.2. Harm to competition

There are currently two similar procedures intended to achieve the same objective of keeping a register of foreign firms operating in Brazil. Although these procedures are simple and usually fast, they nevertheless constitute an additional burden and may discourage foreign companies from entering the Brazilian market.

More generally, requiring foreign firms to obtain prior authorisation and the complexity of the procedure to open a branch in Brazil increase entry costs.[12] This is confirmed by many companies choosing to incorporate a separate company in Brazil to establish their presence.[13] However, this alternative solution also involves costs, as it requires establishing a distinct entity from the parent company and adopting one of the corporate types available in Brazil.

Recommendation

The OECD recommends that Brazilian authorities consider abolishing the need for prior authorisation for a foreign company to operate in Brazil and requiring only the registration of corporate documents with the Board of Trade.

4.3. Bids and public contracts

Most of the horizontal restrictions found by the OECD throughout the assessment relate to bids and public contracts. This section covers only those barriers that are particularly relevant to the civil aviation and ports sectors. The OECD Report *Fighting Bid Rigging in Brazil: A Review of Federal Public Procurement* (OECD, 2021[6]) includes a broader assessment of public procurement in Brazil (See Box 4.2).

Box 4.2. OECD Report: *Fighting Bid Rigging in Brazil: A Review of Federal Public Procurement*

In 2020, the Brazilian Competition Authority (CADE) invited the OECD to assess the Brazilian public-procurement framework in light of the *OECD Recommendation and Guidelines for Fighting Bid Rigging in Public Procurement*. During the process, the OECD assessed the main rules governing public procurement in Brazil at the federal level, as well as procurement practices of major federal procurers. The OECD's assessment was presented in a report released in 2021.

The key recommendations to improve competition in public procurement included:

1. recognise and enhance the essential role of public-procurement officials in the fight against bid rigging
2. design procurement procedures based upon appropriate information
3. maximise participation of genuine competing bidders
4. improve tender terms and contract-award criteria
5. pay attention to transparency, disclosure and integrity in submitting bids
6. raise awareness of the risks of bid rigging
7. detect and punish collusive agreements.

Source: (OECD, 2021[6]).

4.3.1. Economic and financial burdens

Description of the obstacle and policy makers' objective

In Brazil, the 1993 and 2021 procurement acts[14] and other legal frameworks[15] enable procurement authorities to request a multiplicity of economic and financial guarantees from bidders, including minimum capital, performance guarantees, and bid bonds.

Minimum-capital requirements are tools to ensure the solvency of the firms participating in a tender. Law No. 8.666/1993 allows for participation in a tender to be restricted to businesses with a certain minimum

capital. More specifically, these frameworks provide that procurement authorities may require a minimum capital or minimum equity equivalent of up to 10% of the contract's estimated value.[16]

Performance guarantees ensure that the contractor will perform its obligations under the terms and conditions laid down in the contract. In Brazil, procurement authorities can demand performance guarantees from bidders. These include cash bonds and public-debt securities, as well as warranties issued by banks or insurance companies to ensure compensation to the procurement authority if the contracting party fails to fulfil the object of the contract. According to both procurement acts,[17] performance guarantees may be required at the discretion of the procurement authorities, although certain limitations are established in the legislation.[18]

Bid bonds are tools used at the tender stage to ensure that the bidder accepts the contract under the terms proposed in the bid and follows through on its bid. In Brazil, bid bonds should not be more than 1% of the estimated value of the contract, although in some specific cases the procurement authority may require bid bonds up to 5% of the estimated value of the contract.[19]

While bid bonds and performance guarantees aim to give some leverage to the procurement authorities in order to ensure the fulfilment of the bid and the contract respectively, minimum-capital requirements are intended to ensure that firms have sufficient economic and financial capacity.

Harm to competition

Many tenders related to airport concessions and port leases demand bidders provide performance guarantees, minimum capital, and bid bonds. In certain circumstances, these requirements appear reasonable to avoid public authorities bearing financial losses during the bidding phase and the contract; however, requiring all three obligations with similar public objectives could be burdensome in tenders that do not involve particularly complex, specialised or costly products or services. They might significantly raise entry costs, and so potentially restrict the number of participants in the public tender. In such cases, bid bonds could be especially burdensome and could be sufficiently replaced by minimum-capital requirements coupled with the possibility of awarding the tender to the second-best bidder in cases where the winning bidder fails to sign the contract under the terms proposed in the bid.

Recommendation

The OECD recommends that Brazilian authorities limit the economic and financial guarantees required to participate in public tenders in order to decrease the financial and economic burdens on bidders and increase the number of participants in the public tender. This could be done by ensuring requirements are the lowest possible, limited to cases where the signing and performance of the contracts present serious risk, and based on objective and proportionate criteria.

4.3.2. Prequalification

Description of the obstacle and policy makers' objective

The public-procurement regime in Brazil enables procurement authorities to include a bidders' prequalification stage in the tender.[20] Prequalification is a pre-bid selection procedure aimed at assessing all or some of the qualifications of interested parties and whether the offered good or service meets the tender authority's technical or quality requirements (Justen Filho, 2011[8]). This administrative phase is laid out in the public notice.

A prequalification stage is often included when there is a need to assess thoroughly firms' technical qualifications for large-scale works or services with a high degree of complexity (Torres Pereira Júnior,

2003[8]). For complex contracts that demand costly preparation, the restriction of participation only to players with high levels of specialisation can make the tender more attractive as it increases the chances for the pre-qualified firm to win the bid (OECD, 2021[6]).

Harm to competition

Publishing the list of pre-qualified bidders[21] makes it easier for participants to communicate with each other, increasing the risk of bid rigging. The Annex to the *OECD Recommendation on Fighting Bid Rigging in Public Procurement* highlights the risk of collusive practices among pre-qualified groups, and recommends, to the greatest possible extent, that bidders qualify *during* the procurement process in order to increase the level of uncertainty among firms as to the number and identify of bidders. CADE's investigations have also confirmed the seriousness of this risk. For example, in 2015, CADE opened an investigation concerning an alleged bid-rigging scheme in a tender by Eletrobras Eletronuclear for work at its Angra 3 nuclear-power plant. The bid had a prequalification phase, in which the two pre-qualified consortia allegedly conspired to fix prices and share the bid's lots (Conselho Administrativo de Defesa Econômica, 2015[9]).

Recommendations

The OECD has three recommendations.

1. Brazilian authorities should ensure that the use of prequalification does not unduly limit participation, in particular when more bidders could meet the tender requirements and so limiting the number of offers does not make sense.
2. Introducing market studies would be a valuable tool in assessing the status of the supply market.
3. Procurement entities should ensure the confidentiality of pre-qualified bidders' identities, at least until a certain time after the conclusion of the tender, or anonymise bidder information.

4.3.3. Necessity of certified translations and consulate-authenticated documents for companies not operating in Brazil

Description of the obstacle and policy makers' objective

Law No. 8.666/1993 requires foreign companies not active in Brazil wishing to bid in a public tender to present documents authenticated by their respective consulate and translated by a certified translator.[22]

The requirement of certified translation and authentication by a consulate aims to ensure that foreign documents can be properly assessed by the procurement authority.

The new Law No. 14.133/2021 does not lay down any similar requirements and provides for a more flexible solution, as it states that foreign companies not operating in Brazil will have to submit the equivalent documents required from firms operating in the country. A secondary legislation should be issued by the Federal Government defining the necessary documents foreign companies not operating in Brazil will have to submit.[23] Nevertheless, certified translations and authentications appear still to be demanded.

Harm to competition

Complying with all these formalities makes foreign companies' bid preparation more costly and complex, which can be particularly challenging when tender deadlines are tight. These requirements may restrict (or at least reduce incentives for) foreign companies to participate in bidding processes, reducing competition and possibly leading to higher prices or lower quality.

The burdensome nature of this requirement is also confirmed by a recent normative intervention. The Federal Government enacted Normative Instruction No. 10 of 10 February 2020, permitting foreign companies to present non-certified translations to participate in the bids. Only winning bidders are then required to submit documents authenticated by their respective consulate and translated by a certified translator. Normative Instruction No. 10/2020 does not, however, apply to the most relevant cases in the civil aviation and ports sectors (such as concession and lease auctions) as it refers only to bids placed through the Unified Suppliers Registration System (Sistema de Cadastramento Unificado de Fornecedores, SICAF), an electronic registry of suppliers for public purchases (Federal Executive Branch, 2022[10]). SICAF is only used for suppliers bidding in administrative contracts for the acquisition of goods and services, such as works and advertising, sales and leases.[24]

Recommendation

The OECD recommends that foreign companies present uncertified translations of foreign documents and certifications. Certified translations of documents authenticated by the relevant consulate should only be required if a foreign company wins a tender.

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Torres Pereira Júnior, J. (2003), *Comentários à Lei das Licitações e Contratações da Administração Pública*, Editora Renovar. [8]

Notes

[1] It should be noted that at the time this report was being finalised Brazil has enacted Law No. 14.368/2022, which explicitly repealed most of these obsolete or superseded provisions.

[2] See www4.planalto.gov.br/legislacao/.

[3] In June 2022, the *OECD Report of Regulatory Reform: Regulatory Reform in Brazil* was released. It considers regulatory barriers to competition in Brazil, using Brazil's results in the OECD Product Market Regulation indicators to propose a range of policy options to make the country's regulatory framework more competition-friendly. It also considers Brazil's institutional and policy arrangements for better regulation. The report documents the progress that the country has achieved so far, and provides recommendations to tackle the challenges ahead (OECD, 2022[12]).

[4] Article 1.134 of the Brazilian Civil Code.

[5] Article 4, item X, and Article 32, item II "c", of Law No. 8.934/1994, and DREI Normative Instruction No. 77/2020.

[6] Article 1.139 of the Brazilian Civil Code.

[7] According to Article 1.134, sole paragraph of the Brazilian Civil Code, these are: 1) proof that the company is incorporated under its national law; 2) articles of incorporation; 3) list of members of the corporate structure; 4) copy of the company's internal document to operate in Brazil and fixing the capital assigned to operations in the country; 5) proof of appointment of a legal representative in Brazil; and 6) most recent balance sheet of the company.

[8] According to Article 3 of DREI Normative Instruction No. 77/2020, these are: 1) authorisation to operate in Brazil issued by DREI; 2) copy of the internal document of the company deciding to operate in Brazil and fixing the capital assigned to operations in the country; 3) articles of incorporation; 4) list of members of the corporate structure; 5) proof of company's incorporation under its national law; 6) proof of cash deposit of capital destined for operations in Brazil; and 7) statement indicating the firm's Brazilian address. Documents 2, 3, 4 and 5 are also required for the prior authorisation.

[9] Article 1.136 of the Brazilian Civil Code.

[10] DREI Normative Instruction No. 59/2019, amending DREI Normative Instruction No. 07/2013. DREI Normative Instruction No. 77/2020 revoked both DREI Normative Instructions No. 59/2019 and No. 07/2013. Until 2019, authorisation was issued by the minister overseeing DREI, after assessment of documents by DREI. Since then, DREI has obtained the power to issue the authorisation itself, which has also simplified the process.

[11] See https://www.gov.br/pt-br/servicos/requerer-autorizacao-para-atos-de-filial-de-sociedade-empresaria-estrangeira.

[12] Law No. 8.666/1993 (General Procurement Act) requires foreign companies operating in Brazil to present such authorisations to participate in a bidding procedure. Firms not operating in the country can participate in the bid without the authorisation, which should only be presented if they win the tender. Law No. 14.133/2021 (New General Procurement Act) does not mention this requirement, but the regime does not seem to have changed.

[13] See, Thomson Reuters Practical Law, "Establishing a Business in Brazil: Establishing a Presence from Abroad", https://uk.practicallaw.thomsonreuters.com/7-570-8027?transitionType=Default&contextData=(sc.Default)&firstPage=true#co_anchor_a527608.

[14] In April 2021, Law No. 14.133 of 1 April 2021 was promulgated, adopting a new procurement act in Brazil. Article 194 of Law No. 14 133/2021 determined that this legal framework would have immediate effect. Nonetheless, the same law (Article 193, item II) also permits that the previous procurement act in Brazil (Law No. 8.666 of 21 June 1993) remains in effect until April 2023.

[15] Other legal frameworks related to bids and public contracts concern Law No. 11.079/2004 (Public-Private Partnership Law), Law No. 13.303/2016 (Law of SOEs), and Law No. 12.462/2011 (Differentiated Procurement Act). The last was enacted as a provisional and differentiated bidding model, aiming to give greater agility to the contracting of goods and services and to reduce fraudulent procedures (Cardoso de Meneses, 2015[11]).

[16] Article 69, paragraph 4 of Law No. 14.133/2021, and Article 31, paragraph 3 of Law No. 8.666/1993.

[17] Law No. 13.303/2016 regarding SOEs also permits the use of performance guarantees.

[18] For instance, the performance guarantee usually must not exceed 5% of the value of the contract, although in specific cases it may be up to 30% of the value.

[19] The two procurement acts allow bidding authorities to require bid bonds, as does Law No. 13.303/2016 (SOEs) and Law No. 11.079/2004 (Public-Private Partnership).

[20] Article 114 of Law No. 8.666/1993; Article 30, paragraph 2 of Law No. 12.462/2011 (Differentiated Procurement Act); Article 80 of Law No. 14.133/2021.

[21] Article 80, §9º of Law No. 14.133/2021.

[22] Article 32, paragraph 4 of Law No. 8.666/1993.

[23] Article 70, sole paragraph of Law No. 14.133/2021.

[24] Article 1 of Decree No. 3.722, of 9 January 2001.

Annex A. Methodology

The Brazil Competition Assessment Project began in the first half of 2021 and was carried out in five phases, as agreed between CADE and the OECD. This annex describes the methodology followed in each of the project stages.

Stage 1: Mapping the sectors and collection of regulations

The objective of Stage 1 of the project was to identify and collect sector-relevant laws and regulations. The main tools used to identify the applicable legislation were online databases, the websites of the relevant authorities and sector specific reports by private or government bodies. In addition, in order to ensure that all important pieces of legislation were covered by the study, the team consulted with the industry and all competent public bodies involved in the sectors, members of the High-Level Advisory Group (HLAG), composed of senior government officials.

Over the course of the project, the lists of legislation were refined, as additional pieces were discovered by the team or issued by the authorities, while other pieces initially identified were found not to be relevant to the sectors or no longer in force. In total, approximately 230 pieces of legislation were selected for analysis, including laws, decrees, ordinances, regulations, auction public notices and concession contracts.

Another important objective of the first stage (which has continued for the entire duration of the project) was the establishment of contact with the market through the main authorities, industry associations and private stakeholders active in the sectors. The OECD team conducted fact-finding missions and met with government and private stakeholders. Interviews with market participants contributed to a better understanding of how the sectors under investigation actually work in practice and helped in the discussion of potential barriers deriving from the legislation. In total over 30 public and private stakeholders contributed to the reports.

The team has also launched an online survey to better understand the issues of each sector through private stakeholders' perspective. The survey's main goal was to verify if the private stakeholders considered that their sectors had regulatory barriers. The team had more than 20 meetings with associations of companies operating in the two sectors to present the online survey and to explain the concept of regulatory barrier under the Competition Assessment Toolkit. The survey result was very useful. Regarding the port sector, the team received 63 responses, while in civil aviation, 31 responses were received.

Based on the outcomes of the survey, the meetings, the discussion on practical problems stakeholders face, and backed up by further research, the OECD team identified the legislation to be prioritised for areas in which prima facie barriers to competition existed and an impact on competition could therefore be expected.

Stage 2: Screening of the legislation and selection of provisions for further analysis

In the second stage of the project, the main work stream was the screening of the legislation to identify potentially restrictive provisions, as well as providing an economic overview of the relevant sectors.

The legislation collected in Stage 1 was analysed using the framework provided by the OECD Competition Assessment Toolkit. This toolkit, developed by the OECD, provides a general methodology for identifying unnecessary obstacles in laws and regulations and developing alternative, less restrictive policies that still achieve government objectives. One of the main elements of the toolkit is a competition-assessment checklist that asks a series of simple questions to screen laws and regulations with the potential to restrain competition unnecessarily (see Box A A.1).

Based on the toolkit's methodology, the OECD compiled a list of all the provisions that answered any of the questions in the checklist positively. The government experts as were the members of the HLAG received draft lists and were given an opportunity to comment. The final list consisted of almost 1 250 provisions with the potential to restrict competition in the civil-aviation and ports sectors in Brazil.

The OECD also prepared an extensive economic overview of the relevant sector (and refined it during later stages), covering industry trends and main indicators, such as output, employment and prices, including comparisons with other Latin America and OECD member countries where relevant. The analysis conducted during this stage aimed to furnish background information to better understand the mechanisms of the sectors, providing an overall assessment of competition, as well as explaining the important players and authorities.

Box A A.1. OECD Competition Assessment checklist

Further competition assessment should be conducted if a piece of legislation answers "yes" to any of the following questions:

A) Limits the number or range of suppliers

This is likely to be the case if the piece of legislation:

1. grants a supplier exclusive rights to provide goods or services;
2. establishes a licence, permit or authorisation process as a requirement of operation;
3. limits the ability of some types of suppliers to provide a good or service;
4. significantly raises the cost of entry or exit by a supplier;
5. creates a geographical barrier to the ability of companies to supply goods, services or labour, or invest capital.

B) Limits the ability of suppliers to compete

This is likely to be the case if the piece of legislation:

1. limits sellers' ability to set the prices of goods or services;
2. limits the freedom of suppliers to advertise or market their goods or services;
3. sets standards for product quality that provide an advantage to some suppliers over others or that are above the level that certain well-informed customers would choose;
4. significantly raises the costs of production for some suppliers relative to others, especially by treating incumbents differently from new entrants.

C) Reduces the incentive of suppliers to compete

This may be the case if the piece of legislation:

1. creates a self-regulatory or co-regulatory regime;
2. requires or encourages information on supplier outputs, prices, sales or costs to be published;
3. exempts the activity of a particular industry or group of suppliers from the operation of general competition law.

D) Limits the choices and information available to customers

This may be the case if the piece of legislation:

1. limits the ability of consumers to decide from whom they purchase;
2. reduces the mobility of customers between suppliers of goods or services by increasing the explicit or implicit costs of changing suppliers;
3. fundamentally changes the information required by buyers to shop effectively.

Source: (OECD, 2019[1])

Stage 3: In-depth assessment of the harm to competition

The provisions carried forward to Stage 3 were investigated in order to assess whether they could result in harm to competition. In parallel, the team researched the policy objectives of the selected provisions, so as to better understand the regulation. The objective of policy makers was identified in the recitals of the legislation, when applicable, through discussions with the relevant public authorities, and/or through academic literature.

The in-depth analysis of harm to competition was carried out qualitatively and involved a variety of tools, including economic analysis and research into the regulations applied in other jurisdictions. All provisions were analysed, relying on guidance provided by the OECD's Competition Assessment Toolkit. Exchanges with government experts and market participants complemented the analysis by providing crucial information on lawmakers' objectives and the real-life implementation process and effects of the provisions.

In the course of Stage 3, several more potential barriers were eliminated from the analysis because the boundaries of the sectors were further narrowed to focus exclusively on the most relevant services for business in the selected sectors. Furthermore, after the in-depth assessment, the team concluded that some of the selected provisions did not harm competition. At the end of Stage 3, there were 618 barriers left which were deemed potentially harmful to competition.

Stages 4 and 5: Formulation of recommendations and final report

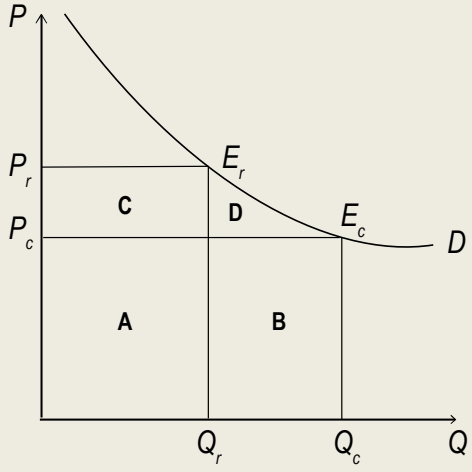
Building on the results of Stage 3, the OECD team developed recommendations for those provisions that were found to restrict competition. It developed alternatives policy proposals that are less restrictive for suppliers, while still aiming to fulfil the policy makers' initial objective. For this process, the team relied on international experience whenever available.

In addition, the benefits of removing barriers to competition were analysed qualitatively and, whenever feasible and meaningful, quantitatively. In these cases, the expected impact of lifting a regulatory restriction was relied on the standard methodology of measuring the effect of policy changes on consumer surplus. This is explained in Box A A.2 below.

Box A A.2. Measuring changes in consumer surplus

The effects of changing regulations can be examined as movements from one point on the demand curve to another. For regulations that have the effect of limiting supply or raising price, an estimate of consumer benefit or harm from the change from one equilibrium to another can be calculated. Graphically, the change is illustrated for a constant elasticity demand curve. Er shows the equilibrium with the restrictive regulation, Ec shows the equilibrium point with the competitive regulation. The competitive equilibrium is different from the restrictive regulation equilibrium in two important ways: lower price and higher quantity. These properties are a well-known result from many models of competition.

Figure A A.1. Changes in consumer surplus



Under the assumption of constant elasticity of demand the equation for consumer benefit is:

$$CB = C + D \approx (P_r - P_c)Q_r + \frac{1}{2}(P_r - P_c)(Q_c - Q_r) \qquad \text{Equation 7}$$

Where price changes are expected, a basic formula for a standard measure of consumer benefit from eliminating the restriction is:

$$CB = \left(\rho + \frac{1}{2}\epsilon\rho^2\right)R_r \qquad \text{Equation 8}$$

Where CB: standard measure of consumer harm, ρ: percentage change in price related to restriction, R: sector revenue and ϵ: demand elasticity. When elasticity is not known, a relatively standard assumption is that $|\epsilon|=2$. This value corresponds to more elastic demand than in a monopoly market, but less than the perfectly elastic demand in a competitive market. Under this assumption, the expression above simplifies to:

$$CB = (\rho + \rho^2)R_r \qquad \text{Equation 9}$$

Several economic assumptions were made:

- We assume away any taxes, i.e. any implication resulting from the taxation regime on consumer surplus.
- We assume a regular, linear (or near linear), demand function, with no random term.
- We assume the set of services within each sector constitutes a "composite service" with "volume" Q, for which a "composite price" P is charged in the market.
- We assume the balance among the different services within each "composite service" does not change, or changes only in a negligible way, following the price changes that may result from the implementation of the issued recommendations.
- We do not factor in any interdependence between price and quality levels (although changes in any one may affect the other). This is equivalent to assuming that the "quality" of the different services remains constant or experiences a non-significant change. By "quality", we mean a term that can involve a distribution of quality levels depending on who provides the service. The quality mean could remain unchanged as a result of implementing a certain recommendation, but the distribution of such quality over the different service providers could change (mean-preserving spread). In the latter case, even with an unchanged mean, there would be welfare effects just due to the change in the mean-preserving distribution of quality levels.
- We make no distinction here between Marshallian (relation between prices and income) and Hicksian (relation between prices and utility) demand functions. In any case, since we will be assuming certain values for the demand elasticities ($\epsilon = 2$), these values could be assumed for any of these two types of demand functions.

Source: (OECD, 2019[2])

Draft recommendations were presented to the HLAG. Following consultation with the relevant public stakeholders, the recommendations were finalised and this final report was produced. In total, 368 recommendations were submitted to the Brazilian administration.

Co-operation with the Brazilian administration

Another important component of the project was to provide assistance in building up the competition assessment capabilities of the Brazilian administration. The OECD organised three workshops during the course of the project. In Stage 2 of the project, this covered an introduction to competition and regulation, and an overview of the project and of the methodology in the mapping stage. In Stage 3, the team provided substantive training on the OECD Competition Assessment Toolkit applied in screening the legislation. In Stage 4 and 5, sector experts provided technical inputs on competition and the OECD's Services Trade Restrictiveness Index was presented.

The Brazilian Government experts provided a significant contribution on the mapping exercise of the legislation by commenting on whether the regulations collected were comprehensive. Subsequently, the close co-operation with the government experts continued with the identification of the objectives of the legislation in their sectors of expertise and discussion on the provisions identified by the OECD as restrictive on the basis of the Competition Assessment Checklist. The OECD team had, in total, over 80 meetings with the national ministries and authorities and with stakeholders, including sectoral experts.

OECD Competition Assessment Reviews

BRAZIL

This review provides an analysis of regulatory barriers to competition in Brazil, specifically in the ports and civil aviation sectors, and makes recommendations for Brazilian authorities to mitigate harm to competition and foster long-lasting growth. It is based on a competition assessment conducted by the OECD in co-operation with the Brazilian Competition Authority (CADE) identifying rules and regulations that may hinder the competitive and efficient functioning of markets in the two sectors under review. The review also includes estimates of the impact that the implementation of certain specific recommendations could have on the economy.

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