European Commission

JRC SCIENCE FOR POLICY REPORT

Potential impacts of liberalisation of the EU-Africa aviation market

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2017

EUR 28616 EN

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JRC Science Hub
https://ec.europa.eu/jrc

JRC106855

EUR 28616 EN

PDF ISBN 978-92-79-69014-3 ISSN 1831-9424 doi:10.2760/772140

Luxembourg: Publications Office of the European Union, 2017

How to cite this report: Njoya E, Christidis P., *Potential impacts of liberalisation of the EU-Africa aviation market*, EUR 28616 EN, doi:10.2760/772140, 2017

Potential impacts of liberalisation of the EU-Africa aviation market

Abstract
Intercontinental air services between Europe and Africa are mainly governed by bilateral agreements negotiated between the individual countries of the EU and the various African governments. This paper provides an overview of the regulatory trends and development of air transport between EU and Africa, focussing on passenger traffic developments over the past five years and discusses the impact of liberalisation between Africa and the EU on the degree of concentration in airport traffic shares. Results indicate a growing role of Dubai and Istanbul and a decreasing role of European hubs as gateways to Africa. While Johannesburg, Cairo, Nairobi and Lagos remain the main international hubs in Africa, regional airport hubs have emerged in Algiers, Dar es Salaam and Casablanca. Liberalisation of EU-African aviation markets is likely to result in the emergence of further African regional hubs.

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Executive summary

Intercontinental air services between Europe and Africa are mainly governed by bilateral agreements negotiated between the individual countries of the EU and the various African governments. This paper provides an overview of the regulatory trends and development of air transport between EU and Africa, focussing on passenger traffic developments over the past five years and discusses the impact of liberalisation between Africa and the EU on the degree of concentration in airport traffic shares. Results indicate a growing role of Dubai and Istanbul and a decreasing role of European hubs as gateways to Africa. While Johannesburg, Cairo, Nairobi and Lagos remain the main international hubs in Africa, regional airport hubs have emerged in Algiers, Dar es Salaam and Casablanca. Liberalisation of EU-African aviation markets is likely to result in the emergence of further African regional hubs.

Policy context

In the last few decades, the European Union (EU) has been at the forefront of market liberalization in international air transport. After successfully deregulating its domestic market in the 1990s it started exporting its open market policies in 2005 to its neighbours and key strategic partners through comprehensive liberalization packages. Following the decision of the European Court of Justice in 2002 which overruled its member countries' Bilateral Air Services Agreements (BASAs), the EU has been negotiating Air Services Agreements (ASAs) as a block with third countries and regional blocks within the framework of its external aviation policy (European Commission 2005; European Commission 2016).

Three levels of agreements between the EU and external partners exist:

- Horizontal Agreements (HA), which replace the pre-existing BASAs of third countries with all EU Member States
- European Common Aviation Area (ECAA) agreements, where external partners adopt the EU legislation on aviation rules
- Key Strategic Partner (KSP) agreements, which have wider liberalization focus and establish processes for the liberalization of airline ownership, as well as regulatory convergence in matters of safety and security, competition, environment and passengers' rights

Key conclusions

From a policy perspective, the current situation in the EU-Africa aviation market is far from ideal. This paper suggests two steps that can be taken in order to improve market operation and competition in a way that benefits both sides:

- Negotiating international aviation agreements between the EU as a whole (as opposed to each Member State individually) and African states would allow more airlines to enter the market, from both the EU and African sides. As experience shows, such agreements lead to a significant growth in air transport activity and a reduction in ticket prices.
- As a second step, encouraging larger groups of African countries to enter horizontal agreements with the EU as a whole would allow a larger common aviation market to be established. Such a market would stimulate competition and cooperation in intra-African markets and would accelerate the development of an African air transport system.

A number of limitations might need to be considered in evaluating the findings of this paper. Recent ASA data of EU-Africa and versus Gulf/Turkey and Africa may provide more insights into the impact of liberalisation on airport concentration in both Africa and Europe. Another line of research worth pursuing further is a regression analysis that could predict change in traffic flows and airport hub concentration levels.

Main findings

Falling HHI in North and West Africa, where air services with the EU have been partially liberalised, suggests that competition is becoming more intense, with positive impacts on both airlines and passengers. However, the current situation suggests that this is not happening yet: there is still a tendency towards a higher concentration of long-haul air services in the largest airports. This concentration is due to the network strategies of the airlines servicing the markets, which is constrained by various factors including the regulatory regime. North Africa's geographical proximity to EU markets relative to other African regions is likely to lead to competitive airfares in a liberal air transport environment. The evolution of the EU-Morocco market shows a trend towards a more balanced distribution between airports of different sizes due to the growth of low-cost airlines.

The concentration of traffic on trunk routes and thus major airports is to a large extent attributable to regulatory restrictions of EU-African aviation markets. Unlike large airports, regional airports lack commercially viable air services necessary to operate intercontinental flights. However, in a deregulated environment airlines would design a network whereby multi-hub networks are needed to accommodate demand as witnessed in matured markets. Moreover, traffic may increase at regional airports through increased connectivity and feeder services for hub airports.

To a certain extent, the EU-Africa market has already come under pressure from competition from 'sixth freedom' carriers such as Turkish Airlines and Emirates. One way of ensuring that EU and African airlines benefit from further liberalisation is by facilitating and encouraging cooperation between EU and African airlines. Europe's three main airline groups (Air France-KLM, IAG and Lufthansa) have a strong presence in Africa and have an advantage over African competitors in the long haul markets connecting Europe with central, eastern, southern and western Africa. However, the protectionist EU-African aviation policies make it very difficult to pursue consolidation and cooperation. As a result, most African airlines will likely continue to cede market share to stronger competitors from Europe and the Middle East in the Africa-Europe market.

Related and future JRC work

The Economics of Climate Change, Energy and Transport (JRC-ECCET) Unit of the Directorate Energy, Transport and Climate of the JRC supports the European Commission (EC) services responsible for policy making in energy and transport through the development and application of simulation models, quantitative evaluation methodologies and technology monitoring mechanisms. In this context, JRC-ECCET provides other EC services with techno-economic analyses and impact assessments of policy measures and technological developments for energy and transport. Further information on the work of the JRC-ECCET Unit can be found on the following JRC website:

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Quick guide

Section 1 describes the overall context and Section 2 reviews the existing literature on the impacts of air transport liberalisation. Section 3 examines the level of liberalisation in EU-Africa's aviation agreements. This is followed by a description of the EU-Africa's traffic trends over the study period and their impacts on African airports in section 4. Section 5 highlights the main factors explaining the position and role of African airports in the EU-Africa air transport. Section 6 discusses the results of our analysis.

1 Introduction

The African passenger's aviation industry has faced a number of changes in recent years. Firstly, the domestic, intra- and intercontinental traffic increased from 41.2 million passengers in 2002 to 127 million passengers in 2014 at an average growth rate of 16% (ICAO, 2013). The Africa-Europe route, with approximately 1.2 million weekly nonstop return seats in July 2016, had by far the highest passenger share in the total international traffic to and from Africa. The second largest intercontinental market is the Africa-Middle East route (800,000), followed by Asia (90,000), North America (50,000) and Latin America (12,000) (Airline Leader, issue 35). This growth has been driven by sustained economic growth rates and increased urbanization in Africa and a paradigm shift, albeit a slow one, towards a market-oriented system that emphasised the liberalisation of air transport services on the continent. Moreover, the Yamoussoukro Decision entered into force in 2002 creating a comprehensive policy framework with the stated aim of liberalising air transport across Africa.

Secondly, although collectively the EU remains Africa's biggest inter-continental passenger traffic driven by Air France-KLM, Africa-Middle East/Asia has grown rapidly in recent years. This growth has been driven by Emirates, Qatar Airways and Turkish Airlines with the latter forecast to increase its share of nonstop capacity in the Africa-Europe market to 15% in 2025 up from 7% in 2016. It is argued that the protectionist policies of the intra-African air services have caused long haul route networks to focus on Europe and in recent years in the Middle East (Airline Leader, Issue 32).

Third, one tenth of the 2,900 airports dispersed across the African continent receive scheduled services. The continent's busiest airports, namely, Johannesburg, Cairo and Nairobi airports which act as gateways to Africa for inter-continental traffic have witnessed rapid growth in both intra- and intercontinental passenger traffic. Regional hub airports are not widespread in Africa which is partly accounted to the region's low traffic volume and restrictive policies.

Finally, there have been initiatives between the EU and selected African countries and regions to liberalise the air service markets. For instance, the EU conclude in 2006 a horizontal agreement with Morocco allowing EU and Moroccan carriers to operate to and from any point in Morocco and the EU without price or capacity restrictions (EC, Brussels, 9 June 2006). Another example include the horizontal agreement between the EU and West African Economic and Monetary Union (WAEMU) signed in 2009 (EC, Brussels, 17 December 2009). The EU-Morocco has been studied and it has been found that traffic increased by 160% and the number of routes operating between points in the EU and points in Morocco increased from 83 in 2005 to 309 in 2013 (InterVISTA Consulting Inc., 2014).

The recent horizontal agreements between the EU and individual African countries such as Morocco and regional communities such as WAEMU raise the question about the effects of the removal of regulatory barriers to access to the EU-Africa air service markets on the airport landscape in Africa. Moreover, despite recent moves towards more liberal agreement between the EU and Africa, little attention has been paid to the impact of such moves on airport development and the nature of airport concentration and competition in Africa. To address this question, this paper explores how changes in the EU-Africa passenger trips at airport origin-destination level in the 2010-2015 period and changes in aviation regimes have been reflected in the development of African airports. The analysis is based on data collected from EUROSTAT from the year 2010 to 2015 (EUROSTAT, 2015). The paper uses the Air Liberalisation Index (ALI) developed by the WTO secretariat (WTO ASAP Database, 2016) to provide a brief overview of the bilateral and multilateral policies between the EU and Africa. Using the Herfindahl–Hirschman Index (HHI) as a measure of concentration/competition in the African airport sector, the paper evaluates changes in the degree of concentration in airport traffic shares and discusses the impacts of liberalisation on airport concentration and competition.

2 Literature review

The liberalisation of restrictions of air services has been an important aspect of international aviation since the 1990s. In the last two decades governments worldwide have become more attentive to the potential gains from increased air transport activity. This change in governments' attitude has stemmed from a number of factors, particularly the overall trend of abandoning protectionist policies and the increasing number of successful examples in air transport liberalisation such as the US airline deregulation and the EU single aviation market. Several empirical studies have demonstrated that opening up international aviation markets gives a positive stimulus to the overall growth of the aviation industry and to the economy of the countries concerned. Liberalisation has generally been accompanied by market entry and greater competition, resulting in lower fares for consumers, greater number of people travelling, greater choice of airlines and routes and improved service levels (e.g. Dresner and Tretheway,1992; Schipper et al., 2002; Adler and Hashai, 2005; UK CAA, 2006). However, it has also been argued that the impact of liberalisation in international aviation is influenced by various factors including the degree of liberalisation already undertaken, economic conditions and geographic position (InterVISTA-ga2, 2006).

In an empirical study on liberalisation conducted by Dresner and Tretheway (1992), it was found that airline liberalisation in North America resulted in a reduction of fares by up to 35% on competitive routes. Similarly, InterVISTA-ga2 (2006) argues that the traffic impact of traffic access liberalisation across 12 countries range from an increase in international traffic of 9% to 47%, with a median impact of 33% growth. The study by InterVISTA establishes that a combined liberalisation of traffic access and ownership and control restrictions stimulated a 21 to 79% increase in traffic, with a median impact across all 12 countries of 53% growth. The estimated fare reductions range from 17% to 50% over the 12 countries and averaged 38%. Likewise, the UK Civil Aviation Authority highlights that two years after UK-India bilateral liberalisation in 2004, the number of direct services between the UK and India had increased from 34 to 112 services per week. Adler and Hashai (2005) suggest that liberalisation in the Middle East would lead to an increase in inter-country passenger flow of 51%.

Another strand of literature has explored the employment and wider economic impact of air transport liberalisation (Caves et al., 1983; Bailey et al., 1985; Oum and Yu, 1995; Maillebiau and Hansen, 1995, Forsyth, 1997; UK CAA, 2004; Myburgh et al., 2006; Schlumberger, 2010; Dobruszkes and Mondou, 2013; InterVISTA, 2014). These studies have shown that liberalisation of air access contributes to productivity by enabling companies to attract and retain high quality employees. For instance, Myburgh, et al. (2006) state that air transport liberalisation in the Southern African Development Community region, would lead to a 20% increase in air traffic and the creation of 35,000 new jobs in the tourist industry with a further 37,000 new jobs in the wider regional economy. In a recent study, InterVista (2014) outlines the benefits that would accrue if 12 African nations were to implement the 1999 Yamoussoukro Decision (YD) . The additional services generated by liberalisation between those markets will provide an extra 155,000 jobs and $1.3 billion in annual GDP. Further benefits would include 4.9 million passengers a year and enhanced connectivity. More broadly, a number of studies have investigated the link between air service levels and general employment and economic growth (Irwin and Kasarda, 1991; Button and Taylor, 2000; Bruckner, 2003; Cooper and Smith, 2005; Button and Drexler, 2006).

One of the concerns arising from liberalisation of international aviation is its impact on the profitability of home carriers. Liberalisation has the potential to weaken the market position and profitability of the national carriers through increased competition. However, liberalisation also has the potential to improve the position of the home carriers by opening up new markets and providing the opportunity to grow their operations and access to a wider pool of investment and expertise. Kincaid and Thetheway (2013) point out that whether the home carriers prosper or suffer under liberalisation will depend in greater part on the quality of the management of the carrier and how the carrier chooses

to respond to the liberalisation. For instance, the authors argue that in 2005 the combined market share of Royal Air Maroc and its LCC subsidiary, Atlas Blue, peaked at 66% of the total seat capacity operated between Morocco and the EU. By 2008, after the open skies agreement and the resulting entry of new competitors (LCCs easyJet and Ryanair as well as other EU carriers), that share had declined to 47%. However, despite loss of market share, total traffic carried by home carriers increased by 25% between 2005 and 2007. In addition, the number of routes to the EU operated by the two Moroccan carriers increased from 26 routes in 2004 to 40 routes in 2008. Likewise, Gillen et al. (2002) assess the effects of changes in a bilateral air transport agreement on the distribution of benefits and costs to various stakeholders (e.g. bilateral partner nations' carriers, consumers and foreign carriers and consumers) concluding that while removing entry restrictions increases industry profit and consumer welfare, some carriers gain and others lose.

A further strand of the literature has concentrated on the impact of liberalisation on airports. It has been argued that catchment area plays an important role in airport business and airport competition (Hess and Polak, 2005), whereas price and frequency determine to which extent passengers choose a specific airport (Pels et al., 2009 and Tierney and Kuby, 2008). Using the case of the deregulated European aviation market, Berechman and De Wit (1996) acknowledge that in the world of competing airlines and full liberalisation, an airline will intensify the use of a hub-and-spoke network with a specific airport as its main hub as to maximise profits and deters entry by potential rivals. In a study on the impact of changes to the international aviation bilaterals on airport revenues, employment and tourism effects for the State of Hamburg, Germany, Gillen and Hinsch (2001) established that the changes in passenger and operations resulting from the policy reform would lead to increases in overall airport revenues, local output, investment and employment. Christidis (2015) investigates the status of the EU's aviation relations with four important partners: USA, Russia, Morocco and Turkey. Using the Herfindahl–Hirschman Index as a measure of concentration at airport level, the author argues that airline alliances, ownership limitations, political, geographic, demographic and economic factors influence the airline network dynamics and the spatial distribution of aviation.

This paper aims to investigate the connection between air transport liberalisation and the level airport concentration as measured by the airport's share of passenger trips between two points. It is one of the first papers in the aviation literature which examines the level of liberalisation between the EU and Africa and contributes to a growing body of literature on the impact of liberalisation on airport concentration and competition.

3 Institutional context of EU and Africa aviation relations

The evolution of the EU-Africa aviation market has been driven by the interaction of policy reforms and evolving industry strategies. With respect to policy reforms, air services between the two regions operate mainly under the terms of a Bilateral Air Service Agreement (BASA) negotiated between the individual countries of the EU and the various African governments. The BASA framework was established in 1944 in Chicago, also known as the Chicago Convention. However, the EU and the African Union have long recognised the shortcomings of the Chicago Convention and the potential benefits of a more liberal aviation sector and have deregulated various aspects of their aviation services.

According to the WTO Air Service Agreement Predictor (ASAP), the EU-Africa air services agreement (ASA) is highly restricted. The average level of liberalisation for EU-Africa's ASAs as measured by the ALI Standard is quite low (10/50) compared to moderately liberal Africa-North America's ASAs of 24/50 (Table 1).

Table 1. ALI STD weighting system

	Africa	**ACAC (North Africa)**	**SADC (Southern Africa)**	**WAEMU (West Africa)**	**CEMAC (Central Africa)**	**COMESA (East Africa)**
Europe	10	10	11	12	9	10
Middle East	6	9	12	10	0	5
North America	24	23	26	26	28	20

Source: WTO ASAP Database, 2016

The ALI standard is an index of the degree of liberalisation of air services for passenger traffic, whereby different provisions pertaining to market access features of ASAs are weighted on the basis of their importance in removing obstacles to trade in air services according to the judgments of experts in the sector (WTO ASAP, 2016). The EU has also achieved a very low degree of liberalisation with the five African regional areas (Tables 1&2). The ASAs of Africa and the Middle East are also very low. It is important to note that the EU and the Middle East have concluded several liberal agreements in recent years which are yet to be updated in the WTO database.

One remarkable development has been the adoption in recent years of collective approaches to liberalisation, as attested by the conclusion of agreements between the European Union (EU) and countries (or groups of countries) in Africa. The EU has concluded the so called 'horizontal agreements' with a few African countries on a bloc-to-country basis with Morocco (2006) and Cape Verde (2011) on the one hand and on the other hand on a bloc-to-bloc basis with West African Economic and Monetary Union (WAEMU) (UEMOA, 2009).

Furthermore, negotiations have been opened between the EC and Tunisia and the EC and Algeria in 2008 on a Euro-Mediterranean Aviation Agreement and discussions are on-going with other countries (Table 2). The remaining African countries have either agreed to EU designation through amendments of bilateral agreements with individual EU states or have not yet entered into any agreement for the EU designation.

How have these developments impacted on EU-Africa traffic flows and airport concentration in Africa?

Table 2. Status of the E.U. designation agreements with African countries

EU designation agreed bilaterally with the EU Member State		**EU designation agreed under an Agreement([1]) with the EC or through formal Record of Consultations**		**Discussions on-going with the EC**
Third country	**Nr of bilateral ASAs amended**	**No. of bilateral ASAs amended**	**Agreement initialised/signed**	
Algeria	7	Algeria	-	ECOWAS([3])
Angola	3	Cape Verde	8	Egypt
Burundi	1	Morocco	18	Libya
Cameroon	1	Tunisia	-	Namibia
Congo (Brazzaville)	3	WAEMU([2])	47	South Africa
Dem. Rep. of Congo	2			
Egypt	9			
Equatorial Guinea	1			
Ethiopia	9			
Gabon	4			
Gambia	1			
Ghana	1			
Liberia	2			
Madagascar	3			
Mauritius	4			
Mozambique	2			
Rwanda	4			
Sao Tome & Principe	1			
Seychelles	1			
Sierra Leone	1			
Tanzania	4			
Uganda	2			
Zambia	5			
Total: 23	71	3	73	

Source: European Commission, Bilateral Air Services Agreements brought into legal conformity since the Court of Justice of the EU judgments of 5 November 2002 (as of 30.01.2013)

1 Horizontal agreement

2 "Bloc to bloc" Horizontal Agreement with the West African Economic and Monetary Union (WAEMU) covering 8 States.

3 Economic Community of West African States (ECOWAS) covering 15 States.

4 EU-Africa's traffic trends and traffic distribution by airports

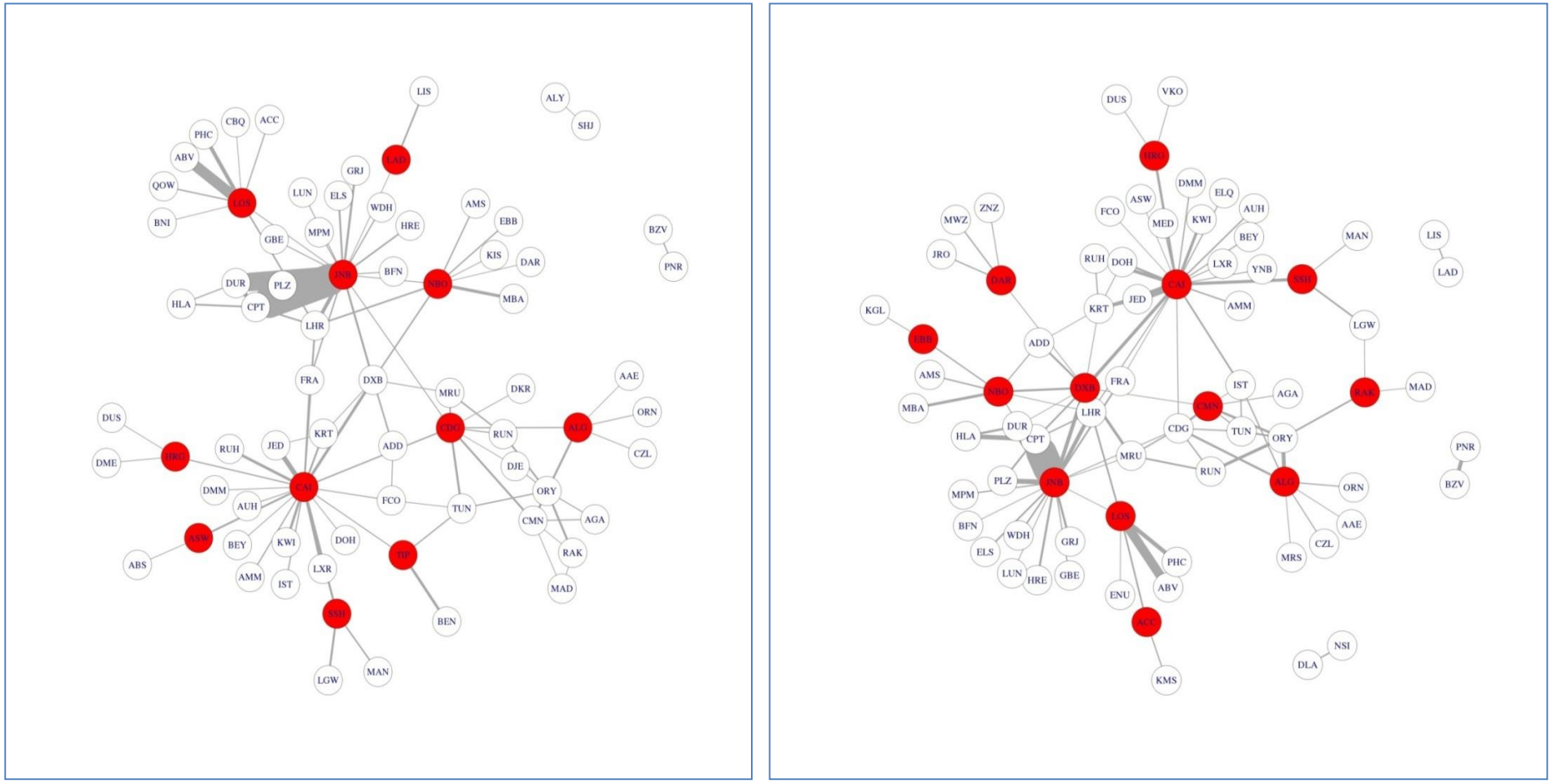
Intra- and intercontinental scheduled flights between African cities and all world cities indicate a supply environment that emphasizes intra-African connectivity centered around four African hubs with spoke operations to surrounding commercial or political capitals and supplemented by intercontinental hub connectivity to Paris, Heathrow, Amsterdam and Frankfurt (Figure 1, left panel). Figure 1 shows the respective role of African and European airport in the EU-African aviation markets. The comparative analysis of passenger trips to and from African airports for the years 2010 and 2015 shows that in 2010, four main African hubs, namely Cairo, Johannesburg, Lagos and Nairobi, and one European main hub for EU-African traffic (Paris CDG) appeared as cut-points. A cut-point is defined as a connecting point to airports not served by the rest of the airports. As visualised in Figure 1 (left panel) London Heathrow, Frankfurt and Dubai are central in the graph but are not cut-points, since they mainly connect with the four main African hubs.

As shown in Figure 1 (right panel), while the network structure did not change much between 2010 and 2015, a new trend emerged showing an increase in scheduled services between the Middle East and Africa. Moreover, in 2015, the four African hubs strengthened their role as cut-points adding more connections, but Dubai became an additional main hub and cut point. Casablanca, Algiers and Dar es Salaam appear as regional hubs. It is evident that apart from their role as international hubs, the four African hub airports also serve an important hinterland of local and regional connections. In terms of city-pair passenger traffic, local African markets served by Johannesburg and Lagos, as well as the regional market served by Cairo are the most important markets.

As illustrated in Figure 2 (left panel), between 2010 and 2015, new East-West markets appear mainly to/from Dubai but also to other destinations in the Middle East and Istanbul to North Africa. In Dubai and Istanbul, capacity (i.e. available seats per kilometre) has increased dramatically as Gulf carriers and Turkish airlines have expanded operations at their hubs to feed traffic from East and North African countries to their strong pan-European network. Turkey and the UAE strong commitments to African markets can be seen through the number of BASAs and the number of points served from their hubs. Moreover, the UAE had by January 2016 signed 21 BASAs with African countries, some of which are open skies (UAEinteract, 9th February 2016). Turkey, on the other hand had by 2014 signed 48 BASAs with African countries, up from 6 BASAs in 2003, an increase of 1047%. As a result, intra- and intercontinental passenger traffic witnessed an increase in the East-West direction (Figure 2, left panel).

Clearly, the weight of Europe in the African market has decreased, while intra-Africa traffic and the weight of Dubai and "sixth freedom" carriers have increased. The Gulf hubs are well suited for Africa-Asia traffic and also attract a significant share of Africa-North America traffic and even some regional intra-Africa traffic (Airline Leader, Issue 32). Turkish Airlines has the second largest African network after Ethiopia (52) serving 45 destinations across 31 countries (Turkish Airlines, 2015). Etihad Airways currently serves 26 countries in Africa while Emirates Airline and Qatar serve 20 countries.

Figure 1. EU-African Network (2010, left panel and 2015, right panel)

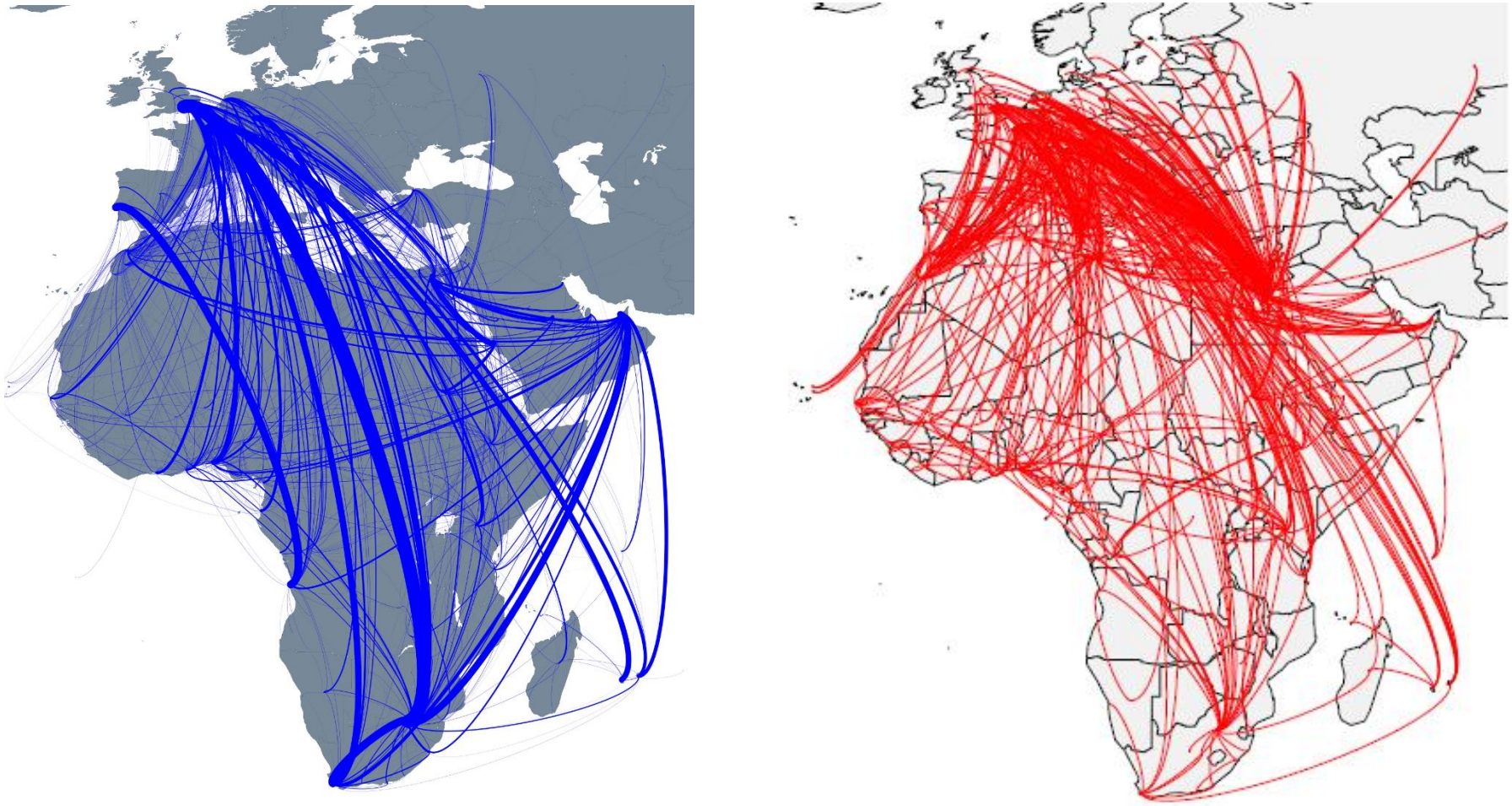


Source: Own illustration based on data from EUROSTAT

Figure 2 (left panel) also shows that London to Johannesburg/Cape Town and London/Paris to the Indian Ocean islands remain important, but the increasing importance of Dubai is evident. The growth in aviation activity between EU and North Africa has slowed down, however, mainly as a result of the political instability during the period, which obviously put negative pressure on demand, especially from tourism (Figure 2, right panel). Luanda (Angola) has also witnessed strong linkages with Europe while some West African countries have experienced traffic losses. However, despite the changes observed between 2010 and 2015 in the network of intra- and intercontinental air transport to and from Africa, the distribution of traffic among airports has not changed significantly.

One particularity of the four African major hub airports is their location at the periphery of the continent. SH&E (2010) argues that the geographic location of these airports partly explains the pattern of supply in the continent that has evolved in a way different from other regions. Moreover, due to the lack of sizable point-to-point markets and the location of the major African cities no African carriers have established a hub-and-spoke network characteristic of other continents. Thus, there is a substantial geographic concentration of activity in a select few airports acting as international gateways to the five distinct regions: Southern Africa, West Africa, East Africa, Central and North Africa. These include Johannesburg, Lagos, Nairobi and Cairo airports which are gateways to Southern, Central/West, East and North Africa, respectively. To further refine the analysis the distribution of traffic between airports in the respective regions is discussed in turn.

Figure 2. Major growing (left panel) and shrinking (right panel) intra- and intercontinental traffic (2010-2015)

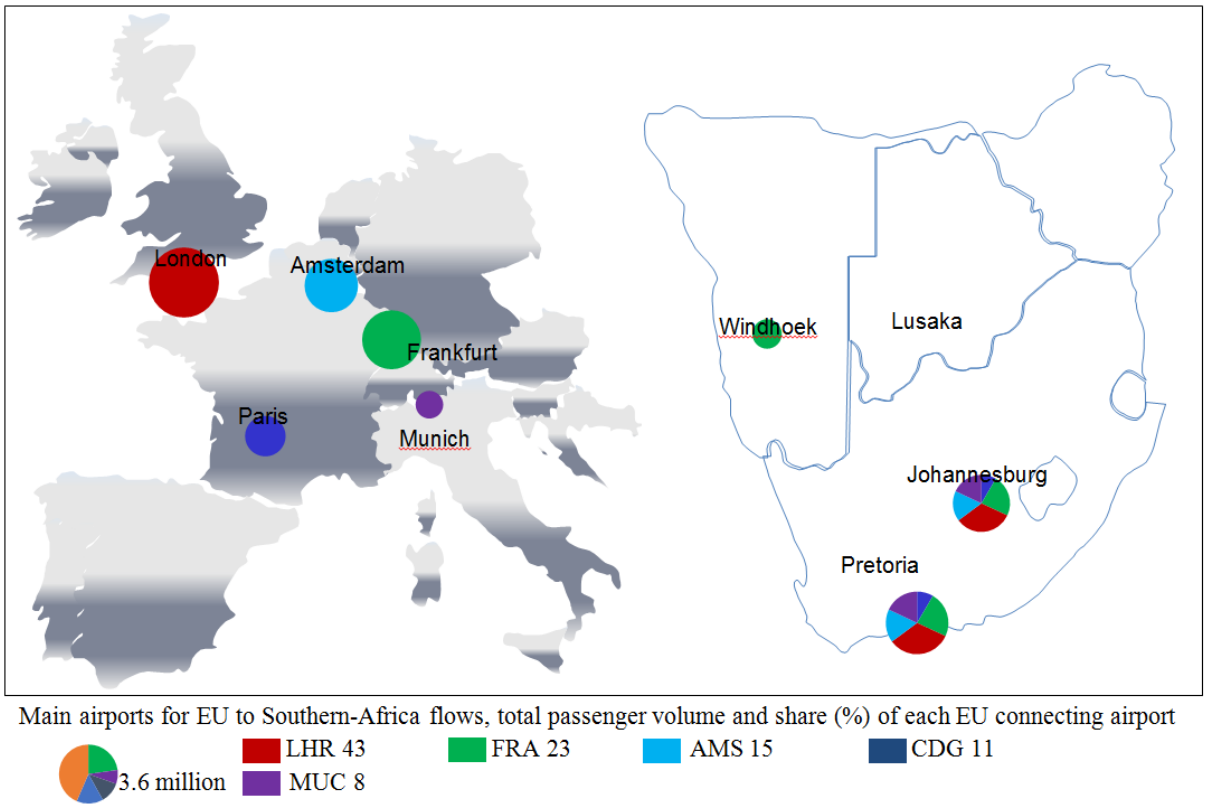


Source: Own illustration based on data from EUROSTAT

Southern Africa

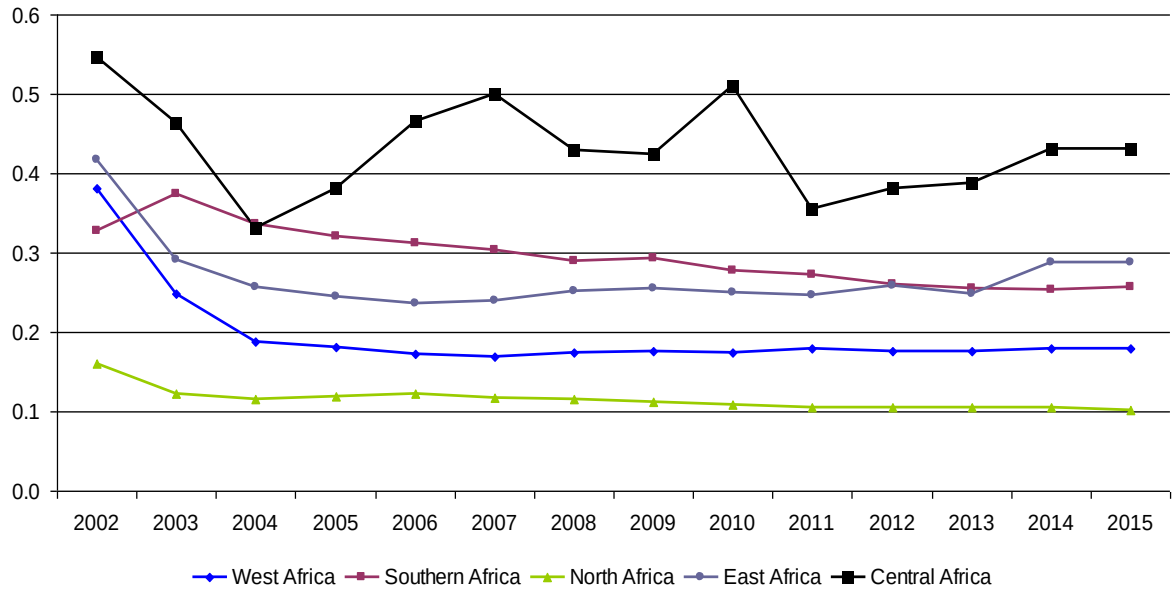
The EU-Southern Africa market shows a concentration of air traffic at Johannesburg and Cape Town (Figure 3). These airports have experienced a large increase in their share of both intra- and intercontinental passenger volumes, which is indicative of their pivotal role in Southern African aviation networks. EU-Southern Africa traffic is channelled to a large extent through London Heathrow. EU-Southern Africa aviation market can be considered as a combination of resourced-based, tourism-related and visiting friends and relatives (VFR) traffic. The demand for leisure services into Southern Africa is the segment that has grown rapidly in recent years, with Cape Town remaining a popular leisure getaway for travellers thanks to its blend of nature, culture, wildlife and history (Routesonline, July 2016).

Figure 3. Top airports for EU-Southern Africa flows, volume in 2015 and share of each EU connecting airport



The EU-Southern Africa air transport market routes also show a clear tendency towards a more competitive market since 2003. The market was less concentrated in 2015 as compared to 2002, with a HHI of 0.25 in 2015 down from 0.32 in 2002 (Figure 4).

Figure 4: Evolution of HHI indicator of competition between EU airports for the five African markets analysed (percentage)

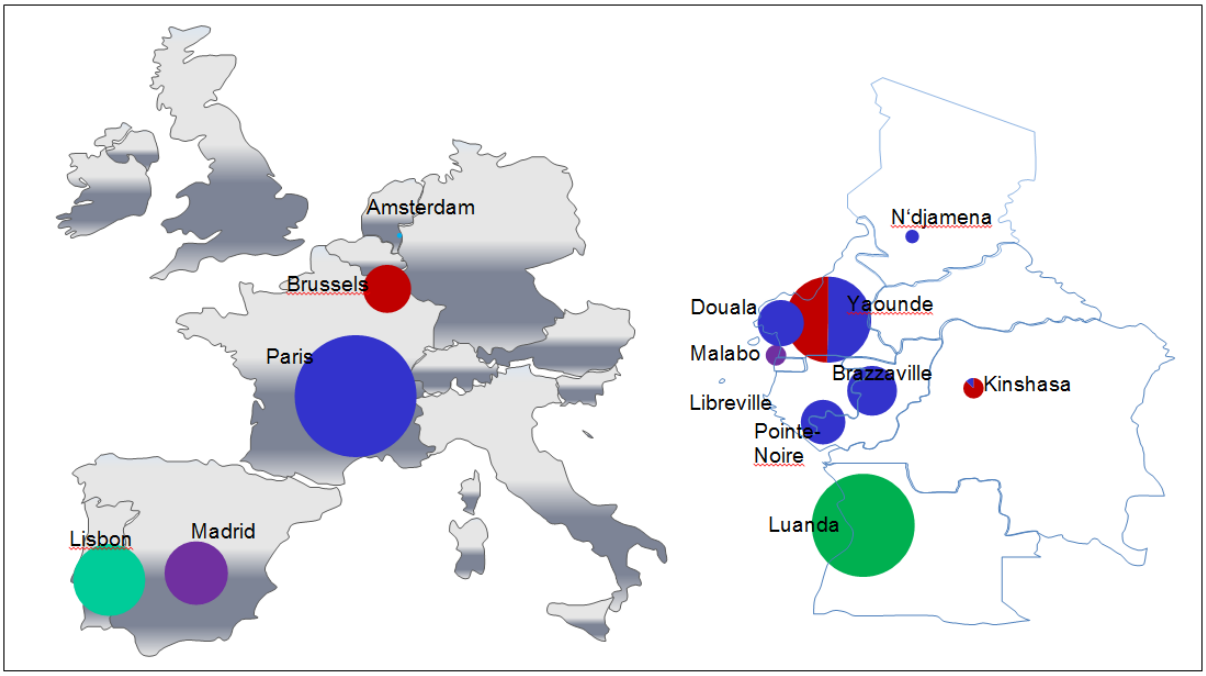


Source: Own illustration based on data from EUROSTAT

Central Africa

Paris Charles de Gaulle (CDG) is connected to the majority of Central African countries, which partly can be explained by the historical ties between France and those countries (Figure 5). This also applies to Lisbon which is connected to Angola, as well as Madrid and its links to Equatorial Guinea. Central Africa represents a medium to long-haul market from EU. Compared to other regions where demand for air services for tourism and leisure purposes play a significant role, in Central Africa the greatest demand is for business and VFR. Central African's economy is largely underpinned by the resource sector and mining activities. Although EU-Central Africa air transport growth has accelerated in recent years, there hasn't been any initiative between the two regions for liberalising the market. EU-Central African market is the most highly concentrated of all five regions as illustrated in Figure 5 (HHI: 0.44 in 2015). There is a concentration of traffic at Luanda and Yaoundé which are the capitals of Angola and Cameroon respectively, and are the most populous and wealthiest cities of the region. However, unlike other regions Central Africa has not developed a regional hub for connections.

Figure 5. Top airports for EU-Central Africa flows, volume in 2015 and share of each EU connecting airport



Main airports for EU to Central-Africa flows, total passenger volume and share (%) of each EU connecting airport

482,206 | CDG: Paris (54) | LIS: Lisbon (22) | BRU: Brussels (16) | MAD: Madrid (6) | AMS: Amsterdam (2)

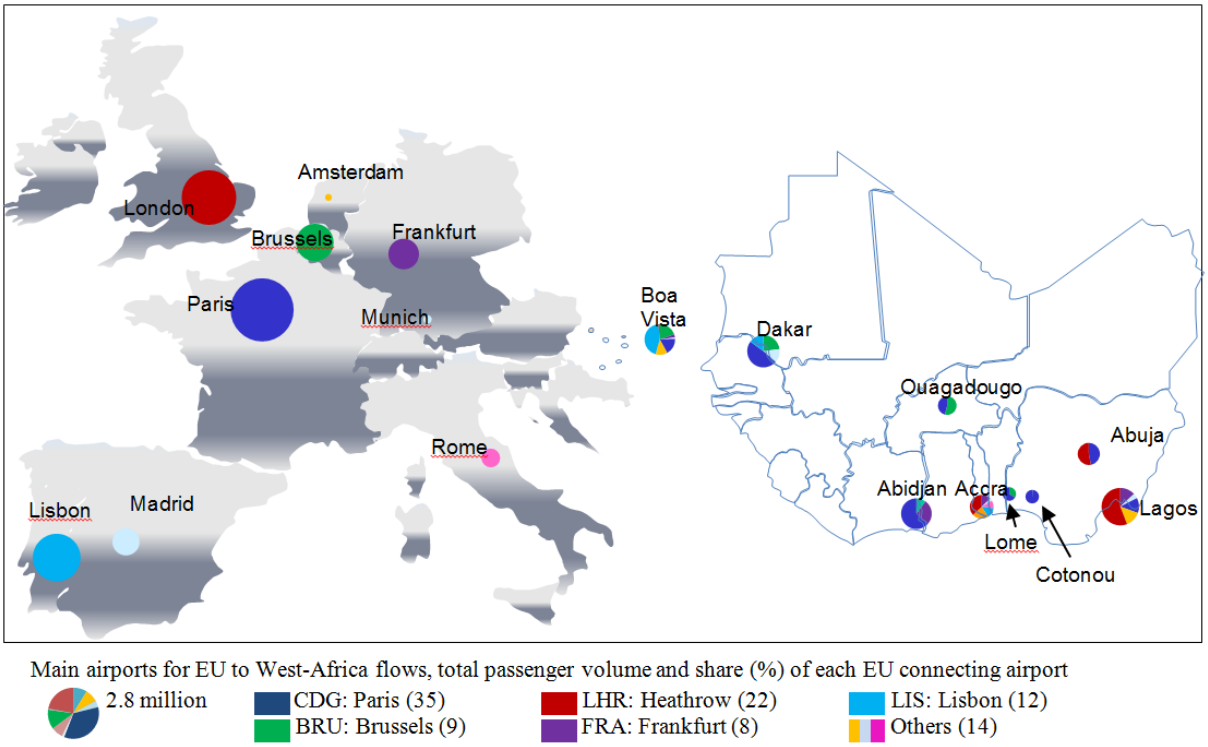
Source: Own illustration based on data from EUROSTAT

West Africa

The EU-West Africa market shows a less spatial concentration pattern of air traffic as compared to Central Africa. Lagos is the busiest airport in the region, followed by Dakar, Accra and Abidjan (Figure 6). At EU level the analysis indicates a spatial concentration of traffic at CDG and LHR. CDG and LHR shares are the largest for French and English speaking countries, respectively. The distribution pattern of traffic reflects migration patterns, historical ties as well as West Africa's major tourist source markets, namely France and UK.

The EU-West Africa market experienced the fastest decrease in HHI, which fell from 0.38 in 2002 to 0.17 in 2015. The HHI index fell further in 2010 compared to 2009, which may be explained by market entry following the EU-WAEMU agreement and strong demand in 2010 and the integration of air transport services in the region, namely the implementation of the Yamoussoukro Decision. Bofinger (2008) examines the status of implementation of YD in the various RECs and concludes that the five regional communities (i.e. CEMAC, WAEMU, COMESA, SADC and AMU) carry the implementation scores of 5, 5, 3, 2 and 1 out of 5 respectively.

Figure 6: Top airports for EU-West Africa flows, volume in 2015 and share of each EU connecting airport

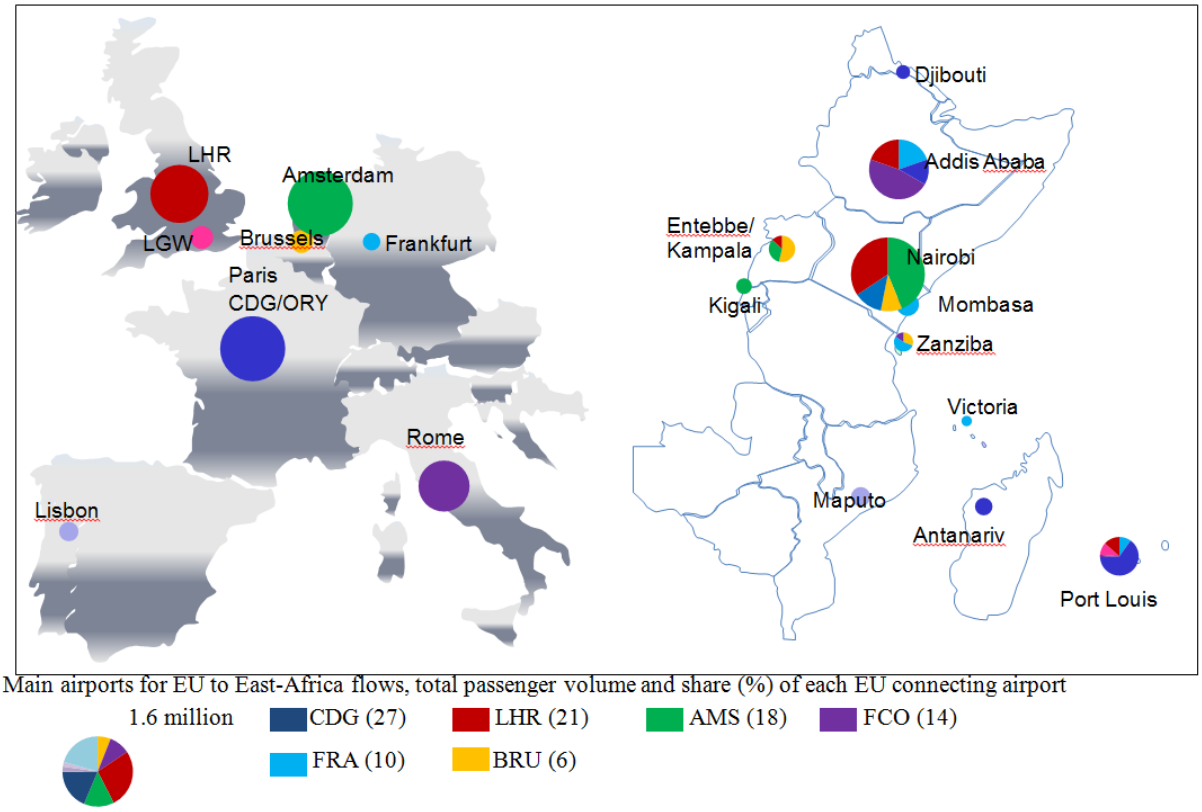


Source: Own illustration based on data from EUROSTAT

East Africa

Growth in Air transport between the EU and East Africa has been slow compared to other regions. Traffic from the EU to East Africa is channelled to a large extent through Paris airports (CDG and ORY), London Heathrow (LHR) and Amsterdam together accounting for 66% of all connectivity (Figure 6). These hubs are connected to Nairobi with spoke operation to tourist destinations such as Mombasa and other large cities. East Africa is a popular tourist destination with key attractions including natural parks, archaeological sites, and good beaches. Despite Africa's growing ties with Asia in recent years, the EU remains the major tourist source market. The EU-East Africa HHI decreased rapidly between 2002 (0.41) and 2007 (0.24). However since 2008 an upward trend has been observed. This is due to the expansion strategy followed in recent years by the established hubs in the region, namely Nairobi and Addis Ababa and restrictions on traffic rights in the region. Unlike West and Central Africa, the YD has not been implemented in East Africa.

Figure 6. Top airports for EU-East Africa flows, volume in 2015 and share of each EU connecting airport

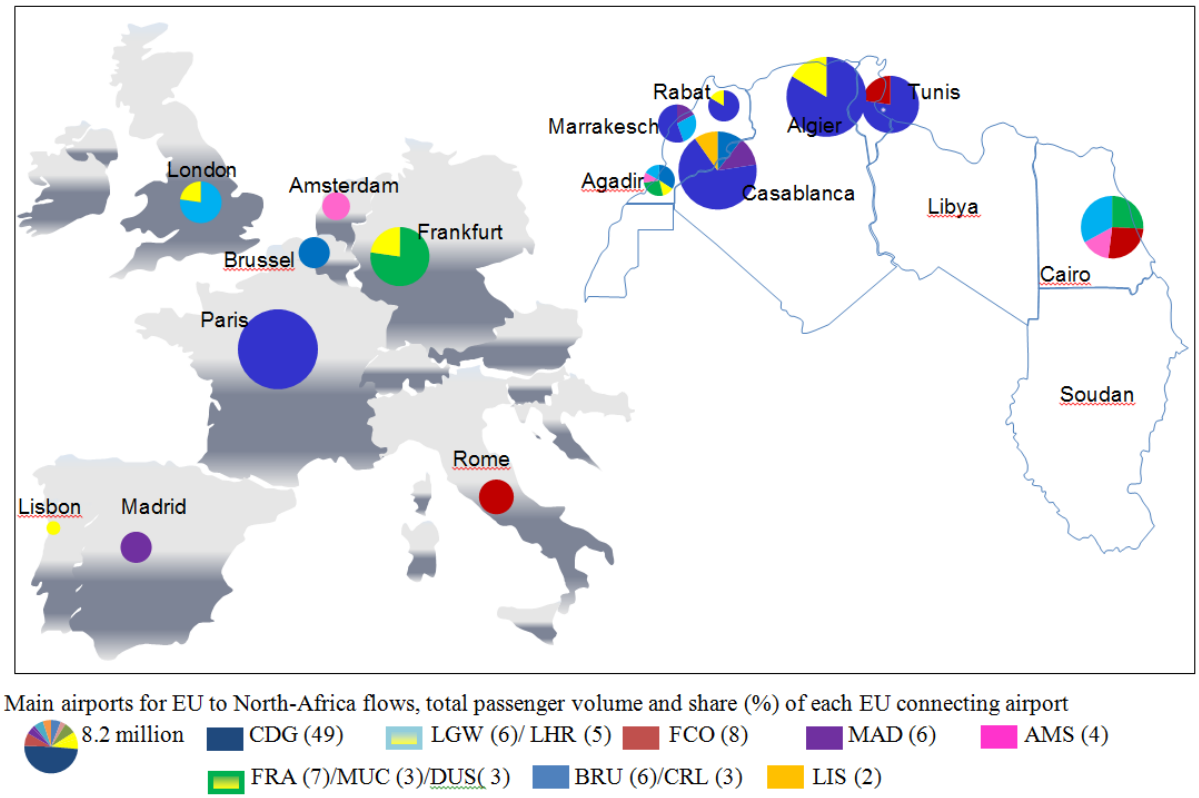


Source: Own illustration based on data from EUROSTAT

North Africa

A large share of traffic connecting the EU and North Africa channel through Paris CDG. Casablanca, Algiers and Cairo are the largest markets due to their role as major economic centres and tourism attractions (Figure 7). The EU-North Africa HHI has been experiencing a deconcentration pattern since 2002, even before the liberalisation of the EU-Morocco market. Its HHI index decreased from 0.16 in 2002 to 0.1 in 2015. This is mainly due to its proximity to the EU, immigration flows, and a relatively liberal air transport policy between most countries in the region, such as Egypt, Algeria, Morocco and Tunisia, and the EU. This geographical proximity and the liberal air transport policy have enabled the emergence of LCCs such as Ryanair and Air Arabia Maroc leading to intense competition between LCCs and incumbent carriers. North Africa-Europe accounts for approximately two thirds of total Africa-Europe capacity with European LCCs accounting for 22% of capacity in the north Africa-Europe market (Airline Leader, Issue 32).

Figure 7. Top airports for EU-North Africa flows, volume in 2015 and share of each EU connecting airport



Source: Own illustration based on data from EUROSTAT

5 Potential factors affecting the distribution of EU-Africa traffic at African airports

As mentioned above, Africa's aviation market currently revolves around capital cities and airport hubs of the continent that encapsulate the continent's major traffic trends, namely, Johannesburg International Airport, Jomo Kenyatta International Airport (Nairobi), Cairo International Airport and Murtala Muhammed International Airport (Lagos).

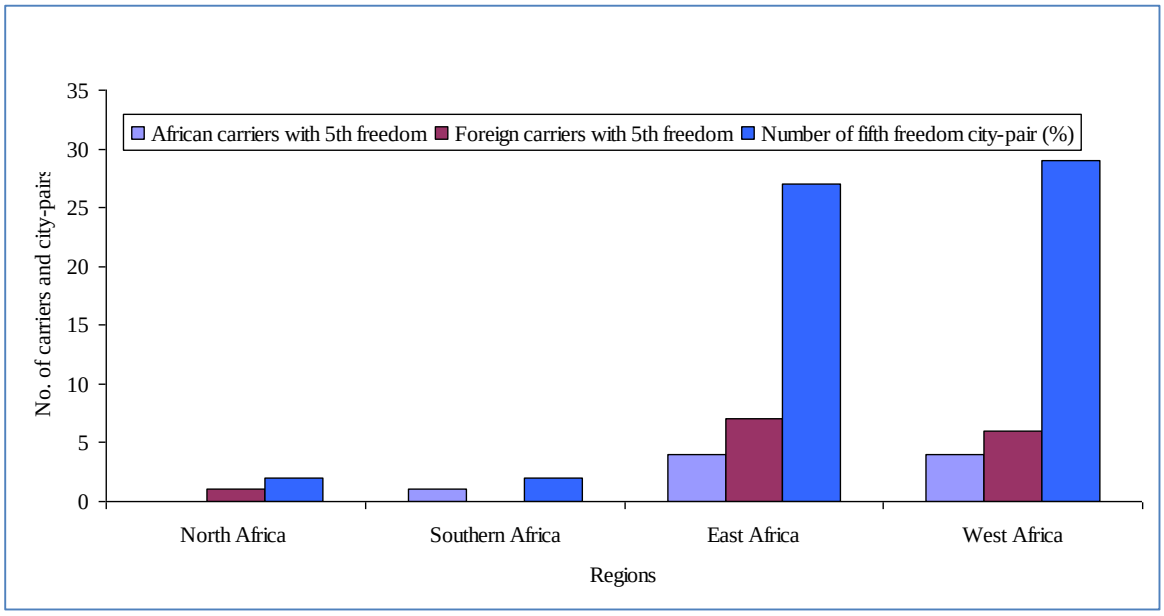
The position and role of African airports in EU-Africa air traffic are undoubtedly linked to the socio-economic and geographic attributes of the region, such as gross domestic product, distance to other continents and other factors such the degree of liberalisation of air services. These factors are discussed in turn.

Economic factors – The hub airports are located in the largest economy of the respective regions: Egypt, Kenya, Nigeria and South Africa are the economic powerhouses of North Africa, East Africa, West Africa and Southern Africa, respectively.

Cities characteristics – All four airports are located in the primary cities of their respective countries. Primary cities in Africa are generally the drivers of national and in some cases regional economic growth. They absorb a disproportionate amount of their country's productive assets. For instance, Johannesburg accounts for some 16% of the South African economy. Johannesburg has an estimated population of 4.3 million (2014), while the Greater Johannesburg metropolitan area has a population estimated at 9.1 million. It is the industrial and financial capital of South Africa as well as the capital of Gauteng, the wealthiest of South Africa's nine provinces. Likewise, Lagos is the subcontinent's wealthiest and most populous city. It has a population estimated at 21 million (2014) and accounts for 90% of Nigeria's total foreign trade, including 80% of the total imports and 70% of the country's industrial investments. Lagos and Johannesburg are, according to PwC (2015), the top 3 cities with respect to foreign direct investment flows in Africa. Further, Nairobi is East Africa's most populous city, with over three million residents, and it generates some 60% of Kenya's GDP. According to PwC (2015), investors rank Nairobi as the most attractive destination in Africa. Cairo on the other hand is ranked the fifth most attractive destination on the continent. Cairo has an estimated population of 12 million (2014). With its well-developed tourist economy, catering both to tourists from the west and Gulf Arab, Cairo contributes some 35% of Egypt's GDP.

Liberalisation – Air traffic growth in the African hub airports can also be attributed to liberalisation policies that their respective countries have pursued in recent years. In fact, Egypt, Kenya, Nigeria and South Africa, like an increasing number of African countries, have in recent years adopted a more liberalized approach to bilateral air services agreement, allowing for multiple designations of airlines and an unlimited number of frequencies. For instance, South Africa had in 2010 45 BASAs with African states of which 22 were in line with the key principles of YD (Surovitskikh and Lubbe, 2015; DoT Republic of South Africa, 2014). Kenya is, according to Kuuchi (2012) one of the rare African countries that has shown high flexibility in granting fifth freedom traffic right to carriers from third countries. The Kenyan Ministry of Transport has in recent years negotiated, reviewed and concluded several BASAs. Using fifth freedom as a proxy for liberalisation (Table 4), Kuuchi (2012) demonstrates that West and East Africa are the most liberal regions on the continent. For instance, of the 71 city-pairs across Africa in 2012 where fifth freedom right were exercised, West and East Africa accounted for 41% and 38%, respectively. These regions also exhibit a relatively low HHI.

Figure 8: Fifth freedom traffic right by regions



Source: Kuuchi, 2012

Geographic attributes – Alongside their big population and economic base, some of the above mentioned cities have superior geography. Cairo boasts a geo-strategically important position offering a connecting point between Europe, Middle East, Asia, and Africa. Using sixth freedom traffic right, Egypt Air and other carriers are able to maximize this advantage by collecting and funneling passengers from other countries through Cairo airport. The success of Nairobi depends also to some extent on its geography, which represents a gateway airport for service to/from Middle East and Asia. The strategic partnership of Kenya Airways with KLM/France has also contributed to the success of the Kenyan aviation industry.

6 Discussion and conclusions

The analysis of the traffic data, liberalisation trends and the trends in competition between airports leads to a number of observations concerning the EU-Africa aviation market:

- Dubai is playing a growing role in international air traffic in Africa. On one hand, this reflects the increasing economic links between Africa and non-EU countries, especially Asia and the Middle East. On the other, Dubai also serves numerous connections between the EU and Africa -even though geographically it is at a disadvantage compared to EU airports- exploiting the fact that it is in the centre of a hub-and-spoke network which allows critical mass to be reached for several African destinations.
- The role of the European hubs (Heathrow, CDG and Amsterdam) is decreasing and tends to be limited to serving local markets. Apart from the issue of competition with new hubs such as Dubai and Istanbul, this is also to a certain extent the result of the increase of the number of direct routes between African airports and non-hub EU airports.
- African regional hubs are growing: Local and intra-African demand is growing and is evolving in a self-sufficient market with strong regional demand.
- East to West both within and outside Africa routes are gaining in importance. This growth is due to the growing ties between Africa and Asia. Thus, the continent's economic boom since 2000 has attracted increased Chinese and Indian direct investments thereby strengthening socioeconomic ties between Africa and Asia. These changing economic and trade patterns in Africa have led to a decreasing relative weight of the EU as a trade and aviation partner.
- Business and other purposes (such as VFR) seem to grow at least in terms of airport pair connections. Nevertheless, demand from Europe to North Africa touristic destinations is slowing down, while intra-Africa traffic is growing rapidly.

One interesting question that arises from this analysis is to which extent further liberalisation between the EU and the various African sub-regions will benefit both regions. As shown in this paper the EU to Africa market is still largely fragmented, with a few major EU airlines/ airports serving a limited number of main African airports and in most cases sharing the market for a specific airport pair with a single competition from the African side. Moreover, the EU to Africa market is still not a market between two large partners, but rather a combination of 28 EU and 54 African markets. As the experience from the Gulf carriers and Turkish airlines suggests, scale does play an important role and concentration either in terms of a hub airport and/or operator potentially provides competitive advantage. In a similar fashion, while African carriers are becoming competitive in national and intra-African connections, they are not growing as fast in the EU-Africa market. Compared to the developments in the links between Africa and the rest of the world, the EU to Africa market seems to be losing momentum and is – comparably- less open to competition. This has probably had a negative impact on airlines and airports on both sides.

Although it is difficult to be certain of the effects of liberalisation, further loosening of regulatory constraints governing air services between EU and Africa would probably stimulate an increase in traffic and strengthen the role of African regional hubs. In a deregulated environment, market forces would drive demand and supply and remove some of the market distortions that limit the entry of new airlines into the market, more in line with the general economic trends in Africa. Moreover, where liberalisation is accompanied by market entry, especially the entry of low cost carriers such as in North Africa, competition would force airlines to reduce prices to secure market share. Yet, this scenario is less likely for long-haul into sub-Saharan Africa (SSA), mainly due to: the long distance between the markets, the high cost of operation in SSA and competition from charter services and full service carriers.

Falling HHI in North and West Africa, where air services with the EU have been partially liberalised, suggests that competition is becoming more intense, with positive impacts on both airlines and passengers. However, the current situation suggests that this is not happening yet: there is still a tendency towards a higher concentration of long-haul air services in the largest airports. This concentration is due to the network strategies of the airlines servicing the markets, which is constrained by various factors including the regulatory regime. North Africa's geographical proximity to EU markets relative to other African regions is likely to lead to competitive airfares in a liberal air transport environment. The evolution of the EU-Morocco market shows a trend towards a more balanced distribution between airports of different sizes due to the growth of low-cost airlines.

The concentration of traffic on trunk routes and thus major airports is to a large extent attributable to regulatory restrictions of EU-African aviation markets. Thus, unlike large airports, regional airports lack commercially viable air services necessary to operate intercontinental flights. However, in a deregulated environment airlines would design a network whereby multi-hub networks are needed to accommodate demand as witnessed in matured markets. Moreover, traffic may increase at regional airports through increased connectivity and feeder services for hub airports.

To a certain extent, the EU-Africa market has already come under pressure from competition from 'sixth freedom' carriers such as Turkish Airlines and Emirates. One way of ensuring that EU and African airlines benefit from further liberalisation is by facilitating and encouraging cooperation between EU and African airlines. Europe's three main airline groups (Air France-KLM, IAG and Lufthansa) have a strong presence in Africa and have an advantage over African competitors in the long haul markets connecting Europe with central, eastern, southern and western Africa. However, the protectionist EU-African aviation policies make it very difficult to pursue consolidation and cooperation. As a result, most African airlines will likely continue to cede market share to stronger competitors from Europe and the Middle East in the Africa-Europe market (Airline Leader, Issue 32).

From a policy perspective, it is evident that the current situation in the EU-Africa aviation market is far from ideal. Hence, the paper suggests two steps that can be taken in order to improve market operation and competition in a way that benefits both sides:

- Negotiating international aviation agreements between the EU as a whole (as opposed to each Member State individually) and African states would allow more airlines to enter the market, from both the EU and African sides. As experience shows, such agreements lead to a significant growth in air transport activity and a reduction in ticket prices.
- As a second step, encouraging larger groups of African countries to enter horizontal agreements with the EU as a whole would allow a larger common aviation market to be established. Such a market would stimulate competition and cooperation in intra-African markets and would accelerate the development of an African air transport system.

A number of limitations might need to be considered in evaluating the findings of this paper. Recent ASA data of EU-Africa and versus Gulf/Turkey and Africa may provide more insights into the impact of liberalisation on airport concentration in both Africa and Europe. Another line of research worth pursuing further is a regression analysis that could predict change in traffic flows and airport hub concentration levels.

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doi:10.2760/772140

ISBN 978-92-79-69014-3