



STATE OF AIRPORT ECONOMICS

Infrastructure Management Programme
Economic Development of Air Transport

This *State of Airport Economics* has been produced in cooperation with the **Airports Council International (ACI)**.

It presents an analysis on:

1. airport industry revenues and cost;
2. airport profit;
3. aeronautical and non-aeronautical charges;
4. single/dual/hybrid-till; and
5. public-private partnerships (PPPs).

The economic figures and analyses are extracted from the *2014 - ACI Airport Economics Report* (<http://www.aci.aero/Publications/ACI-Airport-Statistics/ACI-Airport-Economics-Report-with-Excel-indicator-tables>) released in 2015. More comprehensive and detailed figures and analyses are available in the ACI report.

Reference is also made to *ICAO's Policies on Charges for Airports and Air Navigation Services* (Doc 9082) and to the *ICAO's Airport Economics Manual* (Doc 9562).

Important: in this *State of Airport Economics*,

- 1) the word “passengers” refers to the total amount of those embarked and disembarked; and
- 2) **aeronautical and non-aeronautical activities** are based on **ACI's definition**, which differs from that of ICAO's.

Data coverage of the *2014 - ACI Airport Economics Report* :

Region	Number of participating airports	% Passenger traffic covered
Africa	41	52%
Asia-Pacific	104	50%
Europe	208	75%
Latin America-Caribbean	185	87%
Middle East	14	52%
North America	101	89%
World	653	70%

1 - AIRPORT INDUSTRY REVENUES AND COSTS

Global airport revenues remained largely unperturbed based on results for the 2013 financial year in the face of the economic uncertainties and downside risks that have persisted across the world's markets. Aeronautical income, non-aeronautical income and non-operating income, which are the three components of a typical airport's income streams, all experienced sound growth rates in 2013 compared to the previous year. In essence, growth in key emerging market airports has circumvented the slowdown in the Euro area and other more mature markets.

Industry income as a whole grew by 5.5 per cent over 2012, reaching US\$131 billion in 2013 (see table 1). On a regional basis, European airports hold the greatest proportion of global airport income (38 per cent). This is followed by Asia and Pacific (28 per cent) and North America (22 per cent). Although Europe holds a significant proportion of the world's airport revenues, it has experienced the weakest growth in overall revenues at 2.2 per cent year over year. In particular, with the Euro-area downturn, non-aeronautical revenues grew only by 1.8 per cent. Notwithstanding, the region also experienced a decrease in total costs by 2.5 per cent.

Table 1: Estimated airport industry revenues and costs (millions of USD) in 2013

Region	Total revenue*	2013/2012 % change	Aeronautical revenue**	2013/2012 % change	Non-aeronautical revenue***	2013/2012 % change	Total cost (operating + capital costs)	2013/2012 % change
Africa	2,900	6.7%	2,100	12.5%	800	1.0%	2,100	-3.7%
Asia and Pacific	37,000	11.8%	18,800	13.1%	17,200	9.2%	25,800	6.2%
Europe	49,800	2.2%	30,100	6.2%	18,800	1.8%	42,100	-2.5%
Latin America and the Caribbean	7,000	6.5%	4,400	5.4%	2,500	9.6%	5,100	12.1%
Middle East	8,700	11.6%	4,400	5.8%	4,200	16.9%	7,400	6.4%
North America	25,500	4.4%	13,900	0.6%	9,100	4.7%	22,700	4.5%
World	130,900	5.5%	73,700	6.0%	50,800	5.5%	106,500	2.1%

*Total revenue includes non-operating revenue

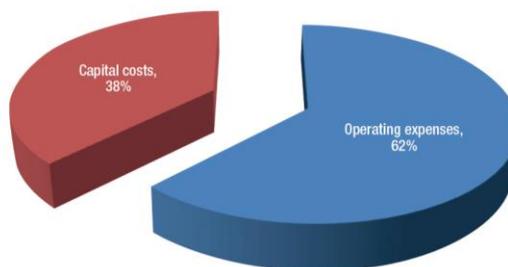
**Aeronautical revenue includes ground-handling and terminal rental charges

***Non-aeronautical revenue includes ground-handling concessions revenue

source: ACI

As expected, the regions with the highest growth in revenues also have the highest growth in passenger traffic. Asia and Pacific and the Middle East saw overall revenues increase by 11.8 per cent and 11.6 per cent respectively. However, the growth in cost varies markedly from one region to the next. The Latin America and the Caribbean region recorded the greatest gains in total cost² from 2012-2013.

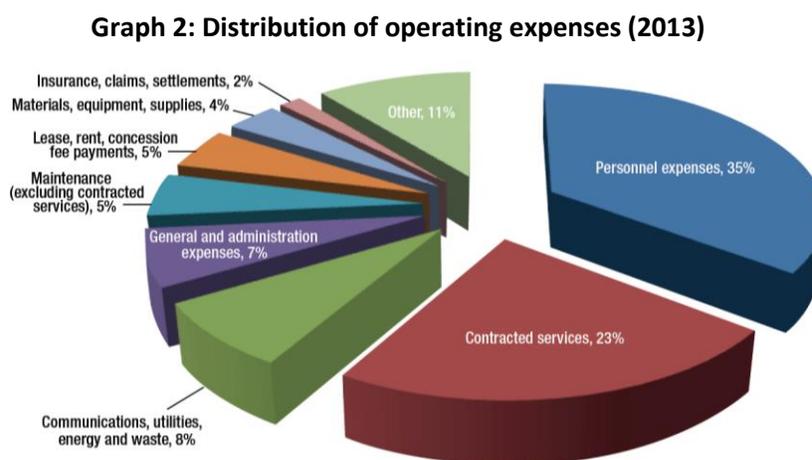
Graph 1: Distribution of total costs (2013)



Source: ACI (ACI Airport Economics Survey – 2014)

Total airport costs can be divided between operating expenses and capital costs. Operating expenses make up 62 per cent of total costs, with the remaining proportion designated to capital cost (see graph 1).

The largest component of operating expenses continues to be personnel costs, which account for 35 per cent. Contracted services, which are comprised activities outsourced to third parties, represent the second-largest component of operating expenses. These services make up 23 per cent of operating expenses. Personnel costs refer to salaries, pensions and other employment costs relating to an airport's staff. The extent to which an airport chooses to operate essential services using its own employees (insourcing) or by contracting services out to third parties (outsourcing) will inevitably affect the proportion of costs in the two main categories of operating expenses. Graph 2 presents the distributional breakdown of operating expenses.



Source: ACI (ACI Airport Economics Survey – 2014)

A facet of costs that has a significant impact on an airport's bottom line is capital costs. These costs include interest on outstanding debt and depreciation on airport infrastructure. Where capital cost are taken into consideration within the overall cost structure, the significant weighting of depreciation as part of capital costs relative to operating expenses is indicative of the role that fixed assets and infrastructure play in the overall accounting of airports' costs.

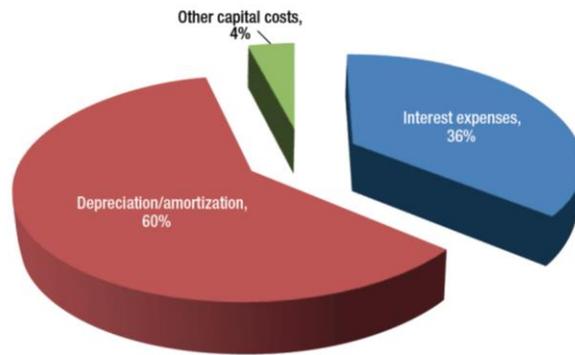
Depreciation, which is the cost of a fixed asset allocated over time, makes up as much as 60 per cent of capital costs and more than one fifth of all costs and expenses incurred by a typical airport.

In determining the cost basis for airport charges, the **cost to be allocated** is the **full cost** of providing the airport and its essential ancillary services, including appropriate amounts for **cost of capital and depreciation of assets**, as well as the **costs of maintenance, operation, management and administration**. Consistent with the form of economic oversight adopted, these costs may be offset by non-aeronautical revenues (Doc 9082, Section 2, para. 2 i) refers)¹.

Graph 3 shows the breakdown of capital costs.

¹ ICAO's guidance on how one may interpret paragraphs 2 i) in Section II of Doc 9082 with respect to the treatment of non-aeronautical revenues to offset airport aeronautical costs is presented in Table 4-6 of Doc 9562.

Graph 3: Distribution of capital costs (2013)

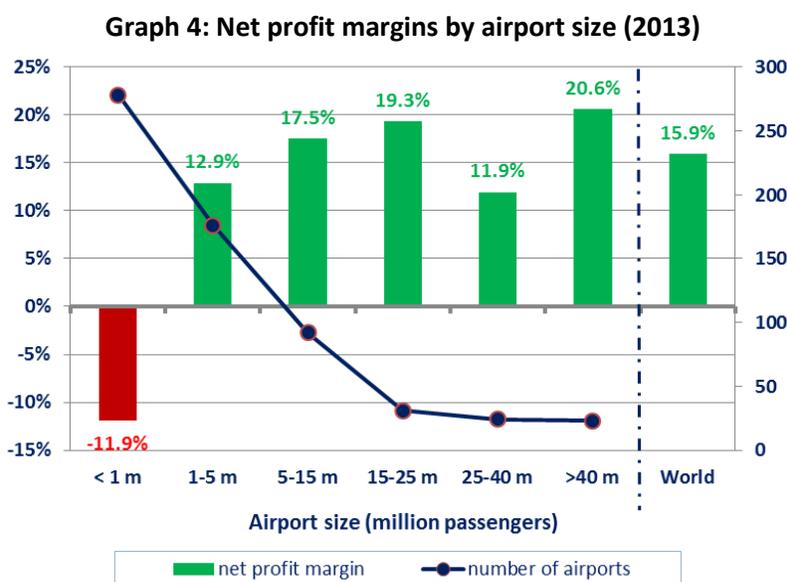


Source: ACI (ACI Airport Economics Survey – 2014)

2 - AIRPORT PROFITS

Airports may produce sufficient revenues to exceed all direct and indirect operating costs (including general administration, etc.) and so provide for a **reasonable return on assets at a sufficient level to secure efficient financing in capital markets for the purpose of investing in new or expanded airport infrastructure and, where relevant, to remunerate adequately holders of airport equity** (Doc 9082, Section 2, para. 2 viii) refers)².

Airport size plays an important role in determining profitability. In order for airports to achieve economies of scale, evidenced by declining average cost curves, total costs need to be spread over the airports' outputs (ie. passengers, cargo and movements). At a given airport, this can only be achieved with significant traffic throughput. Consequently, smaller airports with fewer than one million passengers tend to have negative margins. Taking into consideration capital cost and taxes, graph 4 summarizes net profit margins by airport size.



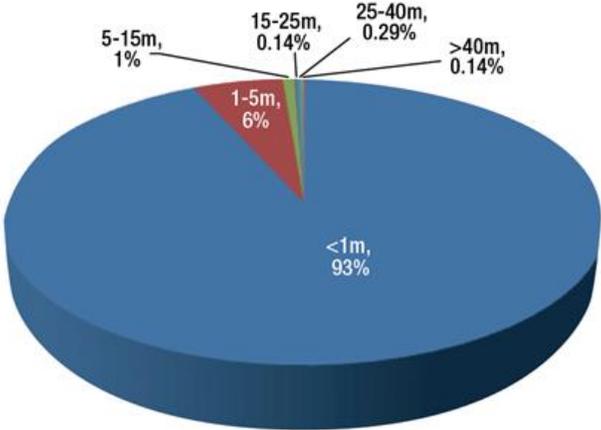
source: ACI (ACI Airport Economics Survey (2014); adapted from Bloomberg (2015))

Airport margins increase as airport markets expand in term of traffic, although a slight decrease in margins is observed for airports serving 25-40 million passengers per year. Finally, margins peak again for airports serving a market of more than 40 million passengers. On a global level, margins are at almost 16 per cent for the industry.

Graph 5 shows that of the airports that had net losses in 2013, 93 per cent had fewer than one million passengers.

² ICAO's guidance on how one may interpret paragraphs 2 viii) in Section II of Doc 9082 with respect to the treatment of non-aeronautical revenues to offset airport aeronautical costs is presented in Table 4-6 of Doc 9562.

Graph 5: Distribution of airports with a net loss by airport size – passenger traffic (2013)



source: ACI (ACI Airport Economics Survey (2014); simulation based on OAG scheduled seats (2013))

3 - AERONAUTICAL AND NON-AERONAUTICAL CHARGES

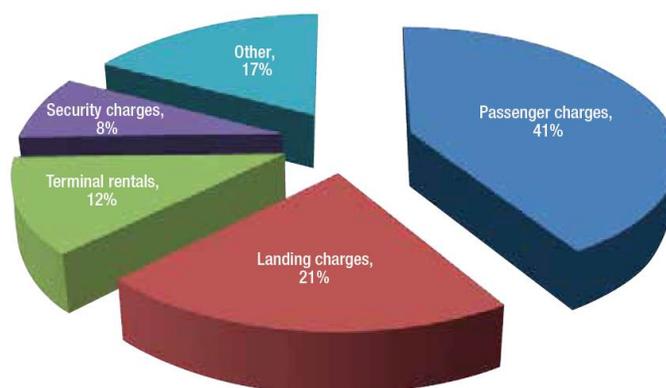
ICAO's policies on charges for airports are contained in Doc 9082. As per a recommendation adopted by the Conference on the Economics of Airports and Air Navigation Services (CEANS) and endorsed by the ICAO Council, States are encouraged to incorporate the **four key charging principles of non-discrimination, cost-relatedness, transparency and consultation with users** into their national legislation, regulation or policies, as well as into their future air services agreements, in order to ensure compliance by airport operators.

As a general principle it is desirable, where an airport is provided for international use, that the users shall ultimately bear their full and fair share of the cost of providing the airport. It is therefore important that airports maintain accounts that provide information adequate for the needs of both airports and users, and that **the facilities and services related to airport charges be identified as precisely as possible**. In determining and allocating the total cost to be met by charges on international air services, the list in Appendix 1 of Doc 9082 may serve as a general guide to the facilities and services to be taken into account. **Airports should maintain accounts that provide a satisfactory basis for determining and allocating the costs to be recovered, should publish their financial statements on a regular basis, and should provide appropriate financial information to users in consultations**. Moreover, it is recommended that States consider the application by airports, where appropriate, of internationally accepted accounting standards (Doc 9082, Section II, para. 1 refers).

3.1 - AERONAUTICAL CHARGES

Graph 6 provides a detailed breakdown of global aeronautical revenue. As shown, passenger and aircraft related charges represent a combined 62 per cent of all aeronautical revenues. Terminal rentals paid by airlines for space utilization account for almost 12 per cent of global aeronautical revenue and are mainly limited to North America.

Graph 6: Distribution of aeronautical revenues (2013)

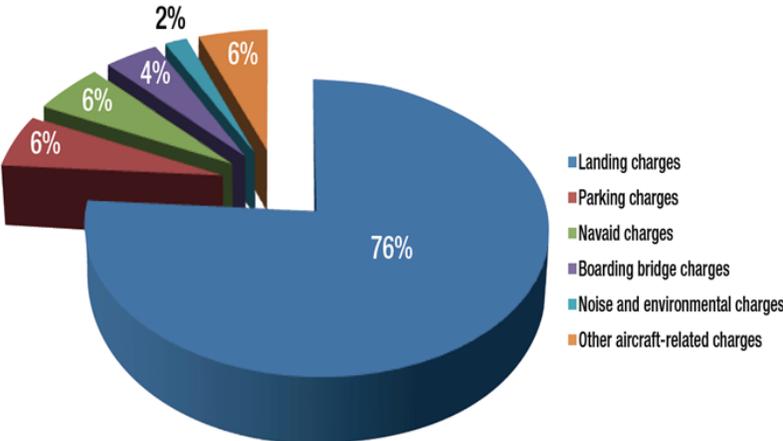


Source: ACI (ACI Airport Economics Survey – 2014)

Graphs 7 and 8 show the distribution of the various industry revenue streams for aircraft-related and passenger-related charges, respectively. By and large, landing charges make up 76 per cent of all aircraft-related charges. Typically, there is a single charge levied on passengers (81 per cent of

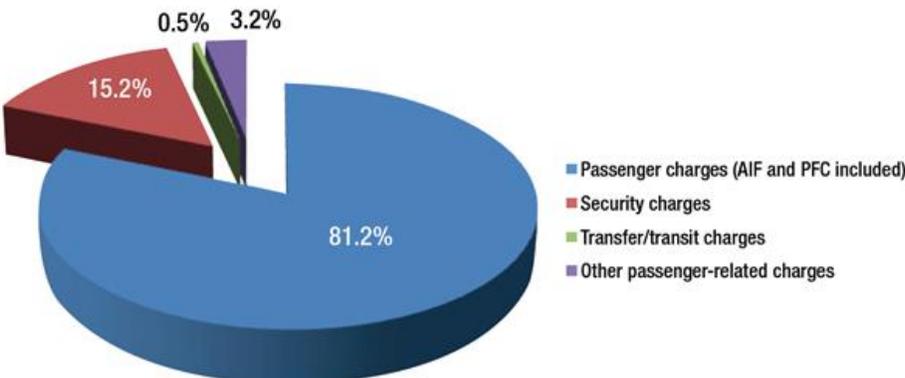
passenger-related revenues), with certain airports having distinct charges for security and/or transit/transfer passengers.

Graph 7: Distribution of aircraft-related charges (2013)



Source: ACI (ACI Airport Economics Survey – 2014)

Graph 8: Distribution of passenger-related charges (2013)



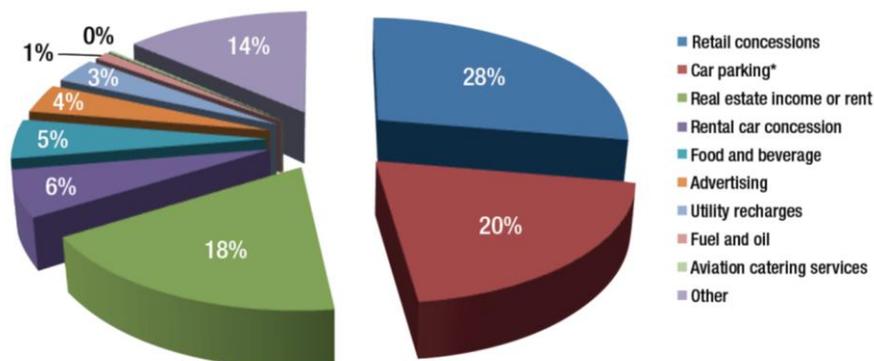
Source: ACI (ACI Airport Economics Survey – 2014)

3.2 - NON-AERONAUTICAL CHARGES

Income derived from such sources as concessions, rental of premises, and “free zones” is important to airports. It is recommended that, with the exception of concessions that are directly associated with the operation of air transport services, such as fuel, in-flight catering and ground handling, non-aeronautical revenues be fully developed, while keeping in mind the interests and needs of passengers and the public, and ensuring terminal efficiency (Doc 9082, Section II, para. 10 refers).

Chart 9 provides the global breakdown of non-aeronautical revenue by source.

Graph 9: Distribution of non-aeronautical revenue by source (2013)



Source: ACI (ACI Airport Economics Survey – 2014)

Retail concessions remain the leading source of non-aeronautical revenue for airports, representing 28 per cent of non-aeronautical revenue. Car parking revenue and property revenue/rent follow retail concessions as the secondary sources of revenue at 20 per cent and 18 per cent respectively.

Table 2 shows the distribution of non-aeronautical revenues by region. The Middle East has the highest proportion of non-aeronautical revenue attributed to leasing of or revenue-sharing from retail concessions at almost 49 per cent of revenue. Revenue generated from car parking is growing in importance because the proportional share increased across all regions. In particular, North America continues to be the world leader in generating revenue from car parking services, with these services representing as much as 39 per cent of the region’s non-aeronautical revenue. At 16.6 per cent, revenue from rental car concessions is also relatively higher in North America compared to other regions. This offsets the relatively low proportion of revenue that North American airports obtain from retail concessions.

**Table 2: Regional distribution of non-aeronautical revenues
(% of total non-aeronautical revenue, 2013)**

Region	Retail concessions	Food and beverage	Car parking*	Rental car concessions	Advertising	Fuel and oil	Aviation catering services	Utility recharges	Property and real estate revenue or rent	Other
Africa	37.1%	1.3%	15.1%	3.9%	7.1%	3.2%	0.3%	4.4%	14.9%	12.6%
Asia-Pacific	39.7%	3.4%	9.2%	1.2%	4.5%	1.7%	0.5%	4.1%	27.9%	7.9%
Europe	34.6%	4.8%	15.1%	2.2%	2.2%	0.8%	0.3%	5.6%	18.7%	15.7%
Latin America-Caribb.	25.3%	6.0%	8.9%	2.6%	4.7%	3.6%	0.4%	1.8%	13.1%	33.6%
Middle East	48.6%	4.9%	7.7%	2.2%	3.0%	7.0%	1.4%	2.7%	10.7%	11.9%
North America	8.3%	7.1%	39.3%	16.6%	5.7%	N/A	N/A	N/A	13.5%	9.4%
World	27.7%	5.2%	20.3%	6.2%	3.9%	1.1%	0.3%	3.4%	18.3%	13.7%

*: Car parking revenue includes revenue from airport-operated parking lots and car parking concession revenue.

Source: ACI (ACI Airport Economics Survey – 2014)

In determining the cost basis for airport charges, the cost to be allocated is the full cost of providing the airport and its essential ancillary services, including appropriate amounts for cost of capital and depreciation of assets, as well as the costs of maintenance, operation, management and administration. Consistent with the form of economic oversight adopted, these costs may be offset by non-aeronautical revenues (Doc 9082, Section II, para. 2 i) refers)³.

In general (Doc 9562, Chapter 4, Part F, para 4.121 refers), three approaches are used to describe how an airport recovers the full cost associated with the airport and its essential non-aeronautical services. These approaches are commonly referred to as: a) the single-till (sometimes referred to as the “residual” method); b) dual-till (sometimes referred to as the “compensatory” method); and c) hybrid-till.

- a) Under the **single-till approach**, the full cost associated with an airport and its essential ancillary services, including appropriate amounts for cost of capital and depreciation of assets, as well as the cost of maintenance and operation, and management and administration expenses, are included in the cost basis attributed to air traffic. These costs are then adjusted to reflect non-aeronautical revenues that accrue to the airport. In general, in exchange for sharing the risk associated with the airport’s operations, aircraft operators and/or end-users benefit from a cost basis that is adjusted to reflect non-aeronautical revenues.
- b) Under the **dual-till approach**, the full costs associated with the airport and its essential ancillary services are allocated between the airport owner/operator and the airport users. The costs allocated to air traffic include only those costs associated with the facilities that are actually used by the aircraft operators and the end-users. No adjustment is made to this cost basis to reflect non-aeronautical revenues accruing to the airport. The airport owner/operator is free to direct the use of any revenues generated from its concessions, parking facilities, and any other non-aeronautical activities for use at the airport, as it deems necessary and appropriate.
- c) Under the **hybrid-till approach**, the cost basis is established based on a combination of the single-till and the dual-till approaches. For example, the airport owner/operator may choose to recover landing costs on the basis of the single-till approach while establishing terminal costs on the basis of the dual-till approach.

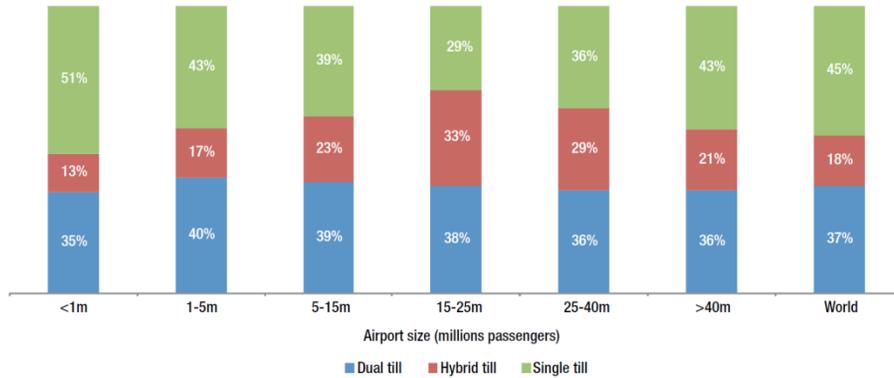
Regardless of how the cost basis for charges is established, it is incumbent on the State to ensure that it is done in a transparent manner, involving user consultation, which clearly describes which costs are included and to what extent non-aeronautical revenues are being used to offset aeronautical costs (Doc 9562, Chapter 4, Section F, para. 4.124 refers).

Chart 10 shows the proportional breakdown of airports by regulatory till and airport size. In general, there are no significant differences across airport size categories. With respect to airports serving fewer than one million passengers per year, 51 per cent operate under a single till regime. On the other hand, we see very little variation with respect to the proportion of airports with a dual till revenue structure.

³ ICAO’s guidance on how one may interpret paragraphs 2 i) in Section II of Doc 9082 with respect to the treatment of non-aeronautical revenues to offset airport aeronautical costs is presented in Table 4-6 of Doc 9562.

The proportion of airports listed as dual till ranges between 35 per cent and 40 per cent across the various size categories. Based on the entire sample of data, the proportion of airports that are dual till, hybrid till and single till is 37 per cent, 18 per cent and 45 per cent respectively.

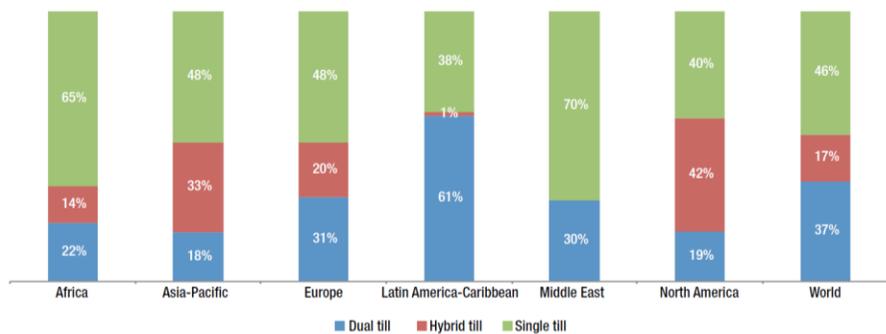
Graph 10: Proportion of airports by regulatory till – by airport size (2013)



Source: ACI (ACI Airport Economics Survey – 2014)

The variation across regions is much more significant in graph 11. While the Middle East has the greatest proportion of airports under a single till system (70 per cent), Latin America and the Caribbean has over 60 per cent of its airports under the dual till system. The hybrid till system is most prevalent in North America at 42 per cent of airport in the region.

Graph 11: Proportion of airports by regulatory till – by airport size (2013)



Source: ACI (ACI Airport Economics Survey – 2014)

Public-Private Partnership (PPP) is a partnership between the public sector and the private sector for the purpose of delivering a project or a service traditionally provided by the public sector.

The advantage of a PPP is that the management skills and financial acumen of private businesses could create better value for money for taxpayers, when proper cooperative arrangements between the public and private sectors are used.

PPP can increase the quality, the efficiency and the competitiveness of public services. It can supplement limited public sector capacities. The best use of private sector operational efficiencies can reduce cost and increase quality to the public and the ability to speed up infrastructure development. Financial support can be provided to cover investment needs.

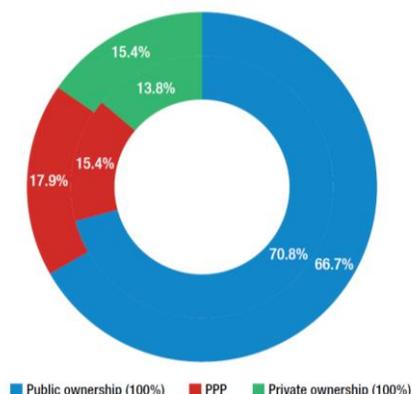
When considering the commercialization or privatization of airports, **States** should bear in mind that they are **ultimately responsible for safety, security and economic oversight** of these entities (Doc 9082, Section I, para 6 refers)

Privatization should not in any way diminish the State’s requirement to fulfil its international obligations, notably those contained in the Chicago Convention, its Annexes and in air services agreements, and to observe ICAO’s policies on charges in Doc 9082 (Doc 9562, para 2.27 refers).

ICAO has developed case studies on airport PPPs. The case studies are available online at: <http://www.icao.int/sustainability/Pages/im-ppp.aspx>.

Graph 12 summarizes the proportions of airports falling under different ownership models, as well as their corresponding proportions of global passenger traffic. Government-owned or exclusively public airports continue to make up the lion’s share of airports across the globe, irrespective of the growing interest in private-sector financing and management of airports. While a majority of airports (71 per cent) are public in that they are owned exclusively by a government, these airports handle 67 per cent of global traffic, based on a comprehensive sample of major airports across the globe. Taking into account both fully privatized airports and those operated under PPPs, 33 per cent of global airport traffic is managed and/or financed by private stakeholders.

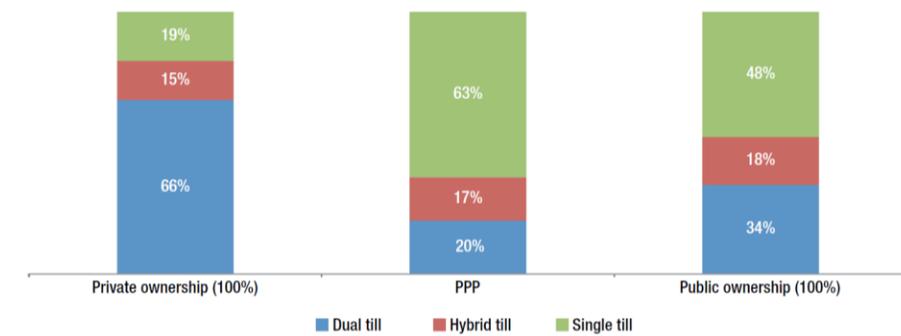
Graph 12: Proportion of airports (inside) and corresponding passenger traffic (outside) by ownership model (2013)



Source: ACI (ACI Airport Economics Survey – 2014)

For the sample of airports, graph 13 illustrates that privately held airports tend to be more compatible with a dual-till revenue structure and that it is more typical to see a single-till system under public ownership or PPP model of ownership. Over 65 per cent of privately held airports fall under the dual-till system. PPPs and publicly owned airports, which have a higher prevalence of single-till frameworks for managing revenue, account for 63 per cent and 48 per cent of airports, respectively.

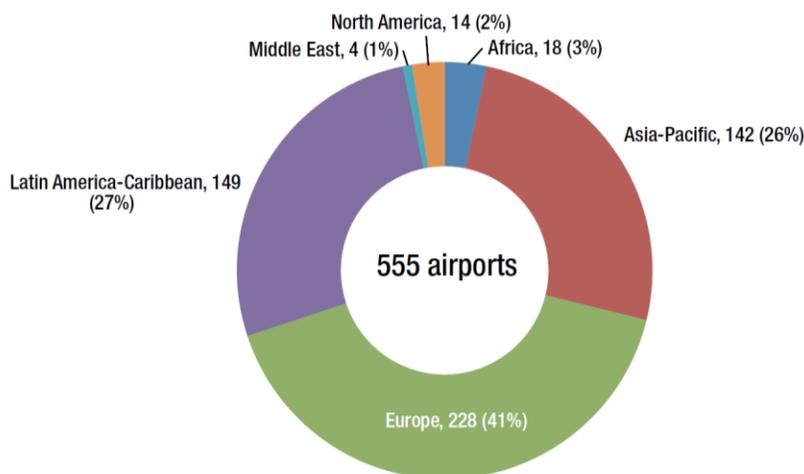
Graph 13: Proportion of airports by regulatory till and ownership model (2013)



Source: ACI (ACI Airport Economics Survey – 2014)

As shown in graph 14, Europe continues to be the region with the highest number of privatized airports (228), followed by Latin America and the Caribbean (149) and Asia and Pacific (142)⁴.

Graph 14: Distribution of airports with private sector participation by region (2013)

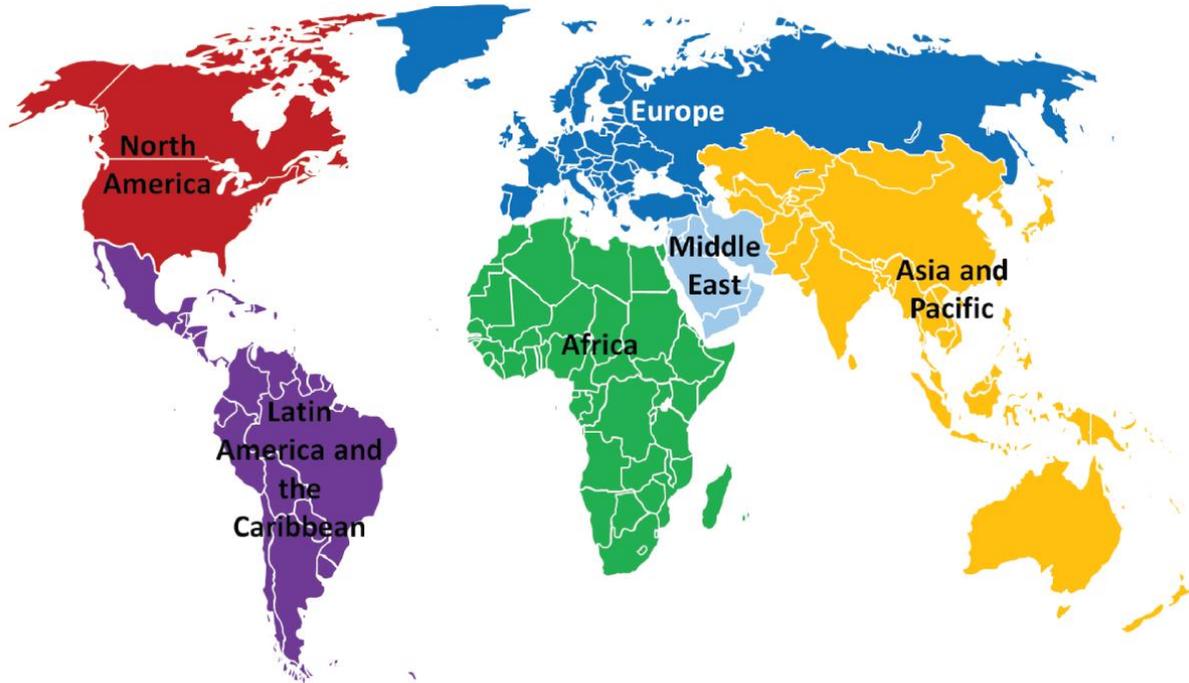


Source: ACI (ACI Inventory of privatized airports)

⁴ In Europe, the count includes airports operated by AENA (only those that may handle commercial operations), a 51 per cent publicly owned company that was listed in the first quarter of 2015. In Africa, nine commercial airports owned by Airports Company South Africa (ACSA) are excluded.

APPENDIX

REGION DEFINITION



— END —