

REVISION TO THE AIRPORT SLOTS ALLOCATION REGULATION

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Abstract: The European Commission is constrained in direct action that it can take to increase capacity at individual airports. Growth in air transport over the last decades has increased pressure on the capacity available for aircraft movements at congested airports. The European Commission plans to introduce legislation within months to address the problem of airport congestion in Europe. The EU study says the problem of limited capacity is likely to worsen because many busy airports which do not plan to expand. This article focuses on the way airport slots are allocated to airlines - a job done by co-ordinators using various criteria, including historic precedence - a custom that favours traditional airlines. It recommends secondary trading of airport slots EU-wide, based on what it says is successful experience at London airports. All of the possible changes of current regulation are discussed and at the end are described possible results of amendments.

Keywords: AIRPORT SLOTS, ALLOCATION, SECONDARY AND PRIMARY TRADING, COORDINATE, CONGESTED AIRPORT, COORDINATOR, CONSTRAIN, EUROPEAN COMMISSION

1. Introduction

Today situation at European airports is quite critical. There are some airports which are able to handle with demand for air transport but there are also airports which are not. This article will introduce coordination system for airport capacity and slot allocation system and its weaknesses.

There are yearly studies on the demand for air traffic and the capacity of airports. One prediction says that constraints are the barriers for future growth; it separates world's airports into three groups because of their differences (Europe, North America and the rest of the world).

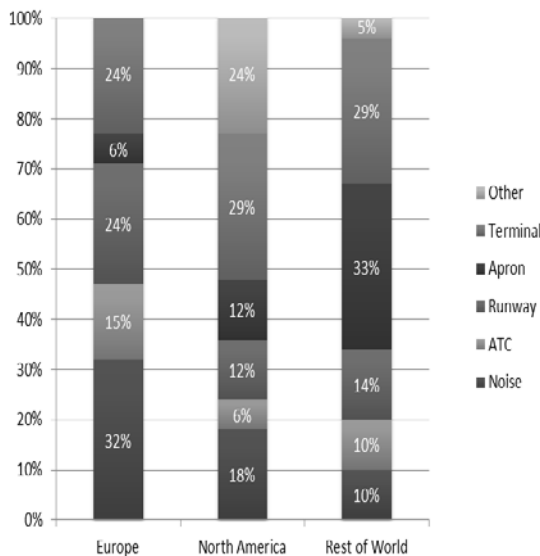


Fig. 1 Three main airport regions and sources of constrains [10]

As in the figure, there are six main areas or barriers for future grow of airports' capacity. They are noise, ATC, runway, apron, terminal and others. These are results of interview research done at the airports.

The most interesting data for us are those of European airports with a factor of the highest influence of noise. This is due to an enormous number of flights during the day at the most congested airports and also because of strict European regulations for the protection of environment. There are two other big capacity constraints, namely runway and terminal. To break these barriers, it is necessary to have money, time, government agreement and space. Today, many European airports are not able to expand because of factors which do not allow it (some of them are surrounded by towns so they don't have free land for development; there are noise

restrictions; expansion is time consuming so it does not solve constraint problems immediately). Two last barriers of European airport growth are ATC and apron.

2. European airports capacity

The 2008 Eurocontrol study predicted that airport capacity would not be sufficient to accommodate demand at a large number of European airports, and therefore congestion would significantly worsen. The number of flights in 2010 is 14% lower than it would have been if traffic had continued to increase on the pre-2008 trend, and while there is now some evidence of recovery, the most recent Eurocontrol forecasts indicate that around five years of growth has been lost. Meanwhile, many European airports are still planning to expand capacity. As a result, the gap between demand and capacity has been reduced.

Demand currently exceeds capacity throughout most or all of the day at six European airports (London Heathrow, London Gatwick, Paris Orly, Milan Linate, Düsseldorf and Frankfurt). Demand also exceeds capacity during peak hours at a number of other airports. Currently, there is a major expansion underway at Frankfurt airport, including a new runway. As a result, Frankfurt will probably have sufficient capacity to accommodate most demand for the period covered by this impact assessment (2011-2025). Limited expansion is also expected at Düsseldorf and Gatwick but demand will continue to exceed capacity throughout the day at these airports. By the end of this period, it appears likely that demand will also exceed capacity through most or all of the day at Paris CDG. In addition, no expansion in capacity is planned at Heathrow, Orly or Linate, and therefore the gap between demand and capacity will grow further at these airports. Congestion will also worsen at some other key European airports including Amsterdam Schiphol.

The next figure shows how long demand exceeds airport capacity during the daytime period (16 – 18 hours, depending on airport). In the case of London Heathrow airport, very limited capacity is available in some off-peak hours, but cannot be allocated due to annual movement cap – in effect, the airport is full all day, year-round.

There are some future plans which are reflected in 2017 and 2025 predictions. If there are any plans or possibilities to improve airport capacity then it is in calculation for future demand and demand exceeds airport capacity during the day.

Airport	2010	2012	2017	2025
Dublin	1	3	0	0
London Gatwick	14	14	14	17
London Heathrow	15	15	15	15

Madrid Barajas	6	12	6	12
Paris CDG	8	11	12	15
Palma de Mallorca	2	2	2	3
Rome Fiumicino	5	6	6	9
Vienna	5	5	9	5

Fig. 2 Hours per day demand exceeds capacity [4]

3. Amendments to the slot allocation regulation

In December 2011 the EC (European Commission) published its 'Better Airports Package'. This followed research carried out for the Commission in 2010-11 which concluded that the allocation system in place prevents optimal use of the scarce capacity at busy airports. Therefore the Commission is proposing changes to the current Regulation to allow for the introduction of market-based mechanisms across the EU provided that safeguards to ensure transparency or undistorted competition are established, including greater independence for slot coordinators. This would help to ensure that slots go to those carriers able to make the best use of them.

The EC's communication document proposing the revision states that the SAR (Slot Allocation Regulation) has significantly improved slot allocation at busy European airports in terms of neutrality and transparency, "making a major contribution to the creation of the internal market in aviation". However, Europe is facing potentially serious levels of airport congestion, and a shortage of capacity at critical airports. While slot allocation cannot generate additional capacity, or solve the many problems created by a lack of capacity, it can be an effective tool for managing scarce capacity. In light of this, the EC is proposing four main changes to the SAR:

Introducing the possibility of secondary trade in slots and increased competition – the proposal expressly allows airlines to buy and sell slots. Improving slot mobility will help allow airlines to adapt their slots portfolios according to their scheduling needs. It also proposes broadening the definition of 'new entrant', to help facilitate the growth of sustainable competitors and reduce the schedule fragmentation that occurs when slots are allocated to a larger number of airlines unable to translate these slots into a viable alternative to dominant carriers;

Strengthening the transparency of the slot allocation process and the independence of slot coordinators – depending on progress made towards this end, the proposal could eventually lead to the creation of a European coordinator responsible for slot allocation at all European Union airports;

Integrating slot allocation with the reform of the European air traffic management system (Single European Sky) – the proposal would associate the European Network Manager with the slot allocation process and allow, for example, for the network manager to request capacity analyses at airport on which the Commission could make recommendations to Member States; and

Amending the '80-20' rule on grandfather rights – the proposal makes some changes to the criteria for the use of airport slots in order for 'grandfather rights' to be granted. In order for airlines to be granted priority for the allocation of a given slot in the next corresponding scheduling season, they would need to have used at least 85 per cent of the allocated series of slots (instead of 80 per cent at present). In addition, the minimum series length (i.e. the minimum number of weekly slots required for priority allocation for the following corresponding season) would rise from 5 to 15 for the summer season and 10 for the winter season. It would also authorise airports to use an airport charge system to dissuade air carriers from belatedly returning slots to the pool.¹⁰

4. Secondary trading

Secondary trading of airport slots has its history and is used in UK airports. Based on this, it is recommended to permit secondary trading at all European airports because there are significant benefits of using this system.

This change will reduce today's grey market with airport slots and brings beneficial financial results to any airport. Secondary trading will increase competition between airlines. This is based in the philosophy of better usage of slots where the buyers of slots will be those who are capable of paying for the slot and using it in the best way to try and avoid any financial losses. The current allocation system and its coordinators cannot judge which carrier will use the slot in the most effective way.

There are some factors which have influence on the prices of slots:

- The time of the day, or more specifically, whether it concerns a peak or an off-peak period; especially at larger hubs, connecting waves create strong traffic peaks and congestion periods, in which the value of a slot may increase substantially.
- The number of slots held and the adjacency of slots considered for trading; the availability of a slot enabling a carrier to create a series of slots may create additional value.
- Used restrictions at an airport, for example, night curfews, may result in limited capacity and increased slot scarcity.
- ATC constraints may reduce hour capacity and thereby scarcity of slots during the same period.
- Airline regulation or airline deregulation may result in frequency competition increasing the demand for slots, but also market access of new entrants owing to deregulation may require substantial series of slots that put an upward pressure on the value of the slots envisaged.
- The availability of neighbouring airports and spare capacity may relieve the upward pressure on slot prices
- The perspective of capacity expansion (the planning of extra runways and taxiways, for example) may reduce slot prices in anticipation of reduced scarcity of airport capacity.
- Actual or expected growth acceleration of transport demand can put upward pressure on slot prices.
- New route rights put extra pressure on the designated carrier to start operations to the new destination. Especially a hub carrier will try to find extra slots within the connection waves.
- The role of intermediaries, for example, financial institutes leasing series of slots, may directly influence the price, and may also have an indirect influence by keeping extra slot inventories and thereby increasing slot scarcity.
- Accessibility to the apron/gates. Often the value of the slot is determined not only by runway capacity but also by the scarcity of gates and jetties.

5. Other amendments to the coordination system

There are other areas of possible innovation of the current slot allocation. This part consists of main areas for amendment.

- **Use of airport capacity** – as it has been written, coordination systems cannot produce new capacity. Results of coordination are only from better usage of limited capacity, which is allocated by coordinators who allocate airport slots to carriers following regulations. There is also a problem with individual usage of slots where most of them are operated by small aircrafts which leads to the limiting of the number possible passengers. This is also due to historic precedence and the 80% usage

rule since the last way to maintain historic slots is to use smaller aircraft or cooperate with another airline.

- **New entrants' difficulties** – allocation criteria say that 50% of the slot pool slots are allocated to new entrants. At the busiest airports, more than 80% of slots are allocated with historic precedence, so only a few of them are in the slot pool. Carriers are not interested in these pooled slots. Most of these slots are those which nobody wants to operate. The following figure shows the percentage of allocated historic slots at the most congested airports in Europe (the period covered by the data is written as S for the summer scheduling season and W for the winter scheduling season; data is dated from 2005 to 2010 in general).

Airport	Historic slots as % of total allocation	Period covered by data
DUB	82,5	S06-W10
DUS	87,4	W09-S10
FRA	91,6	W09-S10
LGW	88,5	S06-W10
LHR	99,1	S06-W10
MAD	85,5	W05-S10
MUC	90,9	W09-S10
PMI	74,1	W05-S10
CDG	89,7	W08-S10
VIE	83,7	W07-W10

Fig.3 Historic slots [4]

- **Slot coordination operation** – there are some differences between the responsibilities of coordinators, which can cause problems in coordination and cooperation between them. They produce different data about slots and allocation, thus making communication and cooperation problematic.
- **Single European Sky** – consistency with the Single European Sky programme needs to be made for improvement of the coordination system and cooperation between all parties. This can bring better results in slot allocation and can have an influence on better usage of limited airport capacity.

Based on this, the main reforms to regulations and to the market of air transport and airport capacity limitations are defined. This part will be split into subparts with descriptions of the problem.

Coordinators' operation

Regulation says that coordinators work independently, but there are many cases which are conflicting with this. Some coordinators are parts of an airport's managing body so it is difficult to prove that such coordinators work independently. So there is an amendment to make their operation stricter, because their work depends on what airlines will be operating at their airport.

There is another reason for stricter rules: some coordinators are considered an organization by some airlines. So it is normal that coordinators look at stakeholders interests and as a result, his work is not independent (e.g. if there are any financial problems).

So future change supposes that an independent position be made for every coordinator. This change will be in:

- Coordinators will be provided with a base by the state which will support them to ensure their financial independence.

- Coordinators will be separated from any lobby group which could have influence on their operations.
- Coordinators will publish annual reports to ensure their transparency (all of their activities, local guidelines and allocation process and results will be in these reports).

Grandfather rights

Figure 3 shows that the majority of airport slots are allocated to airlines with historic precedence. For such airlines this is good because it is easier to get a slot by historic precedence than to wait for one from the slot pool where almost all the unwanted slots, by any airline, are. But this is not as fair as regulation says and other airlines are discriminated by historic precedence and the fact that they do not have any historic usage of airport capacity.

Because of such factors, article to introduce these changes:

- A stricter usage rule for historic slots – more than 80% per scheduling period.
- Better control of 80% usage of historic slots to ensure that there will not be any circumvention of these criteria.

New entrants rule

It was pointed out that new entrants are discriminated against and all changes for historic precedence would improve new entrant rules. The auctioning of slots for new entrants will also be discussed.

Usage of airport slots

As was written above, it is necessary to increase the 80% usage threshold. Even if it is criteria for allocating historic slots, it has been found that not every carrier with historic precedence follows this. But much worse is that coordinators also did not control usage.

Future plans are:

- Increase the 80% usage criteria to at least 85%.
- Control compliance of this rule (proper inspection of airlines and coordinators).
- Avoid unjustified circumventions of this rule.

New allocation criteria

One of suggestion is to give priority to less noisier aircrafts when airlines with those aircrafts applied for slots in early morning and late evening times.

Also airlines with airplanes which produce fewer emissions can obtain priority in the allocation process.

6. Discussion

All mentioned changes and amendments have the expected results after their application into the coordination system. These results will be listed below. Some of these results are hypothetical, but others are theoretically based on real experiences.

Expected results of transformed coordination:

- Effective use of limited airport capacity.
- Financial profit from trading and investment of gained money for exceeding of capacity and coordination needs.
- Better competition between airlines and airports.
- Non-discriminatory allocation of slots based on willingness to pay or stricter allocation rules.
- Use of larger aircrafts which leads to a smaller number of aircrafts' movements.
- Distribution of all flights during the whole daytime period.
- Reduction of peak hours.
- Applying for off-peak slots which will be cheaper in the case of slot trading.
- Reduction of unutilized slots.

References

- [1] CZERNY, A.I. et al. *Airport Slots: International Experiences and Options for Reform*. Hampshire: Ashgate Publishing Limited, 2008. 432p. ISBN 978-0-7546-7042-1.
- [2] *Eurocontrol Short Time Forecast, Flight Movements 2011-2012*. Eurocontrol. 2011. [Online] <http://www.eurocontrol.int/sites/default/files/content/documents/official-documents/forecasts/eurocontrol-short-term-forecast-2011-2012.pdf>
- [3] European Union Airport Coordinators Association [online]. <http://www.euaca.org/Default.aspx>.
- [4] GLEAVE, S.D. *Impact Assessment of Revisions to Regulation 95/93*. London. 2011.354p. [Online] <http://ec.europa.eu/transport/air/studies/doc/airports/2011-03-impact-assessment-revisions-regulation-95-93.pdf>
- [5] JAAP DE WIT & G. BURGHOUWT, *The impact of secondary slot trading at Amsterdam Airport Schiphol*, Amsterdam, March 2007 [Online] http://www.seo.nl/uploads/media/957_The_impact_of_secondary_slot_trading_at_Amsterdam_Airport_Schiphol.pdf
- [6] MORRISROE, P. *Slot allocation today and tomorrow: alternatives, benefits and risks*. Presentation prepared for the EUACA seminar on secondary trading, 28th June 2006, Amsterdam.
- [7] *Worldwide Scheduling Guidelines*. 21th edition. IATA. 2011. [Online] http://www.wvacg.org/up/files/DocsWSG/WORLDWIDE_SCHEDULING_GUIDELINES/WSG_21st%20Edition%20JAN%202011.pdf
- [8] *Worldwide Slot Guidelines*. First edition. IATA. August 2011 [Online] [Cited: 9. 7. 2011.] <http://www.iata.org/whatwedo/passenger/scheduling/Documents/w-slot-g.pdf>.
- [9] [Council Regulation \(EEC\) No 95/93 of 18 January 1993 on common rules for the allocation of slots at Community airports](#) [Online] http://eur-lex.europa.eu/RECH_naturel.do?ihmlang=en
- [10] *ACI Airport Traffic Forecasting Manual: A practical guide addressing best practices 2007*. ACI. June 2011 [Online] http://www.aci.aero/aci/aci/file/Publications/2011/ACI_Airport_Traffic_Forecasting_Manual_2011.pdf