Airport Slot Allocations in the European Union: Current Regulation and Perspectives.

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Final project
# Airport slot allocations in the European Union

Current regulation and perspectives

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Introduction

Air transport makes a key contribution to the European economy, with more than 130 scheduled airlines and a network of over 450 airports. The aviation sector employs more than 3 million people in the European Union. Airlines and airports alone contribute to more than €120 billion to the European GDP.

The liberalization of the air transport market in Europe has been a success, with traffic that has tripled between 1980 and 2000. Between 1992 and 2005 the number of intra-EU routes has increased by 150%.

Yet given the expected growing traffic, Europe will face a gap between capacity and demand which risks becoming the most constraining factor on European air transport. If current capacity levels are not drastically increased, it is estimated by the European Commission that over 60 European airports will be heavily congested and the top 20 airports will be saturated at least 8-10 hours per day by 2025. Such congestion would undermine the overall competitiveness of the European economy. It will also have a negative impact on the environment and on safety.

Knowing that it takes at least 5 to 10 years and very large financial investments to provide new infrastructure, as well as 1 to 5 years to plan and optimise the use of existing runways, including the surrounding airspace, effective demand management under current capacity conditions is necessary at European airports.

Congestion can be managed through quantitative restrictions of demand, with the allocation of a pre-definite number of slots. It can also be managed through aggressive pricing of slots, or both.

The European Union has developed its own slot system which is still subject to controversy.

The objective of this paper is to answer the following questions:

- What is the current congestion situation at European airports? How is it managed? Is the current regulatory environment satisfactory?
- Which factors have influenced the decisions of the European Commission and the European Parliament? What do they promote? Which obstacles do they face? What are their main concerns concerning slot allocation? How easy is it to pass regulations on airport slot allocations at the European level?
- Can realistic improvements be considered in the short term? In the long term? As a member of the European Commission, which reforms would I promote?

1.1 Legislative framework

The allocation of slots is governed by the European Regulation 95/93 taking effect on 02.22.1993 and amended by two subsequent Regulations: Regulation 1554/2003 taking effect on 09.05.2003 and Regulation 793/2004 taking effect on 07.30.2004.

Since then there has been a Commission Report on the application of the Regulation which has lead to two Communications from the Commission: Communication COM(2007) 704 on 11.15.2007 and Communication COM(2008) 227 on 04.30.2008.

Communication COM(2006)819 published in 2007 relates to airport capacity and efficiency, but it does scarcely address the issue of slots.

Eventually, there has recently been a temporary modification of two articles of the Regulation due to the recent economic crisis. This Regulation 545/2009 is only valid for the Winter 2009/2010 season.

Very recently, on 11.20.2009, the Commission has published Proposal 2009/0176(COD), which proposes a new Regulation that will supersede the three previous acts. Yet all it does is simply bring them together for simplification and clarity. It preserves fully the content of the previous Regulations without modifying anything.

We recommend that the reader refers to the following cornerstone texts.: 

- Proposal 2009/0176(COD), which sums up clearly the three existing regulations.
- Regulation 545/2009 about a current temporary measure to deal with the crisis.

We did not provide them as appendices because it would make the paper much bigger. (More than 60 pages)

1.2 A few definitions

A few definitions are necessary to fully understand the issue of slot allocation in the EU. Regulation 95/93 and Regulation 793/2004 define the following:

“A slot means the permission given by a coordinator to use the full range of airport infrastructure necessary to operate an air service at a coordinated airport on a specific date and time for the purpose of landing or take-off as allocated by a coordinator in accordance with this Regulation.”

“Direct air service means a service between two airports including stopovers with the same aircraft and same flight number.”
“Coordinated airport” means any airport where, in order to land or take off, it is necessary for an air carrier or any other aircraft operator to have been allocated a slot by a coordinator, with the exception of State flights, emergency landings and humanitarian flights.”

“schedules facilitated airport” means an airport where there is potential for congestion at certain periods of the day, week or year which is amenable to resolution by voluntary cooperation between air carriers and where a schedules facilitator has been appointed to facilitate the operations of air carriers operating services or intending to operate services at that airport.”

“A new entrant” means either:

(i) an air carrier requesting, as part of a series of slots, a slot at an airport on any day, where, if the carrier's request were accepted, it would in total hold fewer than five slots at that airport on that day; or

(ii) an air carrier requesting a series of slots for a non-stop scheduled passenger service between two Community airports where at most two other air carriers operate the same non-stop scheduled service between those airports or airport systems on that day, where, if the air carrier's request were accepted, the air carrier would nonetheless hold fewer than five slots at that airport on that day for that non-stop service; or

(iii) an air carrier requesting a series of slots at an airport for a non-stop scheduled passenger service between that airport and a regional airport where no other air carrier operates a direct scheduled passenger service between those airports or airport systems on that day, where, if the air carrier's request were accepted, the air carrier would nonetheless hold fewer than five slots at that airport on that day for that non-stop service.

An air carrier holding more than 5% of the total slots available on the day in question at a particular airport, or more than 4% of the total slots available on the day in question in an airport system of which that airport forms part, shall not be considered as a new entrant at that airport;”

“series of slots” means at least five slots having been requested for the same time on the same day of the week regularly in the same scheduling period and allocated in that way or, if that is not possible, allocated at approximately the same time.”

“airport system” means two or more airports grouped together and serving the same city or conurbation.”

“primary trading” means the use of market mechanisms to achieve an initial allocation of slots to airlines. Such mechanisms could be used by governments, airport operators or coordinators to allocate slots to airlines. All primary trading mechanisms find a set of prices that matches the demand for slots with the available supply. In this way, the mechanism seeks to identify those airlines with the highest willingness to pay for particular slots.

“secondary trading” happens once an initial allocation of slots has been determined. It means the use of market mechanisms so that airlines can sell or lease slots on to other airlines.
1.3 Short description of the current system

There are two scheduling seasons a year (summer and winter).

Grandfather rights state that an air carrier can keep a slot from one season to another as long as it has used it 80% of the time. Exceptions to this rule include cases when the air carrier was experiencing serious financial damage, or when the bad utilization is due to external disturbances at the airport and for which the air carrier is not responsible.

If an air carrier does not ask for a slot he operates above the 80% utilization threshold or if he under-utilizes it, then the slot joins what is called a “slot pool”. Among this pool of slots, 50% are reserved for new entrants (cf definition), unless total new entrant demand is less than 50% of the total slot pool.

Slots can be exchanged on a one-on-one basis between carriers, as long as the transfer is accepted by the slot coordinator. No mention is made of possible financial transaction in parallel to the exchange.

Currently, the 80% utilization rule has been suspended for the winter season because of the economic recession that causes many airlines to be unable to use their slots at such a rate.
(Cf Appendix C)

1.4 Practical situation at European airports

First of all, the increase of capacity at European airports is slow. Airports are widely perceived as generating negative externalities, be it noise or pollution. Airport expansion or building are opposed by local residents and growth of capacity is difficult to achieve. As a result, growth in the supply of airport capacity has lagged and will lag the growth in demand.

The table provided in the following page shows the evolution from 2000 to 2008 of total aircraft movements vs slot capacity at major European airports. Even if most European airports are only congested at some parts of the day (with the famous exception of Heathrow, which has reached maximum capacity at all times of the day), it is striking that total aircraft movements increase much more than hourly capacity in Europe.

This table was established with data from Thomas Morisset (whose source was Eurocontrol) and with data from a 2004 report by NERA Economic Consulting.
### Table 1. Evolution of capacity vs demand from 2000 to 2008 at major EU airports.

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<tr>
<td>Amsterdam</td>
<td>AMS</td>
<td>454 357</td>
<td>401 000</td>
<td>13.3%</td>
<td>105</td>
<td>106</td>
<td>0.0%</td>
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<tr>
<td>Berlin</td>
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<td>151 396</td>
<td>122 000</td>
<td>24.1%</td>
<td>48</td>
<td>35</td>
<td>37.1%</td>
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<tr>
<td>Brussels</td>
<td>BRU</td>
<td>264 366</td>
<td>237 000</td>
<td>11.5%</td>
<td>74</td>
<td>74</td>
<td>0.0%</td>
</tr>
<tr>
<td>Copenhagen</td>
<td>CPH</td>
<td>257 591</td>
<td>275 000</td>
<td>-4.3%</td>
<td>83</td>
<td>83</td>
<td>0.0%</td>
</tr>
<tr>
<td>Dublin</td>
<td>DUB</td>
<td>211 803</td>
<td>164 000</td>
<td>28.1%</td>
<td>46</td>
<td>44</td>
<td>4.8%</td>
</tr>
<tr>
<td>Dusseldorf</td>
<td>DUS</td>
<td>227 897</td>
<td>178 000</td>
<td>28.0%</td>
<td>33-47</td>
<td>38</td>
<td>0.0%</td>
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<td>Frankfurt</td>
<td>FRA</td>
<td>492 569</td>
<td>425 000</td>
<td>15.9%</td>
<td>75-83</td>
<td>80</td>
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<td>Helsinki</td>
<td>HEL</td>
<td>184 052</td>
<td>153 000</td>
<td>20.3%</td>
<td>80</td>
<td>80</td>
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<tr>
<td>Lisbon</td>
<td>LIS</td>
<td>144 797</td>
<td>110 000</td>
<td>31.6%</td>
<td>36</td>
<td>30</td>
<td>20.0%</td>
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<tr>
<td>Madrid</td>
<td>MAD</td>
<td>483 284</td>
<td>157 000</td>
<td>145.3%</td>
<td>90</td>
<td>78</td>
<td>15.4%</td>
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<tr>
<td>Milan</td>
<td>MXP</td>
<td>267 825</td>
<td>196 000</td>
<td>36.6%</td>
<td>69</td>
<td>70</td>
<td>-1.4%</td>
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<tr>
<td>Munich</td>
<td>MUC</td>
<td>431 815</td>
<td>320 000</td>
<td>34.9%</td>
<td>90</td>
<td>87</td>
<td>3.4%</td>
</tr>
<tr>
<td>Paris CDG</td>
<td>CDG</td>
<td>552 721</td>
<td>406 000</td>
<td>13.7%</td>
<td>112</td>
<td>97</td>
<td>15.5%</td>
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<tr>
<td>Rome</td>
<td>FCO</td>
<td>334 848</td>
<td>283 000</td>
<td>18.3%</td>
<td>88</td>
<td>90</td>
<td>-2.2%</td>
</tr>
<tr>
<td>Vienna</td>
<td>VIE</td>
<td>280 915</td>
<td>187 000</td>
<td>50.2%</td>
<td>66</td>
<td>66</td>
<td>0.0%</td>
</tr>
<tr>
<td>London Heathrow</td>
<td>LHR</td>
<td>481 356</td>
<td>460 000</td>
<td>4.6%</td>
<td>89</td>
<td>87</td>
<td>2.3%</td>
</tr>
<tr>
<td>London Gatwick</td>
<td>LGW</td>
<td>266 496</td>
<td>235 000</td>
<td>13.4%</td>
<td>60</td>
<td>46</td>
<td>8.7%</td>
</tr>
<tr>
<td>Paris Orly</td>
<td>ORY</td>
<td>236 926</td>
<td>225 000</td>
<td>5.3%</td>
<td>72</td>
<td>70</td>
<td>2.6%</td>
</tr>
</tbody>
</table>
There is currently at most congested airports a great amount of capacity available at off peak time and off peak days. Demand could be better spread through administrative peak-hour pricing, or through autonomous market mechanisms.

![Use of Example EU Category 1 Airport Throughout the Day](source: NERA Economic Consulting Report 2004)

As of today, there are 88 coordinated airports in the EU.

The following scheme provided by the European Union Airport Coordinators Association describes well which are the stakeholders on the issue of slot allocation, and what there role is.

Usually Member states tend to defend and take the position of their flag carrier, which are vital for their economy, and of which they usually hold shares. On the other side, the EU, airports and CAA tend to agree on reforms, and encounter opposition from Member states and airlines.
The current system is characterized by its inertia due to the historic rights that prevail for slot allocation. As long as an airline makes a profit with a slot, no matter how small, it will have little incentive to stop using it. It will therefore keep it even though other airlines might value it more highly and would make more profit out of it. Even if an airline makes a financial loss on a slot, it may wish to continue service in the expectation that it will make profit in the future while keeping competition away.

Under the current framework it is very difficult for an airline to obtain a series of slots with which to launch or expand service. Pool slots are mostly at unattractive times or not available as a series. The challenge of scarce new slots availability in the EU has proved vexing to both new European entrants and U.S. international airlines looking to take full advantage of the recent Open Skies Agreement. Due to the infrastructural barriers and the small size of the pool of slots available, U.S. carriers are placed in competitive disadvantage vis-à-vis their European counterparts at the EU’s most lucrative airports such as Heathrow.

The following graph shows how Virgin growth as a new entrant at Heathrow would have never been possible with only the current pool of slots as regulated by the EU.
Another problem with the use-it-or-lose-it structure of the current framework is that it disadvantages airlines implementing cost-effective capacity cutting within one season. Under the EC’s slot regulation, a carrier must operate 80% of its slots during the period for which they have been allocated in order to retain them for the next equivalent period.

Nowhere in EU’s rule is the sale of slots mentioned, since legally they are not as of today the property of an airline. To balance the lack of slots available in the pool, a “grey” market has developed at congested European airports. Today, such transactions are lucrative as a selling airline originally did not pay for the slot it is selling. At Heathrow, BA transactions for one single slot often reach a few million British Pounds.

Among the supplementary measures adopted by some airports to manage demand, one the most famous and most important concerns Heathrow, which has implemented peak-hour pricing as early as in 1972. The extensive experience at Heathrow helps having a practical idea of what the consequences of peak-hour pricing could be at a heavily congested airport. Furthermore Heathrow has the largest experience in the field of slot transfers in Europe. At Heathrow, slot transfers can exceed the number of slots allocated from the pool.

At Düsseldorf airport, OPUS, Optimisation Program for Using slots, has been implemented to prohibit the use of high frequency service with small aircrafts.
2. How has the EU come to the current regulation?

In this part we try to look at the past and see what the driving forces are on the topic of slot allocations in the EU.

2.1 Regulation 95/93

After the implementation of a single free air market in the European Union in 1992, there was a need for harmonization of the rules governing slot allocations. A first regulation, Regulation 95/93, was passed in 1993.

There already existed a pattern for slot allocations, the IATA guidelines. For practical reasons the Regulation was modelled after the IATA guidelines that were - and still are - widely used in the world.

The main motivations of regulation 95/93 were:

- **To improve capacity utilization**

  Capacity issues were and still are the core of the problem. They are the reason why slots exist. The Commission was sceptical about the possibility of increasing capacity at airports in the mid-term. An efficient mechanism of slots allocation had therefore to be found. Airports were stated as not being always the competent authority to formally assess the capacity of an airport.

- **To comply with the liberalization of Air Transportation**

  The Regulation was not to impede on the principle of free competition that had just taken place in 1992. This is why the Regulation does not incorporate peak-hour pricing. The Commission did not like this idea because it was believed that liberalization of air transportation would lead to lower costs and lower prices, which would not be the case with peak-hour pricing. This principle of liberalization also requires that any regulation should foster new entrance in the sector.

- **To ensure for neutral, transparent and non-discriminatory rules**

  This point is directly linked with the former point and could have been incorporated in it. This requires slot coordinators independence. In contrast to IATA guidelines, the Commission requires that slots coordinators should play their role in an utterly independent manner. This would be independence from air carriers, but also from airports and from governments. Governments shall not interfere to protect their national carrier. The role of the slot coordinator should furthermore be exclusively limited to slot allocation.
Airport slot allocations in the European Union
Current regulation and perspectives

The Commission first wanted to set up withdrawals of slots for redistribution in order to preserve competition, such as what has been done in the US. But due to strong pressure from the air carriers (the first in a long series of airline lobbying), it was not able to do so. Though I believe it is right to say that withdrawals other than justified by under-utilization would be unfair.

Raising the issue of slots withdrawals simultaneously launched the issue of defining slot ownership. Regulation 95/93 had not been clear on that point, and as soon as confrontation was raised, air carriers, airports, member states and the Commission began developing their own definition, that is basically stating they owned slots.

Once a European Regulation started to exist, the Commission began to study the possibility of secondary trading of slots in the EU. Regulation 95/93 was (purposely?) not clear on the issue, as it allowed one-on-one exchange of slots between airlines, but did not specify if financial compensation was possible.

As slot trading did take place at London airports, it made it necessary for the Commission to study further the issue. A first report by Putnam, Hayes and Bartlett commissioned by the EU Commission to evaluate the impact of slot trading in the US concluded that secondary trading in itself is not sufficient to ensure competitive market entry for new entrants. The reasons for it are described in the second part of this paper. Since then the Commission ordered two other reports by Consulting firms (NERA and Mott MacDonald, cf bibliography) that both advocated in favour of secondary trading.

The idea of a concession system for slots was introduced in July 2000. Slots would be treated as time-limited concessions. Yet both airports and air carriers opposed this idea, and no constructive discussion took place. Airports joined carriers because the draft put forward by the commission had reduced significantly their share of the revenue generated by the slot allocation system. Airlines naturally opposed the idea as they believe they should own slots, and time concessions are merely a loss of the grandfather rights for incumbent carriers. More reasons against time concessions are that it makes the work of long term planning a difficult task. More detail can be found in the third part of this paper.
2.2 Overall European Policy for Transport as of 2001

Understanding the objective of the EU for the entire transportation sector can help understand the motivations of the EU on the more specific topic of airport slot allocations. The overall policy framework was published in September 2001 in the White Paper “European Transport Policy for 2010: Time to Decide”. This was followed by another white paper in 2004.

The White Paper focuses on:

- **Shifting the balance between modes of transport.** Rail being the big winner. As far as air transport is concerned, priorities are the creation of a single European sky, making optimal use of existing airport capacity. A balance between air transport and the environment has to be found, while maintaining safety standards.

- **Eliminating bottleneck** by developing the trans-European network.

- **Placing users at the heart of transport policy.** This area includes improving road safety, establishing an infrastructure charging framework that reflects the external costs of transport, establishing rights and obligations of users (especially in air transport).

- **Managing the globalisation of transport**, including meeting the challenges of enlargement and improving the assertiveness of Europe on the world stage. This area includes the need for an external dimension to air transport, ie competence for the Commission to negotiate air transport agreements on behalf of the Member States. It is against that background that the Commission has contested the “open skies” agreements in the European Court of Justice.

2.3 Regulation 793/2004

Regulation 95/93 quickly proved to be inefficient on the problem of new entrance. Regulation 793/2004 tries to improve it, but does not bring in any radical change. It just modifies some articles. The concept of new entrant was suggested to be expanded to airlines developing service to new routes. The existing threshold of 3 percent of holding was increased to 5%, and the percentage of pool slots available to new entrants was increased to 50%. The use-it-or-lose-it rule was increased from 70% to 80% utilization.

Regulation 793/2004 also involves the European Parliament which now has a co-decision power with the commission on issues of airport demand management. This makes more complicated the lobbying effort required by airlines, airports and slot coordinators.

The definition of ownership was modified in a way that weakened air carriers, as they could not claim anymore the ownership of slots.

As expected, air carriers were against this set of propositions. But the fact that they kept their grandfather rights might have kept them relatively silent.
Airports were in favour of this proposition, especially on the slot ownership issue

The attempts by the Commission to ban trading were not included though, because of opposition from the European Council and the European Parliament. Under the current regulation, one-on-one exchange is permitted, with possible financial compensation for an exchange of a bad and a good slot. Yet still after Regulation 793/2004, this exchange lacks transparency, and mere trading of slots is not allowed.

Slot coordinators are also now allowed to do some slot “over-allocation”, a bit like airlines do overbooking. They can allow more slots than theoretical, because slots are not used 100% of the time by airlines.

2.4 Current official view on the system of slot allocations in the EU

The EU Commission has provided a report in 2007 and 2008 after launching a wide consultation of all stakeholders that are national/regional/local authorities, air carriers, airports, slot coordinators, and Eurocontrol.

The reports – provided in Appendix B - points out that:

- Some coordinators are still not able to work in a fully independent manner.
- Data concerning slot allocations are still not transparent at the European level.
- Some local guidelines do not comply with European Community law.
- One-by-one slot trading with financial compensations is growing, and the Community law does not address such monetary transactions.
- There should be a better verification by ATM that schedules provided by airlines comply with their slot allocations.
- The 2004 modification of the Regulation has had a positive impact on demand management in the EU.
- All stakeholders, except naturally major legacy air carriers, believe that the “new entrant rule” is not promoting competition enough.
- Dissuasive sanctions are effective to enforce the current regulation. Yet more sanctions have to be taken, if we consider the former bullets…

Reading the report shows how much inertia this EU Regulation has. It is difficult to bring about large changes. Although the report is criticizing some aspects of the current slot allocation practices, it is not proposing any modification to be voted by the European Parliament. Stakeholders consistently play with words and use the basic formulations to challenge the European Rules. Three years after passing the law, European Authorities have difficulty enforcing the Regulation against reticent National Governments, and it would take a long time process to pass a new Regulation.

There is a consensus that competition is not promoted enough because of grandfather rights, yet there is not even the will to make suggestions to be voted…
2.5 The lack of debate and the lobbying power of the incumbent airlines

This factor has unfortunately shaped the regulatory environment since 1993, and I wanted to treat it in a separate point.

There is a lack of debate on the airline side. The view of the Association of European Airlines (AEA) on the problem of capacity at European Airports is entrenched in the following:

“The first priority in a slot debate should be to increase capacity. Secondly, airlines should be able to maintain the slots that they use. Thirdly, incumbent carriers, particularly at their hubs, should be allowed to participate proportionately in growth whenever new slots are available. Fourthly, the arrangements by which slots are exchanged should be maintained.”

Anytime the European Commission tries to bring in some change, incumbent airliners ask for more capacity at European Airports instead of participating in finding a competitive system of slot allocations.

The airline associations answer is that “there is no proven benefit in a change of the existing rules of allocation”. This sounds hypocritical as the only way to prove it would be to implement the change itself. Moreover when it comes to the topic of slot allocations, airlines suddenly consider themselves as a social venture, and argue they “firmly believe that Europe needs a stability of slots to ensure continued air transport services to major cities to meet the region’s economic and social needs. Economic and social viability of Europe’s regions depends on good transport links to major centres for point-to-point and connecting passengers and freight. Only air transport can provide these links for the majority of Europe’s regions.” This “surprisingly” does not seem to take into account the priority EU is setting for high-speed train in Europe.

A very recent proof of the power of the airlines is the suspension of the 80 % utilization for the current season because of the current recession. Such a measure satisfies incumbent carriers and harms airports. There is likely to be no new entrants at many European airports in the Summer 2010.
3. Perspectives for reform

3.1 Peak-hour pricing

Peak-hour pricing is an administrative economic means to limit demand at certain peak-hour times of the day by displacing it to other off-peak times of the day.

It has been the prevailing theory for how to reduce congestion since the 1960s. It would surely be an effective way to reduce congestion. Yet its fairness can be questioned.

It makes no doubt that airlines would be against a EU regulation implementing widely peak-hour pricing, as such administrative criteria are ruled by the airports, without any direct benefit to the airlines. From the point-of-view of an airline, peak-hour pricing consists merely in an increase in airport charges at high yield times, and slots would still belong to the airport authorities. If major incumbent carriers were subject to peak-hour pricing, it is likely they would have to pay more than what they do today to maintain the same schedule, as they hold a majority of the peak-time slots. It might not be fair too to charge more the airlines which are as of today the weakest link of the air transportation chain.

A risk is that cost increase at specific times will be used as an excuse for airlines to make an overall tacit move of increasing fares, which would be contrary to one of the European leitmotivs.

Under an optimal peak-hour pricing policy, charges at off-peak times should be decreased as compared to what they are today. And the overall total daily charges paid by the airlines should not change. The increase of charges at peak times should be balanced with a decrease of charges at off-peak times.

One problem is that if overall daily costs do not increase, then demand spreads throughout the day on the short term, but on the long term demand will still become higher than capacity, which will necessarily mean a general cost increase for the airlines.

It is important that the possible extra revenue generated for the airports at the expense of airlines, if any, should be directly invested in capacity enhancing and environmental friendly projects, so that it does not mean just a new cost for airlines at the mere benefit of airports unable to provide service that meets demand. One could still question peak-hour pricing even in that case, as it would transfer the cost of airport infrastructure to airlines...

To be really accurate, peak-hour pricing should include the cost it itself causes through passenger diversion and traffic decrease.

It is not an easy task to evaluate the external cost imposed by a carrier on others when it uses a slot. For instance, current slot ownership by major carriers at their hub is more important at peak hours. This raises the question on how to charge major carriers at their hub at peak-hour, as they are mainly internalizing this cost. They afflict themselves with
Congestion cost, and should not therefore pay that much. Congestion costs should therefore theoretically be computed for each airline knowing a specific schedule…

As it is complicated (or should I say impossible?) to compute accurate marginal costs, it ends up targeting specific groups. And authorities which have implemented peak-hour pricing have mostly been sued. Examples include Boston Logan Airport, with MassPort sued by commuter carriers, or London Heathrow, with the UK government and BAA sued by the American Government.

It is also possible that a peak charge leads to shifting peaks. The demand of airlines and passengers then reacts in such a way that a new peak in a new period around the previous peak emerges…

Therefore even though peak-hour pricing is an efficient measure to deal with congestion, I do not see it as being realistically included in a EU regulation. Single airports have had much difficulty justifying it.

Last but not least, it would thus be much more complicated to impose it at the European Union level: it is both inaccurate and difficult politically to impose an overall pricing methodology at the scale of the EU. Airport charges are already very different among airports, so peak-hour pricing should be determined on an individual basis by airport authorities.

3.2 Lotteries

At some American airports, lotteries have been set up so as to have a large enough pool of available slots for allocation. Even though the aim is justifiable, the means aren’t in my opinion.

It is likely that simple administrative criteria could achieve an initial allocation that is closer to the optimum than a purely random allocation.

I do not think any party is favourable to such an option, and I would agree with them on that point. Restricting the utilization to a higher number than 80% could have the same impact and be fair.

3.3 Limiting high frequency routes with small aircrafts

Such a measure that has been implemented at Düsseldorf might be effective to increase overall passenger capacity of an airport, yet it can be easily argued that it is not optimal and justified for some markets, as the value of time might be very important. I am against it by nature, because it is an administrative criteria that I think to be far from the optimum and far the guidelines of EU policy and overall objectives.
3.4 Secondary trading

The reform which is being mostly discussed nowadays concerns a market-based system for slot allocations. With secondary trading, slots ownership would be transferred from the airports to the airlines.

The basic principle of slot trading would be very simple: airlines that have been allocated slots may sell them to other airlines. Initially, the rights (including grandfather rights, plus access to stands, terminals, etc) and obligations associated with the slot will simply transfer from the seller to the purchaser.

Secondary trading would lead to a better reflection of demand patterns. It should be able to allocate slots to the air carrier that would use the slot in the most efficient way, and value it most. Under this configuration, slot holders face an “opportunity cost” in the form of lost hypothetical revenues if they carry on using a little profitable slot that could be sold another airline. Such a market mechanism would aim at improving competition in the industry, to remove the important current barriers to entry.

The first question that arises is that an airline’s willingness-to-pay might nevertheless be a bad indicator of the value to society of the service provided. The European Union has the difficult task of balancing decisions that promote total value to society while keeping the European air industry as competitive as possible on the global scale. An impact of secondary trading that is very likely to happen is that the least profitable routes or the routes with the lowest load factors will cease to be operated. This will decrease the quality of service of travel to some regions at the expense of others. And that might be contrary to the very essence of the European Union. Yet I do believe that even if all airlines cease operations to one place, there is still a convenient train system in Europe, and if service depletion is really bad to the traveler, then airlines could increase their yields and “force” passengers to pay higher fares, as the EU is concentrating on developing train as opposed to air for intra-EU travel.

All parties agree that the introduction of secondary trading should cause:

- A shift from short haul to long haul service as airlines would try and reduce the cost per ASM associated with the fixed slot acquisition cost. Long haul services mostly use larger aircrafts, and carry more passengers. There is actually as of today a strong relationship between the level of excess demand for slots and the traffic mix at European airports.
- A shift to higher load factor services.
- A shift to off peak hours and uncongested airports.
- A more intensive use of slots, which are subject as of today to the 80-20 rule.
- A higher passenger volumes at EU airports

The problem with secondary trading is that even if it remains very attractive on the paper, it could have many unexpected effects. The experience of slots trading in the US as well as at Heathrow is controversial.
A risk of slot trading is that it might have the counter-competitive effect of having major incumbent carriers consolidating their position at their hub. This has been the case at Heathrow, where British Airways has managed to increase its slot holdings through trading: Over the last years, around 75% of slots transactions including financial compensation at Heathrow have been buying operations by BA. An incumbent airline might prefer to pay high prices to prevent entry of a potential competitor into a new market. The US airports where trading had been introduced –NYC, Chicago- do not have as much of a hub dominance. No matter how competition changed there, the case of Heathrow is much more likely to happen at Europe’s major hubs, which raises concerns.

But again one could argue hub consolidation benefits passengers, as it will increase the number of travel opportunities available through that hub and decrease connecting times.

The three following graphs show how a major carrier that has more freedom with slots at its hub can provide passengers with better service, with lower connections time, as its scheduling is much easier.
Operation of the Network Carrier at an Airport with Excess Demand throughout the Day
(Lufthansa at FRA)

Source: NERA Economic Consulting 2009 report

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Operation of the Network Carrier at an Airport with Excess Demand throughout the Day
(British Airways at LHR)

Source: NERA Economic Consulting 2009 report
Yet overall it will weaken competition, with all the negative effects that basic microeconomic theory describes, such as higher fares.

The British Civil Aviation Authority, although in favour of trading, nevertheless admitted that “in an industry with the divide between private and public ownership purely market based systems would tend to consolidate rather than reduce the dominance of incumbents”.

State aided EU carriers might also unfairly outbid other airlines for slots.

There could also be “non-profit” acquisitions of slots by airlines for prestige.

It is thus difficult to say which one of an increase of incumbent hub carrier slot holding or increase of low-cost competition will happen in case of a liberalization of slot allocations.

Some consulting reports suggest capping slot ownership by one carrier at an airport, but I believe this is not fair, not realistic and not satisfying.

The theory of market mechanisms is in fact not that easily applicable to airport slots. While market mechanisms have been successfully implemented in other sectors such as fishing or carbon emissions, a difficulty with airport slots is that they are considerably more heterogeneous. An airport slot relates to a specific time at a specific airport, and its value is very different to each of the players. There are demand complementarities between slots, as slots must provide for effective turn-around times and appropriate connecting flights. Slots are very bad substitutes. Last but not least it is very difficult for an airline to evaluate the value of adding or taking away a specific service because of all the network effects of air transport demand and the difficult allocation of different costs to a marginal route. This could lead to unforeseen impacts of a free market of slots.

Introducing high mobility of slots will complicate the process of airline planning and strategic decision. The decision to sell or buy a slot would be now tougher one for an airline and would require estimations of market profitability, as well as future predictions etc. Optimization would have to be continuous, and not by semester as it is now. Therefore airline slot trading might also not be as efficient as the usual market-based capitalist economic theory would suggest, because of airline planning inertia.

Air carriers see the introduction of a market-based system as an increase in their costs. It is true that they are struggling at this moment, and an increase in costs is not what they want to hear. This might not be true on the long term as regards per passenger cost, as it will encourage the use of larger aircrafts. Yet as far as secondary trading is concerned, the cost for an airline should be limited if it does not expand its service. It will increase as long as it buys more than it sells. Under peak-hour pricing, the cost for a non-expanding airline would be much bigger.
As regards conservation of the environment, which is also a cornerstone of EU’s policy, on the one hand it could be argued that a better use of capacity will lead to an increase in pollution as total traffic will increase. Yet on the other hand, a more efficient utilization means less need for additional runway capacity and therefore less environmental constraints. And higher load factors and less congestion will lead to lower environmental cost per RPM.

Whatever the advantages or drawbacks of secondary trading, to be consistent with the general EU air transport policy of the last twenty years, the following restrictions are in my opinion necessary:

- As opposed to the US, limiting slot ownership to air carriers only should be a better option to avoid unnecessary speculation and foster transparency. In the US, regional bodies have been allowed to buy slots to protect local service, but I believe the equivalent can be done through direct subsidies from regional authorities to airlines.

- A keep-it-or-lose-it rule of 80% at least should be kept, as it will avoid speculating and counter-market behaviours by incumbent airlines.

- Anonymous transparent trading at a single general market place is preferable. It will always be easy for an airline to guess who its potential buyer can be due to the oligopolistic structure of the airline market. Yet it is necessary that the system aims at being anonymous and transparent.

Further advantages of slots trading are that:

- Slots could be allocated by aircraft type to improve the aircraft mix for air traffic optimization.

- Environmental criteria to the slot allocation rules could also be considered to achieve both capacity improvements and environmental performance, with noise emission rights trading for instance.
3.5 Primary trading – auction of slots.

The auctioning of slots is attractive in principle for any new generated capacity. It is specifically designed to establish the price at which demand just equals the supply available.

There are many different types of auction mechanism. I will not spend time on them and just discuss the general pros and cons of such a mechanism.

Even if the idea sounds attractive at first sight, auctioning for airport slots would cause much difficulty. Airport slots differ from other commodities that have been traded or sold by auction because of the heterogeneity of the product and, the existence of significant demand interdependencies. A single round of auction for a number of slots is unlikely to succeed. An airline bid would depend on knowing whether it would win the other bid.

Any simple auction mechanism is in fact not feasible and enticing for airlines, as they could end up with unusable slots. **Therefore auctions have to be followed by secondary trading.**

Still, even followed by secondary trading, it creates a messy situation, that is likely going to be in the end far from the best solution. Slot mobility between airlines cannot be perfect.

Some consulting groups have suggested that slot pools be auctioned. I think it does not solve the initial problem which is that the pools are too small, and again, in the event of pool auctions, incumbent carriers could be willing to pay much just to forbid entry to new carrier.

Another option is to have slots be concessions for a limited time, with still grandfather rights during the allocated period. Once the time is passed, slots would be auctioned.

But the vast majority of airlines rejects this solution, claiming that it would make impossible forward planning.

Last but not least, with bidding, airlines might develop tacit understandings not to bid too much.
Conclusion: my recommendation

One main difficulty is to ensure that the proposed modifications and reforms are practical and workable, and not simply theoretically attractive. Any new regulation must be integrated with the international scheduling arrangements, such as bilateral agreements, IATA slot coordination conferences which would still be in use in other areas of the world etc.

A new regulation must maintain effective competition at EU airports, be consistent with the overall EU air transport policy, and be compatible with world-wide procedures for allocating slots. It should avoid any litigation with the US for instance.

From the point of view of implementation, it is clear that a wholesale reform in one specific direction is not feasible in a short term.

I have made my point against peak-hour pricing, which is politically not imaginable at the EU level. I believe the best option for the European Commission is to propose on the long term a combination of auctions of pool slots and secondary trading. The most important for me being secondary trading, auctions being a necessary lesser evil in parallel to secondary trading, as slots would then have an economic value.

For me the EU has nothing to lose trying to set up secondary trading. It has the potential to achieve a substantial improvement in the allocation of slots, and still be accepted by air carriers, airports and other parties. And if it quickly seemed to lead toward hub consolidation, the European Commission could come back to the current Regulation with more stringent utilization standards.

Incumbent Airlines would be satisfied: at first they keep their slots, and gain ownership of them. New entrant airlines enlarge their entrance capabilities through secondary trading. Airports would improve their practical capacity, but would lose their ownership of the slots. They could still impose an overall aircraft mix and environmental quotas with slots.

To avoid that some airlines aggressively refuse to sell their slots to competitors, I would ask for more stringent use-it-or-lose-it rules. I recommend the suppression of the bankruptcy exemptions for under-utilized slots. Otherwise this situation leads to many slots being not used over months. Slots under-utilized by an airline going through bankruptcy could be leased for a short period of time or auctioned, with the benefits still going to the airline. In the same manner, the 80% required utilization ratio could be increased to force airlines to use efficiently their slots. Any measure encouraging the mobility of slots should be encouraged. I would keep a 50% entrant rule for the availability of slots, as long as there are at least two new entrants willing to buy 50% of the slots.

Thanks to auctions of the pool slot, airlines might be more willing not to use their inefficient slots because of the associated opportunity cost.

The implementation of secondary trading should not pose much difficulty. Auctions though will be more of a problem. Secondary trading could be first implemented without changing the utilization requirements, until primary trading auctions mechanisms be implemented.
**Bibliography**

ACI Europe (2007). *ACI Europe position on allocation of slots*.

British Civil Aviation Authority (2001). “*Peak-hour Pricing and Economic Regulation*”.


European Commission, White paper (2001) ‘*European transport policy for 2010: time to decide*’.

European Commission Proposal 2009/0176(COD)

European Commission Regulation 95/93

European Commission Regulation 1554/2003

European Commission Regulation 793/2004

European Commission Communication COM(2007) 704

European Commission Communication COM(2008) 227

European Commission Regulation 545/2009


Mott MacDonald Consulting (2006) “*Study on the impact of the introduction of secondary trading at Community airports*”

NERA Economic Consulting, (2004) “*Study to Assess the Effects of Different Slot Allocation Schemes*”


Gernot Sieg (2009), “*Grandfather rights in the market for airport slots*”, Transportation Research: Part B, Volume 44, Issue 1