

Economic Benefits of Competition in European Air Traffic Management - Germany as an Example

Summary, 13 November 2002

In Europe, delays in air traffic are estimated to cost the economy about 10 billion Euros per year, and about half of these costs are due to the lack of coordination in air traffic management. In spite of the recent slowdown in the growth of air traffic, there is a danger that the inefficiencies in European air traffic management (ATM) will develop into a serious brake on further growth. An important source of these inefficiencies is the fact that ATM in Europe lies exclusively in the hands of national regional monopolists who are not exposed to competition or any other form of pressure.

Urgent need for reforms in the airspace

The objective of this study is to determine whether and how competition in the European ATM can contribute to the removal of the existing inefficiencies. The study considers the services in the upper and lower airspaces and the operation of the ATM infrastructure separately.

Competition, Privatisation, Natural Monopoly, Regulation

One expects from *competition* that it gives the service providers incentives to reduce their costs and improve their performance, that it produces innovations and that it does away with imbalances of power between service providers and their customers. If the government decides not to open the market and permit competition, good, legitimate reasons must be presented for this decision. Such reasons could, for example, be a systematic market failure.

The aim of *opening a market* to new competitors is to increase the overall efficiency. This aggregate efficiency expresses itself in an optimum overall output (allocative efficiency), in cost reductions which are passed on to the consumers (productive efficiency) and in a dynamic adaptation of capacities, technologies and quality to the demand of the market.

Market opening aims to improve efficiency

If a market failure exists in the form of a *natural monopoly*, then special economic-policy precautions must be implemented. A natural monopoly exists if the entire demand can be best served, for cost-degression reasons, by a single provider. Such natural monopolies frequently exist in the infrastructure sector (e.g. railways, main roads, natural-gas pipelines). Natural monopolies which cannot be attacked must be subjected to regulation. The purpose of (economic) *regulation* is to protect the customers against excessively high prices and/or poor performance quality.

Natural monopolies must be regulated

Suitable forms of regulation are competitive tendering ("competition for the market"), external regulation by a specialised authority or internal regulation by the users of the service ("club model"). Internal regulation by the public authorities (for example, by means of the supervisory board) is not practical, since it results in irresolvable conflicts of interest.

The Service "Air Traffic Management"

Air traffic management manages the airspace to the benefit of air traffic by providing a coordination service. It ensures *undisturbed* air traffic and thus benefits both its direct customers (in the form, for example, of reduced consumption of kerosene) and the end users (by saving them time and ensuring that connecting flights can be reached). Air traffic management also ensures the absence of *collisions*.

Air traffic management ensures undisturbed air traffic, free of collisions

Possible reasons for a market failure result from the necessity of giving the ATM service providers *exclusive rights of disposal* over the airspace and from a natural monopoly in the sector of the *ATM infrastructure*. An exclusive right of disposal over the airspace is absolutely necessary at the moment, because the lack of this would mean that two (or more) air traffic controllers would not only have to communicate with the pilots, but also with each other. With the current status of the technology, this would incur prohibitive transaction costs.

ATM service providers need exclusive airspace and access to surveillance data

A natural monopoly in the sector of the CNS infrastructure is regarded as probable with the current state of technology, since a newcomer would hardly be able to set up a second network of radar systems, while radar systems are still indispensable if the safety of ATM is to be maintained. In addition, one could ask whether the capital-intensive ATM systems for the processing of surveillance data and the presentation of the information to the air traffic controllers could also be the reason for market failure. In any case, they could make an entry into the market unnecessarily difficult if they are not available ad hoc to new ATM service providers.

There are no signs of market failure in the sector of ATM services. All in all, a prerequisite for competition is that new ATM service providers can receive fair access to the exclusive airspace and to the ATM infrastructure. It is the task of economic regulation to provide this access.

In addition to economic regulation, air traffic management needs an independent safety supervision by the state and a comprehensive definition of the liability so that competing ATM service providers are forced, by their insurers, to take proper precautions to avoid accidents in the airspace.

Safety and liability are required

Competition between ATM Providers in the Single European Sky

With the concept of the *Single European Sky*, the European Commission is attempting to improve the European system of air traffic management by the standardisation of processes and technologies and by introducing elements of competition. An important element of this concept is the formation of *functional blocks of airspace*, which extend over national borders, in the upper airspace. The member states over which such a block of airspace extends should together select the responsible ATM service provider. Apart from some basic principles, the EU has not yet made any concrete proposals for the management of the lower airspace and of the ATM infrastructure. However, the introduction of competitive principles in this airspace seems unavoidable.

EU commission wants a Single European Sky

Solutions for the Upper Airspace

There are two possibilities for the management of the functional blocks of airspace in the upper airspace: the direct award of contracts to ATM service providers by the affected member states or the invitation to tender for the ATM service for a period of, for example, six to eight years.

If the contracts are awarded directly, the affected states must agree on a procedure for awarding the contracts. Furthermore, they would have to set up a regulation authority which monitors the market activities of the ATM service provider who receives the contract and issues orders for any necessary corrections. The danger of this solution is that the contracts may be awarded only to the existing, state-owned service providers. This will have little effect on the efficiency of ATM. If, however, the affected member states define clear and transparent performance criteria, this would at least be the first step towards a tendering procedure.

Direct award of contracts has risks

If companies are invited to tender for the services (competition for the market), the ATM service provider who, in a clear and transparent tendering procedure, offers the most plausible promise of performance will receive the contract for the service. In order to achieve this, the affected member states must set up a common office for the award of contracts and this office must select the bidders and ensure that they comply with the specified performance for the duration of the contract. All bidders must have discrimination-free access to the ATM infrastructure. The legal basis for this is provided by the so-called *essential-facility doctrine*, which already exists in European and German competition laws, but must still be implemented by court decisions. Compared with the direct award of contracts, the tendering procedure is clearly the better way of obtaining more efficiency.

Tendering identifies the best ATM service provider

Solutions for the Lower Airspace

In an extended sense, the lower airspace also includes the approach control at the airports and the ATM for shuttle flights between airports, executed only in the lower airspace.

Lower airspace:

The first possible model would be the material (capital) privatisation of, and the direct award of a contract to, Deutsche Flugsicherung GmbH (DFS), which was already formally privatised in 1993 and is now owned solely by the Federal Republic of Germany. If this solution is implemented, then an effective, independent regulation authority must be set up in order to protect the customers of DFS. If elements of competition are also to be introduced, the regulation authority must also ensure that new ATM service providers have the opportunity of offering their own services, for example at individual airports ("competition at the edges"). For this, the newcomers need access to the ATM infrastructure, and the regulation authority must ensure that this is available. In spite of this, DFS will remain the market-dominant company and regulation will never fully replace the pressure of genuine competition.

Privatisation of DFS and introduction of competitive tendering

In the second, alternative model, the ATM services in the lower airspace are divided into lots and an independent body invites tenders for these lots at regular intervals. Each lot is then awarded to the best service provider. DFS could participate in such invitations to tender as a bidder with the same rights as all the others. From the economic viewpoint, this is the better alternative.

Solutions for the ATM Infrastructure

The efficiency with which both the upper and the lower airspace is managed depends to a great degree on whether third parties or newcomers receive fair access to the output of the ATM infrastructure, namely the ATM data. Closer analysis shows that this fair access can be achieved, in spite of the *essential-facility doctrine*, only if the infrastructure is removed from the sphere of influence of the ATM service providers. For the management of the ATM infrastructure, competitive tendering is again a suitable and sufficiently flexible instrument. With this procedure, the provision and operation of the infrastructure is awarded for a limited period to an independent provider, who does not offer ATM services. The franchise period should be long enough to permit this provider to earn back any money he has invested by selling ATM data to the ATM service providers.

Unbundling of ATM infrastructure and ATM services

The franchise agreement must also ensure that the provider meets his obligations to invest in the infrastructure and to return the infrastructure in a defined condition to the awarding company at the end of the agreement period. In order to ensure that the national ATM infrastructures do not drift apart technologically, the national companies which award the contracts must harmonise their invitation to tender with an EU authority.