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Study of the economic market power
on the relevant market(s)
for aviation and aviation-related services on
the Amsterdam Airport Schiphol

Executive Summary of final version

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0. Executive summary

1. At the beginning of September 2009, we were asked by the NMa to prepare a study on

**“The economic market power on the relevant market(s)
for aviation(-related) services at the Amsterdam airport Schiphol”.**

The task was to provide an overview of services provided at Schiphol airport (N.V. Luchthaven Schiphol - NVLS) and to review the economic market power of NVLS on the relevant markets. This report summarizes the findings of our work.

Definition and classification of airport services

2. The term 'service' is used in this study to describe the different activities of an airport operator, an airline, or a ground handling company. When we define markets with respect to competition law, a market might consist of one or several services. A particular service might be relevant for one market or for several markets.
3. Activities, which are needed to enable passenger and freight to transfer from surface modes of transport to air modes of transport and to allow airlines to take-off and land, are called 'aeronautical services'. All other activities are called 'non-aeronautical' or 'non-aviation activities' (e.g., retail, parking). This study only deals with aeronautical activities of the airport.
4. Aeronautical activities of an airport are further distinguished between 'aviation services', which are currently regulated according to Article 2 of the Dutch Aviation Act, and 'aviation-related activities', which are currently not regulated by the Dutch Aviation Act, but are necessary for the production of airline services.
5. The revenues generated for aviation services by Schiphol's business area "Aviation" account for 55% of the airport's total turnover (2008 data). Furthermore, Schiphol's business area "Schiphol Real Estate" collects some revenues for aviation-related services, i.e., for rental of space to airlines, to ground handling companies, and to the government (for security tasks and customs).
6. Infrastructure and services offered at an airport to the airlines (i.e. "wholesale market") can be structured:

- according to their dispensability (indispensable service at a given airport, 'opting-out' service, and service which might also be purchased at some other airport),
 - according to market structure (infrastructure or service with a single supplier, service with multiple suppliers dependent on bottleneck infrastructure, and service with multiple suppliers independent of bottleneck infrastructure), and
 - according to the role of the airport operator (the airport operator as the only supplier, the airport operator competing with other suppliers, and the airport operator not offering a particular service)
7. The activities at an airport in the field of aviation services and aviation-related services might also be differentiated between air traffic operations services and ground handling services. Both groups consist of several activities. Furthermore, the airport operator might rent facilities to airlines, ground handling companies, and the government, which are needed to offer airlines services, ground-handling services and to perform governmental tasks related to air transport.

Role of the airport operator

8. The airport operator is the only supplier for air traffic operation services at Schiphol. Among those services, landing and take-off services as well as most passenger basic terminal infrastructure and services (incl. security) are indispensable, whereas long term aircraft parking can be considered as an 'opting out' service.
9. At Schiphol, the airport operator doesn't offer ground handling services. Most of these services are indispensable at the airport. They are offered by several suppliers, who are for some services dependent on access to bottleneck infrastructure, like baggage handling and refueling infrastructure. The possibility of airlines to 'opt out' really only exists for planned maintenance and occasionally on short haul flights for catering and refueling services, which might also be purchased at other airports.
10. With respect to rentals at the airport, all three groups of tenants (i.e., airlines, ground handling companies, and the government) require some facilities for operational reasons within the airport. This includes operational rooms for airlines, facilities for employees and storage space, operational rooms for ground handling companies, and areas for customs and security services. Although some of these facilities might be rented outside the airport, in most cases this will increase operational costs significantly.

Stakeholders at Schiphol airport

11. For the purpose of this study, the term 'stakeholder' is defined in a narrow sense, including only entities and persons who use airport infrastructure or purchase airport services. Stakeholders might be grouped as follows: airlines, passengers and cargo shippers, service providers, and the government.

12. With respect to aviation services and aviation-related services there are several direct and indirect monetary flows between the stakeholders and the airport:
 - Airlines pay charges for air traffic operations services, pay rents to the airport, and pay fees to ground handling companies. They collect revenues from passengers and cargo shippers.
 - Ground handling companies pay rents to the airport. Refueling companies additionally pay a concession fee. All ground handling service providers collect fees from the airlines.
 - The government pays rents to the airport.
13. The different business models of airlines imply different preferences with respect to infrastructure and services supplied at an airport. For example, a network carrier with a high share of transfer passengers puts special weight on quality aspects related to Schiphol's function as a hub (i.e. short minimum connecting time, sufficient capacity for the hub operations during the different "waves"). On the other hand, low cost carriers would be willing to accept a reduced service quality if this leads to lower charges.
14. More than 92.4% of all aircraft movements at Schiphol are scheduled services. The largest 30 airlines at Schiphol operate 88.7% of all movements. KLM is the largest airline at Schiphol airport, operating more than 49% of all aircraft movements and more than 53% of all scheduled movements. Together with Air France, who merged with KLM in 2004, and their subsidiaries transavia.com, VLM, and Martinair, the KLM group accounts for more than 60% of all aircraft movements at Schiphol airport. The second largest airline was easyJet with a share of less than 4% of all movements.

The definition of the relevant markets

15. The conceptual framework for the definition of the relevant market is the analysis of substitution effects at the demand-side and the supply-side. From a demand-side perspective, the market definition focuses on the question whether certain goods are substitutes from a consumer's point of view. Supply-side substitution may be taken into account if third-party suppliers are able to switch production in the short term without significant additional investments and economic risk in case of a price increase.
16. The market definition takes into consideration that the demand for airport infrastructure services is derived from the demand for transportation services. The markets for the provision of airport infrastructure are upstream markets; the markets for transportation services of passengers and cargo are downstream. This study is about the upstream markets, because Schiphol airport is only active in these markets.
17. Still, for the definition of the upstream markets, the functioning of downstream transportation markets needs to be taken into account. This approach is in line with European competition practice and European case law.
18. The methodological approach can be summarized as follows: If a company charges different prices for its services, this is considered as a first indication that these services might belong to separate markets. If these services are usually consumed in bundles, the definition of a common market for the bundled

service appears appropriate. Otherwise the focus lies on demand-side substitution. If substitution is strong, this indicates towards the definition of a common market. In contrast, weak demand-side substitution gives indication that the definition of separate markets is appropriate. Differences in the downstream markets (i.e. elasticities of demand, catchment areas) might also translate into the ability of the airport to charge customers differently, which also gives indication towards the definition of separate markets.

19. The core of the activities of Schiphol airport in terms of revenue is the provision of infrastructure to airlines. Moreover, the airport also provides access to the infrastructure for third parties which offer ground handling services at the airport. Schiphol airport is not active in the provision of ground handling services itself, and it does not create revenue with the provision of access to the airport (with the exemption of concession fees for refueling). Both types of activities differ substantially in terms of revenue creation, the customers and the way these markets work. The market definition takes this into account.
20. The ability of the airport to address different types of customers in a different way through its pricing scheme serves as a first indicator that Schiphol airport is active in a number of separate markets. It is the task of the economic approach in market definition to give evidence if the markets should indeed be defined separately, or if it is appropriate to define a common market for the provision of all infrastructure services which Schiphol airport provides.
21. There are several reasons for defining four separate markets related to the provision of infrastructure to airlines. First, the airport charges different prices for the services (passenger on origin & destination flights (O&D), passenger transfer on transfer flights, cargo, local & instruction flights), and the airlines cannot easily switch between offering these types of services. As an example, cargo transportation works differently as compared to passenger transportation, which results in substantial switching costs for airlines wishing to change the type of service they offer. Second, the related downstream markets differ, which enables the airport to address these types of customers differently. For instance, the introduction of the 'Air Passenger Tax' on July 1, 2008 shows that substitution between O&D and transfer passengers is not substantial in case of a price increase for O&D passenger services. Also, many interview partners indicated that demand elasticities in the different downstream transportation markets differ. Third, the analysis of the catchment areas indicates that these markets differ with respect to their geographic market boundaries. Finally, supply-side substitution is not strong enough to render missing demand-side substitution obsolete. There exists no alternative airport comparable to Schiphol, capable of taking over almost all traffic at short duration in case of a price increase.
22. According to the economic reasoning and in line with European case law, the definition of the relevant markets of Schiphol Airport for the provision of infrastructure to airlines with respect to services are as follows:
 - Market for the provision of infrastructure to airlines serving O&D passengers.
 - Market for the provision of infrastructure to airlines serving transfer passengers.

- Market for the provision of infrastructure to airlines offering cargo transportation.
- Market for the provision of infrastructure for local & instruction flights.

Geographically, these markets are defined through their respective catchment areas. The exact definition is left open, as a too rigid geographic market definition might mislead the assessment of market power. We therefore give only indications about the size of Schiphol airport's geographic markets, with the catchment area of local & instruction flights being the smallest area relatively close to the airport, O&D covering a larger area of or around the Netherlands, and transfer (some part of Western Europe) and cargo (whole of Europe) being even larger.

23. The markets for the access to the infrastructure for the provision of ground handling services by third parties are defined as follows:
- Market for the access to the infrastructure of Schiphol airport for companies which offer passenger handling services.
 - Market for the access to the infrastructure of Schiphol airport for companies which offer freight and mail handling services.
 - Market for the access to the infrastructure of Schiphol airport for companies which offer aircraft handling services.
 - Market for the access to the infrastructure of Schiphol airport for companies which offer catering services.
 - Market for the access to the infrastructure of Schiphol airport for companies which offer refueling services.
24. A separate market for each of the separate ground handling services would result in too narrow market definitions, because the services are usually offered in bundles. We therefore suggest the commonly used clustering into the five groups stated above, which follows from the practical combination of these services. Catering and Refueling are separate markets, because these services require different facilities. Some of the other ground handling services are complementary, resulting in the three other clusters which are not substitutable (freight and mail handling, passenger handling and aircraft handling).
25. The exact geographic market definition of these markets is to some extent left open at the stage of market definition. In geographic terms, these markets are not necessarily restricted to the airport's area, as the provision of some of these services may also be linked to the use of offices and rental space close to the airport. This is more likely for some services (i.e. catering) compared to others (i.e. refueling). As a consequence, all five geographic markets are defined relatively broadly and may also include nearby locations beyond the airport's space.

26. The assessment of market power of Schiphol airport requires an analysis of the competitive situation at the airport. The starting point for this analysis is the functioning of the downstream transportation markets
27. Schiphol enjoys a strong position on the market for provision of infrastructure for take-offs and landings for O&D passengers. Many of the airlines are very unlikely to leave Schiphol for other airports. AMS is the largest airport in its catchment area, and airlines serving Schiphol airport offer flights to many more destinations as compared to all nearby airports. Even though over the last eight years three airports in Schiphol's catchment areas emerged as competitors to AMS, it remains a clearly dominant gateway in its area.
28. The impending launch of HSL-South high-speed rail line will increase substitutability between Schiphol and Brussels, Duesseldorf, and Cologne. O&D traffic on the Paris-Amsterdam and the London-Amsterdam market is also likely to be affected; however, market players differ in their assessment of the magnitude of this effect. The net effect will likely imply a lower degree of market power of the airport.
29. The extent of competition for transfer passengers among the main EU hub airports has increased very modestly over the last decade. While the market for transfer passengers is segmented between the main hubs, apparent price sensitivity of transfer passengers is likely to limit the extent of potential exercise of market power by Schiphol.
30. The cargo market is the most competitive of the aviation industry segments.
31. The impending expiration of double hub guarantees in spring of 2011, in light of the apparent development of CDG as the primary hub, along with the purchase of Northwest Airlines by Delta Air Lines presents a threat to Schiphol's position in the global aviation industry in the middle to long-term.

Assessment of market power in markets for the provision of infrastructure

32. In our assessment of the market position of the airport with respect to the four markets for the provision of infrastructure for landing and take-off, we have found a different intensity of competition in each of these markets.
33. With respect to the market for the provision of infrastructure for airlines serving O&D passengers, we analyze the effects of overlapping catchment areas and intermodal competition. Our demand-side analysis suggests that some customers are indeed willing to switch between airports, responding to various factors, such as airfare, schedule convenience, airport's proximity, etc. This potential pressure on airlines serving Schiphol to offer competitive services also affects the market position of Schiphol airport. Nevertheless for most customers in the O&D market, there are only very limited possibilities for substituting Schiphol with some other airport. Therefore, in this market Schiphol remains a dominant supplier. Some rough estimates of a hypothetical SSNIP-test - based on typical price elasticities of demand in the sector and the current level of airport charges - show that a price increase on the wholesale market might be profitable for the airport. This gives indication on the existence of economic market power (EMP).

34. We observe more competition in the market for the provision of infrastructure for airlines serving transfer passengers, due to the presence of substitute transfer hubs, with the degree of competition differing between broadly defined market segments (e.g., Europe to North America versus Europe to Middle East). In a hypothetical SSNIP-test, we again find evidence of market power. Only for those markets where fares for transfer flights are rather low and the price elasticity of demand is rather high, would an increase in airport charges not be profitable for the airport, arguing against evidence of EMP. There is also some supply-side competition with respect to the transfer market, especially as a consequence of the AF-KLM merger, which has a similar effect.
35. Nevertheless, we find significant differences between the individual markets and we also find markets with EMP. This finding is due to the fact, that airport charges are only a rather small part of the overall costs of an airline. Furthermore, large airlines, which are the most important customers of Schiphol airport, have only very limited options. They have significant sunk investment at Schiphol airport, and their network system relies on access to AMS. This, together with possible slot constraints at other airports and restrictions due to international traffic agreements will make it difficult to move larger parts of their operation to alternative airports. This is a further indication that Schiphol airport has market power in the market for the provision of infrastructure for airlines serving transfer passengers.
36. Competition was found most intense in the market for the provision of infrastructure for airlines serving the cargo market. Because of the larger geographic market and the fact that most cargo is transported on trucks to the airports, high substitutability between airports can be observed. But despite intense downstream competition, a hypothetical SSNIP-test analysis shows economic market power. Nevertheless, this EMP is weaker than that for the provision of infrastructure for flights for O&D and transfer passengers, due to a larger catchment area for cargo. Also on the cargo market, the largest customer has sunk investment which implies substantial switching costs. Most of the cargo is belly freight and KLM therefore has only very limited possibilities of moving that part of the business to another airport. We also were told that Martinair, a subsidiary cargo airline, has substantial switching costs. As a consequence we find that the airport has market power in the market for the provision of infrastructure for airlines serving the cargo market.
37. The market for the provision of infrastructure for local and instruction flights is a much smaller geographic market, even smaller than for O&D passengers. Since most neighboring airports also belong to Schiphol Group,¹ the competitive pressure from substitute airports is rather limited and we do find market power by the airport.
38. Consequently, Schiphol has economic market power for the provision of infrastructure in all four markets that we analyze, although the strength of the market power differs. On O&D markets, EMP is most apparent, while on cargo it is the smallest.

¹ Of the potential competing airports, the airports of Rotterdam, Lelystad and Eindhoven belong to Schiphol Group.

Access to infrastructure for ground handling service companies

39. In the markets for the access to Schiphol airport for companies which offer ground handling and other aviation-related services, the airport plays a crucial role. It provides access to the central infrastructure (like access to the airport ramp and the terminal, the central baggage system, to energy and utilities, and to rental space). The question to be answered is whether this provides a possible leverage to Schiphol airport to exercise market power.
40. Our analysis shows that in the five markets for the access to Schiphol airport, the airport has indeed the possibility to exercise market power. Almost all markets for the access to Schiphol airport for companies which offer ground handling service (GHS) are bound to the airport. The only exceptions are planned aircraft maintenance and some catering services (and in some very special cases fuel and oil handling). For these activities there might in some cases be either a possibility of opting out or a possibility of purchasing the respective service at some other airport. All other ground handling services are indispensable at a given airport. Control over access provides therefore a possible leverage which Schiphol could use. As a consequence, the airport has a dominant position on the market for the access to Schiphol airport.
41. However, we observed that, except for fueling, access to infrastructure is provided without an access charge and the associated barriers to entry are kept to a minimum. As a consequence, most services are provided by multiple suppliers (including self handling) in the framework of a competitive market structure (except for fuel and oil handling, which is dependent on a bottleneck infrastructure and the supply of rental space, which is provided by a single supplier).
42. Almost all services providers, as well as airlines and security services, need office, storage or operational space at the airport, in order to provide their services. To what extent there might be also market power with respect to rental space depends on the competition with rental space beyond but close to the area of the airport. For many offices and storage facilities, there are alternatives.
43. Those service providers who for operational reasons need to have office and/or storage space in the terminal area are dependent on the space the airport's real estate arm provides. Therefore, the airport might be considered to have a dominant position with respect to the rental of operational space needed for aviation services and aviation-related services in the terminal.
44. Our analysis shows that the real estate market at Schiphol airport is quite diverse. For many offices and facilities, there are alternatives, making this a competitive market. For specific activities, users need to have access to specific locations, for instance terminals. Rents in terminals are high, but users need to pay this because there are no substitutes and there is little opportunity to extend available space at these specific locations. High prices may therefore be market clearing prices, displaying scarcity. Our interviews suggest that there is excessive demand for (office) space in terminals in the sense that even at higher prices tenants will not be able to move.

45. Concluding, the provision of rental space necessary for airline operations, ground handling operations, and government tasks should be considered an aviation-related service. This is due to the fact that each party has to have access to some rented space within the airport in order to produce its service. The airport is the dominant supplier of rental space on its premises, and the tenants only have limited options for moving their operations to areas outside the airport. The question whether the airport abuses its market position has to be left open, as such an assessment cannot be inferred from the available data.

International comparison of market definitions and assessment of market power

Australia

46. In Australia, there is hardly any effective competition between airports, and no effective competition from other transport modes is present. The Productivity Commission differentiates between markets for aircraft movement facilities, passenger processing facilities and non-aeronautical services in order to identify sources of substitution. According to the Commission, economies of scale and scope combined with sunk cost are effective barriers to entry. The price elasticity for an airport's service is generally highly inelastic, indicating EMP.

Great Britain

47. In Great Britain, the airport regulation decisions are based on the assessments of market power by the Civil Aviation authority (CAA) and the Competition Commission (CC). The focus is on aeronautical services. Both the CAA and the CC define the relevant market by the same method. The product market is defined as aeronautical service of an airport and is separated from commercial services. The two agencies disagree on whether to apply the hypothetical monopolist test (SSNIP) to define markets. CAA bases its decisions on SSNIP together with reasoning on substitutability, while the CC abstains from such a test.
48. In the cases of Manchester and Stansted airports, the CAA argues that competition from nearby gateways in all market segments would significantly constrain the airports' market power. The CC compares the market power of each BAA airport under a regime of separate ownership with the market power of BAA under joint ownership. The effects of capacity constraints and price cap regulation had to be taken into account. It was determined, in particular, that Gatwick, Heathrow and Stansted faced hardly any competition from non BAA airports and therefore had EMP.

Germany

49. Four of Germany's roughly 20 international airports (Düsseldorf, Frankfurt, Hamburg and Hannover) are partially privatized. Regulators have not conducted any studies evaluating the market power of these airports. Scholarly research suggested that nearly half of the German airports (including Düsseldorf) face substantial competition, while there are gateways with substantial market power (e.g., Berlin, Frankfurt, Hamburg, Munich and Stuttgart).

50. The German regulatory system appears to be an example of regulatory capture with the resulting low incentives for economic efficiency and relative high transaction costs. Germany does not have an independent regulator and the country's system for airport regulation appears to be rather ineffective.

France

51. The French airport system was managed as a public utility and was reformed in 2006 by partially privatized Aéroports de Paris (ADP). In the process of privatizing and reforming regulation, the market power of ADP was assessed, but on a broad and a rather loose base. Therefore there is little information on the questions what the relevant market for which airport service is, and how great the market power might be. Overall the ADP airports have persistent market power. The regulation of ADP has been reformed by switching to an incentive regulation without establishing an independent regulator.

United States

52. The crucial feature of the US airport industry is that airports are viewed as part of the general transport infrastructure rather than as firms. Most US airports are public enterprises. An evaluation of the airports' market power is not an issue. The Federal government is able to enforce cost-based charges by mandating them on airports receiving Airport Improvement Program grants. Access to gates and terminal facilities can serve as an entry barrier for airlines, as it is often arranged via long-term contracts.

Conclusion

53. We define two groups of markets for the aviation and aviation-related services which NVLS, the airport operator of Schiphol airport, offers.
54. The first group consists of markets for the provision of infrastructure to airlines. This group comprises four separate markets (the provision of infrastructure for airlines serving O&D, transfer, and cargo markets, and local instruction flights). Geographically, these markets are defined by their respective catchment areas. Our analysis shows that Schiphol airport has market power in each of these markets, but the degree of market power varies. It is strongest in the market for the provision of infrastructure for airlines serving O&D markets, and weakest in the cargo market. Overall, downstream competition intensified over the last years, but it yet is not sufficient to discipline Schiphol airport at the upstream markets. For instance, opportunities for airlines to switch the airport are rather limited. This is also confirmed by a hypothetical SNNIP test using reasonable price elasticities.
55. The second group of markets consists of markets for the access to the infrastructure for companies offering ground handling and other services. This group consists of five separate markets (access to the airport to offer passenger handling, freight & mail handling, aircraft handling, catering, and refueling services). Geographically, these markets are defined by the airport's space and nearby locations. Schiphol airport controls access to the infrastructure and has significant market power, although it currently charges no access fees to the airport (with the exception of concession fees for refueling). However, the rental

of operationally required space is a crucial instrument which can be used to exercise market power.

56. From an international perspective, the presence of market power for Schiphol airport is in line with findings of regulators in other countries. As differences in the country airport industry situation, national government policies and the methodology employed to analyze market power exists, a comparison of the resulting market definitions gives only limited insights.