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Economics at DG Competition 2006–2007

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Abstract This paper discusses a number of significant developments in the enforcement activities of the Directorate General for Competition at the European Commission, during 2006–2007. It covers a selection of investigations as well as policy initiatives that have triggered a debate in terms of the underlying economics.

Keywords Antitrust · Mergers · State aids

1 Introduction

The present report does not attempt to give an overview of the activities deployed by the Directorate General for Competition (DG Comp) at the European Commission. This can be found in DG Comp's competition newsletter and its annual report. Neither does it attempt to cover all significant issues and cases in which the Chief Economist Team (CET) has been involved. Instead, the report focuses on a number of developments, cases as well as policy initiatives, which have triggered important debates in terms of the underlying economics.

Reporting on some current policy initiatives would also be premature, but they should nevertheless be mentioned as they should trigger significant developments, which may be reported more fully in forthcoming years. In particular, DG Comp has been involved in two major policy initiatives: one regarding application of the EC competition rules on the abuse of a dominant position (Article 82), and one regarding the energy sector. Last year, DG Comp further pursued its effort to develop policy guidelines on Art. 82. The Commission received more than 100 written comments

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following the publication of a discussion paper on this issue in December 2005.[1] The most important topics raised by the submissions were discussed at a public hearing held in Brussels, attracting about 350 participants. The discussion paper has also been widely debated at a number of seminars and conferences, but no firm decision has been taken so far with respect to the eventual publication of guidelines.

The Commission has also completed its sector enquiry in the energy sector in January 2007.[2] This report analyses the reasons behind the significant rises in gas and electricity wholesale prices that cannot be fully explained by higher primary fuel costs and environmental obligations, given persistent complaints about entry barriers and limited possibilities to exercise customer choice. The main findings of the sector inquiry are that many energy markets remain highly concentrated, especially at the wholesale level; the markets are characterised by a high degree of vertical integration, and vertical foreclosure seems to arise in some cases; there is an absence of cross-border integration and competition; there is a lack of reliable and timely information on the markets – for example, about network availability; many users have limited trust in the price formation mechanisms; and too small balancing markets often favour incumbents and create obstacles for newcomers.[3]

The findings of the sector inquiry have informed the Commission's enforcement policy in separate individual cases and triggered new ones, in which it is looking into such issues as hoarding of network and storage capacity, long-term capacity reservations, strategic underinvestment in networks to protect downstream supply interests, blocking of inter-connectors to favour domestic consumption, market sharing, and long-term contracts between wholesalers/retailers and downstream customers. In addition, the report identifies some deficiencies in the design and implementation of regulation for electricity and gas markets. This has led to a debate about the desirability of amending regulation, in particular with respect to full ownership unbundling of supply and network activities.

This report will focus on merger control and state aids. With respect to merger control we consider developments in terms of non-horizontal mergers, efficiencies, the implementation of the new standard for the substantive assessment of merger effects, geographic market definition in the presence of price discrimination, and the analysis of unilateral effects in the Ryanair/Aer Lingus case. With respect to state aids, the report will focus on the assessment of subsidies to research and development in the context of the NeoVal case.

[1] See http://ec.europa.eu/comm/competition/antitrust/art82/index.html

[2] See http://ec.europa.eu/comm/competition/sectors/energy/inquiry/index.html

[3] Balancing is the process whereby a constant overall balance between (gas or electricity) supply and demand on the transmission network is ensured. Individual producers cannot ensure a perfect balance between what they enter into the system and what their customers take out. Typically a "penalty" has to be paid for such imbalances. The smaller the balancing market the higher the probability of incurring penalties; in larger markets the imbalances would to some extent cancel each other out.

2 Non-horizontal Mergers

Following the horizontal merger guidelines issued in 2004,[4] the Commission launched a public consultation on draft guidelines on the assessment of non-horizontal mergers under the Merger Regulation in February 2007.[5] The publication followed an opinion[6] given in August 2006 by the Economic Advisory Group on Competition Policy.[7]

The draft non-horizontal merger guidelines cover vertical and conglomerate mergers. The draft guidelines emphasize that non-horizontal mergers are generally less likely to create competition concerns than horizontal mergers. First, unlike horizontal mergers, vertical or conglomerate mergers do not entail the loss of direct competition between the merging firms in the same relevant market. Second, vertical and conglomerate mergers provide substantial scope for efficiencies. In particular, the draft guidelines recognize the scope for reducing double marginalisation in vertical mergers or internalising the pricing externality among complements in conglomerate mergers (the so-called "Cournot" effect). However, the draft guidelines also identify particular theories of harm, both in terms of coordinated and non-coordinated anticompetitive effects – foreclosure being the concern for the latter.

The draft guidelines provide soft safe harbours based on market shares and the post-merger HHI by stating that the Commission is unlikely to find competition concerns where the post-merger market share of the new entity in each of the markets concerned is below 30% and where the post-merger HHI is below 2000. In practice such mergers are unlikely to be extensively investigated unless special circumstances are present, so that market shares are particularly uninformative regarding the competitive situation in a market.

The central non-horizontal competition concern that may arise from vertical mergers is foreclosure. Two types of foreclosure are distinguished: input foreclosure and customer foreclosure. For both types of foreclosure the Commission will examine: first, whether the merged entity would have, post-merger, the ability to substantially foreclose access; second, whether it would have the incentive to do so; and third, whether such a foreclosure strategy would have a detrimental effect on competition downstream. The draft guidelines have separate sections describing the assessment of each of these factors, although it is underlined that, in practice, the factors are often examined together since they are closely intertwined.

The draft guidelines emphasize that raising the cost of inputs for downstream rivals involves a trade-off between the profits forgone in the input market due to reduced sales to rivals and the additional profit resulting from expanding sales downstream or, as the

[4] Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings, OJ C 31, 05.02.2004, pp. 5–18.

[5] The draft guidelines and comments received during the public consultation can be found on the website of DG Competition:http://ec.europa.eu/comm/competition/mergers/legislation/non_horizontal_consultation.html. See Conte et al. (2007).

[6] "Non-horizontal Merger Guidelines: Ten Principles", can be found at http://ec.europa.eu/comm/competition/mergers/legislation/non_horizontal_guidelines.pdf

[7] The EAGCP consists of leading academic economists in the area of industrial organization. The opinion was written by the merger sub-group.

case may be, being able to increase price in that market. The fact that a merger negatively affects competitors is not in itself deemed a problem. Rather, the Commission's main focus is on the likely impact of the merger on consumers downstream.

Customer foreclosure involves a reduction in the procurement of products sold by the competitors upstream; this may reduce profit downstream (as the integrated firm sells a less attractive range), but competitors upstream may be rendered less competitive, for instance, if they are prevented from exploiting scale economies. As a result, competitors downstream will face less efficient suppliers, and this reduces the competitive pressure that they exert on the integrated company. This may, in turn, raise profit in the downstream market for the integrated firm and could lead to consumer harm.

The section on conglomerate mergers in the draft guidelines acknowledges that conglomerate mergers in the majority of circumstances will not lead to any competition concerns. However, in certain exceptional cases they may result in harm to consumers. Foreclosure through tying and bundling is the main theory of harm considered by the draft guidelines. It is when tying and bundling lead to dynamic effects that concern is more likely to arise. For instance, when products are complements, deterring entry in one market may, through bundling or tying, allow the merged entity to deter entry in another market if it forces potential competitors to enter in both markets at the same time.

The methodology described in the draft non-horizontal merger guidelines was applied to a complicated vertical transaction in the satellite industry, *Thales/Finmeccanica/Alcatel Alenia Space & Telespazio*. Alcatel Alenia Space (AAS) and Telespazio were joint ventures controlled by Alcatel and Finmeccanica that were active in ground and space systems, including satellites. Through the proposed operation Thales would acquire Alcatel's shareholdings in AAS and Telespazio, and Thales and Finmeccanica would contribute some of their space activities to AAS and Telespazio.

The main issue of the investigation was the vertical relationship between the upstream market of Travelling Wave Tubes ("TWTs") produced by a Thales subsidiary, Thales Electron Devices[8] (TED), and markets downstream of TWTs where AAS was active. A space TWT is an electronic component used to amplify microwave (or radiofrequency) signals received by the satellite before the signals are retransmitted to the earth. There were only two suppliers of TWT worldwide, TED and the US company L3, with TED having 60–70% of the worldwide production in 2006, down from 80–90% in 2004 and 2005.

The Commission analysed whether the new entity would discriminate against AAS's downstream rivals in the supply of TWTs. The Commission considered some vertical arithmetic submitted by the parties in which the profitability of a foreclosure strategy was assessed; in line with the methodology outlined in the draft guidelines, using estimates of the mark-up upstream, the mark-up downstream, and the relative values of the input upstream and the output downstream, the diversion ratio downstream that would make the a strategy of raising rivals' cost strategy profitable was calibrated. The Commission also considered a vertical merger simulation submitted

[8] TED is actually two companies: Thales Electron Devices SA France and Thales ED GmbH.

by the parties in which the pricing strategies of the input suppliers and those of the final output suppliers were modelled. In the end, the transaction was cleared partly because the Commission anticipated that the parties would not have an incentive to foreclose competitors. This conclusion arose partly from the observation that TWTs have to be associated in fixed proportion with Electronic Power Conditioners (EPC). The parties had a weak position in the supply of this component, whereas one of the downstream rivals had a very strong position and would accordingly be in a position to respond to the implementation of a foreclosure strategy. Based on this assessment the Commission concluded that the proposed operation would not significantly impede competition.

3 The New Substantive Test

The revision of the Merger Regulation in 2004 introduced a new merger test, which states that the Commission may prevent a merger or impose remedies on a merger that would "*significantly impede effective competition* [. . .] *in particular as a result of the creation or strengthening of a dominant position*." One of the reasons for changing the old dominance test was a doubt whether there was a "gap" such that certain mergers that could have serious anti-competitive effects could not be prohibited since they would not create dominance. An example often given was where the merged entity would not be the market leader post-merger but where the merger would still lead to significant non-coordinated (known in the US as "unilateral") effects. *T-Mobile Austria/tele.ring* was the first case where the Commission found that such a situation would arise.

The case concerned the second Austrian mobile phone operator, T-Mobile, acquiring the fourth operator, tele.ring, which had a significantly lower market share.[9] Although T-Mobile would not be the largest operator after the merger and could not be qualified as dominant, the Commission found that the loss of tele.ring as an independent operator would lead to anticompetitive effects. The Commission concluded that tele.ring exerted considerable competitive pressure on the other operators through aggressive pricing. The Commission found that tele.ring had significantly lower marginal cost than its competitors. This, in combination with a lower market share, accounted for the lower prices offered by tele.ring. In addition, it appeared that tele.ring had successfully concentrated its tariff offering on price-sensitive but heavy users. Given that the scope for price discrimination appeared to be somewhat restricted, a large operator could not be expected to duplicate this strategy, as the offer targeted at price sensitive users would lead to reduction in revenues from others, making the strategy unattractive. In addition, it was found that customers would often switch from T-Mobile to tele.ring's network. The merger was allowed to go through only after T-Mobile sold off sufficient frequencies and mobile telephony sites to ensure that a smaller player in the market without national coverage could grow into a similar role as an aggressive national player as that previously held by tele.ring.

[9] For more details on the case, see Luebking (2006).

4 Efficiencies

The new Merger Regulation and the horizontal merger guidelines make it clear that if efficiencies are merger-specific, timely, verifiable, and benefit consumers, they can be a mitigating factor to a merger that might otherwise have adverse effects on competition. As a consequence, merging parties are increasingly drawing the Commission's attention to possible efficiencies of their transactions. The following describes three merger cases where the Commission carefully considered substantial efficiency claims:

Inco/Falconbridge was a friendly takeover bid by Inco for Falconbridge, which would create the largest nickel company worldwide.[10] The Commission found that the merger would significantly impede effective competition in three markets: the EEA-wide market for the supply of nickel to the plating and electroforming industry; the worldwide market for the supply of high purity nickel for the production of super alloys, including super alloys used in safety critical parts; and the worldwide market for the supply of high purity cobalt for the production of super alloys in safety critical parts. The parties would have had very high market shares in all three markets (respectively 70%, 90%, and 95%), and the Commission's investigation showed that the parties would be able to raise prices after the merger in all three markets.

The parties submitted claims, however, that the proposed transaction would generate significant operating efficiencies, essentially due to the proximity of the parties' mining and processing operations in the Sudbury basin in Canada. They argued that this would result in increased production at a lower cost, which would benefit all nickel consumers and offset any anticompetitive effects of the transaction. The Commission acknowledged that the merger was likely to bring about these efficiencies but questioned whether they were merger-specific, since most of them could be captured through the creation of a mining and processing joint venture in the Sudbury basin. This would leave Inco and Falconbridge free to compete at the refining and marketing level, and the efficiencies were therefore not merger-specific. The Commission was also not convinced that the efficiency would outweigh the likely anticompetitive effects in the identified end-nickel products' relevant markets. The Commission could therefore not clear the transaction based on efficiencies. The parties instead submitted remedies that allowed the Commission to clear the takeover. However, the takeover in the end fell through as Inco did not acquire the majority of the shares of Falconbridge at the expiration of the bid.

In *Korsnäs/Assidomän Cartonboard* the Commission approved an acquisition that would combine the second and third largest sellers in the EEA-market for liquid packaging board (LPB) even though the acquisition would result in a near-duopoly, with the remaining seller StoraEnso still being somewhat bigger than the merged entity. The demand side of the LPB market is also very concentrated, with one larger customer (Tetra Pak) accounting for over half of the demand, and only two other large customers (Combibloc and Elopak) being present.

The Commission found that StoraEnso and the merged entity were not likely to coordinate their behaviour in the LPB market after the merger. Among the several reasons

[10] See also Boeshertz et al. (2006).

for this conclusion was that there are many varieties of LPB, which makes coordination difficult; that the two companies would, post-merger, still be quite asymmetric – for instance, because a specific, important type of LPB[11] could only be served by StoraEnso; that the presence of a strong customer such as Tetra Pak made coordination difficult; that the LPB market is characterized by staggered long-term contracts; and that the larger customers could shift part of their demand to producers outside the EEA.

A number of factors led the Commission also to conclude that the merger would not have non-coordinated effects, among others that LPB suppliers were not capacity constrained; that the customers enjoyed countervailing buying power; and that competition from outside the EEA was likely to grow in the years after the merger.

Finally, the parties submitted claims that the transaction was likely to generate substantial, merger-specific synergies with respect to input costs, reduction of personnel, and improved production. They also argued that R&D efficiencies were likely and that the fact that the merged entity would have a broader portfolio of products would allow it to compete more efficiently with StoraEnso.

The parties' arguments on efficiencies raised a number of issues that could not fully be addressed within the context of a first phase investigation, which lasts about one month. However, the Commission did consider that it seemed realistic that the allocation of production among the increased portfolio of machines would indeed allow the merged entity to increase overall production on the machines. In support of their claim, the parties had presented an agreement between Korsnäs, the buyer, and Tetra Pak regarding deliveries for 2006–2009 from which efficiencies could be clearly identified. This agreement evidence led the Commission to consider that the parties had established that this category of efficiencies was likely to occur and be passed on to customers. This strengthened the conclusion that the transaction would not significantly impede effective competition.

A third merger case with substantial efficiency claims was *Metso/Aker Kvaerner* in which Metso sought to acquire Aker Kvaerner's pulp and power business. The Commission concluded that the takeover would eliminate one of only three major players in the pulping machinery market, an already highly concentrated industry with high barriers to entry. However, many customers would welcome the fact that the merged entity would be capable of supplying all elements of a modern pulp mill, thereby providing customers with a broader product portfolio and a better knowledge of the overall process of pulp production. Before the transaction, only the market leader Andritz was able to supply equipment for a complete mill. The majority of customers considered, however, that the potential benefits would not outweigh the anticompetitive effects and that the merger overall would result in price increases. The merger was approved only after the parties offered appropriate remedies.

5 Geographic Market Definition and Price Discrimination

The definition of a relevant geographic market can be challenging in the presence of significant transport costs, such that the potential substitution across products follows a

[11] "White/white" LPB.

precise pattern induced by location. A common practical approach to identify relevant markets is to delineate the area around a given point of sale that can be realistically be served from that point given the importance of transportation costs. This area around the point of sale could be a relevant geographic market. However, if the area overlaps with those defined around the points of sales of competitors, an attempt to raise prices may be defeated by customers' turning to alternative suppliers. Other areas would then have to be added to the original one until a sufficiently large area is found such that lost sales at the edge are not sufficient to make a price increase unprofitable. Although the principle is clear, the implementation of this approach involves practical difficulties.[12]

The validity of the approach described above, however, hinges on the important assumption that price discrimination is not feasible.[13] Price discrimination would be possible if customer location could be clearly identified and arbitrage would not be feasible, neither directly among customers nor by third parties. These conditions are particularly likely to be fulfilled in markets with relatively few customers, where the product is sold on a delivered basis, and where the transportation costs are a significant percentage of the total cost.

If price discrimination is feasible, there is no longer a trade-off between marginal and infra-marginal customers, and a small subset of customers may constitute a relevant market. In *Omya/Huber PCC* the Commission had evidence that discrimination was feasible at the level of individual customers. It avoided giving a geographic market definition in the traditional sense of describing the precise physical borders of each geographic market. Instead it focused directly on what the merger would mean to the various customers of the merging parties. The products investigated were various industrial minerals (in particular calcium carbonates) used in the paper industry, and the customers were a relatively limited number of large paper mills. This greatly facilitated the task of the Commission to assess the effects of the loss of competition between the merging parties based on transport costs and the locations of paper mills and manufacturers of the relevant industrial minerals.[14] The Commission concluded that the merger would significantly impede competition "in the markets for coating calcium carbonates for affected customers in the South of Finland." The merger was cleared after the merging parties offered to divest a production facility in Finland as well as a technology necessary for the divested business to address the competition concerns.

6 Unilateral Effects in Ryanair/Aer Lingus

In late June 2007 the Commission prohibited the hostile takeover by Ryanair of Aer Lingus. The facts of this case differ from previous airline mergers. This was the first time that the Commission had to assess a proposed merger of the two main airlines in a

[12] See also the Commission Notice on the definition of the relevant market for the purposes of Community competition laws, OJ C 372, 09.12.1997, p. 5, paragraphs 57–58.

[13] See the relevant market notice, paragraph 43, but also the US Horizontal Merger Guidelines, section 1.22.

[14] See also Durand and Pesaresi (2007).

single country, with both operating from the same "home" airport: Dublin. It was also the first time that the Commission had to assess a merger of two "low-cost" airlines, operating on a "point-to-point" basis. Furthermore, the number of overlapping routes was unprecedented compared with previous airline cases.

At the time of the decision Aer Lingus and Ryanair competed directly with each other on 35 routes to and from Ireland. On 22 of these routes, the merger would have left customers with a monopoly. On the remaining routes, Aer Lingus and Ryanair are each other's closest competitors, and the merger would have significantly reduced consumer choice, with the merged entity holding market shares of over 60%. Furthermore each party constrained the other in a number of routes where the threat of mutual entry was credible in the absence of the merger.

Notwithstanding the above and as explained in the EU Horizontal Merger Guidelines, market shares provide only a first indication of market power. Likewise, the overlap in terms of market shares is normally only a rough measure of the non-coordinated effects of a merger. Indeed, Ryanair claimed that it is not in competition with Aer Lingus. On the contrary, Ryanair argued that it behaves independently of Aer Lingus (and any other competitor) when setting prices and deciding on frequencies for its routes. Ryanair claimed that it is constrained only by the price sensitivity of its customers and not by the pricing behaviour of its competitors. It follows that a price increase as a result from the merger would, according to Ryanair, be excluded by the fact that such price increases would contradict Ryanair's strategy to optimise the number of passengers on its flights ("load factor").

The Commission dismissed these claims on the basis, inter-alia, of three types of evidence: a qualitative assessment of the price-setting mechanism by low-cost-carriers, a price regression analysis, and a customer survey.

6.1 The Price-setting Mechanism of the Merging Parties

First the Commission found evidence that both Aer Lingus and Ryanair closely follow the behaviour of each other and other competitors. Like many other low-cost carriers, Ryanair and Aer Lingus use a so-called "yield management system" for their pricing policy and the determination of individual prices. Software automatically tracks the booking status of each flight, provides forecasts for the further development, and makes proposals for the pricing pattern. Should sales fall behind expectations both merging parties would try to stimulate the demand, normally by making more seats available in the cheaper price categories. The adjustment is done on a systematic and daily basis. It follows that if Ryanair or Aer Lingus lower their fares on a specific route (whether for a promotion or on a permanent basis), this would likely reduce the load factor of the respective competitor as customers switch to the cheaper prices. This would induce the other merging party to react by making more cheap seats available in order to maintain its targeted load factor.

Furthermore, Ryanair and Aer Lingus both use a price comparison software tool that allows them to track and compare air fares for every flight of all competing scheduled carriers that is distributed over the Internet. With this software both parties are able to monitor and react daily to observed movements in each other's prices.

6.2 Price Regression Analysis

The Commission also conducted a price regression analysis in order to test a number of hypotheses delineated ex-ante concerning the extent to which the fares of one party are affected by the other. The Commission relied on a panel-data set obtained by combining price, frequency, and route-specific data provided independently by the merging parties and the Dublin Airport Authority. Both Ryanair and Aer Lingus also submitted their own econometric reports.

All reports followed essentially the same strategy: to determine whether the presence of one of the merging parties on a route would have an impact on the prices of the other. Hence, the variable to be explained is the net average fare in a certain month on a given route and the explanatory variable of interest is one that indicates that a rival firm offered one or more flights in that same month and route. Other variables are added to “control” for other possible systematic influences on fares, which refer to route characteristics that may affect demand or supply on that route.

The Commission explored two econometric methodologies:

(i) Cross-section regression analysis, which examines differences in prices across a number of affected routes at a point in time.
(ii) Fixed-effects regression analysis with panel data, which exploits the variation in market structure at individual routes over time.

Cross-section regressions use information on different market structures across routes, controlling for observed route specific factors that affect fares. The primary advantage of this methodology arises where market structure varies substantially across routes and where there are a large number of routes in the data. Ryanair’s expert economists focused essentially on this approach.

The disadvantage of using a cross-section approach is that it may not be possible to control for important but unobserved or unmeasured influences on price that vary from route to route. When important variables affecting price in different routes cannot be observed and are correlated with the explanatory variables included in the regression, the estimated coefficients can be subject to an omitted variable bias.

The Commission could derive no definite conclusions from cross-section regressions in this case given the impossibility to control for a number of unobserved factors that were likely to affect prices and differ across routes, the small number of observations, the sensitivity of the results to the month considered, or the fact that the inclusion of statistically insignificant explanatory variables sometimes affects the coefficients of other variables.

An alternative to making inferences about price effects from cross-sectional comparisons is to exploit the variation in market structure in individual routes over time. This approach uses information on changes in the market structure within a route over time. For example, the entry of Ryanair on a route dominated by Aer Lingus may affect the latter’s price (after controlling for observable changes in other variables such as entry by other rivals).

Effectively the method compares the level of Aer Lingus prices on a route after Ryanair entered with the level before Ryanair entered. This before-and-after comparison is done systematically for all routes where Aer Lingus operates and thereby generates the average effect of Ryanair's presence on Aer Lingus fares. Aer Lingus' expert economists focused essentially on this approach.

The fixed-effects procedure compares the incumbent's prices before-and-after entry of a rival within the same route. Such a comparison can mitigate the omitted variable bias that affects cross-section regressions because it is more likely that unobservable or non-measurable cost or demand factors affecting fares and varying across routes are not likely to vary over time within a given route (such as the type of destination, the popularity of the route according to purpose of travel, customer awareness, destination airport characteristics, number of alternative airports at destination, safety considerations, total duration of travel, air traffic regulations at country of destination, etc.). Thus, the primary advantage of fixed-effects regressions comes where most unobservable or non-measurable factors affecting price are unlikely to vary much during the sample period.

Fixed-effects regressions are suitable if there is sufficient time series variation in the data to permit precise estimates of the relationship between price and presence of a rival. It turns out that there were many instances of Ryanair's entering or exiting a route already served by Aer Lingus within the period of analysis (five years). In contrast Aer Lingus had entered or exited routes where Ryanair was present in very few instances. A likely explanation is that Aer Lingus was taking the lead in the opening of routes out of Dublin, with Ryanair following. In any event this pattern in the data meant that the fixed effects methodology was primarily suitable to assess the effect of Ryanair's presence or capacity expansion on Aer Lingus' prices.

The Commission explored two types of regression specifications: The first specification tested whether the presence of one of the merging parties on a given route is negatively related to the fares charged by the other. An alternative specification tested whether the number of departure frequencies of one merging party in a given route is associated with the other party's charging lower fares.

The results indicated that depending on the exact specification, Ryanair's presence is associated with Aer Lingus charging around 7–8% lower prices when considering city-pairs reflecting the Commission's retained market definition. This effect was economically and statistically significant in all tested regressions, which typically included alternative controls for demand and supply factors. In practically all cases the control variables in the different regressions have the expected signs and are statistically significant. Results were also robust to corrections for violations of standard econometric assumptions and to alternative specifications.

Furthermore, Ryanair's presence had a much stronger economic impact (at least double) than that of any other carrier. In fact, in most cases the regressions indicate that the presence of other carriers has no economic or statistically significant effect on Aer Lingus fares.

Finally, it should be noted that the estimated effect of Ryanair on Aer Lingus prices is likely to be underestimated. The presence of Ryanair in Dublin exerts a potential competitive constraint on Aer Lingus. On routes out of Dublin where it is the only carrier, it can be expected that Aer Lingus sets prices that are lower than what it would charge if Ryanair had no Dublin base. Since the regression analysis considers only fares' variations over time within each route and only captures price reductions subsequent to Ryanair's entry, this potential competition constraint does not show up in the empirical results.[15]

6.3 The Customer Survey

The Commission's investigation indicated that Ryanair and Aer Lingus compete largely for the same pool of customers and competition takes place via a differentiated product offering in which a lower price reflects a lower quality product and a higher price reflects additional features. This implies that price is only one parameter in the analysis. For example, in the presence of Aer Lingus, Ryanair may not lower its fares but may be forced to increase the quality of its service or reduce the price of ancillary services. A regression analysis on air fares is thus unlikely to capture the full extent to which the merging parties may exert a competitive constraint on each other. Moreover, on the basis of the available data the fixed-effects methodology lead to conclusive results only with respect to the impact of Ryanair on Aer Lingus prices.

In part to address these concerns the Commission took the initiative to conduct a passenger survey. The questionnaire was designed by the Commission, after consulting the parties on a draft, and implemented by a specialised external contractor over a 10 day period. The Commission processed the responses and analysed all the results within the tight deadlines provided by the Merger Regulation.

The goal of the survey was to test (i.e., validate or refute) Ryanair's claim that the merging parties do not constrain each other because Ryanair serves customers that would otherwise not fly with Aer Lingus but in the event of a price increase would choose not to fly.

The results suggest that the parties are indeed the closest competitors in routes out of Dublin, not only because they benefit from advantages derived from their strong presence in Dublin but also in the eyes of customers. For instance, where both airlines fly into the same airport at the destination end, more than half of Aer Lingus and Ryanair's passengers have considered the other carrier. On routes where Aer Lingus and Ryanair compete with a third carrier, around 40% of Ryanair's passengers considered Aer Lingus as an alternative, while around 17% considered any other competitor. Similarly, for Aer Lingus, 32.5% of its passengers considered Ryanair as an alternative whilst only 15.7% considered any other competitor.

Importantly, the results of the passenger survey indicated that there is a certain symmetry in the responses by passengers of Ryanair and Aer Lingus. In particular passengers travelling with other airlines other than the merging parties considered Aer Lingus more often than Ryanair. This is consistent with the hypothesis that Ryanair is less constrained by airlines other than Aer Lingus. This further suggests that the competitive constraint that both carriers impose on each other is symmetric.

[15] Concerning market definition, the question was whether one or more airports situated around a certain city would be part of the same market or instead a market should be defined on an airport-to-airport basis. In some cases, where sufficient data was available, a price correlation analysis provided an additional indication of the scope of the market. For instance the Commission found a high correlation in the prices of passenger air transport services between Dublin, on the one hand, and Rome Fiumicino or Rome Ciampino airports – around 0.90. This was above a benchmark based on the average correlation observed when Ryanair and Aer Lingus serve the same airport (0.69).

6.4 Final Remarks

The market investigation also revealed that most airlines were unlikely to enter into direct competition with a merged Ryanair/Aer Lingus in Ireland. This is not only because the merged entity would be able to operate from the very large bases of Ryanair and Aer Lingus in Ireland, having access to customers through their two well-established brands, but also because Ryanair has a reputation of aggressive retaliation against any entry attempt by competitors. A merged Ryanair/Aer Lingus would have had even greater flexibility to engage in selective short-term price reductions and capacity increases if competitors entered routes to/from Ireland, in order to protect its market position. The likelihood of entry is further reduced by peak-time congestion at Dublin airport and other airports on overlap routes.

Ryanair offered various remedies to solve the competition issues identified. However, the scope of these remedies was insufficient to ensure that customers would not be harmed by the transaction. In particular, the limited number of "slots" offered was unlikely to stimulate market entry of a size necessary to replace the competitive pressure currently exercised by Aer Lingus. This was confirmed by the results of the extensive market tests of the proposed remedies.

7 State Aid

Last year's report described the move towards a "more economic approach" in the area of state aid and in particular the "State Aid Action Plan" (SAAP) launched by the Commission in 2005. The Commission is currently developing new methods to evaluate state aids projects, and in what follows we report on the analysis performed in the assessment of a subsidy to a Research and Development project. This case is one of the first in which a more refined economic assessment has been undertaken.

NeoVal is an R&D programme conducted by Siemens Transportation Systems (STS), a subsidiary of Siemens AG with activities in France, in partnership with LOHR Industrie, a smaller French company specialised in designing and developing freight and passenger transport systems. The aim of the programme is to develop a new generation of metro trains featuring a number of innovative functions: in particular, power optimisation and on-board power supply. The total cost of the R&D programme is EUR 60 million over six years. The aid offered by the French government amounts to EUR 26 million. In line with the principles of the State Aid Action Plan, the Commission assessed in detail whether (i) the state aid addressed an identified market failure; (ii) the state aid was well targeted; and (iii) the distortions of competition were sufficiently limited so that the overall balance is positive.

As regards the first step, the Commission was satisfied that the measure addressed a number of market failures, mainly externalities, hampering R&D in this field. In particular, the Commission considered that there were strong environmental benefits associated with this new generation of metros, benefits that STS would be unlikely to capture in the form of higher prices.

As regards the second step, the main aspect in determining whether the aid measure was well targeted concerned the question of the *incentive effect*: Would the aid lead

STS to increase its level of R&D activity in comparison with what it would have done in the absence of aid?

A comparison with historical levels of R&D activity by STS revealed that the project represented an increase in R&D activity in terms of scope and speed. However, such a comparison does not by itself indicate that this increase was actually caused by the aid. The French authorities had indicated that with the aid, STS would perform the NeoVal project in full, whereas without the aid a less ambitious “base project” would be conducted.

On the basis of revenue and cost forecasts provided by the company, the Commission analysed the level of profitability (in terms of Net Present Value) of the two projects, to see whether STS would not have gone ahead with the ambitious project in any event, even without the aid. The NPV estimates provided by the French authorities were conditional upon technological success and did not explicitly consider the probability that the R&D may fail. In the absence of specific information to that effect, the Commission considered various scenarios as to the stream of net revenues that would accrue in case of failure and computed the critical rate of success below which STS would indeed need state support to make the whole project profitable (using the cost of capital applicable in the company) as well as the critical rate of success with the aid. These critical rates, which should be seen as rough approximations, could be confronted with expert information on the actual riskiness of the project.

The analysis further revealed that according to internal rules for allocating capital within Siemens, the project would not be undertaken without the aid and that STS, before having applied to the French state for a subsidy, was on track to do the “base project”, as opposed to the ambitious NeoVal project. On the basis of this evidence, it was concluded that the aid was necessary and proportionate.

As regards the third step, the potential distortions of competition and trade, the Commission observed that the potential impact of the aid should be limited for several reasons. First, the aid was unlikely to distort the dynamic incentives of rivals to invest in R&D given that the market for local transport systems was anticipated to grow quite rapidly over the next decade, leaving ample opportunities for other players. Further, the Commission was also aware of other suppliers of metro systems that had projects in the pipeline or had announced such projects. Second, the aid was unlikely to create or maintain market power, in view of STS’ modest current and anticipated market position, and the bidding nature of the market.

The Commission thus considered that the NeoVal programme on balance satisfied the balancing test set out in the R&D Framework and could therefore benefit from the exemption provided for by Article 87(3)(c) of the EC Treaty.

8 Conclusion

Last year’s Antitrust and Regulatory Update was the first to have a report on the activities of DG Comp. That report described in some detail the role of DG Comp in the enforcement of EU competition law as well as that of the Chief Economist Team (CET) within DG Comp. The CET was until recently staffed with 10 economists. It has been decided to increase this number significantly so that by the end of 2007 there should be around 20 economists in the CET.

Economic analysis will continue to inform the policy initiatives and the investigations undertaken by DG Comp. But economic analysis is not performed exclusively by the members of the CET. The network of economists within DG Comp includes about 80 professionals committed to develop economic reasoning and evidence.

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