

THE USE OF ECONOMIC ANALYSIS IN COMPETITION ENFORCEMENT

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Outline

- Economic analysis
 - To support enforcement
 - To develop standards
- The role of economists
 - Within competition agencies
 - In Courts
- A useful tool : best practice guidelines
- Illustration : the Ryanair/Aer Lingus merger

Developing standards

- The interplay between law and economics depends on the statutes, the legal framework and the institutions
 - The legal provisions are formulated in very general terms so that legal concepts can be given economic meaning
 - The objective of enforcement is (relatively) focused and relates to economic analysis
- “Unless economic efficiency is held to be of no importance, one can no more avoid the use of economic models in this context than one can avoid speaking prose” Schmalensee (1979)
- How legal concepts and their assessment can be informed by economic analysis ?
 - Both conceptually (dominance = significant market power) and empirically (a market share of 50 % gives rise to presumption of dominance)
 - « There is a remarkable isomorphism between legal doctrines and economic theory. The isomorphism becomes an identity when the law adopts and explicit economic criterion of legality » R. Posner (1999)

Developing standards

- Trough decisions and judgments : collective dominance as illustration
 - Nestlé/Perrier, Genco/Lohnro
 - Airtours/First choice : “it is sufficient that the merger makes it rational for the oligopolists to act individually in ways which will substantially reduce competition between them”
 - The Court disagrees : collective dominance should be understood in terms of coordination in repeated interactions
 - And establishes the standard : a coherent narrative of coordination rather than a checklist of factors (CFI and ECJ judgments in Impala/Sony-BmG)
- Through guidelines
 - Providing a critical account of robust economic theories that are relevant for enforcement
 - Taking stock of empirical evidence that can inform presumptions (what do we know about the effect of RPM on competition ?)
 - Providing indications of the evidence that is relevant to validate or invalidate a theory of harm and how to weight different pieces of evidence
 - Illustration : guidelines on non horizontal mergers. Either customer or input foreclosure as valid theories of harm. What determines, say, the incentive to undertake input foreclosure includes the relative margins upstream and downstream, the cost share of the input downstream and the proportion of customers that can be recaptured downstream as the price of downstream competitors increase.

Supporting enforcement

- Developing a coherent theory of harm
- Beware of the limits of verbal reasoning : illustration
 - A firm with a monopoly in one market has an incentive to leverage its market power in another market. For instance through tying
 - Not quite. If customers have no rent to start with from buying the monopoly good, any attempt to extract more through another good will make them run away.
 - The “one monopoly profit” theory is not a rule for enforcement, as it fails in many circumstances.
 - But it provides an intellectual discipline
- Framework to make sense of the facts :
 - Oracle/Sun : what is competition between an open source database and proprietary ones ?
 - Why would Microsoft try to marginalise other browsers than explorer ? Or foreclose media players ?
- Making robust inferences
 - Are Aer Lingus prices really lower when it faces competition from Ryanair ?
 - Requires a careful control for all the factors that affect prices
- Quantifying effects
 - Unilever/Sara Lee. Sanex (SL) is a substitute for the Axe (Unilever) ?
 - But by how much would the price increase if the two products were priced by the same firm ? Demand estimation and merger simulation

Economists in agencies

- A specialized unit or economists throughout the organization ?
- The Federal Trade Commission : separate investigation by the economists
- Department of Justice : integrated teams
- EU : the schizophrenic model :
 - The CE supports the case teams
 - But provides an independent advice to the decision makers, the Commissioner and the college
- Trade off between relevance and capture
- Complementary assets
- No institutional transplant
- Quis custodiet ipsos custodes ?
- « devise rules under the assumption that, someday, he or she will be succeeded by a nitwit » (R Thaler on the Financial protection bureau)
- Trade-off between speed and adoption

Economists in courts

- “It is impossible for a judge to fully understand an economist because if he did, he would be an economist”
- Economists need to develop a narrative in the language of the target.
- Translational systems have systemic limitations and translation is a choice between different meanings.
- How judges relates to economic experts depends on their views about economics as a science.
 - Scientific knowledge is the result of a particular type of conversations. Economics is merely a rhetoric.
 - Alternative (Popper) : Science is the body of assertions about the real world that can be falsified by empirical observations.
- What the judge looks for is not “truth” or knowledge in a epistemic sense but rather a justified belief (to assert her authority and ensure the legitimacy of her ruling)
- How to ensure objectivity of the evidence/expert ? Many mechanisms
- Expert appointed by the Court, specialized court, Amicus curiae, Daubert rules, Status of the expert, Joint memorandum by economists, cross-examination rules (including hot tubs)

A useful tool : best practices guidelines

- Develop some quality standard
 - To help those involved in the production and presentation of economic evidence
 - Most importantly, to help those with responsibilities to make decisions
- Ensure that economic analysis meets certain minimum standards at the outset,
- Facilitate the efficient gathering and exchange of facts and evidence, in particular any underlying quantitative data, and
- Use in an efficient way reliable and relevant evidence obtained during the administrative procedure, whether quantitative or qualitative

Content of the Best Practices

- Provides recommendations regarding the content and presentation of economic or econometric analysis. To facilitate its assessment and replication
 - What is the question?
 - Relevance of the empirical model
 - Data and estimation techniques;
 - Robustness and interpretation
- What weight should be given to the evidence ?
 - lack of unachievable perfection should not prevent an economic study from being given weight
 - Illusion of precision given by numbers – think in terms of confidence interval
 - Consider both type I and type II errors (in particular for evidence considered decisive)
 - Beware of type III errors – the right answer to the wrong question
- Provides guidance to respond to Commission's requests for quantitative data to ensure timely and relevant input for the investigation (data room procedure)
- Best practices apply to all parties involved in proceedings

Ryanair /Aer Lingus

35 direct overlap routes Route by route vs. Base competition

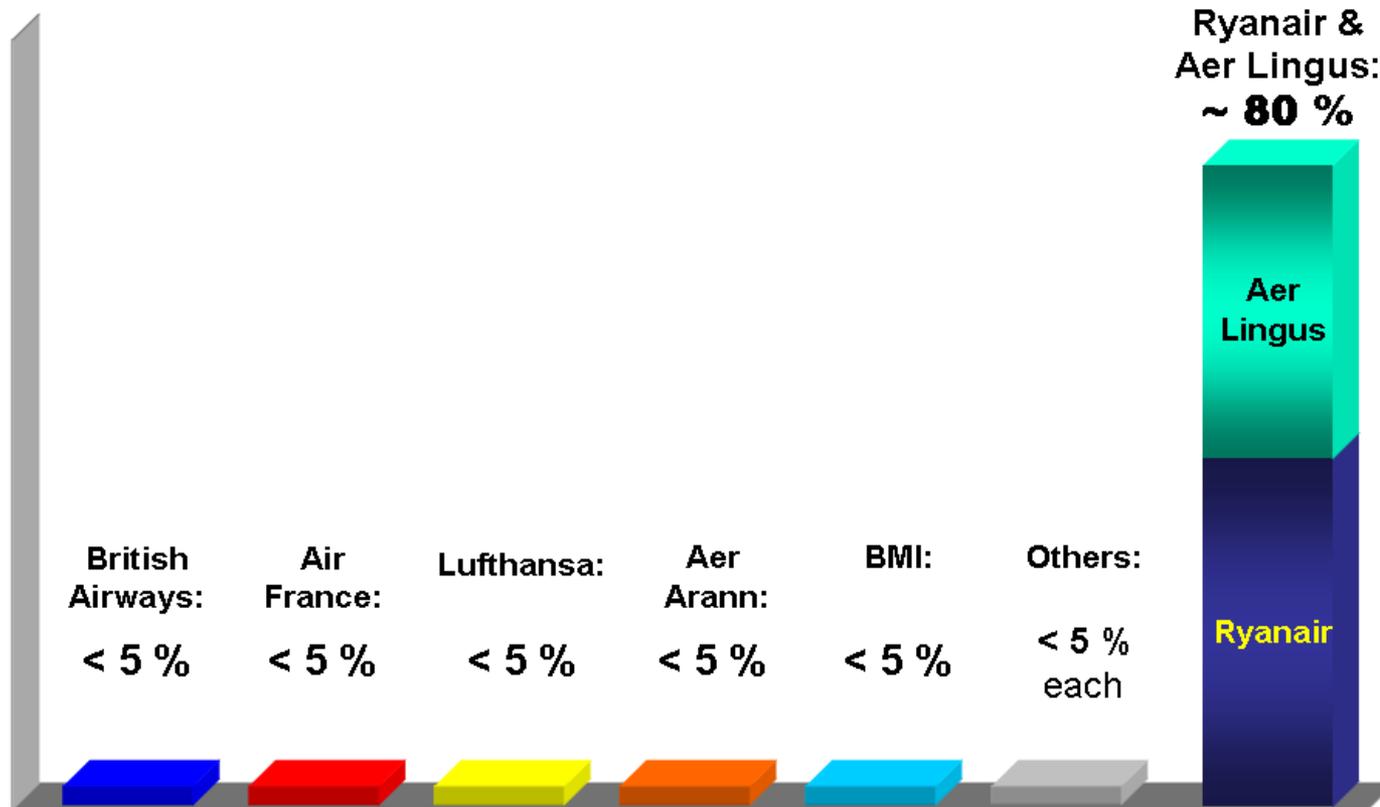


Market Shares on Overlap Routes

Routes	Combined market share
<p align="center">22 Monopoly routes</p> <p>Dublin – Alicante; Berlin; Bilbao/Vitoria; Birmingham; Bologna; Brussels; Edinburgh; Faro; Hamburg/Lübeck; Lyon; Marseille; Milan; Newcastle; Poznan; Rome; Salzburg; Seville; Tenerife; Toulouse/Carcassonne; Venice Shannon – London; Cork – London</p>	<p align="center">100%</p>
<p align="center">13 routes > 60%:</p>	
<p align="center">Dublin – Glasgow; Malaga; Manchester</p>	<p align="center">[90-100%]</p>
<p align="center">Dublin – Frankfurt; Paris</p>	<p align="center">[80-90%]</p>
<p align="center">Dublin – Barcelona; Krakow; London; Riga; Vie/Bratisl</p>	<p align="center">[70-80%]</p>
<p align="center">Dublin – Madrid; Warsaw Cork – Manchester</p>	<p align="center">[60-70%]</p>

Main carriers in Dublin

Shares of European passengers to and from Dublin (2006)



Ryanair's defence and evidence

- Ryanair behaves independently of Aer Lingus (and any other competitor) when setting prices and deciding on frequencies for its routes
- Ryanair is constrained only by the price sensitivity of its customers and not by the pricing behaviour of its competitors.
- Evidence from surveys (on closeness of competition)
- Qualitative evidence (advertising campaigns, business models)
- Econometric evidence
- Preliminary question : substitution between primary and secondary airports
- Base competition : competitive constraints can only be preserved through the development of a base by a competitor (incentive to develop a brand, ability and incentive to react to changes in demand)

A very high standard of review

- Very detailed 122 page ruling
- *Every* argument addressed (even if unnecessary)
- Very significant weight attached to Horizontal Merger Guidelines
- Lessons on review of merger cases: what matters
 - necessary facts established
 - all arguments from parties addressed
 - no logical flaws / coherence
 - procedural rights respected

Role of market shares

- Par 53 ...the Commission was rightly able to find that the acquisition of very high market shares ... were relevant indicators of the market power which would have been acquired by Ryanair-Aer Lingus combined.
- Par 54: Those findings had to be duly taken into account by the Commission and constitute, as such, elements enabling the finding that, save in exceptional circumstances, those extremely high market shares constituted, in themselves, evidence of the existence of a dominant position (see paragraph 41 above).
- But...
- 56 It should be noted that, contrary to what the applicant claims, the impact of that evidence on the evaluation of competition was by no means regarded as automatic. It is apparent from the contested decision that such evidence could have been dismissed if those 'useful first indications' ... were contradicted by the other information available in the case.

Main arguments regarding the economic analysis

- Ryanair and Aer Lingus are closest (often the only) competitors on routes ex-Dublin.
- But how strong is the competitive constraint they exert on each other?
- The econometric evidence put forward by the Commission shows that Ryanair exerts a significant competitive constraint on Aer Lingus
- This econometric evidence is remarkably robust
- There is extensive qualitative evidence which confirms this and indicates that Aer Lingus also exerts a significant constraint on Ryanair

Cross-section regressions

- Intuition: exploit differences in market structure across routes, controlling for observed *route specific factors* that affect fares
- Requirements:
 - (a) market structure varies substantially across routes
 - (b) there are a large number of routes in the data
- Possible Problem: unobserved route heterogeneity

Table 1
Presence specification / city pairs database (DB) /
Dependent variable (DepVar): (ln) Aer Lingus Fares

	May 2006	October 2006	May 2006	October 2006
<u>Ln freq Aer Lingus</u>	.010 (.876)	-.210 (.790)	.041 (.557)	.008 (.908)
<u>Ryanair presence</u>	-.143** (.017)	-.274*** (.000)	-.178*** (.007)	-.275*** (.001)
<u>Flag presence</u>	-.135** (.010)	-.125* (.054)	-.125** (.045)	-.091 (.199)
<u>Non flag presence</u>	-.068 (.125)	-.075 (.180)	-.067 (.163)	-.061 (.293)
<u>Flag based</u>	-	-	-.083* (.067)	-.061 (.232)
<u>Non flag based</u>	-	-	.027 (.661)	-.012 (.851)
<u>Ln tot route pax</u>	.162** (.012)	.286*** (.001)	.168** (.016)	.264*** (.003)
<u>Ln distance</u>	.364*** (.000)	.529*** (.000)	.349*** (.000)	.516*** (.000)
R 2	.735	.796	.739	.801
Obs.	48	48	48	48

p values in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Inconclusive results

- Coefficients were not statistically robust and varied wildly with small changes in the specification
- Indications of serious omitted variables bias
 - Many route characteristics are not observed (or cannot be measured adequately) - (e.g. destination: type, city, airport - , route popularity, customer awareness, safety considerations, travel duration, regulations)
- These likely influence prices, and are correlated with observed variables: resulting in biased coefficients
- In principle this problem can be corrected by instrumental variable methods but hard in practice to find adequate instruments (the Commission tested several that failed)

Fixed-effects regressions

- Intuition: compare the level of Aer Lingus prices on a route after Ryanair entered, with the level before Ryanair entered.
- Requirements
 - sufficient variation in the data over time
- Advantage:
 - Mitigates omitted variable bias if unobserved factors affecting fares do not vary over time within a route (e.g. destination: type, city, airport - , route popularity, customer awareness, safety considerations, travel duration, regulation)
- Possible Problems
 - Measurement error often leads to “attenuation” of signal to noise ratio in panels – biases coefficients towards zero
 - Attrition (selection) bias: observations on the dependent variable are lost or added in a non-random way – unless it depends on time-invariant factors

Aer Lingus Average Fare. Base Presence Specification

Table 1: Aer Lingus average fare. Base presence specification

	Coefficient	P value
Ryanair presence	-0.0774	0.000
Flag presence	-0.0179	0.390
Aer Arann presence	0.0617	0.006
Cityjet presence	0.0154	0.057
Non Flag presence	0.0136	0.140
Ln Aer Lingus capacity	0.0407	0.000
Date 09/04	0.4440	0.000
Constant	3.0000	0.000
Observations	1958	
R-Squared	0.89	
Hausman	28.77	0.000

Source: Annex IV, Commission Decision.

Findings of the Court regarding the Commission's econometric analysis: Preliminaries

- 151 As is apparent from the contested decision, **the cross-section regression technique examines** the differences in prices across a number of affected routes at a given point in time (recital 453). **It involves comparing fares charged on routes where there is competition with those charged on routes where there is no competition. The fixed-effects regression analysis** examines the differences in fares on the routes concerned over a given period, in this case January 2002 to December 2006 (recital 482). **It involves comparing the fares charged on a given route during the periods when there is competition with those charged during periods when there is no competition.**
- 152 As regards the fixed-effects regression analysis, the Commission stated that a panel regression with route specific fixed-effects **could mitigate the omitted variable bias that affects cross-section regressions.** It considered that that method was 'the most suitable to assess the competitive constraint exerted by Ryanair on Aer Lingus' (recital 477 of the contested decision).

Findings of the Court: On the significance of the econometric results

- Par 161: The applicant thus does not criticise those results as such, but merely their significance. The applicant's statements in that regard do not indicate in what respect the effect of its presence on Aer Lingus's fares could not be regarded as economically and statistically significant, as claimed by the Commission.
- **Par 162: In that regard, a 7 to 8% price influence appears significant at first sight.** That effect is also likely to be underestimated, since it is an average which does not take particular account of the routes on which the concentration would lead to the creation of a monopoly. Similarly, as stated in recital 488 of the contested decision, the comparison made by the Commission does not take account of the influence on Aer Lingus's fares of Ryanair's presence as a potential competitor on routes out of Dublin (section 7.6). On those routes, it is in fact likely that Aer Lingus would charge lower fares than it would charge if Ryanair did not have a base at Dublin airport. **The applicant can thus not merely challenge the significance attributed to the effect found on the ground that, in its view, it is not significant enough in economic terms.**

Findings of the Court: On the reliability of econometric analysis given data limitations

- Par 156: the Commission considered that the **fixed-effects regression did not provide reliable estimations of the possible impact of Aer Lingus's presence on Ryanair's fares**. In that regard, it stated that there was an insufficient number of instances of Aer Lingus exiting or entering a route on which Ryanair was already present (recital 486 of the contested decision). The applicant does not dispute this.
- Par 157: It must therefore be noted that the Commission recognised in the contested decision that **it was not in a position to provide econometric evidence of the impact of Aer Lingus's presence on Ryanair's fares and that this could be explained by the reason given above**. However, the Commission took care to emphasise that 'this neither validate[d] nor refute[d] the hypothesis that Aer Lingus exerts a competitive constraint on Ryanair's prices'. The Commission supported that statement by noting that 'the evidence presented in [section 7.4.2 of the contested decision] [made] it clear that Ryanair as well as Aer Lingus permanently monitor their own load factor and each other's prices and adjust prices accordingly' (recital 486 and footnote 487, in which reference is made to section 7.4.2, relating to the fact that each of the parties to the concentration reacts to the other's promotions and advertising campaigns).

Findings of the Court: On whether the Commission applied inconsistent standards

- Par 179 In response to the argument alleging the application of inconsistent standards in accepting or rejecting factual evidence (see paragraph 144 above), it should be noted that, in the contested decision and in Annex IV thereto, the Commission carried out a detailed examination of all of the econometric data submitted by the parties and of the observations which they were able to make on their own data. The Commission also performed further tests and extensions of the baseline regressions included in the statement of objections in order to address those observations (see point 7.3 of Annex IV to the contested decision which is devoted to those observations).

- Par 136: Furthermore, the applicant's assertion that the 'non-technical evidence' cannot be taken into account unless it is supported by 'technical evidence' cannot be upheld. There is no need to establish such a hierarchy.
- It is the Commission's task to make an overall assessment of what is shown by the set of indicative factors used to evaluate the competitive situation. It is possible, in that regard, for certain items of evidence to be prioritised and other evidence to be discounted. That examination and the associated reasoning are subject to a review of legality which the Court carries out in relation to Commission decisions on concentrations.
- It is thus in that context that it is necessary to examine the applicant's arguments relating to the conclusions which should have been drawn by the Commission with regard to the various econometric analyses carried out during the administrative procedure and the impact which those conclusions should have had on the evaluation of the competitive situation.