COMMENTS ON DAA RESPONSE TO COMMISSION PAPER CP2/2005[1]

The DAA's response of 1 July 2005 to Commission Paper CP2/2005 contains a number of references to TRL's benchmarking work on behalf of the Commission. It refers to the "largely positive conclusions" of TRL's analysis and highlights the results of the analysis in respect of labour costs per passenger and total costs per passenger.

However, issue is taken with TRL's treatment of proxy concession revenues, which are substituted for non-core commercial activity revenues at airports where these take place. TRL's standard approach in these cases is to assume a 5% proxy concession revenue in place of actual revenues for non-core activities, whilst deducting all associated costs and staff numbers. In our report of April 2005 to the Commission, we commented as follows:

"*Our adjustment methodology assumes that concession revenue would amount to 5% of gross revenues (net of cost of sales in the case of retail revenues) for non-core activities. We have used this figure for some time in our work, based on information gathered from a number of airport operators, and we have repeatedly invited comments on its appropriateness. We have yet to receive any indication that it is inappropriate*".

DAA's comment on this is as follows:

"*The 5% rate used by TRL to calculate a proxy concession fee … bears no relationship to any commercial reality and is clearly an unrealistic view of the actual performance of DAA's commercial activities in comparison with other European airports. Were the figure to reflect the actual operating profit achieved at Dublin airport for these two activities*[2]*, as the proxy concession fee, Dublin Airport's commercial revenue per passenger would be circa 3.38 SDRs*[3]".

These comments raise three issues to explore:

- The effect of accepting DAA's submission that proxy concession fees should equate to actual earnings for retail and car park activities;
- Whether, while concession fees might be higher than the 5% proxy assumed so far, they would not be as high as actual earnings;
- If the 5% proxy concession fee assumed previously in the case of DAA is unrealistically low, is it also unrealistic in the case of other airports?

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[1] This report has been edited by the Commission for Aviation Regulation to remove confidential commercial information.
[2] Retail and car parking.
[3] Compared to 2.16 SDRs calculated by TRL.

We examine each of these issues in turn below.

The effect of accepting DAA's submission that proxy concession fees should equate to actual earnings for retail and car park activities

TRL's original analysis assumed that commercial revenue commercial revenue after adjustments would amount to € [ ] in 2002.

If, as DAA suggests, we substitute actual earnings for the proxy concession fees previously assumed, we arrive at total commercial revenues of € [ ]

From this the unit rate was calculated as follows:

Number of passengers in 2002: 15,084,667
Currency conversion: €1.3396 = 1 SDR
Adjusted unit commercial revenue: 3.90 SDRs per passenger

On this basis it is not immediately clear how DAA has arrived at the figure of €3.38 SDRs per passenger indicated in its submission.

Assuming the 3.90 SDRs per passenger figure, Dublin's position in the ranking of 25 European airports would rise from 23rd to 20th, as shown below:

Table 1: Commercial Revenue per Passenger 2002 (assuming Dublin retail and car park concession fees = current net earnings)

	Average	4.51	100

Ranking	**Airport**	**Commercial Revenue/Passenger**	**Ranking Index**
1	**London-Heathrow**	8.18	181.3
2	**London-Gatwick**	6.91	153.1
3	**Oslo**	6.46	143.1
4	**Athens**	6.03	133.6
5	**BAA Group**	5.99	132.7
6	**Brussels**	5.36	118.8
7	**Aeroports de Paris**	5.10	113.0
8	**Geneva**	5.03	113.2
9	**Aeroporti di Roma**	4.99	111.5
10	**Zurich**	4.92	110.8
11	**Birmingham**	4.86	109.0
12	**Finnish Airports Group**	4.80	106.4
13	**Berlin Group**	4.29	95.1
14	**Vienna**	4.15	92.0
15	**Manchester**	4.09	90.6
16	**Aeroporti di Milano**	4.05	89.7
17	**Amsterdam Group**	4.02	89.1
18	**Copenhagen**	3.98	88.2
19	**Munich**	3.92	86.9
20	**Dublin**	3.90	86.4

21	**Frankfurt**	3.82	84.6
22	**ANA**	2.61	57.8
23	**Stockholm**	2.24	49.6
24	**Swedish Airports Group**	1.68	37.2
25	**AENA**	1.44	31.9

It cannot be said that this adjustment results in a major improvement to Dublin's position in this measure. The rise from 23rd position to 20th in the ranking is not a big step, though we acknowledge that Dublin's performance as a percentage of the average for the European sample improves from 48.6% to 84.6%. However, the fact remains that, even with this adjustment, its performance remains below the average for the sample.

Concession fees might be higher than the 5% proxy assumed so far, but they would not be as high as actual earnings

The levels of earnings demonstrated by the DAA figures shown above represent significantly higher percentages of turnover than 5%. The level of profitability is not unexpected. While in-house retailing on the scale practised at Dublin is relatively unusual at airports, the operation of car parks is more widespread among airports, and high returns are often seen.

DAA has a lot of experience in airport retailing and commercial activity in general, and it seems reasonable to assume that the operational efficiencies and the corresponding earnings which it achieves are broadly comparable with those which would be achieved by mainstream external operators such as Allders (retail) and NCP (car parking). This means that it is most unlikely that DAA would be able to find concessionaires which would be prepared to operate the retail and car parking activities at Dublin and pay concession fees equivalent to the earnings which DAA is itself currently achieving. This would only be possible if external operators could be found which could achieve significantly higher profits on these operations, so as to be left with adequate earnings themselves after paying concession fees to DAA, and such a scenario seems very unlikely.

In the time available to provide this paper we have not been able to identify an alternative percentage to use. We are, however, convinced that DAA would be unable to find external concessionaires which would be prepared to pay concession fees equivalent to DAA's current earnings. Using a concession rate of 15%, for example, we arrive at adjusted commercial revenues of € [ ]

From this the unit rate calculated was as follows:

Number of passengers in 2002: 15,084,667
Currency conversion: €1.3396 = 1 SDR
Adjusted unit commercial revenue: 2.43 SDRs per passenger

On the basis of the 2.43 SDRs per passenger figure, Dublin's position in the ranking of 25 European airports would rise from 23rd as originally calculated to 22nd, as shown below:

Table 2: Commercial Revenue per Passenger 2002 (assuming Dublin retail and car park concession fees = 15% of current net earnings)

	Average	4.45	100

Ranking	Airport	Commercial Revenue/Passenger	Ranking Index
1	**London-Heathrow**	8.18	183.7
2	**London-Gatwick**	6.91	155.1
3	**Oslo**	6.46	145.0
4	**Athens**	6.03	135.4
5	**BAA Group**	5.99	134.5
6	**Brussels**	5.36	120.3
7	**Aeroports de Paris**	5.10	114.5
8	**Geneva**	5.03	112.9
9	**Aeroporti di Roma**	4.99	112.0
10	**Zurich**	4.92	110.5
11	**Birmingham**	4.86	109.1
12	**Finnish Airports Group**	4.80	107.8
13	**Berlin Group**	4.29	96.3
14	**Vienna**	4.15	93.2
15	**Manchester**	4.09	91.8
16	**Aeroporti di Milano**	4.05	90.9
17	**Amsterdam Group**	4.02	90.3
18	**Copenhagen**	3.98	89.4
19	**Munich**	3.92	88.0
20	**Frankfurt**	3.82	85.8
21	**ANA**	2.61	58.6
22	**Dublin**	2.43	54.6
23	**Stockholm**	2.24	50.3
24	**Swedish Airports Group**	1.68	37.7
25	**AENA**	1.44	32.3

In terms of the relationship between Dublin's performance in this scenario with the average performance, this does not represent a significant improvement, with a movement from 48.6% of the average to 54.6%. Dublin's performance remains within the lowest one-fifth of the sample.

If the 5% proxy concession fee assumed previously in the case of DAA is unrealistically low, is it also unrealistic in the case of other airports?

As we have already indicated, we have so far been unable to obtain a reliable alternative figure to use as a proxy concession fee in place of the 5% used up to now. This is not in itself surprising, as we would expect that airports would regard this information as commercially sensitive. However, the question as to whether the figure of 5% is uniquely unrealistic in the case of Dublin, or whether it is universally so, needs to be considered.

Apart from Dublin, commercial revenue adjustments at made at 15[4] of the sample of 25 European airports. Of these, the adjustments are made in respect of car parking in all cases, while additional adjustments are made in respect of retailing at Aeroporti di Milano and catering at AENA. There is clearly no way to determine whether a 5% proxy concession fee is any more appropriate in the case of these airports than it is in the case of Dublin, and so we have made adjustments in our analysis so as to treat these airports in the same way as we have in the less implausible of the two alternative scenarios in this paper, i.e. assuming a concession fee of 15% of net earnings.

The results of this analysis are set out in the table below. The adjustment has no effect on the position of Dublin within the sample of airports compared to that in Table 2. There is only a small change to the average revenue for the sample from 4.47SDRs to 4.52 SDRs per passenger, with the effect that Dublin's performance represents 53.8% of the average compared to 54.6% in Table 2.

[4] Aeroporti di Milano, Aéroports de Paris, Aeroporti di Roma, AENA, Amsterdam, Athens, BAA, Frankfurt, Geneva, Manchester, Munich, Stockholm, Swedish Airports Group, Vienna and Zurich.

Table 3: Commercial Revenue per Passenger 2002 (assuming all airports' retail and car park concession fees = 15% of current net earnings)

	Average	4.52	100

Ranking	Airport	Commercial Revenue/Passenger	Ranking Index
1	**London-Heathrow**	8.18	181.2
2	**London-Gatwick**	6.91	153.0
3	**Oslo**	6.46	143.1
4	**BAA Group**	6.13	135.8
5	**Athens**	6.09	134.9
6	**Brussels**	5.36	118.7
7	**Aeroports de Paris**	5.20	115.2
8	**Geneva**	5.18	128.5
9	**Aeroporti di Roma**	5.05	111.8
10	**Zurich**	5.05	111.8
11	**Birmingham**	4.86	107.6
12	**Finnish Airports Group**	4.80	106.3
13	**Berlin Group**	4.29	95.0
14	**Manchester**	4.26	94.3
15	**Vienna**	4.24	93.9
16	**Aeroporti di Milano**	4.15	91.9
17	**Amsterdam Group**	4.12	91.2
18	**Munich**	4.05	89.7
19	**Copenhagen**	3.98	88.1
20	**Frankfurt**	3.87	85.7
21	**ANA**	2.61	57.8
22	**Dublin**	2.43	53.8
23	**Stockholm**	2.33	51.6
24	**Swedish Airports Group**	1.79	39.6
25	**AENA**	1.49	33.0

Conclusions

This paper has set out to address the comments made by DAA in respect of TRL's treatment of proxy concession fees for retailing and car park operations at Dublin airport. We do not have sufficient evidence to conclude whether or not a 5% concession fee for such activities is or is not realistic, but we recognise that airports which operate these activities internally generally achieve significantly higher returns than 5% as a percentage of turnover.

None of the three sensitivity tests which we have carried out make a significant difference to the comparative level of Dublin's performance. We do not regard it as a realistic proposition that concession fees could equate to current actual net earnings at Dublin, unless an external operator was able to achieve significantly higher net earnings

than DAA does itself. Other work carried out on behalf of the Commission may shed some light on whether or not this would be likely to be achievable.

Comments on the Dublin Airport Authority's Response
To Appendix IV (Report on the Performance of Dublin Airport: The Findings of the Comparative Reports of TRL and ATRS

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30 July, 2005

Response to Dublin Airport Authority's Response
To Appendix IV (Report on the Performance of Dublin Airport: The Findings of the Comparative Reports of TRL and ATRS

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* These sections have been omitted from the final determination due to their confidential and commercially sensitive information.

Response to Dublin Airport Authority's Response
To Appendix IV (Report on the Performance of Dublin Airport: The Findings of the Comparative Reports of TRL and ATRS

I. Scope of my Comments

I will attempt confine my comments only to the DAA's comments on the IITL (ATRS) portion of the document entitled "The Performance of Dublin Airport: The Findings of the TRL and the ATRS" dated May 2005. However, for some technical discussions I will rely on some of the discussions already reported in our full report entitled, "Dublin Airport Performance Measurement: A Report Submitted to the Commission for Aviation Regulation of Ireland" revised May 20, 2005.

Specifically, this report will address the following key points made by DAA:

- *In overall terms, DAA is very pleased that the results of both studies confirms that Dublin Airport is very efficient, in terms of*
    - *cost efficiency (e.g. Costs per passenger 60% of the peer average in 2002)*
    - *labour efficiency (e.g. Labour costs per passenger 44% lower than European average)*
    - *capital efficiency (e.g. Passengers processed per gate twice that of others reviewed;*
    - *runway utilisation highest in sample except for 2 largest UK airports)*
- *The more negative comments are made in the context of comparing Dublin Airport's performance to that of Copenhagen Airport, which is deemed best in class. Copenhagen Airport is indeed a highly efficient airport and scores much higher than other airports in Europe under most of these indicators. However, we would caution against over-interpretation of results in this regard, as such comparisons do not take into account differences in the underlying business models.*
- *The use of partial productivity indicators for the assessment of airport operational efficiency is fraught with difficulty, and results must be treated with caution, as widely acknowledged by industry experts.*

Before making substantial comments on each of these points, I would like to observe that while the third bullet point above correctly cautions against use of the partial factor productivity indicators for assessment of airport operational efficiency, in the first bullet point DAA says it is pleased that "the results of both studies (TRL and ATRS) confirms that Dublin Airport is very efficient, in term of

- Cost efficiency (e.g. cost per passenger ----)
- Labour efficiency (e.g. labour costs per passenger ----)
- Capital efficiency (e.g. passengers processed per gate ---)
- Runway utilization highest ----- "

All of these four measures are partial cost or partial productivity measures. Therefore, DAA's main comments are not internally consistent (because it uses partial productivity or partial cost measures to claim that they are efficient while cautioning the use of partial factor productivity when it is inconvenient for DAA).

I will take up the issue of partial factor productivities (equivalently the partial cost performance measures) first, and then, the issue of DAA's claim that the ATRS productivity or efficiency measures can not be used to compare Dublin Airport with Copenhagen Airport "without a detailed comparison of the underlying business models and operating environment." (1st full paragraph of page 57 of DAA). Later in the document, DAA goes on to say that "Dublin Airports engages directly in retail, car parking and other activities, which Copenhagen Airport does not."

In particular, I will clarify the two important issues that form the backbone of DAA's criticism on the IITL-ATRS report in order to arrive at the following conclusions:

- Any of the partial factor productivities such as labour productivity, soft cost input productivity or capital productivity (or similarly partial cost measures such as labour cost per passenger, etc), each of them alone, should not be used as an indicator that one airport is more efficient or productive than any other airport or vice versa. There is a need to construct an aggregate measure of productivity for all of the inputs that airports use, including labour, soft cost input and capital input. Total Factor Productivity (TFP) is a commonly used overall productivity measure, which is essentially a weighted average of labour productivity, soft cost input productivity and capital input productivity. In the absence of consistent data for capital inputs comparable across all airports under consideration, however, the next best thing is to evaluate the operating efficiency of airports by measuring VFP (Variable Factor Productivity), which is the weighted average of labour input productivity and soft cost input productivity.
- The ATRS procedures (especially the Variable Factor Productivity measure) allow consistent comparison of efficiency between any two airports (and among multiple airports) even if these airports operate under different business models (for example, Dublin Airport engaging in retails and car park operations directly, whereas Copenhagen Airport (and many other airports) outsourcing or franchising car park operations and majority of sales floors to external firms. Since airport managers decide whether or not to operate each of the commercial activities directly (using their own staff) or to outsource (franchise) it to external firms, thus they must bear the consequences. The consequences would be reflected in the ATRS measure of efficiency. In short, making a bad decision will make an airport less efficient whereas a good decision will improve efficiency of the airport in our measure.

II. Comments on Partial Productivity and A Proper Efficiency Measure

DAA's Criticism on Partial Input Productivities:
"there are shortcomings associated with the use of partial productivity analysis in assessing airport efficiency…" (page 57)

As IITL (ATRS) repeatedly stated in its report to the Irish CAR, all of the partial factor (input) productivity measures such as labour, capital, and soft cost input productivities, reported in our and other reports are, by definition, biased measures. As such, they should not be used to make meaningful comparisons of efficiency of one airport against others unless all airports use exactly the same mix of inputs AND operate under exactly the same operating and market environments. We reported the partial factor productivity measures for observations only rather than as indicators for efficiency.

In short, I concur with DAA on this point. In fact, we emphasize in our report that "partial factor productivity is influenced by the levels of other inputs in the production process, and they are not good indicators for comparing overall efficiency of airport operations among airports". For example, we expect the labour productivity for an airport that outsources much of its operations to external firms to achieve a higher labour productivity than a similar airport who operates most of its airside and commercial activities with its own staff. Therefore, we do not rely on labour or soft cost input productivities for comparing efficiency of airports in our sample.

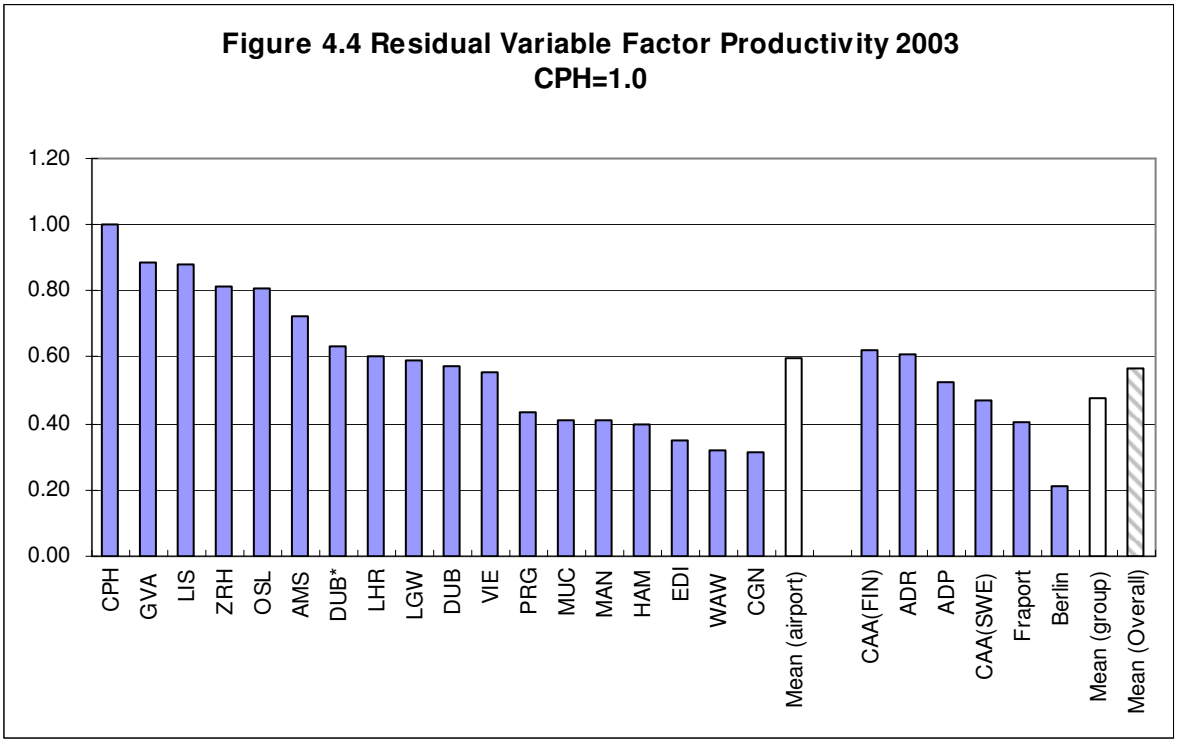
The ATRS Operating Efficiency Measure:
Given the difficulty of capturing data for capital inputs consistently comparable across different airports, we rely on the variable factor productivity (VFP) to compare the efficiency levels of the airports. Below, I reproduced the relevant paragraph to this effect from our report to CAR (the first paragraph of the IITL report on page 56):

> *"As stated previously, partial factor productivity measures are influenced by the levels of other inputs being used concurrently. For example, an airport's labour productivity depends on how much of its services (such as ground handling, baggage handling services, fire and police services, security screening, snow removal, etc.) are outsourced to other firms or suppliers, because the number of employees they require is dependent upon on the extent of outsourcing (contractual services). Therefore, labour productivity or other partial factor productivity measures are not suitable, in and of themselves, for comparing the efficiency of airport operations among airports. Therefore, there is a need to construct an aggregate measure of productivity for all of the inputs that airports use. In the short to medium term, airports make managerial and operational decisions within the given state of their capital infrastructure and facilities; given the long lead time inherent in infrastructure development, this is assumed to be fixed in the short term. In general, airport managers have nearly total control of their operating costs, i.e., labour and soft costs, but may not have complete control of capital costs. Therefore, an aggregate productivity measure in the short*

to medium term would include all non-capital or variable inputs. Variable Factor Productivity (VFP) is computed essentially by aggregating labor productivity and soft cost input productivity using variable cost shares as the weights for aggregation.[5] *Variable Factor Productivity (VFP) measures how efficiently an airport utilizes variable inputs for a given level of capital infrastructure and facilities."*

In addition, we also removed from the 'gross' measures of VFP the effects of the factors beyond airport management's control such as average size of the aircraft, percentage of international passengers, percentage of air cargo in total traffic, and a measure of capacity constraint. The result is the "residual Variable Factor Productivity" which we recommended to use as the overall operating efficiency benchmarking across airports. The "residual VFP" provides indicator of how efficiently an airport utilizes variable inputs for a given level of capital infrastructure and facilities. (see section 4.4 of the IITL report, p.59-62, especially Table 4.4 which reports VFP Regression).

Therefore, what really counts in our report is the "residual VFP" index which we reported in Figure 4.4 and reproduced by CAR in their summary report (p.19) as below:



DUB* indicates when direct retail is included as a concession

[5] VFP is computed using the multilateral translog index procedure proposed by Caves, D.W., L.R. Christensen, and W.E. Diewert (1982).

Table 8: Variable Factor Productivity - Gross and Residual

Variables	Gross VFP	Residual VFP
Best Performer	1.00	1.00
7 Airports Average‡	0.73	0.72
5 Airports Average†	0.71	0.74
European Airports Average	0.62	0.59
9 Airports Average^	0.62	0.66
Dublin *	0.61	0.63
Dublin	0.55	0.57
European Authorities Average	0.54	0.47

Dublin* treats direct retailing as a concession.

^ Sample Size = 6

† Sample Size = 3

‡ Sample Size = 5

III. Comments on Unit Cost Comparisons

Although IITL (ATRS) Report included a section on unit cost comparisons including variable cost per WLU and Unit Variable Cost Index, this was done only for observations. These cost measures should not be used to make comparisons on efficiency of one airport against other airports, because input prices vary across different airports, different cities, and different countries. An airport with the same efficiency level as another airport would have higher unit cost (labour cost) per passenger if the former airport needs to pay higher input prices (labour price) than the latter. Consequently, unit cost should not be used as a meaningful measure of efficiency or true productivity. For example, comparing unit cost of London Heathrow airport with that of Warsaw Airport would be meaningless because input prices including labour are far more expensive in London than in Warsaw.

VI. Comments on The Adjustments Made in the IITL-ATRS Report with respect to Direct Sales, and Overall Comments on Dublin Airport's Efficiency

At the request of CAR, the IITL-ATRS Report presented the Dublin Airports Productivity and Efficiency ranking in two ways: (a) one treating the Direct Retailing as a part of the Dublin Airport's Activities (DUB); and (b) one treating the Direct Retailing as if "Concession", i.e. adjusting the revenue (output) and cost (input) data based on "Adjustments Required to Improve Comparability of Dublin With Other Airports" provided to us by CAR (used airport code DUB*).

In view of the above discussions in this report, we believe that the residual VFP for DUB should be used in efficiency comparisons of Dublin Airport with other airports, as it provides a better reflection of the current situation at Dublin Airport than DUB*.

On the basis of the IITL-ATRS report (also in CAR Report, p.19 Table 8), the residual VFP for Dublin Airport (DUB) is 57% of Copenhagen Airport. This compares also with the seven (in fact, five) European airport average of 72% of Copenhagen, and the five (in fact, three) airports average of 74% of Copenhagen. But it is close to the European airport average, 59% level of Copenhagen.

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