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The contribution of aviation to the economy

Assessment of arguments
put forward

Report

Delft, October, 2005

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Contents

1	Summary and conclusions	1
1.1	Background and objective	1
1.2	General conclusions and implications for policy makers	2
1.3	Specific conclusions regarding the three reports	3
2	Introduction	7
2.1	Introduction	7
2.2	Scope	7
2.3	Structure of the report	8
3	Nowhere to run, nowhere to fly: Schiphol	9
3.1	Introduction	9
3.2	Conclusions	9
3.3	Commission composition	10
3.4	Crucial premises are not substantiated	10
3.5	Employment figures are an unreliable indicator	12
3.6	Use of a regional perspective	14
3.7	Selective use of references	15
3.8	Inaccurate use of references	16
3.9	Treatment of alternatives	17
4	Assessing the economic costs of night flight restrictions	19
4.1	Introduction	19
4.2	Conclusions	19
4.3	Remarks with respect to the proposed framework	20
4.3.1	Analysis of proposed framework	21
4.3.2	Employment (and GDP / added value) as a yardstick	21
4.3.3	Alternatives considered	22
4.3.4	Reliance on industry input	23
4.3.5	Scope	24
4.4	Remarks with respect to multiplier and employment figures	25
4.4.1	Employment metric	25
4.4.2	Heavy reliance on other studies	25
4.4.3	Treatment of jet versus non-jet operations	26
4.4.4	Adjustment for daytime flights	26
4.4.5	Inclusion of indirect employment	27
5	The contribution of the aviation industry to the UK economy	29
5.1	Introduction	29
5.2	Conclusions	29
5.3	Use of employment and GDP figures	30
5.4	Impact of further growth	31
5.5	Loss of consumer surplus	31
5.6	Impact of tourism	32
5.7	Treatment of taxes and subsidies	32
6	Literature	33

1 Summary and conclusions

1.1 Background and objective

Continued growth of environmental and spatial impacts in the vicinity of European airports is justified largely on economic grounds. Substantial claims are made by the aviation industry concerning the contribution of air travel and transport to the economy and the associated employment benefits. It is unclear, however, to what extent these claims and the studies from which they are taken are based on generally accepted methodological frameworks for assessing costs and benefits. Moreover, many of these studies were commissioned or funded by the aviation industry or its supporters. As a consequence, the steering committees of these studies may not be a balanced reflection of the various stakeholders and may thus be biased towards the interests of the aviation sector. It is not always guaranteed, in other words, that the studies have been executed in an independent manner.

Against this background, a group of NGOs¹ in the European Union requested CE Delft to assess the following three studies:

- 1 *Vluchten kan niet meer; Advies over de toekomst van de luchtvaart in Nederland* ('Nowhere to run, nowhere to fly. Advice on the future of aviation in the Netherlands'), by the Dutch Advisory Council for Transport, Public Works and Water Management, July 2005.
- 2 *Assessing the economic costs of night flight restrictions*, by MPD Group Limited in association with ERM, February 2005, commissioned by the European Commission.
- 3 *The contribution of the aviation industry to the UK economy; Final report*, by Oxford Economic Forecasting (OEF), November 1999.

In these reports economic arguments are presented to underpin policy recommendations regarding airport expansion or flight restrictions at individual airports. The aim of the present study is to test the arguments put forward and the methodologies on which conclusions and quantitative impact figures have been based.

¹ Friends of the Earth Netherlands, Germany, England, Wales and Northern Ireland, UECNA, Transport and Environment, *Bundesverein gegen Fluglärm*, Dublin Uproar, HACAN/Clearskies, *Bruxelles Air Libre*, Citizens Platform Wezembeek, Schiphol Region Citizens Platforms, Gatwick Area Conservation Campaign, Dutch Society for Nature and Environment.

1.2 General conclusions and implications for policy makers

Each of the three reports assessed in this study has significant flaws. The most important of these are presented below, along with their implications for policy makers.

- 1 All three studies present strong conclusions without using a formal cost-benefit analysis for assessing future policies such as airport expansion or night flight restrictions. Most countries have published guidelines for such cost-benefit analyses, which are fairly common practice for large investment projects in other sectors. In such an analysis a solid reference scenario should be specified and due account be taken of both the economic costs and benefits *to society* and the wider societal impact, including environmental impacts on society.
- 2 When assessing the impact of future policies, it is the additional or marginal impact of new developments that should be assessed and not the total impact of the airport. It is not the *total* contribution of aviation to the economy that matters, as is often suggested by the three reports, but the *marginal* impact on society of airport expansion or flight restrictions.
- 3 The number of jobs that might be created by investment in the aviation industry is not a reliable indicator of the industry's contribution to the economy, and nor is its impact on Gross Domestic Product. The reason for this is that it is incorrect to assume that all these people would become unemployed if activity in the aviation sector ceased. Budgets may well be spent elsewhere, leading to employment and contributions to GDP in other areas of the economy.
- 4 Employment figures should not, in any case, be related to a country's overall employment. These figures often include indirect, induced and catalytic employment, as well as direct employment, and relating these figures to overall employment yields a distorted picture. The reason is that figures on overall employment only include direct jobs, to prevent double counting. Summing employment figures inclusive of indirect jobs across all sectors leads to a far larger number than total employment.
- 5 The impact of aviation investment on a particular region does not necessarily imply a similar impact at the national level. For example, businesses set up on and around an airport may not be new enterprises, simply ones that have relocated from another part of the country. In general, the national perspective should be the main focal point².

² An exception might arguably be made in cases in which the region the airport is located is labelled economically backward and warrants specific government attention.



1.3 Specific conclusions regarding the three reports

Based on an assessment of the three reports we come to the following specific conclusions:

Report by the Dutch Advisory Council (*Nowhere to run, nowhere to fly*)

1 Composition of the Commission

The chairman of the sub-committee that prepared the Council's report may have had financial interests in expansion of Schiphol Airport. This may have prompted unnecessary suspicions regarding the independence of the Advisory Council.

2 Crucial premises are not substantiated

Several crucial premises of the conclusions drawn by the Council are not substantiated. For example, a key statement in the report to the effect that placing restrictions on further growth would have disastrous effects is not underpinned by sound analysis.

3 Employment figures are an unreliable indicator

Despite the fact that official Dutch government guidelines for cost-benefit analysis make clear that employment figures and a sector's contribution to GDP are not reliable indicators of a sector's importance to the economy, the Council reverts precisely to these metrics to stress the importance of aviation to the Dutch economy.

4 Use of regional perspective

The impact on the economy is not determined from a national perspective but is based on a partial, regional analysis. As businesses will often be attracted from other regions, increased regional employment and number of businesses will not always constitute additional employment from a national perspective. This is not fully taken into account by the Council.

5 Selective use of references

To support its conclusions the Council cites arguments and conclusions from other reports, but in utter disregard for conclusions from the same reports pointing in very different directions.

6 Inaccurate use of references

For the impact of aviation growth on employment at and around Schiphol, the Council refers to (Nyfer, 2000). In doing so, the Council not only uses the wrong figures but also erroneously calculates overall employment at Schiphol, even though Nyfer explicitly states that the data cannot be used in this manner.

7 Treatment of alternatives

The impact of night flight restrictions is in some cases overstated, because alternatives are not taken seriously. For example, the Council writes: 'To operate profitably, charter aircraft by definition need to schedule some of their flights at night'. This argumentation ignores the scope of market mechanisms³ for reducing the impact of restrictions.

³ For example, tickets for daytime flights on charter aircraft could be priced higher.

Report by MPD (*Assessing the economic costs of night flight restrictions*)

1 *Employment (and GDP / added value) as a yardstick*

The study focuses on job numbers as an indicator for the impact of aviation on the economy. This is an erroneous indicator and may even lead to double counting. In the long run people will find other jobs, because in the case of restrictions money previously spent on air travel will be spent on alternatives.

2 *Alternatives considered*

The study focuses on the aviation industry and does not take full account of alternative means of transport and the positive benefits these may have in non-aviation transport sectors.

3 *Reliance on industry input*

The report relies heavily on information provided by the aviation industry. A sense check on this information is not performed and the possibility of having been fed strategic answers is not discussed⁴.

4 *Scope*

The impact of restrictions at one specific airport cannot be generalised to the case of several airports facing the same restrictions. Diversion of traffic to other airports is not an option in the latter case and hence local impacts will arguably be smaller.

With respect to the multiplier and employment figures provided as guidance, we would make the following remarks.

1 *Employment metric*

The report rightly makes clear that a headcount metric may be less appropriate for indicating the employment impact than manpower equivalency. However, benchmark employment figures have in fact often been taken from studies that use the headcount metric.

2 *Heavy reliance on other studies*

The benchmark employment figures and multipliers in the MPD report have often been taken from other studies that use unsound cost-benefit methodologies. More specifically, these studies (i) are often based on a partial analysis (local impacts rather than a national perspective), (ii) do not specify a sound reference scenario, and (iii) do not take into account the replacement of employment elsewhere or alternative spending patterns.

3 *Treatment of jet versus non-jet operations*

The reader might be led to believe that night flight restrictions in their current form would affect many more jobs than the data in fact imply. The reason is that the estimated employment impacts relate to both jet and non-jet operations, while the night flight restrictions currently in force often apply only to non-jet operations.

4 *Adjustment for daytime flights*

Adjustment of the data for daytime flights that depend on night flights leads to a distorted figure for the employment impact that is no longer meaningfully related to overall employment in the country in question.

⁴ Note that we have no reason to doubt the trustworthiness of the aviation sector, but given the heavy reliance on its input, a sense check is required.

5 *Inclusion of indirect employment*

The report recommends including data on direct, indirect and induced employment as well as catalytic impact. This leads to a distorted figure for employment impact that is no longer meaningfully related to overall employment in a country.

Report by OEF (*The contribution of the aviation industry to the UK economy*)

1 *Use of employment and GDP figures*

As the report itself states, 'Employment figures do not give a reliable indication of the contribution aviation makes to the economy'. They should not therefore be used to provide such an indication.

2 *Impact of further growth*

Insufficient attention is paid to the additional economic impact of further growth. This holds, for example, for the impact of additional aviation growth at an airport on the appeal of nearby towns and cities as a business location.

3 *Loss of consumer surplus*

The loss of consumer surplus⁵ is calculated in the event of flight restrictions being imposed on aviation. Faced with such restrictions, the sector might plausibly raise its prices to regulate demand. If that were the case, much of the surplus lost to consumers would be absorbed by the aviation sector. This notion should have received more attention.

4 *Impact of tourism*

The report is unbalanced in the attention given to the impact of foreign tourists on the UK economy and the observation that British tourists actually spend 35% more abroad than foreign tourists do in the UK. Following the overall line of reasoning adopted in the report, this should have led to the conclusion that restrictions on aviation would, in this respect, have a positive influence on the UK economy.

5 *Treatment of taxes and subsidies*

The contribution of aviation to the public budget and treasury are discussed. In our view a more balanced approach should have been adopted in which public subsidies to the aviation sector were also taken into account, as well as the impact on the public budget of alternative spending in the case of restrictions being imposed on aviation.

⁵ The consumer surplus is the difference between the price consumers would be willing to pay and the price they actually have to pay. As prices rise, the consumer surplus decreases; as prices fall, it rises.



2 Introduction

2.1 Introduction

Continued growth of environmental and spatial impacts in the vicinity of European airports is justified largely on economic grounds. Substantial claims are made by the aviation industry concerning the contribution of air travel and transport to the economy and the associated positive impacts on employment. It is unclear, however, to what extent these claims and the studies from which they are taken are based on generally accepted methodological frameworks for assessing costs and benefits. Moreover, many of these studies were commissioned or funded by the aviation industry or its supporters. As a consequence, the steering committees of these studies may not be a balanced reflection of the various stakeholders and may thus be biased towards the interests of the aviation sector. It is not always guaranteed, in other words, that the studies have been executed in an independent manner.

Against this background, a group of NGOs in the European Union (Friends of the Earth Netherlands, Germany, England, Wales and Northern Ireland, UECNA, Transport and Environment, *Bundesverein gegen Fluglärm*, Dublin Uproar, HACAN/Clearskies, *Bruxelles Air Libre*, Citizens Platform Wezembeek, Schiphol Region Citizens Platforms, Gatwick Area Conservation Campaign, Dutch Society for Nature and Environment) requested CE Delft to carry out a study to assess several recent studies addressing aviation and its impact on the European economy. The aim of the study is to test the arguments put forward and the methodologies on which conclusions and impact calculations have been based.

2.2 Scope

The assessment focuses on three reports in which economic arguments are used to underpin policy recommendations with respect to airport expansion or flight restrictions. These three studies are:

- 1 *Vluchten kan niet meer; Advies over de toekomst van de luchtvaart in Nederland* ('Nowhere to run, nowhere to fly. Advice on the future of aviation in the Netherlands'), by the Dutch Advisory Council for Transport, Public Works and Water Management, July 2005.
- 2 *Assessing the economic costs of night flight restrictions*, by MPD Group Limited in association with ERM, February 2005.
- 3 *The contribution of the aviation industry to the UK economy; Final report*, by Oxford Economic Forecasting, November 1999.

The arguments put forward in these three studies often refer to other studies, which themselves refer to yet other studies. To test the arguments put forward, where necessary we have followed the string of references back to the original reports and studied the original methodologies applied.

The main focus is on the economic arguments employed. This can be broken down into two key questions. First, are the (calculated and estimated) data indeed relevant to the argument put forward. For example, should employment from retailing be included in employment counts? Second, do the arguments put forward indeed substantiate the claims and the conclusions drawn from them? For example, are employment figures a good indicator of the importance of aviation to the national economy?

2.3 Structure of the report

Chapter 3 is concerned with a report on the future of aviation in the Netherlands. It starts with an introduction on the background to the report. In section 3.2 the conclusions of our assessment are given. In the remaining sections of chapter 3 these conclusions are elaborated and substantiated one by one.

Chapters 4 and 5 are similarly structured. In chapter 4 we assess a study on night flight restrictions. Some of our remarks are concerned with a framework proposed in the study in question. That framework is therefore reiterated in section 4.3.1 and commented on in the remainder of section 4.3. Section 4.4 deals with remarks concerning the multipliers and employment figures cited in the report.

Chapter 5 examines a study on the contribution of aviation to the UK economy. After a general introduction in section 5.1, the conclusions follow in section 5.2. These are elaborated in sections 5.3 to 5.7.

3 Nowhere to run, nowhere to fly: Schiphol

3.1 Introduction

For the case of Amsterdam's Schiphol Airport we have focused our attention on a report published in 2005 by the Advisory Council for Transport, Public Works and Water Management on the future of aviation in the Netherlands: *Vluchten kan niet meer*⁶... *Advies over de toekomst van de luchtvaart in Nederland* (Council, 2005).

The report consists of two parts. The first contains the Council's advice and recommendations to the Dutch Ministry of Transport, Public Works and Water Management concerning the future of aviation in the Netherlands. The second part contains the background analysis that led the Council to advise as it did.

We shall first present our main conclusions and then set out the arguments used to arrive at them. This is grounded in an analysis focusing on the arguments held to underpin the Council's advice and recommendations in general and in particular the economic arguments employed. In addition, some more general remarks will be made.

3.2 Conclusions

Our main conclusions relate to the following issues.

1 *Composition of the Commission*

The chairman of the sub-committee that prepared the Council's report may have had financial interests in expansion of Schiphol Airport. This may have prompted unnecessary suspicions regarding the independence of the Advisory Council.

2 *Crucial premises are not substantiated*

Several crucial premises of the conclusions drawn by the Council are not substantiated. For example, a key statement in the report to the effect that placing restrictions on further growth would have disastrous effects is not underpinned by sound analysis.

3 *Employment figures are an unreliable indicator*

Despite the fact that official Dutch government guidelines for cost-benefit analysis make clear that employment figures and a sector's contribution to GDP are not reliable indicators of a sector's importance to the economy, the Council reverts precisely to these metrics to stress the importance of aviation to the Dutch economy.

4 *Use of regional perspective*

The impact on the economy is not determined from a national perspective but is based on a partial, regional analysis. As businesses will often be attracted

⁶ The title of this publication is taken from a well-known Dutch song, *Vluchten kan niet meer*, that can best be translated as 'Nowhere to run, nowhere to hide'. However, the Dutch word 'vluchten', for fleeing or escaping, is also the plural of 'flight'.

from other regions, increased regional employment and number of businesses will not always constitute additional employment from a national perspective. This is not fully taken into account by the Council.

5 *Selective use of references*

To support its conclusions the Council cites arguments and conclusions from other reports, but in utter disregard for conclusions from the same reports pointing in very different directions.

6 *Inaccurate use of references*

For the impact of aviation growth on employment at and around Schiphol, the Council refers to Nyfer (2000). In doing so, the Council not only uses the wrong figures but also erroneously calculates overall employment at Schiphol, even though Nyfer explicitly states that the data cannot be used in this manner.

7 *Treatment of alternatives*

The impact of flight restrictions is in some cases overstated, because alternatives are not taken seriously. For example, the Council writes: 'To operate profitably, charter aircraft by definition need to fly some of their flights at night'. This argumentation ignores the scope of market mechanisms⁷ for reducing the impact of restrictions.

3.3 Commission composition

The first point to be noted relates to the composition of the Commission that prepared the publication. The chairman of the sub-committee of the Council that prepared the Advice may have had financial interests in expansion of Schiphol Airport. We are not questioning the integrity of the person involved. However, a Council with the assigned task of assessing the future of aviation for the Netherlands might have been more balanced with regard to its composition and the background of those involved.

The chairman of the Commission was Mr. R.H.P.W. Kottman. He is also the CEO of Ballast Nedam, one of the top 5 Dutch construction firms. Ballast Nedam has carried out major construction projects relating to the so-called Masterplan Schiphol. Given this background, and given the interest construction firms may have in further expansion of Schiphol Airport, appointing the CEO of one of the country's largest construction firms Chairman engenders doubts as to the independence of the Advisory Council, possibly unwarranted.

3.4 Crucial premises are not substantiated

The Council breaks down its analysis of the economic effects of aviation into three parts:

- The sector's overall impact on the economy.
- The influence of flight restrictions on development of the network.
- The impact of restrictions on the competitive position of the Netherlands.

⁷ For example, tickets for daytime flights on charter aircraft could be priced higher.

The discussion on the impact on the economy is further subdivided into impact on added value, impact on employment and the importance of Schiphol as a factor in business location.

In a press release accompanying publication of its advice, the Advisory Council writes:

'If Schiphol is not allowed to continue growing, airlines operating from Schiphol will suffer a loss of competitiveness. In contrast to their competitors, they will be unable to achieve economies of scale. This will soon lead to less (and less frequent) direct connections from Schiphol. The Netherlands will become less attractive as a business location, for companies and institutions alike. The Council advises against taking such a risk'⁸.

Introducing restrictions at Schiphol might induce economic actors (airlines as well as other companies) to move to other locations / airports. If they were to relocate in another country that would clearly have a significant impact on the Dutch economy. Moving to another region within the Netherlands, by contrast, would not necessarily imply any great cost to the Dutch economy, however. Whether or not a shift abroad is a likely scenario depends crucially on the situation at other airports in Europe. However, the issue of whether other, nearby EU airports face similar restrictions or can be expected to grow unrestrainedly is only marginally addressed in this report.

The Council discusses the effects that flight restrictions would have on the network currently using the Schiphol hub. The main line of reasoning adopted is that if there were to be a drastic decline in transit traffic, this would have a very significant impact on the number of destinations accessible from Schiphol. The actual likelihood of such a drastic decrease in transit traffic is not discussed in any thorough manner, however. The Council merely states: 'The question is whether a restriction on traffic growth would lead to loss of transit traffic, for example. In the long term this cannot be ruled out, if such restrictions create constraints that severely reduce the advantages of scale that operators can achieve relative to competitors, leading to loss of competitiveness'⁹.

Nowhere in the Council's report is either element of this 'if' clause put to the test, however.

First, an analysis of the potential advantages of scale for KLM is lacking. This is very unfortunate, because based on the press release (see above) it appears the main conclusions of the Advisory Council are based precisely on these expected advantages of scale. Given the large alliance in which KLM participates, the impact on further advantages of scale of potential restrictions at one specific airport is debatable. Moreover, if the potential advantages of scale for KLM are discussed, it seems reasonable to likewise discuss the potential benefits accruing

⁸ Press release of July 1st, 2005, in Dutch; translation by CE Delft.

⁹ Page 68, translation by CE Delft.

to KLM in the form of scarcity rents. If airport capacity is restricted, airlines may benefit by raising ticket prices.

Second, the comparison with the situation at other airports is marginal at best and moreover inconsistent¹⁰. As a result, the conclusion that the competitive position of KLM and hence the network at Schiphol is at risk comes to lack any basis whatsoever. Rather than providing such a basis, to indicate the potential impact on the economy of imposing restrictions on the airport, the Council repeatedly refers to the results of studies on the very extreme case of a total loss of all transit traffic.

The Council goes on to indicate the potentially drastic effects on the economy by referring to developments in Brussels and Zurich after the bankruptcy of Sabena and Swissair. It would seem appropriate to accompany such a statement with a note that the bankruptcies of these airlines were not the result of airport restrictions.

A further example. On p. 14 the Council writes¹¹:

‘Research by the Council has shown that disallowing further growth will have disastrous effects, in both economic and social (tourism) terms’.

Nowhere in the report is this conclusion substantiated, however. While the impact of very extreme cases such as the cessation of all transit traffic is discussed, more realistic scenarios are ignored. It is almost as if the Council were seeking to alarm its readers by presenting the outcome of very extreme assumptions, instead of the results of more likely scenarios. Here, too, the issue of selective referencing plays a role. Thus, Nyfer (2000) writes on p. 45 that¹²:

‘A total loss of the transit product is a not very realistic scenario. Nor is the sudden loss of 25 or 75% of transit traffic plausible. Such an impact would only occur if the KLM Group were to adopt a different European airport as its hub. However, it is unclear where it could go. Almost everywhere in Europe, airports are facing capacity problems’.

3.5 Employment figures are an unreliable indicator

To underpin the economic importance of Schiphol, in its report the Council cites employment figures relating to both direct and indirect employment and are based on other studies. Direct employment includes not only jobs related to aviation operations at Schiphol but also those in the airport’s retailing outlets, for example. Indirect employment figures derive from both ‘backward’ and ‘forward’ employment, the former relating to the full gamut of airport suppliers (caterers, cleaners, construction firms, etc.), the latter to increased economic activity due to an improved investment climate.

¹⁰ On p. 69 Frankfurt is presented as an airport with concrete expansion plans, while on p. 49 it is presented as an airport threatened by growth restrictions.

¹¹ Translation by CE Delft.

¹² Nyfer (2000), p. 45; translation by CE Delft.

This breakdown into a set of direct and indirect employment figures is not uncommon. The aviation industry has repeatedly hired experts to calculate the importance of the sector for this or that nation's economy. Reports often feature job data that distinguish between direct, indirect and induced employment and sometimes also include catalytic effects and other so-called non-quantifiable effects. The importance of the industry is also often further highlighted by referring to its contribution to a nation's GDP. These figures are then used to strengthen arguments in favour of airport expansion or against airport operating restrictions and to persuade policy makers to make decisions in the industry's best interest. This is both understandable and a perfectly acceptable means of seeing one's interests are catered for.

However, guidelines developed by the Dutch Ministry of Transport, Public Works and Water Management explicitly warn against careless use of such employment figures (OEEI, 2000). This document reports on the results of a research programme undertaken for the Dutch Ministries of Transport, Public Works and Water Management and Economic Affairs and provides guidelines on cost-benefit analysis of infrastructure works. The section on employment concludes as follows¹³:

'(...) infrastructure works lead to regional redistribution of jobs within the Netherlands rather than to creation of new jobs. It cannot be taken for granted that infrastructure will have a net positive effect on employment. At any rate, it cannot be argued by pointing to job creation around the works without reference to the functioning of the labour market in general and setting of the wage base in particular. On the other hand, any disruption of activities will often go hand in hand with a increase in that wage base'.

Neither figures on employment – direct, indirect or induced – nor figures on an industry's contribution to national GDP provide any sound indication of the social desirability of expansion or restriction. Proper allowance should be made for the redistribution effect: to a large extent, people will find employment elsewhere in the economy.

Given this very lucid denial of the validity of using employment data as a basis for arguments in favour of expansion, it is remarkable, to say the least, that the Council itself flies in the face of this recommendation.

A simple example will further illustrate that the reasoning with respect to employment does not hold at the macro-economic level. Let us take as an example the bakery industry. There are many bakers in the Netherlands, providing direct employment to many people as well as creating indirect employment at a variety of suppliers. On top of that, if people had not eaten bread for breakfast, they would be less productive. It is clear that this kind of reasoning can be adopted for each and every industry. If this direct, indirect and induced employment were then to be summed over all industries, the total figure would far exceed total employment in the Netherlands. This example also

¹³ OEEI (2000), Main Report, Part 1, p. 40; translation by CE Delft.

elucidates the substitution effect. If there were no bread, people would change to something else for breakfast. Similarly, if further growth of the aviation industry were restricted, ticket prices might rise, leading to a diversion of consumer spending. The consumer surplus on aviation would not be lost entirely, because people would find alternative ways of spending their money, and derive benefits from these as well (albeit slightly lower).

Inclusion of retailing in employment figures

Even if one does use employment figures, it seems strange to include jobs related to retailing: if people had not travelled by air, they would have spent the money in a different way¹⁴.

3.6 Use of a regional perspective

The Council states, with reference to research by Regioplan (Regioplan, 2004), that the added value of economic activities at Schiphol Airport is about € 8 billion. It goes on to state that this is equivalent to 1.8% of the Netherlands' Gross Domestic product, 11% of the product of North Holland Province and 20% of that of the Greater Amsterdam region. However, (Regioplan, 2004) is not the primary source for the figure of € 8 billion, which in fact derives from an internal presentation given to the North Holland provincial executive by Lagerweij in 2004¹⁵. It is unclear what (modelling) analysis formed the basis for this figure of € 8 billion and whether it is based on sound scientific work¹⁶. From our perspective, the Council should only use figures that can be verified and that are based on sound, proven analysis.

In addition, it is unclear whether this € 8 billion refers to added value for North Holland Province or from a national perspective. As the presentation was for the North Holland provincial executive, it may very well be that the figure refers to the added value for the local or regional community, i.e. either North Holland or the Greater Amsterdam region. Presenting the figure as a percentage of the provincial or regional product, as is done in Regioplan (2004), is therefore defensible. However, relating this figure to the GDP of the Netherlands (which is not done by Regioplan, only by the Council) would require a far broader analysis of the impact of Schiphol, including the potentially negative influences on other regions associated with shifts of employment from those regions to Schiphol. In short, proper analysis of the overall impact of Schiphol on the Dutch economy requires a much wider analysis that includes regional shifts and counterfactual spending on alternative goods. Its actual impact on the Dutch economy is arguably smaller, because business and employment that relocate at or around Schiphol may very well be merely replacing business and employment elsewhere. Although this has a positive influence on the local economy, in other regions the impact is clearly negative.

¹⁴ Moreover, it seems strange to substantiate the importance of air travel and transport by emphasising the number of hamburgers sold at a given airport.

¹⁵ No printed documentation is available for this source, therefore it could not be verified.

¹⁶ A researcher from Regioplan told us not to expect any sophisticated modelling behind this figure.

It should be noted, of course, that a movement of businesses towards Schiphol or any other airport implies that those businesses are better off there, for otherwise they would not have moved. The extent or amount by which they are better off should be included in airport studies, because this is indeed a benefit catalysed by the airport services.

3.7 Selective use of references

This section is concerned with selective use of references. Thus, phrases from certain reports are used to support the Council's arguments while other phrases from the same reports might well have been used to support arguments leading to the opposite conclusions.

For example, the Council makes a strong point of the fact that the presence of Schiphol is an important factor in business and institutional location. This is supported by a reference to Nyfer (2000). Nyfer (2000) indeed makes clear that many companies have indicated, in questionnaires and surveys, that the airport's presence was an important location factor. However, Nyfer (2000) also states that surveys are an inadequate tool for quantifying the effect of a location factor like Schiphol. 'Percentages of companies indicating that Schiphol was an important determinant in their choice of location are not very meaningful'¹⁷. In fact, according to Nyfer (2000) only a small proportion of companies give any thought to a location in other countries. Of the business community of Amsterdam, 71% of the companies gave no consideration to location outside the region, with only 4% of the Amsterdam business community being open to location outside the Netherlands.

A second example also relates to Nyfer (2000). While the Council concludes it has shown that a restriction on any further airport growth would have disastrous effects, Nyfer writes in his Preface:

'The strong interlinkage between the airport and the regional economy implies there is no reason to fear that Schiphol national airport will be swept away by a smart move by one or other of its competitors. (...) These mechanisms ensure that Schiphol will retain its priority position for the healthy home market. Of course this does not mean the economy would not be constrained by an impediment of the growth of (local) air traffic'.

The second conclusion of Nyfer's report reads as follows¹⁸:

'It is unlikely that any of the large European airports will in the future be marginalised by its competitors. Even if growth is restricted by a shortage of space or by noise limits, the existing market share will not disappear altogether. Path dependency¹⁹ plays an important role: a new equilibrium cannot simply appear from a suboptimal state of equilibrium. The airport will retain a large

¹⁷ Nyfer (2000), p. 14; translation by CE Delft.

¹⁸ Nyfer (2000), p. 13; translation by CE Delft

¹⁹ Note from CE Delft: Path dependency when the outcome of a process depends on its past history, on the entire sequence of decisions made by agents and resulting outcomes, and not just on contemporary conditions.

competitive advantage in its home market, moreover, and transit passengers will not disappear entirely. Of more importance is the quality of the transit product in terms of reliability and transit time, and this need not suffer directly from capacity restrictions. It is in fact conceivable that the quality of the network at any given airport diminishes as a result of strategic alliances and mergers’.

All this is not to say, of course, that if one refers to a particular study one is obliged to adopt all its conclusions. On the other hand, total denial of the conclusions while stating the precise opposite without any reference to those conclusions does not, in our opinion, constitute good practice either.

3.8 Inaccurate use of references

The Council writes that Nyfer (2000) found that carriage of one million passengers results in 8,600 *indirect* jobs. It goes on to translate these numbers to Schiphol, writing ‘For Schiphol, this would mean 350,000 jobs²⁰’.

This treatment of the primary data is unsound. The Council could have been more careful in the following four respects:

First, Nyfer (2000) actually calculates a specific figure for Schiphol Airport, instead of a general figure for airports with over 10 million passengers. This figure is 5,800 rather than 8,600²¹.

Second, these figures do not refer to the number of indirect jobs but to the *total* number of jobs, direct and indirect. The number of direct jobs per million passengers is estimated at about 1,000.

Third, Nyfer (2000) explicitly states that these figures should be regarded as elasticities, indicating the additional employment if an airport were to grow by one million passenger movements. These are valid for small changes only. ‘It is therefore not meaningful to use the elasticity to calculate the impact of an additional one million passengers at Zestienhoven²². Nor is it meaningful to translate the impact of one million additional passengers to the total impact of the current 37 million passengers at Schiphol.²³’ Yet this is precisely what the Council has done.

Fourth, Nyfer’s study is concerned with the impact of airports on the regional economy. Based on a panel data study, the impact of airport presence on local employment was analysed. This impact is not necessarily indicative of the effect on national employment. Nyfer reports that locally there is some displacement of the agricultural sector. On the other hand, he indicates that, given the tight labour market, the growth of Schiphol may not yet have had its full impact on the economy. It is not unreasonable to assume that people currently working at and

²⁰ Council (2005), p. 67; translation by CE Delft.

²¹ Nyfer (2000), p. 129, table 5.8.

²² CE Delft: This has been rechristened Rotterdam Airport. According to its website, there were about 775,000 passengers in 2000.

²³ Nyfer (2000), p. 128; translation by CE Delft.

for Schiphol would otherwise have found employment elsewhere to some extent, in other potentially newly developed jobs.

3.9 Treatment of alternatives

The impact of restrictions is in some cases overstated, for the basic reason that alternatives are not taken seriously.

As an example, take the alleged implications of night time restrictions for charters. The Council writes: 'To operate profitably, charter aircraft by definition need to schedule some of their flights at night. If charter flights were not permitted at night, where would they go?'²⁴.

The first question to be asked is why charter flights need to fly at night to operate profitably. The answer is provided by the MPD study (see next chapter): the seat price charged by charter carriers is calculated using a load factor far higher than can be realistically targeted by operators of scheduled services who generally aim to maximise their profits by prioritising business travellers.

The second question is this: given this information, what would it mean if charter flights were no longer permitted at night. Clearly, prices are set as low as will attract as many passengers as possible. This makes flights less profitable and so more flights have to be carried out during a twenty-four hour period. In the event of night flight restrictions, these flights could not be offered to consumers at such low prices. This would mean some fraction of passengers switching to regular flights, with their consumer surplus being topped off by the aviation industry, with another fraction unwilling to travel for the new price and spending their money differently.

The consumer surplus of those tourists who opt for daytime (and somewhat more expensive) flights will go to the airlines and will not be foregone. Passengers spending their money elsewhere will forego some surplus, but this loss will be offset partly by the (slightly lower) surplus they will encounter in alternative spending patterns.

²⁴ Council (2005), p. 16; translation by CE Delft.



4 Assessing the economic costs of night flight restrictions

4.1 Introduction

The purpose of the study by MPD (MPD Group Limited, ... et al., 2005) is to establish a framework for examining the economic impacts of any changes to existing regimes governing night flights at community airports. It was commissioned by DG TREN of the European Commission and aimed to produce a methodology providing guidance to Member States, to assist them in preparing an impact analysis (according to the provisions laid down by Annex II of Directive 2002/30/EC) prior to the introduction of operating restrictions.

Apart from establishing such a framework, the study also assesses several sources of information on the impact of aviation on employment. Employment figures and multipliers can be regarded as a secondary outcome of this study.

Our assessment focuses on two issues: the proposed framework and the multipliers and employment figures cited.

4.2 Conclusions

In general, we assess the report as well thought-out and executed. In particular, the proposed framework provides a reasonably balanced approach towards the tasks requested in the report's Terms of Reference. The framework takes into account, *inter alia*, a national perspective and provides scope for input from the aviation industry regarding their adaptive response to operating restrictions. However, the stated intentions of the framework have not always been elaborated in optimum fashion. In our opinion there are several essential aspects of this study that need to be adapted.

With respect to the proposed framework, these are the following:

1 *Employment (and GDP / added value) as a yardstick*

The study focuses on job numbers as an indicator for the impact of aviation on the economy. This is an erroneous indicator and may even lead to double counts. In the long run people will find other jobs, because in the case of restrictions money previously spent on air travel will be spent on alternatives.

2 *Alternatives considered*

The study focuses on the aviation industry and does not take full account of alternative means of transport and the positive benefits these may have in non-aviation transport sectors.

3 *Reliance on industry input*

The report relies heavily on information provided by the aviation industry. A sense check on this information is not performed and the possibility of having been fed strategic answers is not discussed²⁵.

²⁵ Note that we have no reason to doubt the trustworthiness of the aviation sector, but given the heavy reliance on its input, a sense check is required.

4 Scope

The impact of restrictions at one specific airport cannot be generalised to the case of several airports facing the same restrictions. Diversion of traffic to other airports is not an option in the latter case and hence local impacts will arguably be smaller.

With respect to the multiplier and employment figures provided as guidance, we would remark as follows:

1 *Employment metric*

The report rightly makes clear that a headcount metric may be less appropriate for indicating the employment impact than manpower equivalency. However, benchmark employment figures have in fact often been taken from studies that use the headcount metric.

2 *Heavy reliance on other studies*

The benchmark employment figures and multipliers in the MPD report have often been taken from other studies that use unsound cost-benefit methodologies. More specifically, these studies (i) are often based on a partial analysis (local impacts rather than a national perspective), (ii) do not specify a sound reference scenario, and (iii) do not take into account the replacement of employment elsewhere and alternative spending patterns.

3 *Treatment of jet versus non-jet operations*

The reader might be led to believe that night flight restrictions in their current form would affect many more jobs than the data in fact imply. The reason is that the estimated employment impacts relate to both jet and non-jet operations, while the night flight restrictions currently in force often apply only to non-jet operations.

4 *Adjustment for daytime flights*

Adjustment of the data for daytime flights that depend on night flights leads to a distorted figure for the employment impact that is no longer meaningfully related to overall employment in the country in question.

5 *Inclusion of indirect employment*

The report recommends including data on direct, indirect and induced employment as well as catalytic impact. This leads to a distorted figure for the employment impact that is no longer meaningfully related to overall employment in a country.

4.3 Remarks with respect to the proposed framework

To properly discuss the proposed framework for assessing the economic costs of night flight restrictions, the recommended methodology as described in the Executive Summary of the report will first be quoted²⁶. In the subsequent sections we report and discuss our observations and conclusions.

²⁶ Of course, the proposed framework is described in more detail in other parts of the report, to which we shall refer where necessary.

4.3.1 Analysis of proposed framework

MPD proposes the following framework:

'In summary, in the context of Directive 2002/30 the methodology requires competent authorities to set out clearly the proposed night restriction for which economic impact is to be measured. They must then define formal procedures for assessments, and allow a period of up to six months for affected parties to carry out such assessments of economic disbenefit. Airlines should thus be given sufficient defined time to consider problems created by new restrictions and to devise appropriate strategies to minimise losses before measuring the resulting economic effects in terms of employment – at the local, regional and national level as well as cross-border, and added value – at the country and cross-border level. Similar analyses should be carried out by the airport operator and other airport service providers, taking into account the assessments of traffic loss and flight changes reported by the airlines.

It would be the responsibility of the competent authorities (taking academic or other professional advice as required) to calculate the indirect and induced economic effects associated with the direct economic effects reported by stakeholders. At the same time – once the airport, aircraft operator and service provider reactions are known – they should invite quantified representations (by means of public notices on an appropriate scale) from business and industrial representative organisations locally and nationally (including Chambers of Commerce), local and regional tourism bodies, as well as any specific firms or regional bodies identified by airlines as particularly impacted by revised operating plans, to assess catalytic effects.

Finally, competent authorities should conduct a 'sense check' of all the data put to them, by comparing economic effects with overall regional and national economic data in Eurostat NUTS, and with 'rule of thumb' measures linking levels of air transport activity with employment and GDP.'

4.3.2 Employment (and GDP / added value) as a yardstick

As one of the main focuses of its study, the MPD study team chose to take impact on number of aviation-related jobs. This focus is not prescribed by Directive 2002/30/EC nor in the Terms of Reference. The MPD study relates most directly to Article 4(2) of the Directive, which requires the competent authorities to take account of the likely costs and benefits of the various measures, as well as airport-specific characteristics. This is elaborated in more detail in Annex II of the Directive, points 3.2 and 3.3, regarding the assessment of additional measures:

'3.2. Assessment of the cost/effectiveness or cost/benefit of the introduction of specific measures, taking account of the socio-economic effects of the measures on the users of the airport: operators (passenger and freight); travellers and local communities.

- 3.3. An overview of the possible environmental and competitive effects of the proposed measures on other airports, operators and other interested parties²⁷.

Although the Directive does not refer to employment effects, the study team has chosen to use employment figures as an indicator. This is a remarkable choice, for MPD acknowledges (p. 88) that most economists believe that job losses are an unsatisfactory measure of economic disbenefit at the macro level, as the unemployed tend to find other jobs as time elapses. However, the report continues by stating: 'locally and regionally, the economic and social costs of job losses can be not only devastating in practice, but an appropriate, immediately comprehensible, and easily definable metric for assessment.'

It can be concluded from various guidelines on cost-benefit analysis that employment is not an adequate yardstick for measuring welfare impacts within a given country – not at a local level, nor at the national level. First of all, employment figures that include indirect, induced and catalytic employment will lead to overestimates and go fully besides the point that money will be spent differently and jobs will arise elsewhere in the economy. Some of the jobs might even remain in the sector, but at a different location. This point is also confirmed by BHC (2000), a study actually used by the MPD team. BHC (2000) makes the point that employment figures do not provide a sensible indicator.

Second, relating the number of jobs that depend on an industry or certain product to overall employment gives a very distorted picture. As explained in chapter 3, summing direct, indirect, induced and catalytic jobs across all industries in a country yields a figure far in excess of total national employment.

Moreover, the arguments set out by BHC (2000) against including retail-related employment as additional direct employment appear to have been misunderstood. MPD takes the view that 'all employment directly affected by a change in air traffic, including retail concession employment at airports, is direct'. This may be correct, but overlooks the fact that such employment cannot be deemed additional. In the absence of air travel, money spent at airport retail outlets would clearly have been spent elsewhere in the economy, arguably within the catchment area of the airport. A thorough cost-effectiveness study should therefore take this into due account, even if limited only to the direct vicinity of the airport.

4.3.3 Alternatives considered

In determining the impact of restrictions on night flights, all alternatives to air travel and transport should be considered. On this issue the framework does not go into much detail, but proposes a period of six months to let the industry and other companies work out an optimum response to such restrictions:

²⁷ 'Interested parties' shall mean natural or legal persons affected or likely to be affected by, or having a legitimate interest in the introduction of noise reduction measures, including operating restrictions', as defined in the Directive.



'The assessment should be based on the difference between current planned operations two years hence, and revised plans based on minimizing the economic effects of the potential restrictions proposed by the competent authorities'²⁸.

A major advantage of this approach is that it gives the market an opportunity to develop an optimum response, instead of relying on consultants to make assumptions. We have two reservations, however. First of all, there is the possibility of the industry overestimating the impact. Second, we feel that more explicit attention could have been paid to alternative means of transport and the impact these might have on employment and the economy.

What should be determined is the added value of nocturnal air transport over and above the potential alternatives. There are basically three such alternatives. In the first place, transport can be relocated to other airports. The framework acknowledges this possibility²⁹:

'At a spoke or a hub airport, relocation would mean for the express airline – and directly for its 'parent' express integrator:

- Net loss in route(s) turnover at the restricting airport, replaced elsewhere net of any penalties of sub-optimal geographical situation after relocation, perhaps cross-border.
- Reduction in value of bought-in goods and services but replaced elsewhere.
- Capital relocation costs and possibly changes in operating costs.'

There are two other feasible alternatives: diversion to other modes of transport (road or rail) or to daytime air transport. While diversion to daytime air transport will probably be picked up in the industry's response, this does not hold for non-aviation alternatives. So instead of focusing solely on traffic loss within the aviation sector, a more general assessment should also include what happens to the potentially lost freight and how it might be transported alternatively.

Related to this, the methodology includes assessment of the indirect and induced economic impacts associated with the direct economic effects reported by stakeholders. Moreover, quantified representations are to be invited from business and industrial representative organisations. Again, this is a one-sided approach that takes no account of potential beneficiaries in other transport sectors that might take over transport demand.

4.3.4 Reliance on industry input

Very understandably for the task at hand, the study and the drafted recommended framework rely heavily on information provided by the aviation sector. Especially with respect to the potential response of carriers to night flight restrictions, information from the carriers themselves has been indispensable. For the study, carriers understandably only parted with this information on condition

²⁸ MPD Group Limited, ...et al. (2005), p. 121.

²⁹ MPD Group Limited, ...et al. (2005), p. 120.

of confidentiality. Detailed information on air carriers' responses is therefore not provided in the report.

Less understandable is that the report does not once mention the possibility of having been fed strategic answers by those interviewed. Given the study topic and the economic interest carriers may have in unrestricted growth, it is not at all inconceivable that stakeholders have downplayed their scope for responding to night flight restrictions. This might potentially lead to the impact of such restrictions being overestimated, making the introduction of restrictive measures less likely.

Clearly, alternative options and flexible scheduling could greatly reduce the impact of night flight restrictions. It should be noted that we have no reason to doubt the trustworthiness of the aviation sector, but the possibility of being fed strategic answers should have been addressed.

Under the proposed framework, there will be a similar potential for input of strategic information. The framework does include, happily, the recommendation that the competent authorities conduct a 'sense check' on data. This is arguably one of the best ways of dealing with such an eventuality. It is, however, unclear how the very general data to be used for this purpose can serve to validate the specific information provided by the industry on their response to restrictive measures.

4.3.5 Scope

In their own words, MPD have understood the terms of reference of the study as follows (p. 84): 'Our task is to consider the assessment of the economic impacts of specific night flight restrictions at specific airports'.

The report provides guidance on assessing the employment impact of such restrictions at the local, regional and national level. These are supposed to be representative for the impact of specific night flight restrictions at specific airports.

In the first place, if restrictions are introduced at one specific airport only, local employment may suffer more than if other airports are faced with similar restrictions. In the latter case, air transport will be less likely to divert to other airports. The employment impact of restrictions at specific airports on the local / regional economy may therefore be higher, disregarding for the moment that this does not represent a loss to the national economy, merely a diversion to other regions. Consequently, the outcomes of such assessments cannot be generalised to other airports.

Nevertheless, the MPD report does generalise its results to obtain an estimate of the impact of a total ban on night flights. Moreover, this estimate is presented as one of the most striking results of the study and even appears in the executive summary.

4.4 Remarks with respect to multiplier and employment figures

4.4.1 Employment metric

In its proposal for a framework, the study stresses³⁰ that employment figures should preferably be expressed in two ways, viz. based on a headcount and a manpower equivalent. The headcount is defined as the annual average total number of persons employed, whether fulltime or part time for at least one hour. This is in line with the definition of employment of the International Labour Organization (ILO) and that used by Eurostat.

Alternatively, the manpower equivalent is based on the annual average equivalent number of fulltime employees after taking into account effects of part time, shift and overtime working. The manpower equivalent is a more accurate basis for assessing income and other economic effects of employment changes.

The manpower equivalent can also prevent potential manipulation of future employment figures by making unrealistic assumptions regarding the number of part time jobs. It is unfortunate that it is not clear what kind of employment metric was used to arrive at the numbers presented in the report. At a quick glance, the original studies tend to use employment data expressed in 'headcount'³¹.

4.4.2 Heavy reliance on other studies

The MPD study takes its benchmark employment figures (and multipliers) from other studies. However, a number of comments are in order with respect to these underlying studies:

- These studies employ many different methodologies and definitions and the derived multipliers cited in the MPD study cannot readily be compared across countries. In some cases they do not use the manpower metric for employment and are concerned with differing geographical scales (local vs. regional vs. national). According to MPD, they are 'clearly professional pieces of work'. However, some very arbitrary and misleading assumptions are sometimes made. For example, a study on the express industry by KPGM Belgium states that apart from sector employees (9,500) and indirect / induced jobs (5,500), there are some 30,000 other jobs involved. This number is based on the assumption that 1% of the Belgian companies' turnover is express-dependent. This is a very bold assumption and totally ignores the fact that this turnover will not all simply vanish if express traffic is no longer feasible.
- A second comment relates to the ample use of cross-referencing by the MPD team. It is a good thing that all the available data is used and is widely known. With cross-referencing, however, there is a tendency to reference only the data and not the assumptions that lead to them. Something similar is typical

³⁰ MPD Group Limited, ...et al. (2005), p. 121.

³¹ Note that OEF (1999), to be discussed in chapter 5, is an exception and does list employment figures in fulltime-equivalent workers.

of the studies we have seen to date. Most are concerned with either the local impact of expansion or operating restrictions at one specific airport. In the former case, the fact that a large proportion of the catalytic effect of attracted economic activity is not additional to Business as Usual (BaU) activity when viewed from a national perspective is often neglected. In the latter case, concerning restrictions at some specific airport, no allowance is made for transfer of lost traffic to other airports.

- A third key point is that the studies underlying the MPD report do not generally specify a robust reference scenario.

4.4.3 Treatment of jet versus non-jet operations

The MPD report makes clear that many current night flight restrictions apply only to movements of jet aircraft. Night-time jet movements between 23.00 and 07.00 hours constitute only about 4.5% of total 24-hour movements, while the total number of movements between these hours is about 8.0% of the daily total³².

Despite the fact that current night flight restrictions do not apply to non-jet aircraft operations, such movements are included by the MPD team in calculating the employment impact of night flights. Although this is not incorrect, it may lead the ('sloppy') reader to believe that night-time restrictions in their current form would affect many more jobs than the data in fact imply.

4.4.4 Adjustment for daytime flights

The broad estimate of employment impact provided makes an adjustment for daytime flights that depend on night flights, some night flights being related directly to daytime flights, as a leg in intercontinental routes, or because they are charter flights that cannot operate profitably otherwise. It should be made clear that in making such an adjustment the resultant employment figure should not be compared to overall employment, for this would give a distorted picture, as is shown by the following example.

The argument that daytime flights depend on night flights also holds the other way around. If we estimated the impact on jobs of a hypothetical ban on daytime flights, we would come to the conclusion that it is not only the employment related to the 92% of flights carried out in the daytime that are lost, but also the jobs related to night flights that depend crucially on daytime traffic. Adding these jobs to the jobs relating directly to night flights, we would end up with a figure in excess of 100%! The point is that in the estimated number of jobs attributable to night flights, there are many jobs that could just as well be attributed to daytime flights.

In addition, if restrictions on night flights were implemented at airports with current daytime restrictions, the impact would be arguably lower. If daytime flights

³² Based on MPD (MPD Group Limited, ... et al., 2005), table 1.1 page 2. Note that table 1.1 of the Executive summary is not consistent with table 4.1 of the report itself. If table 4.1 is correct, the share of jet movements between 23.00 and 07.00 h in total traffic is 5.9%.



that are said to depend on night flights were indeed to be discontinued, they would be replaced by new flights that were crowded out due to daytime capacity limits.

4.4.5 Inclusion of indirect employment

The report recommends including figures on direct, indirect and induced employment as well as catalytic impact. This leads to a distorted figure for employment impact that is no longer meaningfully related to overall employment in the country in question. This point has already been addressed in section 3.5, in relation to the report by the Council, and for further elaboration of this argument we refer to the example of the bakery industry provided there.



5 The contribution of the aviation industry to the UK economy

5.1 Introduction

In 1999 a study was published by Oxford Economic Forecasting on the contribution of aviation to the UK national economy³³. It was commissioned by the UK's major airport operators and airlines and DETR³⁴ and designed to inform the wider sustainable aviation policy debate that was underway as a result of the Integrated Transport White Paper published the previous year.

In May 2002 a follow-up study was published, again by OEF, focusing on the impact on regional economies³⁵. Because our focus here is on the impact on the national economy, this study has not been taken into account in the present analysis.

Notably, between the first and second OEF report a study by Berkeley Hanover Consulting (BHC, 2000)³⁶ was published in 2000 that scrutinised OEF's 1999 study. Our analysis and conclusions here are based to a large extent on the points raised by BHC.

5.2 Conclusions

Our conclusions refer to the following issues.

1 *Use of employment and GDP figures*

As the report itself states, 'Employment figures do not give a reliable indication of the contribution aviation makes to the economy'. They should therefore not be used to provide such an indication.

2 *Impact of further growth*

Insufficient attention is paid to the additional economic impact of further growth. This holds, for example, for the impact of additional aviation growth at an airport on the appeal of nearby towns and cities as a business location.

3 *Loss of consumer surplus*

The loss of consumer surplus³⁷ is calculated in the event of flight restrictions being imposed on aviation. Faced with such restrictions, the sector might plausibly raise its prices to regulate demand. If that were the case, much of the surplus lost to consumers would be absorbed by the aviation sector. This notion should have received more attention.

³³ OEF (1999): The contribution of the aviation industry to the UK economy.

³⁴ Former UK Department for Environment Transport and the Regions.

³⁵ OEF (2002): The economic contribution of aviation to the UK: Part 2 – Assessment of regional impact.

³⁶ BHC (2000): The impacts of future aviation growth in the UK. Commissioned by SASIG: Strategic Aviation Special Interest Group of the Local Government Association.

³⁷ The consumer surplus is the difference between the price consumers would be willing to pay and the price they actually have to pay. As prices rise, the consumer surplus decreases; as prices fall, it rises.

4 *Impact of tourism*

The report is unbalanced in the attention given to the impact of foreign tourists on the UK economy and the observation that British tourists actually spend 35% more abroad than foreign tourists do in the UK. Following the overall line of reasoning adopted in the report, this should have led to the conclusion that restrictions on aviation would, in this respect, have a positive influence on the UK economy.

5 *Treatment of taxes and subsidies*

The contribution of aviation to the public budget and treasury are discussed. In our view a more balanced approach should have been adopted in which public subsidies to the aviation sector were also taken into account, as well as the impact on the public budget of alternative spending in the case of restrictions being imposed on aviation.

5.3 **Use of employment and GDP figures**

To demonstrate the impact of aviation on the UK economy, the study repeatedly cites figures of direct, indirect and induced employment as well as the share of the aviation sector in GDP. This is in line with the Terms of Reference of the study. However, as the contractor itself acknowledges in the report:

‘So in the long run, employment does not give a reliable indication of the contribution aviation makes to the economy’ (p. 38).

Employment is not a good indicator because ‘these additional jobs could still exist in the long run without the aviation sector’³⁸.

It should be noted that this holds not only for the additional jobs (indirect, induced and catalytic) referred to in the above quotation, but also for the employment in the aviation sector itself.

In addition, adding direct and indirect employment figures gives a biased picture, certainly if those figures relate to total employment. The reason is that adding direct and indirect employment and summing across all sectors would lead to a figure far in excess of total national employment³⁹. All workers are directly employed somewhere and every time a worker is cited as being indirectly employed in some other sector, the sum total will rise ever further over and above total employment.

In this connection the main question should be that formulated by BHC (2000): Will the UK economy be better off with one distribution of resources rather than another? This can best be appraised by means of a cost-benefit analysis on a national scale, assessing the proposed project by comparing its costs and benefits, including social costs to the country as a whole.

³⁸ Quotation from p.5, Executive summary, (OEF, 1999). The sentence continues as follows: ‘... but are likely to do so only at somewhat lower real wages and living standards’.

³⁹ It should be noted that OEF (1999) does account for indirect employees employed directly at other airports.



5.4 Impact of further growth

One of the most important questions in a practical policy context is how further growth of the aviation industry or, alternatively, future restrictions on that growth might impact on the economy. Many of the arguments put forward in relation to the impact of the aviation sector as a whole may not be particularly relevant for answering this question.

For example, while the availability of a nearby airport may be an important factor for business location, this is not to say that restrictions on further growth will decrease the appeal of the locations in question. And it certainly does not imply that air traffic restrictions will impact negatively on the appeal of a country as a whole. Given the sophisticated manner in which airlines top off consumer surplus, it is likely that passengers / transport with little added value will be impacted first: charter flights, for example.

A major part of the OEF report is devoted to the overall contribution of the aviation industry to the UK economy. However, the report also looks ahead and attempts to answer the question how potential future growth restrictions will impact on the UK economy, notably through reduced economic growth.

At one point in the report, OEF compares the required investments in infrastructure with the impact on GDP of the additionally facilitated air transport. This comparison is misleading in several ways. First of all, many other factors should be taken into account. As OEF states repeatedly, the Terms of Reference do not include environmental impacts. This makes any comparison between investment costs and impact on GDP nonsensical.

In the second place, disregarding environmental impacts and other effects it might indeed be argued that such an investment would make sense if: a) it would guarantee a top spot for London as an international business location, and b) this would subsequently indeed imply additional growth of the economy. However, the top-class ranking of London as a business location is not solely dependent on good access by air, many other factors determining whether the city is a good place for this or that business. These other factors may also require heavy investments if the city is to stay at the top. In such cases, total investments may be far higher than investments in aviation only. Such considerations should also be taken into account.

5.5 Loss of consumer surplus

Apart from calculations of the impact of aviation on employment and GDP, OEF also refers to so-called wider welfare benefits. This term might be confused with the more familiar term 'wider economic benefits', but OEF uses it to refer to the consumer surplus: the difference between the price passengers are willing to pay and the price they are actually charged.

In the case of flight restrictions being imposed, it is not unlikely that airlines will put up prices to reduce demand. Alternatively, demand could be limited by way of

higher congestion costs and longer waiting times. While such a situation is plausible on the road, where motorists can opt to make use of the infrastructure at any given time, it is less likely in aviation, where infrastructure use is tightly regulated by means of slot allocation.

As the report acknowledges, if airlines and airports were allowed to raise prices to reduce demand, much of the consumer loss of passengers would be offset by gains to airlines and airports. As this is indeed a very plausible outcome if capacity restraints are imposed, this notion merits greater attention and should be included in the Executive summary, where reference is made to the loss of consumer surplus.

5.6 Impact of tourism

OEF describes the impact that tourists arriving by air have on the UK economy. Two-thirds of foreign visitors come in by plane and the report devotes a great deal of space to the impact of visiting tourists on the UK economy. The observation that the amount of money spent by UK tourists abroad actually exceeds the amount spent by foreigners in the UK, by 35% in 1997, receives far less attention. This could have been treated in a more balanced manner.

5.7 Treatment of taxes and subsidies

To further substantiate the impact of aviation on the UK economy, its contribution to UK public finance and the Exchequer are spelled out. The amounts of income tax revenue, corporation tax revenue, air passenger duty and national insurance contributions are all reported in tables.

To give a true account of the impact of aviation on the public budget, however, these figures should be offset by subsidies and other forms of government support to the aviation sector. These should include government expenditures (if any) on relocation programmes associated with noise exposure, on government personnel working in aviation-related jobs, on airport infrastructure and infrastructure supporting traffic to and from the airport, and so on.

Moreover, as has been argued elsewhere in this report, had passengers not spent their money on aviation, they would have spent it on something else. In that case, part of the money would also have ended up at the Exchequer through income taxes, national insurance contributions, corporation taxes and other duties. Again, it would be interesting to see whether, in the alternative scenario, more or less funds would have gone to the public budget.

Finally, as mentioned above, the really interesting question is how things would change if restrictions were imposed on aviation. Unfortunately, though, this question is not answered in the OEF report.

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