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Air<sup>n</sup>eth report 16:  
The pass-through of cost increases in  
aviation

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## Report of the discussion on the pass-through of cost increases in aviation

On 4 December 2013 Airneth organised a seminar on the pass-through of cost increases in aviation in The Hague, The Netherlands. The topic was addressed by two speakers: Prof. Carl Koopmans (VU University)<sup>1</sup> and Dr. Keith Mason (Cranfield University).<sup>2</sup> Their presentations can be found on the Airneth website. The presentations were followed by an active discussion with the audience. This report summarizes that discussion.

The views in this report are those of the participants at the seminar only and do not necessarily reflect those of Airneth or the Netherlands Institute for Transport Policy Analysis. Possible errors in this report are attributable to Airneth only.

### How does economic theory align with daily practice?

Koopmans showed that based on economic theory the level of pass-through depends mainly on market type and type of cost increase. When aviation markets are characterised as *differentiated oligopolies* a pass-through rate of over 50 percent seems likely for sector-wide cost increases. In case a cost increase affects only one firm, the level of pass-through will most likely be below 50 percent.<sup>3</sup> Pass-through may be slow and asymmetric however. There is empirical evidence that increases in fuel costs are passed through completely in the long run, but only in conjunction with capacity decreases. Such capacity changes do not always occur.

Mason showed that the revenues per passenger for Spanair hardly relate to fuel costs, which means that Spanair probably did not pass increases in fuel costs through to the passenger. This seems to correspond to the views of many airline executives, that prices are set by market forces that can hardly be influenced by individual airlines. This seems to contradict with economic theory. How can this contradiction be explained?

As shown by Mason, in the short run there does not seem to be a strong relationship between cost changes and price changes however.<sup>4</sup> According to economic theory the pass-through of cost increases is indeed slow. In the long run cost increases are

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<sup>1</sup> Mr. Koopmans presented a paper he co-wrote with Rogier Lieshout. The paper is available on the Airneth website.

<sup>2</sup> Mr. Mason presented the work of Mr. Jim Paton (Cranfield University) who was unable to attend the seminar.

<sup>3</sup> Economic theory suggests different pass-through rates for different market types (perfect competition, oligopolies, monopolies and monopolistic competition). Not all aviation markets are of the same type. Therefore the pass-through of cost increases in one market may differ from that in another. In the short haul for instance, many markets are monopolies or oligopolies, whereas in the long haul many different airlines compete. For instance, if you want to fly to Beijing, you have more than 20 options to choose from.

<sup>4</sup> Airline pricing depends on a lot of factors, working in different directions. This makes it very difficult to isolate the pricing effect of a certain cost change and therefore to determine the pass-through rate of such changes.



likely passed through to the passenger. This means that practice and theory actually align quite well.

### **Oligopolistic markets, but no oligopolistic rents**

General consensus seems to be that aviation markets are oligopolistic. In a normal oligopoly you would expect oligopoly rents and highly profitable airlines. In practice airline profit margins are generally low. Although this seems contradictory, there are various reasons why margins can be low in oligopolistic markets:

- **Rents are used by legacy airlines to cover high employment costs.** A lot of airlines indeed do not make much money, but some do, especially the newer ones that are not affected by generous financial schemes for their employees. Ryanair's margin for instance has been around 20 percent for the last couple of years and easyJet has a target for individual routes of 12 percent. Legacy airlines on the other hand grew up in an age where they were protected by aviation bilaterals, and a lot of the rents were captured by the employees. British Airways for example has an enormous pension fund for their employees. The rents of legacy airlines are thus going into inflated payments to the staff. It is unlikely that such schemes can be sustained by the legacy airlines in the long run.
- **Overcapacity during economic downturns.** The airline industry historically over-orders aircraft when demand shows strong growth and load factors peak, e.g. at the peak of the economic cycle. As the new aircraft are delivered with a lag of about two years, much of the capacity arrives in the following low in the economic cycle. This means that there is overcapacity during the downturns, leading to relatively high costs and low revenues, leaving little or no profit at all. Airlines such as Ryanair overcome this by scheduling aircraft orders in such a way that new capacity arrives when the economy picks up.
- **Fear of market entry by competitors.** In competitive markets, market entry by a new airline generally results in overcapacity and reduced load factors for the incumbents. In contestable markets, which competitors can easily enter, the incumbents may choose not to incur the full rent, but instead to pass (part of) the rent through to the consumer to make it less attractive for competitors to enter the market. This means that at least part of the rent will not be captured by the airlines, resulting in lower profits.

### **The lumpiness of supply limits pass-through**

Several studies have assumed that price increases are most likely passed through in markets with low price sensitivity. There are however circumstances in which the pass-through of cost increases in such markets may be unwise as it would lead to capacity adjustments and therefore large demand effects, especially in the short term. When an airline operates at its break-even load factor, a small cost increase lowers demand to just below the break-even load factor. Often the airline is unable to adjust capacity by a small fraction due to the lumpiness of supply and is forced to reduce the flight frequency or cease the route altogether. So a small increase in airport charges can lead to pulling a service. As a consequence of that, you might get high demand elasticity, or, in other words: a big response to a small change in price,



certainly in the short term.

Because of this, regional airports are very sensitive about increasing their prices to airlines. Their customers are often the low cost airlines with even more lumpy supply than the traditional network carriers. Ryanair for instance operates only one type of aircraft to reduce costs. Airlines that operate multiple aircraft types can shift these between destinations, depending on demand. Suppose for instance, that an airline has a large aircraft flying to Spain and a small one flying to Greece. When the Spanish market is not doing very well but the Greek market is, the airline can swap aircraft. For the airline's home base, this does not really matter because the airline still operates the same amount of flights with the same amount of seats. But on the destination airports it can have a very large effect, due to a reduction in seatcapacity and therefore passenger volume.

In case an airline is forced to reduce capacity, competitors benefit from this in terms of increased load factors and higher prices. The reduction in supply also allows competitors to increase frequencies or entrants to enter the route, but only when they have the appropriate aircraft types available to do so.

### Pass-through depends on multiple factors

Koopmans showed that the level of pass-through depends on market type, type of cost increase, airport congestion, scope for cross-subsidization, the fairness of competition and the price sensitivity of demand. Above we pointed out that the lumpiness of supply may limit pass-through even in less price elastic markets.

The pass-through rate may also depend on the type of cost that is increased. Low cost carriers might have a low ticket price, but once you factor in all the additional (time)costs, the price difference with traditional carriers might become negligible. However, it was suggested that even experienced passengers may not take all costs associated with a trip into account. Passengers generally look at the base fare. Low prices attract passengers. This means that the pass-through of increases in cost items that are not taken into account by the passenger, may lead to more modest demand reactions than the pass-through of equal increases in the base fare.

### Suggestions for further research

- **Estimate the likely pass-through rate for different market segments.** A first estimation could be based on economic theory and empirical information.
- **Determine the level of pass-through in special situations.** Will the pass-through rate be different for small airports where services are lumpy, will it be different for long haul routes compared to short haul routes etc.?
- **Incorporate non-rational behaviour into economic models.** Economic theory always starts from a rational point of view, but people don't always behave rationally. For example, people experience the loss of a certain amount of money twice as important as the win of the same amount of money. This means that the pass-through of cost increases may lead to a stronger demand reaction than a similar decrease. Airlines might therefore be less motivated to pass-through cost increases, than cost decreases. Non-rational behaviour should be



incorporated into economic models to improve them. On the other hand, most of these psychological experiments have been done in the short run. What are the effects in the long run? It would be interesting to investigate psychological pricing and how customers react to a change in price.