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FACULTY OF SOCIAL SCIENCES

Institute of Economic Studies



BACHELOR THESIS

**Pricing in the Airline Industry**

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Year of defence: **2014**

## **Declaration of Authorship**

I hereby proclaim that I wrote my bachelor thesis on my own under the leadership of my supervisor, that the references include all resources and literature I have used and that this thesis has not been used to obtain any other university diploma.

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Prague, May 15, 2014

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Signature

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## **Bibliography reference**

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## **Extent of the thesis**

94,603 characters (with spaces)

80,360 characters (without spaces)

## **Abstract**

The main goal of this thesis is to introduce the low-cost airline model and the concept of predatory pricing together with their basic elements. For good understanding of the topic, the thesis introduces basic requirements that have to be satisfied in order for the pricing to be classified as predatory and means of testing for their presence. The theoretical background is further analysed in the review of six antitrust policies dealing with predatory pricing. Last, two predatory cases from the airline industry are reviewed in order to show the approach that is given allegations of predatory pricing in practice.

**JEL Classification** K21, L41, L93

**Keywords** antitrust, predatory pricing, low-cost airlines

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## Abstrakt

Hlavním cílem této práce je představit model nízkorozpočtových aerolinek a koncept predátorské cenotvorby společně s jejich základními prvky. Pro dobré porozumění tématu práce představuje základní podmínky, které musí být splněny, aby byla cenotvorba klasifikována jako predátorská, a dále prostředky, jakými je splnění těchto podmínek testováno. Teoretický základ je nadále analyzován v přehledu šesti antitrustových politik zabývajících se právě predátorskou cenotvorbou. Pro demonstrování toho, jaký přístup je věnován obviněním z predátorské cenotvorby v praxi, práce přezkoumává dva predátorské případy z průmyslu letecké dopravy.

<b>JEL klasifikace</b>	K21, L41, L93
<b>Klíčová slova</b>	antitrust, predátorská cenotvorba, nízkorozpočtové aerolinky
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# Bachelor thesis proposal

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<b>Proposed topic</b>	Pricing in the Airline Industry

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## Preliminary scope of work

I choose this topic as airline travel market has grown substantially over the last few decades and has been changing with the entrance of low-cost carriers that made airline transport much more affordable for general public.

In this thesis I would like to concentrate on pricing strategies of both low-cost and network carriers connected with the principles on which low-cost carriers operate in order to be able to charge lower fees than entrance carriers and thus attract customers. Special interest will be put on the analysis of pricing strategies of network carriers as a response to entrance of low-cost carriers and possible predatory pricing behavior aiming to eliminate the competition and to retain dominant position on the market.

The aim of this thesis is to show that network carriers do not engage in predatory behavior. As an actual example I am going to analyze European airline market and pricing strategies of European carriers with Ryanair and easyJet being the leading European low-cost carriers with high share of the market and Lufthansa, Air France, British Airways and Iberia being the biggest competing network carriers.

## Preliminary structure of work

1. Introduction
2. Background of the airline industry market
3. Pricing strategies in general
4. Predatory behavior in general
5. The case of European airlines
6. Conclusion

## Reference

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# Acronyms

<b>AAC</b>	Average avoidable cost
<b>AFAC</b>	Average fully-allocated costs
<b>ATC</b>	Average total cost
<b>AVC</b>	Average variable cost
<b>EC</b>	European Commission
<b>ECJ</b>	European Court of Justice
<b>EU</b>	European Union
<b>ICN</b>	International Competitive Network
<b>ICPAC</b>	International Competition Policy Advisory Committee
<b>LCC</b>	Low-cost carrier
<b>LRAIC</b>	Long run average incremental cost
<b>LRSAC</b>	Long run stand-alone costs
<b>MC</b>	Marginal cost
<b>NC</b>	Network carrier

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# Chapter 1

## Introduction

In the last 30 years, the market for air traffic has been changing rapidly. From conservative one that was served solely by large carriers with significant monopoly power it has been transforming into more open market offering its services to broader range of customers. That was achieved by the introduction of a low-cost carrier model bringing the possibility of air travel to low-yield passengers and making flying as a mean of transport more common. However liberalizing that has been, the market retained many of its past characteristics – large carriers still hold significant market power or control the market fully by forming alliances with other airlines. Moreover, there are very significant barriers to entry due to high fixed costs.

Throughout this work we will concentrate on the concept of predatory behaviour. We have chosen to analyse it in the airline industry because the structure of the market for air traffic creates a good environment for predation to be successful. In today's world economy, where there is an emphasis on healthy competition, the airline industry is in this respect moving slowly.

In upcoming chapters we will define predatory behaviour and means for testing it, review how different antitrust agencies deal with predation, and demonstrate our findings on two predatory cases.

# Chapter 2

## Main concepts

The low-cost airline model started operating in 1971 in the US and in 1985 in Europe with Southwest Airlines and Ryanair commencing their operations. For years, large network carriers (NC) did not consider newly established low-cost carriers (LCC) as a threat and not even as a competition and viewed them as more of a regional phenomenon – in Europe, Ryanair, being an Irish company, started mainly on the British Isles with main route London-Dublin and began expanding to the rest of Europe later. Since then, Ryanair has grown steadily and today it is the largest European low-cost airline (Barrett 2004). The most flown European route remained London-Dublin[11]. The LCCs were long perceived as creating its own market from new passengers who would not have flown with the network-carriers otherwise and not attracting current passengers. With increasing LCC market share, NCs, of course, were forced to recognize increasing competition and react to it.

In order to fully understand the topic we will have a closer look at the definition of low-cost and network airline carriers, their characteristics, cost structure and customers whom they primarily serve.

### 2.1 Low-cost carriers

The dominant strategy of LCCs is to be able to attract low-yield passengers via decreasing its costs and therefore being able to lower airfare while staying profitable and making this business model sustainable in the long-term. The most important

means through which low operating costs are achieved are:

- Internet reservation and purchasing systems
- Air fleet homogeneity
- Additional fees
- Use of secondary airports and quick turnaround
- No-frill flights

### **2.1.1 Internet reservation and purchasing system**

The whole booking and purchasing process is done exclusively via the internet without any need for airline or agency kiosks at the airports or elsewhere. This strategy is less technologically and time demanding and significantly simplifies the whole process for majority of customers. On-line reservation together with on-line check-in that is being implemented by more and more carriers allow for significant time savings and higher overall comfort. As opposed to network carriers that use both on-line as well as in-person booking, the carriers are reducing its operational costs by not having to pay additional rent and fees and to employ additional people.

Closely connected is the notion of overbooking. Large NCs very often offer and sell more tickets than there are seats available on the flight as a mean of compensation for no-show passengers. That way it is assured that the flight is always full. The negative side of this is that occasionally when there are fewer no-show passengers and the actual number of people exceed the flight's capacity some of the passengers do not get on the plane even though they bought a ticket. LCCs do not take no-show passengers into account and thus offer tickets only up to the flight's capacity.

### **2.1.2 Air fleet homogeneity**

The majority of LCCs build their air fleet from one or two types of aircraft only. Because most of the LCCs' activities are on a continent-wide basis, there is no need for long range aircraft and the most dominant are mid-size planes with lower



fuel consumption and flying capacity ranging most often between 5,000 and 6,000 kilometres (today one of the most widely used mid-size planes is Boeing 737-800 that forms the air fleet of both Southwest Airlines and Ryanair). The air fleet homogeneity significantly reduces the service expenses – service is easier because of the the sufficiency of a single-aircraft-specialized servicemen and better availability of components. Moreover, LCCs usually do not employ their own servicemen but rather outsource to external firms that can supply them with professional workers that are already highly trained. Overall, an expense reduction and higher time efficiency is achieved.

### **2.1.3 Additional fees**

Very significant source of LCC revenues are additional fees charged for services that are not included in the airfare itself. In the case of LCCs, a fee for large luggage is the most common one as only on-board luggage is included in the original fare. The number of fees and their amount is very large and, for example, Ryanair among others includes the following<sup>1</sup>: infant fee, fee for carrying infant/child equipment, sport equipment, musical instrument, flight change fee, name change fee. Most of these range between € 30 and € 50 if purchased during the initial on-line booking but, for example, fees for flight and name change can amount up to € 250 which usually by far exceeds the airfare itself. Especially Ryanair is quite infamous for its fee policy and often has to face allegations of “unethical parasitizing on its customers”.

### **2.1.4 Use of secondary airports and quick turnaround**

Another important factor of LCC functioning is, together with air fleet homogeneity and on-line systems, the use of secondary airports. Passengers can be generally divided into two groups – business and leisure<sup>2</sup>. For business passengers one of the most important factors considered is accessibility to and from origin and destination airports, while price is usually the most important focus of leisure passengers. LCCs primarily rely on low-yield leisure customers who prefer lower price to the

<sup>1</sup><http://www.ryanair.com/en/terms-and-conditions/regulations-tableoffees/>

<sup>2</sup>This distinction is in more detail covered in Section 2.3

convenience of arriving at the destination's city main airport where, as anticipated, better accessibility from and to the city center is expected. The use of secondary airports is usually a mutually beneficial agreement making both parties better off – the carriers pay lower airport fees and avoid large airports where purchase of slots and gates can be extremely costly or they may even be no slots available. The secondary airports, on the other hand, increase its utilization and revenues and thus its position on the market where large hub airports are dominating. The lower overall utilization of airports together with the effort to minimize check-in time helps LCCs to retain low airport turnaround and increase the efficiency of its fleet and the whole check-in process. The airports compensate for lower collected fees with sales in airport restaurants, cafés and duty-free shops that cover large share of their revenues and also out-of-town public transport as well as building new infrastructure is stimulated by using secondary airports because they may be situated up to 100 kilometres from the city center.

### **2.1.5 No-frill flights**

Passengers flying with LCCs are forced to sacrifice part of their comfort in exchange for better prices they get. There used to be no in-advance seat reservation system as is the case for NCs. LCCs have lately included this into their service portfolio but they do not offer it as a free service to go along with the ticket booking but an additional fee is required. There is also no division between business and economy class and other on-board services are generally much poorer than in the case of NCs. In order to minimize costs, LCCs offer virtually no free food, beverages or press. All refreshments as well as press and duty-free products are available for purchase at the staff during the flight.

## **2.2 Airline pricing**

The pricing scheme used by LCCs is important in deciding when to book a ticket. General perception of airline pricing is that the fares follow the so-called "low-before-high" model (Piga & Bachis 2007) – as the departure date approaches the airfare

increases and for passengers that view price as the key decision factor it is therefore most profitable to buy as early as possible. This is also stressed by the airlines themselves – for example easyJet states the following on its website:<sup>3</sup>

*“In general, our fares increase as the departure date gets nearer, so to get the best deals make sure you book as early as possible.”*

It is generally assumed that airfare is monotonically increasing with the departure date approaching but it does not always have to be the case. Piga & Bachis (2007) noticed that some of the airlines undergo fare reduction in the period of 4–2 weeks before departure and pricing schemes are rather U-shaped. It is in this case the low cost of on-line reservation systems that allows for the price changes to be much more frequent because menu costs are reduced to minimum. Moreover, frequent price changes are not only the case of LCCs but also of large NCs. But for LCCs the magnitude of changes tends to be more dramatic (for example, Ryanair’s fares 4 days and 2 months prior departure can be in a 2:1 ratio) and it is not unheard of that very close to the departure date NCs offer fares that are below the LCC level. As well as the price itself, the volatility of airfare also changes as the departure date approaches – prices are more stable in the beginning and in time tend to change by higher amounts. In Figure 2.1 we see the share of decreasing, stable and increasing fares in different time periods for Ryanair:

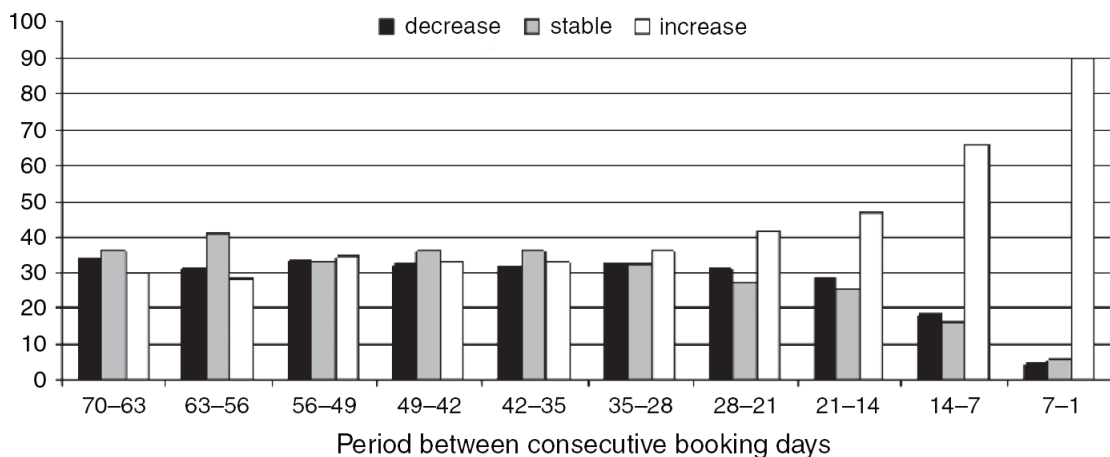


Figure 2.1: Share of decreasing, stable and increasing fares (Piga & Bachis 2007)

<sup>3</sup><http://www.easyjet.com/en/book/aboutourfares>

and we can see exactly what we discussed above – in the early periods the share of stable fare is higher (therefore volatility is lower). Moreover, it is roughly equally likely that a decrease and increase will occur. With approaching departure date, the volatility rises and the share of price increase rises as well. In the first 6 periods depicted in Figure 2.1, the share of price increase rises only slightly and it is only in the last 4 periods (that is the last four weeks before departure) when the likelihood of fare increase rises rapidly up to 90% in the last 7 days prior departure.

### **2.3 Business vs. leisure passengers**

As already mentioned, important is the differentiation between business and leisure passengers. While leisure passengers usually fly only occasionally and the aim of their journey is often a trip or visiting a relative, business passengers fly very often and the purpose is strictly business without personal errands. This is also reflected in the preferences of both passenger segments and their willingness to pay for them. The key factor for a businessman is to get to his destination on time but also to be able to miss a plane and easily book onto the next one. Large NCs usually offer better daily flight schedules with more frequent flights and also the possibility to rebook free of charge. LCCs usually cannot meet business passengers' requirements due to lower number of daily flights and inflexibility of re-booking. Business passengers also require a certain level of comfort and on-board service in order to be able to work on plane as well. In addition, businessmen usually don't pay for the flights themselves. Instead the tickets are paid for by their employees. Therefore, frequent flyer programs offered by most large airlines that offer substantial bonuses to loyal customers, are convenient. This requirement is again not met for LCCs. There was a questionnaire initiated by Ostrowski and O'Brian (1991) to compare four criteria from the point of view of both leisure and business passengers. A relevant importance with respect to each other was assigned to each criteria (the total score is 10). We can see that what we discussed earlier holds – price is the most important factor for leisure passengers while for business it is convenient flight schedule. Price ranked second with importance and comparable to frequent flyer programs. For the

numbers see Table 2.1 (Ostrowski & O'Brian 1991).

Table 2.1: Comparison of preferences of business and leisure passengers

<b>Criterion</b>	<b>Leisure travellers</b>	<b>Business travellers</b>
Price	3.9	2.1
Convenient flight schedules	3.2	4.5
Frequent flyer programs	1.5	2.0
Standing of airline	1.5	1.5

Another questionnaire was performed by British Consumer's Association. In this research, 5,250 business travellers were asked about factors that most influence what airline they are going to choose and also about the importance that each factor represents. The results of this research support the issues discussed above – flight schedule and punctuality are very important. So is overall comfort of flying. For the numbers see Table 2.2.

Table 2.2: Key decision factors for business passengers

<b>Factor</b>	<b>Importance index</b>
Flight schedule	8.27
Safety	8.03
Punctuality	7.22
Comfort, leg room	6.84
Efficient check-in	6.79
Frequent flyer programs	6.59
Cabin staff	6.38
Free choice of seat	6.33
Cheapest price available	5.54
Use of lounge	5.45
On-board meals/drinks	5.28

## 2.4 Predation

The main concept of this thesis is a potential predatory pricing behaviour conducted by NCs with the aim of eliminating competition, often in a form of a new low-cost entrant. We generally expect that if this behaviour is present it is present shortly after the new LCC enters the market or gains a market share so high that it could constitute a threat to the incumbent carriers. Those may try to fight the new competition either by aggressive or non-aggressive pricing strategies that are both in line with antitrust regulations and laws. Alternatively, they can take advantage of their market position and significantly better financial performance and try to force the new entrant out of the market by illegal predatory conduct. Critics focusing on major airlines' pricing strategies during the entry of a new market player and on incumbent players' response usually identify four stages of predation (Bamberger 2006):

1. Entrance of a new LCC on routes that were previously served primarily by large network carriers.
2. Response by major carriers in terms of significant fare reduction or capacity increase.
3. Failure of the new entrant to stay profitable and subsequent market exit after being forced to further decrease its fare in order to be able to compete with incumbent carriers.
4. Dramatic capacity decrease or fare increase at or above the original levels that is supposed to achieve recoupment of the losses incurred as a result of the predatory pricing strategy.

The fare reduction in step 2 can result in the reduced fare being under airline's average operating cost and the carrier is then for a certain period of time sacrificing revenues that it would otherwise earn. Even though LCCs' costs are significantly lower, in order to compete with the NCs' reduced fare and to attract passengers they often have to move their fares near or below its own average operating cost as well. But for them this situation is not sustainable in longer term.

Alternative, but similar definition of predation was presented by the U.S. Department of Transportation (DOT) in its 1998 Statement of Enforcement Policy Regarding Unfair Exclusionary Conduct. The statements says the following (Eckert & West 2006):

*“DOT will consider that a major carrier is engaging in unfair exclusionary practices if, in response to entry by a new carrier into one or more of its local hub markets, it pursues a strategy of price cuts or capacity increases, or both, that either (1) causes it to forego more revenue than all of the new entrant’s capacity could have diverted from it, or (2) results in substantially lower operating profits (or greater operating losses) in the short run than would a reasonable alternative strategy for competing with the new entrant.”*

Finally, three basic components based on which a predatory conduct can be identified were listed:

1. Fares so low that they are a threat to an equally efficient rival.
2. Recoupment of losses incurred by the carrier as a result of the predatory conduct.
3. Clear intent and no legitimate justification for the pricing strategy.

In general, predatory behaviour may be seen as irrational because of the assumption that it is most often less costly to control potential competitors by acquiring them rather than by trying to drive them out of the market. That is, of course, in the case when both a predatory conduct and a merger or acquisition that is supposed to result in higher monopolization go unspotted. Because M&As are expected to be spotted more easily than predation, the latter is, in the end, viewed as a cheaper mean of obtaining extensive market control (Williamson 1977). Because of that, predation is, mainly in the US, considered to happen rarely and also to be very rarely successful (Morrison 2004).

The definition and components of predation are generally agreed upon and differ only in details. The same does not apply for the means of testing them.

## Chapter 3

# Testing for predation

Historically, there has been a large dispute between economists, lawyers and policy makers about which measures are the best for assessing predation and what data should be used in their calculation. The measures that are used today differ, in certain aspects, country from country and case by case.

Two basic measures are cost-price comparison that is supposed to indicate whether the alleged predator for some period of time operated in a loss or not, and recoupment. Inability to prove the latter is usually why many of the predatory allegations fail at courts. Some policy makers therefore argue that recoupment should be assessed first and the cost-price comparison should be performed only when its probability is sufficiently high. Despite the possible reasonable justification for this approach we will consider the cost-price comparison to be the building block of a predatory pricing analysis.

Even though cost-price comparisons together with the possibility of recoupment play, in many cases, the most important role in testing, it is important to stress that the market structure should be considered first. That way competitive markets can be excluded and only markets with characteristics that allow for predation to be successful are further analysed.



## 3.1 Cost-price test

The claim of predatory pricing is in this case analysed by looking at a cost-price relationship. As explained in chapter 2, a key component of predation is a dramatic price reduction that can go as low as the company's costs or below. Below-cost pricing is, in most cases, considered a serious evidence for predation unless the presumed predator is able to provide credible justification for its actions and successfully defend itself. Those justifications may include the need to reduce prices in order to be able to introduce a new product to the market or to enter a completely new geographical market. But below-cost pricing is not a sufficient condition for proving pricing scheme to be predatory – other tests have to be failed and usually there has to be a long-term harm to consumers. Five mostly accepted cost measures that can be used were established (ICN 2012, Moisejevas 2012) as follows:

1. Average Variable Costs (AVC)
2. Average Avoidable Costs (AAC)
3. Long-Run Average Incremental Costs (LRAIC)
4. Prices higher than Average Variable Costs

### 3.1.1 AVC – Areeda-Turner test

The concept of cost-price testing using AVC was introduced in 1975 by Phillip Areeda and Donald F. Turner (Areeda & Turner 1975). In order for the pricing scheme to be found predatory, the harmed firm has to be at least equally efficient as the alleged predator. A firm that is less efficient in its operations would eventually be driven out of the market by its inability to compete. Further a division between predating companies and simply profit-maximizing (or loss-minimizing) companies has to be established in order to be able to successfully classify the case. One of the conditions of predation is that there has to be a sacrifice undertaken in the short-term that is supposed to bring positive long-term results. Not all firms that sacrifice something in the short-term can be classified as predators, though. A situation

may arise when a firm is deliberately operating in a loss in seek of future profit while being in an environment where it does not have sufficient power to engage in potential predation or an environment where the success of such behaviour is not even possible.

The strategy chosen by the company depends on the market in which it operates and potential barriers to entry. In the case of non-existent or negligible barriers the number of potential new entrants will be higher. Currently dominating firm would thus have an incentive to set the prices low permanently in order to discourage continuous efforts of new competitors to enter its market. It would keep the prices high only in the case when income from charging a profit-maximizing price in a market shared with competitors exceeds income coming from charging lower prices that eliminate competition and help the firm retain its dominant position. On the other hand when barriers to entry are high the dominant firm would reduce its price in order not to allow the new entrant to establish itself in the market. At the same time the predator is sending signals to future potential entrants that it could enter in a “predatory price-war” with them as well.

As a suitable cost benchmark Areeda and Turner consider the use of marginal cost and conclude that pricing at or above marginal costs should not be considered predatory because it, in the end, eliminates only less efficient competitors and leads to an efficient resource allocation. Pricing below marginal cost inevitably brings losses to the dominant firm, destroys competition and should be viewed as illegal. Theoretically there are a few exceptions to this but distinguishing them from other similar scenarios that are already deemed as illegal is usually so costly and cumbersome that they are automatically rejected. Among these exceptions is for example pricing below marginal cost aimed at matching competitor’s unlawful price. However, it is usually extremely difficult to differentiate such situation from pricing below marginal cost that is supposed to match a low rival price that has been set lawfully. Pricing below marginal cost can be, for instance, permitted for some limited period of time after introduction of a new product. Its desired effect is attracting customers to these new products before raising the price to normal levels – this is called promotional pricing and it does not hurt competition and only allows the consumers to

evaluate new products. That is why we consider the efforts to match lawful prices with pricing below marginal cost illegal. On the other hand, promotional pricing conducted by a dominant firm can be considered predatory itself when it occurs in times of entry of a new rival or price promotion of current rivals.

Areeda and Turner also acknowledged that it is very often hard or impossible to correctly calculate what a firm's marginal costs are and it is necessary to use some kind of a proxy. As the best possible choice they identified average variable cost (AVC) and made it a primary measure. Cost-price testing using AVC is often referred to as "Areeda-Turner test". Because in most cases average variable cost is below marginal cost we can safely establish that whenever the alleged predator fails the average variable cost test, he would fail the marginal cost test as well.

### 3.1.2 AAC – Extension to Areeda-Turner test

The 1975 article on predation and the use of average variable costs was further elaborated in 1996 by William J. Baumol (Baumol 1996). Baumol puts in question previous concept of marginal cost and argues that it does not necessarily hold that any price below marginal cost should be deemed as predatory and that any price that is at or above marginal cost should be considered having a legitimate business justification. The claim is that a simple comparison of price and marginal costs is not enough to decide on the legitimacy of pricing.

As noted in previous section, any price above the relevant cost measure cannot be deemed as predatory because it does not prevent entry or force the exit of a firm that would be equally or more efficient than the supposedly predating firm. This is based on the fact that whenever we have firms A and B both producing output Q and holds that:

$$P_A \geq AVC(Q)_A \geq AVC(Q)_B, \quad (3.1)$$

this pricing strategy cannot drive firm B out of business because it can always charge price  $P_B$  such that

$$P_A \geq P_B \geq AVC(Q)_B, \quad (3.2)$$

so it is able to successfully compete in the market.<sup>1</sup>

We will now work with the concepts of incremental and avoidable costs:

- Incremental costs are costs caused by increment in output.
- Avoidable costs are costs that the firm can avoid by choosing a different strategy.

Because an increase in output almost always includes incurring some kind of sunk costs that cannot be avoided by market exit the following holds:

$$AAC \leq AIC. \quad (3.3)$$

Because predation is very often characterized by both a significant price reduction and capacity increase (the price reduction alone is usually not considered to be sufficient) an average avoidable cost measure in this case describes costs incurred that could have been avoided by not producing the additional output including fixed costs directly caused by the predatory strategy. Mainly these are costs from adding extra capacity of producing extra output. Baumol then concluded that an average avoidable cost of a potential output increment is a measure suitable for testing. In addition, it is obvious that whenever we are testing for predation using average incremental cost and the tested price passes the test there is no need for introducing average avoidable test because the condition of above-AVC pricing is automatically satisfied as well.

### 3.1.3 LRAIC

A little different concept than AAC is long-run average incremental costs (LRAIC). It includes both variable and all fixed costs incurred in producing a certain output increment including sunk costs. Only common costs that cannot be assigned to any particular product are excluded. The same applies in case of products for which there were substantial resources spent in its development – the costs of these resources are included as well, even though they were incurred before the alleged predation took place.

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<sup>1</sup>For now, we will assume that average variable cost is the suitable cost for testing.

LRAIC is, as a cost measure, suitable for analysing multi-product firms or firms that have very high sunk and very low marginal costs. That way, producing any additional increment in output will cost the company very little money and the price is almost certainly going to pass the cost-price test. As an example can serve telecommunication or software companies where the initial development of a particular software or building a ground telecommunication network is very costly but once they the companies are established on the market the cost of distributing the services to additional customers is very low or negligible (ICN 2008). The European Commission also acknowledged LRAIC as a suitable measure and commented the following (Grout 2001):

*“Cost structures in network industries tend to be quite different from most other industries since the former have much larger common and joint costs. For example, in the case of the provision of telecommunications services, a price which equates to the average variable cost of a service may be substantially lower than the price the operator needs in order to cover the cost of providing the service.”*

Because of inclusion of sunk costs, LRAIC is usually higher than both AVC and AAC but lower than ATC. LRAIC is also easier to determine because both variable and fixed costs are included irrespective of its classification. One of several drawbacks of LRAIC is that it favours multi-product firms over single-product for which there are no common costs and LRAIC equal ATC. Ritter (2004) believes that the right approach would be if multi-product distributed the common costs in such a way that every product would carry a certain share. That way the “discrimination” against single-product firms would disappear.

There are several alternatives to LRAIC that could be used and that deal with large common costs (Grout 2001):

1. **Long run stand-alone costs (LRSAC)** – in the LRSAC method common costs are distributed among individual products based on the share of these costs that they use. To illustrate let’s assume that there are two products  $A$  and  $B$  and their production uses the same service whose costs constitute the

common costs in our example. Moreover, let's assume that the per unit cost of that service is the same for both products. Then if there is twice as much of *A* than there is of *B*, *A* will also bear twice as much common costs.

2. **Average fully-allocated costs (AFAC)** – in this case the share of the common costs is pre-determined and doesn't depend on the actual output and actual share of costs.

### 3.1.4 Pricing above AVC or AAC

Schemes when the resulting price is either between AVC (or AAC if it's chosen as a relevant cost measure instead) and ATC or above ATC are in more detail covered in chapter 4. Generally even such pricing can in fact be predatory but the cost-price test is not sufficient to prove it. In practice, many courts emphasize the approach when in the case of below-cost pricing it is up to the defendant to prove the legitimacy of the pricing and in the case of above-cost pricing it is the plaintiff that needs to present additional proof of predation.

### 3.1.5 Additional considerations

#### Opportunity cost

When calculating cost to use in Areeda-Turner test the opportunity cost should be included as well (Baumol 1996). Because opportunity costs arise in most cases, calculations that do not take them into account would be illegitimate. We can generally distinguish two different forms of opportunity cost (Baumol 1996):

- Opportunity cost of **owner-supplied inputs** arising from investment needed to produce additional output as a result of lower prices.
- Opportunity cost of **revenue forgone** that shows how much revenue the firm loses by selling its old output at new lower prices instead of the old ones.

Baumol in his work concluded that when performing Areeda-Turner cost-price test it is necessary to include all opportunity costs of owner-supplied inputs but to avoid

inclusion of opportunity costs of revenue forgone because it is not a good indicator of whether the new price can be a threat to efficient rivals or not.

### **Multi-product of multi-period pricing**

In addition to the problems of choosing the appropriate cost measure we recognize several more drawbacks. It generally holds that the period for which we analyse firm's costs is equal to the period in which the alleged predatory pricing was in power – that is, if we suspect a firm for pricing below its relevant cost measures for 2 months, we analyse that measure for the same 2 months. Furthermore we analyse only the product whose price was reduced. However, in multiple cases we are in a need of considering combinations of products or sequences of time periods instead:

- **Combination of products** – to illustrate, let's assume that a firm is selling two different products. In order to correctly test for predation we have to compare price of each product with its own average cost measure as well as the price of combination of both products with a combination of its costs.
- The same applies when we are considering a **sequence of time periods** with different prices charged for one product. Even though the price in individual periods can pass the cost-price test, the combination does not necessarily have to so we again must test each period individually as well as their combination.

## **3.2 Two-Tier Approach**

Another approach for testing was introduced in 1979 by Joskow and Klevorick (Joskow & Klevorick 1979). Instead of building on the initial 1975 Areeda-Turner test that focuses on the short-term and basically ignores the long-term consequences of predatory pricing, they emphasize evaluating long-term effects as well. In addition, they recognize the importance of analysing costs associated with wrong classification of the actual price reduction. Two different types of error can arise:

- **False positive error** – price reduction is considered predatory, even though it isn't.

- **False negative error** – price reduction is considered not predatory, even though it is.

The following was noted with regard to the costs of errors (Joskow & Klevorick 1979):

*“Other things being equal, the more costly entry is and the longer it takes for new firms to enter a market in response to monopoly prices, the higher are the costs of false negative errors and the lower the costs of false positive errors.”*

Furthermore, they linked the short-term monopoly power with the probability of being involved in pricing predation. Clearly the higher the short-term monopoly power, the larger incentive would the dominant firm have to price this way. However, this, of course, does not tell us that whenever a firm has substantial monopoly power in the short-term, any price reduction should be viewed as predatory. It only indicates that for firms with such a power the probability of a certain price reduction being predatory is higher.

Joskow and Klevorick reasoned that it is not possible to establish one universal predation test that could be applied to all cases. The reason for that was that the markets in which individual cases occur can differ substantially and such a universal rule would be highly inefficient. Instead they emphasized a two-tier approach that would make the probability of false positive or false negative error low whenever its cost is high in the relevant market.

### **3.2.1 The First Tier**

The first tier is designed to analyse different market structures and functioning, and eliminate markets where the likelihood of successful predation is low. There are three main conditions that usually have to be satisfied in order to classify the market as a one where predation is likely to appear and be successful (Elzinga 2001):

1. The alleged predator’s market share is significant.
2. Barriers to entry are high.



3. Supply elasticities of existing rivals are low.

Only cases in which these conditions are satisfied and success of predation is possible will be processed into the second tier of the analysis.

This approach significantly decreases costs of false positive errors that would have to be incurred because as stated above this approach directly excludes cases where those costs are high. On the other hand, a drawback of this approach is that the conclusion of the first tier depends exclusively on the judgement of the court or agency that is analysing each case. Three examples of such cases taken directly from the work of Joskow and Klevorick are presented in the appendix.

### **3.2.2 The Second Tier**

Assumption of the second tier is that the analysed firms have already been assessed as firms with a hypothetical incentive to engage in predatory pricing and the market structure allows for such a behaviour. The analysis is very similar to the cost-price testing discussed above with the exception that Joskow and Klevorick argue that not a single one of those rules itself is a satisfactory basis for successful determination of a predator.

Again, pricing below AVC is considered as a suitable measure for proving predation. However, greater impact is put on the long-term effects. The reason for that is that a price cut resulting in prices below AVC can truly lead to nothing else than short-term loss that is compensated for in the long-term. Joskow and Klevorick claim that pricing below AVC is sufficient but not necessary condition of predation.

Since only firms eligible for predatory pricing are analysed in the second tier, pricing between AVC and ATC is also considered predatory unless the firm can prove that it maximizes its short-term profits. The reason for this is that even when a dominant firm that is maximizing its short-term profits is threatened by an entry of a new rival and as a response to this threat decreases its price it is unlikely that the decrease would result in prices below ATC. This measure is marked as primary in the second tier analysis. But because it is sometimes easier to calculate AVC than ATC, and when prices are shown to have been reduced below AVC, there is no

need to calculate total costs as well.

Pricing above ATC can potentially also be assessed as predatory but it is often not possible to prove it. In addition, analysis using this cost measure significantly increases the probability of false positive error. In order to be able to correctly recognize predation using total costs we would, for example, have to determine a minimal time period for which the new price should stay at the reduced level. In order to check such an assumption we would be able to assess the predatory practice only after it had already been in action for some time. That makes this measure useless in practice because cases initiated while the alleged predation is still in action could not be fully analysed.

### 3.3 Output restriction, MC and AC rules

Third approach that we will cover is the one introduced in 1977 by Oliver E. Williamson (Williamson 1977). It is again partly constructed as a response to Areeda & Turner (1975) so it touches some of the concepts introduced earlier but as well as Joskow and Klevorick emphasizes the long-term effects rather than just concentrating on a static model. However, Williamson also introduced some concepts of his own and established 3 rules designed to put restrictions on the alleged predator in the period after a new entrant entered the market. He further stressed that a dominant firm's behaviour that is aggressive can be characterized by production of maximum possible output given the actual rule. In the upcoming sections we will review Williamson's reasoning regarding these three rules:<sup>2</sup>

1. Output restriction rule
2. Marginal cost rule
3. Average cost rule

The most important among these three is output restriction rule because compared to the others it is much easier to enforce it because of high difficulty of computing

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<sup>2</sup>For more detail see pages 293–302 of Williamson (1977)

marginal and average costs where inclusion of individual components is in many cases questionable.

### 3.3.1 Rule 1 – output restriction rule

The output restriction rule takes into account pre-entry output of a dominant firm and for a certain in-advance-specified period of time puts a cap on post-entry output:

$$Q_{post} \leq Q_{pre} \quad (3.4)$$

Two scenarios can occur – when the post-entry output equals the pre-entry one and when it is lower. Whichever occurs, it has to, at the same time, satisfy the following condition:

$$P > AVC, \quad (3.5)$$

only such price is considered non-predatory. In the simplified model presented by Williamson the dominant firm chooses post-entry output equal to the pre-entry one. The reasoning for that can be explained in Figure 3.1 where we see demand curve  $D$  and residual demand curve  $D'$  that shows the output that is left to the new entrant. We expect the dominant firm to select its output  $Q_0$  in a way that allows at maximum zero profits for new entrants. Such an output can be found at a point where the residual demand curve is tangent to long-run average cost curve. This point is denoted as  $T$ . In this case, the best of the possible scenarios for the entrants is to break even, because if they were to choose either lower or higher output, the residual demand curve would be at every point below the long-run average cost curve. In the case when dominant firm would choose output below  $Q_0$ , the residual demand curve would shift to the left and allow new entrants to generate positive profits.

Alternatively, a situation in which new entrants supply large output might occur. When the dominant firm decides to keep its output unchanged the excessively high market demand will drive prices down. If the prices drop below the average variable cost, the firm is required to reduce its output below the pre-entry levels in order to increase market price in a such a way that 3.5 is satisfied.

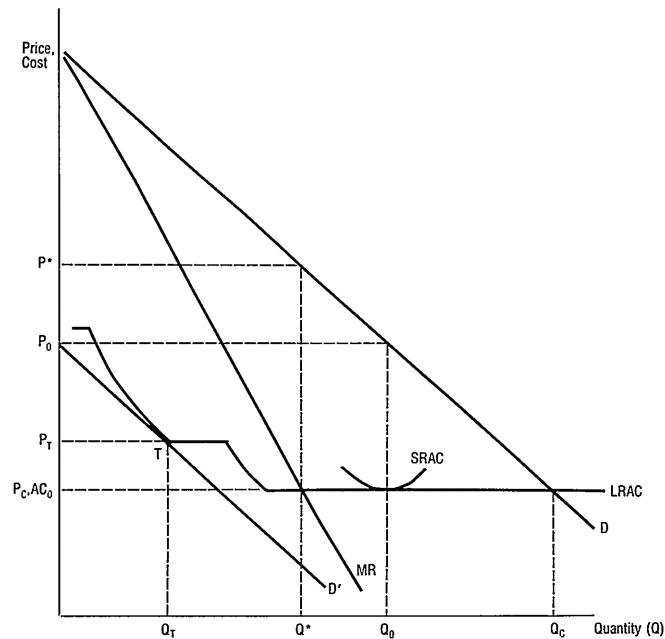


Figure 3.1: Output restriction rule (Williamson 1977)

### 3.3.2 Rule 2 – marginal cost rule

In this scenario we suppose that a dominant firm is allowed to increase its output after an entry of a new competitor but can do so only as long as the following condition is satisfied:

$$P \geq SRMC. \quad (3.6)$$

The reasoning behind this rule is depicted in Figure 3.2. The optimal output scale is at the point of tangency of  $D'$  and  $LRAC$  curve but the difference is that this time the residual demand curve  $D'$  is determined as a difference between demand curve  $D$  and short-run marginal cost curve  $SRMC$  rather than as a difference between  $D$  and pre-entry output. In our case it is the point of tangency in which the  $SRAC$  is minimal – that is, point  $Q_M$ . The dominant firm further determines its pre-entry output such that it maximizes its profit – that point can be seen in the graph as an intersection of marginal revenue curve  $MR$  and short-tun marginal cost curve  $SRMC$  corresponding to the scale  $Q_M$ . That is, in our case, we are looking at point  $Q_2$ . In an event of market entry with entrant's output  $Q_T$ , the dominant firm will move along its  $SRMC$  curve and would operate at a point where price is equal to

marginal cost – output  $Q_0$  is reached because if the dominant firm supplies  $Q_0$  and the entrant  $Q_T$  than the relevant market price is  $P_T$ . To conclude we can say that the new entrant would not enter the market unless the price exceeded  $P_2$  because then the dominant firm wouldn't be able to eliminate positive effects for an entrant.

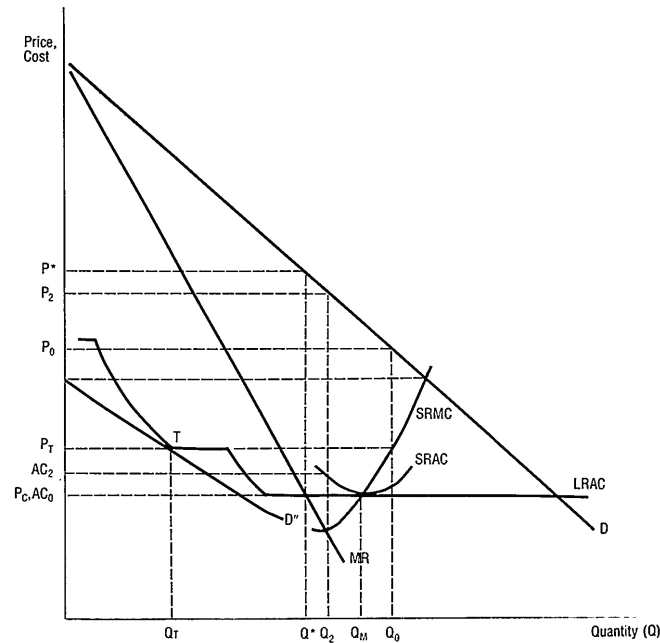


Figure 3.2: Marginal cost rule (Williamson 1977)

### 3.3.3 Rule 3 – average cost rule

The reasoning behind the average cost rule is basically the same as for marginal cost rule. Only *SRMC* curve is interchanged for *SRAC* curve and the following condition has to be satisfied:

$$P \geq SRAC. \quad (3.7)$$

### 3.3.4 Additional remarks

Williamson also raised another issue – suppose that the dominant firm is simply profit-maximizing in every period without regard to adjusting the post-entry price and output with respect to their pre-entry levels. There are three possible scenarios:

- New entrant keeps its post-entry output unchanged and dominant firm maximizes its profits by setting the marginal revenues equal to marginal costs.
- Both new entrant and a dominant firm assume that the other is going to keep its output unchanged.
- New entrant takes market price as a parameter and adjusts output such that price always equals SRMC.

Should such a strategy also be evaluated based on the rules explained above (mainly the output restriction rule)? As it turns out, for non-strategic profit maximization practices the consideration of the output restriction rule is of no importance whatsoever because these scenarios will always lead to output reduction.<sup>3</sup>

### 3.3.5 Welfare analysis

The three rules can be compared with each other in terms of welfare effects and it can therefore be evaluated which one is socially the most beneficial. We will cover this very briefly.

Generally the welfare effects can be divided into two groups – pre-entry and post-entry effects. In case of a shift from output restriction rule to marginal cost rule we see the firms to reduce its output but at the same time also the cost measures increase (in this case average cost). Therefore we identify two different types of loss. Firstly loss attributable to output reduction and secondly loss attributable to higher average cost. It is more difficult to say which of the cost rules is better in terms of pre-entry welfare but we can safely say that both are dominated by the output restriction rule.

As for the post-entry effects it is sufficient to concentrate on cost differences because post-entry output will be the same under all rules. We therefore evaluate individual average costs for each of the rules 1, 2, 3 and conclude the following:

$$AC_1 < AC_2 < AC_3. \quad (3.8)$$

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<sup>3</sup>For more detail see pages 302–304 of Williamson (1977)

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When taking into account both pre and post-entry welfare effects the ranking is as follows – output restriction rule is the best one, marginal cost rule is most likely second (better than average cost rule in post-entry and probably better in pre-entry welfare effects) and average cost rule most likely third.

# Chapter 4

## Legal analysis and case studies

The original aim of this work was to:

1. Develop a framework for efficient testing of predation and perform it on cost data of European low-cost airlines.
2. Design an econometric model that would analyse LCC as well as NC pricing schemes to support the claims in Section 2.2.

In reality, it was not possible to perform any of them because of unavailability of data. In the case of a testing framework the data regarding airline's costs are confidential. The analysis would require estimates that would be very unreliable and could differ substantially from reality. In the case of an econometric model a dataset of periodic (ideally daily) airfare would be required. The airfare would have to be categorized by airline, route and also departure time in order to assure a reasonable comparability of different flights. Building our own dataset would require very complex long-term data gathering. That would unfortunately by far outreach our possibilities. Alternatively, we could use existing datasets – that would require purchasing an access to one of a few databases offering historical airfare.<sup>1</sup> This time, it would by far exceed our budget.

Instead, we look more closely on the cost tests described in Chapter 3 and on other concepts needed to prove predation. Firstly, we review legal approach taken

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<sup>1</sup>For example <http://centreforaviation.com/data/>



by individual countries towards predatory behaviour. Secondly, we more closely analyse two of the most widely-known airline predatory cases.

## 4.1 International Competition Network

The International Competition Network (ICN) is a global informal antitrust network initiated by top senior antitrust agency officers, and a successor of International Competition Policy Advisory Committee (ICPAC) whose members first proposed ICN's formation with emphasis on:

*“... greater convergence of competition law and analysis, common understanding, and common culture.”<sup>2</sup>*

ICN's aim is to make antitrust enforcement more effective in the highly globalized economy. It was formed on October 25, 2001 by officials from 14 states – Australia, Canada, European Union, France, Germany, Israel, Italy, Japan, Korea, Mexico, South Africa, United Kingdom, United States, and Zambia. Since its establishment it has grown significantly and it is currently a network uniting 319 governmental as well as non-governmental antitrust bodies. The ICN's work is fragmented into 5 working groups:

1. Cartel Working Group
2. Merger Working Group
3. Unilateral Conduct Working Group
4. Advocacy Working Group
5. Agency Effectiveness Working Group

The topic of predatory pricing is covered by the Unilateral Conduct Working Group. In 2007, the Group initiated a questionnaire covering predatory pricing analysis, justifications, defences and enforcement. We further look at responses by some of the members, and analyse and compare how predatory pricing is treated. The

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<sup>2</sup><http://www.internationalcompetitionnetwork.org/about/history.aspx>

responses (ICN questionnaire 2007) are based partly on existing laws and regulations and partly on past cases. In the comparison we include the responses of the European Commission<sup>3</sup>, Germany<sup>4</sup>, France<sup>5</sup>, the United Kingdom<sup>6</sup> and the Czech Republic<sup>7</sup>. Further, in order to be able to compare the European antitrust policy with the rest of the world, we include the response of the United States<sup>8</sup>.

### 4.1.1 European Commission

The relevant laws on predatory pricing can be found under article 102 of the Treaty on the Functioning of the European Union. This article plays an important role in antitrust regulations of all EU members that we cover. There are four essential components important in assessing potential predation:

- Sacrifice
- Foreclosure
- Strengthened market dominance
- Recoupment

In a case against a Dutch chemical company AKZO in 1985 the ECJ stated the following (ECJ 1991):

*“Prices below average variable costs (that is to say, those which vary depending on the quantities produced) by means of which a dominant undertaking seeks to eliminate a competitor must be regarded as abusive. A dominant undertaking has no interest in applying such prices except that of eliminating competitors so as to enable it subsequently to raise its*

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<sup>3</sup><http://ec.europa.eu/competition/index'en.html>

<sup>4</sup>The Federal Cartel Office ([http://www.bundeskartellamt.de/EN/Home/home\\_node.html](http://www.bundeskartellamt.de/EN/Home/home_node.html))

<sup>5</sup>The Conseil de la concurrence (<http://www.autoritedelaconcurrence.fr/user/index.php>)

<sup>6</sup>Competition and Markets Authority (<https://www.gov.uk/government/organisations/competition-and-markets-authority>)

<sup>7</sup>Czech Office for the Protection of Competition (<http://www.uohs.cz/en/homepage.html>)

<sup>8</sup>U.S. Department of Justice (<http://www.justice.gov/atr>) and U.S. Federal Trade Commission (<http://www.ftc.gov>)

*prices by taking advantage of its monopolistic position, since each sale generates a loss, namely the total amount of the fixed costs (that is to say, those which remain constant regardless of the quantities produced) and, at least, part of the variable costs relating to the unit produced. ”*

The sacrifice is required to be deliberate but is not necessarily linked to cost-price test measures. A comparison with different realistic strategy is sufficient to prove predatory behaviour if that strategy would lead to higher revenues than the conduct that was actually pursued – that is, the loss incurred would have been avoided by choosing different strategy.

Based on the EC the foreclosure does not necessarily have to be of the form of market exit but rather of any form of hindering healthy competition and strengthening the alleged predator’s market dominance. The predatory behaviour will be assessed in situation when it seriously hurts equally efficient rival or drives him out of the market. Alternatively it can also be sufficient to assume a hypothetical equally efficient competitor and estimate whether the pricing strategy could distort competition or not. Stressed is the fact, that it is not the negative impact on competitors that is important in assessing predation, but rather the impact on consumers. Consumer welfare is expected to be reduced as a direct consequence of predator’s strengthened market dominance.

The EC recognizes that in nearly all cases the predator’s price has to be below any of the cost measures and it is very unlikely that a price above ATC could be considered predatory. Below ATC pricing should always be further analysed in order to find additional evidence of predation – the pricing itself is not a sufficient proof, it is only signalling one of the components (namely sacrifice) that is being undertaken. The ECJ stated the following in AKZO case (ECJ 1991):

*“Moreover, prices below average total costs, that is to say, fixed costs plus variable costs, but above average variable costs, must be regarded as abusive if they are determined as part of a plan for eliminating a competitor. Such prices can drive from the market undertakings which are perhaps as efficient as the dominant undertaking but which, because*

*of their smaller financial resources, are incapable of withstanding the competition waged against them.”*

Four different cost measures are considered relevant in proving predation – AVC, AAC, LRAIC, ATC. The EC does not state if all four have already been used in real cases or not. The use of marginal cost is excluded because of high difficulty of its calculation and as a primary cost measure is considered AAC because it is viewed as a clear indication of undertaken sacrifice and is also often identical to AVC. When it is not, AAC is more precise. In addition, other cost measures can be defined and used whenever the market is complex in a way that usual cost measures wouldn't generate good results.

In cost-price testing the relevant cost measures should be calculated only from the sales that are affected by the alleged predation and not all firm's sales without analysing whether a distinction should be made. The duration for which the pricing has to be in action is also highly relevant. Pricing can be viewed as predatory even when it does not occur in the market where the predator has dominant market power but also when it only leads to strengthening the position in the market where the dominance is present.

The conduct is justifiable if the alleged predator is able to provide evidence that the anti-competitive pressure and negative impact on consumer welfare will be more than offset by positive effects of, for example, future more efficient production or cost reduction. At the same time the undertaken strategy must be the cheapest way how to achieve those effects. When there is proof of sacrifice, any other justification is unacceptable.

No observed recoupment of losses is required, a certain level of likelihood is sufficient. Interesting is the way how the Commission treats intent. On one hand, it is irrelevant whether or not there was any past intent as long as predation can be proved by chosen test measures. On the other hand, even when no actual predatory conduct is proven but records of clear intent (planned sacrifice as a part of pricing strategy, direct threat to competitors, market entry prevention) exist it is sufficient evidence for classifying the pricing as predatory.

### 4.1.2 Germany

Relevant legislation is the Act Against the Restraint of Competition<sup>9</sup> which also partly builds on principles given by European law, in this case again by article 102 of the Treaty on the Functioning of the European Union. Main concepts of predation are very similar and only differ in their understanding and assessment:

- Dominant position
- Restriction of competition
  - Non-recovery of costs
  - Predatory intent
- No objective justification

As opposed to the case of the EC, recoupment does not appear directly in the analysis. It is sufficient to prove that price is below one or more cost measures and that this pricing unavoidably leads to incurring losses. The Federal Cartel Office<sup>10</sup> recognizes the same four cost measures as the EC but in German cases, using ATC has been, so far, found as sufficient and the courts never actually had to decide on what the other relevant cost measure should be. However, they recognize that when ATC is not a sufficient proof, other more strict cost measures would have to be used. Consensus between the European and German law is also in the fact that only sales affected by the pricing should be used to calculate the relevant cost measure and that pricing above ATC can be found predatory only in exceptional cases. Duration of the predatory pricing is also an important element and usually it should be 3 weeks or longer.

Pricing below a relevant cost measure is justifiable if the alleged predator is able to show that he incurred a loss for an objective reason other than elimination of competition – for example costly advertising campaign, closure of retail stores, etc. Also it does not have to be explicitly shown that recoupment of losses actually occurred, the crucial element is the threat of eliminating competition, not the actual

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<sup>9</sup>Gesetz gegen Wettbewerbsbeschränkungen

<sup>10</sup>Bundeskartellamt

subsequent recoupment. Also clear intent in the form of a plan for eliminating a competitor is required to be present along with the cost-related criteria. But intent itself, when not backed up by any no cost-related proof, is not sufficient for proving predation.

### 4.1.3 United Kingdom

The relevant UK law concerning abuse of dominant position is Chapter II prohibition under section 18 of the Competition Act 1998 (“CA98”). Furthermore predation is treated in consistency with article 102 of the Treaty on the Functioning of the European Union. The relevant UK authorities dealing with predation are the Office of Fair Trading (OFT) and the Regulators for communications matters, gas, electricity, water and sewerage, railway and air traffic services (“the Regulators”). The process usually has two steps – in the first step, it is determined whether the alleged predator had dominant market position and in the second whether he abused it (Morrison 2004).

An important factor is that neither elimination of competition nor recoupment has to occur as long as there is sufficiently high risk that they could. The UK recognizes four relevant cost measures – AVC, AAC, LRAIC and ATC with the remark that in case of pricing below AVC predation should always be presumed. The AVC and ATC are two primary cost measures – AAC is used in cases where it is significantly different from AVC and LRAIC in cases of unique industries where that cost best reflects the reality of doing business. Pricing above AVC but below ATC can be considered predatory when clear predatory intent can be proven. Again, pricing above ATC could theoretically be considered predatory but only in rare and exceptional cases.

Based on the UK law, predation does not have to occur in the market where the firm has dominant position. The pricing in one market can bring the firm positive effects in another – adjacent or in some other way related – markets. In addition, if a recoupment occurs, it doesn’t necessarily have to be in the market where the predatory pricing took place.

If the dominant firm fails the relevant cost-price test then objective justification

of the pricing scheme is necessary in order for the presumption to be rebutted. Again recoupment is not directly required. It is argued that the presumption of predation in itself supposes the possibility of future recoupment of losses and therefore a situation in which there is a threat to competitors that could lead to their elimination does not require actual proof of recoupment. On the other hand, the concept of recoupment plays an important role in a case when the firm failed some of the cost-price tests but it was still able to provide a reasonable evidence that achieving future recoupment is not possible. In that case the conduct is not considered predatory. Two most frequent types of evidence for predatory intent are:

- **Direct evidence** – official documentation, evidence from a credible witness.
- **No commercial sense** – the pricing strategy has no other commercial sense than elimination of competition.

As in other countries the alleged predator can defend itself by putting forward an objective justification for its actions. That may include short-term promotions, the effort leading towards larger economies of scale, etc. However, when the firm had failed the relevant tests and predatory intent has already been proven, there is a very low probability of such a justification being found.

#### 4.1.4 France

The French relevant authority is the Competition Council<sup>11</sup> and in dealing with predatory pricing it follows two laws – article 102 of the Treaty on the Functioning of the European Union and article l 420-2 of the French commercial code in Book IV codifying the competition Act of 1986. Predation is in general defined as follows:<sup>12</sup>

*“Predation can be defined as a practice in which a company in a dominant position fixes its prices at such a level that it sustains losses or renounces to profit in the short term with the aim of evicting or disciplining one or more competitors, or of making more difficult the entry*

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<sup>11</sup>Conseil de la concurrence

<sup>12</sup>The original text is available at: <http://www.autoritedelaconcurrence.fr/pdf/avis/07d09.pdf>

*of future competitors on the market, so as to later increase its prices in order to recoup its losses.”*

Therefore there is again requirement of a clear voluntary sacrifice that is expected to be recouped in the future.

The Competition Council in theory recognizes 5 suitable cost measures – MC, AVC, AAC, LRAIC, ATC and also leaves space for other cost measures that can be developed in exceptional cases. But because of low number of predatory cases only some of the measures were actually historically used. The most common is again AVC, the others are LRAIC that has been used in a multi-product cases and ATC for mono-product cases. With regard to use of marginal cost the difficulties with its calculation are stressed and it is therefore applicable only theoretically. AAC is also considered suitable but has never been used – probably because in majority of cases it does not differ much from AVC.

Pricing below AVC is considered a clear presumption of predation that can be rebutted in case when the alleged predator is able to provide justification for its actions. Usually such a justification will be in a form of market conditions or future legitimate strategy that lead to such pricing (for example, market penetration, product development, a legitimate price war) or alternatively a proof of impossibility of recoupment. If such a justification is not available it clearly shows that the firm decided to price in such a way that it brought losses that could have been avoided by choosing a pricing scheme that would not be that aggressive. In the case of pricing between AVC and ATC it is the responsibility of the Competition Council to provide additional evidence that clearly shows the predatory intent. Pricing above ATC is considered sufficient to eliminate the concept of predation and is viewed as a safe harbour.

The cost measures again differ market by market and case by case. The predation does not have to occur in the market where the alleged predator has dominant position nor does the recoupment have to be expected to occur in the same market. In order to prove predation, the conditions mentioned above have to be met for a certain continuous period of time.



As already mentioned a sufficiently high probability of recoupment is required to prove predation. In other words the expectation of recoupment is sufficient and it does not have to be calculated (though, in some cases, it is). For prices between AVC and ATC it is the responsibility of the Competition Council to prove likelihood of recoupment, for prices below AVC it is up to the defendant to prove whether or not the recoupment was possible.

The intent is irrelevant for pricing below AVC when predation is automatically presumed. However, it may be necessary to show a predatory intent for pricing above AVC. When the prices are even above ATC, the intent, whatever it may be, does not play any role and the pricing is found not to be predatory.

#### 4.1.5 Czech Republic

The Czech main law and guidelines for assessing predatory pricing is the Consolidated Act on the Protection of Competition. In contrast to the others the Czech Office for the Protection of Competition provides, instead of a multi-step definition of predation only a statement describing the abuse of dominant position (ICN questionnaire 2007):

*“Offering low prices is abuse of dominant position when the price is unfairly/excessively low, in long term and the conduct is able to distort competition.”*

AVC and ATC are considered relevant cost measures and in contrast to other antitrust bodies AAC and LRAIC are not even considered as a theoretically suitable. Unchanged remained the view that different cost measures are considered in different cases. A situation when a dominant firm is pricing below AVC is viewed very strictly under Czech law and it is in itself enough to establish the pricing as predatory without having to prove that competition was in any way eliminated. But again the low pricing itself is usually not enough to presume that competition was harmed. In the case when prices are above AVC but below ATC a clear predatory intent has to be proven. Rather inflexible is also the claim that pricing above ATC can never be considered predatory and that the predatory pricing necessarily has to

be present in the market in which the firm has dominant position. Therefore, there is no space left for exceptional cases of pricing above ATC and predation in adjacent markets. In order for the pricing to be proved predatory it has to be in action for a certain period of time. This period is assigned individually for different cases. Unusual is also the fact that the Czech office for the Protection of Competition simply states that recoupment is not required in assessing predation without more detail on whether a reasonably high likelihood of recoupment is sufficient and has to be shown. On the other hand, a clear predatory intent is required – without it, the pricing is not considered predatory. Taken from other perspective, intent itself also does not suffice to prove predation when there is no proof that firm's pricing failed a relevant cost-price test – both conditions are complementary. Last, a necessary criteria of assessing predation is to show that consumers or competition suffered a harm. If the pricing is found to be predatory there is no justification or defence admissible.

#### 4.1.6 The United States

The US authorities follow Section 2 of the Sherman Act, 15 U.S.C §2 and Section 5 of the FTC Act, 15 U.S.C. §45. Violation of Section 2 of the Sherman Act automatically implies violation of Section 5 of FTC Act. The main criteria of predation as recognized by US law are pricing below a relevant cost measure and dangerous probability of recoupment of losses. Recoupment is considered *“the ultimate object of an unlawful predatory pricing scheme.”* (Dixit 2006).

Based on past cases US courts recognize two cost measures as relevant – below AVC that is used in the majority of cases (Fones 1997) and below AAC. Pricing above ATC can never be found predatory and there is a tendency to establish pricing above AVC but below ATC as a safe harbour as well. In order for the pricing to be found predatory the price has to be below at least one cost measure. In the past, US courts used to calculate cost measures based on the firm's total sales and not just on the sales directly affected by the pricing – this approach lately gets more attention.

Again recoupment does not have to be directly calculated but there has to be

sufficiently high probability that it will occur. US authorities do not specify any numerical threshold and rather state that the probability has to be “dangerously high” – the threshold can therefore be evaluated individually case by case. A time period for which recoupment can occur is set individually for each case as well. The possibility of recoupment is crucial in assessing predation. While it is required that the presumed predation occurred in the market when the alleged predator has dominant market power the distinction between the predated market and the market in which the incurred losses are recouped is allowed.

An interesting fact is that in the US intent is never relevant – when prices are found to be below a relevant cost measure, it is enough to prove predation. On the other hand, in the case when the cost-price relationship wasn’t violated, predatory intent is not in itself a sufficient proof of predation.

Again, defences from the alleged firm are allowed and the case is dropped when the firm is able to provide objective justification for its pricing strategy.

#### **4.1.7 Summary**

The preceding analyses showed us that the antitrust regulations regarding predatory behaviour are very similar across countries but the approach is still, because of low number of predator cases, more theoretical. All included countries recognize below-cost pricing as an incentive to further analysis. As a most suitable cost measure is considered mostly AVC but in practice AAC is also used very frequently as it is often easier to calculate it. The concept of recoupment or its reasonably high probability is usually, as a proof, complementary to the finding of below-cost pricing. The importance of intent and justification differs a little more but still they are also widely recognized as factors that should definitely be analysed, even though some countries do not consider them necessary under all circumstances. Although often not specifically said, the market structure is definitely important in the analysis as well as it sets the environment in which the alleged predation happened. An overview of acceptable cost measures by European countries that participated in the ICN questionnaire and the US is presented in Table 4.1. The number of predatory cases reviewed in each of those countries and number of convictions is presented

in Table 4.2. See appendix B for a predatory behaviour investigation scheme that could be, with certain adjustments, applied universally.

Table 4.1: Overview of accepted cost measures

	MC	AVC	AAC	LRAIC	ATC	Other
EC		✓	✓	✓	✓	
Germany		✓	✓	✓	✓	
United Kingdom		✓	✓	✓	✓	
France	✓	✓	✓	✓	✓	✓
Czech Republic		✓			✓	
United States		✓	✓			
Bulgaria						
Denmark		✓		✓	✓	
Hungary		✓			✓	
Ireland		✓	✓	✓	✓	
Italy		✓		✓	✓	✓
Latvia		✓			✓	
Lithuania		Price is not required to be below cost				
Norway		Did not provide relevant information				
Russia		✓		✓		✓
Slovakia		No case reviewed so far				
Switzerland		✓				

Table 4.2: Number of cases and violations during 1997–2007

	Number of cases reviewed	Number of antitrust violations	Percentage
EC	-	-	-
Germany	1	1	100%
United Kingdom	-	-	-
France	14	1	7%
Czech Republic	1	0	0%
United States	2	1	50%
Bulgaria	6	3	50%
Denmark	6	1	17%
Hungary	8	0	0%
Ireland	2	0	0%
Italy	2	1	50%
Latvia	-	-	-
Lithuania	2	1	50%
Norway	5	1	20%
Russia	-	-	-
Slovakia	0	-	-
Switzerland	0	-	-

## 4.2 Review of recent cases

Further we look at previous cases reviewed by antitrust bodies mentioned above. As is clear from Table 4.2 there were not many cases concerning predatory pricing altogether. Because of that, the number of cases that related specifically to the airline industry is very limited but there are still some that perfectly suit our purposes. Therefore, in this section we review two cases of predatory pricing in airline industry relying on the decisions published by the regulatory agencies. All the cases have been covered by some of the antitrust bodies mentioned in previous section. Namely we analyse these two:

1. Deutsche Lufthansa AG vs. Germania Fluggesellschaft mbH
2. Spirit Airlines, Inc. vs. Northwest Airlines, Inc.

We analyse the cases based on the concepts described in the previous section (mainly the concept of sacrifice, cost-price testing, intent and justification) and we further include elements specific to the individual cases and decisions done by relevant national antitrust authorities or courts that reviewed them (US Court of Appeals – ruling No. 03-1521; Deutsche Bundeskartellamt – case B9-144/01).

### 4.2.1 Deutsche Lufthansa vs. Germania

This process initiated after a complaint by Germania pointing at Lufthansa’s pricing behaviour at the Frankfurt-Berlin route in years 2001 and 2002. At that time Lufthansa was the largest German airline and Germania was a new entrant on the Frankfurt-Berlin route taking advantage of the general decline in air traffic following the terrorist attacks of September 11, 2001 and of slots freed up by Lufthansa in order to fulfil the requirements imposed by ruling of the Decision Division of The Federal Cartel Office in the Lufthansa/Eurowings antitrust case. Without this there would probably be almost no opportunity of getting airport slots because Frankfurt/Main, being the largest European hub airport, usually does not have any slots available.

Germania started operating its low-cost model on Frankfurt/Main-Berlin/Tegel route in 2001 offering a one-way flexible ticket at €99 without restrictions such as any form of stay requirement or the necessity of purchasing return ticket in order to be able to get an average one-way price of €99. The return ticket was therefore priced at €198.<sup>13</sup> With these prices, Germania's goal was to compete with the dominant carrier at this route Lufthansa, that until then offered a round-trip ticket for €485. In order for Germania to succeed on this route it would, in addition to customers that would not have flown otherwise and have chosen other form of transport instead, necessarily have to attract those Lufthansa passengers that were the most price-sensitive (Papatheodorou 2006). Lufthansa reacted to the new low cost offer by introducing a new tariff on this route averaging at €100 for one-way and €200 for return ticket on November 9, 2001. This situation was not sustainable for Germania as a very small price difference demonstrated almost zero incentive for Lufthansa customers to switch due to the fact that Lufthansa, in addition, offered its on-board services, bonus miles program, airport lounges, higher comfort and for many travellers much more suitable flight schedule offering 14 flights per day instead of 4 flights offered by Germania. Because LCCs that lack such service win their customers only by offering considerably lower prices than competition, Germania reacted three days later by pushing its price even lower by 44% to €55. Operating at this price would inevitably force Germania to withdraw from Berlin-Frankfurt route as it was operating at a loss. It therefore had to subsequently raise the price again to the original €99 which caused a 39% drop in the number of carried passengers.

Lufthansa changed its fare once more on January 1, 2002 to a new M-Fly-OW<sup>14</sup> tariff pricing the ticket at €105.11 for Berlin-Frankfurt journey and €105.31 for Frankfurt-Berlin. This way, the price was on average only €6.21 above Germania level. In addition to the new price, Lufthansa also relaxed its usual restrictions in form of minimum stay requirement, the need to book return ticket and added a rebooking possibility that was priced at €22, that is at the same price as for Germa-

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<sup>13</sup>All prices are including passenger charges.

<sup>14</sup>Economy Flight One-Way

nia. Also the bonus of Lufthansa Miles and More frequent flyer program generating bonus miles and other benefits for loyal customers was sustained even under the M-Fly-OW tariff. Lufthansa's pricing could clearly be considered as discriminatory as comparable price reductions did not occur on any other German domestic route.

Important role plays the high share of business passengers on this route that enjoy even higher bonuses from flying with Lufthansa. Under Lufthansa's discriminatory pricing, Germania stood virtually no chance of successfully competing in the business passengers segment. The advantages it brought to both business passengers and Lufthansa have been summarized as follows (Deutsche Bundeskartellamt – case B9-144/01):

*“Lufthansa’s Frequent Flyer Programme is particularly attractive for business travellers, who do not pay for the flights themselves, because the mileage bonuses are booked onto the customer’s private account and in contrast to the treatment of all other perks under tax law are not individually taxable. Instead Lufthansa pays a flat rate of tax for all members of its Miles and More Programme.”*

In addition to that Lufthansa also serves so called transit passengers that use the Berlin-Frankfurt route only as a part of their whole journey whilst Germania (as well as other LCCs) serves so called O&D<sup>15</sup> passengers that have Berlin and Frankfurt as their origin and final destination cities.

In order to be able to assess the extent of this pricing strategy, a monetary value of Lufthansa services and other benefits had to be evaluated and price had to be compared with costs that Lufthansa incurred on average for one passenger. Because of that, emphasis was put on evaluating costs from the customer perspective through monetarizing benefits that these services constitute to them rather than calculating additional costs that these services bring to Lufthansa. Several examples are presented – a free drink and a newspaper or magazine that every Lufthansa passenger receives during the flight – it is noted that if those weren't available during the flight, most of the passengers would purchase them at the airport. It is therefore crucial

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<sup>15</sup>Origin & destination



to consider the willingness to pay to substitute this service if it wasn't available. The actual numbers concerning costs and revenues or exact numbers of passengers carried on the Berlin-Frankfurt route are unfortunately unavailable to the public as they are confidential. It was ruled that in order for the price to be deemed legal it has to cover Lufthansa's average cost per customer which M-Fly-OW tariff doesn't but because of the confidentiality of the calculations no details on what costs have been included are available. Based on a few remarks we can assume that ATC was probably used as a relevant cost measure.

As a resolution the Decision Division ruled that Lufthansa's violated its dominant market position and its behaviour clearly constituted a predatory pricing strategy whose intent was to force Germania as a new market entrant out of the market and to lead to further strengthening of Lufthansa's position. In addition it would also serve as a signal to other airlines considering entering a Lufthansa-served route. The price cut from original €485 to €200 represents a short-term sacrifice of revenue and it is very likely that if Lufthansa succeeded at getting Germania exit this route it would be followed by either continuous or rapid price increase. In both ways after some period of time it is likely that the airfare would rise at or above the original level. Lufthansa would thus be able to recoup the lost revenues sacrificed while pricing below average cost per customer. There is also no objective justification other than predation that would explain the pricing scheme.

In order to protect Germania and provide it with equal opportunity to establish itself on the market it was, based on the cost calculations, ruled that Lufthansa has to offer its ticket at a price which is at least €35<sup>16</sup> higher than that of Germania when Germania is at or below €99. When it is above €99 there is a price floor for Lufthansa put at €134 and the €35 difference is no longer required. This pricing requirement started immediately and was decided to be valid for 2 years. That way Germania got a reasonably long period of time during which it had the opportunity

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<sup>16</sup>This price premium was calculated as an estimate of value added of Lufthansa over Germania, specifically: €3 (drink + newspaper) + €12 (the value of frequent flyer miles calculated on the basis that 40 flights would allow for a free flight valued at €484) + €25 (the estimated value of the flight frequency offered by Lufthansa). The resulting amount of €40 was reduced to €35.

to prove itself to be as efficient as Lufthansa and establish itself on the market. Lufthansa appealed the decision but court found the initial ruling to be legitimate and only reviewed the imposed price premium and reduced it to €32.5.

### **4.2.2 Spirit Airlines vs. Northwest Airlines**

The case started in 2000 by Spirit Airlines filing a lawsuit against Northwest Airlines on the basis of violation of Section 2 of the Sherman Act and engagement in predatory behaviour with the aim of driving Spirit out of the market at the US routes Detroit-Boston and Detroit-Philadelphia during years 1995 and 1996. At that time, Northwest was the fifth largest carrier in the world (Kwoka 2008) and specifically in Detroit it controlled 68 out of the 86 gates available at the main airport and transported 78% of all its passengers. Spirit was a low-cost airline targeting leisure and price-sensitive customers that would, in many cases, not have flown otherwise.

#### **Detroit-Boston**

Spirit started on the Detroit-Boston route on April 15, 1996 offering fares of \$69, \$89 and \$109. Prior to Spirit's entry on this route Northwest had 89% market share and offered lowest unrestricted fare of \$411 and lowest restricted fare of \$189. Moreover it was planning to reduce its capacity on this route by 13.7% during 1996. As a response to the entry Northwest on the same day introduced a new tariff of \$69 which made Detroit-Boston its cheapest flown route and increased capacity by adding two daily flights. In almost 94% of days during which Spirit served this route its fare was higher than that of Northwest. During this period Northwest on average carried monthly over 17 times as much passengers as Spirit.

#### **Detroit-Philadelphia**

Spirit entered this route on December 15, 1995 and was offering one daily flight for \$49. Its initial load factor was a little over 60%. This raised to more than 80% in June 1996. Prior to entry Northwest was on this route offering lowest unrestricted fare of \$355 and lowest restricted fare of \$125. Northwest reacted more than 6

months after the entry, when Spirit's load factor increased, by drastic reduction of its fares to \$49 on all Detroit-Philadelphia flights and increase of its capacity by adding additional flights. During the period of this pricing, Northwest was flying at fares lower than those of Spirit's for more than 92% of days. This was unsustainable for Spirit that was forced to first reduce the number of daily flights from 2 to 1 and subsequently abandon the route altogether on September 30, 1996. After the exit Northwest rapidly increased its lowest unrestricted fare first to \$271 and then to \$461.

Spirit's claim was that Northwest intentionally increased capacity on the routes where the two airlines were to compete and undercut prices below its average variable cost. Further it stated that it was exactly the combination of increased capacity together with reduced price that was supposed to force Spirit out of the market. That eventually happened because Spirit abandoned both routes. Northwest's response to the allegations was that its price exceeded AVC on both routes and it would do so even if only leisure and price-sensitive passenger segment was considered. Northwest further argued that the reduced fare was a legitimate pricing strategy that was supposed to enhance competition. Again it was taken into consideration that airlines do not compete only with price but also with other benefits such as on-board service, airport lounges, frequent flyer bonuses, etc.

For the analysis, both Northwest and Spirit presented a chronological list of actions that must, in their view, be undertaken in the case of predation and indirectly showed that an approach similar to the two-tier analysis described in Section 3.2 should be applied – the cost-price and recoupment tests should be preceded by thorough market structure analysis. The actions listed by both airlines were the following (US Court of Appeals – ruling No. 03-1521):

#### **Spirit Airlines**

1. Major airline establishes dominance at airport serving competitive levels.
2. Dominance allows major airline to price well above competitive levels.
3. When a new entrant attempts to enter a major airline's hub, dominant airline responds with below-cost pricing, capacity dumping, and/or a number of other

predatory practices until the new entrant is driven out.

4. Once the new entrant is driven out of the market, dominant airlines raises prices to levels sometimes higher than those prevailing before the new entrant attempted entry.

### **Northwest Airlines**

1. A structural analysis of the relevant market.
2. An assessment of the likelihood of anti-competitive (exclusionary) effects resulting from the alleged conduct.
3. An analysis of pertinent prices (or revenues) and costs to assess whether the competitive response made business sense only because of its adverse impact on competition and would not have made sense if the rival remained viable.
4. An evaluation of whether the firm is able to recoup the profits foregone during the period of the predatory behaviour.

The main part of the analysis was the definition of relevant market, dominant firm's market power, the appropriate measure of costs used in price-test comparison and the probability of future recoupment. The views of these issues somewhat differed for both parties and each presented their own analysis.

The purpose of the Sherman Act is to protect the public and assure high consumer welfare by supporting healthy competition rather than to directly protect the competitors against a dominant market player. In the structural analysis, markets can be generally identified based on two criteria – geographical markets and product markets. Both Spirit and Northwest agreed that the Detroit-Boston and Detroit-Philadelphia routes themselves should be established as the relevant geographical markets because the pricing was very unlikely to have other than negligible effect on air traffic on other US routes. Difference was in determination of the relevant product market. Spirit presented two alternative approaches (Kwoka 2008) – the first was to consider only non-connecting passengers (that is all passengers that have Detroit, and Boston or Philadelphia as an O&D city pair) and the second was that

only price-sensitive (mostly leisure) passengers should be considered as they are the ones that were most affected by the predation. Northwest did not agree with either of these two alternatives and claimed that all passengers should be included in the calculations, ignoring whether they were connecting or non-connecting, or business or leisure passengers. It was also reasoned that airport market is characterized by very high barriers to entry due to low availability of airport gates and their high lease rates. For this reason airport industry is considered suitable for predatory pricing with reasonable probability of success despite the fact that predation is in most industries believed to happen very rarely (Kwoka 2008). Generally it was established that Northwest, with a market share of 89% on Detroit-Boston route and 70% on Detroit-Philadelphia route had had on both markets monopoly power strong enough to be able to make the predatory conduct successful.

Another step in the analysis was to choose an appropriate cost measure and analyse whether the prices are below, at, or above this cost which is a proof required by §2 of the Sherman Act. Both Spirit's and Northwest's experts included different costs in its calculations and therefore arrived at different conclusions. Regarding the costs, experts made some general remarks that were stated in the analysis of US authorities to predation in Section 4.1 but for completeness we will state them here once more. It was noted that in most cases the appropriate cost measure would be AVC, but there might appear scenarios when pricing below AVC is not predatory and pricing above AVC is. When the prices are shown to be below the relevant cost measure, it is up to the defendant to provide an objective justification. When, on the other hand, the prices are shown to be above the relevant cost measure it is the plaintiff who bears the burden of providing additional evidence of predation.

Spirit calculated costs only for price-sensitive, non-connecting passengers and as a relevant measure considered AVC that included non-passenger costs, passenger costs and gate and ticket counter costs. Non-passenger costs included costs of fuel, labour, landing and additional aircraft that needed as a result of Northwest's capacity increase. The cost of aircraft was in form of market lease rate. Passenger costs were the processing costs of a ticket, the cost of on-board service and the incremental cost of fuel needed to carry each passenger (US Court of Appeals – ruling No.

03-1521). The conclusion of Spirit's cost-price analysis was that for Detroit-Boston route the fare of \$69 was between April and September 1996 \$10.75 below Northwest's AVC. On the Detroit-Philadelphia route the fare of \$49 was between July and September 1996 \$11.86 below AVC and the fare between \$49 and \$69 was in September 1996 \$1.86 below AVC. Similar analysis was performed on the opposite direction, that is Boston-Detroit and Philadelphia-Detroit, where the prices were \$8.07 and \$6.53 below AVC, respectively.

Northwest did not exclude any customer segment in its cost analysis and included several measures identical to those used by Spirit but, among other things, it refused to use the market lease rate for aircraft costs and used the opportunity cost of aircraft instead. The calculated costs were compared to Northwest's total revenues earned for all passengers without the distinction to price categories and the aim was to show if Northwest was, on average, operating in a profit or in a loss. As a conclusion the analyses showed that average fares exceeded the AVC and that the pricing scheme would have remained profitable even if Spirit did not exit the market.

The Sherman Act further requires a dangerous probability of recoupment and it is upon the plaintiff to show a certain likelihood of price increase above competitive level following new entrant's exit from the market. The predator must have enough market power to be able to keep the high prices long enough to earn profits that would cover losses incurred during the period of predatory pricing. In order to find out how long should these prices be kept, Northwest's anticipated sacrifice during predation was compared to anticipated return during recoupment. The analysis concluded that if the predation was to be in action for two months, Northwest would need 2–4 months to fully recoup for the losses and if it was to be in action for 4 months, 3–7 months would be required. The Court of Appeals concluded that the trier of fact<sup>17</sup> found that Northwest was able to recoup any losses quickly after the predation. Importantly, the price cut itself would most probably not be enough for the strategy to be considered predatory if Northwest at the same time didn't increase its capacity. It has been stressed that even if the jury had found the prices

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<sup>17</sup>Trier of fact refers to a judge or jury in a court case. (<http://definitions.uslegal.com/t/trier-of-fact/>)

to be above relevant cost measure, the market structure and capacity expansion were important in assessing whether competition was hurt and whether Northwest in the end strengthened its dominant market position or not.

The case was first reviewed by a district court that awarded the case a summary judgement.<sup>18</sup> The court ruled in favour of Northwest rejecting Spirit's definition of relevant markets and accepting Northwest's analysis showing legitimacy of the pricing (US Court of Appeals – ruling No. 03-1521):

*“The brute market facts established that Northwest’s fares did not fall below the airline’s average variable costs, and Spirit has not produced sufficient facts or identified pertinent legal authority to validate its experts’ opinion that below-cost pricing occurred in some alternative, legally relevant “lowest fare” or “price-sensitive” market.”*

Spirit further called for an appeal at the Court of Appeals for Sixth Circuit. In an appeal, courts rather than decide on the case, review the findings of a lower court. The Court of Appeals concluded that Spirit's allegations were based on reasonable evidence and send the case to the district court for a full trial with following justification (US Court of Appeals – ruling No. 03-1521):

*“As discussed in more detail infra, we conclude that when the evidence is considered in a light most favourable to Spirit, a reasonable trier of fact could find that in the relevant geographic and service markets, the markets were highly concentrated, Northwest possessed overwhelming market share, and the barriers to entry were very high. As a result, a reasonable trier of fact could conclude that by dropping its prices below its costs as well as by quickly expanding capacity, Northwest engaged in anti-competitive conduct aimed at driving Spirit out of the relevant markets. Moreover, based on the evidence presented by Spirit’s experts, a reasonable trier of fact could conclude that following Spirit’s*

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<sup>18</sup>A summary judgement is a decision made on the basis of statements and evidence presented in the legal pleadings and documents filed, without a trial. (<http://definitions.uslegal.com/s/summary-judgment/>)

*exit, Northwest recouped its losses incurred during the predation period. Accordingly, we conclude that Spirit has presented sufficient evidence of predatory pricing to withstand summary judgement in this case.”*



# Chapter 5

## Conclusion

Throughout the work we defined the low-cost airline model and set the basic principles on which it is functioning, including on-line booking, air fleet homogeneity and no-frill flights. We further set basic principles of airline pricing and described how airfare changes with approaching departure date.

Next, we defined the concept of predation and its basic requirements – dominant market position, aggressive price reduction as a response to an entry of new market players with resulting prices being below a relevant cost measure, and subsequent recoupment of losses incurred as a result of reduced prices. Based on research papers dealing with predation we have described the most common theoretical approaches of testing for below-cost pricing including Areeda-Turner AVC test followed by the analysis of other cost measures including AAC, and LRAIC for multi-product firms or firms with high common costs. We also described the output restriction, marginal cost and average cost rules designed to assess predation. Last, we reviewed a two-tier approach emphasizing the analysis of market structure before proceeding to any further testing.

In order to review how predatory prices are dealt with in practice, we reviewed approaches of the European and six national antitrust offices and we have shown that, in spite of several theoretical approaches to testing, in practice, the approach is, in many aspects, identical – AVC (or alternatively AAC) is used in most cases and the cost-price test is followed by the requirement of recoupment. Also understanding of intent and justification is, in its essence, the same for different agencies, though

it can be slightly different when looked on in detail.

The observations made throughout the work indicate that with more intense economic globalization, there is, among other things, more convergence of antitrust laws and regulations – this matches the purpose of the International Competition Network which is trying to work towards the unity of antitrust legislation. After establishing what the most common approach is, we looked at two predatory cases from airline market in Germany and the United States and we have shown how that approach translates into practice. By doing so we have established building blocks on which we would be able to analyse our own predatory case.

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# Appendix A

## Examples of Joskow and Klevorick's first tier

### Case #1:

1. Short-run monopoly power:

- a) The firm has seventy percent of the market, and three other firms each have ten percent.
- b) The dominant firm has consistently been a price leader.
- c) The number and size distribution of firms has remained fairly constant for ten years.
- d) Sustained profits substantially above the competitive level are evident.

2. Conditions of entry:

- a) Entry at minimum efficient scale requires investment of over \$200 million.
- b) No new firms have entered the market in the past ten years. Previous entry was by very large firms diversifying.
- c) The firm commands a "premium price" for a product that does not appear to be different from products produced by its competitors.
- d) The firm engages in substantial amounts of "image" advertising emphasizing the brand name of the product rather than qualitative differences from products produced by competitors.

3. Dynamic effects of competition on costs and products:

- a) The three smaller firms in the market are the primary sources of process and product innovations.

### **Case #2:**

#### 1. Short-run monopoly power:

- a) The alleged predator has forty percent of the market and eight smaller firms of varying sizes comprise the rest.
- b) The firm's market share has been gradually declining over time.
- c) When the firm has tried to "lead" price increases, the demand for its product has declined substantially.
- d) The firm's profits have been somewhat greater than the cost of capital over the previous four years, but profitability has been falling.

#### 2. Conditions of entry:

- a) Entry at minimum efficient scale requires initial investment of \$10 million.
- b) Three new firms have entered the market successfully over the past five years and have grown rapidly. Two others have entered and later failed.
- c) Products sold by various firms are fairly homogeneous, and advertising costs are not a substantial fraction of total costs. There is no evidence that any product enjoys "premium brand" advantage.

#### 3. Dynamic effects of competition on costs and products:

- a) This product market is not characterized by rapid technological change.
- b) Technological change that has occurred has focused on new and improved products, and the dominant firm is the primary creator of new products.

### **Case #3:**

#### 1. Short-run monopoly power:

- a) The alleged predator has sixty percent of the market and four smaller firms comprise the rest of the market. In some geographical markets one of the other firms has a larger market share.
- b) The firm's market share has averaged sixty percent over the past ten years, but the share has fluctuated considerably from year to year.
- c) When the firm has tried to "lead" price increases, the other firms have sometimes followed, but when they have not, the firm has rolled back the price increase as the demand for its product declined dramatically.
- d) The firm's profits have on average been somewhat greater than the cost of capital but show a slight downward trend.

2. Conditions of entry:

- a) Entry at minimum efficient scale requires investment of at least \$200 million to enter all major geographical markets simultaneously. Entry into major geographical sub-markets requires initial investment of \$20 million.
- b) Three new firms have entered in particular geographical areas over the past five years, but only one of these still survives.
- c) The market is characterized by some product differentiation and advertising outlays are above average, but the firm's product does not generally carry a "premium brand" price.

3. Dynamic effects of competition on costs and products:

- a) The market is characterized by fairly rapid cost-saving technological changes.
- b) Both the dominant firm and two of its competitors, one of which is a recent entrant, have introduced new low-cost production processes.



# Appendix B

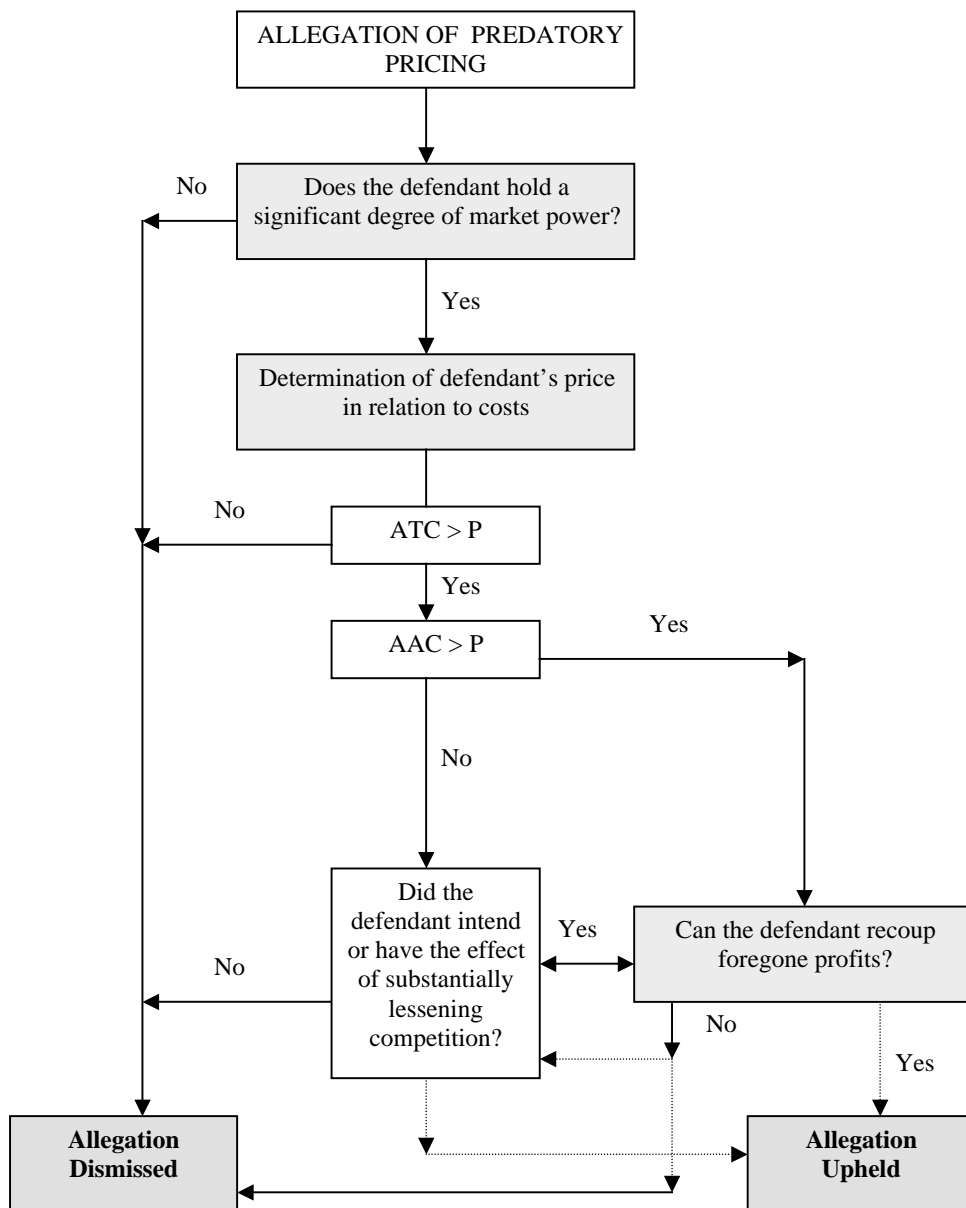


Figure 5.1: Predatory behavior investigation scheme (Williamson 2004)