Competition versus Predation in Aviation Markets
A Survey of Experience in North America, Europe and Australia

Edited by
PETER FORSYTH
DAVID W. GILLEN
OTTO G. MAYER
HANS-MARTIN NIEMEIER
COMPETITION VERSUS PREDATION
IN AVIATION MARKETS
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Competition versus Predation in Aviation Markets

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Introduction

Churchill's verdict about economics 'Ask five economists and you will receive six different answers' continues to hold even now. For roughly 50 years economists have debated predation, namely what it is (and if it exists at all), how to assess whether it is taking place, and how to stop it. No broad agreement has so far been reached. In practice the picture becomes even more complex as courts and legal scholars are involved when charges of predatory behaviour are finally settled in court. Predation is not confined to the aviation industry. Indeed the famous Matsushita and Brooke Group cases, which made the disagreement among economists and legal experts obvious to a wide public, stem from the TV manufacturing and cigarette industries. However, we believe that the aviation industry has currently come to a stage in which predation becomes a feature worthwhile of study.

There are several reasons for this. Firstly, the legal response to allegations of predation have been diverse – for example, there are two recent contradictory court rulings. Lufthansa and American Airlines reacted very similarly to the entry of low cost carriers (LCC), both matching prices and increasing frequency. While the German courts found Lufthansa guilty of predation, the US courts were not convinced, and ruled against the allegation. Secondly, in the current environment, LCCs are gaining more and more market share in the US, Europe, South America, Australia, and now, in Asia. For full service airlines (FSAs) it is vital to find a strategy against LCC in order to survive – what price response is safe from being deemed predatory?

In recent years it has been observed that whenever an LCC enters a market dominated by FSAs, prices fall. The price reaction is especially strong if the LCC goes into head to head competition with the FSA by flying into the hub of the FSA. The FSA very often matches the fare of the LCC, increases capacity and enhances service quality by offering bonuses on loyalty points programmes. In many, though not in all, cases the LCC cannot stand the fierce competition and leaves the market, complains about predation and often after some time has elapsed; the consumer has to pay ticket prices at or even above the initial level. While price reductions as a reaction to competition are no doubt a feature of a well functioning market, the interpretation of the effects of the market exit of the new entrant and the higher prices is controversial. Has the incumbent lowered the price below its cost to monopolize the market? Is such strategy successful and profitable? Should the competition authorities forbid such pricing? Why is fare matching or pricing below cost deemed to be a potentially successful strategy by incumbent carriers?

The story of predatory behaviour in aviation in recent years is very much the story of new LCCs entering markets and challenging well-established incumbents. All, or almost all, of the allegations of predation are made by LCCs against incumbents. This need not have been the case. There could have been cases of FSAs entering new route markets being subject to strong competitive responses
from incumbents on the route, which could have been predatory. To this end, we give a lot attention to LCCs in the book, analysing their advantages, disadvantages and strategies.

It is not surprising that allegations of predation occur when new LCCs challenge established FSAs. When a FSA enters a new route and commences to compete with another FSA, it is quite probable that it will have similar costs and pricing policies to the incumbent. FSAs may have long pockets – while the financial troubles of major airlines recently may make one question this, a large FSA can normally withstand a price war on a route which accounts for only a small proportion of its traffic. It is also likely to compete with the incumbent on other routes, and be able to retaliate against the incumbent if it reacts too vigorously. New entrants, by contrast, are likely to be a lot smaller than the incumbent, and often they have only modest financial reserves. Thus they are not able to withstand a long period of loss making. They are also less likely than FSAs to be competing with the incumbent in other markets, and to be able to retaliate. To this extent, incumbents may be more willing to try predatory tactics against them.

This said, however, the strength of the position in which incumbent FSAs find themselves should not be overestimated. Many incumbents are afraid of competition from LCCs. The latter have lower costs, and the ability to pitch their product such that demand for it grows very rapidly. The incumbents face a dilemma – if they do not match fares they lose market shares rapidly. On the other hand, if they do match fares, they are likely to be setting fares below costs (since the LCCs’ costs are lower than theirs) and they risk being found to have indulged in predatory conduct. Since it is usually very difficult for them to reduce their costs quickly, they find it difficult to choose a response to LCC entry which is both viable in the long run and not risking charges of predation. In this situation, it is not surprising that many have set up their own LCC subsidiaries, in spite of the difficulties in making this work effectively.

The LCCs, for their part, also fear the responses of the incumbents. Over the history of deregulated air transport markets, there are more examples of failures of LCCs than successes, and there is a multitude of examples of LCCs being forced from markets. LCCs have had to develop strategies to cope with vigorous competition from the FSAs, whether this is predatory or not. Airlines such as Southwest avoided head to head competition with the FSAs until they became large and successful enough to fight off the challenges. Successful LCCs such as Ryanair have sought to develop secondary markets in which they do not have to face direct competition from strong incumbents. LCC entrants will seek to appeal to competition authorities to put a break on the behaviour of the incumbents; however, as the experiences in this book show, they have rarely obtained much protection from this quarter. Significantly, the entrants surveyed by Schnell do not seem to regard predation as a significant entry barrier.

**Competition and Predation: Overall Perspectives**

In Part A we begin by looking at the incumbent. Hüschelrath starts with an overview of the strategic behaviour of incumbents. He argues that predation is just
one option out of many an incumbent has to deter entry. According to Hüschelrath the incumbent has three types of potential advantages:

- **Structural advantages** ranging from economies of scale and scope, over product differentiation, to customer loyalty and the presence of switching costs. The incumbent FSAs have built their strategy around it by developing hub and spoke networks, frequent flyer programmes and yield management.

- **Strategic advantages of positioning before entry** such as deterrence through vertical integration or limit pricing. Although airlines typically do not own airports they sublease gates and possess grandfather rights to slots which can be quite effective as barriers when trading is restricted.

- **Strategic advantages of reaction after entry** like raising rival’s cost and in particular, predation. For example, they can offer bonus frequent flyer points on routes where incumbent and LCCs compete.

Lall analyses the concept of predation further. Predation is defined as selling a product below costs to induce the rival to exit the market and to gain monopoly profits afterwards. Lall reviews the debate on predation between the ‘Chicago school’ (as articulated by McGee, 1958) and the ‘Post-Chicago school’. The Chicago school views predation as irrational because the predator can never regain the losses from below-cost pricing and the prey can survive. Even when entrants are forced out of a market, more will appear. The Post-Chicago school uses modern industrial organization theory based on game theory to show that under certain circumstances predation can be rational. It argues that in modern complex market structures, predation can occur because the predator has a long purse so that it can drive out the new entrant and regain its monopoly position. The incumbent might try to establish a reputation as a ruthless competitor. By showing that it has the ability to force an entrant from market A, it might prevent the entrant and others from entering markets B, C and so on. Another rational strategy is to bluff; that is for a predator it might be profitable to signal predation so that the new entrant might exit, although in fact it might be profitable to stay. Under these circumstances, subsequent entry may be met with less vigorous response for fear of raising the attention of competition authorities. Although these models show that predation is a potentially rational strategy, they have not convinced courts in general. Lall points out two weaknesses of these models. Firstly, they are not robust as the results depend on some specific assumptions which might or might not be fulfilled in the actual market. Secondly, the empirical support of the models is ‘at best, mixed’ (Lall).

How should competition policy deal with predation? The fundamental problem for competition policy is, according to Lall, that predatory pricing can resemble vigorous price competition. Hüschelrath stresses the same point for strategic behaviour. There are three approaches for competition policy. The first one is the Chicago School approach, which Hüschelrath characterizes as the do nothing approach since it removes all constraints from the behaviour of the firm. This follows from the view that predation is irrational and is thus not likely to exist. The conclusion is less convincing if one is of the opinion that predation might occur, but only in rare, hard-to-prove cases. Nevertheless one can argue that
active competition policy is doing more harm than good. The second option is the
per se approach which prohibits specific behaviour generally. The approach has the
advantage that it deters the incumbent from the specified uncompetitive behaviour.
The rule presupposes that these types of behaviour are identifiable, which in the
case of predation, as well as in the case of strategic behaviour, is generally not the
case. The third policy option is the rule of reason approach. Each case should be
judged on its own merits as to whether it distorts competition or not. While having
the advantage of focusing on the identification of predation and uncompetitive
strategic behaviour, it has the disadvantage that a complete analysis of each single
case leads to relatively high costs. Thus several filters are used to find out if
predation might have occurred in actual cases (for a discussion of these, see
Ordover and Saloner, 1989).

One filter is the Areeda-Turner test, which defines predation as pricing below
short-run marginal cost or in cases in which these costs are too difficult to measure,
average variable costs. The rationale for this test is that a profit-maximizing firm
under significant [perfect] competition would not price below short marginal costs.
This is very appealing but it loses a lot of its theoretical precision in those settings
in which predation might be profitable, namely markets with networks and
asymmetric information. Several other tests have been developed, but as Lall
analysis shows the Areeda-Turner test is ‘generally accepted’ (Lall). Another filter,
applied in some jurisdictions, is a recoupment test which examines whether the
predator profits from predation. In the case of American Airlines the court denied
the existence of structural barriers to entry in the Dallas-Fort Worth market so that
the incumbent could not reasonably expect to regain the losses from predation. In
his review Lall concludes that in the United States ‘the Chicago view will be liable
to prevail’ which, however, is not the case in other jurisdictions, especially in
Europe. As Abeyratne notes in his paper, many believe air transport are far too
complex to be treated on the basis of perfect competition. Gannon in section 5 of
his chapter provides an excellent outline of the challenges of formulating an
economic test for predation. He then argues that the ‘most favoured’ economic loss
test using avoidable costs should be strengthened.

Predatory behaviour can take many forms. Most of the cases of alleged
predation noted in this book take either the classic form of pricing below cost, or
the related form of adding extra capacity to a market. Other forms could be
relevant in the air transport context. One of these could include setting up a new
LCC by a FSA – such an airline could be intended as a means of forcing
independent LCCs out of the market, by making it impossible for the LCC to cover
its costs. As Huschelrath and Ewald indicate, providing a higher quality/higher cost
service at the same price as the entrant could also be construed as predatory.

Predation is most easily understood in the context of a profit maximizing firm
that sets prices below cost to preserve market power and maximize profits in the
long run. What if the firm is not a profit maximizer? In some sectors of transport,
pricing below cost is the norm – rail and other surface modes are often heavily
subsidized, as Gaudry documents. Is this predatory? It may have the effect of
forestalling entry, though it is not a response to new entry. Systematic direct
subsidies to airlines are not common (though unsystematic subsidies are: this is
evidenced by the large subsidies to a select group of US carriers over the past three
Introduction

years and the use of Chapter 11 bankruptcy provisions as well as government assistance for fleet modernization for both Air France and Alitalia). Of relevance to the air transport industry is the possibility that large carriers may act as size or revenue maximizers (as Butler argues is the case for Air Canada). Such airlines may be more willing to risk the consequences of being convicted for predatory conduct when profit is reduced by such conduct because profit is not their objective. It may be that airlines operate as if they are revenue maximizers since they treat their network and capacity as fixed in the short to medium term and set fares to maximize revenue per flight.

Predation in Aviation Markets

In Parts B, C and D we survey how predation in aviation markets has been handled in three regions – Australia, North America and Europe. The identification of predatory behaviour poses major problems for competition policy as well as the appropriate measures against such uncompetitive behaviour. Furthermore, legislation differs across jurisdictions so what may be deemed predation in one case may not in another, and the requirements to obtain a conviction for predatory behaviour differs, as Abeyratne points out. Part B, C and D analyse the experience with predation in three major aviation markets. The papers seek to assess:

- **The incumbents’ behaviour.** Did the incumbent airlines use predatory tactics to keep the market for their own? How effective was this strategy in keeping the market?
- **The new entrant behaviour.** What was the reaction of the new entrants to predation? What are successful strategies to enter the market given the structural and strategic advances of incumbents?
- **The policy reaction.** What was the reaction of the competition authorities? How did the courts rule?

These are summarized in Table 1.

Until recently, with the blooming of competition in Europe, competition in the US market has seemed to be more intense than in the other markets. Forsyth observes only two intense periods of competition in the Australian market and in each period predation was alleged. In 1990 to 1991 Compass Mark I entered and exited the market claiming that the incumbent airlines, Ansett and Australian Airlines (now absorbed into Qantas) had employed predatory tactics.

The established airlines offered a limited amount of cheap fares to match Compass’s prices. Yield management is, as Greig points out, an ‘aggressive competitive device’ because it ensures that yields do not fall too much and because it is hard to prove to be predatory. In the case of Compass the Australian competition authority came to the conclusion that fares were above variable costs and that predation was not present. Compass’s exit was due to management failure.
Table 1 Predation in major aviation markets

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<td>Incumbent</td>
<td>Price matching with cheap seats against Compass Mark I; Qantas: Price matching plus capacity adding against Virgin Blue.</td>
<td>American Airlines matched or undercut prices and added capacity against LCC.</td>
<td>Air Canada matched fares against WestJet plus added capacity.</td>
<td>Lufthansa matched or undercut fare of Germania.</td>
</tr>
<tr>
<td>New entrant</td>
<td>Exit of Compass Mark I; Virgin Blue remained in the market.</td>
<td>LCC like Vanguard exited market.</td>
<td>Canjet exited the market but for reasons other than competitive action of Air Canada. WestJet maintained and improved its market and financial position, in spite of the action by Air Canada.</td>
<td>Germania continues operating the market. LCC airlines are successfully entering intra European markets.</td>
</tr>
<tr>
<td>Policy reaction</td>
<td>Inquiries with Areeda-Turner Test and below profit-maximizing price criteria. No case of predation demonstrated.</td>
<td>Court decision with Areeda-Turner Test plus recourement found American Airlines not guilty of predation.</td>
<td>Fares below avoidable cost.</td>
<td>Federal Cartel Office found Lufthansa guilty of predation and enforced a minimum price distance.</td>
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During the second period of intense competition, from 2000 to 2001, Qantas matched the fares of the LCC Virgin Blue and increased frequency on a specific route, between Brisbane and Adelaide. Forsyth argues that while the first reaction is a competitive response the later reaction could be predatory, but it remains unclear if the additional flight generated enough demand to cover the costs, or led to a situation in which the revenues to Qantas from the route covered the costs. The analysis is made more complex by the fact that much Brisbane–Adelaide traffic
travels indirectly via the Sydney and Melbourne hubs. Virgin Blue was not driven out of the market. However, it was helped to survive by the collapse of Australia’s second major airline Ansett. The initial response of the authorities was to use the Areeda-Turner test of average variable cost, but in addition, to define predation as any price below the profit maximizing price given the entrant’s price. Forsyth notes that predation is difficult to identify in such a context and notes that competition policy, as spelt out in the legislation, gives little guidance on predation. Greig shares much of the criticism and adds that new entrants should not count on too much from competition policy, but expect an aggressive and potential predatory reaction from the incumbent airlines.

Gannon in his paper provides a discussion of the Australian experience but uses it to provide context in which he discusses the underlying feasibility and prospects for predatory conduct. He asks the basic question, what type of market characteristics are more or less likely to see predation.

In North America there are differences between the Canadian and US legislation and requirements to obtain a conviction. The American Airlines (AA) and Air Canada cases provide an interesting contrast in the application of the respective law for each country, reflecting the approach to controlling predatory behaviour. In both cases, full service carriers faced entry by LCCs and responded by increasing capacity and cutting prices. In the US the court held that the government did not prove that AA had monopoly power on the routes in question, thus ruling out the feasibility of supra-competitive pricing in the post-predation period, an essential element in obtaining a conviction. The calculations also failed to show the recovery of losses incurred during the alleged period of predation, another essential element. In the US the average variable cost test is generally acceptable but the avoidable cost test or a test based on incremental cost may also be acceptable if it is implemented correctly. The cost measure should not include attributed or common costs or count forgone profits as costs — in other words, an opportunity costs test will not do. Prices must be below the appropriate measure of cost. Failure to maximize profits does not constitute predatory sacrifice and neither does failure to take advantage of more profitable opportunities. It is essential to show a reasonable likelihood of recoupment through use of monopoly power after the entrant has left the market.

In contrast the Competition Tribunal was faced with implementing a new section to the Competition Act which had been passed as a consequence of significant changes in the airline industry in Canada. The changes made were not just aimed at a specific industry but at a specific firm, something unheard of in other jurisdictions. The changes included definitions as to what were avoidable costs and what constituted predatory behaviour.

In the course of the case involving alleged predation by Air Canada against two LCCs, WestJet and CanJet the Tribunal accepted that 90% of Air Canada’s fully allocated costs were avoidable and no recognition was given to beyond revenue. In essence it accepted the Commissioner’s argument that the time period over which cost become avoidable was irrelevant — either costs were avoidable or they were not. The Commissioner and the Tribunal failed to acknowledge the network aspects of the airline business. The Commissioner’s version of the avoidable cost test included costs that could be shed outright and increased profits
from [full] recapture and profitable redeployment. The Canadian decision may be viewed as controversial because some have argued government duplicity in not allowing, on the one hand, Air Canada to operate as a competitive airline and yet on the other, of claiming it was too aggressive. A significant element of Canadian competition law was the introduction of a penalty, a fine, should a firm be found guilty. Prior to this it was simply a cease and desist order, hardly an incentive to not be overly aggressive.

Knorr and Arndt focus on the strategy of the classic successful new entrant Southwest. They argue that the business model of Southwest gives such a great competitive advantage that in the long run Southwest can enter almost any US market. Southwest was able to circumvent structural and strategic barriers to entry, with the exception of infrastructure bottlenecks such as gates and slots. Initially, Southwest had to overcome legal hurdles, created by incumbents, in order to be allowed to start up. These actions could be regarded as predatory. For many years, it avoided head to head competition with strong incumbents. Predation could not stop Southwest. Knorr and Arndt argue, ‘the effectiveness of strategic barriers to entry has long been overestimated’. But while this is true for Southwest, it does not have to be for other LCCs. South West is no more a small new entrant, but it is the fourth largest carrier in the US with deep pockets. It has the ability to, and indeed now does, compete head to head with major FSAs such as Northwest – a kind of competition it had wisely avoided in its start-up phase.

The perspective from a successful LCC, which has been subject to allegedly predatory competition from a FSA, is not surprisingly different to that of Knorr and Arndt. Butler, from the Canadian LCC WestJet, takes a much broader view than the traditional approach focusing on pricing in a particular market. He argues that new entrants can succeed in the short haul market with a LCC business model. However government policy, competition law, the current industry structure and the strategies of the incumbent might effectively close this window of opportunity. Government policy, by imposing a flat rate user charge on airline customers and a security charge while subsidizing the competing rail competition, is in danger of making short haul flights unprofitable (on the topic of intermodal predation, see Gaudry in section E). Competition law is not effective in cases of predation, as it takes too long to reach a decision. The takeover of Canadian Airlines by Air Canada has created a monopoly with a market share of 75%; this has limited the ability of LCC to succeed. The normal assumption is that privately owned firms maximize profits – under this assumption, they are less likely to indulge in predatory behaviour. However Butler argues that the dominant Canadian airline is not acting as a profit maximizer. Rather, it appears to be acting as a revenue maximizer, and to be willing to remain in route markets even when it is not earning profits in them. Such behaviour makes it difficult for LCC entrants to compete, and it can be regarded as predatory.

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1 This is an opportunity cost test and one that was applied incorrectly because it assumed full recapture. This test and its application will probably be the most controversial aspects of this decision.
European deregulation of aviation is in many aspects different from the North American and Australian liberalization. Europe liberalized aviation in three stages from 1988 to 1997. Although the major airlines were competing on some dense routes, and there was always some rivalry between FSA and charter airlines, intense competition began with the rise of the LCCs, as Gilroy et al. point out. In Europe the LCC revolution started in the UK with the success of Ryanair and easyJet in the middle of the 90s. In Germany Deutsche BA was never a serious competitor to Lufthansa as it did not fly into the Lufthansa’s hub and had a similar high cost base and fares. When BA decided to sell its loss making subsidiary, Lufthansa had a de-facto monopoly in the German market at the dawn of the new millennium. However, competition from new entrants soon began as the LCCs began to expand their market to Continental Europe and start-ups adopted the LCC business model. On 12 November 2001, the LCC Germania started its first flights from Berlin into Lufthansa’s main hub, Frankfurt. Germania announced a one-way fare of 99 €. Lufthansa reacted by reducing its price from 243 € to 100 €. After a short price war the Federal Cartel Office stepped in and required Lufthansa to charge a price for a one-way ticket which was at least 35 € above Germania’s price for the next two years. As Hüschelrath reports, the decision was based on the reasoning that Lufthansa did not only adjust to Germania’s price but effectively undercut it as it offered a service of higher quality, by providing services such as its frequent flyer programme, more daily flight connections and the availability of lounges.\(^2\) The low fare did not cover the average cost per passenger and made it difficult for Germania to compete. The German courts approved the Cartel Office decision.

This decision is the only court decision of predation against a major airline in Europe to date. Gilroy et al. report that there were some complaints by LCCs against predatory behaviour by established airlines and that this will continue to be an issue in Europe in the future. LCCs will rapidly gain market share from the FSAs and the charter airlines. Furthermore, Gilroy et al. predicts a strong consolidation among LCC with only two dominant carriers. Although so far no LCC has been accused of predation, this might change in the future.

The decision of the Federal Cartel Office is in another aspect a hallmark. It makes German competition policy very different from the US approach. It should be noted that other jurisdictions in Europe might take a different stand. Despite several attempts, no alleged predator in the US airline industry has been convicted so far. What are the reasons for the diverging conclusions of the courts? Ewald compares both approaches. His analysis shows that case law in the U.S. is deeply influenced by the theoretical framework of the Chicago School, thereby downplaying the structural peculiarities of the airline industry and their potential for predatory pricing strategies. This explains part of the obvious disagreements, but Ewald argues that there is a deeper division. The divergences are results from what he calls different ‘models’ of competition law. While the German model gives priority to the protection of competitive market structures and the chances of market entrants, the US model prioritizes the freedom of price setting.

\(^2\) Looking under the decision one finds it was based on quite limited information as to what was the value of certain flight amenities. See the paper by Morrison.
In summary, the papers which survey predation in aviation markets around the world suggest several conclusions. While there have been many allegations of predation, these are rarely proved. This is often due to the inherent difficulty of proving predation in many jurisdictions. Furthermore, even when it is accepted by the courts that predation has taken place, as it was in the Germany-Lufthansa case, no penalties were imposed. Rather, constraints on future behaviour were imposed. As a consequence, the alleged predator did not lose from its action. Overall, this would suggest that competition policy has been ineffective in protecting airlines from predation if it occurs.

**Theoretical and Policy Aspects**

The theoretical survey in Part A shows how diverse the approach towards predation is, and this diversity is reflected in the actual practice, as the surveys in Parts B to D of predation in the major aviation markets highlight. There is no consensus on predation among economists. This provides a rich field for further research and the papers in part E explore some of these aspects.

Morrison looks critically at the standard procedure to prove predation. He goes through the standard procedure and shows how to address the problem of complementarities, product and price differentiation. The Areeda-Turner test does not allow for pricing below marginal costs, but below marginal cost pricing may be rational if for example the below marginal cost fare of the feeder service creates additional demand for the hub flight. Morrison also analyses if and ‘how’ price-matching should be adjusted for service – a topic on which the German and the American case law differs. While the US court refused to ‘engage in a series of subjective price comparisons on intangible values’ (Lall, p. 28) the German court did exactly this, and quantified the quality difference. Morrison’s intention is to make predation more readily handled by competition policy without going through the complexities of proving intent.

Schnell focuses on empirical research on the nature of barriers to entry and predation in aviation. The rationale of predation depends very much on the question of whether the incumbent can recoup the temporary losses of predation. This in turn depends on whether the aviation market has a monopolistic structure with barriers to entry. Schnell argues that very much of our understanding of barriers to entry depends on theoretical models. Barriers might be high or low, and are typically difficult to measure. Schnell argues that what matters to firms are *perceived* barriers of entry. His questionnaire based results show airline managers perceive different barriers to entry as more or less effective. According to Schnell predation does matter but its importance should not be overstated. In many respect his work is the other side of the coin of Hüschelrath’s survey on strategies of incumbents.

LCCs are offering, for many short-haul markets, a superior business model – as Knorr and Arndt, and Gilroy et al. point out. They are overcoming the structural and strategic barriers to entry in many markets. Some incumbents have reacted by starting a LCC, but so far with mixed success. The widely shared view is that it is difficult for a FSA to operate a separate LCC. However, FSAs are adopting repeatedly this strategy, especially in the US, Australia and now, Asia. This raises
the question why they adopt what seems to be a losing strategy. Reisinger tries to solve this puzzle from a theoretical point of view. He shows in a model that it can be rational for FSA to build a low cost subsidiary even if it has to be withdrawn later on. In the case the low cost subsidiary is able to predate the new entrant LCC the FSA can keep the market. If the predation was unsuccessful the own LCC is a competitor to the new entrant and to the traditional business of the FSA so that the FSA finds it more profitable to lessen competition by closing the low cost subsidiary.

Gannon’s paper not only makes a contribution to understanding the issues surrounding the application of predation legislation to cases in Australia but provides a thoughtful discussion of what markets would give rise to such conduct and then investigates the issue of an economic test for predation. In the first part of his paper he systematically examines the linkages from market definition to barriers to entry to market power. After having described the definitions and economic features of aviation markets, he then goes on to analyse specific entry barriers, distinguishing structural and strategic barriers, as well as primary or secondary barriers. This latter point is to make a distinction between what he terms fundamental barriers and incidental or derivative barriers to entry.

The challenges for developing a test for predation occupies part II of Gannon’s chapter. He argues there is agreement among economists that a sound economic test should include four components; market power, intent, pricing below costs and recoupment. Each jurisdiction places more or less emphasis on these components; in some cases they are necessary conditions to obtain a conviction while in other cases they are not (see Morrison for a discussion). The fundamental point as he sees it is, did the carrier suffer real economic loses as a result of its pricing and capacity responses to an entrant. As he points out, in most cases, this loss test is the avoidable cost test. Such a test faces fundamental questions of unit of analysis, time period for the test and market definition. His central tenant is that avoidable costs are opportunity costs.

The two final papers by Gaudry and Starkie address two central problems of economic policy. The entrants (see Butler), but also the analysts of the actual predation cases (see Forsyth, Greig), note the ineffectiveness of the competition authorities to assist the entrants. Predation is hard to prove and it takes too long to decide. The second complaint is that other competing transport modes are neglected – point which Butler emphasizes strongly. The latter is analysed by Gaudry who argues for a more complete view of predation taking into account, in particular, the regulatory elimination by restricting market access and the suppression of intermodal competition. In many countries, railways are heavily subsidized and Gaudry notes two victims of unfair competition, namely scheduled intercity buses and collective taxis.

The first complaint is taken up by Starkie. The paper originates from the opinion of the American Department of Transportation that the rise of LCCs was slowed down by predation. In his correspondence with Alfred Kahn, one of the architects of deregulation of the US aviation industry, Starkie develops and refines his argument for adopting a simple rule to prevent predation, instead of proving predation in long court cases. The incumbent carrier would be obliged to freeze the post-entry capacity for a period in case of an entrant subsequently exiting the market. By locking in the capacity for a certain period, it would become more
costly for the incumbent to offer excessive capacity to drive out the new entrant. The rule might remind some readers of Baumol's rule to freeze post entry prices, but Starkie's rule has one crucial advantage over it, which becomes very clear in the discussion with Kahn. While Baumol's rule might lead to a 'pervasive re-regulation' (as prices and quality of service have to be monitored, the enforcement of capacity is rather more straightforward, where most traffic travels on the direct route in question), and capacity determines the average price and yield. This rule was not adopted by the US DOT, so that we have no experience of how such a lock-in rule might alter behaviour, though there are plenty of cases of alleged predation.

Conclusions: Predation in Aviation Markets

Most of the problems, which normally arise in handling allegations of predation, are present in aviation markets. Predation is a notoriously difficult issue to handle. It is difficult to define precisely what it is, and what affects it has, and it is difficult to draw a dividing line between robust competition and predation. It is particularly difficult to prove its existence – tests can be devised, though they are essentially arbitrary, and they are not straightforward to implement. One appealing way of thinking about predation is to define it in terms of impacts on welfare – predation could be defined as behaviour which reduces welfare. Several tests of predation take this approach, but putting it into operation is problematic. In the light of this, governments and regulators have not found it easy to develop policies to address problems of alleged predation. In the light of this, definitive answers to the core questions about predation in aviation markets are not to be expected. Notwithstanding this, some clear themes do emerge from the studies in this book.

Does Predation Occur in Aviation Markets?

This is not an easy question to answer. There have been many allegations of predation, but few have been proven in courts or tribunals. This could be because many allegations are unfounded – after all, disgruntled entrants have an interest in alleging predation even if it has not really taken place. On the other hand, it could simply be that predation has been occurring, but that it has been difficult to prove. Indeed, it may be more prevalent than is alleged, because victims may not always report instances of it because they consider they have little expectation of gain even if they can prove it. The examples in this book, especially those reported in the surveys of actual aviation markets, essentially confirm the point that predation is difficult to prove. This is so across a variety of different legal frameworks, even with those, such as the Canadian one, which seek to simplify matters. While there may be gains from clarifying the legal treatment of potentially predatory behaviour, analysing it will remain inherently complex.

Is Predation a Problem in Aviation Markets?

Predation may or may not be taking place, but if it is, does it constitute a problem? It would be a problem if it were preventing competition from emerging.
Looking at the major aviation markets of the US and Europe, as they are at present, it would be difficult to conclude that predation was holding up the development of competition. In both of these markets, competition has been becoming stronger with the proliferation of LCCs. These airlines have been adding to competition, and they have been entering route markets throughout these regions with great success. It is the FSC incumbents which fear the LCC entrants rather than the other way around. It is a similar picture in the other major aviation market, that in Asia. Here LCCs are booming, and successfully entering route markets previously dominated by the FSC, even though they enjoy little or no protection against predation from competition policy.

This suggests that the current conditions, in the major markets of the US, Europe and Asia are not conducive to predation. Arguably they approximate the environment as envisaged by McGee and the Chicago School when they argued that predation was unlikely. There are several airlines which have the potential to enter most specific route markets. Airlines compete against one another in several route markets, and have the ability to retaliate against predatory behaviour in one route market by responding in others. Competition on most markets is sufficiently strong to keep profits in check – incumbents do not have large profits to defend should entrants appear, and recoupment of losses incurred during a predatory episode is not likely. Incumbents may be able to push one airline off a route, but others will appear if profits are to be made. Finally, and perhaps fundamentally, it is the LCC entrants which have a significant, cost based, advantage over the incumbents – this makes predatory behaviour much less likely to succeed. Thus, overall, the current environment in the major aviation markets is one which makes predation difficult to succeed and also less likely.

However, this has not always been the case in the major markets, and it may not be the case currently in smaller markets. In the US, in the past, there was concern about predation in aviation markets in the 1990s (see Starkie). In the 1980s there were many LCC entrants, but they were almost all forced out by the incumbents which were able to reduce costs and use their network advantages as a competitive weapon. Indeed, by the late 1980s it was considered that incumbents had such strong advantages over entrants and that they could employ predatory tactics cheaply and effectively (Levine, 1987). From the late 1980s to the mid 1990s in the US there were few LCCs which could enter markets readily, and competition on some markets was weak – profitable markets were worth defending. If, in future, incumbent airlines in the major markets are able to match the costs of the LCCs, and weaken the strength of this competitive advantage, predation might become more rational for them again.

Predation may also be more of a concern in small to medium sized markets. Significantly, in medium sized markets such as those of Australia and Canada, predation has been an issue. Actual competition on several route markets is not strong, and some routes may be quite profitable (and worth defending). Furthermore, there are not many potential entrants, and if an entrant is pushed out, others may not appear. After the failure of Compass II in Australia in 1992, it was not until the year 2000 that another airline entered.

The upshot of this is that it is not valid to lump all aviation markets together when discussing the potential for predatory behaviour. In those large markets
where LCCs possess strong advantages and are making effective inroads, predation may not now be much of an issue. In other markets, where there are fewer airlines and fewer potential entrants on to any route, predation may still be a live issue. Even in large markets, if the cost advantages of the entrants are eroded, and fewer LCCs are present, predation could become more of a problem.

Are there Special Features of Aviation Markets which Make Analysis of Predation More Difficult?

As with other markets, there are a number of features of aviation markets which make analysis difficult.

One of these concerns airline cost structures. Airlines have major investments in capacity in the short to medium term, but these investments can be moved readily from route to route. Capacity is used such that it is not filled most of the time – this makes sense to enable benefits from higher frequencies. The ratio of demand to capacity varies considerably over the year, month and even day. These aspects make measurement of marginal and variable cost difficult. Cost measurement has been a critical aspect in several predation cases.

Network aspects are another complication with airlines. Airlines typically offer a range of complementary and substitute services, embodied in a network. This makes measurement of cost problematic, since capacity on one route can be used on another, several costs are common to all routes, and traffic on one route can add to revenues on another. It is also difficult to measure the capacity on a city pair, since capacity is provided both directly and indirectly, and capacity on indirect routes also serves other city pairs.

Finally, a pertinent complication is that created by the complexity of the product. A single flight will provide many distinct products, with different prices. Airlines operate sophisticated demand responsive pricing. While this gives them the ability to lower prices in selected markets to meet competition, it also means that it is difficult to determine whether prices are below cost for a particular market segment. There is also the problem of comparing like with like – is the product of a FSC comparable to that of a LCC? This is something which competition authorities have had to resolve, as in the Lufthansa-Germania case.

The experience of predation cases in aviation is that much effort has to be devoted by courts and competition authorities to resolving issues such as these.

Can the Policy Framework to Address Predation in Aviation Markets be Improved?

The ways in which predation issues in aviation have been handled around the world do not seem to have been very satisfactory. Predation has been difficult to prove, though this may be because behaviour has not really been predatory. Predation cases have been long and expensive. Where remedies could have been offered, it would have been too late.

The approaches taken across jurisdictions have differed markedly. In some countries, predation is handled through broad misuse of market power provisions, while in others, there are specific prohibitions of predation. In Canada, there are airline specific provisions. Some countries, such as Germany, give competition
regulators the discretion to intervene and impose remedies. Other countries such as the US have considered implementation of conduct rules which would make predation costly.

One issue concerns the ease of proof of predation. Predation can be made easier to prove. For example, it is easier to prove predation under German law than it is under Australian law. Australia could change its laws to make predation more straightforward to demonstrate – indeed the competition authority has argued that this should be done. However this will also increase the risk that predation will be found even when it has not taken place. Determining where the balance should lie is inherently difficult given the problems of analysing the welfare consequences of market behaviour. Indeed we are not aware of any ex-post assessments of the welfare consequences of decisions which have been made in the context of aviation markets. Ultimately it is a matter for governments to decide how tough they want to be on potentially anti competitive behaviour – economic analysis cannot inform them as to what the right balance should be.

Another issue concerns the nature of the anti predation provisions – how specific should they be? The Canadian experience suggests that highly specific provisions, directed at aviation, do not resolve many of the key problems. As long as the meaning of predation is clear, and tests for it are accepted, there does not seem to be much merit in being more specific.

One of the problems with handling predation has been that of delay – cases drag on for years, often after the alleged victim has failed. This is an issue which can be addressed simply, though at a cost. Competition authorities can be given discretion to determine whether predation has taken place, and to institute remedies. This will lessen delay, and it may increase the likelihood of anti predatory action. However, quick action by regulators also means that the facts of the matter are not analysed as thoroughly and there is a greater chance of a wrong decision being made. How much discretion is to be given to regulators is also a judgement call for governments – there is no correct answer that can be determined by economic analysis.

Finally, there is the issue of which mechanisms or remedies will work best if predation is considered a risk or is proven. There have been some suggestions, such as that of Starkie, and some rules have been implemented, as in the Germania case. This is an issue which is more amenable to economic analysis, though thus far there has not been much investigation of the properties of these rules and remedies. It is comparatively easy to devise rules, but they often have unintended consequences. If regulators are to have discretion, it is important that they implement rules which are effective and contribute positively to efficiency.

References


Part A:
Competition and Predation –
Surveys from Different Perspectives
Chapter 1

Strategic Behaviour of Incumbents
Rationality, Welfare and Antitrust Policy

Kai Hüschelrath

‘Look ahead and reason back.’
Dixit and Nalebuff (1991)*

1. Introduction

The liberalization of formerly regulated markets often leads to ‘asymmetric’ market structures characterized by one or a few large incumbent firms retaining considerable market power and several smaller new entrants. These new competitors threaten the incumbents in at least two ways. On the one hand, they take market share away reducing an incumbent’s share of the profit pie. On the other hand, new entrants often intensify competition reducing the size of the profit pie. Against this background, it is not surprising that incumbent firms would like to impede market entry or at least reduce the competitive threat of entry. One option for dominant incumbents to reach this aim is to use some form of strategic behaviour aiming at discouraging entry or encouraging exit of rivals.

However, what exactly is meant by ‘strategic behaviour’? What are necessary preconditions to make strategic moves possible and which different strategic options are available to incumbents? What are the possible welfare consequences of strategic behaviour directly related to this: what role should antitrust policy play with respect to such strategic moves? The aim of the present paper is to give some basic answers to these essential questions. A general introduction of possible strategies of incumbents appears to be important, especially in the light of the overarching topic of the present book: predation as one option out of the ‘toolbox of strategic behaviour for incumbents’.

To reach the central objective of this paper, it is structured as follows: In Section 2 the foundations of strategic behaviour are assessed, which is followed by a simple analysis of the interrelation between strategic behaviour and entry in Section 3. Subsequently, Section 4 focuses on some main features of the relationship between strategic behaviour, welfare and antitrust policy. Section 5 concludes the paper.1

1 Conceptual, it should be further mentioned that throughout the whole paper, the general economic reasoning is clarified by examples from the airline industry. These examples can be found in the ‘Focus’-boxes integrated in the text.
2. The Foundations of Strategic Behaviour

A fairly large number of definitions of ‘strategic behaviour’ exist. One reason for this might be that different disciplines (like economics, management or the political science) have used and examined this term with respect to their backgrounds and motivations (see e.g. Ansoff (1987) and Grundy and Wensley (1999) for ‘strategic management’ interpretations). As far as the field of industrial organization is concerned, Carlton and Perloff ((2000), p. 332f) provide a straightforward definition:

Strategic behavior is a set of actions a firm takes to influence the market environment so as to increase its profits. The market environment comprises all factors that influence the market outcome (prices, quantities, profits, welfare), including the belief of customers and of rivals, the number of actual and potential rivals, the production technology of each firm, and the costs or speed with which a rival can enter the market. By manipulating the market environment, a firm may be able to increase its profits.\(^2\)

This attempt to define ‘strategic behaviour’ is very general and is being largely confined (and therefore substantiated) by research of several game-theorists (see especially Schelling (1960)) and their formalized concept of a ‘strategic move’.

What Constitutes a Strategic Move?

The basic idea behind a strategic move is that when making an optimal choice now, an incumbent must try to anticipate how his rivals will respond in the future. The incumbent’s expectation is largely based on his perception of the rivals’ payoffs and their perception of his payoffs. In the words of Dixit and Nalebuff ((1991), p. 34) the incumbent must ‘[l]ook ahead and reason back’ to make an optimal (i.e. profit-maximizing) decision.

Given this first delineation, the more precise question of ‘what are necessary attributes of strategic moves’ immediately suggests itself. An essential element of the answer is the acceptance of short-term ‘sacrifices’\(^3\) by the incumbent aiming at obtaining long-term (discounted) gains, which at least outweigh the sacrifices. This first delineation clarifies that strategic moves are always dynamic phenomena (i.e. ‘dynamics’ requirement).

‘Strategic moves’ in the sense of Schelling (1960) are actions which benefit an incumbent firm indirectly via their effects upon the behaviour of the rival firm (see Church and Ware (2000), p. 461ff for a roundup). These actions ‘induce the rival to adopt a course of action more favourable to the incumbent ...’ (Vickers (1985), p. 33). Such ‘strategic moves’ are often based on some first mover advantage, thus a temporal edge of the incumbent in comparison with the entrant (i.e. ‘first mover’ requirement).

\(^2\) Carlton and Perloff ((2000), p. 332ff) differentiate between non-cooperative and cooperative strategic behaviour. In the following the latter case is omitted.

\(^3\) The term ‘sacrifices’ should be interpreted in a very broad sense, e.g. as investments which bond capital or as a sacrifice of current profits.
Another important feature of a strategic move is the non-revocation of decisions. In situations with perfect information this condition means that a successful strategic move is only possible if the incumbent changes the expectations of the rival in a credible way, e.g. by undertaking a binding and irrevocable decision (i.e. ‘commitment’ requirement), which the rival can observe (i.e. ‘communication’ requirement). In cases of imperfect information, the incumbent must be in a position to signal a credible threat of such a commitment.

Where can Strategic Moves Take Place?

Strategic moves depend on situations where strategic interactions take place. ‘Strategic interaction’ entails that pricing and production decisions of any one firm will affect overall industry price and production levels, and hence the performance of other firms. These characteristics however are only present in oligopolistic markets (i.e. ‘market power’ requirement). In a monopoly situation, there is (by definition), only a single supplier and entry is impossible. A monopolist has no actual or potential rival and therefore has no need to contemplate strategic behaviour. A firm in a perfectly competitive market is (by assumption) a price-taker, hence there is no payoff to strategic behaviour⁴ (see Martin (2001) for a detailed analysis). The same conclusion is true for ‘perfectly contestable markets’ in the sense of the path breaking book by Baumol, Panzar and Willig (1982).

3. Strategic Behaviour and Entry

Free entry and exit is an essential assumption in the model of perfect competition. If the price of a good lies above average cost, the firm will realize abnormal profits. These abnormal profits are the central incentive for other firms wanting ‘to join the party’ (Saloner et al. (2001), p. 215). Over time, market entry will increase supply and will depress prices sufficiently for firms to return to normal economic profits. As abnormal profits are competed away, entry will cease and the market will reach its long-run equilibrium. This point coincides with the minima of the firm’s average cost curve, the point where the firms use their resources in the most efficient manner.

This essential coherency between entry, competition and market performance is challenged by multiplicities of empirical studies (see Geroski (1995) for a survey), which show that incumbents in many industries are able to earn high abnormal profits without stimulating entry for a long time (see Focus 1 for evidence from the airline industry). In other words, these empirical results indicate that the model of perfect competition alone might be an insufficient description of many real markets.

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⁴ It seems obvious that the polar cases of ‘monopoly’ and ‘perfect competition’ must be interpreted as valuable starting points for further theoretical reasoning rather than descriptions of real markets.
Focus 1:  
Entry, Exit, and Performance in Airline Markets

Joskow et al. (1994) examine quarterly data on major, non-stop city pairs in the U.S. between 1985 and 1987. They find that:

- entry generally is not induced by price levels substantially above the norm
- entry reduces fares and increases output, and exit increases fares and reduces output
- incumbents cut prices and maintain output in response to entry, and survivors increase both prices and output in response to exit.

The general significance of free entry and entry incentives for competition intensity and market performance is not restricted to the model of perfect competition. Similarly in standard Cournot oligopoly models, current abnormal profits are a central incentive for market entry. With a growing number of firms in the market, industry prices decline and per-firm output and profit ought to decrease (see Amir and Lambsd (2000) for an exact formal treatment). With an infinite number of firms in the market, Cournot competition leads to perfectly competitive outcomes.5

In oligopoly models, compared to the model of perfect competition, especially the conditions surrounding entry (e.g. level of fixed cost, market size, cost differences between firms, heterogeneity of products etc.) become more important in determining the nature of market competition and market outcomes. Generally speaking, strategic interaction in oligopolistic markets complicates competition and makes market outcomes dependent on factors like players, actions, timing, information and repetition (see Saloner et al. (2001), p. 187ff).

What Drives a Firm’s Entry Decision?

Imagine you are the CEO of a small low-cost airline and you have to decide if you should enter a certain route or not. The actual profits in the market might be an important signal guiding your decision, but the individual entry decision will depend particularly on two aspects: incentives and barriers. In other words, a CEO might first ask ‘Is entry profitable?’ and afterwards ‘Is entry possible?’

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5 Besides the depicted effects of increased competition, entry also plays a creative role in markets, serving as a vehicle for the introduction and diffusion of innovations. Geroski ((1991), p. 219) therefore separates ‘entry’ into two components: imitative entry and innovative entry. Imitative entry occurs when the entrant can reap profits by copying the established firm’s product or method of production. This type of entry is regarded as an equilibrium force in that it competes away excess profits to an equilibrium level. Innovative entry occurs when an entrant finds new ways of e.g. producing more cheaply. This type of entry is seen as a disequilibrium force, which propels the industry from one equilibrium state to another (for a detailed overview, see Lipczynski and Wilson (2001), pp. 153-154).
Is entry profitable? A profit-maximizing, risk-neutral firm should enter a market if the net present value of expected post-entry profits is greater than the sunk costs of entry.\textsuperscript{6} As post-entry profits depend on post-entry competition, the entry decision therefore is connected to the expectations of the entrant about the conduct and performance of the firms after entry. Furthermore, the level of sunk costs incurred is a critical determinant of the entry decision (see Besanko et al. (1996), p. 396ff). The higher the necessary sunk costs to enter an industry are the higher is the risk of entry and the lower are the expected profits. Additionally, the entry condition above clarifies that profits immediately after entry are not necessary for a rational entry decision. It is sufficient that e.g. market growth expectations should promise sufficient profits in the future.

Is entry possible? A positive net present value (which at least outweighs sunk costs) is a necessary but not sufficient condition for entry. Imagine e.g. the U.S. Airline Industry 30 years ago. In spite of many entry applications by new carriers, the Civil Aeronautics Board did not approve one single market entry request of a new firm. This example clarifies, that ‘barriers to entry’ are sometimes high enough to completely deter entry.

‘Barriers to entry’ are defined by Stigler ((1968), p. 67) commonly as ‘... a cost of producing (at some or every rate of output) which must be borne by a firm which seeks to enter an industry but is not borne by firms already in the industry’.\textsuperscript{7} The sources of such ‘barriers to entry’ are diverse. Besides legal entry barriers (like e.g. entry regulation by the state), the literature focuses on the so-called private entry barriers (see Focus 2 for some examples from the airline industry).

Focus 2: Operating and Marketing Barriers in the Airline Industry

In a recent study, the U.S. GAO (2001) found the following operating and marketing barriers, which constrain new entry into dominated airline markets:

- Access to airport facilities such as gates, ticket counters, baggage handling and storage, take-off and landing slots,
- Frequent flyer programmes,
- Corporate incentive agreements,
- Travel agent commission overrides,
- Flight frequency,
- Network size and breadth.

\textsuperscript{6} Furthermore, as investment capital is scarce, the entry decision for a special market depends on the existence and the profit expectations of other investment alternatives.

\textsuperscript{7} See McAfee et al. (2004) for a discussion of this and other definitions of ‘barriers to entry’.
These ‘private entry barriers’ are subdivided into structural and strategic barriers to entry. Structural barriers to entry are related to structural or technical characteristics of an industry (e.g. economies of scale, absolute cost advantages (e.g. favourable access to raw materials or a favourable geographic location), capital cost requirements, product differentiation advantages, etc.). Strategic barriers to entry are largely based on the notion of strategic entry deterrence, realizing that existing firms might deliberately behave in ways that decrease the probability of entry by other firms (see Waldman and Jensen (2000), p. 129).

Bearing this knowledge in mind, the entry decision of an entrant should be guided by an evaluation of the significance of entry barriers in a certain market. As many of these barriers simply reduce the expected post-entry profits in the market, the suggested separation between entry profitability and entry possibility does not seem to be very strict. Nevertheless, it might be helpful to structure the arguments in the course of the present essay.

Additionally, it should be mentioned that entry decisions are much more complex – in practice as well as in its examination by the economic profession – than described above by looking at ‘incentives’ and ‘barriers’. Schulz (1995) provides an overview of the theoretical industrial organization literature. Geroski (1995) shows that the empirical evidence sometimes contradict the theoretical findings. Recent research in strategic management and marketing has exposed different options of entering a market. Montaguti et al. ((2002), p. 23) for example distinguish between strategies of penetration, compatibility, pre-announcing and external routes to market. The choice of a certain kind of entry strategy depends largely on factors such as technology characteristics (e.g. network externalities, appropriability, etc.), the competitive environment (e.g. industry concentration, level of incumbency) and firm-specific factors (e.g. reputation, multi-market contact, and order of entry). Focus 3 provides some insights from the airline industry.

Further important influences on the choice of an entry strategy – discussed in the marketing literature – are the expected responses by the competitors and assessments of how consumers adoption decisions can be influenced.

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**Focus 3:**

**Competitive Dynamics of Interfirm Rivalry in the California Commuter Airlines Market**

Baum and Korn (1996) examined how firm-specific competitive conditions influence firms’ patterns of market entry and exit. Their research focused on two features of firms’ competitive conditions: market domain overlap, which measures the potential for competition, and multi-market contact, which measures the potential for mutual forbearance. Their results for the California commuter airlines’ market between 1979 and 1984 show that increases in market domain overlap raised airlines’ rates of market entry and exit, whereas increases in multi-market contact lowered them, especially in markets clearly dominated by a single airline. In other words, close competitors are not the most intense rivals: airlines that meet in multiple markets are less aggressive towards each other than those that meet in one or a few markets.
What Drives an Incumbent’s Entry (Re)Action?

Now imagine you are the CEO of a big incumbent airline and you are confronted with an entry threat (on a certain route) by a potential entrant. What are possible options for (re)action and how should you choose between the different options?

Regarding the first question, the incumbent can try to reduce the expected level of profits that the entrant can hope to earn. If it is assumed that the profit of the entrant is given by \( \pi^E = pq - cq - F \), then the incumbent has four alternatives to negatively influence this expected profit and hence to induce exit or prevent entry: Firstly, to drop the price \( p \), secondly to raise variable costs \( c \), thirdly to raise fixed costs \( F \) or, finally as \( p>c \), to drop quantity \( q \). In short, the incumbent can act in a way that ‘raises rivals’ cost’ and/or ‘reduces rivals’ revenues’.

The precise ways to reach this aim are diverse. Simply speaking, one option for the incumbent is to raise the structural entry barriers with the aim of making entry impossible or at least unprofitable. As this strategy might not be sufficient or too expensive to deter entry completely, the incumbent might consider strategic moves to complicate or even deter entry. The choice of a particular strategy again depends on its profitability and its probability to succeed.

Is strategic behaviour profitable? Strategic behaviour normally incurs costs. Therefore, the decision to behave strategically or not should depend on a comparison between the expected costs and revenues of such behaviour. Bain (1956) uses this essential interrelation for the design of a classification of reactions against potential market entry. His approach differentiates between blockaded, deterred and accommodated entry:

- Entry is blockaded according to Bain’s taxonomy, if – although the incumbent behaves like a monopolist – entry is not profitable. In such a situation strategic behaviour is useless and therefore irrational.
- Entry is deterred, if the incumbent could not behave like a monopolist without causing entry and it therefore changes its behaviour in a way that discourages entry. In such settings strategic behaviour is rational and would deter entry completely as long as the cost of the deterrence is smaller than the additional profits in the less competitive market.
- Entry is accommodated, if structural barriers are low and the costs to the incumbent of deterring entry are greater than the benefits it could gain from repelling the entrant. In other words, firms do not want to deter market entry completely. Even so, strategic behaviour could be rational, as far as it commits to a market conduct more favourable to the incumbent after entry has occurred.

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8 For example, as particularly signalling models in predation theory show, an incumbent can act strategically to make the entrant expect a lower profitability of market entry (see Ordover and Saloner (1989)). Furthermore, an alternative way for the incumbent to deter entry would be to negatively influence the potential entrants’ market growth expectations.