ANTI-TRUST, DEREGULATION AND THE IDENTIFICATION OF PREDATION

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ABSTRACT:
This paper describes in detail a framework for identifying cases of predatory behavior. This could be used by the anti-competitive practices authorities to protect markets from such behavior. This framework is based on all the recent developments in the theory of Industrial Organization, dealing with the interrelationships between market structure, product differentiation, entry conditions, and rational firm behavior under imperfect and asymmetric information. It provides the background to formulating two tests termed the Feasibility and Rationality Test and the Detection Test. The main elements of each one of these tests have been summarized in a flow Chart the objective being to provide public authorities with a general guiding device that could be used in identifying predation in specific markets.

1. INTRODUCTION: DEREGULATION, CONTESTABILITY AND PREDATION

The theory of contestable markets has formed the basis of arguments for deregulation. This was especially so in the transport services sector. However, it is now widely recognized that, in the vast majority of cases, markets do not approach the perfectly contestable ideal. If markets are not perfectly contestable and potential entrants base their decision to enter on the profits they anticipate to earn at the (new) post-entry normal (or Nash non-cooperative) equilibrium, the possibility arises that existing firms will use their prior existence in the market in a strategic way, that is, they will take measures prior to entry that are designed to affect the post-entry normal equilibrium in a way that makes it unattractive to potential entrants.

These measures will of course be costly for the incumbents, but if they are to form part of a rational strategy they must result in an outcome that, given that they are successful, is preferable to the outcome that would arise were entry to be allowed.

Predatory behavior is usually thought of as a subcategory of the theory of anticompetitive strategic behavior that takes place in response to entry, though recently it has been recognized that the threat of the use of predatory behavior could be credibly and rationally used to prevent entry (Roberts, 1986). Whilst traditionally attention concentrated on the strategic use of price to predate, more recently analysis has also considered the use of product specification and other variables. This is particularly relevant since empirical work suggests that product specification and/or proliferation can be a very powerful weapon of predation. In transport services industries such strategies will involve the choice by incumbents of departure times, frequency levels and service quality so that after entry a new firm cannot earn positive profits.

The fact that when markets are not contestable there is a possibility that incumbents will use anticompetitive practices (to deter or eliminate entry) implies that deregulation should be accompanied by a rigorous competition policy. This in turn implies that, for competition policy to be effective, one has to deal with the fundamental issue of identifying anticompetitive practices and more particularly predation.

In this paper we describe in some detail a framework for identifying predation. This framework has similarities to that proposed by Joskow and Klevorick (1979). The main differences are that: (a) We provide a more detailed examination, based on recent developments in the theory of Industrial Organization, of how various industry and firm-specific factors could affect the rationality and feasibility of predation. (This set of factors comprise what we shall call the feasibility and Rationality Test). (b) We provide an account of how, once it has been decided that predation is feasible and rational in a case under consideration, one should proceed to show whether it has actually occurred (The Detection Test).

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The Detection Test could also be compared to the approach proposed by Phlips to the EC Commission (1987). He proposed that detection should involve a full-scale economic modelling of oligopolistic interdependence and estimation of the equilibrium profits of the competing firms. In this paper, we also maintain that this is the first-best method for detecting predation. However, we also propose an alternative (second-best) approach that could be utilized in those (perhaps the majority of) cases where data limitations do not permit one to follow the first-best route.

The structure of the paper is as follows: In Section 2 we define and characterize the conditions under which predation will be preferred to accommodating the entrant. In Section 3 we review and evaluate the traditional competition policy approaches to predation. In Section 4 (the main section of the paper) we describe the proposed framework for identifying predation. This section is accompanied by two Charts that summarize in diagrammatic form the main elements of the proposed framework.

2. THE RATIONALITY OF PREDATION: SOME DEFINITIONS

Throughout this paper, we will be assuming that the market under consideration can sustain at least one more equally efficient firm (in addition to the incumbents) in the normal (Nash) oligopolistically competitive equilibrium. Predation or the threat of predation must involve the sacrifice of some short-run profit by the incumbent in at least one market in which it competes with the entrant relative to what could be earned in that market in the normal equilibrium. Notice that we have here allowed for the possibility that when entry takes place in, say, market j, the incumbent responds by preying on the entrant in some other market in which it also competes. (In this way we can rationalize the many recent instances of “discipline pricing” that occurred post-deregulation in the US aviation industry, as a form of predatory behavior). Of course, for predation to be a rational strategy, the incumbent’s total anticipated long-run profits from using this strategy must be higher than what they would be if the entrant were accommodated, taking into account any effects of the strategy on other markets in which the incumbent may be operating. To clarify this, we need some notation, so let,

\[ \hat{O}_e^i = \text{incumbent’s total profit per period in normal equilibrium when entry is allowed.} \]
\[ \hat{O}_r^i = \text{incumbent’s total profit per period when he predates in at least one of his markets.} \]
\[ \hat{O}_m^i = \text{incumbent’s total profit per period were there no entry threat.} \]

This is just the monopoly profit if there is a single incumbent or if incumbents’ choice of strategies generate a collusive outcome. Clearly, we will expect that

\[ \hat{O}_m^i > \hat{O}_e^i \text{ and } \hat{O}_m^i > \hat{O}_r^i, \]

that is, the incumbent’s total profits are lowered by competition or predation. Suppose that predation in order to eliminate entry has to be practiced for T periods, after which there is no entry threat. Thus if predation is practiced the incumbent will get \( \hat{O}_r \) until \( T \) and \( \hat{O} \) thereafter. If there is no predation, entry will occur and the incumbent’s profit will always be \( \hat{O} \). Let,

\[ \hat{O}_i = \text{present value of } \hat{O}_r - \hat{O} \]

that is, \( \hat{O}_i = \text{present value of } \hat{O}_r - \hat{O} \)

so that \( \hat{O}_i \) is the present value of the difference between total profits when the entrant is accommodated and those under predation. Predation will be rationally preferred to accommodating the entrant if and only if \( \hat{O}_i > \hat{O} \) (1)

(where it is important to remember that the present values of \( \hat{O}_i \) and \( \hat{O}_i \) are calculated by discounting over different time periods).

In the presence of reputation effects (see below), where preying in a market deters entry in the incumbent’s other markets, predation could be the preferred strategy even when it has to be practiced forever (T is infinity). Generally, the strength of such effects, or any other factors that determine the relative values of the profits defined above, will also determine whether and for how long predation would be practiced. Before we consider in detail these factors, we describe in the next section our approach to the way competition policy should deal with predation.

3. PREDATION AND COMPETITION POLICY

The fundamental problem in identifying predation is that it is usually very difficult to distinguish its consequences from those of a genuine competitive response (as would be predicted by standard models of oligopolistic competition).

There are two broad types of policy approach that attempt to deal with predatory behavior. One is to develop rules (or, “bright lines”) which define illegal action. The most influential of these is that by Areeda and Turner (1975), who proposed that a price below “reasonably anticipated” average variable costs should be
conclusively presumed unlawful, while a price at or above such costs should be conclusively presumed lawful. Areeda and Turner take average variable costs as their standard as a proxy for marginal costs because of the difficulty of measuring marginal costs in practice: though the two are equal if marginal costs are constant. A problem with the Areeda - Turner approach (apart from the difficulty of interpreting “reasonably anticipated” in practice) is that it might exclude examples of predatory behavior as defined as acting so as to earn less than short-run maximum profits. As such, rules like those of Areeda and Turner “may constitute the instruction manual on how to prey with impunity” (Easley et.al., (1985), p.457). This criticism applies to the other such “rules” that have been proposed. These recommend that courts should find it illegal for a dominant firm to (i) set price below short-run marginal cost (Posner, 1976, p.188) (ii) eliminate competition and thus increase its profit (Ordover and Willig, 1981) (iii) increase price after exit has taken place (Baumol, 1979) and (iv) increase output when experiencing entry (Williamson, 1979). None of these rules could be used to condemn the predatory actions described in the model of, for example, Easley et.al.(1985). On the other hand, the advantage of such “bright line” rules is that they “let firms know exactly what they are not permitted to do so that the fear of violating the law “by mistake” does not have a chilling effect on all activity” (Easley et.al.(1985 p.457). Further this approach minimizes enforcement costs.

The other approach, that involves taking each case on its merits is the Rule of Reason (RR) approach. This has been proposed by Scherer (1976a and b), Brodley and Hey (1981) and Schmalensee (1979). It is implicit in the recent recommendations to the European Commission by Phlips (1987). Here a thorough examination of the factual circumstances relating to each case is made before a decision can be reached. The advantage of this approach is that it has from Type I errors (condemning competitive price as predatory) and from Type II errors (allowing predatory pricing to escape condemnation) are more likely to be avoided. On the other hand, costs of litigation and the costs which arise because firms act in fear of being accused of predation are likely to be substantial with this approach.

Here we propose a Modified Rule of Reason (MRR) approach designed to minimize the costs of the RR approach whilst maintaining its broad philosophy that there should be no ruling before a thorough examination of the factual circumstances (see also, Joskow and Kleverick, 1979). According to this MRR approach, in examining any given specific case in which predation is suspected, one has to deal with:

1. Industry-specific affecting the feasibility and rationality of predatory action.
2. Firm-specific factors that could affect the rationality of the predatory strategy in the case under consideration.
3. The use of a coherent methodology based on oligopoly theory for determining whether predation did actually occur in the specific instance under consideration.

The first two sets of factors are concerned with determining the question of the feasibility of the alleged predation and the likelihood that predation would be a rational strategy in the case under consideration. Information on these would be relatively straightforward and inexpensive to obtain in practice once the principles on which they are base (and which are explained below) are understood. They will act as a siphoning device that sorts out those cases where predation would be rational and feasible from those in which predation is at best a remote possibility, thus minimizing the costs involved in the traditional RR approach.

In the next section we consider each of these sets of issues in detail.

4. IDENTIFYING PREDATION

The first stage of our approach to identifying predation involves a consideration of the feasibility and rationality of predation, by examining industry-specific and firm-specific factors affecting the feasibility and rationality of predatory action. This is illustrated in Chart 1. If predation is judged to be feasible and rational, then one would proceed to the second stage of the approach. This is illustrated in Chart 2.

Here a distinction must be drawn between the use of a full scale economic modelling of oligopolistic interdependence and estimation of normal competitive equilibrium profits and an alternative approach based on analysis of other relevant information (described in Chart 2). We would recommend using this latter method when data limitations prevent the adoption of the economic modelling approach (E.M.A.). Before we proceed to a more detailed examination of the factors described in Charts 1 and 2 we should stress here that these Charts indicate only what are the most likely implications of the presence or otherwise of these factors for the occurrence of predation.

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A COMPUTER DIAGNOSTIC TOOL TO IDENTIFY PREDATORY BEHAVIOUR (Co.DI.T.I.P.)

CHART 1: THE FEASIBILITY AND RATIONAL TEST

GENERAL FACTORY

A. INDUSTRY SPECIFIC FACTORS
A1. NATURE OF MERKET COMPETITION

NO IS COMPETITION LOCALISED?

YES IS THE MARKET UNCONCENTRATED?

NO ARE THERE SUNK COSTS/Absolute COST ADVANTAGES OR ANY OTHER BARRIERS TO ENTRY?

YES A2. THE ENTRY CONDITIONS

MEDIUM

VERY HIGH

VERY LOW

B. FIRM-SPECIFIC GENERAL FACTORS

NO IS THE FIRM A MULTI-MARKET OPERATOR?

YES IS THE FIRM A MULTI-MARKET OPERATOR?

NO CORPORATE REPUTATION OR IMAGE OF FIRM: AGGRESSIVE?

YES IS THE FIRM A MULTI-MARKET OPERATOR?

NO IS THERE IMPERFECT INFORMATION ABOUT MERKET CONDITIONS?

YES IS THE FIRM FACING ENTRY IN MOST OF ITS MARKETS SIMULTANEOUSLY?

NO IS THERE IMPERFECT INFORMATION ABOUT MERKET CONDITIONS?

YES IS THERE ASYMMETRY IN THE BANKRUPTCY CONSTRAINTS FAVOURING THE INCUMBENT?

NO PREDATION HIGHLY UNLKY

YES PREDATION FEASIBLE AND RATIONAL

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CHART 2: THE DETECTION TEST
ALTERNATIVE SPECIFIC CASE CONSIDERATIONS

ALTERNATIVE SPECIFIC CASE CONSIDERATIONS

YES

NO

IS $\Pi^a_E > 0$?

YES

IS THERE EVIDENCE FROM OTHER SIMILAR MARKETS?

NO

YES

HAS THERE BEEN AN INCREASE IN OUTPUT BY I POST-ENTRY?

YES

NO

$\Pi^a_I < 0$?

YES

ARE THERE EXIT AND/OR SUNK RE-ENTRY COSTS?

NO

NO PREDATION

YES

PREDATION

NO

HAS I AN ABSOLUTE COST ADVANTAGE?

YES

POSSIBILITY OF PREDATION ENTRY UNLIKELY TO BE OF GREAT SOCIAL VALUE

NO

PREDATION ONLY IF NEGATIVE PROFITS PERSIST

KEY:  
I: INCUMBENT; E: ENTRANT;  
$\Pi$: PROFITS ; (NET OF FIXED COSTS)  
a: ACTUAL
4.1 Is Predation Feasible and Rational? (The Feasibility and Rationality Test).

Industry-specific determinants

Two sorts of considerations need to be examined here: (a) The Entry Condition and (b) The Nature of Market Competition, in particular whether competition is localized and whether incumbent firms can act in a cooperative way. This will depend on market characteristics such as the nature of product differentiation and the number and size distribution of firms in the market. We examine each of these in turn:

(a) The Entry Condition: This concerns the presence of impediments or barriers to entry in an industry. Such barriers could arise from any absolute advantages that incumbents may have relative to potential entrants that imply that the latter have to incur higher costs for any given output and/or have to charge a lower price to obtain any given market share. These advantages could result from patents, trade marks or advertising affecting brand loyalty, pioneering brand advantages, discounts on input prices etc. The entry condition also concerns the size of sunk costs involved in the investment required to enter the market. This in turn will depend on the nature of the technology and the efficiency of second hand capital goods markets. Finally the entry condition concerns the extent to which entrants can anticipate some abnormal profit upon entry due to the delayed response of incumbents and the time taken to establish a normal equilibrium. Other things equal, the entry of potential rivals will be more difficult the greater the absolute cost advantages enjoyed by incumbents and the more substantial the sunk entry costs. In turn, the effect of these on the incentive to enter will be dampened in the presence of high market growth and rapid technological advances to which potential entrants have access (since these minimize the impact of any existing advantages enjoyed by incumbents on the incentive to enter).

Where entry barriers are very low, predation will be unlikely because it will not deter subsequent entry. On the other hand, if entry barriers are very high, so that the anticipated return from entering the market and facing a normal competitive response is very low, there would be no need for predation which will again therefore be unlikely. So, as Chart 1 shows, it is where there are medium barriers to entry that predation is most likely and thus it is then that we need to proceed to consider the impact of the nature of market competition on the feasibility and rationality of predation.

It was traditionally assumed that transport services markets were characterized by an easy entry condition. This was on the understanding that the sunk costs for entering specific routes are very low. However in, for example, the aviation sector, the development of the hub-and-spoke operation and other instruments designed to make entry more difficult (e.g. frequent flyer programs) have made this a questionable assumption, and the majority of commentators would now agree that the aviation sector is characterized by medium entry barriers. The same would also seem to be the case, in U.K. local bus-services where the entry condition is not easy if only because entrants are required by law to give 42 days notice of their intention to enter which implies that the incumbents can plan and implement an appropriate response to entry immediately after entry occurs. Further there are some sunk entry cost (e.g. informational advertising) though these are not very high.

(b) The Nature of Market Competition. As noted above this will depend on the nature of product differentiation and the degree of market concentration (see Chart 1). If product differentiation is such that competition is not “localized”, (in the sense explained below) an entrant is likely to meet predation only if the market is composed of a very small number of dominant firms that are able to coordinate an entry deterring strategy. That is, a highly concentrated market structure that is likely to satisfy the informational requirements that would give rise to cooperative strategies would be required for predation to be feasible.

On the other hand, market competition will be “localized” when products are vertically differentiated (i.e., differentiated in terms of quality) or when they are differentiated in terms of a small number of well defined characteristics (e.g. location). The latter case gives rise to the so-called Hotelling-type competition. In either of these two cases a new firm will have to compete directly with only a few or a single firm in the market, so even if there is a large number of existing firms (concentration is low) entry will have a sizeable impact on the profits of the firms producing goods or services “neighboring” those of the entering firm. This means that, in these cases there is an increased likelihood of a predatory response and this is certainly feasible given that the nature of market segmentation implies that any given firm is occupying and is facing entry on specific market segments over which there is very little actual competition.

These cases, especially that giving rise to Hotelling-type competition, are thought to apply particularly well to the transport sector. In this sector, operators serve different routes (market segments) with little actual competition on any given route. Thus a new firm considering entering and serving a specific route is likely to find that this is dominated by very few (usually on or two) incumbents, and its entry will have a substantial impact on them.

Information about the entry condition and the nature of market competition can be used to deduce the feasibility and rationality of predatory action. Of course, it is likely that these two factors will be interrelated. For
example, when post-entry competition is localized and thus intense it is more likely that the response to entry will be immediate, both because the incumbent faces an easily identifiable new competitor and because he will be keen to avoid the substantial loss in profits that would result from a delayed response.

As already noted predation is most likely to be used when there are medium entry barriers. By referring to inequality (1) we can now provide additional support for this hypothesis. The presence of such barriers implies that potential entrants are already disadvantaged relative to incumbents (perhaps because the latter enjoy absolute cost advantages or the former have to incur sizeable sunk costs) so that relatively small deviations from the normal equilibrium, (for example, price reductions below the normal competitive level), will be required for successful predation. That is, the presence of such barriers implies that \( \Delta \), or the RHS of (1), is going to be relatively small— which in turn implies, that all other things being equal, predation is more likely to be a rational response to new competition.

Concerning the nature of market competition, we should note that in a highly concentrated market with colluding oligopolists or in markets where competition is localized the entry of an additional firm will have a substantial impact on the profits of the incumbent(s). This is because the effect of entry on the profits of existing firms is greater the greater the market power of these firms or the more direct the competition between the entrant and the incumbent. That is, in these circumstances, the difference between the profits from accommodating the entrant and profits when there is no entry threat is going to be substantial, i.e., \( \Delta \) is going to be substantial, so that, from (1), predation is the more likely. Thus these circumstances will tend both to guarantee the feasibility of predation (as already noted) and, as is now clear from (1), to increase the likelihood that it is a rational strategy.

In the opposite case of unconcentrated markets without localized competition, even in the unlikely circumstances where firms could coordinate their strategies to eliminate an entrant, this is unlikely to be a rational choice since, in these circumstances, the difference in the profits from accommodating the entrant and those if he is eliminated and there is no entry threat (\( \Delta \), or the LHS of (1)) is going to be very small. If this were coupled with low entry barriers making \( \Delta \) large we would have to conclude, from (1), that it would be highly unlikely that in those circumstances predation, even if it could, would be pursued.

### Firm-specific determinants

The above remarks indicate that the consideration of industry-specific factors means that we only need to proceed to consider the feasibility and rationality of predation for industries with medium entry barriers in which either competition is localized or the market is highly concentrated (this is also illustrated in Chart 1).

Given that these circumstances obtain in the industry under consideration we then need to deal with the following set of firm-specific circumstances that have been shown, in recent theoretical developments in the economics of industrial organization, to affect the rationality of predatory action.

The first set of factors concerns whether or not there are informational asymmetries between the incumbent and entrants and whether or not the alleged predator is also operating in other markets, entry into which is affected by his conduct towards new firms in the market under consideration (Migrom and Roberts 1982). If entrants are incompletely informed about the rationality of the incumbent and, in particular, if they allow for some (perhaps very tiny) possibility that the incumbent is aggressive in the sense of being committed to, or preferring to, fight in the event of entry, they would use observations of the incumbent’s past behavior as a guide for predicting his actions in the future. Suppose that this is the case and that the incumbent operates in many markets (we may think of the incumbent as an airline operator serving many different routes). Then the incumbent may well find that it is rational to engage in predation on some route to eliminate competition there (even though profits in this route are then less than they would be were entry to be allowed) because in this way he maintains a reputation for aggressiveness that results in the deterrence of entry of new firms in other routes. (It is important for this that entry does not take place simultaneously in all routes; see also below).

Alternatively, informational asymmetries between the incumbent and potential entrants about market conditions may lead, in the absence of reputation effects, to rational predation even in a single market case (Roberts, 1986). The incumbent here has an incentive to predate by mimicking bad market conditions (conditions that would generate negative profits for the entrant) when market conditions are in fact good. Given that the entrant recognizes this and is sophisticated enough to be able to infer the state of actual market conditions after entry (having observed the incumbent’s output), the incumbent has, in order to credibly signal to the entrant that market conditions are bad when they are in fact bad, produce an output that is even greater (and hence results in a lower market price) than would be if the entrant knew market conditions were bad or if the incumbent were mimicking bad market conditions when they were in fact good. (That is, the incumbent has to produce an output that he would have no incentive to produce were market conditions actually good). Given again that the entrant recognizes the rationality of this response by the incumbent and incorporates it into the calculation of his
anticipated profit, this could be sufficient to deter his entry, even though his anticipated profit, this could be sufficient to deter his entry, even though his anticipated profits if there is no possibility of predation - no possibility that the incumbent would try to mimic bad market conditions when they are in fact good, as would be the case with perfect information- are positive.

Alternatively, it would be rational and credible for a single-market incumbent to predate for a finite period of time if there were asymmetries in the bankruptcy constraints facing the incumbent and potential entrants (so that the former can withstand a price-war for longer than the latter can, Benoit, 1984; in terms of inequality (1) above, T can be thought of as the number of periods it takes for the entrant to be driven out given his bankruptcy constraint).

An application: predation in the European aviation sector

After considering the industry and firm specific factors discussed above, could we conclude that predation will occur in the aftermath of the liberalization of European aviation? The answer must be that predation may well occur and this is because the aviation sector fulfills a number of the requirements that, as mentioned above, when present would make predation a feasible and rational response to entry. To summarize, these are: (a) the presence of entry barriers, that are not sufficiently formidable to deter entry in themselves; (b) the fact that competition is route localized with specific routes dominated by very few large incumbents; (c) the fact that incumbents are multi-route operators - this can provide a very powerful rationale for predation to the extent that entry does not occur simultaneously in all of the incumbent’s routes. It can be reasonably anticipated that large carriers will not face simultaneous entry in all or even most of the routes they operate. However, for smaller operators this may not hold: empirical evidence from New Zealand suggests that simultaneous multi-route entry can be very successful (Mills, 1989). Finally, (d) at least large operators may be thought of as enjoying a more favorable bankruptcy constraint than potential entrants. In addition the nature of European airline liberalization means that some incumbents may still be protected on some of their routes: this would magnify any asymmetries in bankruptcy constraints.

4.2 Is Predation Taking Place? (The Detection Test).

If information on the industry and firm - specific characteristics described above is such that it can be reasonably anticipated that predation could be a feasible and rational response to entry, then we proceed to the second stage of our recommended approach and consider the issue of predatory intent. Issues in determining predatory intent are illustrated in Chart 2 and are considered in detail in the present section. Here, when possible, one should follow the approach recommended by Philips (1987). This amounts to utilizing a detailed economic modelling approach (E.M.A.) in order to determine that predation actually occurred. This would involve constructing a model of oligopolistic rivalry for the market in question based on specific information about the nature of demand and costs. This would predict profits for the incumbents and entrant in a normal competitive equilibrium. These reduced-form profit functions would then have to be estimated using market data so that a comparison can be made between the normal equilibrium profits and actual profit levels.

If normal oligopolistic profits were negative net of sunk entry costs then this would indicate that the market cannot sustain another firm and observed losses are the natural consequence of normal competition: entry should not have occurred and the fact that it has is the result of a mistakenly over-optimistic strategy of the new firm. If, on the other hand, normal equilibrium profits for an additional firm are positive, observed losses would provide strong support for the hypothesis that these losses are the result of predation.

There are two sorts of consideration that need to be discussed in this context: (1) Those that relate to whether actual losses, when normal equilibrium profits have been estimated and shown to be positive, could be the result of anything other than predation; and (2) those, described in Chart 2, that relate to whether reasonable proof or disproof of predation can be obtained when it is impossible or very costly to obtain an estimate of the normal equilibrium profits (in the way described above) so that alternative considerations for the specific case have to be examined. We consider each of these in turn:

(1) Here the main thing to check is whether actual losses (given that they are not the result of normal competition) could be produced by some other circumstances specific to the case under consideration (rather than predation). The main reason the entrant’s profits could be negative, other than the entrant being the victim of predation, is that the entrant is acting in a way that is inconsistent with the attainment of normal equilibrium. The most common way in which this could manifest itself is through entry not at the normal equilibrium product specification and price levels but at some other levels at which a genuine competitive response by the incumbent results in losses for the entrant. This can be partly due to a financing constraint that limits the entrant’s ability to invest, and partly due to failure to calculate correctly the post-entry choices that would generate positive profits.
Such factors should in principle be easily identifiable by questioning the entrant. Again experience from the British bus industry suggest that they are very important in practice. If they are present one should conclude tentatively that no predation is taking place though evidence of mistakes by the entrant post-entry is no guarantee that predation is not also taking place.

(2) If, as would usually be the case, it is very difficult or very costly to obtain an accurate estimate of normal equilibrium profits, alternative means have to be found to provide supporting evidence about whether or not predation is actually occurring. In such circumstances, when the actual profits of the entrant (account being taken of all his costs) are positive we would conclude, as indicated in Chart 2, that predation is not taking place. (Though we are aware that positive profits are consistent with predation - when the latter is, for example, used to lower profits so as to slow-down entry - it is not clear at all how this kind of predatory action could be identified in practice). When, on the other hand, the entrant is observed to be making losses, supporting evidence about whether or not predation is actually occurring involves considering other relevant information consisting of:

(2.a) Empirical evidence on the number of actual profitable competitors in similar markets (of the sector under consideration) could enable one to deduce whether entry could be profitable in the specific market in question. Thus for example in other equally sized markets the number of profitable competitors is greater than the number of incumbents in the market under consideration that could be used to support the hypothesis that entry in this market could be profitable. (There is, for example, extensive evidence on the relationship between traffic density and number of competitors for the US aviation industry). One should of course treat with care such evidence taking account of any differences between incumbent and entrant that may not exist in other markets. The most common of these would be differences arising out of absolute cost advantages enjoyed by incumbents.

(2.b) Evidence about the incumbent's moves following entry from which we could deduce whether or not it is likely that he is behaving in a manner consistent with normal competition. Thus under most reasonable assumptions about demand, an increase in the incumbent's output post-entry would be inconsistent with normal competitive behavior. Hence an observation of this kind should be interpreted as a very probable predatory response. However the problem with this is that (i) it is possible, under some, not unreasonable, conditions on demand, - which one could conceivably eliminate on the basis of empirical evidence - that an increase in the incumbent's output would constitute a competitive response (see Seade, 1980), and (ii) a reduction in the incumbent's output in response to entry could be predatory if it is not of the magnitude that should be anticipated by a normal competitive response.

(2.c) In the case where from the type (2a) considerations above we believe that entry should be profitable but, as would be anticipated from a normal competitive response, the incumbent's output is reduced post-entry, we would need to obtain evidence on the incumbent's actual post-entry profits:

(2.c.1) If actual profits by the incumbent post-entry are positive then predation could still be occurring but if the entrant has not entered by choosing the wrong frequency and/or fare levels this can only be true if the incumbent enjoys some "absolute cost advantage" (if this is not the case the incumbent should also be making losses - as the entrant does). This could be reasonably easy to identify if it results from differences in costs (it would be more difficult to identify if it is the result of demand factors). If it can be shown that an "absolute cost advantage" does not exist then a positive profit by the incumbent (in the presence of losses by the entrant and of a reduction in the post-entry output of the incumbent) should indicate, as shown in Chart 2, that predation is not taking place but that the entrant has entered in an inefficient way. If an "absolute cost advantage" is found to favor the incumbent then predation could also be taking place even though the incumbent's profits are positive. However, as noted in Chart 2, the social implications of this would depend on the advantage enjoyed by the incumbent: if the latter is genuinely more efficient than the entrant the costs of proving beyond any doubt that predation is occurring are likely to be far greater than the gains in consumers' welfare from having the entrant in the market.

(2.c.2) If, given the considerations above, the incumbent's actual profit post-entry is negative a very strong case exists for arguing that the incumbent is predating. However, even here, there are circumstances under which the negative profits are the result of a rational competitive response. That would be the case if the entrant is a low cost firm (more efficient than the incumbent) and the incumbent requires time to adjust to a more efficient structure. In this case, if there are exit costs and/or high sunk re-entry costs (e.g. informational advertising), it would be rational for the incumbent to stay in the market and sustain losses, during the adjustment period, if these are smaller than the costs result from the existence of long-term contracts between the firm and its labor force.

Another consideration that would tend to strengthen the case for staying in the market is the possibility that even short-term exit may allow another new firm to get established in the market. Of course these factors could only form the basis of an explanation of negative profits by incumbent firms for as long as these profits do not persist for a period of time that is longer than that required for adjustment. In many industries, including the transport
services industries, the latter will be a rather short period of time. Nevertheless it seems that in, for example, the US aviation industry there were post-deregulation some such instances of "defensive action" by incumbents that could at first sight appear as predation.

If on the basis of all the considerations mentioned above it is decided that predation is taking place the question of whether or not to take legal action must be addressed. Here the litigation costs involved in taking action must be balanced against the benefits from forcing the incumbent, through legal means, to accommodate the entrant (who may, in the meantime, have exited the market).

As already noted some economists (e.g. Baumol) have argued that no legal action should be considered if the incumbent does not reverse his post-entry actions against the entrant following the exit of the latter. Since, in that case, even if these actions were predatory, consumers will be benefitting from lower prices and/or improved product availability. (Note that if these actions were competitive there would still be an incentive for a price increase post-exit as a normal competitive response to exit - however we are now assuming that all relevant considerations indicate that predation has occurred). Now, whilst say a price increase once (and if) exit takes place would provide an additional signal that predation was occurring there is an important issue of timing: for how long should the incumbent maintain price and product quality in order to prove that his actions were not detrimental to consumers' welfare? The problem here is that changing conditions may necessitate a change in prices, product qualities etc. but the extent that such changes are required will be hard to judge by an outsider.

Given this, it would appear that, for those (relatively) few cases where Chart 2 indicates that, having taken all factors into account, there is predation some form of legal action against the incumbent would be the most appropriate course to follow.

FOOTNOTES

1. For a good summary of the main criticisms of contestability and their implications for the empirical relevance of the theory see Vickers and Yarrow (1988), p.53-61.

2. This was clearly brought out in a study by Dodgson, Katsoulacos and Pryke on "Predation in Aviation" carried out for the EC Commission (1990).

REFERENCES


