Barriers to Entry

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CRC América Latina

Index

1. Introduction

The general concern that motivates antitrust rules is the possibility that the creation and exploitation of market power by one or more firms would impair the competitive process and harm consumers. Several factors may limit the ability of firms to exert market power. Among these the threat of entry or the actual entry in the market of potential competitors is one of the most relevant. This is the reason why the analysis of entry is an important element of a competitive assessment and, in some cases, a crucial one.

Although barriers to entry (BTEs henceforth) play a crucial role in many competition law cases, there is not a general consensus in the economic literature on their definition, i.e. on what factors should or should not be regarded as a BTE.[1] The debate in the academic literature did not prevent many competition authorities and courts from developing a pragmatic and consistent approach to this issue (OECD 2005). The aim of this paper is to provide a guide for the examination of the existence and relevance of BTEs by competition authorities and courts, as well as by companies and their counsels. Therefore, we will focus on the practical issues that may arise in the assessment of BTEs, without engaging in the rich and still unsettled debate that took place in the scientific literature. The remainder of the paper is organized as follows. Section 2 defines entry and gives a brief overview of its likely effects on market outcome. Section 3 identifies the characteristics that entry must have to be a relevant competitive factor. Section 4 provides a classification of BTEs. Section 5 deals with the assessment of BTEs. Section 6 concludes. Some boxes along the document provide examples drawn from actual antitrust cases.

2. Defining entry

In order to categorize and assess BTEs it is useful to start by clarifying what entry is and why and how it may affect competition. This section serves these purposes. It first identifies the various ways in which firms may enter a market (section 2.1); then it discusses the impact that entry may have on the market outcome and other determinants of consumer and total welfare (section 2.2).

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[1] For a recent discussion of the economic literature on BTEs see Coate (2008).

2.1 Types of entry

Entry may be defined as the decision of a firm to start offering products that it did not offer before or serving groups of customers or territories that it did not serve before.

Several elements can be considered to distinguish the various types of entry that fits with this definition. They concern: the cost and time required to render effective an entry decision; the means used to enter a market; the role that customers play in an entry decision.

2.1.1 Committed vs. uncommitted entry

The effective implementation of an entry decision takes time and normally requires the use of costly resources. These two elements, time and costs, are generally taken into consideration in order to distinguish between two types of entry: “committed entry” and “uncommitted entry”.

Entry is “committed” if it requires investments that cannot be recovered if and when the new entrant decides to exit the market. Costs that a firm cannot recover are referred to as “sunk costs” (see section 4.2.2).

Entry is “uncommitted” when the supply of the relevant product to the relevant customers can occur in a short period of time and requires little or no sunk costs to convert the existing production facilities to offer the new product or serve the new customers. The extreme form of uncommitted entry is sometimes called “hit and run” competition. This term refers to a situation whereby a non-incumbent firm can immediately exploit the possibility to earn profits by selling the relevant product to the relevant customers if the prevailing market conditions allow it to do so. A hit and run strategy requires also that, if the market conditions change and selling the relevant products becomes no longer profitable, the firm is able to exit the market at no costs.

Uncommitted entry is usually taken into account in the relevant market definition stage, while committed entry is normally considered by competition authorities in the analysis of the entry conditions performed within the competitive assessment of a merger or a conducts. Indeed, firms that are able to convert their production in a very short period of time and at a very low conversion cost are likely to discipline the incumbent’s market behavior (almost) as much as those firms that are already active in the market.[2] This is why uncommitted entrants can be treated as market participants.

Although any clear threshold is somehow arbitrary, the time limit that is conventionally considered by some competition authorities is one year.[3] As for the costs, since the definition of the relevant market often relies on the evaluation of whether an hypothetical monopolist could profitably increase the price by a small but significant amount (normally in the 5-10% range), one should consider whether the costs that the new firm must incur are sufficiently low to allow it to cover entry (conversion) costs and earn a normal profit if the price remains above the competitive level by 5-10%.

2.1.2 De novo entry vs. entry through acquisition

Entry may occur through: i) the creation of a new production process by a new entity or the opening of new establishments by firm operating in related or unrelated markets (de novo entry); or ii) the acquisition of firms already operating in the relevant market.

In principle both types of entry may affect competition. However, the focus of this paper is on the first modes of entry, in that the entry decision implies an increase in the number of firms that actively sell the relevant product. Entry through merger does not change the number of sellers, because it engenders the substitution of one of the already existing firms with the new established entity. Notwithstanding this, it is important to recognize that a large fraction of market entry occurs through mergers.[4]

2.1.3 Entry through customers' decisions

A firm decides to enter a market if it foresees the possibility to sell its products at a profitable price. An entry decision, as any investment, always entails some degree of uncertainty

[2] The consequences of hit-and-run competition on the exercise of market power have been studied through the model of perfectly contestable markets that will be discussed in section 3.2; (see W. Baumol, Panzar, and Willig 1982; Baumol 1982)

[3] See for instance UK OFT-CC (2010, par. 5.2.17), Bureau of Competition of Canada (2009, par. 4.3) or New Zealand CC (2013 par. 3.16.2)

[4] According to Yip (1982) more than one-third of entries in 31 product markets in the United States over the period 1972-1979 were by acquisition; Hennart and Park (1993) find that, among 558 market entries into the United States by Japanese companies during 1981-1989, more than 36% were due to a merger.

that will be solved only as events unfold. This uncertainty concerns primarily the existence of an actual demand for the products offered by the entrant, but may regard also the costs that the firm will have to bear. Buyers can actively reduce this uncertainty by guaranteeing some level of business to a new supplier before it actually starts producing the relevant product. When entry occurs thanks to such a decision by one or more buyers it is named **sponsored entry**.[5]

Sponsored entry is a pertinent phenomenon if buyers have the *incentive* to encourage the entry of a new supplier and the *ability* to do so. The reason why a buyer may want to "sponsor" the entry of new firms is to expand the number of suppliers it can rely on to procure an input. An incentive to favor the entry of a new supplier arises only if the buyers think that the existing choice of suppliers is inadequate or fear that it may become so in the near future, exposing them to the risk of being exploited by the incumbents. However, sponsoring entry entails some costs for the buyers. They have to incur transaction costs to negotiate and execute the contract, may need to pay temporarily higher prices to allow the new supplier to increase capacity and reach an efficient scale of production and face the risk of procuring inputs of inferior quality than those provided by the incumbent firms. Hence, the incentive to sponsor entry exists if the prospect benefits of enlarging the number of available suppliers exceed the costs. It must be noted that the benefits that stem from the possibility to count on a new supplier do not necessarily materialize in the long term, because buyers can use the threat to divert (some of) their future purchases to the entrant to negotiate better terms from the current suppliers. Sponsoring entry may just serve the purpose of making this threat credible.

Not all buyers have the ability to sponsor entry even if they would gain from such a move. First, a buyer must have an adequate dimension so as to be able to guarantee the entrant a volume of sales that is sufficient to make entry viable, given the investments that the entrant needs to undertake. Second, in some cases the potential entrant can rely only on a buyer to acquire the specific know-how needed to serve the market. Therefore a buyer is in the position to effectively induce entry only if it possesses the required know-how and has the right to transfer it to the new entrant. (see Case # 1)

[5] Competition authorities may deal with sponsored entry in the assessment of "buyer power" rather than in the analysis of entry.

Case # 1: Bats Global Markets, Inc/Chi-X Europe Limited

On 20 June 2011, the Office of Fair Trading (OFT) referred the anticipated acquisition by BATS Global Markets, Inc (BATS Inc) of Chi-X Europe Limited (Chi-X) to the Competition Commission (CC).

In the UK, BATS Inc operates the BATS Multilateral Trading Facility (MTF), which is an order-driven, pan-European MTF. This exchange facilitates the trading of equities that are listed on primary exchanges. In addition to equity trading, BATS facilitates the trade of Exchange Traded Funds (ETFs), Exchange Traded Commodities (ETCs) and international depositary receipts. It operates both a visible order (or 'lit') book and non-displayed ('dark') order book. Chi-X operates the Chi-X MTF which facilitates trading in 1,386 of the most liquid stocks across 23 indices in 15 European states. Like BATS, it operates a lit order book and a dark order book. As a result of the proposed acquisition, BATS and Chi-X would come under common control and BATS would operate the Chi-X MTF. The CC has examined whether the removal of BATS and CHI- X as independent competitors would affect competition, decrease consumer welfare and decrease service quality.

The CC notes that the principal customers of BATS and Chi-X are well resourced and sophisticated financial intermediaries. It identifies four strategic factors that may encourage a customer to sponsor an entrant:

(a) The ability to constrain trading fees generally; this was a rationale for the establishment of BATS, Chi-X and Turquoise as a constraint on the LSE and would be a reason for customers to invest in new exchanges to constrain existing exchanges;

(b) The promotion of competition to reduce the cost of ancillary services such as data provision and maintain innovation by exchanges;

(c) Other reasons such as a customer expanding their business;

(d) Future regulatory developments such as MiFID II, which is already prompting an increase in applications to the FSA for MTFs.

Although other barriers to entry are very low, because there are few legal hurdles and not expensive costs of entrance, the CC finds the existence of network effects, i.e. the need to attract liquidity, as a barrier to expansion. According to the CC, there is a critical share of around 5 per cent of a significant market such as intra-day lit trading in UK equities, at which point many brokers and traders will seek to connect to an exchange because it offers sufficient liquidity to justify the investment necessary to connect and the ongoing costs of maintaining the connection. Until that point is reached, traders will not consider the costs of connecting to an exchange justified.

The CC notes that historically customer consortia had sponsored the establishment of MTFs that had successfully overcome the barrier represented by network effects. It then argues that BATS' and Chi-X's customers have the ability to direct sufficient trading volume to a new exchange, to provide the initial support that would be necessary for its establishment and to enable it to overcome the initial hurdles, including the network effects.

The CC concludes that there are no barriers that would prevent entry and expansion to overcome any competitive detriment that might otherwise result from the merger. In the circumstances under consideration, such entry and expansion would be likely, timely and sufficient.

UK Competition Commission Decision of 24.11.2011,*BATS GlobalMarkets, Inc/Chi-X EuropeLimited*

Even if some buyers have the ability and the incentive to sponsor entry, this may still be an unlikely or untimely event if: a) the potential entrants do not have the technical or financial requirements to scale up their activity; b) entry is a long lasting process because, for instance, the products of the new supplier need to be tested, have to undergo a qualification procedure or are subject to regulatory approval; c) the incumbent can strategically react to the buyers' move with the aim of jeopardizing the viability of the new supplier or of making it no longer an independent source, for instance by acquiring it. (see Case # 2).

Case # 2: Akzo Nobel/Metlac

On 23 May 2012, the Office of Fair Trading (OFT) referred the anticipated acquisition by Akzo Nobel N.V. (AkzoNobel) of Metlac Holding S.r.l. (Metlac Holding) to the Competition Commission (CC).

AkzoNobel manufactures and supplies metal packaging coatings and metal decorating inks in the UK and Metlac supplies metal packaging coatings in the UK. Both coatings and decorating inks are intermediate manufacturing products in the production of metal packaging, principally cans for food and beverages.

Some customers' submissions showed that they were interested in sponsoring entry and have done so in the past. Customer sponsorship of entry and/or expansion tends to involve a customer choosing to invest in testing and developing coatings formulations with one of its suppliers with the aim of qualifying new products and thereby expanding its supplier base. In the coatings industry, this phase of testing can be both costly and time-consuming, but once a coatings manufacturer has qualified its products with one customer, this encourages other customers to seek to qualify their products in the same way, i.e. qualification with one customer helps an entrant to build its reputation in the industry, which is important to enable further expansion.

While Metlac is the strongest example of how a supplier can enter certain market segments and how it can expand in the market when being sponsored by certain large customers, it is not the only example.

However, customers also reported difficulties in sponsoring entry. For example, some suppliers considered by the large customers for sponsorship have been reported to face difficulty gaining access to raw materials under changing market conditions (which in turn raises reliability issues), while other large companies expressed no interest in entering new market segments.

One customer reported that there were a few very small niche suppliers which it was working with but scaling them up would be difficult, expensive and time-consuming and potentially risky (in that one of the other suppliers could absorb them).

The UK CC concluded that sponsored entry was unlikely, untimely and insufficient to counteract the substantial lessening of competition caused by the proposed merger.

UK Competition Commission Decision of 21.12.2012, *Akzo Nobel N.V./Metlac Holding S.r.l.*

In some cases a firm may decide to integrate vertically and enter the upstream or downstream market. This is also a form of entry that depends on a decision made by a customer and that can discipline the market behavior of the firms with whom the now vertically integrated firm interacts and do business. It is important to distinguish those instances in which a buyer integrate vertically only to provide its own divisions or subsidiaries with the relevant product and those in which the newly integrated firm intend to supply also other customers in the vertically related market. Even though in both cases the decision to vertically integrate can reduce the incumbent's market power, especially if it is made by a firm that purchases a substantial proportion of the products sold in the relevant market, the term "entry" is not normally used to refer to the situation in which the vertically integrated firm makes only captive sales.

2.2 *Why and how entry of new firms affect the competitive process and the market outcome*

Entry is an important economic phenomenon and the economic profession has investigated the impact of the entry of new firms on markets' performance, considering its consequences on both static and dynamic dimensions of competition, as well as both short-term and long-term effects.

2.2.1 Entry, prices, quantity and allocative efficiency

The possibility of entry plays a central role in the theory of *contestable markets* (W. J. Baumol, Panzar, and Willig 1982). Baumol (1982, pp. 3-4) defines a contestable market as "one into which entry is absolutely free, and exit is absolutely costless". This requires that "the entrant suffers no disadvantage in terms of production technique or perceived quality relative to the incumbent, and that potential entrants find it appropriate to evaluate the profitability of entry in terms of the incumbent firms' pre-entry prices". Church and Ware (2000) identify the following conditions as sufficient for a market to be perfectly contestable:

- All producers, actual and potential, have access to the same technology;
- The technology may present economies of scale provided that if there are fixed costs, these fixed costs are not sunk expenditure;
- There is no entry lag as an entrant can enter and instantaneously produce at any scale;
- The incumbent's response time is greater than the exit time of the entrant.

When these conditions are satisfied the incumbent is subject to the threat of *hit-and-run* competition by the potential entrants; if the pre-entry price creates a profit opportunity, a potential entrant can immediately take advantage of it by entering the market, undercutting the incumbent's price and leave the market just before the incumbent could retaliate. Hence, the industry configuration is sustainable only if the level of output produced by the incumbent and the prevailing price that clears the market are such that a hit-and-run entry is not profitable. This leads to an equilibrium where total surplus is maximized subject to the constraint that all incumbents break even.

Although the contestable market theory has spurred a rich debate,[6] it has the clear merit to highlight that market shares and market concentration should not be regarded as ultimate indications of market power. The results of the theory, with some simplification, are now part of the received wisdom in the application of competition law. In general terms, it is possible to argue that entry (or the threat of entry) is able to affect the price prevailing in a market insofar it can bring into the market firms that are able to profitably challenge the competitive price level present in the pre-entry scenario. The price reduction determined by entry generally benefits consumers and improve the allocative efficiency of the market.

2.2.2 Entry and productive efficiency

Entry (and exit) can affect the level of productive efficiency in two ways. First, the competitive pressure coming from actual entry or the threat of entry may induce the incumbent firms to improve their efficiency in order to stay in the market (*within-firm effect*). Second market mobility determines a sorting mechanism that reallocates market share toward the least costly firms and possibly the exit of the least efficient ones (*between firm effect*). The existence of these effects and of their interaction has been proved by a quite consistent body of empirical literature.[7]

2.2.3 Entry and innovation

The effect of entry on innovation is less clear-cut. On one hand innovation may be spurred through the same channels just described for productive efficiency; i.e. the competitive pressure coming from potential entrants may induce the incumbent to innovate (*escape competition effect*) or innovative products may be introduced in the market by new firms. On the other hand, the incentives to innovate are improved if the innovator is sufficiently protected from actual and potential competitors so as to obtain the full return of its investments. This is the reason why innovations may be protected through patent rights that impede other firms from copying the innovative product and limit the scope for entry.[8]

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[6]For a thorough exam of this debate see Martin (1993).

[7] See, among others, Disney, Haskel, and Heden (2003); Foster, Haltiwanger, and Krizan (2001; Aghion et al. (2004).

[8] Aghion et al. (2009) find that the threat of technologically advanced entry enhances innovation incentives in sectors close to the technology frontier, where successful innovation allows incumbents to survive the threat, but discourages innovation in less fast-changing sectors, where the threat reduces incumbents' expected rents from innovating.

2.2.4 Is entry always desirable? The notion of excessive entry

Normally entry stimulates competition, disciplines firms' behavior and improves the economic performance of markets. However, the economic literature has pointed out that if entry is unrestricted, the number of firms that enter the market may exceed what would be socially desirable, i.e. entry might be "excessive".[9] This may happen for three reasons.

First, if the industry is characterized by fixed or entry costs that generate economies of scale, the new entrant by stealing business from the incumbents, force them to operate at a higher level of costs. This creates a productive inefficiency that may reduce social welfare. The overall effect depends on whether the price reduction brought about by the entry of new firms offsets the productive inefficiency determined by the lower scale of production of all active firms.

Second, when entry entails costs that have been already incurred by the incumbent, the efficiency loss due to a multiplication of entry costs may exceed the welfare improvement stemming from a more efficient allocation of resources due to a more competitive market. This dynamic inefficiency is particularly relevant when entry costs decline over time. Moreover, when the cost of capital depreciates over time, making the use of existing equipment less and less expensive, entry may occur *too early* from a social welfare point of view.

Third, for the reasons outlined in the text, firms may try to protect their investments by adopting tactics that delay or impede entry. These tactics may have efficiency reasons in that they allow those firms that have invested to reap the benefit of their investments and therefore encourage activities that will make consumers better off in the long run.

Notwithstanding these indications, competition authorities, when evaluate BTEs, normally are not concerned with the risk of "excessive entry". This attitude has several justifications. In many jurisdictions, the welfare standard adopted to make a competitive assessment is the consumer welfare standard and entry is unlikely to harm consumers, at least in the short-run. In addition, competition authorities in their enforcement activity never take a position of the welfare consequences of BTEs, but rather evaluate whether the market power that would result from a merger or a conduct may be disciplined by the entry of new firms. This is a factual element that is just a component of a more complex competitive analysis. Competition authorities, in assessing

[9] See Chamberlin (1933); Spence (1976a; 1976b); Dixit and Stiglitz (1977); Perry (1984); Mankiw and Whinston (1986).

conducts that may reduce the likelihood or scope of entry, do and should carefully consider whether the purpose of these conducts is to effectively protect the investments made by the incumbents and therefore have an efficiency justification that needs to be taken into consideration in making a decision.

3. Quality of entry

An alleged anticompetitive conduct or a merger that would result in lower output and higher prices can attract new firms in the market. However, not all instances of entry have the ability to cure the competitive problem created by the conduct or the merger. Competition authorities, in considering whether a supply-side response is apt to eliminate a competitive concern, focus on three aspects: 1) the likelihood of entry; 2) the sufficiency of entry in terms of magnitude and scope; 3) the timeliness of entry.[10]

3.1 Likelihood

The first element to consider is whether entry of new competitors is a mere possibility or a likely event. Competition authorities need to find convincing evidence that the attempt by the incumbent to exploit its market power will actually trigger an entry decision by one or more firms. Entry also affects the competitive assessment if some firms are already planning to enter the market, independently of potential attempts by the incumbent to raise prices. In this case the competitive conditions that exist at the time in which the competition authority evaluate the alleged anticompetitive behavior are not indicative of the competitive conditions that will likely prevail in a near future.

The likelihood of entry depends primarily on the profitability of entering the market. A competition authority should evaluate whether a new firm could expect to obtain an adequate return on its investment, taking into account any costs/risks associated with entry, the impact on the equilibrium price of the additional output brought in the market by its entry decision and the likely responses of the incumbent.

[10] The New Zealand CC (2013) in the *Mergers and Acquisitions Guidelines* has referred to these three conditions as the "LET test" where LET stands for: Likelihood of entry or expansion; Extent of entry or expansion; and Timeliness of entry or expansion.

Some firms are in a better position to enter a market because they already produce the same or similar products, possibly in other geographic markets, or because they use the same or similar production processes or have access to the same distribution networks as the incumbent. Hence, the likelihood of entry should be judged by considering those firms that could exploit one of these conditions to expand their activity.

3.2 Sufficiency

In order to counteract a welfare reducing effect entry should be sufficient in nature, magnitude and scope. The central question is whether the entrant will be able to divert sales from the incumbent in a way that effectively eliminate (or substantially reduce) its ability to exert the market power that might result from a merger or an alleged anticompetitive conduct.

Entry is to be considered sufficient if the entrant reaches a sufficient scale of production that would allow it to serve a relevant portion of demand. This portion must be sufficiently high to make the incumbent's decision to raise its price no longer profitable. Hence, it is not required that the entrant must be able to serve the entire market or the majority of customers. However, the entrant must be in the position to meet the demand coming from at least a significant minority of customers among those that might be the target of the price increase.

In order to assess the sufficiency of entry one has to have regard for the possibility of the entrant to build an adequate productive capacity and to have access to the relevant resources that are required for manufacturing and distributing the relevant products.

In differentiated product markets it is important to assess whether the entrant will be able to sell products that are close substitutes of the products offered by the incumbent that may enjoy market power as a consequence of the merger or the commercial practice under investigation. If entry concerns only a niche of the market it is normally considered insufficient, unless the specific niche is the market segment in which the anticompetitive risk is more pronounced. However, in some cases entrants that are initially confined to a niche can progressively expand their offer and serve other market segments.

The same considerations apply to spatially differentiated markets. Entry may be insufficient if it is geographically limited and only marginally affects the areas in which the incumbent can exert market power. However, also in this case one has to consider if the entrant is likely to expand its geographic reach in a short period of time.

In some markets, buyers have a preference for purchasing a range of (complementary) products from the same supplier. For instance, a firm may want to procure equipment and maintenance services from the same provider. If so, entry is sufficient only if the new competitors can offer the same range of products that the incumbent normally provides. More in general, the assessment of the sufficiency of entry requires investigating if the new firm will be able to make a commercial proposition as attractive as the one of the incumbent, taking into account all the characteristics of the relevant products that customers normally consider when they make their purchasing decisions.

3.3 Timeliness

Timeliness of entry is an obvious important factor because the inefficiencies generated by a non-competitive market are the more important the longer the period in which the incumbent may exert market power. Hence entry is considered a relevant factor only if it occurs in a short period of time. Some jurisdictions (e.g. Ireland, UK, Australia) have adopted a two-year threshold to distinguish between timely and non-timely entry. However, this threshold should not be taken as a firm indication. The timeliness of entry must be assessed considering the specific circumstances of the case, the characteristics of the relevant market and the dynamics of the competitive process. For instance, if transactions are regulated by long-term contracts suppliers can exploit their market position only when these contracts are renewed and the selling conditions renegotiated. In these cases also the threat of a relatively delayed entry may be adequate to constraints the incumbent's market power.[11]

4. Definition and types of BTEs

This section provides a practical definition of BTEs (section 4.1), presents a classification of BTEs that may be used in their assessment (section 4.2), discusses instances of BTEs that fall in more than one of the categories of the suggested classification (section 4.3), briefly discuss the interaction between various BTEs (section 4.4) and the related notion of barriers to expansion (section 4.5).

[11] This point is explicitly made by the New Zealand CC (2013, par. 3.106).

4.1 A practical definition of BTEs

On the basis of the characterization of entry provided in section 2, a BTE may be defined as any factor that may:

1) impede the entry of new competitors in the market;

2) force new competitors to enter the market at a lower scale, with a reduced range of products or with a less attractive commercial proposition;

3) delay the entry of new competitors in the market.

Any factor that entails any combination of the above consequences is also a BTE. An ancillary BTE is a factor that on its own does not impede, or delay entry or reduce its scope but can reinforce the ability of other BTEs to produce these effects.

These definitions are instrumental to an accurate assessment of the competitive conditions that exist in a market and that will likely exist in the future. However, the presence of factors that satisfy the previous definitions of BTEs does not imply that a market is not competitive and that an antitrust intervention is warranted. The definitions given above aim at identifying some factual conditions that have to be taken into consideration in a more comprehensive assessment of the competitive conditions existing in the relevant market.

4.2 Classification of BTEs

A frequent classification of BTEs distinguishes among:

- Legal or regulatory BTEs;
- Structural BTEs; and
- Strategic BTEs.

A classification of BTEs is useful insofar it helps identifying all the factors that may give rise to a BTE. Therefore any classification is not an end in itself and can be used flexibly.

4.2.1 Legal or regulatory BTEs

Legal or regulatory BTEs involve all those factors that can impede, delay or reduce the scope of entry and that stems from the application of laws, regulation, administrative acts and any other form of public intervention in the market.

Restrictive government policies are a major source of BTEs. They may hinder entry directly or indirectly. They create clear and direct BTEs when, through a system of **licenses**, set the maximum number of firms that are allowed to sell a certain category of products, such as, for instance, local public transportation or mobile network services. This type of regulation completely prevents the entry of new firms, unless the entrant can circumvent the entry limitation by offering products that, to some extent, consumers consider substitute of the products to which the license refers but are not covered by the regulation. However, also in these cases the licensing system has to be regarded as a BTE if the entrant is forced to offer less attractive products and cannot compete more closely against the licensed firms.

Even if the number of licenses is not capped by the existing regulation, the conditions that must be fulfilled by a new firms to obtain a license may impede, delay or reduce the scope of entry. Indeed, the licensing policy could raise the capital expenditure that the entrant must incur in order to meet all the requirements. In some cases certain potential entrants may also be completely excluded because they do not have the possibility to fulfill all the conditions set by the regulation. For instance, a regulation may condition the license to operate in a market (e.g. broadcasting) to the fact that a firm is not operating (or does not have a market share above a certain threshold) in an adjacent market (e.g. newspaper). This rule would *de facto* impede the entry of some firms that otherwise might have the know-how and the incentive to enter the regulated market.

Trade policies are another important source of BTEs. Anti-dumping measures, trade tariffs, import duties, quotas are all instruments that protect incumbent national firms from the competitive threat of foreign firms.

Public policies may also affect entry when there exist **unclear or conflicting laws** or **unpredictable and arbitrary enforcement of rules**. These circumstances amplify the uncertainty that an entrant faces and therefore increase the cost of an entry decision. Bureaucratic hindrances may generate the same consequences. All these factors may particularly influence the decision to enter a foreign market as they affect the cost that a firm has to incur to understand other legal systems or get acquainted with different formal and informal rules.

Patents can pose BTEs. Indeed, the very purpose of a patent is to grant the owner the exclusive right to produce certain specific goods or use certain technical processes that were the result of his innovative endeavor. However, not all patents create significant BTEs, as other firms may have access to different technologies or find ways to get around the patent. Hence, the relevance of patents as a BTE has to be assessed on a case by case basis with the aim of understanding to what extent the existing patents are indispensable to effectively compete in the relevant market. Although the BTEs generated by patents are due to the publicly managed patent system, and therefore, fall under the category of legal or regulatory BTEs, patents and the patent system may also be used strategically by the incumbent to impede or delay entry.

4.2.2 Structural BTEs

Structural BTEs are those factors that can impede, delay or reduce the scope of entry that stem from the technological means required to produce the relevant products and effectively sell them to the relevant customers, together with the existing and foreseeable market conditions prevailing in the relevant market as well as in the upstream and downstream markets.

The analysis of the **structural conditions of entry** requires to investigate all those factors, apart from the legal and regulatory framework and the strategies adopted by the incumbent, that a potential new entrant would take into account in assessing the profitability of entry. In general the profits that an entrant can expect depend on the costs it will have to bear, the quantity of the relevant product it will be able to sell and the price at which these sales will be made. While the structural characteristics of a market may have direct consequences on the costs faced by a potential entrant and the demand that it can expect to serve, the price at which the entrant will be able to sell its products will fundamentally depend on the strategies that the incumbent will adopt in response to an entry. Therefore, in this section we will focus on the structural conditions that might put the entrant at a competitive disadvantage vis-à-vis the incumbent with respect to costs and demand. This suggests the possibility to evaluate the existence of structural BTEs using these two categories.[12]

Costs

An entrants may have a disadvantage vis-à-vis the incumbent because it does not have access to the same technology or the same sources of inputs, including credit or other form of

[12] An alternative and equivalent approach is to express any disadvantage that the entrant has in terms of the cost that it has to incur to overcome it.

financing. In this situation the incumbent enjoys an **absolute cost advantage**.[13] Such a cost advantage may also derive from legal or regulatory BTEs (such as, for instance, in case access to the relevant source of inputs is regulated by the government). They may also result from differential wage rates, superior talent, and historical accidents (Shepherd 1997). Control over strategic resources, such as essential facilities, contributes to the incumbent's cost advantage over (potential) competitors because the incumbent can directly control some of the costs that the entrant has to bear to offer the relevant product.

The need to invest large financial resources may constitute another BTE (Bain 1956; Eaton e Lipsey 1980; Harrigan 1981; Porter 1998). A high **capital requirement** may entail higher cost of financing than the one borne by the incumbent due to the imperfections of the credit market (Stiglitz e Weiss 1981).

Entry by firms already active in the industry but located in different areas may be limited by **transport costs**. These costs are normally considered in the relevant market delineation stage. However, they may be important also in the entry analysis, especially when *de novo* entry is likely to occur in adjacent but different geographic markets.

The cost structure of the industry may create BTEs even if both the incumbent and the entrant face the same cost curves. Indeed, according to Bain (1956) **economies of scale** constitute a BTE. Economies of scale refer to the existence of a negative relationship between unitary costs and the scale of production. They may arise because of greater specialization and purchasing-for-production scales (pecuniary economies) and savings from the use of specialized machinery, labor and management functions (real economies). In most industries the unitary or average cost curve is U-shaped which means that economies of scale exist only for a limited range of output. The lowest output level at which unitary costs are minimized is called the Minimum Efficient Scale (MES). The relevance of economies of scale depends on the size of the MES relative to the size of the market. If the MES is a significant fraction of the quantity that consumers are willing to buy at a competitive price, then only few firms can operate efficiently in the market. In the extreme, economies of scale determine a natural monopoly if the MES is so large that in the market there is room only for one efficient firm.

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[13] Absolute cost advantages exist when, at level of output, the prospective unit costs of production are higher for entrants than for incumbents (Bain, 1956).

In principle, as the theory of contestable markets (Baumol et al. 1982) shows, economies of scale in isolation do not necessarily imply that entry is more difficult. If a new entrant can rapidly obtain an adequate share of the market, displace the incumbent and reach the MES, economies of scale will not prevent entry. However, if there exist other factors that reduce the ability of the entrant to divert consumers' demand from the incumbent, then economies of scale reinforce the effects of these other factors and are capable of further delaying entry or impeding it altogether. McAfee et al. (2004) qualify economies of scale as "ancillary BTEs" that reinforce primary entry barriers, such as those stemming from brand loyalty or other consumers' switching costs. Moreover, a large MES implies that an entrant would enter the market on a large scale and this would have a substantial impact on prices. Hence, if the MES is large, either an entrant produces a low level of output and bears higher unitary costs than the incumbent or significantly expands the total market output and faces a sharp reduction in price, unless the entrant is able to induce the exit of the incumbent (Geroski, Gilbert, e Jacquemin 1990). In both cases economies of scale can deter entry.[14] Most competition authorities do not make the distinction between primary and ancillary BTEs and tend to consider economies of scale as a BTE.[15]

Economies of scope refer to the efficiencies that a firm obtains if it produces or distributes several products together rather than just a subset of them. The entry considerations just mentioned in relation to economies of scale apply to economies of scope, including the point that economies of scope in isolation do not impede or delay entry and therefore can be regarded as ancillary BTEs.

Both economies of scale and economies of scope derive mostly from the existence of productive factors that are fixed and therefore entail costs that can be spread over more units of

[14]The Canadian Competition Bureau (2011) in the *Merger Enforcement Guidelines* affirms that "in markets in which economies of scale are significant, entry on a small scale may be difficult unless the entrant can successfully exploit a niche. Conversely, entry in such markets on a large scale may expand available capacity to supply beyond market demand, thereby depressing market prices and making entry less attractive" (par. 7.15).

[15] For instance the European Commission (2004) in the *Guidelines on the assessment of horizontal mergers* states that "other factors such as economies of scale and scope […] may also constitute barriers to entry" (par. 71); the *Merger Assessement Guidelines* jointly issued by the UK OFT and CC (2010) maintains that "economies of scale […] may prevent small-scale entry from acting as an effective competitive constraint in the market. Further, in the presence of economies of scale large-scale entry or expansion will generally be successful only if it expands the total market significantly, or substantially replaces one or more existing firm; and if the entrant can afford the risk that such investment will involve, especially in terms of sunk costs " (par. 5.8.5); see also the Canadian position cited at the previous footnote.

output or over more products. However, the contestability theory has pointed out that what matters for entry is not the fixed nature of some the costs that firms have to bear but rather whether these costs are "sunk".

Sunk costs are investments that cannot be recovered once a firm has actually undertaken them even if it leaves the market or goes out of business. These investments are fully committed to the market. Sunk costs do not have to be confused with "fixed costs" which are the costs that do not vary with the level of output. To the extent that fixed costs can be recovered either by selling the related assets or by redeploying it for an alternative use, they are not sunk. (See Case # 3)

Case # 3: Carnival Corporation/P&O Princess

In the assessment of the merger between the two cruise operators, Carnival and P&O Princess, the European Commission had to establish if the very high capital cost of a new ship constituted a BTE.

The Commission notices that in terms of their competitive effects the magnitude of these costs matters less than the question of whether or not operators could re-coup these costs on exit, in other words, whether or not these costs are sunk. It then finds that three factors limit the risk that sunk costs incurred from investing in new ships represent a significant barrier to entry. First, it is not necessary to enter the oceanic cruise market with ships that are newly built. Entry with new ships has taken place extremely rarely. Second, even if an entrant did invest in new ships, the existence of a market for the sale (and subsequent refurbishment) of these ships suggests that operators who wish to exit the market could re-coup a proportion of their investment. Third, the risks of the investment costs being sunk costs would be significantly greater if the oceanic cruise markets were shrinking, rather than exhibiting growth.

Commission Decision of 24.07.2002, *Carnival Corporation/P&O Princess* (Case COMP/M.2706).

Examples of investments that entail sunk cost are: i) acquiring market information; ii) recruiting and training personnel; iii) purchasing project-specific equipment that is not traded in secondary markets; iv) advertising and promotions, R&D, and all the activities undertaken to comply with regulatory requirements.

Sunk costs affect entry decisions in two ways. First, from the potential entrant's point of view, the existence of sizable sunk costs increases the risk of entry because the relative investment would be irremediably lost in case of an unsuccessful entry. Hence, when the entrant has to bear large sunk costs entry may become an unattractive option. Moreover, the riskiness of the project has a direct impact on the cost of financing it; therefore large sunk costs are likely to create an absolute cost disadvantage for the entrant. Second, if the incumbent has already undertaken some investments that cannot be recovered, it will not take into consideration them in deciding how to respond to entry. This implies that it will be more likely to react aggressively. Since the potential entrant has to evaluate the profitability of entry at the post-entry price, the prospect of facing an incumbent that is more aggressive, because it has already incurred the cost of irreversible investments, has a negative impact on the expected post-entry profits. Hence substantial sunk costs incurred by the incumbent reduce the likelihood of entry.

Vertical integration may signal the presence of other cost-related BTEs. In most cases firms integrate vertically for efficiency reasons that may be due either to technological or organizational advantages or to a reduction of transaction costs. The first case is a special instance of economies of scope as unit costs declines for firms that produce both the upstream and the downstream products. The second case arises when firms that want to operate in one of the two markets need to make specific investments that would lose their value if the vertical commercial relationship breaks down, and the commercial relationship cannot be disciplined by complete contracts (Williamson 1985). If only vertically integrated firms can operate efficiently in an industry, then a new entrant must enter on two levels of the production chain in order to compete effectively with the incumbent. This raises the level of investments required for a successful entry and, for the reasons outlined above, can discourage or delay entry. It must be clarified that vertical integration is not as such a BTE. A firm may be vertically integrated for historical reasons and may not derive any cost advantage from this organization if the upstream market operates efficiently.

Vertical integration may also hinder entry if one or more of the vertically integrated incumbents exert control over essential inputs. In this case the BTE has to be regarded as strategic as the conditions for entry are actually determined by the strategic decisions made by the incumbent on how to trade with its downstream competitors.

Demand

In order to sell their products new entrants must be able to gain access to appropriate **distribution and sales channels**. This may refer both to physical infrastructures (e.g. gas distribution pipelines) or to networks formed by wholesalers, sales agents and outlets. Access to distribution channels may be blocked or made more difficult by structural factors (e.g. limited capacity) or by strategic policies adopted by the incumbent. In some cases this distinction is not clear-cut as the prevailing structural conditions may be the consequences of previous strategic decisions made by the incumbent (see Case # 4).

Case # 4: Gaz de France-Suez

Gas de France-Suez (GDF) is a French multinational electric utility company which operates in the fields of renewable energy, natural gas, electric generation and distribution. In 2009 the European Commission adopted a commitment decision which was based on preliminary findings in relation to a possible infringement of Art. 102 TFEU. In its preliminary assessment the Commission found that all the main gas-pipeline border entry points and the interconnection between the North and South zone of the GRTgaz network were owned and operated by GRTgaz, a subsidiary of GDF. Furthermore, GDF was the main owner of capacity across all these entry and interconnection points. Finally, Elengy, a subsidiary of GDF, owned and operated the LNG terminals in service or about to come into service in France, and GDF Suez was the main holder of capacity at these terminals. The Commission also found that, because of the technical, legal and economic barriers, it was impossible – or at least extremely difficult – for a shipper, acting alone or in cooperation with other shippers, to reproduce GDF Suez’s infrastructure, or even to establish import capacities that could constitute an effective competitive constraint on GDF’s infrastructure, and to use them for its own gas supply activities in France.

The Commission considered that GDF Suez’s reservations accounted for a very substantial part of total firm import capacity in each of the balancing zones of the GRTgaz network over a very long period of time. This capacity had generally been reserved for historical reasons.

In its preliminary assessment the Commission found that GDF Suez had reserved over the long term a very substantial proportion of firm import capacity in each of the balancing zones of the GRTgaz network, with the result that third-party shippers did not have access to this capacity under conditions that would allow them to exert effective competition on the downstream gas supply markets in these zones.

Moreover, the Commission identified competition problems relating to a possible refusal by GDF Suez to supply import capacity at the Montoir de Bretagne LNG terminal as a result of the company's strategic limitation of investment in additional capacity there. The Commission referred to financial analyses which apparently showed that the extension of capacity would have been sufficiently profitable.

Commission Decision of 3.12.2009, *Gaz de France* (Case COMP/39.316).

New entrants may find difficult to win consumers demand when the market presents **network effects or externalities**. Network effects arise if the benefit that consumers derive from a product increases with the number of consumers that use the same product. Online social networks provide a clear example of these effects, since the value that a consumer attributes to joining a network depends on the number of other people with whom he/she can communicate through the network. Network effects can be indirect if they are generated through the production of complementary products. A particular instance of indirect network externalities is found in two or multi-sided markets in which firms operate as a platform that allows different categories of consumers to trade among themselves (Rochet e Tirole 2003). Credit cards are a typical example of a two-sided market in which the card providers in order to be viable need to attract at the same time card-holders and merchants.

Network effects can have the same consequences on entry and market concentration as economies of scale and indeed they are also referred to as "demand-side economies of scale". Particularly strong network effects may lead to a "natural monopoly" as the market tip toward a single network. A helpful description of the BTEs engendered by network effects can be found in the *Microsoft* case (see Case # 5).[16]

Case # 5: Microsoft and the "application barrier to entry"

In the first US *Microsoft* case, Microsoft was found to enjoy monopoly power in the PC operating system market. This monopoly power was protected by what the court of appeals named "application barrier to entry". It noted two

[16] For an interesting discussion of how network effects can create a BTE and an extensive treatment of entry in this case, see Werden (2001).

fundamental characteristics of the operating system market: (1) most consumers prefer operating systems for which a large number of applications have already been written; and (2) most developers prefer to write for operating systems that already have a substantial consumer base. This "chicken-and-egg" situation ensures that applications will continue to be written for the already dominant Windows, which in turn ensures that consumers will continue to prefer it over other operating systems. The trial court found that the overwhelming majority of consumers will only use a PC operating system for which there already exists a large and varied set of high-quality, full-featured applications. The court also found that software developers generally write applications first, and often exclusively, for Windows.

United States v. Microsoft Corp., 84 F. Supp. 2d 9 (D.D.C. 2000) (findings of fact), 87 F. Supp. 2d 30 (D.D.C. 2000) (conclusions of law), affirmed in relevant part, 253 F.3d 34 (D.C. Cir. 2001) (en banc).

In many markets consumers face **switching costs** when they change their supplier. These costs create a BTE in that a new entrant must compensate consumers for the cost of switching in order to convince them to purchase the new brand. Klemperer (1995) identifies five categories of switching costs: (1) need for compatibility with existing equipment, (2) transaction costs of switching suppliers, (3) costs of learning to use new brands, (4) uncertainty about the quality of untested brands, and (5) discount coupons and similar devices.[17]

When the turnover of consumers is slow, switching costs may impede entry or make it very hard (Schmalensee 1982; Farrell 1986; Klemperer 1987). Nevertheless, if the market is rapidly growing or there is a fast turnover of consumers, switching costs may actually facilitate entry if the incumbent cannot price discriminate between old and new customers. In this case the incumbent may prefer to charge high prices in order to exploit locked-in customers rather than competing with the entrant on uncommitted buyers (Farrell e Shapiro 1988; Klemperer 1987). However, it must be noted that the decision of the incumbent not to fight entry is rational only if entry occurs on a limited scale and if it does not substantially curb the ability of the incumbent to exert market power, at least with respect to a significant portion of consumers.

[17] As this list makes clear not all switching costs may be regarded as structural factors as some of them are determined or influenced by the incumbents' strategic decisions.

Switching costs is one of the reasons why consumers exhibit **brand loyalty**. Consumers may be loyal to a certain brand also for psychological and emotional reasons or because they have imperfect information. From an economic point of view also the emotional loss entailed by changing brand or the cost that a buyer must incur to become informed can be treated as switching costs and their implications for an entry analysis do not change.

Entry is less likely in **mature or declining markets**. The reason is that a firm is less willing to invest to enter a market in which demand is expected to decrease over time. Moreover in declining markets the incumbent will likely form idle capacity which would allow it to credibly threat to react aggressively in case of entry. However, it has to be noted that although entry may be unlikely in narrowly defined shrinking market, the same maturity of the market is often the consequence of technological substitution and/or change in consumer preferences that increase the level of competition stemming from products that are outside the boundary of the market. In addition, in mature markets firms tend to compete more aggressively on prices and therefore the existence of a durable market power is a less probable concern. Finally, although *de novo* entry is implausible, entry in mature markets can still occur through the acquisition of some existing firms and in some cases this may still be a disciplining factor.

Foreign entry may be hindered by **cultural differences**. Consumers may have preferences for nationally produced goods (especially for food, fashion, etc.), or may find hard or impossible to consume foreign products for linguistic reasons (books, movies). In addition, people prefer to do business with "their kind" even if the available technological means would allow them to extend their cooperation.[18]

4.2.3 Strategic BTEs

Strategic BTEs are those factors that can impede, delay or reduce the scope of entry that are created by the incumbent by adopting specific and avoidable strategies.

[18] For instance, Hortacsu, Martínez-Jerez, and Douglas (2009) show that Internet users do not exploit the potential of the virtually limitless reach of the Internet. Analyzing data from two major auction websites they demonstrate that most of the transactions occur when the buyer and seller are located in the same metropolitan area. The most likely justifications to such results can be found in cultural factors. Another argument put forward by the authors is that local proximity of buyer and seller ensure easier contract enforceability

Incumbents might try to prevent or delay entry of new competitors by exploiting most of the elements that have been discussed in the previous sections. Indeed, even regulatory barriers can stem from the ability of the incumbent to capture regulators and induce them to introduce measures that protect the existing firms. In this section, however we focus on the market strategies that incumbents may use to reduce the competitive pressure stemming from new entrants or from fringe rivals.

In order to describe the incumbent's strategic choices that may create a BTE we can use a taxonomy proposed by Buccirossi, Spagnolo, and Vitale (2006) which distinguishes between strategies that affect rivals *payoff function* – further classified as raising rivals' costs (RRC) and lowering rivals' demand (LRD) – and those strategies, named "output strategies", that do not change the payoff function of rivals, but affect the level of the price at which a new competitor can trade. Even if this classification sometimes may blur, as one strategy may entail the modification of both rivals' costs and demand, it helps organizing our analysis following the same thought experiment described in the section on structural BTEs. This thought experiment requires to investigate the costs that a new entrant has to bear to enter the market, the volume of sales that it may expect to make and the price at which these sales will be made. In the case of strategic BTEs, the key questions evolve around whether the incumbent has adopted (or might be expected to adopt) a strategy that would reduce the likelihood of entry, its scope or its timeliness, since it put new firms at disadvantage because these new firms face higher costs, can expect to win a lower demand or have reason to fear an aggressive incumbent's reaction on the level of output produced and therefore on prices.

Raising rivals' costs

RRC strategies have been first examined by Salop and Scheffman (1983) and Krattenmaker and Salop (1986). Incumbents can raise rivals' costs through a number of strategies which include: **exclusive contracts** with input suppliers or distributors or the **refusal to supply** an input that is more efficient than other inputs available in the market. The input may consist of access to a physical infrastructure, a license to use an intellectual property right, a good, or a bundle of goods and services (such as a distribution system).

When an incumbent has full control on an input that is indispensable to operate in a downstream market and that cannot be economically duplicated (**essential facility**) it has a direct means to influence rivals' costs as these depend on the price for the essential input that is charged by the incumbent. If the incumbent refuses to give access to the essential facility, then entry is actually impossible (costs become infinite).

Lowering Rivals' Demand

Exclusive contracts with input suppliers or distributors can also lower rivals' demand if they prevent new entrants from using inputs of superior quality. If so a new firm may have the same costs as the incumbent and yet may find difficult to sell its products, which have been produced using inferior inputs, as they are less attractive for buyers than the incumbent's products. Also an essential facility may be used by an incumbent to lower rivals' demand if access to the facility is provided in a quality discriminated manner.[19]

A more direct way in which the incumbent can reduce the demand that is available to new entrants is to conclude exclusive contracts with customers.[20] This strategy will impede new firms to sell their products to customers that have committed to buy only from the incumbent,[21] and therefore its demand will come only from uncommitted buyers. Exclusive dealing is a particularly effective entry deterrent mechanism if the entrant has to bear substantial sunk costs and a non-negligible minimum volume of sales is needed to cover these costs.

Exclusivity does not derive only from explicit contractual arrangements. An incumbent can force or induce a customer to make all or the majority of its purchases from it through specifically designed rebates or by offering best pricing guarantees, such as meeting competition clauses.[22] Recently it has been pointed out that a similar foreclosing effect can be obtained in those markets where operate electronic platforms (e.g. platforms to sell hotel rooms or books) by the adoption of across-platform parity agreements whereby the sellers that use the platform undertake not to charge a lower price for the sale of the same product on other competing platforms. This arrangement may impede a new platform, which is a two-sided business, to gain a sufficient

[19]For examples of this practice see Economides and White (1994); Cremer, Rey, and Tirole (2000)

[20]See Aghion and Bolton (1987); Rasmusen, Ramseyer, and Wiley (1991); Segal and Whinston (2000); Fumagalli and Motta (2006)

[21] The new firm may still obtain the demand of committed buyers if it is significantly more efficient so to be able to offer such a low price to allow the customer to pay any penalty that is imposed on him for breaching the exclusivity clause. However, this implies that competitors that are as efficient as the incumbents are foreclosed.

[22] For an informal analysis of this argument see (Salop 1985) a more formal treatment is provided by Arbatskaya (2001).

number of buyers who have no reasons to buy through it if they cannot find the product they want at a lower price.[23]

According to Bain (1968) **product differentiation** is an important BTE. It can deter entry for two main reasons. First, when products are differentiated consumers tend to show brand loyalty and therefore to prefer the incumbent's product over the entrant's (new) product (Schmalensee 1982; Karakaya e Stahl 1989). Second, in highly differentiated markets the incumbent tends to cover the entire product space. Therefore new firms can enter only by offering new varieties that will confine them to a market niche.[24]

Product differentiation is often the result of **advertising** which may have has a strong entry deterrence effect since it is an investment that entails a sunk cost.[25] Moreover advertising is an *endogenous* sunk costs as the level of the investment undertaken by the firms that operate in the market is not imposed by the technology of production (e.g., plant size, start-up working capital) or other exogenous elements, but it is strategically determined by the firms that operate in the market. Other instances of activities that entail endogenous sunk costs are R&D, product design and other activities aimed at improving the perceived quality of the products and therefore at raising consumers' willingness to pay. The economic literature has shown that markets with significant endogenous sunk costs tend to a high level of concentration and are referred to as "natural oligopolies"(Shaked e Sutton 1983; Sutton 1991).

For some products firms' **reputation** is a crucial determinant of consumers' choice. If the incumbent has already an established reputation for quality and reliability (which may also be the result of investments in advertising), an entrant must incur substantial sunk costs to convince its potential customers to take the risk of trying the new product. In addition, the incumbent's high reputation may also give it a cost advantage in borrowing capital to finance its activity, as lenders will consider the reputational deficit of the new entrant as an additional risk and demand a higher interest rate to grant loans.

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[23] For a discussion of the competitive effects of these price-relationship agreements see Aguzzoni et al. (2012).

[24]This strategy has been called "brand proliferation" (Schmalensee 1978).

[25]There are also theoretical arguments for hypothesizing a positive relationship between advertising and entry. Schmalensee (1983) argues that high investments in advertising sustain a relatively higher price level thereby attracting newcomers; Kessides (1986) points out that the entry deterrent effect of advertising might be countervailed by the fact that entrants perceive a greater likelihood of success in markets where advertising is important; according to his empirical analysis this latter effect dominates the deterrent effect and hence the overall impact of advertising on entry is positive.

Output strategies

The idea that the incumbent may deter entry by choosing its output so as to bring price at a level that would make entry unprofitable was initially developed in the **limit pricing** theory by Bain (1956) and Sylos-Labini (1962). According to this theory an incumbent may decide to sacrifice its short run profits with the aim to keep potential entrants out of the market and therefore earn, in the long term, higher profits. The deterrence effect is obtained by expanding production beyond what would be required to maximize profits, so that the residual demand available to potential rivals is reduced to a level that is insufficient to cover the fixed cost of entry.

The limit pricing theory has been criticized because it assumes that the incumbent can persuade its potential rivals that it will not alter the level of output even if entry actually occurs. In fact, an incumbent would be better off if it reduces output in the post-entry scenario. Hence, the threat of keeping output high is not credible or, in game theory jargon, the limit pricing theory hypothesizes a behavior that is not part of a sub-game perfect equilibrium. The main message of this critique, which maintains its validity beyond the limit pricing theory, is that potential entrants are logically interested in the market equilibrium that would prevail post-entry and that the pre-entry conditions are taken into account only to the extent they are relevant to predict if and how they will change once entry has actually occurred.

This insight has been fully developed in the economic theory of **predatory pricing**. This strategic entry deterrent mechanism postulates that the incumbent can price below cost for an extended period of time in order to force rivals out of the market and gain or maintain its market power in the long run. What really matters in this construction is that that potential entrants form the expectation that the incumbent will react to entry by adopting particularly aggressive strategies. Indeed, the credibility of the incumbent’s retaliation strategy and the rationality of the entrants’ expectation to meet an aggressive incumbent are the two faces of the same coin. The economic literature has identified several situations in which the threat/expectation of retaliation becomes credible/rational. They all presuppose that some form of information asymmetry exists in the relevant market or in related markets. This asymmetry may concern the characteristics of the incumbent (its efficiency or attitude) (Kreps e Wilson 1982; Milgrom e Roberts 1982) the existing demand conditions (Fudenberg e Tirole 1986), the financial stability of the entrant (Bolton e Scharfstein 1990), and others.[26]

It is important to point out that these output strategies need the presence of other BTEs to effectively hinder entry. Indeed, a predatory pricing strategy imposes the sacrifice of short run profits and therefore it is rational only if the incumbent can obtain supra-competitive profits in the so called recoupment phase. However, by definition this is only possible if the incumbent is to some extent protected by the entry of firms attracted by the high margins available in the market in that phase. This means that also output strategies should be regarded as “ancillary BTEs”: they have a substantial effect if other BTEs already exist. These primary BTEs can be reinforced by the incumbent if it succeeds in establishing a reputation of being a tough competitor that is willing to fight entry rather than accommodating it.

Aggressive pricing responses (including below-cost pricing) imply that the incumbent will sell more than its profit maximizing output (and possibly even more than the perfectly competitive output). Hence the incumbent must possess some degree of **excess capacity** to implement these strategies.[27]

4.2.4 A word of caution on strategic BTEs and illegal behavior

The creation of strategic BTEs may constitute an illegal foreclosing behavior in violation of antitrust rules such as those set in Article 102 TFEU or in Section2 of the Sherman Act. However this is not always the case and strategic BTEs and antitrust violations should not be confused. Most of the times strategic BTEs result from perfectly legitimate business behavior. For instance, a firm may decide to invest in advertising to differentiate its products, improve its brand image and increase consumers’ willingness to pay. Similarly, investments in R&D and patent filing are clear and uncontroversial examples of conducts that firms legitimately undertake to raise profits and reduce the risk of facing new competitors and that, the same time, benefit consumers. One should never forget that these investments constitute a *form of competition* on their own and that they normally enhance consumer welfare, even if they make entry by new firms more difficult.

[26] For a thorough discussion of these theories see Bolton, Brodley, and Riordan (1999).

[27] The role of excess capacity in deterring entry has been analyzed by Spence (1977); Dixit (1980); Lieberman (1987).

Therefore the identification of strategic BTEs does not necessarily imply that a competition authority has to intervene against them.

4.3 The interaction among the various types of BTEs

In the previous discussion we have already pointed out that some factors are not a BTE on their own and may hinder entry only if combined with other market conditions. This indicates that the decision of firms to enter a new market clearly depends on a number of intertwined conditions. Hence, the classification described in the previous subsections should not become a straightjacket and may blur sometimes. For instance, the incumbent may strategically use the existing legislation in order to create BTEs; patent hoarding is an example of this type of conduct that would lead to BTEs that could be classified as "legal" and "strategic" at the same time. In Section 5 we will argue that one should refrain from using any classification or taxonomy to apply a sort of "check list" approach.

4.4 Barriers to Expansion

In many cases, the incumbent firms have different market position and a restricted number of them (possibly just one) possess market power. This market power may be limited by the entry of potential competitors as well as by the expansion of the actual rivals. Hence, a competition authority needs to consider whether the smaller firms already in the market have the ability and the incentive to expand their operation and challenge the market position of the stronger incumbents. In general, the same factors that may give rise to a BTE may also form a barrier to expansion, i.e. firms' ability to expand may be constrained by the legal, structural and strategic factors described in the previous sections.

5. Assessment of BTEs

5.1 Do different competition law infringements require different analysis of BTEs?

In principle BTEs analysis may be required for any competition law matter. Even for cartels or other per se violations, if the identification of the actual effects is required either for the determination of the sanction or for computing damages, a careful exam of entry conditions may be part of the competitive assessment that a competition authority or a court will carry out.

However, BTEs play the most relevant role within the evaluation of mergers and in the investigation of alleged abuse of dominance/monopolization conducts. The main difference between these two situations relates to the possible different temporal perspective: merger control demands a prospective evaluation of the competitive setting that will prevail after the merger is consummated and therefore requires to analyze the entry conditions that will likely exist in the future; in abuse of dominance cases the analysis is generally conducted ex-post, in order to verify the harm that the alleged unlawful behavior has brought or was able to cause; therefore the relevant question is whether at the time the alleged abusive conduct took place entry was likely, timely and sufficient to counteract any harm that could have been caused by the dominant firm. However, there might be also abuse cases in which a competition authority conducts its investigation at an early stage of the alleged unlawful behavior. Moreover, firms and their counsel often need to explore whether entry exerts an effective competitive constraint so that a dominant position has to be excluded and the pertinent antitrust prohibition do not apply. In these cases BTEs must be assess prospectively as in the assessment of merger.

5.2 BTEs and theory of harm

An antitrust investigation should always follow a coherent theory of harm. This can be thought as a nexus of factual assertion and logical propositions that describe the channels through which the relevant event (the merger or the conduct) will enhance the market power enjoyed by some firms, allow them to exploit this market power and eventually reduce consumer welfare.

The theory of harm should include the analysis of all those factors that, on the basis of the available economic theory, can prove or disprove that the alleged anticompetitive consequences of the investigated event will actually materialize. BTEs are one of these factors and in some theories of harm are indeed essential. For instance, in a predatory pricing case, the incumbent's below-cost pricing decision is susceptible to harm consumers only if the dominant company can charge a supra-competitive price in the recoupment phase. The ability to do so depends on the existence of BTEs that would protect the incumbent from further entry, once the existing rivals have been forced out of the market or have been disciplined thanks to the particularly aggressive pricing policy adopted by the alleged predator. Although the fierce price response by the incumbent may be seen as a strategic BTE on its own, this might not suffice to prove that the incumbent will be in the position to recoup the profits that it sacrificed to exclude its rivals as this will be possible only if there exist other market conditions that would make entry unlikely, insufficient or untimely. This is just an example to clarify why BTEs have to be evaluated in the light of the theory of harm that the competition authority is employing to assess the merger or the conduct under investigation.

5.3 Developing a "theory" of entry

A possible way to deal with BTEs is to adopt a sort of check-list approach. Many actual decisions of competition authorities include a list of factors that fall within one or more of the categories of BTEs described in section 4. However, this way of dealing with BTEs has two disadvantages: first, it is quite likely that a competition authority will find that some of the factors previously discussed are present in the relevant market and others are not; second, as no factor may stand alone as either sufficient or necessary to exclude entry, a check-list approach does not provide a meaningful methodology to weight the relevance of the elements that point in one direction and of those that point to the opposite direction.

A more appropriate approach would be to develop a "theory of entry" which requires to investigate:

- which are the firms that may attempt to entry or to expand their reach;
- how this attempt may occur;
- what is the likelihood that the new entrant or the fringe competitors will have access to the resources and technology that are necessary to produce the relevant products or to increase its production;
- what is the likelihood that customers will divert their purchases from the incumbent to the new entrant, taking into account the characteristics of the commercial offer of actual and potential firms and also the foreseeable reaction of the incumbent;
- how long this entry or expansion will take to produce material effects on consumers' welfare.

Of course the factors that need to be considered in developing such a theory of entry[28] are the same as those that are looked at in a check-list approach. The main difference between the

[28] For the sake of simplicity here and in what follows we will talk only of "entry" where it is understood that the same considerations can be applied also to the expansion of fringe competitors.

two approaches is that the one here proposed imposes to organize these factors in a consistent narrative that may be checked against the available documentary and circumstantial evidence.[29]

5.3.1 Setting the scene: the likely actors

The first step of the analysis of entry consists in understanding which firms are more likely to enter the relevant market. Typically potential competition may come from:

(i) fringe firms already in the market;

(ii) firms that sell the relevant product in adjacent geographic areas;

(iii) firms that produce products with machinery or technology that is similar to that used to produce the relevant product;

(iv) firms that sell in related upstream or downstream markets;

(v) firms that sell through similar distribution channels; or

(vi) firms that employ similar marketing and promotion methods.[30]

These firms may differ in the level of investments that they have to undertake in order to make their entry/expansion decision effective and this will affect the likelihood and timeliness of entry. Therefore it is reasonable to restrict an entry analysis to those firms that are best placed to contest the incumbent's position.[31] However, it should not be taken for granted that those firms that are already active in the relevant market or in adjacent geographic markets are the best candidate to counteract the market power of the incumbent. It is not possible to provide a ranking of general validity of these various categories of potential entrants and the analysis should be carried out on a case by case basis in order to identify the firms that have to be taken into consideration.

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[29] This approach has been endorsed by the New Zealand Commercial Commission (2013) where it maintains that "our focus is on conditions of entry and expansion and their role in influencing the likelihood, extent and timeliness of entry and expansion by existing or new competitors […] This change reflects the courts' own move away from the language of 'barriers' to entry and expansion to the term 'conditions' – a more expansive concept" (pag. 5).

[30]This classification is drawn from the Competition Bureau of Canada (2009), par. 7.4.

[31] For instance the US DOJ-FTC (2010, p. 28) clearly states that "where an identifiable set of firms appears to have necessary assets that others lack, or to have particularly strong incentives to enter, the Agencies focus their entry analysis on those firms".

When there is no sufficient information to ascertain exactly the potential new entrants, it is advisable at least to identify the categories of firms that could potentially enter the relevant market and perform the analysis on these categories. This approach has the advantage to restrict the assessment to the specific strategies that the potential entrants can adopt to start selling the relevant products. For instance, the entry response may come from firms that in the relevant area already use the same distribution network that is required to offer the relevant product or from firms that operate in the same product market but in a different geographic area. To enter the market these firms need to access different inputs and make different investments. Therefore they will largely differ in the combinations of fixed, sunk and variable costs that have to bear, which proves that it is inappropriate to assess in general the size of the sunk costs that a new entrant will face to operate in the relevant market.

5.3.2 Probative value of past entry (or lack of)

A competition authority will look carefully at the history of the market when assessing BTEs. The analysis of previous instances of entry may be very informative. It may clarify what types of firms may enter the market, at what conditions, what they need to be successful, and what is the likely impact of entry on the market outcome.[32]

It is unlikely that a competition authority will conclude that substantial BTEs exist if the market experienced frequent and successful examples of entry. Similarly, it is probably inappropriate to conclude that BTEs do not exist if previous attempts to expand production by fringe rivals or to enter the market always failed. However, evidence on past events should never be considered determinative, both if entry occurred and if it did not.[33] Several reasons justify this position. First, regulatory, technological and commercial conditions vary over time so that

[32]The European Commission (2004, par 70) states that "Historical examples of entry and exit in the industry may provide useful information about the size of entry barriers". The New Zealand Commerce Commission (2013) further qualifies the relevance of this type of evidence by limiting the analysis to previous entry and expansion decisions that followed price increases (see par. 3.101). The UK OFT-CC (2010) adds that the authorities will collect evidence on the history of past entry or expansion, considering the cost of such entry, how long any entrants traded in the market and the effects that entry or expansion had on competition in the market—in particular, whether past entry or expansion modified the pattern of behavior and competition (par. 5.8.12).

[33] Almost all competition authorities make this point very clear. For instance the Canadian Bureau of Competition (2009) states "A history of entry into and exit from a particular market provides insight into the likelihood of entry occurring in a timely manner and on a sufficient scale to counteract an exercise of market power by a merged firm. It is, however, not the sole determinant of whether this would likely occur A lack of recent entry may reflect that the incumbents are competing vigorously" (par. 7.5).

evidence on past entry attempts may not be a valid indication that entry will or will not occur in the near future. Second, strategic BTEs may be the response to previous entry decisions and it is therefore important to understand whether the incumbent has been able to establish a reputation to react aggressively so as to discourage future potential entrants. Third, lack of entry may be due to the existence of fierce competition in the market, whereas entry might be feasible if the active firms try to exert market power.

For these reasons, a competition authority should always investigate why potential competitors decided to enter the market or to refrain from doing so, what factors determined the success or the failure of an entry decision and then ascertain whether the motivations for previous entry decisions and the conditions that affected their realization are still present or have changed.[34]

5.3.3 Other evidence on entry conditions

The entry analysis relies mostly on qualitative evidence. The examination of the legal framework that regulates the market is an obvious prerequisite for any further consideration. It may suffice to highlight the existence of factors that make entry an unlikely or even an impossible event.

Valuable information on the existing entry conditions can be drawn from internal documents of the industry players and of potential competitors. These are particularly revealing if prepared independently of the investigation with the aim of making commercial decisions. These documents provide a reliable account of the commercial opportunities that new firms foresee, the hurdles that they need to overcome to take advantage of them, the market segments that they may choose to contest, the likely scale of production, the range of products they intend to offer and the timeframe in which an entry decision can be implemented. Also the incumbent's internal documents can be very informative in that they may describe to which extent it considers the possibility of new firms challenging its market position a real risk.

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[34] The German Competition Authority (Bundeskartellamt, 2012, par. 70) summarizes its position as follows: "The history of past entry or exit can provide some indications how likely market entry may be in the future. Even if there have been no attempts to enter the market in the past, this does, however, not preclude potential competition. It often provides valuable information to analyse past entry attempts, including attempts that were successful, that failed and instances of entry plans that were not implemented. Of particular interest are the reasons why entry ultimately failed, entry plans were not implemented, or entry was not even considered".

When internal documents are not available, a competition authority may seek to obtain the relevant information from the various market players. In dealing with the responses provided by the various parties a competition authority has to be aware that that they might be biased towards the interests that the respondent has in the outcome of the specific investigation. Generally, the customers’ point of view is more reliable because customers share with the competition authority the interest in maintaining a competitive market, without impeding mergers or business practices that improve the efficiency of suppliers. However, also the responses provided by customers should be handled with care, as they may serve strategic purposes that conflict with the objectives of a competition authority. In all cases, the parties should be requested to support their statements with documentary or economic evidence or concrete examples of how the existing market conditions could allow or disallow the entry of new competitors.

The market researches provided by independent analysts are another valuable source. Although these studies often concern economic sectors or industries that are broader than antitrust markets, they contain precious information on the likely dynamic evolution of these sectors and may help in identifying the firms that are more likely to start offering the relevant products and the factors that may affect this commercial decision.

6. Conclusion

Entry of new firms is one of the main factors that can prevent firms from obtaining or exploiting market power. Even though there is not a consensus in the academics literature on which impediments constitute a barriers to entry, antitrust enforcers have developed a quite uniform and consistent approach. This is based on the need to ascertain whether, on a factual ground, the competitive threat coming from potential competitors, or from a fringe of smaller rivals, is sufficient to prevent one or more firms from altering the competitive process and harm consumers.

Competition authorities have identified several factor that can make entry less likely, less timely or insufficient to cure a competitive concern. These factors are usually classified as legal, structural or strategic barriers to entry. In this paper we have proposed to consider them by developing a “theory of entry” rather than in a sort of check-list approach. A proper theory of entry requires to organize all these elements in a convincing story able to stand against the available evidence. In constructing this theory one has to identify the potential entrants, the ways in which entry may happen, the likelihood that a new production process will effectively be started, given the technology and the resources that the new competitors will have access to, the probability that the new firms will be able to subtract customers to the incumbent given its foreseeable reaction, and the timeliness of the effects of entry on consumer welfare. This type of analysis is case-specific and competition authorities need to adapt it to the characteristics of the markets and of the conducts under investigation.

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