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Market Structure and Management of Technological Monopolies

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Abstract:

Purpose: *This article provides several criteria for setting a balanced approach between the legitimate strategy of growth of technological incumbents, and the preservation of market contestability. We take for granted the predominant role of big monopolists, wielding an overwhelming advantage in terms of economies of scale and technological dominance. To such extent, the microeconomic theory recognizes the existence of natural monopolies. However, the antitrust doctrine assesses the actions of incumbents in order to avoid abusive behavior, to preserve the market contestability, and to defend the rights of consumers. Using several case analysis and up-to-date theoretical contributions, we apply the recent principles of the theory of industrial organization in the interpretation of strategic moves of incumbents and rivals whose interests is reinforcing their market position.*
Design/Methodology/Approach: *We adopt a comparative approach, alternating theoretical principles and case analysis. Results overhaul some basic inspiring concepts that guide the analysis of the behavior of incumbents amid markets strongly monopolized, and finally discuss a few specific cases evaluating the criteria of the antitrust doctrine. In the traditional antitrust stance, the main concern had been to preserve competitive prices and safeguard against any harmful market concentration. However, in some two-sided markets typically the prices tend to be unusually low, leading the antitrust doctrine to new paradigms guided by updated tenets. We proceed to confront the principles provided by the theory, and we interpret several cases of incumbent behavior, in order to assess the degree of market concentration, and if the incumbent behavior jeopardized the market contestability.*
Findings: *Results overhaul some basic inspiring concepts that guide the analysis of the behavior of incumbents amid markets strongly monopolized, and finally discuss a few specific cases evaluating the criteria of the antitrust doctrine. In the traditional antitrust stance, the main concern had been to preserve competitive prices and safeguard against any harmful market concentration. However, in some two-sided markets typically the prices tend to be unusually low, leading the antitrust doctrine to new paradigms guided by updated tenets. As theorists point out, the best criteria for itnterpreting the behaviour of incumbents is the rule of reason, gathering the most complete information and analizing the specific segment, and the particular market conditions.*

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Practical Implications: *Based on a microeconomic bedrock we highlight the challenges faced by the enforcers on charge of the antitrust policy. Based on our discussion, some criteria can be drawn from the recent trends in the economic theory. The conclusions we propose, can illuminate the enforcer´s approach in order to recognize true abusive behavior by the incumbents, and distinguish legitimate strategies for increasing the corporative efficiency of incumbents.*
Originality/Value: *Our discussion becomes breaking and strongly demanded by the scientific community and by enforcers of antitrust doctrine. The theory of industrial organization has achieved relevant frameworks for interpreting the role of dominant technological companies. The key contribution is to build a coherent framework balancing the fair economic growth and the preservation of the market contestability. Our work is relevant and interesting to the extent that, in the current market development, the quick technological advances give rise to cutting-edge dominant companies operating as monopolists. We propose some criteria to deal with the concentrated markets whose regulation requires the fair enforcement of competition authorities.*

Keywords: *Two-sided markets, technological monopolies, network externalities, antitrust, theory of industrial organization.*

JEL Classification: *L12, L13, L22.*

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1. Introduction

In this era of the digital economy, the disrupting expansion of technology sectors, the incredible growth of innovations and the wide proliferation of technology start-ups pushed up the global economy and contributed to more comfortable standards of living and to a more enhanced set of technology alternatives available to consumers and users.

The size of the largest technology big players can extremely expand, which can exhaust the simple national regulations and antitrust rules (Smith and Johnson, 2024). In consequence, the incredible expansion of technological sectors provides enormous advantages for the interconnected users but has dangerously led to more monopolized markets and more concentrated activities.

In this article we present some recent ideas developed by the theorists of the Theory of Industrial Organization. Their contribution is highly valuable in terms of the criteria for assessing the expansion of technological markets and for detecting the global risk for the consumers facing less contestable markets and strongly more concentrated technological sectors.

Relying on this theoretical framework, we interpret the strategic behaviour performed by some incumbents that can be interpreted ambiguously and that requires to be guided by a "rule of reason" and industry-specific criteria.

In pursuing such objectives, this article is structured as follows. We open the discussion with some theoretical ideas based on the microeconomics of setting of prices in a contestable market in presence of economies of scale. The second section describes the basic traits that distinguish the technological sectors and the two-sided markets. In the third section, we single out some strategies enforced by technological incumbents which are commonly applied to preserve their profitability and their market share. The fourth section aims to showcase some specific cases related to the enforcement of antitrust policy to preserve the contestability of the markets and the consumers free choice.

2. Theoretical Background

Setting prices in new tech sectors is a process diametrically opposed to old-style natural monopolies, where the procedure looks at the costs and tries to recoup them through the pricing process. Huge technological giants operate with immense fixed costs but the marginal cost, taking into account each user, is negligible. Such industries operate as high fixed costs, low probability of success, low marginal cost activity (Schrager, 2018).

Incumbents can resort to diverse strategies to increase their sales and deter the rivals from entering the market. The strategies can be focused on price manipulation but there are other available moves.

The pricing in the context of a contestable market requires that the forces of model tend to attain the equilibrium. Tirole (1994) states a clear description of the equilibrium behaviour of the incumbent. Under the assumption of a single-product market with an increasing returns technology defined by:

$$C(q) = f + cq \tag{1}$$

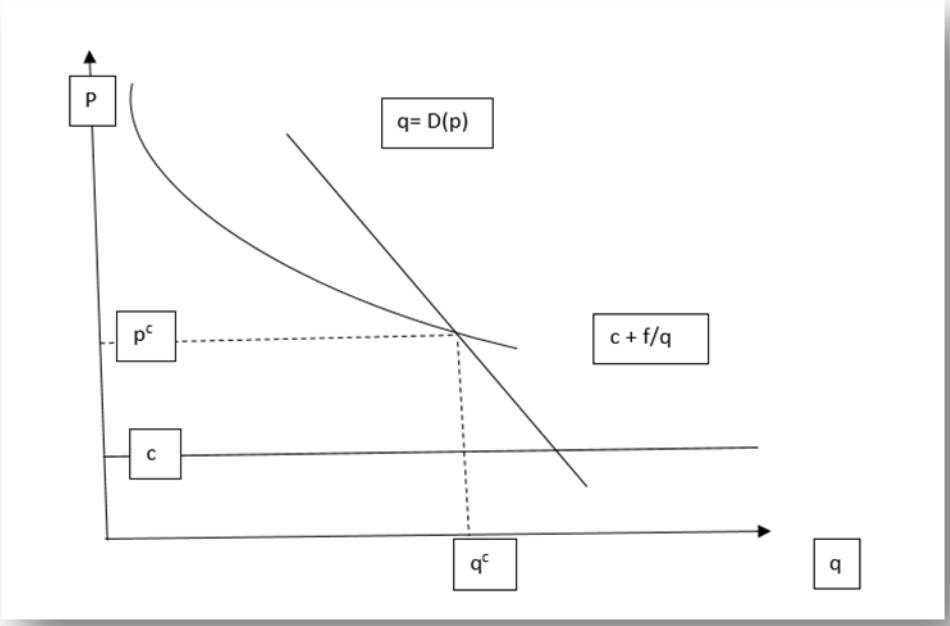
where:
C - the cost,
f - the fixed cost, and
c - the marginal cost.

Now defining the monopoly gross profit of fixed cost, in terms of the mark up:

$$\Pi m = \max\{[P(q) - c]q\} \quad (2)$$

Under the condition that Πm > f the monopoly is viable.

Figure 1. *Setting of Prices in contestable markets*



Source: *Author's elaboration.*

In equilibrium, the model tends to converge into the pair of values {pc,qc} in a market represented only by the incumbent, the other rivals are unable to enter. The equilibrium is derived from the intersection of the average cost and the demand line and the fixed cost is defined as:

$$(P^c - C)D(P^c) = f \quad (3)$$

There are no departures from the equilibrium conditions. The condition p < pc is not sustainable to the extent that it represents loss of money because the price is not paying the average cost.

In contrast, the situation p > pc will entice other the rivals to compete, and even when under-pricing below p, the new entrant can survive in the market.

Providing such market conditions are in place, the behavior of the incumbent is determined by (Tirole, 1994):

- Technological efficiency as the market copes only with one firm;
- There are no extra profits;
- The benchmark for pricing decision is the average cost.

This contestable market submitted to the expectation of new entrants, contributes to taming the behavior of the incumbent. In the context of increasing returns, the sole firm exploiting the market can be disciplined by the risk of entry of new competitors.

The theory of industrial organization prefers apply microeconomic principles based on non-perfect competition markets when assessing the dominance of technological companies. The non-competitive frameworks facilitate the analysis of appropriation of profits stemming from economies of scale and when the incumbent is interested in absorbing the critical technological know-how (Calcara 2024).

Special concerns arise from the blatant intend of the incumbent to preserve the monopolistic rents by an exclusionary conduct to deter the entry of disruptive firms, and individual business. Consequently, the elimination of the competition threat coming up from disruptive rivals, drives to a reinforced incumbent more powerful and self-indulgent, barely interested in innovating (Giulio et al., 2019)

3. Analyzing the Behaviour of the Incumbents

The old discussion nested in the Theory of Industrial Organization during the sixties and the seventies, focused on the in/convenience of a direct anti-trust policy, and if this policy contributed to daunt the private initiatives, has been overhauled when deeming the enormous market power in hands of platforms actually offering technological services.

Likewise, the judgment and the beliefs of an antitrust structure can become forcefully tough against some practices of marketing practices that can be deemed as simply strategic behavior (Posner, 1978; Easterbrook, 1984; Williamson, 1987; Barker and Liu, 2024), and in some cases, the stringent criteria enforced by the antitrust can deter the private initiatives. The work of antitrust enforcers becomes even harder when the asymmetries of information arise, conferring an advantage to the incumbent in terms of the information about costs and the demand situation in the market (Price, 2017).

All this old reflection posed during the sixties and seventies has been currently revisited actually when discussing the hard dilemma between the defence of consumers' interests and the preservation of markets incentives that can bolster the blossoming of new firms and new economic sectors.

As in the past, the strategies of splitting up the monopolies can lead the economy to more contestable markets? However, in the technological world, such a split-up of a compact structure is not practical in the reality.

In the context of highly dynamic high-tech sectors, the competition is done for-the market instead of in the market. It means that there is a real possibility to be left out of the market if a really efficient and innovative rival comes in. Facing this competition for the market propels the incumbent to control costs, pricing under contestable parameters and to innovate (Tirole, 2020).

Presumably, the tech sector promised an infinite world of possibilities for most of start-ups entering in the market, but conversely, the sector has evolved towards highly concentrated market structures with a handful of high-tech sector monopolies.

High tech sectors pushed the business world ahead and transformed the mechanism of trade. Innovative platforms themselves contribute to developing a dynamic interaction non-existent previously. Rightly handled, these platforms add social value by internalizing the latent network externalities and catering for economic services that otherwise would never emerge. Therefore, from the point of view of antitrust enforcement, all this cumulation of phenomena must be included in the "rule of reason" when deeming a corporate behaviour as anticompetitive (Evans, 2003).

The network externalities come up also when the traditional technological platforms can exploit an "ecosystem innovation" to the extent that platform becomes more valuable when more users adopt the platform, provoking in turn a growing set of complementary innovations (Gower and Casumano, 2014).

Such technological environment preserved from monopolistic threats eases the upsurge of numberless small companies prompted by the advantages offered by technology: no cost for back offices and cloud services, fine-tunning with advertisers and a potential capacity to build its own reputation (Schrager, 2018).

Admittedly, the dominant technological platforms fit in the classification of natural monopolies. This kind of market dominance is related to large-scale facilities, efficiently exploited by merely one provider. Some incumbents, such as eBay, invested huge amounts of money in expanding buyer communities in spite that the bulk of its revenue comes from sellers (Martinez and Fisher, 2023).

In some markets governed by the exploitation of huge economies of scale, the operation of several participants turns into an inefficient provision of services, because only one provider can exploit sufficiently the required scales of production (in the tech industry high fixed costs are represented for instance by designing a first-rate algorithm, web crawling and indexing) (Tirole, 2020).

Admittedly, the initial investment in a launch of different technological projects is enormous, and the fixed cost has the same exorbitant amount regardless the number of users. So, for the incumbent, the larger the mass of users, the more enhanced the network externalities.

The recent global influence of technological giants involves enormous challenges for the antitrust practice (Smith and Johnson, 2024) and for preserving the contestability of the market. In most of their markets, huge global players as Amazon, Google, Alibaba, Facebook, Uber, Netflix inter alia, in most of their markets operates as unique providers of services such as delivering, search engines, social networking, etc. In some cases, the role of the platform is to get together the advertisers and a handful of users present in multi-sided markets together.

Seven of the highest caps in the financial world are two-sided platforms (Hitotsubashi University, 2019) and the size of such tech giants requires the real operation in a global market with inputs dispersed across countries (intellectual property, data, servers, supply chain, logistics) and requires the supervision at a supranational level (Tirole, 2020).

The European Competence Commission has a continental jurisdiction but occasionally conflicts are created beyond the Atlantic Sea. In the multi-side environment Evans (2003) highlights the cases of American Express, Bloomberg, Century 21, eBay, Microsoft, Sony and Visa, spanning various economic sectors.

To some extent, all of them provide the world with improved products, services and connectivity, but fundamental concern regarding the loss of privacy and the massive volume of personal information flowing across hands of strangers is growing.

4. Strategical Moves

The paramount prominence of high-tech incumbents is derived from the impressive size of the economies of scale and the practical impossibility of potential competitors to meet the necessity of markets fully and with the same variety of services for the users. Due to this new reality, the new economy faces completely unusual models of business.

In the new economy the technological giants operate amid a landscape scenario with economies of scale or scope, a winner-take-all scenario, and widespread market power (Tirole, 2020). All of them can create social value because they are the sole players enabled to perform efficiently in the provision of a specific product or service.

But in such a situation, there is a set of principles to be observed rigorously. In addition, the ultimate goal of maintaining competitive prices on the market, appears to be the necessity to protect the privacy of users and to preserve the conditions for

social choice in the context of a market economy. In such terms, most alternatives for choosing from a broad set of opportunities are better. Network externalities are a common advantage to be exploited by technological giants which the potential for expansion is based on. In such circumstances a particular product can be deemed as more attractive as broader is the scope of its users. It means that its worth increases with more people using it (Tirole, 1994).

The benefits arising from network externalities can be positively affecting all users, even when at all there is absolutely no a mutual interaction between them, likewise as in the case of agglomeration economies stemming from crowded urban centres.

The advantage for an incumbent from expanding massively the number of users relies on the more accurate prediction capacity of the algorithms. The preservation of contestability in some segments may be transcendental for the emergence of undertakings and for the creation of value for the society, given the typical tales of success of Google and Amazon, which originally started as small firms deploying activities in search engine business and book distribution, respectively (Hitotsubashi University, 2019).

In Schrager (2018), Tirole suggests a regulatory strategy for propitiating more contestable markets. As long as the incumbent dominates several business segments vertically, it would be effective to single out the natural monopoly segment and the more competitive segments and avoid that the monopolist essential facility monopolizes back the more contestable vertical segments.

Presumably, strong barriers to entry along all vertical segments throughout high-tech activities can lead to suffocation of potential small enterprises, with high costs in terms of value for the society. The preservation of contestability in niche markets indeed, may be indeed a crucial factor for the blossoming of several starts-up around the world.

When there is a contestable prospect entering the market observing the incumbent can become a guide for the start-ups aspiring to compete face to face. In some complex markets as technological ones the incumbent has necessarily developed daring strategies to face the market challenges. Evans (2003) quotes the entering of American Express into the card business in 1958 as an imitation of the Diners club's pricing strategy.

Any strategy intended to deter the entry of new business harm the genuine process of innovation. In fact, disruptive firms account for a significant amount of innovation, as long as they are eager to swallow any market share from the incumbent. The independent business and start-ups are reliant on disparate actions apart from the price advantage. In a Schumpeterian vision, new products elbow out the old ones, and new business methods and models supplant the older procedures. Ultimately, the society is engaged in a healthy competitive process (Giulio *et al.*, 2019).

Global giants dominate the world market, but amid smaller companies, several local advantages and the exploitation of niche markets prevail. Given the unusual expansion of on-line transactions and commerce, the Spanish retailer El Corte Inglés stood up to Amazon in the logistic and delivery services taking advantages of its own network of distribution infrastructure and the awareness of the local market (Salvatierra, 2020).

The huge players tend to entangle a set of different segments of the vertical chain of services with the strategic purpose to hinder the antitrust action (making it harder to "unscramble the eggs") (Tirole, 2020).

The task of antitrust becomes hard due to the extent of the idiosyncratic operation of a cutting-edge market, as search engines, card payments, video-games, etc. In the end, the theory of industrial organization named the best approach as the "Rule of Reason" in which the exercise of deeming as monopoly a behaviour requires a specific analysis of the market.

This situation has unleashed a broad reflection on the so-called bottlenecks of essential facilities related to this kind of key segments handled by the incumbent, but also hurled towards other vertically integrated companies. The incumbent's strategies for preying on the potential competitors include diverse tactics, technological or marketing tie-ins, self-preference platforms, loyalty rebates, and so on (Schrager, 2018).

Accordingly, in the recent legal discussion a concern rises when the incumbent bundles its app with its core service, because the owner of the app can use its power to demote or to exclude the rival's service, thus reducing the alternatives for the final user (Tirole, 2020). In the following part, some common strategies are described.

- **Tying and Bundling**

The tie-in strategy can offer bundled goods or services to reinforce the predominance of the incumbent in its segment. Google contracted with Apple and Android mobile phone manufacturers for setting the google engine search as a default when deploying the browser on their phone devices (Tirole, 2020). This move allows Google not only to consolidate his dominance in the search engine market, but also to expand its data collection, so crucial for personalized advertising.

Other harmful strategies can dissuade start-ups from entering into a niche market if the very niche market is served by the incumbent. Big players used to offer a "bundling" strategy, making up a vertical composed complex of services dealing with various niche markets, reducing the possibilities of new entrants to compete in any of such market.

- **Self-Preference**

The so-called self-preference is supposedly a subproduct of strategies aimed at broadening the opportunities for third parties. Some platforms perform a dual role: as an owner of any market place and as a seller as well, even allowing the promotion of competitors' products as third-party. Some apps as Apple, support their own apps but are also opened to offering the space to independent apps.

Recent trials launched against some incumbents, deal with the privileged positions bestowed upon the seller owned by the very platform, impairing the opportunities of competitors to rank in the customers searches (see below the penalized trial against Google search engine and its own shopping marketplace). Such kind of market strategy weakens the free choice when a user considers different alternatives, and becomes strongly anti-competitive to such extent that the rival has no other platform for selling its products (Tirole, 2020).

- **Limitation to the Compatibility and the No-Multi Homing Markets**

The advantages of networking are so highly recognized that firms normally invest in expanding the user base in order to increase the value offered to other customers as in the case of Diners Club or eBay (Evans, 2003). Although, the network externalities rely on a coordination mechanism which emerges amid multi-sided markets and which is irrelevant for one-side markets. The switch to a new technology or platform must be a collective decision rather than an individual one, the individual user can switch once the other users make the same change (Martinez and Fisher, 2023).

This coordination mechanism can intervene as a catalyst, maintaining the contestability in the market. If the entrant successes in congregating a high quantity of users by dint of new adhesions of users switching to its platform, it can swallow the market displacing the incumbent, in spite of the elevated cost of entering (Martinez and Fisher, 2023).

The contestability in markets can be promoted alongside with the multi-home technology allowing the inter-operability across different platforms, in such a way that the users can transfer their content from one to the other. The incumbent recognizing the straightforward challenge coming from the entrant, can adopt a strategy of exclusivity in its technology, in such a way that the users benefit from having the existent technology.

Absent the multi-homing alternatives, the advantage bestowed upon the incumbent is reinforced. Recent efforts in reinvigorating multi-homing in apps, as in the case of mobile technologies, contributes to reducing the barriers to entry and makes the segment more contestable (Tirole, 2020). This multi-homing technology can be viewed as a positive strategy for the incumbent (Gawer and Cusumano, 2015;

Rochet and Tirole, 2023). In fact, the unified technology connecting diverse components reduces the cost of entry in complementary markets, spurring the demand in such markets enhanced by network externalities.

In this regard, Lerner and Tirole (2014) propose a similar concept intended to a common technology interchangeable across operators (compare with Anderson and Hall, 2024). This 'standardization' contributes to the user's welfare, to the extent that he can harness the network externalities in a system whose value depends on the extended number of users.

In the payment card system, the absence of multi-home creates some annoyance. When different systems are not compatible (merchants accept VISA or American Express or Master Card exclusively) consumers must hold multiple quantity of cards (Rochet and Tirole, 2006; Taylor and Williams, 2023; Wilson and Green, 2023). This kind of drawbacks can be overcome by a proper mechanism of coordination.

Although cardholders and merchants can belong to different card systems, and all of them can expect that new consumers will adopt a new payment system sufficiently thus enticing other users (Evans, 2003; Martinez and Fisher, 2023). Buccella *et al.* (2023) assert that when the public policy incentivizes the full compatibility of technologies or a higher degree of it, they can achieve Pareto-optimal outcomes in a context of network externalities.

- **Predatory Prices**

The most powerful the incumbent becomes strongly underpinned to the extent that easily and ruthlessly can launch a predatory price strategy or an attrition war, pursuing to dissuade the rivals from entering the market, until the defiant firms give up. Generally, a newcomer or any start-up is unable to hold on for a long time fighting against a predatory strategy.

This harmful move deters the start-ups, suppressing the potential innovations in hands of new competitors. Obviously, the interest of the incumbent for preserving the low prices during the time lasts only for the period of the strategy.

Once the rivals are left out, the survivor incumbent can impose monopoly prices again. Only the incumbent with a strong financial capability can hold on in a war of attrition, inflicting a real injury upon potential entrants.

Facing the challenges of high tech, antitrust authorities require to be really innovative when assessing cases of markets where the advantages for the incumbent seem overwhelming. The possibility of reinforcing the contestability of the market implies the threating of entrance for new competitors to the extent that the incumbent finds the incentives for reducing its prices (Tirole, 2020).

Likewise, in a competitive environment the incumbent is forced to keep refrained the production costs, pursuing a more efficient process. On the other hand, some deleterious situation can come about as long as the sole intention of any entrant is to achieve an "entry for buyout", and ultimately the new entrant ends up swallowed by the incumbent. (See the case of the Spanish start-up Panoramio acquired by Google in 2007, which developed a device for overlapping pictures taken by users to supplement the satellite images) (Sanchez, 2021).

- **Two-Sided Markets**

Several high-tech sectors work implemented two-sided structures composed of two parts, brought together through virtual transactions: gamers and game developers, users of operating systems and their users, cardholders and merchants performing payment transactions using banking cards or more generally other kinds of cards (Tirole, 2014). This scheme is also used also in case of free newspapers, and so on.

But the ground of the implementation of the two-sided platforms is broader: Dating clubs arrange meetings and interaction between men and women each other, magazines offer the advertisers to connect their audience and operating systems sellers create a market, which application users and developers can use together (Martinez and Fisher, 2023).

There, the incumbent is ruled by the network externalities as well, and the broader the number of users, the stronger the power of the provider. In this scheme, the user can enjoy the service for free or for a negligible price (free search engine, portal, newspaper, hotel booking platforms) (Tirole, 2014). In contrast, the other side of the market is highly levied and in turn, these extra costs can be transmitted to the final products. The levies are overridden in the side where the elasticity is higher.

More accurately, Rochet and Tirole (2006) defined the two-sided markets in terms of a platform interconnecting the two parts of the market getting the two of them on board, and ultimately charging the appropriate fee on the corresponding side of the market (see also Taylor and Williams, 2023).

More generally, Evans (2003) considers that, when pricing in the context of two-sided markets, the asymmetry in setting the price is blatant to the extent that in the one side of the market, the price exceeds widely the marginal cost while in the other side, the price is fixed below the marginal cost. It means that on multi-sided platforms, mostly the pricing is not bound to the marginal cost.

In the case of video-games platforms the maximal concern is to attract the largest number of users in order to induce the developers to bring out new ideas in terms of innovative games. The network externalities operate in full action when the users buy and use the very videogame console. To deem the behaviour of monopolies harmful for consumers, a wider vision must be deployed.

In the context of dominant high technology industries, some insufficient arguments end up exposing the provision of services for free on several of such platforms. However, in contrast, high fees are charged to advertisers, that in turn passed onto final consumers (Tirole, 2020).

This new reality so widely extended in the technological markets, fosters a scheme of asymmetric pricing policy and can be confusing in the light of traditional antitrust policy, under the suspicion of predatory prices policy.

5. Results of Interesting Cases

In practice, under the European legislation, the behaviour of some incumbents was deemed as anti-competitive, and in other cases, the trials entail some interesting arguments to discuss. The enforcement of antitrust doctrines strives to keep a set of contestable markets and preserve the right of consumers to fully exercise the freedom of choice.

- **The Google's Search Engine Case**

In 2017 the European Commission levied a fine against Google in a case of a self-preference issue (European Commission, 2017). The Google search engine worldwide enables the consumers to get search results when willing to purchase goods via the internet. The forces of network externalities operate fully in this segment, because the comparison-shopping services strongly depend on the number of users as more clicks bring more retailers to exhibit their products through the specific shopping services, which can rapidly boost the engine owner's revenues.

Contemporaneously, in 2013 the Google's product called "Google Shopping" competed in the market of comparison shopping, alongside other options for consumers. The service offered by Google Shopping deployed a set of products belonging to diverse retailers informing about the price and quality of the goods.

So far, everything was evolving normally. But the deleterious behaviour appeared due to the dominant position of Google in the search segment, and the simultaneous self-interest in the shopping services, considering that the former is the essential facility or crucial infrastructure for accomplishing the flow of transactions in the shopping service.

In the frame of its search engine, Google designed algorithms intended to assign a prominent placement to its own shopping service, in such a way that at the top of the list Google Shopping appeared in response to a consumer's query launched in the proper Google search engine. This strategy inflicted a serious damage to rivals' shopping services because, as a consequence of a deliberate plan, the options of alternative shopping services appeared on average, only after the fourth page.

Such contentious issue demonstrates the danger of incumbents exerting an excessive market power in more than one segment, and the possibility to deter the contestability in the market, affecting the operation of an "essential facility" required as a key infrastructure for other vertical segments of the chain. This is a highly worthy the worries of antitrust concerning preserving the right of consumers, and the respect of social choice principles related to the preservation of an ample choice possibilities available for the consumers.

- **The Microsoft Compatibility Problem**

This case deals with a problem of multi-homing, the issue of compatibility across technologies and the design of exclusive technologies as a barrier to entry or at expense of a rival's market share. Here the enforcement of antitrust deemed two situations anticompetitive: the deliberate incompatibility between Windows PCs and non-Microsoft media players (Tkáčová *et al.,* 2023) and on the other hand a problem of tying, when providing PCs manufacturers with its operating system endowed only with the Windows Media Player (European Commission, 2004).

This non-disclosure secured Windows a lion's share in the markets of the digital media sector (encoding technology, software for broadcasting of music over the Internet, digital rights management etc.)

The enforcement in the tying issue came along lately. Microsoft bundled the Windows Media Player (WMP) with the Windows operating system and was delivered in such conditions to the PCs manufacturers. Therefore, the clear dominance of WMP relied on the tying strategy instead of any advantage in terms of quality or price.

- **The Oscar Bronner – Media Print Case**

This is an interesting case which considers the Rule of Reason in the enforcement of antitrust legislation and the incumbent's refusal to provide an essential facility to a rival undertaking. It deploys the dominance of an incumbent spanning across a crucial downstream infrastructure.

In this case MediaPrint acted as an incumbent with a dominant position in the Austrian newspaper market in terms of circulation as well as advertising revenues, deploying an ample distribution network during early morning hours. In contrast, Oscar Bronner was a challenging small undertaking with a modest market share, although was experiencing an encouraging growth in the market.

The incumbent owned the unique national distribution system but was also offering its distribution facility to a third-party publisher. However, MediaPrint refused the Oscar Bronner's request to use this essential facility for distributing his stuff

recognizing a reasonable fee. Oscar Bronner interpreted this refusal as an abuse of a dominant position and sued the consolidated operator.

Surprisingly, the European Court of Justice stated that the conditions for deeming the MediaPrint's conduct as an abuse of a dominant position were no met, brandishing several arguments. The Court contested that, in spite of being less advantageous, other channels for distributing daily newspapers existed and that in fact, there were no impediments to implementing alternative nationwide distributing systems.

The Court statement emphasized that effectively, there were potential substitutes for the facility and that the use of such infrastructure was rather convenient or desirable but not indispensable (Evrard, 2004; Drexl and Hilty, 2024).

6. Challenges for Antitrust

The antitrust doctrine pursues to preserve the competitive process whose evolution give rise to new ideas and innovations whose final intent is enhance the consumer benefits. In doing so, the reinforcement of competition conveys an improvement in the standard of living, to the extent that competition spurs innovation. In such terms, the ultimate goal is too better off the conditions of users, alongside with the assertion of the economic growth and social welfare (Giulio *et al.,* 2019).

Commonly there is a dilemma in the context of antitrust doctrine when the incentive for economic growth must match the interest of consumers. In fact, the expansion of technological players and their advantages in terms of economies of scale, can create big monopolies stuffing competition, deterring rivals and curbing innovation. The final scenario shows a monopolist in the winners-takes-all scenario (Tirole, 2020).

Regarding the monopolist's strategy based on acquisitions and entry for buyout, the enforcers have no sufficient support for investigate those practices due to the difficulties to gather proofs. Besides, in the tradition of Chicago Schools the real concern in terms of acquisitions emerges when the operation ends up in a monopoly. Otherwise, the merger becomes a efficiency increasing operation (Glick and Ruetschlin, 2019; Anderson and Purnell, 2023).

Special concerns raise for the enforcers when assessing the abundant operation of mergers and acquisitions, given the explained strategy of entering for buyout or killer acquisitions.

When the interest of the incumbent is to refrain the growth of any independent business and to preserve the monopolist position, the natural strategy is to swallow the potential competitor. In such terms Rose and Shapiro (2022) recommends to keep up crucial indicators: the degree of concentration, the price/cost margin, and profits.

7. Conclusions

The vertiginous rhythm of innovation (Kondrla et al., 2023) in technology and dynamic sectors comes along with the emergence of start-ups accessing niche markets. The prospect of a future growth in high-tech sectors depends on the contestability and competence conditions along the vertical structure in different businesses.

The technological incumbent enjoys some kind of dominance favored by the presence of natural monopolies. The extensive capacity developed, the large investments required, and the immense amount of fixed costs bestows upon them a neat advantage and efficiencies, impossible to replicate when other competitors are simultaneously operating in the market.

The incumbent's predatory strategies and deterring barriers for new entrants threaten the fair competitive structure and hinders the economic growth, because block the emergence of innovations coming from potential start-ups. However, when the innovation comes along in an unexplored segment, the incumbent can be interested in swallowing the new undertaking and the entrant innovator can be satisfied with the buyout, because it was its original goal.

In the light of the astonishing rapid development of technological sectors, the particular behavior of incumbents is really hard to evaluate and monitor. There is a thin line between the abusive practices and subtle strategies for expanding legally in the market.

Some natural buyouts can be deemed as ambitions when it comes to reducing the contestability of markets and some strategies of pricing under the marginal cost in the context of multi-sided markets can be deemed as predatory behavior. On the other hand, some corporative strategies tend to vertically entangle some segments of the activity operation, in order to hinder the antitrust efforts to split up an unduly large incumbent.

But some strategies are overall harmful. When the incumbent pretends to bundle several services along different segments or tying the operation of one segment to the other, or reinforces the incompatibility of technologies, the incumbent clearly has the intention to deter the entry of new competitors across the segments of its business.

Transcendental and definitive trends for the antitrust enforcement loom in the frame of easing the access to essential facilities, previously monopolized by efficiency reasons, which can be exploited and used by new entrants, paying remunerative fees to the incumbent (Tirole, 2014). In this vein, an evolutionary description of the challenges addressed by the antitrust enforcers and the relevance of Tirole's

contribution is described in Salop and Shapiro (2014) (compare with Nguyen and Brown, 2023).

Contestability in markets goes alongside with interoperability and multi-homing. As long as technologies are more compatible, there is a higher probability that new entrants can compete in the market, and the user's opportunity for switching can increase the effects of network externalities. Switching across social networks is prompted if the users can port his content when changing one network to another (Schrager, 2018).

Another key aspect is preserving the contestability in niche markets where mostly the starts-ups innovate, as they develop specific routines and processes that the giants usually override. Generally, the new entrants explore small segments of the market where they can have any advantage based on any specificity, in spite of don't having the scale or the underpinning for dominate several technological lines simultaneously. If the innovation activity is encompassed in a fair competitive condition without deterring threats or barriers to entry, the technological expansion can accelerate.

In terms of antitrust doctrine, Tirole (2020) highlights the role of enforcers overseeing the profit of incumbents, and assessing if the profit is in line with the costs. This task is harder in a scenario of asymmetric information, in which the monopolist handles its own information and has a more privileged data than the enforcer itself.

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