

MARKET DOMINANCE IN THE NEW ECONOMY ¹

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DOMÍNIO DE MERCADO NA NOVA ECONOMIA

RESUMO

O OBJETIVO DESTA ARTIGO É ANALISAR AS PRINCIPAIS QUESTÕES DE TEORIA DA COMPETIÇÃO QUE PODEM EMERGIR DAS INTERAÇÕES ENTRE PROCESSOS COMPETITIVOS, PODER DE MERCADO E INOVAÇÃO TECNOLÓGICA NA NOVA ECONOMIA. EXAMINA-SE TANTO O PAPEL DINÂMICO DOS EMPREENDIMENTOS E MERCADOS NUM AMBIENTE DE INOVAÇÃO EM QUE AS POLÍTICAS DE COMPETIÇÃO ENVOLVEM, IMPLICITAMENTE, UMA ESCOLHA ENTRE CAMINHOS DE INOVAÇÃO ALTERNATIVOS, QUANTO A INTERAÇÃO INTERDISCIPLINAR ENTRE DOIS GRANDES CAMPOS DE ESTUDO, DIREITO E ECONOMIA, E SEU USO CONJUNTO PARA FORNECER UM QUADRO INTELCTUAL QUE FACILITE A COMPREENSÃO DE TEMAS DE DIREITO DA CONCORRÊNCIA. NA NOVA ECONOMIA, A INOVAÇÃO É RECONHECIDA COMO UM TRAÇO CENTRAL DA COMPETIÇÃO DE MERCADO, LOCALIZADA NO CORAÇÃO DO PROCESSO DE COMPETIÇÃO. HÁ VÁRIAS ABORDAGENS POSSÍVEIS DA COMPETIÇÃO DINÂMICA, MAS TODAS ELAS DEMONSTRAM O MESMO PONTO: SE OS AGENTES COMPETENTES POR ELABORAR POLÍTICAS PÚBLICAS QUISEREM TRATAR A INOVAÇÃO E A MUDANÇA COMO COMPONENTE CENTRAL DO PROCESSO DE COMPETIÇÃO, ELES PRECISAM DE NOVAS ABORDAGENS ANALÍTICAS QUE TRATEM ESSES FENÔMENOS COMO CENTRO DE SUAS PREOCUPAÇÕES E NÃO COMO UM ELEMENTO LATERAL DE SUAS ANÁLISES.

PALAVRAS-CHAVE

COMPETIÇÃO, PROCESSO COMPETITIVO, COMPETIÇÃO DINÂMICA, PODER DE MERCADO, POSIÇÃO DOMINANTE, INOVAÇÃO, MUDANÇA TECNOLÓGICA, DIREITO DA CONCORRÊNCIA, NOVA ECONOMIA, DOMÍNIO DE MERCADO, ESTRUTURA DE MERCADO, POLÍTICA DE COMPETIÇÃO.

ABSTRACT

THE PURPOSE OF THIS PAPER IS TO ANALYZE THE MAIN ISSUES IN COMPETITION THEORY THAT MAY EMERGE FROM THE INTERACTION EXISTING BETWEEN THE COMPETITIVE PROCESS, MARKET POWER, TECHNOLOGICAL INNOVATION AND COMPETITION LAW IN THE NEW ECONOMY. WE SOUGHT TO EXAMINE BOTH THE DYNAMIC ROLE OF UNDERTAKINGS AND MARKETS IN AN INNOVATIVE ENVIRONMENT IN WHICH COMPETITION POLICY IMPLICITLY INVOLVES A CHOICE AMONG ALTERNATIVE INNOVATIVE PATHS AND THE INTERDISCIPLINARY INTERACTION BETWEEN TWO GREAT FIELDS OF STUDY, LAW AND ECONOMICS, AND THEIR JOINT USE TO PROVIDE ONE INTELCTUAL FRAMEWORK WHICH FACILITATES A GREATER UNDERSTANDING OF ISSUES CONCERNING COMPETITION LAW. IN THE NEW ECONOMY, INNOVATION IS RECOGNIZED AS A CENTRAL FEATURE OF MARKET COMPETITION, SITTING AT THE HEART OF THE COMPETITIVE PROCESS. THERE IS A VARIETY OF DIFFERENT APPROACHES TO DYNAMIC COMPETITION – BUT ALL OF THEM DEMONSTRATE A SIMILAR POINT: IF POLICY MAKERS WANT TO TAKE INNOVATION AND CHANGE AS A CORE COMPONENT OF THE COMPETITIVE PROCESS, THEY NEED NEW ANALYTICAL APPROACHES THAT TREAT THESE PHENOMENA AS THE MAIN ACT RATHER THAN THE SIDESHOW.

KEYWORDS

COMPETITION, COMPETITIVE PROCESS, DYNAMIC COMPETITION, MARKET POWER, DOMINANT POSITION, INNOVATION, TECHNOLOGICAL CHANGE, COMPETITION LAW, NEW ECONOMY, MARKET DOMINANCE, MARKET STRUCTURE, COMPETITION POLICY.

INTRODUCTION

The relationship between technological innovation and antitrust enforcement is perhaps one of the most controversial and present issues now under discussion in

Competition Law. The assessment of market dominance in a market characterized by fierce competition, network effects, economies of scale and immense product innovation and consequently the extent of its results, if at all, is still subject to considerable debate in the Academy.

There have been some important antitrust cases involving high-tech industries, such as *Microsoft*, which presented a systematic economic analysis which indicated the absence of arguments capable of assuring if undertakings experiencing high technological rates, fierce competition, high degree of new product innovation, usually based on large sunk research and development costs, and which often exhibit demand-side networks effects are guilty of either monopoly or anticompetitive behavior. In this scenario, undertakings compete for the market based upon the introduction of new and radically better products and services which give the winner a dominant market position.

Since one of the objectives of Competition Law concerns the functioning of the market economy, proper enforcement requires understanding and use of the relevant theoretical framework, both in Law and in Economics. In this sense, acknowledgment of the importance of technological change (i.e. innovations) raises several important questions for antitrust policy. Given these considerations, the threshold question that arises is whether currently Competition Laws are adequate to meet the challenges of today's marketplace?

In order to proceed with the assessment of the question posed herein some aspects of Competition Law and some peculiarities of the dynamics of competition and markets will be further sketched so as to provide the grounds for the analysis of market dominance in the new economy. An understanding of the competition in dynamic industries is a vital part of a sound antitrust policy.

Before that, however, this paper will describe the mainstream knowledge in Competition Law in force so as to evaluate the feasibility of such a claim. By referring to the neoschumpeterian approach suitable for this task this paper will analyze the concept of market dominance in the new economy within legal and economic perspectives which reconcile economic analysis with the realities of undertaking decision making. The most important relate to improved understanding of technological change and the dynamics of the competitive process³.

Furthermore, it is also worth noting that this paper is not an exhaustive account of all possible approaches to these issues, and it will require further elucidation and discrimination in the light of additional empirical data and analytical insight. This paper is thus to be suggestive. With no greater claims than that it is presented here as a contribution to the understanding of how market dominance should be dealt with in the new economy.

To accomplish the task of addressing the issue posed earlier in the question above, the remainder of this paper is organized into four chapters. Chapter 1 identifies the

main characteristics of the so called “new economy”, focusing on the dynamic role of the undertakings and markets in an innovative environment. Then it turns to particular characteristics of industries of the new economy which are widely recognized as being significant for competition policy. Chapter 2 analyses issues pertaining to the concept of market dominance in the new economy. The chapter addresses the fundamental nature of competition in the new economy and how it differs from more traditional approaches to competition. It also sets forth the features of competition in these industries that have special importance for the antitrust analysis of market dominance. Chapter 3 examines the existing mechanism for assessing market dominance in order to verify whether the existing Competition Laws need to be adapted to address the competition issues in the new economy. And Chapter 4 summarizes the main conclusions of the paper.

I. THE NEW ECONOMY

Dosi⁴ remarkably argued that change has always been the hallmark of the modern market economies. Technological and organizational innovations are in turn the primary driver of change, shaping, reshaping and sometimes completely overturning the existing order. According to Posner⁵, industries in the new economy are characterized by falling average costs over a broad range of output, varying rates of innovation, quick and frequent entry and exit, and network effects. The new economy comprises R&D and technology intensive industries⁶, such as computer software and computer hardware, Internet-based businesses, communications networks, mobile telephony, and pharmaceuticals, in which dynamic competition is a fundamental feature.

The seeming chaos of rapid market rises to prominence of new undertakings, new technologies, and new business models is not a passing phenomenon, but rather is a permanent feature of the new economy⁷. The parallel phenomenon of seemingly overnight collapses of apparently stable and established businesses and brands, as well as the rapid decline of new businesses, is similarly destined to be a recurring feature of the new economy.

The combination of dynamics, uncertainty, and market power leads to one of the most important aspects of many R&D intensive industries. An important form of competition in R&D is to replace the existing technology winner which has static market power with another based on improved technology. This form of competition occurs throughout the computer, pharmaceutical, and biotechnology industries, as well as most other R&D intensive industries. This process of creative destruction or Schumpeterian competition is not the type of competition that antitrust enforcement typically tries to protect, but assuring the efficiency of this process may be an important difference in the role that antitrust policy ought to play in R&D intensive

industries relative to others⁸. Note also that in these dynamics, technological asymmetries and technological and behavioral variety are both the outcome and a driving force of technological and organizational change⁹. In this scenario, innovations are the key factor enabling growth and change in capitalist economies.

Another essential issue concerning the new economy is the extraordinary dynamic competition where the key ingredient over time is the technological innovation: undertakings attempt to gain a competitive advantage either by reducing costs or introducing new products. A new product which can do more things – or do the same things faster or more cheaply – will replace inferior earlier products. This gives the innovating undertaking a significant share of the new sales, at least until the next round of innovations comes along. In such markets temporary market power is inevitable, and indeed provides the incentive for undertakings to innovate.

Undertakings which face vigorous competition are continuously pressed to become more efficient and more productive. They know that their competitors are constantly seeking ways to innovate and to reduce costs, in order to increase profits or to gain a competitive advantage. With that constant pressure, undertakings know that if they do not keep up with the pace in making efficient and productive improvements, they may well see their market position shrink, if not evaporate completely. It is exactly this process of fierce competition between rivals that leads them to strive to offer higher quality products, better services, and lower prices.

Pleatsikas and Teece¹⁰ explain that there are periodic, unpredictable, and discontinuous paradigm shifts which can completely undermine incumbents using existing dominant technologies, and that such shifts can and do often result in a total change in the competitive positions in the industry. Innovations are treated as stochastic and as variable across undertakings. Incumbents may find themselves left behind by these shifts, as those who develop and successfully commercialize the innovation often overturn the market positions which existed previously. As a result, market share can shift quite fast, and new leaders often emerge.

The interaction between competitive environment, business strategies and institutions¹¹ is the chief mechanism through which competition works its evolutionary role of technical and economic selection. According to Silverberg et. al.¹², evolutionary processes in economic environments involving innovation and diffusion are governed to different degrees by selection and learning mechanisms. Selection mechanisms tend to increase the economic dominance (e.g. profitability, market shares) of an undertaking with particular innovation characteristics at the expense of others. Whereas learning mechanisms may both spread innovative/imitative capabilities throughout the set of potential adopters and reinforce existing disparities via cumulative mechanisms internal to the company.

Competitive process is then sustained over time by continuing innovations that generate positive externalities. Although improvements in technology typically raise

the productivity of capital and thereby induce additional investments, undertakings will only invest in new technologies when they have seen an opportunity to earn profits. It is the hope of monopoly profits resulting from a successful innovation which creates the incentive to invest and consequently to innovate even more.

Generally, industries in the new economy share common features such as: high fixed costs, very low marginal cost, scale economies, high stakes investments, product differentiation, strong advertising policies, rapid innovations (prime competitive weapon), market selection, fierce and dynamic competition, network effects, possibility of lock-in effects, presence of switching costs, and existence of sunk cost on R&D.

Competition in the new economy is driven by innovation. Undertakings tend to have high fixed costs and low marginal production costs. They often must invest a great deal to develop their products, either because they must make substantial investments in R&D, or because they must invest in a physical or virtual network to create and deliver the product. But once they make this initial investment, it is cheap to create additional units.

For example, the software industry¹³ is characterized by increasing returns technology, that is, as output increases average costs of production can decrease, and network effects. The production and sale of software involves considerable economies of scale. Most of the expense is fixed cost, and the marginal cost of licensing additional customers is nearly zero. As a result, writers of applications programs have an incentive to write for those operating systems that have a very large number of users.

In this industry most of the costs of writing softwares are fixed. There is also a tendency for one operating system to dominate the market, because most buyers want to use the system for which the most software applications are available. The Appeals Court's Microsoft¹⁴ opinion summarized this network problem in the following terms: "In markets characterized by network effects, one product or standard tends toward dominance, because the utility that a user derives from consumption of the good increases with the number of other agents consuming the good."

When network effects are strong, they constitute an important dimension of industry structure. The degree of compatibility and the strength of these effects shape the nature of competition, industry evolution, and path of innovation. The presence of network effects may result in the incumbent undertaking being favored by new customers. It could eventually become dominant through positive feedback. This could last for a long time, although it is unlikely to survive a major paradigm shift.

Network effects share an important characteristic with economies of scale. In particular, both confer an advantage on larger undertakings in an industry: the former does it by increasing demand and the latter by decreasing costs. Both tend to

produce markets with at most a small number of clear leaders, making it difficult for undertakings with small shares to survive unless they produce significant innovation. Network effects may have also serious implications for fair competition: they can lead to the creation of dominant positions which can be abused.

According to Evans and Schmalensee¹⁵, undertakings which are not leaders in network industries generally have little hope of reaching that status unless they come up with a major innovation – one which can defeat the natural advantage that network effects give to the industry leaders. Incremental innovation – making slight improvements in the leaders' products – will not enable a small undertaking to overtake a leader who enjoys the benefits of network economies. Similarly, the mere possibility of being displaced by a major innovation will shape leaders' research agendas. If there is a chance that today's products will be replaced by a major innovation, a leader's survival depends on bringing that innovation to market and thereby replacing itself before others do. As a result, competition in network industries often involves intense R&D efforts aimed at capturing or retaining market leadership.

When network effects are present, there may be substantial efficiencies on either the demand or supply side which lead to the creation of dominance in a particular market. Rubinfeld and Hoven¹⁶ contended that:

[...] Many network industries are dynamic, in which case the market is a moving target, evolving as technology changes in response to innovation. Antitrust analysis must occasionally focus, therefore, not only on static competition within the market as it is currently constituted, but also on dynamic competition for the market of the future, that is, competition to control the next market standard (if there is one).

Network effects can create complex vertical issues. A dominant undertaking may have an advantage in selling complementary goods which allow it to extend its dominance from one market to another, either by tying the sale of one product to the purchase of another, or by tying the products together so that the option to purchase the two products separately is not readily available. There is also a tendency for this kind of market to tip to a single dominant vendor or technology. This does not imply that one standard will win the entire market, although this is possible, but it does mean that one standard often becomes predominant. When tipping occurs because a particular product or system is superior, it is important to realize that the tendency to tip reflects the value to consumers of having a particular standard widely available. In markets that tip, competition is for control of the market. The incentive is to gain the upper hand and become the predominant player as early as possible, which can be expected to lead to particularly vigorous competition.

These features of network effects explain why a potential entrant might find it very difficult to challenge an incumbent in these industries. It is not enough to have a better product, or to provide it at a lower price, if the new product is not compatible with the established one, the undertaking has to convince prospective buyers that enough other buyers will buy it. The larger the number of consumers already locked in with the current standard the more difficult will be its task. The stronger the reputation of the new entrant and the more resources it commits to the new product the higher the chances that it will succeed. A number of strategies might be used for such purposes, from introductory price offers (or even giving away the product for free), to convincing firms selling complementary services (or spare parts, or software applications) to develop them.

It is also claimed that network effects tend to keep a leading undertaking's position intact, even if there is a superior product available, a result otherwise known as lock-in¹⁷. The incumbent may in fact be at a disadvantage for new generation technology if switching costs are an issue. Implementing new technologies may cause incompatibilities for its existing customers. In a dynamic industry, switching costs may provide an advantage but this advantage is likely to be limited particularly in the face of significant improvements in technology. The extent of lock-in also relates to the pace of technological change. The more rapid the pace of change the more quickly that customers are likely to switch to a new base and to complementary products to take advantage of new advanced characteristics. Moreover, the more rapid the rate of change, the lower the switching costs, and the broader the market.

While lock-in effects and single firm dominance certainly render a market less competitive, and consequently have costs in terms of consumer welfare, they also produce an important positive effect. For instance, when one undertaking dominates the market for a product which serves as a platform – a product for which other software developers will write their programs – that undertaking creates a *de facto* standard, a uniform platform. Software developers thus are not faced with the cost, in terms of time and of resources, of developing applications that run across a variety of platforms. This can lead to significant boosts in productivity and innovation.

It is sometimes alleged that switching costs related to industries presenting network effects can also discourage innovative efforts that might otherwise lead undertakings to enter markets, especially if the new products to be designed cannot interconnect with those already in the market. In other words, the potential stability of a network dominant undertaking can diminish the incentives of those others to introduce innovative products and services offerings.

According to Klemperer¹⁸, in many markets consumers who have purchased from one firm have costs of switching to a competitor's product, even when the two firms' products are functionally identical. These consumers' switching costs give

them a degree of market power over their repeat-purchasers, and mean that their current market shares are important determinants of their future profits.

Mota¹⁹ contends, for example, that one situation where market power does not necessarily decrease under free entry arises when there are consumer switching costs. There are many reasons why consumers might prefer to stick to products already bought in the past, other things being equal. Switching to a new product or a new supplier might entail transaction costs (when one closes an account in a bank and opens another in a new bank) and learning costs (the cost of passing to a new software application, after having learned how to operate with a different one). When such switching costs exist, and one can realistically think that this is the case for many industries, new entrants generally have a harder time in getting market shares from the incumbents. In general, when demand-side network effects are present, large networks offer more value to users than small networks, and as a result, there is the potential to create a “winner-take-all” situation. This can provide a particularly strong effect, leading to very large market shares for leading undertakings and products.

Industries in the new economy have to cover large fixed costs particularly related to investments in R&D. If fixed costs are large relative to the size of the market, only a few undertakings will be able to achieve efficient scale. When this issue is combined with the fact that competition for these markets will at times be in the form of winner-take-all races, and that network effects and tipping are all factors that tend to produce a large dominant undertaking, one would expect commonly to find new economy industries with a large dominant company with a high market share.

In this environment, the existence of aggressive competition in the early stages of the market is expected, until the market leans in favor of one undertaking, which will be selected and then become dominant and able to use its market power to recover the losses incurred in the initial periods, until a new technological innovation appears superseding the old one and bringing to an end the previous leadership²⁰. In the new economy, it is in fact a matter of survival; undertakings that let their rivals outperform them substantially in innovative products and processes are faced with the prospect of imminent demise²¹.

The combination of economies of scale on the supply side and network effects on the demand side explains, for instance, why a single successful software producer is likely to dominate any traditionally defined market. Indeed, in many new economy industries these features may result in a single undertaking having the bulk of industry sales at any point in time. This fact makes the recognition of some market power not only economically reasonable, socially acceptable and lawful but even, to some extent, necessary for an innovative and technologically progressive economy to be feasible.

It is clear from the case-law that an undertaking engages in monopolization if it employs exclusionary practices, but not if it dominates its markets due to superior skill, foresight, and industry, or as a consequence of a superior product, business

acumen, or historical accident²². Nevertheless the introduction of technological innovation into business practices and models has reshaped the economic landscape, and as a result a number of important issues concerning the antitrust analysis have arisen which consequently lead to questions, for example, of whether the current antitrust legal framework is prepared to deal with industries in the new economy, whose very structure has been reshaped by technological innovation. What limits should be placed on a dominant undertaking's ability to compete aggressively? At what point does a successful competitor cross the line separating pro-consumer innovations from anti-consumer monopolization?

2. MARKET DOMINANCE IN THE NEW ECONOMY

Long ago, the Austrian economist Joseph A. Schumpeter explained that processes intrinsic to any capitalist society engendered a creative destruction whereby innovations would destroy existing technologies and methods of production only to be assaulted themselves by imitative rival products with newer, more efficient configurations. He noted that:

The essential point to grasp is that in dealing with capitalism we are dealing with an evolutionary process. [...] The fundamental impulse that sets and keeps the capitalist engine in motion comes from the new consumers' goods, new methods of production or transportation, the new markets, the new forms of industrial organization that capitalist enterprises creates²³.

In his opinion, in capitalist reality, the kind of competition which counts is the competition driven by innovations²⁴.

As Schumpeter observed, markets driven by innovations are often marked by "gales of creative destruction", in which one undertaking may serve the entire market or at least a large portion of it for a period of time, only to be displaced by another undertaking with a leapfrogging technological innovation which delivers significantly improved performance or lower cost.

The rate of transition away from older technologies is accelerating, and the transition processes are discontinuous and uncertain. Innovation and growth lead to the replacement of obsolete products, processes and services, and undertakings by more up-to-date and superior successors. These changes come from inside the market and as Schumpeter argued, capitalism is incessantly being revolutionized from within by new enterprise, i.e., by the intrusion of innovation into the industrial structure as it exists at any moment.

Innovations are created within the system by individual entrepreneurs or undertakings' R&D departments. They affect not only the prices that consumers pay for

given products but, more importantly, the quality of products available in the market place. This rapid technological pace leads to markets in which undertakings compete through innovation for temporary market dominance, from which they may be displaced by the next wave of product improvements.

Schumpeterian competition is primarily about active, risk-taking decision makers who seek to change their parameters. By breaking with established routines and conventional wisdom, the entrepreneur searches for new ways of doing things. As he repeatedly injects novelty into the economy, survival is no longer guaranteed to an undertaking that produces using an unchanged set of processes.

Innovations constantly shake the economy out of equilibrium and render old technologies, knowledge, skills, and practices obsolete²⁵. Threats to the existing order produced by the introduction of new products, markets, and kinds of industrial organization are the fundamental impulse that keeps the capitalist engine in motion.

The introduction of these innovations in turn sets the stage for yet another round of innovation entry, and displacement, as a result of the existence of knowledge spillovers (once a new product is introduced future generations of innovators can learn from it and improve even more upon it). It is only through the destruction of existing undertakings' market shares and profits that new and better products and services and the embedded knowledge which accompanies them come into being²⁶.

Waves of new product introductions are frequently accompanied by premium prices initially, followed by a rapid price decline as imitative products emerge. Dynamic changes also tend to keep rivalry alive²⁷. As Evans and Schmalensee²⁸ mentioned, undertakings engage in dynamic Schumpeterian competition for the market through sequential winner-take-all races to produce drastic innovations, rather than through static/output competition in the market. In the new economy, a sound antitrust economic analysis of such industries requires explicit consideration of this kind of competition. Despite most leading undertakings in these industries having considerable short-run market power they cannot ignore their vulnerability to drastic innovation.

In this scenario, market dominance is viewed as the very real goal of every business, which can be thought of as an undertaking attaining the majority of the available market for their products or services and establishing an unbeatable long term competitive position. And achieving this position will mean likewise unseating the current market leader, by means of developing technological innovations – new products and services – and winning new customers by taking satisfied customers away from the competitors.

Whether or not an undertaking holds a dominant position is of central importance to antitrust analysis. This refers not only to monopolists but also to undertakings which have market power. The difficulty is to determine what degree of market power is necessary and/or socially acceptable. From the perspective of

Schumpeterian competition, market power encourages development, in a sense that undertakings with market power are better able to finance R&D expenses, to spread innovation risks, to attract more qualified human capital, and to exploit the results of innovations. Actually, market power arising from innovation is itself an incentive for more innovations.

Dominance in market share may evolve legitimately from a free-market competitive process. Moreover, increasing dominance of the market leader is a common feature in markets characterized by network effects of learning by producing industries where undertakings engage in process or product innovation²⁹. Furthermore a stable pattern of market sharing with no overwhelming dominant position is rarely observed in markets with network effects, and market leadership may nevertheless be contestable as a result of the constant threat of drastic innovations by rivals³⁰.

Undertakings in the new economy achieve market positions by aggressively innovating. R&D intensive industries are prone to short-run exercise of market power. Patent protection, economies of scale in R&D, network effects, and significant horizontal and vertical differentiation all can lead to market power. In many situations single technologies dominate the market and sometimes a single undertaking controls those technologies. Hence, antitrust agencies ought to distinguish clearly inefficient behavior from vigorous competition.

By this token, competition should be visualized as an entrepreneurial process of discovery and adjustment, under conditions of uncertainty, rivalry and inter-firm cooperation, where profits and losses serve to provide the necessarily information and incentives for continuous entrepreneurial alertness³¹. Competition is no longer for position itself, but for change in position. It is an open-ended process of innovation, experimentation, and feedback.

Once innovation takes off this stimulates further innovative effort, facilitates research and development, and hastens the retirement of obsolete technologies. As Professor Baumol explained³²:

[...] new products have often given others the idea for related new products that either serve as superior substitutes (...) or serve as supplements to the preceding new products or service (...). The one invention may also indicate ways to make it easy and less costly to manufacture other new products. Finally, the innovative activity can be considered a cumulative process, in which there is feedback from one innovation to the next: once the free market has launched its innovation machine, the inherent structure of the mechanism leads the machine to grow more powerful and productive with the passage of time.

In this competitive process an undertaking's market share is not its market power, but a reflection of its overall efficiency, and the competitive process is in a

necessary state of disequilibrium whereby the prime weapon of competition is not price but innovation³³. As a result, undertakings cannot afford to leave innovation to chance. Rather, they are forced by market pressures to support innovative activity systematically and substantially, and the success of their efforts forces their rivals to step up their own efforts. The outcome of this process is the existence of fierce competition among undertakings in the most rapidly evolving sectors of the economy.

It is worth noting that some critics hold that market dominance in the new economy is enhanced unfairly by what are called network effects. Successful undertakings are said to have unfair advantages over others because a considerable number of their product users – larger networks – result in expanded consumer benefits which lead, in turn, to even larger networks and profits for dominant undertakings in the demand-side. Some network effects theories even predict that consumers will be locked into using inferior products as a result of small, even random events that give one product a larger market share in the early phases of competition between different versions of substantive products.

It is also alleged that dominance in one market with network effects can affect (positively) the likelihood of success in markets for complementary products (which will in turn increase the incentive to compete to win the first market). However, there are several reasons for this, some of which are clearly pro-competitive and some of which may be anticompetitive. An undertaking that has achieved dominance in one market through productive reasons is likely to be able to exploit significant economies of scope which make it the low cost producer and supplier of complementary goods. Further, consumers may prefer to purchase their complements from an undertaking which has a dominant position in a related product.

Indeed, the prospect of enjoying some market power is the main incentive for undertakings to invest and innovate. If they were not able to appropriate the outcome of their investments, (e.g. R&D expenditures) they would not invest at all, which would consequently reduce the benefits from new and better products and services for the consumers. And although high shares are likely to be found in the new economy, one cannot forget that leaders are always and readily displaced by any new and successful innovation³⁴.

In this view, market share is the direct result of consumers rewarding undertakings which have continuously provided them with superior innovations, and the competitive process is enhanced when undertakings take business away from others and the overall trade is expanded. Competition in this context is neither a market price mechanism taken as given nor a set of preconditions of competitive equilibrium as in neoclassical axiomatic theory. It is an interactive process among economic units aiming at private appropriation of profits and the corresponding increase of capital value. On the contrary, disequilibrium is to some extent the norm, since it results from the very core of competition in Schumpeterian view – a variety of systematic

efforts to generate competitive advantages that may ensure monopolistic gains, although always temporary and restricted to some specific market segments³⁵.

Efficiency and successful product differentiation can limit rivalry with undertakings unable to match or surpass such innovation; superior economic performance can make it difficult for new entrants to enter markets or for incumbents to expand their market shares. But none of this is unfair or unfortunate from any consumer perspective, and none of it can rationalize an antitrust attack on dominant undertakings due to superior performance.

Undertakings respond to broad competitive challenges by competing vigorously and fairly to secure wide acceptance of their products. If a leading undertaking introduces some product innovation, it is up to consumers, for example, to decide whether the innovation will reduce the number of competitors. If consumers enthusiastically support the innovation at the expense of competitive products or services, then some rival suppliers may well be eliminated. When a new undertaking successfully displaces an incumbent in any given period, this has a positive externality on future generations of potential entrants – it makes it easier for them to gain access to the market and tilts the playing field more toward technologically strong newcomers, and away from established undertakings.

In the new economy, market share is then an unsatisfactory measure of monopoly power, and it is only through the destruction of existing undertakings' markets shares and profits that new and better innovations come into being. In this sense, Liebowitz and Margolis³⁶ suggest that new economy industries are often "winner-take-all where the leading one offering an identifiably better product quickly captures market share from the previous leader."

The fact that antitrust authorities should look forward at innovation implications of business behavior by no means suggests that such inquiries are easy to undertake. While sophisticated econometric tools and analytical constructs may be available to assist in predicting price effects on the basis of various structural characteristics, the road map for identifying and assessing innovation effects is less developed. Some authors even contend that: a) public policies in this context should guarantee undertakings some market power, which is the appropriability of their expenditures on R&D and investments, and b) competition policy should not aim at combating monopolies, or undertakings with market power, as long as they have obtained it by means of a legitimate business practices. Thus, an undertaking which enjoys a monopoly after having successfully invested in, innovated, is one which receives a reward for its activities.

Indeed, the expectation of receiving monopoly profits, even temporarily pushes the undertaking to develop its skills in an attempt to do well in the market. Eliminating market power after one has successfully attained it gives the wrong incentive signals to it and all others. Accordingly, competition policy is concerned

with monopolies that distort the competitive process, and antitrust authorities have an important role in preserving the rivalry that spurs innovation. This is the nature of the Schumpeterian tradeoff: a greater degree of monopoly power may be worth tolerating if it generates greater cost reductions or a larger stream of new products and services.

Finally, it is noteworthy that the debate about the effects of dominance in the new economy is one that is not likely to be fully solved in the near future. The crucial question is not whether there is innovation, but whether the quantity and quality of innovation would be significantly improved were the dominant undertaking to make its business decisions on the basis of real economic efficiencies, and not on the expectation of benefiting from the undertaking's market power associated with its substantial installed base of users, and with its attempt to acquire or maintain substantial market power.

3. ANTITRUST ANALYSIS IN THE NEW ECONOMY

Antitrust cases in the new economy generally involve issues such as the existence of network effects and fast and stochastic pace of technological change which present difficult questions involving the ascertainment and measurement of market power. First of all, it should be emphasized that competition to obtain a monopoly is an important form of competition, and that two essential aspects of Schumpeterian competition are that there are winners and losers and the process is one of continuing disequilibrium.³⁷

It is worth illustrating that Nelson and Winter³⁸ developed a model by which they contend that because supra-normal profits are the reward for successful innovation, and to the extent that growth is keyed to profitability, successful innovators grow in relation to others. If an undertaking is a successful innovator frequently enough, or if one of its innovations is dominant enough, the consequences of successful innovation may be a highly concentrated industry structure.

Dominant undertakings are generally defined according to the degree of their market power. Market power is a central feature in antitrust analysis. With limited exceptions, if an undertaking does not have significant market power, its conduct in the relevant market is irrelevant for Competition Law purposes. Accordingly, how one determines whether and to what extent market power exists in particular circumstances is an important issue.

Following Evans and Schmalensee³⁹, traditional market definition analysis, which examines constraints on undertakings' price/output decisions, can present a seriously misleading picture of competitive relations in the new economy. Successful incumbents in the new economy are constrained primarily by dynamic competition; by the constant threat that another undertaking will come up with a

drastic innovation causing demand for its product to collapse. The new product may be just a vastly better version of the old one, or it may be an entirely distinct product which eliminates the demand for the old. These threats not only force undertakings in the new economy to invest heavily in R&D and to bring out new versions of their products, but also generally constrain the prices charged by incumbents: the higher the current prices and the smaller the network of users, the more attractive an entrant will be to consumers, even if incumbents lower prices in response to entry.

Evidently, in the traditional approach, in order to initiate an antitrust analysis, in particular involving the issue of market power, one needs to depart from the common practice of assuming that all undertakings act as price takers in an environment of perfect competition. One would ordinarily inquire into the existence of substitutes on the demand and supply side of the undertaking (s) in question; then barriers to entry of new suppliers would be examined and the relationship between the prices being charged by the undertakings under consideration and their costs of production would also be analyzed.

However, in the new economy undertakings must be able to sell their products at prices in excess of unit production costs if they are to recover their up-front outlays on R&D. In other words, some imperfect competition in product markets is necessary to support private investments in new technologies, and what is understood as restrictions to competition depend obviously on how competition is defined.

Once the scope of competition is enlarged to encompass other forms of action and instruments, as in the neoschumpeterian approach centered on innovative capacity of undertakings in a broad sense, involving deliberate differentiation between competitors in many more dimensions than costs and prices, not only do competition and monopoly cease to be taken as antagonistic concepts, but also market power and corresponding monopolistic profits should be seen as normal features within the competition process, instead of as an anomalous consequence of market failure, essentially contrary to the consumers' welfare. One may even go as far as to say that market power is desirable in many circumstances, particularly in economic activities characterized by strong innovative and technological dynamism, in which some perspective of private appropriation of extra profits may be necessary to render investments in R&D and specific assets under high risk and uncertainty feasible at some minimum level and pace⁴⁰.

Technological improvements typically raise the productivity of capital and thereby induce additional investments. The innovation process has a distinct Schumpeterian flavor, in as much as successful innovators displace previous leaders and take a share of the industry profits away from them. The basic lesson then drawn from the neoschumpeterian approach is that the potential direction of market power use (or abuse) should not be prejudged as necessarily harmful to competition and welfare, and consequently repressed, from a dynamic standpoint.

The analysis of market power is one of the main objectives of a sound competition policy. In traditional Antitrust Law and Economics, the starting point for a competitive assessment is to determine the relevant market. Indeed, there is a presumption that an undertaking with a high market share coupled with high entry barriers may have a high degree of market power.

In both the United States and Europe, the Competition Laws regulate single firm conduct only when the undertaking possesses a substantial degree of market power. In the European context, Article 82 of the EC Treaty, is not expressed to prohibit the existence or acquisition of a dominant position, but only its abusive exploitation.

The definition of market dominance was given by the European Court of Justice in one of the first cases referring to Article 82 (then Article 86), *Hoffmann-La Roche*⁴¹ v. *Commission*:

[38] The dominant position (...) relates to a position of economic strength enjoyed by an undertaking which enables it to prevent effective competition being maintained on the relevant market by affording it the power to behave to an appreciable extent independently of its competitors, its customers and ultimately of the consumers. Such a position does not preclude some competition, which it does where there is a monopoly or quasi-monopoly, but enables the undertaking, which profits by it, if not to determine, at least to have an appreciable influence on the conditions under which that competition will develop, and in any case to act largely in disregard of it so long as such conduct does not operate to its detriment.

[41] (...) very large shares are in themselves, and save in exceptional circumstances, evidence of the existence of a dominant position.

As can be seen from this judgment, the Court put great store in market shares as an indication of market strength. The larger the market share, the stronger an undertaking must be in comparison to its competitors in the relevant market⁴².

The aim of Article 82 EC is quite clear: it aims at controlling the activities of undertakings whose economic strength makes them immune from the influence of competitive forces in a given market. Dominance itself is not prohibited, only the abuse of that dominance⁴³. Quoting the Supreme Court in the *Microsoft* case⁴⁴, the court of appeals observed that the offense of monopolization has two elements: (i) the possession of monopoly power in the relevant market and (ii) the willful acquisition or maintenance of that power as distinguished by growth or development as a consequence of superior product, business acumen, or historic accident.

In *Continental Can*, the Commission stated that undertakings are in a dominant position when they have the power to behave independently, which puts them in a

position to act without taking into account their competitors, customers and or suppliers. A similar statement is found in *United Brands v. Commission*⁴⁵. This definition contains two elements: the ability to prevent competition in the relevant market, and the ability to behave independently. It is the latter element, the absence of effective competitive pressure faced by an undertaking, which appears to receive most attention in E.C. cases, and which corresponds most closely to the economic textbook definition of market power.

According to the European Court of Justice⁴⁶, the existence of a dominant position may derive from several factors⁴⁷ which, taken separately, are not necessarily determinative but among these factors two highly important ones are the existence of very large market shares; and the ability to act to an appreciable extent independently of its competitors, customers and ultimately its consumers⁴⁸.

For instance, in *Michelin v. Commission*⁴⁹ the Court stated that regardless of the reasons for which an undertaking is dominant, it has a special responsibility not to allow its conduct to impair genuine undistorted competition in the Common Market. Dominance in this sense refers to a situation where an undertaking enjoys a very high degree of market power, but the jurisprudence has made it clear that an undertaking with 40% of the relevant market might well be a dominant one. In practical terms, an undertaking will be considered dominant when it has a high degree of market power and the process of finding dominance will involve the analysis of those factors which are relevant for the determination of market power.

Market power is a crucial concept in the economics of Competition law. It refers to the ability of an undertaking to raise price above its marginal cost. In welfare economics, for instance, it is alleged that one firm exercising market power to raise prices above cost will have to produce less than it would otherwise have done. Consumers would be worse off: the loss in their welfare is the demand for the monopolized product foregone less what it would have cost to supply, when the money is spent on other things consumers value less in terms of the resources used to produce them. No one benefits from this loss known as deadweight loss.

An assessment of market power also needs to include an assessment of barriers to entry⁵⁰ or growth and of the rate of innovation. Furthermore, it may involve qualitative criteria, such as the financial resources, the vertical integration or the product range of the undertaking concerned. Undertakings lack market power only in the abstract and unfeasible world of perfect competition or in the Bertrand model with homogenous goods and perfectly symmetric firms. In practice, and mainly in industries which characterize the new economy, it is expected that every undertaking will have some degree of market power.

Questions arise in respect of which measure of market power should be used; which threshold of market power should be taken to indicate which undertaking has sufficient market power for it to call for the attention of antitrust authorities. The

latter question calls largely for an arbitrary response, and it is solved in different ways by the different antitrust legislations, or even within the same legal framework⁵¹.

Nowadays, antitrust authorities attribute a key role to the market share held by an undertaking (s) under investigation, but market share is only one of the variables that one must look at in order to determine market power. Other variables are the relative position of competitors, the existence of potential entrants, the rate of innovations, the existence of network effects, the level of R&D expenditures, the presence of switching costs, and the countervailing powers of buyers.

If an undertaking has a very large market share in a certain market, it is likely that it will hold a position of dominance in that market⁵². Market shares represent an important factor of evidence of a dominant position provided they do not only reflect current conditions but are also a reliable indicator of future conditions⁵³. Moreover, the dynamic aspects of a market, as indicated by entry and exit, the fluctuations of market share, and the pace of technological change and innovation, clearly have come to play an important part in the Commission's approach, pointing towards the necessity to make some sort of prediction about future developments when assessing, for example, mergers. Furthermore, an analysis focusing on market share alone is not particularly probative in a dynamic and R&D intensive industry.

Following the traditional approach, in order to assess market power antitrust authorities first define the relevant market⁵⁴ in terms of product/service and geographical dimensions to which the undertaking's products belong. Then the analysis rotates around the measurement of market shares held by the undertaking (s) in this market⁵⁵; market share thresholds have been widely used as a screening device, if an undertaking holds 100% of the market, it has the highest possible market power, conversely, if it holds only a slight share of the total market, it will be unable to exercise much market power; a restraint on the ability of setting high prices will come from competitors, and an undertaking's low market share will indicate that this firm has strong competitors.

Despite the common use of this kind of analysis, in the new economy neither the market share is sufficient in itself to determine if an undertaking which holds high levels of it is dominant⁵⁶, nor can the threshold be wisely fixed to establish dominance. For example, in a merger involving undertakings from the "old economy", *Mercedes-Benz / Kässbohrer*⁵⁷, it was held that high market shares do not in themselves justify the assumption of a dominant position. At any rate, they do not allow a dominant position to be assumed if other structural factors are detectable which, in the foreseeable future, may alter the conditions of competition and justify a more relative view of the significance of the market share of the merged companies. Such structural factors could, for example, be the ability of current competitors to constrain the action of the new entity, the expectation of a significant increase in potential competition from powerful competitors, the possibility of a quick market entry

or the buying power of important customers. For this reason, market shares are not very informative, since they may shift rapidly at any stage.

Many factors interfere in the assessment of market dominance in the new economy where undertakings are generally exposed to fierce competition, network effects and immense product innovation whereby their positions change in an unpredictable way and speed. In a sector characterized by constant innovation and rapid technological convergence, it is clear that any current market definition runs the risk of becoming inaccurate or irrelevant in the near future⁵⁸. Goyder⁵⁹ points out that the hallmarks of industries in the new economy include the tendency of the most successful undertaking to acquire dominance and a large market share, as the sector “tips”⁶⁰ in its direction and of competitors to find it hard to match its technical lead. One product or service may have a fairly short life, before it is replaced by a more advanced alternative which in turn captures consumer preference.

For instance, Pleatsikas and Teece⁶¹ argue that the type of analysis presented in the Department of Justice Horizontal Merger Guidelines and courtroom antitrust practices in the United States systematically overestimates the threat of market power in high-technology industries. In such industries, much competition takes place along non-price dimensions, and new breakthroughs continually threaten the position of dominant undertakings.

Evans and Schmalensee⁶² perceive grave shortcomings in the traditional antitrust paradigm when applied to the new economy. In particular they see the process of defining markets and testing for static market power as being seriously deficient. They state that:

If antitrust is to benefit customers, in litigation involving industries in which competition has centred on investment in intellectual property both sides should be able to stipulate that firms have static market power. It should be understood that if dynamic competition is healthy, static market power is largely irrelevant for the purpose for which market power is considered in most antitrust cases, particularly those involving changes of monopolization: it does not provide an effective screen, and it does not summarize the relevant behavioural constraints. Thus, antitrust litigants dealing with the new economy should be obliged to offer and defend logically consistent descriptions of the current and likely future healthy of dynamic competition. A Schumpeterian past does not guarantee a Schumpeterian future, but it does provide relevant information.

Along with these same lines Pleatsikas and Teece⁶³ conclude that:

There are no hard and fast indicia that lend themselves to precise definitions of markets in high technology contexts. However, the traditional

indicia will typically define markets too narrowly and should not be used, at least not mechanically.

In high-technological markets traditional measures of market share provide misleading evaluations of the degree of competition. Market share tests do not provide a useful overview in new economy industries, since most leading firms have market power in the static sense⁶⁴. Teece⁶⁵, for example, explains that in the high technology context, a monopolist cannot therefore be identified by traditional marginal cost pricing tests, such as the Lerner Index. He contends that perhaps a more meaningful approach to monopoly pricing would be to ask whether the consumers are paying a price higher than is needed to draw forth the products and services they desire over time. The price cannot in this sense be analyzed statically; it must be viewed dynamically, and across product. If, for instance, prices are not sufficiently high to recover the investment in R&D, innovation may wither.

It is essential that when analyzing market dominance in the new economy one has clearly in mind the difference between abuse of dominance and existence of dominance. It is not an offence for an undertaking to have a dominant position; what is offensive is to abuse the position of dominance⁶⁶. Markets with significant network effects, technological progress, and production economies of scale can exhibit catastrophic entry, whereby one product dominates the market until another product is sufficiently superior that it becomes the new network bandwagon. Rivalry in such markets can take the form of competition to become a dominant firm.

In the new economy, an essential element of market power analysis is an examination of actual and potential innovative threats to leading undertakings, which cannot be a simple exercise in drawing boundaries and computing shares or even looking at traditional barriers to entry, which concern non-innovative entry. It generally involves the exercise of judgment regarding the likelihood of future races for market dominance and the likely nature of those races. There is no guarantee that such races will continue in any industry, but neither does the absence of a visible race at any particular point in time imply that dynamic competition is at an end⁶⁷. Furthermore, given the fragility of market leadership positions, there is no economic sound basis for treating leading undertakings in this context as if they had the kind of a durable market position.

Among the advantages of the competitive process, Goyder⁶⁸ indicates that:

[...] the constant process of dynamic adjustment to continual changes in consumer preferences is an incentive for producers to invest in research and development and to innovate, leading to the survival and growth of those companies which make the necessary changes in good time, whilst those that fail to do so inevitably fall behind.

Positions of dominance are generally the natural result of market dynamics due to innovation, superior management, technological characteristics, or product differentiation. Indeed, it would not make economic sense to punish an undertaking that possesses market power solely as a consequence of having developed a superior product, because doing so would erode the incentives for innovation.

Undertakings with dominant positions do not necessarily adopt prices that maximize immediate monopoly profits, since they have to consider the dynamic implications of such a strategy and the possibility that it would encourage entry and hence competition in the future.

While it is true that network effects tend to reinforce leadership positions, in many high-technology industries there are multiple, sequential races for market leadership. Major innovations occur repeatedly, and switching costs and lock-in do not prevent displacement of category leaders by better products⁶⁹.

In similar vein, Audretsch et. al.⁷⁰ notes that:

In the static mode where technology and consumer demand is given, price (output) becomes the firm's main, if not its only, choice variable. [...] in reality firms are engaged in a continuing dynamic competitive process, constantly creating and adopting new products and processes in order to gain a competitive advantage over their rivals. Firms that do obtain such an edge temporarily derive static monopoly power during the interval before imitating competitors replicate their innovation or supersede it with one that is superior. Thus successful firms earn temporary monopoly profits as their reward for innovative activity.

At this point three important implications for antitrust analysis concerning industries in the new economy may be mentioned. First, the rational expectation of significant market power for some period of time is a necessary condition for dynamic competition to exist in high-technology industries. Hence if it is a sound dynamic competition, the presence of short-run market power is not a symptom of a market failure which will harm consumer welfare. Second, it is expected that leaders in the new economy charge prices well above marginal cost and earn high profits. Finally, although static competition is rarely vigorous in the new economy, the crux point of the performance of the industries in such context is the intensity of dynamic competition.

By this token, a proper market power inquiry in new economy industries should include a serious analysis of the vigor of dynamic competition. Unlike price/output decisions, analysis of dynamic competition requires evidence about, among other things, the pattern of investment in developing new products and complements, the control of critical assets (e.g., intellectual property and distribution channels), and the beliefs of market participants and informed observers about the nature and pace of innovation.

Paraphrasing Evans and Schmalensee⁷¹, the analysis of market power in the new economy should consider the vulnerability of leading undertakings to entry powered by drastic innovation, not just to the entry of undertakings producing equivalent products with known processes. Analysis of this kind of fragility may require difficult judgment about the likelihood of disruptive innovations in the future, but simply to assume such innovations cannot occur is to ignore history and to impart substantial and obvious bias to market power examinations in important sectors.

To monopolize is not simply to possess monopoly: the word implies some positive drive, apart from normal competitive skills, to seize and exert power in the market. All this is different in the case of a single undertaking which achieves a position of market power. The achievement does not necessarily reflect a purpose on its part to seize and exert power; the power may simply have accrued to it by virtue of a normal exercise of competitive skills. Further, a monopolist would then be an undertaking shielded from competitors and new entrants, which is insulated from competition from other innovations and imitators. And, according to Teece⁷², the main difference between monopoly and competition is that with competition market forces compel improvement in the product offerings available to the consumer, whereas monopoly implies no compulsion from the market place.

Last but not least, Pleatsikas and Teece⁷³ emphasize the need to take into account the full competitive environment and the constraints that it places on any alleged antitrust violation or inquiry. In this strand, it is worth noting the emergence of “first principles” approach⁷⁴ which focuses on the examination of the anticompetitive conduct directly upon the alleged conduct itself and on the effects of that conduct, and provides the framework and flexibility for appropriately considering competition issues in high-technology sectors.

Finally, competition analysis will often have to look beyond a single market traditionally defined if it is to deal with the complexity of dynamic competition in the new economy. The concern of applying to new economy industries the standard paradigm of defining a market and then determining whether an undertaking has market power or is dominant is that it may define a market too narrowly to reflect all of the competitive constraints upon the undertaking in question. Furthermore, because the leading undertaking in many new economy industries will have a large market share and unquestionably static market power in a strict economic sense, dominance may be found in many cases.

4. CONCLUSION

The purpose of this paper is to illuminate many of the complex issues involved in designing one way to assess market dominance in the new economy. It suggests a useful analysis of the concept of market dominance in the dynamically competitive

environment of the new economy through a set of explanatory hypotheses along with some evidence in the case law.

One important result of the research undertaken is that there is a general consensus that competition policy and its active enforcement ought to be pursued in industries of the new economy but with some caution. There is not only a strong confidence that the Competition Laws are sufficiently capable of being adapted to deal with the competitive issues that arise in this context, but also varying degrees of optimism about the ability of the enforcement agencies and the courts to meet the challenges of cases generated. It is clear from the case-law that harm to a competitor does not inevitably imply harm to the competitive process and thus harm to consumers, the prevention of which is the ultimate objective of antitrust policies.

One of the main purposes of Competition Laws is to increase the level playing field of competition in an industry. This objective is based on the belief that increased competition in an industry enhances consumer welfare by encouraging undertakings to behave competitively, while yet allowing them to take advantage of every available economy that comes from production efficiencies, or from innovation producing new processes or improved products.⁷⁵ The application of antitrust principles should take account of the distinct ways new economy industries differ from traditional ones. Antitrust, therefore, may have an important role to play in maintaining an environment in which innovation and technology progress can flourish. Competition authorities need to focus on trying to ensure that an undistorted process of rivalry takes place and in particular is not threatened by existing monopolies trying to deter rivalry.

The fact that antitrust authorities should look forward at innovation implications of business behavior by no means suggests that such inquiries are easy to undertake. While sophisticated econometric tools and analytical constructs may be available to assist in predicting price effects on the basis of various structural characteristics, the road map for identifying and assessing innovation effects is less developed⁷⁶. The concepts of markets, market power, and dominance should be used flexibly as tools to help the competition authorities to the right decision and not as the primary focus of the analysis itself.

Large market shares may not always be the outcome of anticompetitive activity by an undertaking but may sometimes be the result of a highly competitive process where a more capable undertaking has been able to use its capabilities to gain a dominant position. Therefore, a decision to break such a dominant undertaking up into smaller firms in order to enlarge competition in an industry may actually diminish consumer welfare, if the capabilities developed in the dominant undertaking cannot be transferred to the smaller undertakings that such actions would create.

It is note worthy that the equating of dominance with significant market power is beginning to be adopted explicitly by some European competition authorities. For

example, the European Commission has explicitly equated dominance with significant market power in its Framework Directive on the regulation of electronic communications networks and services⁷⁷.

Assessing whether an undertaking has market power requires an understanding of the sources of its competitive advantages as well as customers' preferences. The task of Competition Law and respective authorities should be not to prejudice winners but instead to assure that private restraints do not limit the potential sources of innovation. Because competition is dynamic, the concern in practice should lie with the future development of the market and market power enduring over time.

For this purpose, two distinct sides should always be thoroughly analyzed: the first concerns a successful undertaking's legitimate use of aggressive, competitive strategies, regulation of which might reduce future innovation incentives and consumer welfare; the second, and opposite side, refers to the misuse of market power to engage in anticompetitive behavior that forecloses competition and innovation to the ultimate detriment of consumers. Therefore, finding the right balance is essential for promoting innovation and protecting consumer welfare in the fast-moving environment presented in the new economy.

Finally, the main challenge for competition policy makers in the new economy is to preserve competitive opportunities without punishing successful competitors. The competition authorities should delve into the necessary specialized technical knowledge to assess a sound antitrust analysis before the market positions and the technological progress are overtaken by events.

: ARTIGO SELECIONADO

NOTAS

1 This paper is part of a dissertation submitted to the Law Department of the London School of Economics and Political Science, in part fulfillment of the requirements for the LLM degree in International Business Law.

2 Master of Laws, London School of Economics and Political Science. Master in Regulation and Competition, UCAM. Counselor at Law and Economist. Lecturer and Coordinator of the Post-graduate courses in Law at the FGV-Rio de Janeiro Law School.

3 POSSAS, Mario Luiz. *Competition, strategic behaviour and antitrust policy: an evolutionary approach*. Addressed at the Fundação Getúlio Vargas, Rio de Janeiro, Brazil, Oct. 1997, p. 3: "Competition in this approach is neither a market price mechanism taken as given nor a set of preconditions of competitive equilibrium (atomistic supply, maximizing rationality with complete information), as in modern neoclassical axiomatic theory. It is not even a process of adjustment to equilibrium positions, leading to the elimination of extra profits and erratic deviations from equilibrium paths. It is an interactive process among economic units aiming at private appropriation of profits and the corresponding

increase of capital value. This earning of profits neither presupposes nor leads to any kind of equilibrium, not even the classical equalization of profits rates. On the contrary, disequilibrium is to some extent the norm, since it results from the very core of competition in Schumpeterian view – a variety of systematic efforts to generate deliberate differentiation between economic agents in order to create more or less durable competitive advantages that may ensure monopolistic gains, although always temporary and restricted to some specific market segments. There is nothing like “normal” profits in any relevant sense. *Ex post* profits (as opposed to expected rates of return on a business) are not logically or empirically related to the amount of money or physical capital employed. Their nature is more akin to quasi-rents or monopolistic gains than to a regular stream of equilibrium factor revenues.”

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6 For example, see *Microsoft v. Commission* (Case COMP/C-3/37.792, April 22, 2004); *Vizzavi Internet Portal venture between Vodafone Air Touch plc., Vivendi SA, and Canal+ SA* (Case COMP/JV.48, July 20, 2000); Merger between two traded US-based telecommunications companies *WorldCom, Inc. and MCI Communications Corporation* (Case IV/M. 1069, July 8, 1998); *Bertelsmann/Kirch/Premiere* (Case IV/M 799 (1999), O.J. L 53/1; *Deutsche Telekom/Beta Research* decision 1999/54, (1999), O.J. L 53/31.

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12 SILVERBERG, Gerald; DOSI, Giovanni; ORSENIKO, Luigi. Innovation, Diversity and Diffusion: A self-organized model. In: *The Economic Journal*, vol. 98, n° 393, Dec., 1988, p. 1034.

13 KATZ, Michael; SHAPIRO, Carl. Antitrust in Software Markets. In: EISENACH, J. A. (ed.) *Competition, innovation and the Microsoft monopoly*. New York: Kluwer, 1999, p. 29-81. The authors identified four features of software with major antitrust implications: (a) low marginal cost; (b) systems and network effects; (c) rapid technological change, and (d) durability. SCHMALENSEE, Richard. Antitrust Issues in Schumpeterian Industries. In: *The American Economic Review*, vol. 90, n° 2, May 2000, p. 192. “Software firms compete statically, by selling existing products, and dynamically, by developing new products. After the (endogenous) fixed costs to design, develop, and test a new software product have been incurred, the marginal cost of producing another copy is trivial.[...] Moreover, leaders in software markets generally fail the traditional tests for “monopoly power” in the antitrust sense of substantial market power. Not only is price well above marginal cost, leaders in “winner-take-most” markets have high market shares and lack close substitutes. Since most software firms fail, there would be no entrants into the business if category leaders were not highly profitable. Finally, in many software categories, network system, and scale economies protect market leaders against entry by products of comparable quality, though they may offer little protection against innovators, and the pace of innovation is generally brisk. If one accepts the traditional test, one must conclude that the software industry, which strikes most observers as intensely competitive, is full of monopolists that should be subjected to the strict behavioral standards of Section 2 of the Sherman Act.”

14 *United States v. Microsoft*, 253 F.3d 34, 49 (D.C. Cir. 2001).

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21 *Ibid.*, p. 452.

22 BAUMOL, William J. *The free-market innovation machine: analyzing the growth miracle of capitalism*. USA: Princeton University Press, 2002, p. 10.

23 *United States v. Aluminum Company of America*, 148 F. 2d 416 (2nd Cir. 1945), *United States v. Grinnell Corporation*, 384 U.S. 563 (1966).

24 SCHUMPETER, Joseph A. *Capitalism, Socialism & Democracy*. UK: Routledge, 2000, p. 83-84.

25 *Ibid.*, p. 84 - 85.

26 ELLIG, Jerry; LIN, Daniel. A taxonomy of dynamic competition theories. In: ELLIG, Jerry (ed.) *Dynamic Competition and Public Policy: technology, innovation, and Antitrust Issues*. USA: Cambridge University Press, 2001, p. cit., p. 18.

27 *Ibid.*, p. 18-19: "Firms that imitate or innovate with greater success become relatively more profitable. Eventually, all innovations are fully incorporated, the economy settles into a new equilibrium – until the process begins anew with more innovations.[...] The type of firm that thrives in creative destruction is different from the appropriate one for perfect competition. Developing innovations is costly, so the most innovative firms should have a large stream of resources for R&D. [...] successful innovation may itself lead to market power and supranormal profits. This reading of Schumpeter implies three hypotheses: large firms are more innovative than small firms, monopolistic industries are more innovative than competitive ones, and firms will be more innovative when they anticipate that they will be allowed to exploit the market created by their innovations".

28 CLARK, J. M. Competition: static models and dynamic aspects. In: *The American Economic Review*, vol. 45, n° 2, May, 1955, p. 450-462.

29 EVANS and SCHMALENSEE, op. cit., p. 1.

30 ATHEY, Susan; SCHMUTZER, Armin. Investment and market dominance. In: *Rand Journal of Economics*, 2001, v. 32, 1, pp. 1-26.

31 EVANS and SCHMALENSEE, op. cit., p. 2. See also ARMENTANO, Dominick T. *Antitrust, the case for repeal*. 2. ed. USA: The Ludwig von Mises Institute, 1999, p. 3: "More importantly, a firm could produce a superior product at low cost and consumers could establish that firm as the dominant supplier; the law, presumably, was not meant to restrict such beneficial behavior. Indeed monopoly, however defined, is not illegal under the Shearman Act; "monopolization" is. What the law really requires (after a threshold market position has been established) is a showing that

the defendant engaged in so-called monopolistic practices. The important questions are: How did the firm come to obtain its market share? Did the firm unfairly exclude competitors from the market? Did it unfairly restrain the competitive process?"

32 ARMENTANO, op. cit., p. 34-35.

33 BAUMOL, op. cit., p. 12.

34 SCHUMPETER, op. cit., p. 84: "As soon as quality competition and sales effort are admitted into the sacred precincts of theory, the price variable is ousted from its dominant position[...] in capitalist reality as distinguished from its textbook picture, it is not that kind of competition which counts but the competition from the new commodity, the new technology... – competition which commands a decisive cost or quality advantage and which strikes not at the margins of the profits and the outputs of the existing firms but at their foundations and their very lives".

35 ECONOMIDES, Nicholas. The Microsoft antitrust case. In: *Journal of Industry, Competition and Trade: from theory to policy*, Aug. 2001a. The author presented a conceptual treatment of why competition in a network industry, while unconventional, is still efficient. He starts with (a) recognition that in a market with network effects the winner will dominate in Microsoft fashion, (b) this will arise without "anti-competitive" acts, (c) forced changes are "futile and counterproductive", and, in particular, (d) adding firms will not help. However, (e) vigorous competition to become a winner will prevail. (f) Divestiture may create inefficiencies. (g) The benefits of success as well as the cost of entry are high and thus competition may be greater compared to non-network industries. (h) The advantages of incumbency are formidable but not insuperable. See also BAUMOL, op. cit., p. 287: "[...] Entrants that can leapfrog the incumbent monopolist with a better product or a more efficient process will often succeed in sharing the market with the incumbent, or in replacing the incumbent with a new dominant firm whose monopoly power is likely to be equally transitory, as still later innovators enter the market."

36 POSSAS, op. cit., p. 3.

37 LIBOWITZ and MARGOLIS, op. cit., p. 160-192.

38 BORK, Robert H. *The Antitrust Paradox: a policy at war with itself*. USA: The Free Press, 1993, p. 49: "Competition is inherently a process in which rivals seek to exclude one another. Efficiency tends to exclude firms that are less efficient."

39 NELSON, Richard N.; WINTER, Sidney G. *An evolutionary theory of economic change*. USA: The Belknap Press of Harvard University Press, 1982, p. 349.

40 EVANS and SCHMALENSEE, op. cit., p. 21.

41 POSSAS, op. cit., p. 11.

42 *Hoffman-La Roche v. Commission* (Case 85/76) [1979] ECR 461 [1979] 3 CMLR 211, at paragraphs 38-41.

43 This view was repeated in *AKZO Chemie BV v. Commission* (Case C-62/86) ECR I-3359, [1993] 5 CMLR 215, at paragraph 60. The AKZO judgment set out an important "rule of thumb" which is still applied in many instances: a market share of 50 per cent gives rise to a presumption of dominance. See also *Hilti AG v. Commission* (Case T-30/89) [1991] ECR II-1439, [1992] 4 CMLR 16, paragraphs 89 – 94.

44 In *Continental Can (Europeanballage Corporation and Continental Can Co. Inc. v. Commission)* (Case 6/72) [1973] ECR 215, [1973] CMLR 199, the Court held that the exploitation of a dominant position must be abusive to come within the prohibition in Article 82 EC. Abuse may therefore occur if an undertaking in a dominant position strengthens such position in such a way that the degree of dominance reached substantially fetters competition, i.e., that only undertakings remain in the market whose behavior depends on the dominant one. (paragraph 26 of the judgment). In *Michelin v. Commission* (Case 322/81) [1983] ECR 3461, [1985] 1 CMLR 282, the Court decided that 'a finding that an undertaking has a dominant position is not in itself a recrimination but simply means that, irrespective of the reasons for which it has such a dominant position, the undertaking concerned has a special responsibility not to allow its conduct to impair genuine undistorted competition on the Common Market' (paragraph 57 of the judgment).

45 *United States v. Microsoft*, 253 F.3d, 34, 50 (D.C. Cir. 1998)

46 *Continental Can v. Commission*, supra, at paragraph II.B.3 of the decision.

47 *United Brands C and United Brands Continental BV v. Commission* (Case 27/76) [1978] ECR 207, [1978] 1 CMLR 429, at paragraph 65.

48 *Hoffman-La Roche v. Commission*, supra, at paragraph 39.

49 These factors include, for example: overall size of the undertaking, control of infrastructure not easily duplicated, technological advantages or superiority, absence of countervailing buying power, economies of scale, economies of scope, a highly developed distribution and sales network, absence of potential competition, and product/services diversification.

50 *Renault/Volvo* (Case IV/M. 004) [1990] O.J. C 281/2 [1991] 4 CMLR 297 at paragraph 22. See also, The Commission Guidelines on Market Analysis and the Assessment of Significant Market Power under the Community Regulatory Framework for Electronic Communications Networks and Services, O.J. C 165, July 11, 2002, p. 6, 14 and 15.

51 *Michelin v. Commission*, supra, at paragraph 57.

52 However, the Commission Recommendation on the Relevant Product and Service Markets within the Electronic Communications Sector susceptible to *ex ante* regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a Common Regulatory Framework for Electronic Communications Networks and Services, O.J. L 114, May 8, 2003, p. 46 states that: "(13) Entry barriers may also become less relevant with regard to innovation-driven markets characterized by ongoing technological progress. In such markets, competitive constraints often come from innovative threats from potential competitors that are not currently in the market. In such innovation-driven markets, dynamic or longer term competition can take place among firms that are not necessarily competitors in an existing 'static market'."

53 MOTA, op. cit., p. 116.

54 *Re Irish Sugar* (Commission Decision 97/624, OJ [1997] L 258/1, [1997] 5 CMLR 666), the Commission held that a firm holding 90% of the overall granulated sugar market enjoyed a dominant position in that market.

55 *Mannesmann/Hoesch* (Case IV/M.222) [1992], OJ L114/35, [1992] 5 CMLR 117 at paragraph 91.

56 Dominance does not exist in the abstract, but in relation to a particular market. See Case 6/72 *Continental Can v. Commission*, supra, at paragraph 32 of the judgment; *United Brands v. Commission*, supra, at paragraph 10 of the judgment, and *L'Oréal v. PVBA De Nieuwe* (Case 31/80 [1980] ECR 3775, [1981] 2 CMLR 235, at paragraph 25 of the judgment).

57 Market definition plays a significant role in Article 82 cases. The Commission Notice on the Definition of Relevant Market for the purposes of Community Competition Law, [1997] O.J. C372/5: [1998] 4 CMLR 177, sets out the basis upon which it defines both product and geographic markets. In an Article 82 case, its focus is on whether the undertaking in question can behave, to an appreciable extent, independently of competitors and its customers; and this ability will often, though not invariably, follow from its possession of a large market share in the supply of products or services. Such dominant position would usually arise when a firm or group of firms accounted for a large share of the supply in any given market, provided that other factors analyzed in the assessment (such as entry barriers, customers' capacity to react, etc.) point in the same direction.

58 See also *Götrrup-Klim v. Commission* (Case C-250/92) [1994] ECR I-5641, [1996] 4 CMLR 191, at paragraph 48 of the judgment: "[...] It is true that in certain cases, the fact that an undertaking holds a large market share may be considered a strong indication of the existence of a dominant position[...] While an undertaking which holds market shares of that size, may, depending on the strength and number of its competitors, be considered to be in a dominant position, those market shares cannot on their own constitute conclusive evidence of the existence of a dominant position".

59 (Case IV/M477) O.J., 1995, L211/1, at paragraph 65.

60 See also, Joined Cases T-125/97 and T-127/97 *The Coca-Cola Company and Others v. Commission* [2000] ECR II-0000, at paragraphs 81 and 82.

61 GOYDER, D.G. *EC Competition Law*. 4. ed. UK: Oxford University Press, 2003, p. 567.

62 MOTA, op. cit., p. 84-85: “The basic concept here is that of market tipping, which refers to the fact that when there are competing systems, once a system manages to gain a certain advantage in consumer preferences, then it might become more and more popular (...) and its rivals might fade out. Market tipping is certainly an important phenomenon in network industries, but some qualifications should be made before jumping to general conclusions. First, there are many situations in which different standards might co-exist in a given industry. In many cases, consumers do value variety and differentiated systems will survive in the same industry. Second, the existence of tipping and of large profit that can be reaped once their own product is established as the industry’s standard will prompt firms to compete fiercely to win the standard war. Intense promotional activities of various types as well as aggressive pricing in the introductory periods, might characterize the initial stages of a given product life, as a firm attempts to increase market shares so as to gain the edge it needs to make the market tip. As a result, it might well be that the large profit made by the firm after its product has become the dominant standard might just cover the cost incurred during the standards war. Third, the existence of only one network in the market might even benefit consumers, to the extent that they will be able to enjoy more communication possibilities or more complementary services, whereas under competing networks they will not be able to. Likewise, the difficulties faced by entrants in markets which exhibit important network effects should not be generalized to imply that all these markets will naturally show “excess inertia” (or persistent dominance).”

63 PLEATSIKAS and TEECE, op. cit., p. 95. They also affirm that the nature of competition in markets exposed to the effects of rapid technological innovation is quite different from competition in other markets. “Market power is extremely difficult to calibrate, and the traditional models of competition – be they perfect competition, oligopoly, or monopoly – have limited utility. Accordingly, economists and antitrust lawyers must rethink some basic assumptions and recalibrate some metrics or risk promoting litigation outcomes and public policies that harm competition and consumers”.

64 EVANS and SCHMALENSEE, op. cit., p. 28.

65 PLEATSIKAS, Christopher; TEECE, David. The analysis of market definition and market power in the context of rapid innovation. In: *International Journal of Industrial Organization*, vol. 19, 2001, p. 691.

66 The Commission Guidelines on Market Analysis and the Assessment of Significant Market Power under the Community Regulatory Framework for Electronic Communications Networks and Services, O.J. C 165, July 11, 2002, p. 16: (78) It is important to stress that the existence of a dominant position cannot be established on the sole basis of large market shares.

67 TEECE, op. cit., p. 174.

68 WHISH, Richard. *Competition Law*. 4. ed. UK: Lexis Nexis, 2003, p. 161.

69 EVANS and SCHMALENSEE, op. cit., p. 23.

70 GOYDER, op. cit., p. 9.

71 EVANS and SCHMALENSEE, op. cit., p. 12.

72 AUDRETSCH, David B.; BAUMOL, William J.; BURKE, Andrew E. Competition policy in dynamic markets. In: *International Journal of Industrial Organization*, 19, 2001, p. 618 and 620: “[...] competition always benefits welfare. [...] since competitive advantages are gained primarily by improving product characteristics and/or reducing production cost, a new state resulting from such competitive acts must generally be Pareto superior to its predecessor.”

73 EVANS and SCHMALENSEE, op. cit., p. 47.

74 TEECE, op. cit., p. 174.

75 PLEATSIKAS and TEECE, op. cit., 2001.

76 SALOP, Steve. The First Principles Approach to Antitrust, Kodak, and Antitrust at the Millenium. In: *Antitrust Law Journal*, vol. 68, 2000, p. 188-189: “[...]The first principles approach centers on an examination of the competitive effects of the conduct at issue. (...)Although market power and market definition have a role in antitrust analysis, their proper roles are parts of and in reference to the primary evaluation of the alleged anticompetitive conduct and its likely market effects. They are not valued for their own sake but rather for the roles they play in an evaluation of market effects. (...)Market power and market definition therefore should not be analyzed in a vacuum or in a threshold test divorced from the conduct and allegation about its effects. Instead market power should be measured as the power profitability to raise or maintain price above the competitive benchmark price, which is the price that would prevail in the absence of the alleged anticompetitive restraint. The competitive benchmark may be the current price, the perfectly competitive price, or some other in-between price, depending on the particular allegations of anticompetitive effect being asserted. This integrated approach to antitrust analysis is the first principles approach”.

77 AREEDA, Phillip E.; HOVENKAMP, Herbert. *Antitrust Law: An Analysis of Antitrust Principles and Their Application*. 2. ed., vol. 1, NY: Aspen Law and Business, 2000, p. 4.

78 See also BISHOP, Bill; CAFARRA, Cristina. Dynamic Competition and Aftermarkets. *E.C.L.R.*, 1998, issue 5, p. 266: “When the pace of innovation is fast, the case for policy intervention to remove or prevent temporary market power is reduced. Ill-considered intervention can be harmful, by damaging future incentives to innovate. The principal rol Directive 2002/21 of the European Parliament and of the Council of March 7, 2002, O.J. L 108, April 24, 2002.

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