

Jean-Luc Gaffard · Michel Quéré

## What's the aim for competition policy: optimizing market structure or encouraging innovative behaviors?

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**Abstract** Innovation is usually thought of as a change in the fundamentals of an economy, which can require adjustments by policy-makers. The latter are usually thought as in regard to a dominant vision, which is to restore an optimal market structure, and leads to a competition policy mainly aimed at controlling for antitrust practices and limiting market power. In this paper, we favor another vision of innovation, as a discovery process that cannot allow *ex ante* a definition of best practices. Dealing with information issues in two different and alternative perspectives, we argue that antitrust authorities confront a market imperfection–market failure dilemma (MI–MF dilemma) which leads them to favor the existence of appreciative and discretionary policy rather than encouraging the existence of any market structure thought of as optimal as regards the current state of information. We conclude with policy implications, contrasting the EU with the US.

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J.-L. Gaffard (✉)  
University of Nice Sophia Antipolis, Institut Universitaire de France and OFCE,  
250 avenue Albert Einstein, 06560 Valbonne, France  
E-mail: gaffard@idefi.cnrs.fr

M. Quéré  
CNRS-GREDEG and OFCE, Valbonne, France  
E-mail: quere@idefi.cnrs.fr

## 1 Introduction

In the perspective of understanding the current debate about the relation between competition and growth, it is worthwhile to contrast two conceptions of competition policy, derived from two contrasted analyses of innovation. The one is focused on the necessity for antitrust authorities to control damaging behaviors by firms, which try to increase their monopoly power thanks to collusive agreements, mergers and acquisitions, or concentration. In such a perspective, results of technological change are supposed to be known, as antitrust authorities intend to impose a specific (optimal) state of affairs. The other conception of competition policy is derived from an analysis of innovation as a discovery process, which implies that no optimal market structure can be a priori identified. Thus, the major issue for public authorities is to prevent excessive market disequilibria from occurring. In this context, coordination among the firms is not only “highly beneficial to the economy” (Baumol 2001, p. 727), but a necessary condition for innovative investment to be carried out. Practices usually perceived as anti-competitive can be tolerated by antitrust authorities, at least so long as they do not lead to actual market failures.

Within the traditional framework, “the best way to understand market failure is first to understand market success, the ability of a collection of idealized competitive markets to achieve an equilibrium allocation of resources which is Pareto optimal” (Ledyard 1989, p. 185). This particular definition of market success and hence of market failure is nothing but a reading of the first fundamental theorem of welfare, according to which: “if there are enough markets, if all consumers and producers behave competitively, and if an equilibrium exists, then the allocation of resources in that equilibrium will be Pareto optimal” (ibid.). Therefore, “market failure, the inefficient allocation of resources with markets, can occur if there are too few markets, non-competitive behavior, or non-existence problems” (ibid. p. 189). It is acknowledged that, for market imperfection to be corrected, we need devices for the creation of more markets. As we shall see, things can be much more complex. Once market imperfection appears as a means for making viable any innovative choice, it is no longer acceptable to reduce it to market failure or to oppose it to market success. Market failure as well as market success must receive another definition, which refers to the viability conditions of innovation process rather than to the optimality conditions of the allocation of given resources. Moreover, market imperfection remains a concept difficult to understand from a normative viewpoint insofar as the same behavior (read as non-competitive behavior in the standard analysis) may favor dynamic efficiency (in fact, innovative choice), while it is an obstacle to the achievement of static efficiency. Thus, antitrust authorities have to address a market imperfection–market failure dilemma (MI–MF dilemma hereafter). This dilemma is intrinsic to any innovation process, as coordination among firms is required (market imperfections) but should not lead to abusive market power that would block innovative choices (market failures).

The rest of the paper is as follows. Section 2 reviews the dominant paradigm for competition policy based on a traditional vision of innovation. The main result is that, while anything can happen, it is always possible to establish a Pareto ranking of the different outcomes. Perfect competition remains the benchmark. Nevertheless, such a Pareto-ranking holds only if information structure pre-exists to the

carrying out of market transactions, as it is the case within the Industrial Organization framework. At the opposite end of the spectrum, monopolistic practices might be necessary when information has to be produced by the market process. Taking advantage of the latter statement, Section 3 proposes we consider innovation as a process of change that takes time, and so we must revisit competition policy, which, instead of consisting in applying rigid rules, must be active or appreciative. Section 4 concludes with some insights about the EU competition policy.

## 2 Competition or monopoly: the innovation challenge

Competition is usually thought of as a state of affairs that reflects a particular market structure. Whatever the kind of analysis in use, be it developed within the old SCP paradigm or within the new theory of industrial organization, full or perfect competition appears as the benchmark for competition policy. The latter has to maintain conditions of full competition as far as possible. Nevertheless, when innovative choice comes to the fore, things are much more complex, as underlined by Schumpeter (1942). The introduction of new methods of production and new commodities is hardly conceivable with perfect (and perfectly prompt) competition from the start. Thus, there is a real dilemma for the policy makers in charge of maintaining a competitive environment.

### 2.1 From the SCP paradigm to the new theory of industrial organization: anything can happen

The SCP (Structure–Conduct–Performance) paradigm, which has dominated industrial economics for a couple of decades, has led to clear-cut and basic guidance mechanisms. A major means to identify a competitive structure is the market share that is supposed to reveal the level of market power. Competition policy then focuses on the identification of the actual firms' market power by focusing on the identification of the relevant market. Even if perfect competition cannot be claimed as a device in modern industrial contexts, it is still thought to be “a useful measuring-rod against which certain aspects of market failures can be evaluated, most notably the welfare implications of monopoly conditions” (Rowley 1972, p. xix). As such, it gives a place for extensive discussions about the conditions by which welfare gains and losses can be obtained with regard to changes in market structures. Within this framework, economies of scale may be invoked in a defense against anti-trust plaintiffs when pointing out the trade-off existing between the loss of consumer benefits due to market power increase and the gain from the cost savings resulting from the larger scale of activity (Williamson 1968). On the other hand, due to the large scale, X-inefficiency can stifle the gains of welfare (Leibenstein 1966, Comanor and Leibenstein 1969). Thus, “cost savings derived from a reduction in X-inefficiency would provide additional reasons for an anti-trust policy which was weakened by Williamson's trade-off analysis” (Crew and Rowley 1972, p. 144). In short, a debate already exists about the real impact of the market structure on welfare, which does not have an indisputable solution.

The SCP paradigm was further challenged from the 1980s onwards both by the contestable market theory and by strategic interaction analysis. The one leads to a weakening of the importance of the 'S' in the SCP paradigm, as potential entry appears sufficient to induce actual competitive pressure and prevent any market power. The other gives rise to a huge amount of analytical apparatus from which any market structure can result from an optimizing behavior and be reproduced as the outcome of a specific game situation. The difficulty lies in the predictable character of those analytical specifications, as well as the estimation of the actual market context. "Theoretical findings and prescriptions are difficult to translate into workable and enforceable standards that in *actual market settings* would, without fail, promote conduct that enhances social welfare and would, without fail, promote conduct that harms welfare ... In the context of strategic interactions, it is difficult to distinguish between those actions, which are intended to harm actual (and potential) rivals, that stifles competition, and thereby reduce economic welfare, and those actions which harm present rivals and discourage future entry but which, nevertheless, promote economic welfare" (Ordover and Saloner 1989, pp. 538–539).

This is clearly pointed out when dealing with the influential role of R&D on the market structure. R&D spending appears as the major expression of an innovative choice. It results in lower unit costs, and determines both the profitability of firms and the organization of industry. As in other models based on game theory, a multiplicity of outcomes corresponds to various information structures. Thus, there is no a unique prevailing organization of industry that would correspond to the maximum of welfare (Dasgupta and Stiglitz 1980; Reinganum 1989). Nevertheless, even if information is conveyed through acting and the attempt to convey information leads to distorted behavior (Stiglitz 2003, p. 591), information structures, actions, and outcomes (market structures and profits) can be Pareto-ranked and policy (competition policy) can be thought to be Pareto-improving by changing the institutional or organizational frameworks. A potent illustration is given by the analysis of the impact of technological competition on the social advantages or disadvantages of R&D agreements (Petit and Tolwinski 1999). Symmetric firms are distinguished from asymmetric ones—the former use similar technologies over time, whereas the latter are unequal, differing with regard to the initial technology carried out or the innovation rate. In the case of symmetric firms, sharing R&D results (knowledge spillovers) thanks to technological agreements will induce higher individual profits, but the net outcome is lower R&D spending and higher prices than socially desired, due to the existence of a free rider effect. At the opposite end, coordination of investment decision in R&D (joint research ventures) by eliminating the free rider effect will result in an increase of social welfare in terms of accumulated knowledge. In that case, antitrust authorities should limit technological agreements, but encourage joint research ventures. In the case of asymmetric firms, technological agreements are beneficial for consumer welfare because they prevent the monopolization of the market that would lead to higher prices. Asymmetry is here a strong argument in favor of technological agreements that should be encouraged by antitrust authorities. Joint research ventures are also beneficial and should be encouraged, as some firms may lack incentives to cooperate.

These examples illustrate how competition policy is becoming quite a complex issue. Analytical refinements do not lead to clearly identify the estimation of

expected losses and gains in terms of social welfare. But the real issue is less in the variety of market structures that results from optimizing behaviors than in the difficulty of identifying anti-competitive practices. As a matter of fact, in any antitrust case, the main issue is to know whether the particular conduct by the defendant contributes to an anti-competitive result or not. Unfortunately, game theory does not provide a definitive answer. "Modern theory by mainly showing that a variety of things *can* happen is likely to stimulate plaintiffs' imagination. It can certainly be suggestive; it will almost never be definitive" (Fisher 1991, p. 222). Thus, antitrust authorities have to decide whether departures from competition can be explained by collusion or whether the observed results have occurred through oligopolistic behaviors without explicit agreements. Here, the only guidance provided by the game literature is that "the outcome could be an equilibrium in a stylized non cooperative game. That is no help at all" (ibid.). What we need is "an examination of the detailed facts of the industry and the firm involved" (ibid.). Characterizing the competition environment cannot be the result of a pure analytical reasoning. It requires deep empirical and contextual studies. Nevertheless, these studies have to rely upon a clear understanding of the role of restrictive practices.

## 2.2 From the market structure to the market process

Within the SCP paradigm, as well as in the new theory of industrial organization, firms are assumed to obtain immediately gains associated with the new technology once they have decided to implement it. As a consequence, the only motive to innovate lies in the perspective of benefiting from a monopoly rent, which is at least transitory. But, on the other hand, antitrust policy necessarily focuses on the market power associated with this monopoly position. Thus, what is at stake is the existence of a technological leadership that can lead to excessive concentration on the product market. For example, as for mergers and acquisitions, they will be assessed with respect to the market structure involved rather than to the related decrease in production costs, as it is generally the case with European competition policy. In other words, there is a dilemma between competition and innovation.

In order to deal with this dilemma, it is worthwhile to come back to the meaning of competition and to consider the actual organization and information issues associated with any innovation process. A fundamental characteristic of perfect competition is the avoidance of any reference to law and regulatory rules. The existence of this state of affairs requires abstract conditions (a large number of independent producers supplying a homogenous good in a context where entry of firms is free) that have nothing to do with any particular institutional framework. But "should we define competition by its requisites or by its consequences" (Stigler 1957, p. 12)? Such an interrogation is relevant insofar as there is no a relation univocally determined between requisites and consequences. In fact, "it is possible to analyze the effects of a type of market organization, but it is not possible to enumerate all the types of market organization that lead to a given result" (Stigler ibid.). Moreover, the effects of a type of market organization are not those involved by the properties of equilibrium associated with it.

This is where Richardson's argument about the real nature of the information process comes to the rescue. This can be seen in the following quotation. "It is of the essence of the private enterprise that although its individual members are independent (in the sense that they are free from central direction) yet their activities are nevertheless interrelated" (Richardson 1960, p. 30). "Any single investment will in general be profitable only provided, first, that the volume of competitive investment does not exceed a critical limit set by the demand available, and, secondly, that the volume of complementary investment reaches some minimum level" (ibid. p.31). On the other hand, the investment decisions of entrepreneurs depends on expectations, the reliability of which is a function of adequate information or evidence. In this perspective, "the availability to entrepreneurs of the information on which to base investment decisions is a function of the structure of the model in which they are presumed to operate. Alternative market forms may be compared, in other words, according to the predictability of the environment that they afford entrepreneurs. Perfect competition represents an environment in which predictability (of the appropriate kind) is zero; only by postulating some restriction on the freedom of entrepreneurs can this predictability be increased. Once this admitted, practices in restraint of competition no longer appear as so much sand in the works" (Richardson 1965, pp. 435–436). The assumed market structure has therefore an important bearing on the way expectations are formed, and "some market imperfections may be essential to the process of successful economic adjustment" (Richardson 1960, p. 38).

Furthermore, focus must be on the process itself and not on the market structure, whatever it is. "Prices in every market equate supply and demand and thus render mutually compatible the equilibrium behavior of all the members of the economy... it is called an equilibrium theory because it shows what economic organization would be at the point of equilibrium. What happens when a market or the economic system is in disequilibrium is an entirely different problem" (Scitovsky 1961, p. 231). Agreeing with this statement, Hicks concludes in the form of a question. "Is it not time that economists abandoned the discussion of these problems in terms of *general* models, Perfect Competition, Free Competition, Restricted Competition, and the like?" That question is legitimate when "in a world of large-scale production and scientific technology (whatever may have been the case in a simpler world, but the same conclusion probably holds there too), there is no practicable market form which could be made to exist at all generally, and which does not have great disadvantages to match its advantages. The search for the ideal is therefore a will-of-the-wisp" (Hicks 1983, p. 162). In a context where innovation and change are becoming a continuous issue for firm practices, the question to ask is not with respect to the identification of economic organization and market form, i.e., which are the most appropriate in terms of welfare, but how firms are organized in order to match market requirements. "Firm behaviours can certainly distort competition either in terms of market selection processes or the generation of future innovation but the appropriate question to ask is their effects on the process not their effects on market structure" (Metcalfe and Ramlogan 2005, p. 232). This should lead us to abandon any reference to general models of optimal market forms under specific conditions. This can be interpreted as a call for elaborating more appreciative theories and, consequently, as a need for appreciative policy-making with regard to competition issues.



### 3 Innovation, competition, and growth: the 'MI–MF dilemma'

When departing from the dominant definition of innovation as an adoption of new available techniques, and considering a more broader view of innovation as a process modifying the existing context (with regard to technology characteristics, market structures, cost structures or organizational design of firms), we get quite a different perspective about the role and characteristics of competition and competition policy.

#### 3.1 Innovation as a distributed phenomenon

In the largest sense, innovation necessarily implies the breaking up of the existing industrial structure and a modification in market conditions, followed by a gradual reshaping which reflects changes in cost conditions, profitability, relative prices, and modifications of the consumers' preference systems. Innovation thus is a process of research, learning, and selection, which results in the appearance of new productive options that bring about a modification of the environment itself. It generates sunk costs that cannot simply be assimilated to costs recovered later, but reveals the existence of a divorce between costs and revenues that call for specific adjustments along the way. Thus defined, innovation is a sequential process, which takes (and can change) form, content and direction at each successive step of its implementation. Firms do not know *ex ante* whether it is profitable to innovate. "Indeed the answer to this question for any single firm depends on the choices made by other firms, and reality does not contain any provisions for firms to test their policies before adopting them. Thus there is little reason to expect equilibrium policy configurations to arise. Only the course of events over time will determine and reveal what strategies are the better ones" (Nelson and Winter 1982, p. 286).

The above considerations point at innovation as a *distributed phenomenon*, even from the single firm's viewpoint. As a matter of fact, most innovations are the result of new forms of coordination among several firms and institutions rather than of the independent actions of single dominant innovating firms. In this light, particularly important is "how the innovating firms acquire, accumulate and develop knowledge other than scientific and technical knowledge which is material to innovation, (namely) knowledge about the specific characteristics of customers and markets, which in turn has wider connections to knowledge about economic, social and regulatory changes" (Metcalf 2000, pp. 148–149). This is actually achieved "by means of several firms (or other institutions) contributing various technical, marketing or production resources, and coordinating the deployment of those resources in the innovating process" (*ibid.*). The traditional definition of the environment as something *within which* the activity of the firms is performed, and that exists in its own right in the sense that it is structurally unaffected by the firms' actions, fades away when the above distributed character of innovation is considered. Major innovations bring about "a significant change of both the innovating firm and its environment: in the particular sense that certain products, or productive phases, or relationships which existed before the innovation no longer exist or have become obsolete, and then are bound to disappear, or that entirely new products, or productive phases, or relationships, have come into existence" (Amendola and Bruno 1990, p. 423).

From this perspective, innovative choice consists not so much in the choice between given alternatives (whether based on complete or incomplete information) as in a search for coordination. What matters is no longer the ‘rationality’ of the choice between known alternatives. It is the ‘viability’ of the process through which a different alternative is brought about: a viability that depends on how coordination problems are dealt with step by step. Within such a sequential framework, several firms can coexist in the market, despite the existence of increasing returns, remaining differentiated not so much because they supply differentiated goods, but because they are each at a different step of the life cycle of the production process (Amendola and Gaffard 1998; Amendola et al. 2000, 2003, 2004). Interestingly, increasing returns raise only a transitory competitive advantage. Thus, they do not systematically involve market failures and hence they do not call systematically for regulatory interventions. But, this does not mean that innovation processes are necessarily viable and rivalry systematically maintained. Viability requires coordination among firms, which are aimed at bounding investment behaviors and hence avoiding excessive market disequilibria.

Competition plays a central role in the coordination process, as it determines the way in which the market information relevant for coordination is being made available, so that the required adjustments in productive capacity can actually take place. Thus it helps to make this process viable and to realize the productivity gains deriving from it. In this light, competition is not only aimed at equalizing supply and demand in a given market and technological environment, but “has also to adapt both structure and technology to the fresh opportunities created by expanding markets” (Richardson 1975, p. 353). Therefore, competition policy cannot be conducted in isolation without considering the distortions that are in the nature of the growth process. Instead of targeting any optimal market structure, it must be aimed at enforcing viability (and growth) conditions.

### 3.2 Revisiting competition policy

Innovation as a process makes the firm more fragile during the transition phases, i.e. during the period of search for and learning about new economic opportunities. As such, competition authorities have to take care of the construction period and of the capital structure of the firm. It can be the case that horizontal agreements concerning marketing and distribution are a means of compensating for a temporary increase in the production costs of firms due to the relative weight of innovative investment. Far from being a search for abusive market power, such agreements can be legitimated by high innovative costs that cannot be immediately recovered. It is essential to scrutinize the actual cost structure of the firm and to take account of its innovative characteristics in order to estimate the extent to which antitrust rules should apply or not.

In fact, innovation is necessarily a source of increasing uncertainty, due to the *ex ante* inability of firms to secure their investment properly. As a consequence, facing that uncertainty requires some coordination mechanisms among firms in order not to ‘secure’ but to maintain innovative investment within ‘channels’ or ‘corridors’ which complement that of other firms in the future (Quéré 2000). That blend of market information and of collusive R&D activity is something to be encouraged in order to promote firm investment. In such a situation, “the antitrust



authorities' willingness to show forbearance in their toleration of research joint ventures and technology licensing is fully justified" (Baumol 2002, p. 119). Moreover, all stages of the production process may be concerned with such coordinating devices. Beyond the R&D issue, co-ordination of manufacturing, marketing and distribution among firms may also be critical in order to structure a proper demand for new technologies or products. They may also contribute to a sharing of financial risk as well as training costs induced by new production opportunities.

All these coordination issues put into light market imperfections (MI), usually equated with market failures (MF), which are always defined with respect to the conditions of perfect competition, and have to be corrected by means of specific incentives rules, without considerations of any process in time. At the opposite end, in our perspective, imperfect competition is a characteristic of any market process, which can neither be removed nor systematically corrected. It is a normal state, quite often associated with the persistence of rivalry (Qu  r   2003). This rivalry, when it is maintained, is the means for productivity gains to be transformed in lower prices to the benefit of customers and normal profits to the benefit of entrepreneurs. The difficulty faced by anti-trust authorities is that market imperfections are, on the one hand, necessary to convince firms to launch innovative investment and, as such, they are not something to be systematically condemned but, on the other hand, reveal real market failures as they hamper the viability of the innovation process. The "MI-MF dilemma" is very close to the distinction developed by Metcalfe about good and bad market imperfections: "the imperfections identified in the market failure approach, therefore, can be viewed in a different perspective, as integral and necessary aspects of the production and the dissemination of knowledge in a market economy. In this perspective it is surely perverse to call them imperfections. This is, of course, not a new point; for those who have studied Schumpeter they are the natural features of an economic process driven by creative destruction" (Metcalfe 1998, p. 114).

The MI-MF dilemma has a very strong implication, which is in a direct line with Hicks' previous comments: it requires avoiding any general rule and substituting an analysis of the context and case under scrutiny. Properly solving for the MI-MF dilemma is a necessary requirement for encouraging firms' innovative behaviors. Consequently, assessing the MI-MF dilemma should be at the core of an appropriate competition policy.

One can revisit one of the most recent controversial cases of antitrust, the US against Microsoft, by stressing the importance of this MI-MF dilemma. That case shows interesting characteristics with regard to innovation. The PC (personal computer) industry can be thought of as very representative of the Schumpeterian competition framework, where monopoly power is challenged over time by the introduction of new technologies and new commodities, applications and services. The Microsoft controversy is fundamentally based on some actions by Microsoft to promote the use of its own browser (internet explorer (IE)). Fischer (2000, p. 183) listed a series of "made no business sense" actions that suggest that Microsoft was simply improving the protection of a monopoly power (for instance, pushing Apple into adopting IE, paying AOL to adopt its browser, and signing restrictive contracts with some internet content providers such as the Walt Disney Company). According to Fisher, all those actions were thought to be deliberate attempts to protect Microsoft's monopoly power because it was simply "removing the threat to

the applications barrier to entry” (Fischer 2000, p. 183). In other words, those actions only showed how Microsoft aimed at mitigating the existence of alternative browsers (Netscape’s Navigator, among others) and limiting the weight of application software driven from those alternative options. The latter was thought of as a source of anti-competitive behavior, as the “applications barrier to entry” argument applied (the more Windows users, the more new applications could be developed; the more new applications, the more new users). Then, Microsoft was accused of leveraging its monopoly power by using its initial Windows platform to suppress Netscape’s threat. The perception of defendants (see Schmalensee 2000) was mainly to highlight the PC industry as a very innovative context in which major innovations occur repeatedly and displace established leaderships. In such context, the intensity of competition is obvious and “in a struggle for survival that will have only one winner, any firm must exclude rivals to survive” (Schmalensee 2000, p. 194). Then, the fragility of the players is a major reason to improve continuously their market bases and to add further characteristics and functionalities to their products. That fragility justifies a continuous improvement of product characteristics. Thus, integrating IE into Windows was a logical improvement and not a predatory behavior based on Windows’s previous success.

From this rough depiction of the case, one can stress two major related remarks based on our previous analytical reflection. One is the difficulty in identifying the product market under consideration; the other is the importance of time in relation to innovation. Clearly, in the PC industry, there is a definitional problem in identifying the product market. “Plaintiffs defined the relevant markets as operating systems for Intel-compatible PC’s and browsers. The defendant contended that the plaintiffs’ case and the competition between Microsoft and Netscape were about *platforms*” (Schmalensee 2000, p. 194). This, on the one hand, shows the difficulty to which we previously referred for competition authorities to base their decisions on traditional tools in a dynamic market (i.e. innovative) environment; on the other hand, it illustrates the importance of the MI–MF dilemma we stressed as central for competition policy. Depending on the definition given to platforms (restricted or open) in that industry, and depending on the time horizon (short or large) considered, we get a different perspective about the case. Obviously, plaintiffs promoted a restricted and short-term vision of the market in order to highlight Microsoft’s monopoly power and to apply the applications barrier-to-entry argument. Defendants promoted a larger and open conception of the platforms whereby it appears natural to improve continuously the latter as well as to add further functionalities.

Within our analytical framework, we clearly reject the restricted and short-term vision of the limits of product market in the industry because of its intrinsic dynamic character. In other words, there should be a place for market imperfections, as the latter guarantee the viability of the industry as well as its growth-enhancing effect over time. Part of Microsoft’s reactions to the success of Netscape can be interpreted as a necessary requirement in order to ensure this objective. In some sense, it expresses the need for coordinating the rate and direction of innovation and change as well as for ensuring the success of future markets. But it should also be added that most of the previous actions listed by Fisher are more than market imperfections and fall into some kind of market failures defined as behaviors or modes of co-ordination that prevent innovative choices from being viable. Innovation in the industry did not require those actions

to ensure Microsoft innovativeness. Indeed, if our interpretation stands in a sort of “grey” area, whereby we consider that the defendants were right by promoting a more open perspective about the market issue due to innovation requirements, we also consider that the plaintiffs were right in expressing the incompatibility of some Microsoft actions with the insurance that industry competitiveness can prevail. In other words, it offers a stimulating illustration of what we previously defined as the MI–MF dilemma.

#### 4 What about the EU competition policy

Competition policy cannot be but a discretionary policy when innovation is at stake. The fundamental reason for this continuous adjustment is the nature of the articulation between innovation, competition and growth. As innovation is a disequilibrium process, it cannot be reduced to the adoption of (more) efficient technologies. It is essential to consider what innovation (associated in any change, be technology, organization, or market) has to do with adjustment costs (which are the costs of building new productive options and taking advantage of market opportunities). Mitigating the damaging consequences of these costs is a major issue and has significant consequences in terms of competition policy. In fact, it is certainly important that “market are open, that they facilitate and create incentives to challenge established positions and that they eliminate activities which are no longer viable in the prevailing environment” (Metcalfé and Ramlogan 2004, p. 230). But it is also important that rivalry among firms does not result in excessive turbulence that hampers the viability of the process of change. This requires appropriate (i.e. temporary and changing) market imperfections that prevent excessive and cumulative market disequilibria and hence sustain the growth process. From this viewpoint, it is interesting to contrast the EU with the US competition policy.

Articles 81 and 82 of the EC treaty guarantee a fairly uniform law across the EU countries. The first one restricts agreements that facilitate concentration or introduce discrimination, and hence create market power, while the second one outlaws the abuse of monopoly power. They clearly pay tribute to the standard analysis of competition that focuses on the market structure rather than on the process of innovation. However, article 81 (3) makes inapplicable article 81 (1) if an agreement contributes to promoting technical or economic progress. Thus, sunk costs are considered and dynamic efficiency is explicitly taken into account. The real issue with the EU legislation is much more related to the way policy makers interpret it than to its content. In fact, promoting fair market relationships is a goal sufficiently general and vague to be compatible with the two conceptions of competition policy previously mentioned. Thus, the main difficulty for EU competition policy is to systematically balance between ‘a statement of facts’ and ‘a normative statement’ (Neuman 2001, pp. 39–42). This results in various (and changing) policy decisions. The real change lies in an explicit reference to perfect competition as a benchmark, which appears in the Maastricht treaty and corresponds to the general statement consisting in privileging rules over discretion in the different compartments of economic policy, including competition policy.

Indeed, since the late 1980s the European Commission has been using competition policy as a tool for liberalizing markets. This policy plays an essential

role in ensuring that market opening leads to the achievement of potential productivity and variety gains. It increasingly questions whether mergers and acquisitions are guided to promote innovation; exercises control over public aids to avoid distortions through subsidies to some companies; has been active in promoting a reorientation from aids to individual companies or sectors to less distorting horizontal measures addressing specific market failures; promotes rivalry, new entry, and hence turbulences at the micro level that are supposed to sustain macroeconomic stability, and goes hand-to-hand with deregulation and privatization. Thus, when examining particular agreements, authorities focus on the market power rather than on the effects on long-term production costs.

Interestingly, this gives a distinctive dimension to the EU competition policy. While the US competition policy only prohibits the illicit use of market power and does not condemn it per se when identified as a major incentive to innovate, EU competition policy has been used as a regulatory policy with the consequence of making unclear the distinction between an ex post and an ex ante intervention, as well as the distinction between MI and MF. Thus it mainly focuses on the properties of the market structure rather than on the conditions and outcomes of the process of change. Moreover, while US competition policy interacts with other dimensions of public intervention in a practical way that favors innovation and growth in an imperfect world, the EU competition policy is defined independently of the global context as if it were in itself a growth policy. In the former case, the guidance of competition policy is not defined in isolation and dedicated to the application of rules that an expected stage of perfect competition should require. This is reinforced by the fact that the common law courts are parts of a legislative tradition in which the aim is not systematically setting a world that would be determined from a priori hypotheses about technology efficiency or consumers' preferences. Decisions result from a more adjusting process based on conjectures about what suited coordination is needed in order to ensure innovation and growth. Summing-up, how to reconcile competition policy with innovation policy is still a challenging issue for the EU.

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