Competition policy in Europe
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Fifty years ago in 1957 the Treaty of Rome put the foundations of competition policy in Europe. Before that there were different national traditions with different objectives (for example, in Germany, in the UK, or the lack of tradition in Southern Europe). In contrast the US had a longer tradition from the end of the XIX century with the Sherman Act. Many things have happened since then. For one the objectives of antitrust have converged (mostly) on both sides of the Atlantic to economic efficiency and consumer welfare. The US has leaded the way. In Europe the market integration mandate looms large still (and sometimes enters in conflict with the economic efficiency objective). However, the self-proclaimed mission statement of DG Competition of the European Commission (EC) has gone from emphasis on market integration in the 1990s to make "markets operate as efficiently as possible". In any case, today there is consensus that competition is the driving force for economic efficiency and the welfare of society. Competitive markets, or competitive pressure in imperfectly competitive markets, are seen as crucial determinants of the welfare of citizens. This is not however assumed naively, on the basis of a premise that that there are no frictions in markets and that laissez faire will deliver always optimal results. The role of competition is instead understood after years of accumulated learning on the functioning of imperfect markets. Indeed a main driving force of transatlantic convergence has been the application of economic reasoning grounded in the analysis of industrial organization using game theory and empirical methods as a fundamental toolbox. The evolution in analysis has been from the Structure-Conduct-Performance paradigm to the application of game theoretical tools and sophisticated empirical methods, recognizing also the Chicago critique of the naive market power hypotheses. The result has been a common framework of analysis which has proved a very powerful convergence force because it increases the transparency of the assumptions made in the analysis and the procedures employed to reach conclusions. It can be checked by independent observers and can be falsified.

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Competition policy is about the welfare of citizens. This is why competition policy is so important and central on both sides of the Atlantic, and increasingly in the emerging economies. The more so in Europe where competition has been seen with suspicion from different quarters, and the lack of competition in some industries may be behind the relative lower dynamism of Europe in terms of innovation (for example, in the adoption of information technology). The connection with the Lisbon Agenda should be obvious. If vigorous competition is the key to innovation, then competition policy should be at the center stage in the EU.

In the 50 years after the Treaty of Rome:

- merger control has been introduced (in 1989) and reformed (in 2004);
- case law has established Articles 81 and 82 as fundamental tools to control and prevent anti-competitive behavior;
- state aid control has consolidated and evolved towards a more economic approach; and
- the authority of the EC and the judicial review of the Court of First Instance (CFI) and the European Court of Justice (ECJ) are firmly established.

There has been a lot of learning in both the US and the EU. In both cases some of it with the help of judicial review. I outline in what follows the topics and contributions in the book which reflect the main areas of interest, learning, open issues and progress in the area.

An overview and summary of the contributions

Philip Lowe opens the volume reviewing the experience of the EC in the design of competition policy institutions. By doing so he presents an overview of the topics that are covered in the book with an emphasis on organizational and process issues. Indeed, any competition policy enforcement system consists of rules and the administrative structures and processes to implement the rules. The rules relate to the areas of antitrust, merger control, and state aid control.

The set of underlying questions is long and important. To start with, what should the objective of intervention be. Consumer welfare is the answer. When this is understood in a long-term sense it should be in agreement with economic efficiency. However, if understood in a short-term sense it may diverge from the total surplus criterion. When it comes to state aid considerations other than economic efficiency may come to play, as we will see later. Lowe's contribution addresses the goals of competition policy enforcement in order to have a predictable, efficient, and fair treatment. About the role of economics he states that "the long-term legitimacy of any competition enforcement system rests on the economic story which it tells in each case". How to balance form-based rules with effect-based analysis? What is the role of guidelines in the different competition policy fields? What has to be the role of private enforcement in the EU? How to use resources efficiently for optimal competition policy enforcement? How to attract talent to the competition policy authority? How to communicate effectively the results of the intervention? These are some of the questions that DG Competition at the EC has confronted with several modernization packages. Some of them have been a response to judicial overturns of EC decisions and include new check and balances on decisions and the establishment of the office of the Chief Competition Economist. The reforms pose the deeper institutional design issue of the optimal arrangement for instruction, decision and judicial review. In the EU instruction and decision is in the hands of the EC with possible appeal to the Community Courts (the Court of First Instance, CFI, and the European Court of Justice, ECJ).

Jorge Padilla and *Matthew Bennett* provide an overview of the structure, goals and implementation of Article 81 of the Treaty of the EU in assessing horizontal and vertical agreements. They also draw a parallel with the debate on the implementation of Article 82 (discussed by John Vickers). Article 81 (1), broadly, prohibits agreements and concerted practices that have as their object or effect to restrict competition. Article 81(3) allows exceptions, under certain conditions, if the agreements are justified on efficiency grounds. The implementation of Article 81 involves several stages. First, hardcore practices such as price fixing, output restrictions or market sharing (covered in the chapter by Massimo Motta) are presumed to restrict competition and per se illegal. There is agreement that such practices have such high anticompetitive potential, with object to restrict competition, that there is no need to demonstrate effects on the market. To this some hardcore vertical restrictions are added. Among those, resale price maintenance, exclusive territories, and some forms of selective distribution. However, economic theory does not support a per se prohibition of those practices, even though they restrict intra-brand competition, given their efficiency enhancing potential. Second, agreements of minor importance are presumed legal. Third, other agreements are assessed to check whether they have an anticompetitive object or effect. To analyze the potential effect of a restriction of competition it is fundamental to assess the degree of market power of the parties involved in the agreement. The Guidelines on Article 81 (3) state that the degree of market power required for an Article 81 infringement is less than the one required for a finding of dominance under Article 82. This seems at odds with the fact that vertical agreements have important potential efficiency benefits. Fourth, Article 81(3) provides a block exemption for certain agreements that are capable to restrict competition (like R&D cooperation or horizontal specialization agreements) if the combined market share of the parties is below some thresholds (around 20-25% of the market). For vertical restraints the safe harbor is 30% of the upstream market. Finally, for the other agreements that are capable to restrict competition (by object or effect) a balancing test must be performed according to Article 81 (3). The conditions for exemption are that it contributes to efficiency, allows a fair share to consumers, is indispensable, and does not eliminate competition. With respect to the last issue the Guidelines of Article 81 (3) state that the protection of rivalry is given priority over potentially pro-competitive gains. The idea is that short-term gains may be overwhelmed by long-term losses when rivalry is significantly hurt.

The authors go on to review some specific non-hardcore horizontal and vertical agreements. Article 81 identifies two instruments to reach the goal to enhance consumer welfare and an efficient allocation of resources: the protection of competition and single market integration. The authors doubt that the instruments are compatible with the stated goal. The tension of the market integration and consumer welfare objectives has manifested itself in the use of Article 81 towards vertical restraints that affect cross-border trade (as the Glaxo case demonstrates). The authors finally debate whether the competitive assessment of agreements under Article 81 is conducted under a structured rule of reason or under a quasi-per se rule. They think that the requirement (from the fourth condition in Article 81 (3)) to look at the impact on the competitive process indicates that the second option is the right characterization (since even if an agreement can be shown to have a positive impact on consumer welfare it will be deemed de facto illegal if it reduces substantially competition). The quasi-per se rule will result in more false convictions while the structured rule of reason will result in more false acquittals, but, according to the authors the second is to be preferred since the Commission can control false acquittals applying the first three requirements in Article 81 (3). The authors think that a structured rule of reason is also the way to advance in the implementation of Article 82 and that the disparities in the implementation of articles 81 and 82 should be eliminated.

John Vickers looks at exclusionary abuse of dominance according to Article 82. This article prohibits abuse of a dominant position and mentions explicitly instances of abuse such as imposing unfair trading conditions, limiting production, discrimination, and restrictive contracts. The point of departure is the realization that European competition law and policy towards mergers and anti-competitive agreements has become more based on economic principles overtime (particularly in the last decade) and the question now is whether the same will happen with abuse of dominance. Dominance analysis must come first, basically to screen out cases, but if there is abuse analysis (harm to competition and consumers) then it should integrate the dominance analysis. In terms of safe harbor thresholds Vickers argues for a high share of a properly defined market of the sort: dominance is more likely to happen above 50% than below and unlikely below 40% (these are higher thresholds than those implied by EC statements). The author poses the problem of distinguishing good (competition on the merits) from bad (anti-competitive) exclusion and surveys economic theory relevant to assess exclusionary abuse. Three possible guiding principles to deal with the problem are: whether there is profit sacrifice, whether the practice excludes an as-efficient competitor, and whether there is consumer harm. Pricing below cost implies a profit sacrifice, may exclude an equally efficient competitor, and may end up hurting consumers if the policy increases the market power of the firm in the long-term. This is why below-cost pricing is considered a necessary condition for a finding of predatory pricing, but it is far from sufficient since there are normal business justifications for the practice and there is debate over the relevant cost concept, the role of intent, and whether a separate proof of recoupment should be required. Vickers analyzes the Wanadoo case (2007 judgment by the CFI dismissing the appeal by France Télécom against the 2003 finding of predatory pricing by the EC) and claims that it is defensible to do away with showing probable recoupment as long as dominance is established with a stringent standard, price is below variable/avoidable cost, and below cost pricing is in the dominated market. The CFI, in a controversial statement, dismissed the allegations of Wanadoo of economies of scale and learning effects to justify below-cost pricing precisely because predatory pricing may be necessary to induce them.

The author reviews the theory on partial exclusion to exploit rivals, divide-and-rule exclusion, and leverage and maintenance of market power. The post-Chicago economic analysis has proved the coherence of theories of anti-competitive exclusion. The conclusion is that a necessary condition for a finding of abuse is to have a theory of harm to competition consistent with the facts. Two other main cases of abuse are analyzed: British Airways (BA) on rebates and Microsoft. The appeal of BA against the 2003 judgment of the CFI upholding the 1999 Commission's finding of a bonus scheme abuse was dismissed by the ECJ in 2007. In the US the case against BA was dismissed. The key of the European case was the weight given to the properties of the discount scheme and their "very noticeable effect at the margin". According to the author the analysis used in the case was seriously incomplete in terms of economic effects. Finally, the author looks at refusal to supply and tying in the Microsoft case, found to have abused its dominant position in client PC operating systems by the EC in 2004. The refusal to supply refers to interoperability information for rivals in group server operating systems; the tying refers to the Media Player and Windows operating system. The CFI agreed with the decision of the EC in 2007. This case has striking parallels with the IBM case of the early 1980s. In the Microsoft US case the Court upheld the finding that Microsoft had attempted to protect its Windows operating system monopoly but not of extending it to browsers. The tying of Internet explorer with Windows was remanded for a structured rule of reason assessment. In the European case the CFI found that the four-pronged test for exceptional circumstances for refusal to supply intellectual property (IP) to be abusive were met in the Microsoft case (according to the analysis of the EC and on the assumption favorable to Microsoft that interoperability information was protected by IP rights). That is, interoperability information was indispensable for rivals to compete, there was a risk of competitive exclusion, the refusal to supply would limit technological development for which there is potential demand, and there is no objective justification. On this latter issue the CFI considered that Microsoft had failed to show that its incentives to innovate would be impaired by the disclosure of interoperability information. With regard to harm to consumer the CFI made the extraordinary statement that Microsoft had impaired the effective competitive structure of the workgroup server operating system market by "acquiring a significant share on that market". The questions for the future are what is now the principle that limits the obligation of a dominant firm to supply rivals with access to important inputs (including IP)? And, if so, at what price? With respect to the Media Player the CFI agreed also with the EC that Microsoft had bundled without objective justification. Microsoft had offered an unbundled version, but at the same price that the bundled one, according to the (ineffectual) remedy proposed by the EC. This points at the need to regulate prices to have an effective remedy.

In summary, the ball to reform European competition policy with regard to Article 82 is in the hands of the EC since the recent CFI judgments on Wanadoo, British Airways, or Microsoft neither compels nor precludes the EC to do so. The author argues for guidelines to apply Article 82 similar in nature to the recent non-horizontal merger guidelines: consumer-oriented and not competitor-oriented (focusing on anti-competitive foreclosure), recognizing the scope for efficiencies, and spelling out the concrete mechanisms of harm to competition and the key facts to check.

Massimo Motta looks at the economics of collusion and reviews the EU experience in fighting cartels including standards of proof of infringement and enforcement policy.

Motta starts by reviewing the economic theory of collusion, the situation where firms sustain prices above a competitive benchmark. For economists both tacit and overt agreements may support a collusive outcome. Collusion is a dynamic phenomenon where firms refrain to deviate from an agreement to sustain high prices for fear of being detected and consequently suffering retaliation. This punishment must be credible to be an effective deterrent. However, firms may sustain many different outcomes and face the problem to coordinate on one of them. This can be accomplished with explicit coordination lacking a focal point of action. The factors that facilitate collusion are examined. Among them, the role of the exchange of information in helping detect deviations. This is particularly the case of the exchange of individual price and quantity data. The exchange of plans on prices and production may help coordination. Those are particularly suspicious when price announcements do not represent a commitment to consumers.[1] Some other highlighted facilitating practices are meeting competition clauses, resale price maintenance and some spatial pricing policies. As stated before, in the EU cartels are dealt with Article 81. In Article 81(1) both agreements and concerted practices that restrict competition are prohibited. Price fixing, restricting production and market sharing are explicitly mentioned. For those agreements like cartels that have as object to restrict competition it is not necessary for the competition authority to investigate their effects. Cartels are almost per se prohibited (the "almost" comes form some exemptions given in particular cases such as crisis cartels). The problem is how to infer collusion from market data since parallel behavior may be the outcome of competitive markets. This is why, after the ECJ decision on the Wood Pulp case, parallel behavior can not be proof of concertation "unless concertation constitutes the only possible plausible explanation for such conduct". To prove this is quite difficult (but was done in the Dyestuffs case). The ECJ also stated that the Treaty "does not deprive economic operators of the right to adapt themselves intelligently to the existing and anticipated conduct of their competitors". This may be construed as allowing tacit collusion as long as no evidence of explicit coordination exists (the reopened and pending Soda-Ash case may clarify whether this is the case). The standard of proof for a cartel infringement

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1 See Kühn and Vives (1995) for a comprehensive treatment of the theory and practice of competition policy on information exchange, and Vives (2006) for a summary and update.

therefore depends in general on hard documentary evidence (which on the other hand preserves legal certainty). The analysis of market data is a complement to such evidence as well as the control of facilitating practices. For example, in the UK Tractor case the information exchange (detailed at firm level) in place was considered an Article 81 infringement even though there was no evidence of coordination.

The EU can impose fines of at most 10% of annual worldwide turnover of the infringing firm. The author provides evidence of the toughening of the anti-cartel policy in the EU in regard to fines (that tend to be reduced but confirmed by the Community Courts). The EU introduced leniency policy in 1996 (in the US it was introduced in 1978), according to which firms that collaborate with the antitrust authority get total or partial immunity. In 2002 the policy was revised and the first firm reporting a cartel was given complete immunity. There is a debate over the effectiveness of such policies and the author provides evidence that in most recent EU cartel cases the leniency program played an important role. However, leniency has not managed to free resources to fight collusion since there is no evidence of a downward trend in the average length of cartel investigations.[2] This is problematic since a leniency program helps to uncover existing cartels (and for this it is important that firms may apply for lenience once the investigation has started) but may lower the ex ante cost of joining or forming a cartel. This tendency may be counteracted by an increase in fines (as the EC has done). Deterrence may be further increased with private actions to recover damages and by the personal liability of executives (in the US prison for a cartel offender is a distinct possibility). In the EU, given the difficulty of introducing criminal penalties in this area, administrative fines for convicted executives could be considered. The author concludes that by and large EU cartel policy is in line with the learning from economics.

Bruce Lyons assesses merger control in the EU. He starts by reviewing the history of competition economics and its interaction with the legal approach. The Treaty of Rome made no provision for merger control and the EC had to rely on the current articles 81

[2] In July 2008 the EU unveiled a fast-track settlement procedure with reduction in fines in exchange for admitting guilt.

and 82 (originally 85 and 86) to control mergers. In 1989 the European Community Merger Regulation was established (ECMR). Lyons distinguishes between a phase of consolidation of merger control in 1989-2002 and a phase of reform in 2003-2007. A Merger Task Force was set within DG Competition (then known as DG IV) to work with a tight timetable for decisions to be made in Phase I (scrutiny) and Phase II (investigation) of a merger procedure. A decision was made by the College of Commissioners based on the work of the case team in charge of both Phases I and II. DG Competition was (and is) therefore investigator, prosecutor and jury. The decision can be appealed to the CFI (with further recourse for matters of law to the ECJ). This is in contrast with the US adversarial procedure where the Courts intervene earlier, with fact-finding capacity, on the proposals of the Department of Justice (DoJ) or the Federal Trade Commission (FTC). In the EU the role of the Courts is of judicial review of the EC's decision. An advantage of the EU system is that reasoned decisions are published. In terms of substantive issues an important feature of the ECMR is the concern with market integration. The ECMR wants to consider mergers of Community dimension and combines an absolute size threshold and sufficient sales of the undertakings out their main market (more than a third of the turnover). The substantive test was one of "creating or strengthening a dominant position". This encouraged a formalistic approach based on market share and was in contrast with the "substantial lessening of competition" test in the US (which is currently interpreted as whether the merger will create or enhance market power or facilitate its exercise). The EU test had the potential problem that substantial market power could remain even if no dominance was found. This meant that the EC could have had the temptation to rely excessively on the concept of collective dominance to fill the gap. In 2004 the test was replaced by the "significant impediment to effective competition" (SIEC) test, very close to the US approach. This reform, together with the dismantling of the Merger Task Force, the introduction of more checks and balances in the decision procedure (e.g. a devil's advocate panel as internal critique in handling a case), and the establishment of the Chief Competition Economist with a support team, was in part triggered by a series of set backs of the Commission decisions by the CFI (namely, Airtours/FC, Schneider/Legrand, Tetra Laval/Sidel and the criticism in GE/Honeywell).

Merger analysis considers three main categories of harm: two types of horizontal harm (unilateral effects and coordinated effects) and non-horizontal effects. Unilateral effects refer to the exercise of market power when there is no coordination of the firms' strategies. These effects imply that a merger of firms producing substitute products that does not create synergies will result in raise prices. There is a settled oligopoly pricing theory which provides robust models (like the Cournot and Bertrand ones) on which to base predictions of the effect of the merger with the help of econometric estimates and simulations.[3] The latter can go from back-of-the-envelope analysis to a full blown simulation. In any case the estimation or calibration of demand elasticities and cross-elasticities is crucial. The EC has started to use some full blown simulation models that go beyond the simple market share analysis. The treatment of efficiencies has gone from a potential efficiency offense (in the early days of the ECMR where efficiency was viewed as a way to reinforce dominance) to an efficiency defense formally accepted in the reform of 2004. However, it still remains to be seen how far it can go in justifying a merger. Coordinated effects refer to the dynamic sustainability of collusion (before it went under the heading of "collective dominance"). The basic theory has been reviewed in Motta's contribution and the emphasis here is how a merger may influence the conditions that facilitate collusion. For example, by reallocating capacities and products among the firms, or by changing the transparency in the market. It must be stated however that the repeated game model is silent on how coordination is achieved in the plethora of possible outcomes. The result is that coordinated effects analysis is much more tentative that the unilateral effects one. The CFI endorsed in its judgment on Airtours, in criticizing the decision of the Commission, the basic elements from the theory for collusion to be an issue (transparency, credibility of retaliation, and competitor and consumer response). In the Sony/BMG case the CFI in 2006 annulled the clearance decision of the EC because of problems in the analysis of transparency and retaliation.

Finally, the analysis of non-horizontal mergers has proved the trickiest. Non-horizontal mergers have important potential efficiency benefits (since they typically bring together complementary products) but often the EC has implicitly worried about damage to

[3] See, for example, Tirole (1988) and Vives (1999).

competitors. The result has been severe criticisms to the EC decisions by the CFI in the cases Tetra Laval/Sidel and GE/Honeywell. Guidelines on non-horizontal mergers are now out and they outline the steps according to which foreclosure analysis has to be performed (in terms of showing ability, incentive, and anti-competitive effects). It remains to be seen whether efficiencies will be seen as an integral part of the analysis or just a final balancing check.[4] Lyons analyzes also the trends in EC intervention and finds that overtime more mergers are being remedied than prohibited, and that Phase I resolutions gain at the expense of Phase II. The 2001 increase in prohibitions sees a substantial reversal. The author also reviews the effectiveness of remedies and possible improvements such as not dismissing behavioral remedies in some well-specified cases and caring about potential collusion between buyers and sellers of divested assets. The speed of agreement (e.g. in remedies) has also improved although this fact must be carefully interpreted. Finally, some event stock market studies have tried to make out possible type I and type II errors in the EC decisions. A result, to be interpreted with care given the nature of the studies, is that many more errors tend to be made in Phase I. In summary, merger control in the EU seems to be in a path which is consistent with the learning from economics and has shown flexibility to correct mistakes and improve.

David Spector analyzes state aid control in the EU, which has been in place since before the Treaty of Rome. This is in stark difference with the US where the competition authorities have no jurisdiction over state aid. State aid is a complex subject since it encompasses many fields in economics ranging from international trade and oligopolistic competition, to political and public economics and to economic geography. State aid control must address both market and government failure. State aid control can be justified on paternalistic grounds (internal effect on countries) as well as on non-paternalistic ones (cross-country externalities). The first type of reasons include helping governments resist interest groups and lobbies and providing an external commitment device that alleviates dynamic inefficiencies such as soft budget constraints, rent-seeking

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4 EAGCP (2006), *Non-Horizontal Mergers Guidelines: Ten Principles. A Note by the EAGCP Merger Sub-Group*. Report prepared for the DG Competition, Brussels.

behavior, or short horizons for decisions. EU state aid control may play a filter role to allow some needed flexibility in aid while limiting wasteful aid. The EC however is increasingly reluctant to play this scapegoat role. The justifications of state aid control based on cross-country externalities fit better the EU rhetoric since, at least in principle, they could only be dealt on a European-wide basis. Those justifications range from preventing wasteful subsidy races and cross-country rent shifting to the impact of aid on market structure and competition. However, subsidy competition may be efficient if the deadweight cost of taxation is low and the external benefit varies substantially across locations. On the other hand, it may seem paradoxical that in the EU "inefficient" competition across States is prevented while there is no coordination on corporate taxation (in contrast of the US where there is a federal corporate tax and no control on subsidy competition across states). With respect to rent-shifting incentives using strategic trade policy it must be pointed out that even if the aid reduces foreign firms rents it may also increase the benefits to foreign consumers with an ambiguous total effect. Finally, the aid may help predatory behavior of national firms or end up being pro-competitive. State aid can correct market failures associated to externalities and public goods (e.g. in R&D), informational asymmetries in capital markets and, in some circumstances, it may create competition. State aid may also be a means to achieve "personalized" corporate taxes. Obviously all these potentially positive effects of correcting market failures have to be balanced against the possibly larger effects of government failure. The author points out the limits of economic analysis and the lack of clear-cut prescriptions in this domain. For example, should market power be considered a necessary condition of the identification of cross-border externalities? Is the bias towards R&D aid warranted? How to measure the impact of aid to R&D? What is a desirable welfare standard for state aid control?

The author discusses the difficulties of implementing a given standard given measurement problems. The current overhaul of state aid control emphasizes a more economic approach and to concentrate on a small set of well-defined market failures. Distortion of competition and affectation of trade among Member States, according to the letter of Article 87(1) of the Treaty, are necessary conditions for prohibition of state aid.

What is the standard of proof for the EC for a case to meet the two criteria has been established in a series of cases, seemingly in a tightening direction. Fluctuating assessment criteria according to case law are interpreted as reflecting underlying uncertainty over the mechanism by which state aid causes harm. The commonly held view that the disregard of the EC for the competition distortion and trade affectation criteria reflect a paternalistic tendency must be qualified since the definition of distortion of competition depends on the theory of harm. Spector concludes his paper with the provocative question of whether the present more refined economic approach will be the Trojan horse of paternalism. In principle, one could expect that a more economics approach would provide more attention to the specifics of the competition distortion and trade affectation but those seem no longer to be necessary conditions for a prohibition. Both in the State Aid Action Plan and in the R&D&I framework of the EU state aid is viewed as appropriate when is a remedy to a market failure and when it causes the least possible distortion to competition. It could well happen that an aid is prohibited because it does not address a market failure despite the fact that it does not distort competition.

Martin Hellwig discusses the relationship between sector-specific regulation and competition policy in network industries. Those are industries, such as electricity, gas, telecommunications or transportation that involve an important element of natural monopoly arising out of the fixed investment in a network infrastructure. Network industries have undergone a change of structure from regulated vertically integrated monopolies to the introduction of competition in the segments deemed not to be natural monopolies. This has posed the question of the boundaries between regulation and competition policy and whether regulation should be transitory or permanent. The movement has gone together with privatization of the industry and regulatory reform. Regulation is to stay in the natural monopoly segments and it has to promote also competition in downstream markets as well competition between networks when feasible. A main trade-off is that facilitating access to bottlenecks reduces the incentives to build infrastructures to bypass the bottleneck. A big question is the consistency between competition policy and sector regulation. This is particularly important for activities which are subject to both. At the national level sector-specific regulation has precluded in practice the application of competition law in the past (in the US this is the case after the Trinko decision by the Supreme Court). But the EC (and national competition authorities) can intervene when a contradiction between national regulation and the competition provisions in the EU Treaty are found. This has been the case in recent decisions by the EC imposing fines on Deutsche Telecom and Telefónica because of price squeeze despite the fact that both companies were complying with the requirements of the national sector regulator.

Hellwig surveys the pros and cons of using competition policy versus sector regulation. It points out that competition policy is not well placed to mandate price and quality of access because it occurs ex post and is of a piecemeal nature. This is the reason why competition policy has trouble dealing with excessive pricing issues (despite the prohibition in Article 82 of the Treaty in contrast with the US approach). He advocates for a systemic approach to access regulation that can deal with the problem of attribution of common fixed costs. A problem with sector-specific regulation is that it is more likely to be captured. He compares naïve and sophisticated approaches to drawing the line between sector-regulation and competition policy. An example of the naïve approach would be the energy sector where regulation is confined to the networks. An example of the sophisticated approach would be the telecommunications sector where markets are defined and regulation applies in those markets where competition is not effective. Hellwig highlights the problems that plague the sophisticated approach and wonders whether it would not be better to fall back into a "naïve" approach. Among the problems are that the market definition does not coincide with the usual competition policy definition, which is narrower, despite the fact that systemic effects are not taken into account. In short, the co-existence of sector regulation and competition policy poses important challenges, among them the very definition of some crucial terms as the limits of a market and costs standards, the consistency of treatment in the same industry, and the institutional design of regulators and judicial review. He advocates the role of the ECJ as the ultimate source of all jurisdiction on the legal norms common to competition policy and sector regulation.

Jordi Gual and *Sandra Jodar-Rosell* look at the past performance and prospects of regulation in the telecommunications sector. The authors review the EU regulatory frameworks of 1998 and 2003. Behind the 1998 framework are the objectives to increase competition and integrate the market in a strategy of “host country rules within limits” which involves harmonization with Member State application of regulations. The concern was to protect nascent competition given the legacy of vertically integrated multiproduct national monopolies by ensuring efficient entry abolishing exclusive rights and encouraging tariff rebalancing (e.g. in voice), minimizing the risk of market tipping (with mandatory interconnection between networks and decreasing switching costs), and preventing the abuse of dominant position by incumbents. The idea is to regulate ex ante prices of firms with significant market power (SMP). For example, with the unbundling of the local loop firms with SMP have to provide access at a regulated price. Member States had a lot of leeway on many aspects like granting licenses, the way to compute costs of interconnection (on which to base regulated prices) and line of business restrictions. The results of the 1998 framework have been mixed with improvements in efficiency of the incumbents but less success on broadband penetration and introducing competition in conventional telephony. An interesting effect is that investment increases and prices decrease when privatization is combined with introducing competition. In general, the establishment of a National Regulatory Agency (NRA) has had positive effects and there is a lot of variation on results among countries.

Faced with increased convergence of technologies in digital networks, the EC proposed in 2003 a new package with an increased role for competition policy and ex post measures. Now NRAs are required to define relevant markets where operators with SMP can be found and where ex ante regulation can be applied. The idea is that when in a market effective competition develops then the regulation is withdrawn. However, the EC retains veto power on the decisions of NRAs on market definition and designating SMP operators. At the same time measures to increase regulatory harmonization and limit the discretion of Member States are proposed. Typically NRAs have redefined markets to narrow them to mimic the technology predominant in each country. In summary, regulatory reform has brought rate rebalancing and potentially efficient entry, minimized the risks of market tipping, and modernized price regulation. A potential risk of the new framework is the extension of mandatory access to the deployment of new generation networks because of the regulatory uncertainty it creates on investment incentives.

Richard Green surveys regulation and competition policy of energy utilities. He starts by looking at the obstacles to introduce competition in the sector: the fact that the network is a natural monopoly, economies of scale in transmission, storage, and distribution, and the presence of long-term contracts. A review of the early moves to liberalize in the UK and Norway, and of the EU directives is provided. The directives were the first instrument of the EC to introduce competition in the sector given the progress made by the pioneers in liberalizing the energy sector. The second instrument was the application of competition policy, since once the liberalization process is started the energy sector is no longer off bounds for antitrust. The EC has intervened on agreements between firms relating to clauses of gas contracts prohibiting resale and destination clauses, on long-term contracts for interconnectors, and on non-compete clauses. The EC has been active also on merger control blocking the EDP-GDP, on the grounds that the companies were perceived to be the main potential competitors of each other in the affected relevant market (i.e. Portugal). The decision was upheld by the CFI. Other mergers have been approved with divestitures or the auction of virtual power plants (e.g. Veba and Viag to form E.ON, and the operations of EdF and EnBW, and of E.ON and MOL). It is worth noticing that the merger of E.ON and Ruhrgas escaped EU scrutiny and was cleared by the German government against the opinion of German competition authorities. The EC has been active also in removing potential obstacles to cross border mergers as the battle over Endesa by Gas Natural, E.ON and Enel shows. Finally, the merger by Enel and Endesa and the divestment of Enel's Spanish assets in favor of E.ON was cleared by the EC. The author goes on to assess the impact of liberalization showing that there is still a wide variation among EU countries. A more recent tool that the EC has used is a sector inquiry on the gas and electricity industries where several concerns of lack of competition and market integration have been expressed. This inquiry has led to open investigations of suspected abuse of dominant position and to the formulation of a legislative package proposing the full ownership unbundling of transmission systems or setting an independent system operator; the strengthening of national regulators, and the formation of an EU agency of energy regulators. To this a third country clause preventing foreign firms to control transmission unless there is reciprocity has been added. One immediate outcome of the EC initiatives has been the proposal by E.ON to unbundle its network (against the position of the German government).

Elena Carletti and *Xavier Vive*s deal with regulation and competition policy in the banking sector. The banking sector had long been exempted from the application of competition policy because of a claimed potential trade-off between competition and stability. In the chapter the authors review the academic literature on this issue, describe the design of competition policy in Europe and its application in the EU in the last two decades. The banking sector, and the financial sector more generally, is one of the most regulated sectors of the economy because of potential fragility and systemic risk, and the need to protect consumers who have limited information. The analysis of competition in banking is complex. Banking is a multiproduct business and competition is imperfect with many frictions and barriers to entry which may generate rents. In retail banking switching costs for customers are very important, and reputation and branch networks act as entry barriers. In corporate banking established relationships and asymmetric information are frictions that explain why the market for small and medium sized firms remains local. Electronic banking pushes in the direction of contestability, but it is also subject to exogenous and endogenous switching costs. In other segments of banking, like wholesale and investment banking, competition is at the international level and may be fierce. The authors present the debate about how much of a trade-off there is between competition and stability to conclude that once a certain threshold is reached, an increase in the level of competition will tend to increase risk-taking incentives and the probability of bank failure. The question remains open as to what degree of market power should be allowed in banking and therefore whether the application of competition policy should be modulated because of the stability concern. The chapter documents how banking is no longer an exception in the enforcement of competition policy rules in the EU. The EC has by now examined cases in all areas of antitrust and has adopted important, landmark decisions. It has opposed anticompetitive mergers as well as forms of cooperation in pricing schemes and in credit card systems, and stated that regulatory measures cannot justify the granting of state aid to financial institutions if they entail distortions of competition. The authors highlight the conflicts between the EC and Member States in regard to merger policy and state aids and the role of the EC in fostering cross-border mergers. The efforts of the EC at market integration are also explained and the main results of the enquiries that the EC conducted in the financial sector described. Still, much remains to be done in terms of academic research and of the role that the EC can play in fostering competition in banking in Europe. The authors conclude that competition policy in banking should center on the sources of market power and use a refined economic analysis that takes into account the complexities of the sector, and warn against potential conflicts between market integration and competition objectives.

Bill Kovacic closes the volume with some reflections on whether competition policy in the EU and the US are converging or diverging. Kovacic is of the view that the big picture is a convergent one. The issue is of some importance given the increasing interdependency between jurisdictions, where the more restrictive one sets the standard, the process of enforcement which entails costs to firms, and the development of new competition policy systems in the world, where the EU model based in civil law is becoming the standard. Despite this, many innovations in antitrust policy, such as the treatment of cartels and horizontal mergers, come from the US. Furthermore, some degree of experimentation in antitrust enforcement is to be welcome. What is needed is to have a flexible enough system so that superior norms and procedures end up being adopted. The US and the EU competition policy system have the same overall objective which is consumer welfare. On substance there is agreement on the treatment of cartels and horizontal mergers. On the control of state intervention in the economy there is no divergence of principle but the EU has a stronger platform to challenge state aids restraints. On abuse of dominance, there is no equivalent in the US of the excessive pricing ban in Article 82, and the interpretations of Article 82 by the CFI and the ECJ have created “a wider zone of liability for dominant firms than the decisions of the US courts under Section 2 of the Sherman Act”. The question is whether there will be convergence on an effect-based standard on abuse of dominance cases. On vertical restraints there has been convergence over the years but there still remain differences with the EU relying more on per se prohibitions (for example, on resale price maintenance). On non-horizontal mergers in the EU there is more scope for intervention, that has been used, but recent CFI decisions (Tetra Laval and GE-Honeywell) put a high bar on the EC for a prohibition. The main transatlantic convergence forces are the use of economics, and industrial organization tools in particular, as economic analysis assumes an increasing importance in the investigations of the EC, and the role of judicial review. Although the timing of judicial intervention is not the same in both jurisdictions, with earlier intervention in the US system providing a more direct disciplining effect on the US authorities, recent decisions of the CFI make clear that judicial review in the EU is critical. Another important centripetal force are the consultation procedures established between the jurisdictions at the level of intergovernmental, transgovernmental, and transnational contacts. The forces of divergence are the role of private litigation, and the raising of liability standards by US courts to compensate the potential excesses of private claims; the adversarial US procedure versus the administrative EU procedure; and the more prevalent use of the revolving door for public servants in the US. To this it may be added that EU authorities may perceive the economy in Europe to be more rigid that in the US and therefore be more skeptical about the self-correcting nature of markets. An intriguing hypothesis is whether the EU and the US will converge on abuse of dominance if private claims take hold in the EU. Kovacic ends by suggesting concepts and means to deliver convergence on superior norms.

Concluding remarks

The set of contributions presents an excellent overview of where do we stand in competition policy in the EU. There has been a significant amount of learning in recent years. The trends towards putting efficiency and consumer surplus as central objectives of competition policy and using economic tools to assess the effects of agreements and practices are consolidated. This is in agreement with US practice and is set to become the international standard for emerging economies. By now there is broad transatlantic consensus on the treatment of cartels and horizontal mergers where well-established economic models are used. Abuse of dominance and non-horizontal mergers still show important discrepancies. Indeed, in the EU the use of economics has advanced effectively in the application of Article 81 (cartels in particular), and in mergers, while in the application of Article 82 the reform and guidelines are pending. The recent guidelines provided on non-horizontal mergers may provide a good example for guidelines on Article 82. The implementation of Article 82 illustrates the tension between the certainty that provides a form-based approach and the desirability of an effects-approach. The challenge is how to make operational an effects-based approach while preserving legal predictability. To think in terms of a pure effects-based approach may be risky if it does away with dominance screens and naïve given that it is very difficult to ascertain the impact of practices on consumer welfare. This is precisely why the level of rivalry or strength of competition has been taken as the main indicator of efficiency. It would make sense in this respect to think in terms of a structured rule of reason for the application of Article 82 where the protection of competition is an instrument and, in any case, homogenize the market power thresholds in application of articles 81 and 82. Form-based elements, like the treatment of some information sharing practices in Article 81, seem to be an indispensable component of the implementation of articles 81 and 82. The leeway that the EC gets from the CFI on the implementation of Article 82 is large. A major challenge is to found the analysis of exclusionary behavior on solid economic principles. At the same time it may be submitted whether the EU difference on exploitative abuse is appropriate and whether it would not be better instead to attack the underlying market structure or practices which are at the source of the competition problem.

The box of tools to analyze horizontal mergers is well-established (unilateral and coordinated effects analysis) and the guidelines on non-horizontal mergers are a step forward. However, there is still the pending issue of how efficiencies will be considered in practice. Those are central in non-horizontal mergers but also crucial in horizontal mergers, in particular when the merger may have an impact on innovation incentives. The bias of competition authorities towards analyzing the short-term effects of mergers is understandable but worrisome. Economic analysis still has to offer practical recommendations in this respect. The EC possibly has tried to put more weight to the long term consequences of mergers than in the US, perhaps implicitly thinking that the

EU economy is more rigid and market forces have less scope to correct monopoly abuses.[5] The EC has reformed its merger control procedure in the right direction with the revised substantive test, publication of merger guidelines, more checks and balances, and introducing the Chief Competition Economist. The question is whether it has gone far enough, in particular in terms of checks and balances and of separating instruction and decision.[6] More in general, the issue is whether the implementation of competition policy in the EU has found the right balance between instruction, decision, and judicial review.

With regard to state aid a tension is perceived between a competition approach, according to which aid to firms with no market power or not generating cross-border externalities should be allowed, and a more encompassing approach were aid not targeted in general to remedy a market failure should be forbidden. It is still early to see the precise implications of the "more economic approach" of the EU to state aid. Consistency with general competition policy would call to favor the competition approach. A topic not directly addressed in the volume, but related to the present discussion, is the interaction between competition and industrial policy. Tensions may arise, for example, in dealing with mergers which may increase the international competitiveness of firms but increase market power of the merged entities, and with industrial, R&D, or regional state aid that distorts competition.[7]

The interaction of regulation and competition policy is evolving as technological developments impinge on network and other regulated industries and as we learn from experience. The general idea is that in an industry in which there is a natural monopoly element regulation is there to stay, as long as this bottleneck is not superseded by technology, in which case competition policy should take over. In the energy sector the natural monopoly component is not challenged for now while in telecommunications

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5 For an analysis of the differences in approach between the EU and the US in the GE-Honeywell case see Vives and Staffiero (2008).

6 See the discussion in my December 15, 2005, Financial Times article "Brussels has not gone far enough in its merger reforms", *Financial Times*, December 15.

7 See Vives (2008) for an overview of those issues.

arguably it is. The difficult question is how to approach the regulation of sectors in which the bottlenecks can be potentially bypassed (like in telecommunications). Competition policy is not well placed to set the terms of access to the bottleneck, as well as dealing with excessive pricing issues despite the formal prohibition in Article 82, while regulation to mitigate market power is difficult to implement and intrusive. An important challenge remains here (not least how to regulate a bottleneck while maintaining investment incentives to upgrade it on one hand and /or to bypass it on the other or, more in general, how to improve the complementarity between competition policy and regulation). Another challenge is how to avoid opportunistic behavior by national regulators and firms profiting from the fragmentation of regulation in network industries in the EU. The tension between antitrust in Brussels and national regulators needs to be resolved with regulatory harmonization and tighter coordination of national regulators. Another instance of this tension are the artificial obstacles that cross-border mergers encounter (with cases in the banking and energy sectors). In this respect one issue that probably will have to be reviewed is the neutrality of the Treaty in relation to public and private ownership. Public ownership causes obvious distortions in regulated sectors, among other issues, since the state is on both sides (regulator and regulated).[8] In the banking sector the increased application of competition policy still has be to be tested against the stability concern and the sophistication of economic analysis enhanced. In regulated sectors the inquiries of the EC (in energy and financial services, for example) have raised a number of competition issues and proved useful in targeting cases of potential anti-competitive abuse.

Finally, the potential tension between market integration and competition objectives, although increasingly solved in favor of the latter is still present. For example, it manifests itself in the suspicion with which price discrimination across countries is viewed and the typical lack of scrutiny of cross-border mergers for multimarket contact.

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[8] Another source of potential tension is the allocation of jurisdiction between the EU and national competition authorities. For a description of some of the tensions between national regulators and EU competition policy see my 2006 *Financial Times* articles “Barriers need to be lifted for an integrated market”, September 15, and “European competition policy needs urgent reform”, December 20.

In short, the story of the 50 years of competition policy in Europe is the story a success, showing resiliency and capacity of self-reform. Competition policy has become central in the EU, with the authority of the EC firmly established and with an increasing leadership international role. A challenge for the EC will be how to attract and retain human capital. In the immediate future we will have to see the effects of private litigation in the EU as well as a more decentralized enforcement of competition policy in national courts. In 50 years time the role of the EC most likely will be quite different in general but we can conjecture with some confidence that the role of competition policy will not have diminished in Europe. A possible change in such a time frame is the evolution of the institutional frame for competition policy implementation and judicial review. Here is where the creation of an independent competition policy agency in the EU (say along the lines of the US FTC) may be discussed. Meanwhile for economics and economists the challenge is to deliver operational tools which translate the accumulated knowledge into guidelines and practical advice.

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