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Expert economic testimony, economic evidence and asymmetry of information in antitrust cases

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Abstract

The objective of this document is to assess two questions that have a positive and normative nature respectively: 1) What incentives does the legal and institutional framework of the European Community (EC) and the United States (federal level) provide to the different agents involved in antitrust proceedings in regards to the use of expert economic testimonies? 2) What legal and social norms could provide appropriate incentives to the different agents involved in antitrust proceedings in order to align the use of expert economic testimonies with antitrust enforcement goals?

To answer the first research question and prepare the settings for the answer of the second question, the nature of the economic expertise applied in antitrust proceedings, its inherent difficulties (**section 2**), and the legal and institutional framework applied to them (**section 3**) are presented in detail.

Secondly, a general exposition of the problems posed by asymmetric information in theory (**section 4.1**) and concerning the relation between the adjudicator and the economic expert (**section 4.2**) is made, in order lay the foundations to identify the different factors that determine the incentives of the various "actors" in the proceedings (**section 4.3**).

Finally, to answer the second research question, the regulatory and non-regulatory features of US and EC enforcement systems are analyzed to identify which factors mitigate the information asymmetry problems. The different alternatives are presented in three different categories, namely, "evidentiary rules", "procedural rules and institutional design" and "a market for experts and the academic community" (**section 4.4**).

The document contains six conclusions that may be summarized in the following statement: regarding expert economic testimonies, an antitrust enforcement system must aim at the minimization of its costs through the mitigation of the consequences of asymmetric information between the adjudicator and the expert. Therefore a cost-benefit analysis of the use of expert witnesses must take into account the incentives produced by the interaction among the different regulatory and non-regulatory features of the antitrust enforcement system.

JEL classification: K21, K4, D82

Keywords: antitrust, EC competition law, US federal antitrust law, expert economic testimonies, quantitative methods, antitrust enforcement system and asymmetric information.

Expert economic testimony, economic evidence and asymmetry of information in antitrust cases[*]

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1. Introduction

1.1 The nature of the problem posed by the use of expert testimonies and quantitative methods in antitrust cases

Competition authorities and litigants, all over the world, have increased the use of economic quantitative methods and/or economic expert witnesses as a means to interpret facts and produce evidence in antitrust cases. Quantitative analysis is not strictly necessary to decide every case (e.g. *per se* violations proved by direct evidence of collusion among firms) and generally is a complement for qualitative analysis in the proceedings[1].

Nevertheless, in certain prosecutions, interpretation of facts through economic methods is crucial to prove the infringement of the law, the innocence of the defendants or to calculate the damages caused by the anticompetitive practice.

Economic expertise is especially relevant in cases where direct evidence is not present or conclusive (e.g. price parallelism cases that have no explicit evidence of the supposed cartel agreement) and where the assessment of the economic effects is necessary to distinguish pro-competitive practices from anti-competitive ones. The latter is one of the most important challenges for policymakers and adjudicators, in the sense that the rules must be framed in such a way that they provide "the business community a stable and predictable base for designing business plans"[2].

The methods implemented by the economic experts may vary from simple mathematics or basic economic theory to very complex statistical and econometric tools[3] or sophisticated theoretical argumentations, which may not be apprehended by non–economist adjudicators, such as justices and juries[4].

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[1] *Cfr*. R. J. Van den Bergh and P. D. Camesasca, 2006, p. 10.

[2] W. Kovacic and C. Shapiro, 2000, p. 58

[3] *See* Office of Fair Trading, "Quantitative techniques in competition analysis", 1999 (for a succinct description of the principal quantitative methods used in antirust). *See also* D. L. Rubinfeld and P. O. Steiner, 1983 (for a review of the principal quantitative method for antirust cases).

[4] *Cfr*. R. Posner, 1999, pp. 95-96.

The fact that the quality of the methodology applied by the expert to the data may not be assessed by the adjudicator (especially in the case of non-specialized authorities) creates a typical a "principal–agent" scenario. In effect, information asymmetry between the adjudicator (the principal) and the expert (the agent, whether hired by the parties or court-appointed) creates different kinds of "agency costs"[5].

The asymmetrical information problem between the adjudicator and the expert is not only relevant for antitrust law. As a matter of fact, an asymmetrical information problem is also present in any civil, commercial or criminal cases where a scientific or special knowledge is needed to interpret the facts and establish the juridical consequences of a conduct (or an omission)[6]. However, in the case of antitrust proceedings the "principal-agent" problem between the adjudicator and the expert is especially pertinent and complex due to the nature of economics as a ¨"tooled knowledge"[7]. Although economists use quantitative methods that are analogous to the methods used in *natural sciences,* economics is not an *exact science* but rather a *social science*. The nature of economics is reflected upon antitrust law and economics in the following ways:

- Even if the facts in the proceeding are undisputed (which is not generally the case) they can be explained differently by opposing economical theories that are valid. Two honest experts may legitimately expose contradicting explanations for the same facts[8]. On the one hand, the logical argumentation based on *a priori* knowledge can continue *ad infinitum* without any significant consensus among the debaters. On the other hand, the empirical analysis – which may be the only way to determine causal relations between facts and consequences- often present mixed results when the studies are presented by different experts.

- Furthermore, there are controversial topics in antitrust economics, where there is no "professional consensus"[9]; thus it is more difficult to unveil partisanship of the experts or poor grounded testimonies.

- Econometric and statistical methods are not neutral[10] and may be abused[11]. Moreover, data is not always available, complete and/or reliable[12]. Consequently, hired experts may have incentives to present biased testimonies that appear to be economically well-grounded.

1.2 Economic expertise and the optimal enforcement

[5] *Cfr*. R. Posner, 1999, p. 93. J. L. Solow and D. Fletcher, 2005, p. 490.
[6] *See* R. Posner, 1999, pp. 91-99.
[7] J. A. Schumpeter, 1976 (1954), p. 7.
[8]. *See* R. Posner, 1999, p. 96 and R. J. Van den Bergh and P. D. Camesasca, 2006, p. 9.
[9] R. Posner, 1999, p. 96
[10] M. O. Finkelsten, 1978, p. 13
[11] D. L. Rubinfeld and P. O. Steiner, 1983, p. 69. J. L. Solow and D. Fletcher, 2005, p. 490.
[12]OFT, 1999, p. 110. J. L. Solow and D. Fletcher, 2005, p. 494. *See* infra section 2.2.3.

The main economic goal of antitrust enforcement system is deterrence of welfare-reducing anticompetitive practices[13]. Economic expertise that is well grounded in reliable information and data, methods and models, and that is reliably applied to the facts of the case renders more accuracy, legal certainty and predictability in adjudication[14]. In this sense, the application of quantitative techniques to analyze the facts of a case or to produce evidence is aligned with antitrust law's goals.

However, deterrence shouldn't be attained at any price; an optimal enforcement of competition law implies the minimization of enforcement errors and administrative costs[15]. The use of expert economic testimonies and economic evidence has incidence in the burdens of the two costs inherent to antitrust enforcement.

Enforcement errors may be pervasive in scenarios where: a) parties abuse of economic expertise –by presenting biased and poorly grounded expert testimonies that seem well-grounded- and b) competition authorities and adjudicators completely disregard economic methods and expertise simply because their origin is partisan. Adjudication errors, on the other hand, consist on the sanctioning of innocent undertakings (*false positives, type II error*) or on the failure to sanction the infringement of the law by firms (*false negatives, type I error*)[16].

Furthermore, the enforcement of antitrust laws will not be optimal if administrative costs are not minimized[17]. The administrative costs of enforcement –which are very high in case of litigation- include both the costs for the public administration to carry out the investigation and proceedings and the costs for the private undertakings parties involved in the proceedings[18].

Expert testimonies will represent a direct cost for the private parties that hire their own expert and to the opposing party that is "forced" to hire it as well. Expert testimonies will also represent and indirect cost for the public administration as the sophistication of the litigation will require more resources (economic and human) and time to decide on the matters. Competition authorities will need permanent qualified economist officials or hiring temporary for advisory on specific cases in order to assess the expert testimony and contend it –if it's the case.

In principle, the sophistication of economic evidence in antitrust cases appears to be smoothly aligned with the goal of any adjudicative procedure: to achieve accurate decisions at the lowest cost possible. However, as stressed above, the increase in the use of quantitative methods and economic theory will not necessarily convey more "accurate" decisions and creates highs administrative costs in the proceedings, thus possibly outweighing any of its benefits. Therefore, the use of economic expertise may be counter-productive and misaligned with antitrust law's goals depending on the regulatory framework, institutional capacity and other features of the enforcement system.

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[13] R. J. Van den Bergh and P. D. Camesasca, 2006, pp. 300 – 301.
[14] *Cfr*. R. Posner, 1999, p. 97.
[15] R. J. Van den Bergh and P. D. Camesasca, 2006, pp. 300 – 301.
[16] *Ibid*, p. 301.
[17] *Ibid*.
[18] *Ibid*, p. 301. *Cfr*. S. Calkins, 1998, pp. 3-5.

1.3 Scope, structure and methodology of the thesis

The objective of this document is to assess two questions: 1) What incentives does the legal and institutional framework of the European Community (EC) and the United States (US federal level) provide to the different agents involved in antitrust proceedings in regards to the use of expert economic testimonies? 2) What legal and social norms will provide appropriate incentives to the different agents involved in antitrust proceedings in order to align the use of expert economic testimonies with antitrust enforcement goals?

In order to deal with the questions posed by the use of economic expertise in antitrust cases the document has the following structure. **Section 2** contains an overview of the role of economists and economical tools in antitrust litigation, the reasons of their relevance for antitrust, a taxonomy of the methods applied and a thorough description of its inherent difficulties.

In **section 3** the regulatory and institutional frameworks of antitrust proceedings in the US and the EC are described, focusing on the use of economic expertise and economic evidence. This section lays the foundations for subsequent analysis of the incentives that the legal and social norms create for the different agents involved in the antitrust proceedings from a law and economics perspective.

In **section 4** the relation of the economic experts and the adjudicators determined by the legal and institutional framework will be analyzed in the light of the concepts of information asymmetry, adverse selection, moral hazard and "principal–agent" conflicts of interest. In the first part of the chapter, a brief overview of these concepts will be presented in order to apply them -in the second part of the section- to the specific relationship among the "actors" involved in the antitrust proceeding.

The asymmetric information problems between the experts and the adjudicators are exacerbated or mitigated by the legal and institutional framework and by social norms. These incentives are explicitly identified in the third part of section 4.

Finally, in the fourth part of the section, different regulatory and non-regulatory alternatives for the mitigation of the effects of asymmetric information problems are analyzed from the standpoint of three different perspectives:

- Evidentiary rules: admissibility rules, burden and standard of proof for the economic expert testimonies as evidence in legal proceedings.
- Procedural rules and institutional design: the structure of the antitrust proceeding, and the role of the authorities and the parties.
- Conditions of the market and the academic community: the social norms generated by the market and the culture.

The analysis is based on the assumption that the positive or negative role of economic experts in antitrust cases depends on the incentives that different agents have to perform.

Finally **section 5** contains conclusions regarding the alignment of the economic expert testimonies with the goals of antitrust and the minimization of the asymmetry of information problems between the adjudicator and the economic expert.

This thesis does not include a direct evaluation of specific quantitative methods or a proposal for new quantitative methods. An abstract evaluation of a technique is best evaluated in terms of a precise objective in a specific case, given the fact that the relevance and reliability of the technique must be assessed in regard to the necessities of the case and the facts that are analyzed.

The document has a law and economics approach, understood as the analysis of law using microeconomic theory and methodology. Hence, it analyzes the incentives created by the different legal norms and social norms related to the use of economic expert testimony in antitrust cases from the theoretical standpoint of information asymmetry.

The analysis is deductive and is framed both from the point of view of positive economics –describing incentives that the law and institutional framework and its possible effects over the agents- and from the point of view of normative economics, as the analysis may shed light about how the law and institutional design ought to be in order to mitigate asymmetric information problems and achieve in a greater degree the goals of antitrust at the least cost[19].

2. Economic expertise in antitrust proceedings

2.1 Economics, economists and antitrust

According to R. Posner antitrust law and antitrust economics are *isomorphic* in the sense that there is an identity between legal doctrine and economic theory "as the law adopts an explicitly economic criterion of legality."[20] In the same sense, Kovacic and Shapiro argue that the broad terms in which the Sherman Act was enacted by the US Congress in 1890 –and the consequent role of the federal judges to define its rules- gave economists an important role in shaping competition policy[21].

However, only until the second half of the 20th century economists became protagonists in the formation of US antitrust policy in the academy, by their presence in governmental agencies and as advisors for parties in litigation[22]. The evolution of the US's jurisprudence on antitrust over the last century has evolved *by the hand* of theoretical and empirical economics[23].

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[19] *See* H. Kerkmeester, 1999, pp. 390 – 391.
[20] R. Posner, 1999, p. 91.
[21] W. Kovacic and C. Shapiro, 2000, p. 43.
[22] *Ibid*, p. 58. *See also*, R. Posner, 2003, p. 23 and R. Cooter and T. Ulen, "Law and economics", 2000 (1987), pp. 1-2.
[23] *See* W. Kovacic and C. Shapiro, 2000, pp. 43-60 (for a detailed account on the evolution of the antitrust policy in the US related to the influence of economic school of thoughts). *See* R. J. Van den Bergh and P. D. Camesasca, 2006, Chapter 3 (for a complete overview the different economic

Few economic theories –if any at all– can claim absolute consensus among economists; antitrust economics, as noted by R. Posner, is a field where certain topics lack of "professional consensus" and economists' opinions may differ in substantial issues[24]. As a consequence "[a] perfectly respectable economist might be an antitrust 'hawk', another equally respectable economist a 'dove'." [25]. The main consequences of this fact for the use of economic expertise in antitrust litigation are that: a) it will make more difficult for an adjudicator to choose between two contradicting testimonies and b) it will be difficult to find neutral court-appointed experts[26].

To exemplify this problem, the following is a non-exhaustive, but illustrative, list of controversial issues in antitrust economics that haven't been completely settled and that are crucial for merger review, cases on horizontal agreements, vertical agreements, and abuse of dominant position:

- How to accurately define the relevant (product and geographical) markets? How to determine the existence market power?[27]
- How to discern if "price wars" are consequence of a predatory pricing tactic or vigorous competitive pricing among market participants?[28]
- How to distinguish an oligopolistic market behavior, where firms take unilateral decisions under an interdependent scenario, from "tacit collusion"?[29]
- What is the maximum concentration compatible with competition?[30]
- How to discern anticompetitive from pro-competitive behavior in cases of exclusionary practices, such as price discrimination? [31]
- How to calculate the damages for cases of cartels?[32]

The answers to the questions mentioned can be analyzed through different economic approaches; the latter necessarily implies the participation of economists in the design

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approaches to competition law through a chronological study of the "schools of thought" in competition policy).

[24] However, it must be stressed that the different views of economists in many topics "should not give the false impression that there is complete disagreement among economists, so that a systematic economic approach would only increase legal uncertainty and therefore be of little use." (R. J. Van den Bergh and P. D. Camesasca, 2006, p. 57.)

[25] R. Posner, 1999, p. 96.

[26] *Ibid*, pp. 96-97.

[27] In merger review proceedings and in cases of abuse of dominant position the delineation of the market and the determination of market power is subject of great contention among the parties and the authority. *See* Shugart II, Tollison and Reed, 1998, p. 85.

[28] This question implies the definition of what constitutes "predatory price" which has divided US approach form EC approach. *See* DG Competition, "DG Competition discussion paper on the application of Article 82 of the Treaty to exclusionary abuses", 2005, Section 6 (par. 96).

[29] Two prominent scholars, Posner and Turner disagreed on whether unilateral (tacit or silent) agreements to restrict output should be considered an infringement of antitrust laws. *See* G. J. Werden, 2004, pp. 771 – 777 (for a concise exposition of the Turner-Posner debate).

[30] *Cfr*. G. J. Stigler, 1968, p. 14.

[31] *See* D. Ridyard, 2002, pp. 286 – 303 (assessing the complexities on the application of article 82 EC in relation with dominant firm pricing and fixed costs recovery). *See also* R. J. Van den Bergh and P. D. Camesasca, 2006, Chapter 7 and S. Calkins, Stephen, 1998, pp. 28-29.

[32] *See* R. J. Van den Bergh and P. D. Camesasca, 2006, pp. 314 and 321-322 *See also* DG Competition, Annex to the "Green Paper: Damages actions for breach of the EC antitrust rules", 2005, pp. 72 – 73; D. L. Rubinfeld and P. O. Steiner, 1983, pp. 126-135 (for a detailed overview of the difficulties of the measurement of damages, including the application to two specific antitrust cases).

of competition policy and in antitrust proceedings. Although the role of economists, as noted before, in the development of antitrust has been crucial, the relation between lawyers and economists hasn't been always fluent.

On one hand, lawyers –with notable exceptions- tend to have difficulties to understand the logic of economic and econometric applications and therefore dispense them in their legal procedures. This may be one of the reasons why many cases are permeated by "legal formalism" in detriment of an economics based analysis[33]. Economists, on the other hand, may have difficult times trying to convey their discourse to a level that may be understood by laymen without actually loosing the significance of their analysis[34].

2.2 Quantitative techniques and economic theory in antitrust cases

2.2.1 Increasing role of economists

The participation of economists in the shaping of antitrust policy and antitrust proceedings (especially rendering expert testimony) has increased[35] in the last decades in the US (where it is very common)[36], partially in the EC[37] and in Latin American jurisdictions such as Argentina, Brazil, Colombia, Costa Rica, Chile, Mexico and Peru.

Clearly economic arguments have a bigger stake at antitrust proceedings in the US than in the EC[38] or in Latin America. According to McChesney[39], the expansion of economist's role in the US was caused by three reasons. First, the development of methods that are applicable to antitrust cases for the establishment of conspiracy and its effects[40]. Economic expertise is valuable in court both for the proof of the infringement and for the determination of the *quantum* of the damages[41].

Secondly, the predominance of a *rule of reason* approach that excels the use of empirical methods and economic expertise in antitrust procedures[42]. The standard requires a thorough analysis of a practice's nature and effects; hence the pro-competitive *v* anticompetitive effects of a given practice may be estimated by the empirical methods.

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[33] *Cfr*. R. J. Van den Bergh and P. D. Camesasca, 2006, p. 56.
[34] *Cfr*. R. Posner, 1999, pp. 95-96. D. L. Rubinfeld and P. O. Steiner, 1983, p. 140.
[35] *Cfr*. OFT, 1999, p. 5.
[36] R. J. Van den Bergh and P. D. Camesasca, 2006, p. 10.
[37] According to R. J. Van den Bergh and P. D. Camesasca "the use of quantitative techniques in proving violations of European competition law is still in its infancy." (2006, p. 4.)
[38] Cfr. R. J. Van den Bergh and P. D. Camesasca, 2006, p. 56.
[39] Commenting on A. R. Dick (1998), R. Blair and R. Romano (1998) and R. Blair and W. H. Page (1998).
[40] F. McChesney, 1998, p. xii.
[41] *Cfr*. DG Competition, Annex to the "Green Paper: Damages actions for breach of the EC antitrust rules", 2005, p. 72.
[42] F. McChesney, 1998, p. xv. *Cfr*. OFT, 1999, p. 41.

Finally, the demand for economics in antitrust proceedings is also due to Supreme Court's antitrust injury standard that limits the private damage remedy by establishing a standard of proof for a private plaintiff[43]. The standard places a bigger burden on the plaintiff that must "identify the economic rationale for a business practice's illegality under the antitrust laws and show that its harm flows from whatever it is that makes the practice unlawful."[44]

Additionally the structure of the antitrust enforcement system of the US is adversarial and incentives a more contentious attitude of the parties[45]. As a consequence, parties demand the services of economic experts to support their pleads (especially regarding recovery of damages) through economic analysis.

In the EC an expansion of the role of economists started in the late 90s due to the issuance of Guidelines, Notices and policy papers by the Commission explicitly introducing quantitative techniques or emphasizing the need for economic analysis[46], the latter in line with the requirements of the Court of Justice[47].

Further contribution of economics and economists in the EC competition law may be foreseen principally due to: a) an increase of fines imposed by the Commission, due to its proactive activity and the issue of new "Guidelines on the method of setting fines", which raises the defendant's stakes in the proceedings[48]; b) an increase of private damages claims[49], encouraged by Regulation No. 1/2003[50], which increases the incentives of firms to devote more resources in the proceedings (especially for proof of the *quantum* of the damages through economic expertise); c) external advice hired by private undertakings to assess if certain practices falls under the exception of article 81-3 of the EC Treaty[51]; and d) the transition from a "form based approach" of implementation of competition law by the Commission towards an "effects based regime", where the effects of a conduct in a market are decisive for the authority's decision[52].

The increasing role of economists in antitrust –both in competition authorities and as consultants for private firms- is directly linked with the increase of quantitative analysis in antitrust[53].

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[43] R. Blair and W. H. Page, 1998, pp. 69 – 70.
[44] *Ibid*, p. 70.
[45] R. J. Van den Bergh and P. D. Camesasca, 2006, p. 10. See *infra* section 3.1.1.
[46] This is the case of the Notice on Market Definition (which mentions explicitly the necessity of quantitative tests to delineate markets in paragraph 39), the Guidelines on the applicability of Article 81 of Treaty and the discussion paper on exclusionary abuses.
[47] See R. J. Van den Bergh and P. D. Camesasca, 2006, pp. 1-2.
[48] *See* N. Kroes, "European Competition Policy in a changing world and globalised economy: fundamentals, new objectives and challenges ahead", 2007, p. 4.). N. Kroes, "Key developments in European competition policy over the past two years", 2007, p. 4.) *Cfr*. D. Chalmers et al., 2006, p. 950. R. J. Van den Bergh and P. D. Camesasca, 2006, p 316.
[49] *See infra* section 3.2.1.
[50] *Cfr*. D. Chalmers et al., 2006, p. 972.
[51] R. J. Van den Bergh and P. D. Camesasca, 2006, p. 341.
[52] *See* D. Ridyard, 2002, p. 297. R. J. Van den Bergh and P. D. Camesasca, 2006, p. 249-250. DG COMP, "Green Paper on damages actions for breach of the EC antitrust rules", 2005, section 5.
[53] The UK OFT report of 1999 also suggests as motivations the development of reliable techniques, the availability of more data and advances in software and hardware tools. (OFT, 1999, p. 5)

2.2.2 The quantitative techniques[54]

A quantitative technique, for the purpose of this document, is understood as the technique "designed to test an economic hypothesis to the exclusion of exploratory data analysis" and that is applied by an expert economist[55]. As mentioned before these techniques may vary from simple mathematical procedures to advanced econometric applications.

The most common technique used is "multiple regression", especially relevant when "a variable of legal interest is recognized to be dependant on a number of causal factors…"[56]. The technique aims at measuring a) if certain relationship among variables (e.g. market concentration and price) is true ("testing hypothesis") and b) the magnitude of the effect among them ("parameter estimation")[57].

The role of economic experts and economic evidence in is extensive in all the relevant fields of antitrust: mergers, abuse of dominant position, vertical or horizontal agreements or the calculation of damages. Quantitative methods used in antitrust litigation may be categorized in four areas, according to their purpose:

- Delineation of markets (product and geographic)[58]
- Characterization of market structure[59]
- Pricing behavior analysis[60]
- Assessment of efficiencies[61]
- Quantification of damages[62]

2.2.3 Inherent difficulties of economic expertise in antitrust cases

The difficulty for an adjudicator to determine whether complex statistical and econometrical methods are well grounded seems obvious. Indeed, biased reports may appear as convincing testimonies for laymen. Therefore, it is relevant to explain the intrinsic difficulties related to the application of these techniques and why the relationship between the economic expert and the adjudicator is permeated by information asymmetry.

Economic expertise requires in-depth economic and econometric knowledge and experience in order to collect and process the data; likewise, it is very challenging to choose and build the necessary models or hypothesis and to test them.

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[54] *See* Annex 1 ("Types of economic analysis") of this document for a concise review of the different quantitative techniques used in antitrust.
[55] OFT, 1999, p. 8.
[56] M. O. Finkelsten, 1978, p. 9.
[57] OFT, 1999, p. 124. See D. L. Rubinfeld and P. O. Steiner, 1983, pp. 89-104 (for a complete overview of the application of "multiple regression" for antirust cases).
[58] *See* OFT, 1999, pp. 13 – 20; 59 – 68; sections 9 and 12.
[59] *See* OFT, 1999, pp. 20 – 26; sections 10 and 13. *See also* M. O. Finkelsten, 1978, chapter 5.
[60] *See* OFT, 1999, pp. 26 – 34; sections 3, 4 and 5.
[61] *See* OFT, 1999, pp. 35-36.
[62] *See* D. L. Rubinfeld and P. O. Steiner, 1983, pp. 102-104 (for an overview of the technique of econometric forecasting) and pp. 111-139 (for detailed assessment of their application to antitrust cases).

The availability and reliability of the information needed for the procedure is the first problem that an expert faces. The relevant data for an antitrust case includes the costs, output, sales, prices, capacity, entry barriers, business strategies, and market shares of the parties involved in a case and of the other participants in the relevant market[63].

The source of the information can be the parties involved (e.g. business plans or accountant information), third parties (e.g. competitors, suppliers or customers), "trade associations, trade press, independent consultants, survey information, or government sources…"[64]. The collection of the data may be costly (e.g. general market information such as sales and market shares) or simply not accessible since it may be privately owned by third parties that are not obliged to deliver it, unless it is ordered by a judge[65].

The fact that the collection and analysis of information is practiced by a firm that is hired by the parties, specifically for the case, is a first source suspicion of bias of the expert that bases his testimony on them. The selected and omitted data will determine the final results and may be "used" in such a way that the "desired" outcome, the one aligned with the parties discourse, is achieved.

The constraints concerning the data available and the fact that available information may not be up-to-date (trade association surveys or government studies are not always made in a year-by-year basis) obliges the expert to make assumptions and use estimations to fill the gaps[66]. The fragility of its testimony increases in these circumstances.

To analyze the data, a theoretical model has to be chosen. Different models may render different results with the same data which is yet another source of uncertainty. Additionally, econometrics is not a neutral technique, since it depends on the economists' decision of the kind of data used, the model and the methodology applied[67].

An example of undesired behavior of an economic expert in the application of the technique is to proceed by "data mining" in order to obtain a predefined result[68]. Although the significance of the result would be "meaningless, and would not stand up to a thorough investigation…"[69], laymen would not detect this deviation and would need expert advise.

In regression analysis, and in general in mathematical modeling, a limited number of variables are chosen, since it would be absolutely impossible to include all variables

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[63] Cfr. D. P. Kaplan, 1998, pp. 107 – 120 (for an analysis about the identification and collection of facts by an economist for antitrust purposes).
[64] *Ibid*, p. 107.
[65] *Ibid*, p. 110. *Cfr.* Article 24 of the Statute of the Court of Justice.
[66] D. P. Kaplan, 1998, p. 110.
[67] Cfr. M. O. Finkelsten, 1978, p. 13.
[68] Data mining consists in procedures "where, for example, dozens of different regressions are run with as many variables as possible expressed in as many forms, in the hope of obtaining statistically significant results." (OFT, 1999, p. 111.)
[69] OFT, 1999, p. 111.

even though they may influence the facts under analysis[70]. This "reduction of reality is essential to any mathematical model, and indeed to any thought about a complex problem, so that simplification is not objectionable per se."[71]. However, there is always a risk of "spurious correlation" where a variable not taken into account influences the variables that were supposed to be associated to one another[72]. Consequently, what appears to be a relationship between two variables is really a parallel movement instead of a causal relation[73].

3. Legal and institutional framework for economic evidence and economic expertise in antitrust litigation in the US and EC

This section presents a comparative overview of the regulation on expert economic witnesses in antitrust proceedings in the US (at the federal level) and in the EC. The section contains a characterization of the general institutional and procedural framework of antitrust in these jurisdictions and a detailed description of the rules for the admissibility of expert testimonies. The latter serves as a base for the law and economics analysis that will be assessed in the next section, in which the incentives that the legal rules and social norms create for the parties will be explicitly analyzed.

The experience in the US with economic expertise in antitrust proceedings has substantial differences in comparison with the experience of the EC, and of course also differs from jurisdictions in Latin America. There are two principal reasons that explain the different approach towards economic expertise among the different jurisdictions. On the one hand, the US has enforced antitrust for more than a century, while the enforcement of antitrust in the EC and Latin America has been effective only in the last four decades.

On the other hand, the adversarial nature (predominance of private enforcement) of the US antitrust system renders more incentives for the parties involved to support their pleadings (to prove the quantification of the damages claimed) through expert witnesses, while the inquisitory nature (predominance of public enforcement) of the EC antitrust system and most of the jurisdictions in Latin America gives fewer incentives for its use[74].

As it will be noted, there is a prolific literature on the admissibility of scientific knowledge in US legal proceedings, especially after the *Daubert* decision in the year 1993, and specifically in relation to its application to antitrust cases[75]. Likewise, there are extensive papers on the use of quantitative methods for antitrust litigation[76].

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[70] M. O. Finkelsten, 1978, p. 11.
[71] *Ibid*, p. 13.
[72] *See generally* OFT, 1999, p. 112; M. O. Finkelsten, 1978, pp. 12-13; and D. L. Rubinfeld and P. O. Steiner, 1983, pp. 84 and 88.
[73] M. O. Finkelsten, 1978, p. 12.
[74] *Cfr*. R. J. Van den Bergh and P. D. Camesasca, 2006, p. 10 and section 8.3.3.
[75] *See* A. I. Gavil, 1996; J. E. Lopatka and W. H. Page, 2004; G. Werden, 2006; and J. L. Solow and D. Fletcher, 2006.
[76] *See* Rubinfeld 1983 and 1985; Baker and Rubinfeld, 1999.

Furthermore it is important to mention the seminal work of Judge R. Posner, *The Law and Economics of the Economic Expert Witness* (1999), that was a useful guide and inspiration for this document.

On the other hand, the literature about the use and admissibility of expert economic witnesses for antitrust proceedings in the EC is scarce, if non existent. The latter may be due to the fact that the economic expert testimonies in antitrust procedures in Europe are still not common, for the reasons mentioned above; another reason may that the European authorities seem less willing "to decide competition cases on the bases of quantitative evidence…"[77].

3.1 The U.S. (federal level)

3.1.1 General enforcement system

The US federal antitrust enforcement system, set at a statutory level[78], has an adversarial nature due to: a) the predominance of private enforcement over public enforcement and b) the high expected profits and losses for the parties (due to administrative fines, criminal sanctions and civil recovery of treble damages) that are at stake in the proceeding[79]. While in the EC there are few cases of private litigation, in the US actions for damages[80] and injunctive relief are very common[81].

The Federal Trade Commission (FTC)[82] and the Department of Justice (DOJ)[83] are administrative bodies that share the role of competition authorities in the US. There are two parallel systems of federal antitrust enforcement: a first system where investigation and prosecution is performed by agencies (the FTC and DOJ) while adjudication is done by a federal court (a district court); and a second system where the FTC carries out an administrative procedure that combines investigation and adjudication[84].

In the first system, both the DOJ and the FTC (under the pre-merger notification program) carry out investigative and prosecutorial functions, while the adjudicative function –that may be of a criminal or civil nature- is left to the federal courts[85]. The district court's decision on merger and non-merger proceedings may be appealed before Court of Appeals of the corresponding district only on legal grounds.[86]

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[77] R. J. Van den Bergh and P. D. Camesasca 2006, p. 10.
[78] *See* Sherman Act (especially §§ 4 and 5), Clayton Act(especially §§ 4, 4c, 4d, 5, 15 and 16), and the FTC Act (especially §§ 1, 5 and 6).
[79] Other reasons for the predominance of private enforcement in the US, argued by D. Chalmers et al, are the wider discovery rules available, the existence of contingency fees and a more "litigious culture" (2006, p. 973).
[80] Treble damages, pursuant to § 4 subsection (a) of the Clayton Act
[81] In the US 90 per cent of the cases are private actions. (W. P. J. Wils, 2005, p. 115).
[82] *See* § 0.1, Title 16, of the Code of Federal Regulation.
[83] *See* DOJ's "Antitrust Division Manual", 3 ed., Chapter 1 (for a complete explanation about the organization of the DOJ and its Antitrust Division).
[84] W. P. J. Wils, 2005, p. 155.
[85] *Ibid*, p. 151.
[86] *Ibid*,pp. 155 - 156.

In the second system, the FTC carries out an administrative proceeding[87] where it combines both investigative and adjudicative powers. After conducting the trial the Administrative Law Judge may affirm or confirm the FTC's decision[88]. The judge's decision may be appealed by any party involved before the Commission by filing a notice of appeal[89].

3.1.2 Rules for economic expert testimonies

The use of economic evidence and expert testimonies in antitrust procedures, specifically their admissibility in trial, is set by case law and the Federal Evidence Rules (FRE).

As remarked by the Committee's Notes on the rule 702 FRE, the concern for the use of partisan expert testimonies in trial has been an issue for tribunals and scholarship that dates from the 19th century[90]. A prolific production of case law on the issue and continuous scholar debate gives a solid base for the use of expert testimonies in antitrust litigation.

According to Rule 703 FRE, the facts upon which the expert's knowledge is applied "may be those perceived by or made known to the expert at or before the hearing." The expert's analysis is not limited to the facts "that can be proved by evidence admissible under the rules of evidence"[91], albeit in case they are "inadmissible" they "shall not be disclosed to the jury by the proponent of the opinion or inference unless the court determines that their probative value in assisting the jury to evaluate the expert's opinion substantially outweighs their prejudicial effect."

The admissibility of the expert testimony of evidence is subject to the general principles established in the fourth article and in rule 104 of the FRE; however, article seven of the FRE contains five rules specifically related to the use of expert testimonies.

The main objective of the standards for the admissibility of expert testimonies, in the case of antitrust, is to avoid the admission of "junk economics"[92]. The proponent of the testimony has the burden of the proof regarding its admissibility[93]. Pursuant to Rule 403 FRE, relevant evidence "may be excluded if its probative value is substantially outweighed by the danger of unfair prejudice, confusion of the issues, or misleading the jury…" In this sense, it is established case law that the court has a gatekeeper role since the "rules are designed to shield inexperienced fact finders (the jurors) from evidence that might confuse, distract, or inflame them…"[94].

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[87] Established in the FTC Act (§§ 5 and 6). *See* Part 3 "Rules of Practice for Adjudicative Proceedings" of the Code of Federal Regulation (CFR).
[88] W. P. J. Wils, 2005, p. 156.
[89] *See* § 3.52, Title 16, of the CFR.
[90] *See* US Committee, "Notes", Rule FRE 702.
[91] R. Posner, 1999, p. 92
[92] J. L. Solow and D. Fletcher, 2005, p. 491.
[93] G. Werden, 2006, p. 20. J. L. Solow and D. Fletcher, 2005, p. 490.
[94] R. Posner, 1999, p. 92.

Rule 702 FRE, amended in the year 2000 in response to the Supreme Court's *Daubert* decision[95] and the cases applying it[96], establishes the conditions for the admissibly of expert testimonies in trial. These conditions, that are applicable both to bench trials and jury trials[97], may be summarized in two broad aspects: a) the qualifications of the person who testifies and b) the relevance and reliability of the testimony for the case and its facts.

Regarding the first condition, the qualification of the witness, there are several characteristics that could be taken into account: academic formation, practical experience and training in the field and publications on the issue[98]. However, the issue is not as simple as checking a list of abstract attributes. On the contrary, the analysis of the qualification of a person should be strictly related to the necessities for the case[99]. Case law has been clear in the sense that: 1) there are no specific credentials that are necessary or sufficient to be accepted as a qualified expert for a specific case[100] and 2) certain issues or methods may be not be assessed by any kind of economist, but by a more specialized antitrust expert[101]. Furthermore, case law has rejected prior experience as expert witness as a condition to be qualified[102].

The second and third conditions for the admissibility of a testimony –which are often a subject of discussion in antitrust cases[103]- consist in the reliability of its economic grounding and its relevance for the facts of the case[104]. The second condition, the grounding of the testimony in economics, evaluates the economic tools used by the economist to derive its conclusions.

Since the standard regards to the reliability of the procedure used by and expert, it's not a judgment of the correctness of its substantial conclusions but of the principles and methodology applied[105]; furthermore, case law has clearly established that two contradicting testimonies may be equally admissible[106]. Hence, the determination of which expert testimony is "correct" is left to the jury[107].

Other standards developed by case law include that the methods used by the expert are the same ones that he would have used for his normal work (academic or

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[95] *Daubert v. Merrell Dow Pharmaceuticals, Inc.,* 509 U.S. 579 (1993). The adoption of the FRE and the *Daubert* standard supersede the ¨general acceptance standard¨ or *Frye test*, according to which a scientific method or technique must have general acceptance in its particular field to be admitted as evidence. (*Ibid*, pp. 5-6)

[96] *Cfr*.G. Werden, 2006, p. 1 and Advisor Committee, "Notes on Rules to the 2000 Amendments", FRE 702.

[97] G. Werden, 2006, p. 2.

[98] *Daubert v. Merrell Dow Pharmaceuticals,* p. 13

[99] G. Werden, 2006, p. 4.

[100] *Ibid*, pp. 3-4.

[101] *Ibid*, p. 4.

[102] *Ibid*, p. 5.

[103] J. L. Solow and D. Fletcher, 2005, p. 492.

[104] *Daubert v. Merrell Dow Pharmaceuticals,* pp. 9 - 11.

[105] *Ibid.,* p. 14

[106] Advisor Committee, "Notes on Rules to the 2000 Amendments", FRE 702. *Cfr*. J. L. Solow and D. Fletcher, 2005, p. 492.

[107] J. L. Solow and D. Fletcher, 2005, p. 496.

professional) or that at least the expert performs at the same level of rigor that he would for this normal practice[108].

Finally, the last condition of admissibility is aimed to verify that the method "fits" the facts of the case[109]. The latter includes also the reliability of the data[110]. The capacity of the expert to explain the relevance of the methods applied will be crucial.

Rule 26(a)(2) of the Federal Rules of Civil Procedure (FRCP) establishes a mandatory disclosure, before trial[111], of the identity of the expert and a detailed written report of the content of the statements, the data considered and information about the expert, among others[112]. The procedure allows the opposing party to object and exclude the admissibility of the testimony[113].

Finally, Rule 706 FRE allows the court, "on its own motion or on the motion of any party", to appoint an expert "of its own selection" or "agreed upon by the parties" who's "reasonable" compensation is set by the court[114]. The compensation of the court-appointed expert is payable from funds provided by the law in criminal and certain civil cases and in the other proceedings by the parties in the proportion directed by the court[115].

Subsection (d) of Rule 706 FRE explicitly establishes that the appointment of an expert by the court does not exclude the possibility of the parties to call expert witnesses of their own selection. It must be remarked that, while the hiring of an expert by the parties is the general rule in antitrust proceedings, the appointment of experts by courts is not a common practice. The latter is possibly due to the skepticism of judges towards the neutrality of the experts[116] and the impossibility for them to directly evaluate the validity of the expert's methodology and results, phenomena that will be addressed in section 4.

3.2 The E.C.

3.2.1 General enforcement system

The EC antitrust enforcement system is laid down by the EC Treaty and Regulations No. 1/2003, No. 149/2004 and No. 773/2004. As explained before, the antirust

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[108] *Group Health Plan, Inc. v. Philip Morris USA, Inc.*, 344 F.3d 753 (8th Cir. 2003), p. 10. *Cfr*. G. Werden, 2006, p. 10.
[109] *Daubert v. Merrell Dow Pharmaceuticals,* p. 11.
[110] G. Werden, 2006, p. 16.
[111] Rule 26(a)(2)(c) of the FRCP.
[112] Rule 26(a)(2)(b) of the FRCP.
[113] Werden, 2006, p. 20.
[114] Subsection (b) of the Rule 706 FRE.
[115] Subsection (b) of the Rule 706 FRE.
[116] *See* T. V. Lee, 1988, pp. 480 – 503 (explaining the reasons for the reluctance of US Courts: "fear of undue judicial influence", "fear of interference with adversarial counsel", "fear of lack of judicial objectivity", and "lack of judicial resources). *See also*, R. Posner, 1999, p. 92; "Notes of Advisory Committee" on Rule 706 FRE; and *In re High Fructose Corn Syrup Antitrust Litig.,* 295 F.3d 651 (7th Cir. 2002), pp. 23-24.

enforcement system at the EC level is inquisitory. In this system, as it is the case of other continental law traditions like Latin America, the competition authorities and courts[117] have a more active role in the proceedings.

In the EC public enforcement (of an administrative character[118]) predominates over private enforcement. In effect, civil disputes before national courts where claimants plead for recovery of damages caused by the infringement of competition laws barely occurs[119] and it is characterized as an underdeveloped area of law in the Member States (MS)[120]. However, this trend may change due the Commission's policy - backed by the Court's case law[121]- to increase deterrence of infringement by stimulating private damage claims as a complement to public enforcement[122].

Pursuant to article 85 of the EC Treaty and the Regulation No. 1/2003 the Commission is the principal EC administrative institution in charge, *inter alia*, of enforcing EC competition law. The "supervisory powers" of the Commission regarding EC competition law are applied via its Directorate-General for Competition (DG Competition). As the EC competition authority, the Commission has both investigative and adjudicative functions in the administrative proceedings[123].

Pursuant to article 230(4) of the EC Treaty, once the Commission adopts a decision (both on merger and non-merger matters[124]), private parties with a "direct and individual concern" may challenge the administrative act by bringing an action of annulment against it before the Court of First Instance (CFI)[125]. An unsuccessful party[126] may appeal before the European Court of Justice (ECJ) against the judicial decision of the CFI, albeit the proceeding "shall be limited on points of law only".[127]

3.2.2 Rules for economic expert testimonies

The CFI and the ECJ are empowered to commission expert opinions "at any time…" and to "any individual, body, authority, committee or other organisation it chooses…"[128]. The entrustment of this task to an expert is a "measure of inquiry" in the context of their "fact-finding role"[129].

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[117] *Cfr*. Lenaerts, Koen and Arts, Dirk, "Procedural Law of the European Union", Sweet & Maxwell, 1999, section III of Chapter 22.
[118] D. Chalmers et al., 2006, p. 941.
[119] Kroes, Neelie, "Taking competition seriously – Anti-Trust Reform in Europe", 2005.
[120] "Green Paper: Damages actions for breach of the EC antitrust rules", 2005, p. 4. *Cfr*. D. Chalmers et al., 2006, p. 973.
[121] *See* Joined Cases C-295/04 to C-298/04, Vincenzo Manfredi and Others v. Lloyd Adriatico Assicurazioni SpA and Others [2004] E.C.R., page I-01605, at par. 60.
[122] Kroes, Neelie, "Key developments in European competition policy over the past two years", 2007.
[123] *Cfr*. D. Chalmers et al., 2006, pp. 940 - 957.
[124] *See* article 31 of the Regulation No. 1/2003 and article 16 of the Regulation No. 149/2004 respectively.
[125] D. Chalmers et al., 2006, p. 125.
[126] *See* Article 56 of the Statute of the Court of Justice (SCJ).
[127] Article 225 of the EC Treaty, article 58 of the SCJ and Title IV of the ECJ Rules of Procedure.
[128] Article 25 of SCJ.
[129] *See* K. Lenaerts and D. Arts, 1999, pp. 381 – 386.

Pursuant to articles 45(d) and 49 of the ECJ Rules of Procedure (ECJ RP) and articles 65(d), 66(1) and 70 of the CFI Rules of Procedure (CFI RP), the commission of an expert's report will be made by means of an order after listening the Advocate General and the parties.

Although the Courts have the exclusive power to appoint the expert and formulate the relevant questions, they may promote the participation of the parties in relation to the decisions regarding its election and the questions that would be posed. For example, in the case *Frederiksen v Parliament*[130], where the CFI considered necessary an expert's report in order to decide upon the matter, the Court invited the parties to present proposals for the choice of an expert. Furthermore, the CFI encouraged an agreement of the parties upon the candidate if possible and invited the parties to propose questions that the Court should bring upon to the expert[131].

The case law of the ECJ describes the objective and necessity of expert's reports appointed by the Court in the following terms:

> "19 The power to appoint an expert is one of the powers available to the Court in order to facilitate, in the discharge of its duties, a detailed examination of the facts of the disputes on which it must adjudicate. If that possibility were not available, the appointing authority could escape any judicial review whenever its power of appraisal was exercised in a technical field in which the Court did not have the appropriate knowledge to determine whether the appointing authority had exceeded the bounds of the legal framework imposed by the vacancy notice."[132]

The order of the Court that appoints the expert defines his task, which strictly limits the content his opinion[133], and sets "a time-limit within which he is to make his report"[134]. The expert receives from the Courts "all the documents necessary for carrying out his task"[135] and is supervised by the "Judge-Rapporteur who may be present during his investigation and who shall be kept informed of his progress in carrying out his task."[136]

The President of Court instructs the expert "to carry out his task conscientiously and impartially…"[137] and warns him of the criminal liability to which he is responsible according to his national law in case he breaches his duty[138].

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[130] Case T-169/89, *Frederiksen v Parliament* [1991] E.C.R., p.II-1403.
[131] Interestingly the defendant didn't propose any expert and objected the appointment of an expert. Nevertheless the Court appointed an expert by its own motion. In the appeal the ECJ ratified the power of the CFI to seek the opinion of an expert in the case (Case C-35/92 P., *Parliament v Frederiksen* [1991] E.C.R. page II-01403, par. 20).
[132] Case C-35/92 P., *Parliament v Frederiksen* [1991] E.C.R. page II-01403, par. 19.
[133] Article 49(4) of the ECJ RP and article 70(4) of the CFI RP.
[134] Article 49(1) of the ECJ RP and article 70(1) of the CFI RP.
[135] Article 49(2) of the ECJ RP and article 70(1) of the CFI RP.
[136] Article 49(2) of the ECJ RP and article 70(1) of the CFI RP.
[137] Article 124 of the ECJ RP and article 70(5) of the CFI RP.
[138] Article 124 of the ECJ RP and article 30 of the SCJ.

The parties may object an expert within two weeks after its appointment "on the ground that he is not a competent or proper person to act as witness or expert or for any other reason … [and] the matter shall be resolved by the Court."[139]

The Court may order that the expert is examined after his report is finished; during the oral procedure[140], the parties may attend his examination and formulate questions to the expert through their representatives, subject to the control of the President of the Court[141].

Experts are entitled to the reimbursement of travel and subsistence expenses, and to the fees for their services, which are paid by the Cashier of the Court in advance for the former and after the fulfillment of their tasks for the latter[142]. The sums payable to the expert are "recoverable costs"[143].

There is no further rule, either by statutes or case law, regarding the admissibility of the expert's report or establishing standards, neither for its selection, nor for judging the reliability and relevance of his opinion.

The only relevant precedent related to antitrust is the *Wood Pulp* case[144] related to concerted practices between undertakings, where the Court of Justice ordered two expert reports on parallelism of prices and on the characteristics, functioning and structure of the market during the period covered by the decision, the period prior to it and the period subsequent to it[145]. In the decision the Court puts forward in a detailed manner the findings of the experts in which they explicitly contend and criticize the Commission's arguments[146].

The Court annulled the Commission's decision on the grounds that in the case, following the expert's analysis, there was no "firm, precise and consistent body of evidence" of the concertation among the firms[147].

The fact that the European Courts rarely appoint economic experts in antitrust cases does not mean that the proceedings lack of economic studies. In fact, documents prepared by economic experts hired by the parties are regularly presented as part of their pleadings against the Commission's statement of objections[148], or as part of the filing in the notification of a merger[149]. Nevertheless, on strict legal grounds these documents don't have the status of "evidence", as an expert's report ordered by the Court would have, and would only be considered as part of the party's argumentation. Hence, the documents are not necessarily subject of debate in the proceeding nor does

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[139] Article 50(1) of the ECJ RP and article 73(1) of the CFI RP.
[140] Article 52 of the SCJ.
[141] Article 49(5) of the ECJ RP and article 70(5) of the CFI RP.
[142] Article 52 of the ECJ RP and article 74 of the CFI RP.
[143] Article 73 of the ECJ RP and article 91 of the CFI RP.
[144] Joined cases C-89/85, C-104/85, C-114/85, C-116/85, C-117/85 and C-125/85 to C-129/85 *Ahlström Osakeyhtiö and others v Commission* of the [1993] E.C.R. I-1307.
[145] *Ibid*, pars. 31-32.
[146] *Ibid*, pars. 75 – 79, pars. 82 – 86 and pars. 100-125.
[147] *Ibid*, par. 127.
[148] *See* Case COMP/34.780 - Virgin/British Airways [2000], par. 90.
[149] *See* Case COMP IV/M.623 - Kimberly/Clark/Scott [1996], pars. 166 – 177 and Case COMP IV/M.877 - [1997], par. 58.

the expert who prepares them subject of examination of by the Court or the contesting party.

As matter of simple illustration, it must be remarked that in each MS the national the rules regarding expert evidence vary significantly, although in all jurisdictions there is a way of recurring to it[150]. Furthermore, the majority of MS mirrors the regulation of the EC in the sense that "attributes a higher evidential value to a report by an official court appointed expert than to a report that derives from an expert appointed by one of the parties"[151].

4. Law and economics of economic expertise in antitrust litigation

Economic experts are supposed to have the role of bridging the gap between the adjudicator's lack of knowledge and the expertise to use economic theory or economic methods to resolve sophisticated questions in antitrust litigation. Furthermore, the testimony of an expert can be depicted as a kind of "trust good", understood as the goods whose quality the consumers (in this case the adjudicator) cannot evaluate completely neither before nor after "consumption".

Strictly speaking, the expert "witness is not an advisor or consultant, but someone who testifies –who offers what the law regards as 'evidence'"[152]. Through their testimony, experts provide the adjudicators a simplified version of the analysis that would otherwise be too costly (if impossible), due to the effort needed for the recollection and processing of data as well as the application of the technique to the facts of the case. In theory they should provide the adjudicators the optimal amount of information necessary for them to analyze the juridical problems that are tried or the interpretation of facts.

In practice, however, the relation between the economic expert and the adjudicator develops in a typical asymmetric-information-setting with a high probability of opportunistic behavior by the former. Non-economist adjudicators (administrative officer, tribunal or juror) lack the information, knowledge and expertise to evaluate the quality of the expert's analysis. Thus, the adjudicator will be exposed to the perils of asymmetric information.

In this section the theory of asymmetric information is briefly presented through the description of the problems associated with it: adverse selection, moral hazard and principal-agent conflict of interests. This general framework sets the basis for the subsequent detailed analysis of the relationship between the economic expert and the fact finder and/or trier and the incentives created by the enforcement systems of the US and the EC.

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[150] DG Competition, Annex to the "Green Paper: Damages actions for breach of the EC antitrust rules", 2005, paragraphs 257-258.
[151] *Ibid*, paragraph 258.
[152] R. Posner, 1999, p. 92

4.1 Asymmetric information: general framework

Information asymmetry among parties in economic transactions regarding the quality of goods or any other relevant knowledge is very common in different markets[153]. Generally the seller has more information about the good or service that he offers to the consumers.

Depending on the characteristics of the good or service and the costs of assessing its quality, the information asymmetry between parties may be 1) inexistent when the quality may be determined at negligible cost before the purchase (normal goods), 2) reduced only after its consumption (experience goods) or 3) not reduced even after its consumption (trust goods).

Two different phenomena are produced due to asymmetric information, with different effects but both leading to market failure: adverse selection and moral hazard (including principal-agent conflicts of interest)[154].

4.1.1 Adverse selection

In an adverse selection setting, consumers assume that the quality of most of the sold goods in market is low and as a consequence the price will fall[155]. "The mix of people who elect to sell changes adversely as price falls…"[156] and the market ends up collapsing (few buyers and sellers remain, if any) since the low-quality goods flood the market and drive out high-quality goods[157].

There are several solutions for adverse selection, of governmental or market origin, such as: mandatory pooling risks (e.g. insurance case), inferring quality with price, screening, the development of reputation and signaling[158]. Reputation, signaling and screening are solutions relevant to the purposes of this document and will be analyzed in the light of the relation between the economic expert and the adjudicator in antitrust cases in section 4.4.

4.1.2 Moral hazard and principal-agent conflict of interests

Moral hazard arises in relations where one person (the principal) cannot monitor the actions of its agent and there is a discrepancy of goals among them. The interests of the unobserved agent create incentives for a performance (e.g. less effort or undesired action) that will conflict with the objectives of the principal[159].

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[153] *Cfr*. R. S. Pindyck and D. L. Rubinfeld, 2004, pp. 613-614 and J. E. Stiglitz and C. Walsh, 2006, p. 334.
[154] *See* R. S. Pindyck and D. L. Rubinfeld, 2004, Chapter 17. J. E. Stiglitz, and C. Walsh 2006, Chapter 15.
[155] R. S. Pindyck and D. L. Rubinfeld, 2004, p. 619.
[156] J. E. Stiglitz and C. Walsh, 2006, p. 334.
[157] R. S. Pindyck and D. L. Rubinfeld, 2004, pp. 614-616.
[158] *Cfr*. R. S. Pindyck and D. L. Rubinfeld, 2004, pp. 617-620. N. G. Mankiw, 2004, Chapter 22. J. E. Stiglitz, and C. Walsh 2006, pp. 335-336.
[159] R. S. Pindyck and D. L. Rubinfeld, 2004, pp. 624-627.

Incomplete information and costly monitoring of the agent's actions by the principal generates a principal-agent conflict of interests[160]. The solution to the problem is the alignment of interests among the related parties through reward and punishment schemes (pecuniary and non pecuniary) which can be done either by government intervention or market solutions[161]. The solutions relevant to the purposes of this document will be analyzed in the light of the relation between the economic expert and the adjudicator in antitrust cases in section 4.4.

4.2 The relation "adjudicator-economic expert" in terms of asymmetric information

4.2.1 Application of adverse selection

The parties involved in a proceeding are interested in hiring experts aligned with their interests and hence produce a testimony that is consistent with their allegations prepared by the legal counsels. Evidently parties won't present an expert that testifies against them. This fact may incentive the expert to produce economic analysis that is less grounded on economic theory and the facts of the case, but that seems convincing and at the same time is aligned with the parties' allegations[162]. Adjudicators are aware of the latter situation and since they can't assess the quality of an expert's testimony, they may prejudge the testimonies as biased, disregarding them as a source of clarity for the case.

As the reputation of economists is an important intangible asset for them, a serious and respected economist may not risk his "good name" among his peers to participate as an expert; the expert will be even less prone to participate if his preliminary study of the facts leads him to think that the "discourse" that the hiring firm wants to have is economically weak.

As a consequence, it would be unlikely that rigorous economists will offer to render testimony due to the threat of damaging their professional reputation[163]. At this point the judges would be even more reluctant to take seriously any expert testimonies. As a result well grounded testimonies from experts will be scarce and in average only low quality services will be available.

Judge's reluctance towards experts, even court-appointed experts, is a sign of the failure of the market for experts. Incapacity to distinguish between *junk economics* and well-grounded analysis may lead to a "race to the bottom" and judges will refrain from using expert testimony.

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[160] *Ibid*, p. 627.
[161] *Cfr*. J. E. Stiglitz, and C. Walsh 2006, pp. 336-339 and R. S. Pindyck and D. L. Rubinfeld, 2004, p. 627.
[162] J. L. Solow and D. Fletcher, 2005, p. 490.
[163] Cfr. T. V. Lee, 1988, p 483.

4.2.2 Application of moral hazard and principal-agent conflict of interests

It is not viable (or too costly) for the adjudicator to monitor the performance of the economic expert regarding the application of the quantitative techniques. Furthermore, in case that the experts are hired by the parties, there may be a misalignment of interests between the adjudicator and the expert witness. While the adjudicator "demands" rigorous and unbiased testimonies to analyze the facts of the case and decide upon the matters, the experts have two –possibly conflicting- interests: pleasing their clients (supporting their allegations) and maintaining their reputation as honest and competent professionals (especially in case they are repeat players)[164].

In case of court-appointed experts, the problem of monitoring will still persist and the misalignment of interests may be attenuated due to the fact that their pay does not depend on the alignment of his opinion with the arguments of the parties; however, there is still a risk of undesired behavior, either due to the fact that the expert is a repeat player (and may care about a past or future hiring by one of the parties) or simply because of "under-the-table" payments.

It must be remarked that the applications of the asymmetric information problems in the relationship between adjudicator and expert witnesses, as depicted in the section 4.2 is just one side of the story; in reality and as it is analyzed in the next section, agents' incentives are influenced by legal rules and social norms that exacerbate or mitigate the effects of the asymmetry of information.

4.3 The incentives of the enforcement systems of the US and EC

The solutions to the problems due to asymmetry of information between the adjudicator and the expert in antitrust cases, which are developed in section 4.4, depend upon the incentives that the enforcement system gives to the different "actors" in the proceedings. Several factors will determine these incentives, such as: the general structure of the enforcement system; the institutional design; procedural and evidentiary rules; the capacity of the public authorities in terms of economical and human resources; the stakes that parties have in the proceedings; cultural aspects of economic scholarship; and the development of a market for economic experts.

Based upon the mentioned factors, that have been already discussed through out this document, this section develops an explicit analysis of their effects on the behavior of "principals" and "agents". Although the factors are analyzed individually in four different categories, it must be stressed that in practice they are inter-dependent and affect mutually.

4.3.1 Structure of the enforcement systems and institutional design

[164] Cfr. R. Posner, 1999, p. 94.

Antitrust enforcement systems may be characterized according to many aspects, among others: the nature of the authorities that enforce the law (administrative or judiciary); their degree of specialization (e.g. ordinary, commercial or exclusively antitrust); the nature of the procedure (administrative, criminal and/or civil); the type of the sanctions (administrative, criminal and/or civil); the distribution of the powers of investigation, prosecution and adjudication among institutions (concentration in one body or division among different entities); and the role of the pubic authorities and private parties in the proceedings (adversarial or inquisitory).

Most of these characteristics, described in sections 3.1.1 and 3.2.1, have direct incidence over the incentives of adjudicators, expert witnesses and the parties involved in the proceeding.

4.3.1.1 Nature of authorities and degree of specialization

Both in the US and in the EC competition authorities are administrative bodies with unit divisions that are specialized in the enforcement of antitrust laws. Furthermore, the authorities are multidisciplinary (lawyers, economists and accountants) and economists are in important decision-taking positions. Hence, the asymmetric information problems between the competition authority and economic experts are less daunting than the case of non-specialized authorities.

Experts hired by parties know that the competition authorities may monitor their performance and evaluate the quality of their reports; therefore, economic experts are disciplined by the fact that the competition authority has the capacity to unveil an excessive partisanship and a poorly grounded economic expertise.

In the case of the EC, the Commission's decisions may be appealed before courts that are not specialized in antitrust: both the CFI and the ECJ have jurisdiction to decide on diverse issues[165].

The CFI and the ECJ are composed by 27 judges of each MS (in the year 2007)[166] and decisions are taken by Chambers composed of different number of judges or the full court, depending on the complexity and importance of the case[167].

The members of the CFI are chosen from persons "who possess the ability required for appointment to high judicial office[168]. In the case of the ECJ the members are chosen from persons "who possess the qualifications required for appointment to the highest judicial offices in their respective countries or who are jurisconsults of recognised competence…"[169]. Hence, justices are not necessarily specialized in antitrust litigation nor have an economic background.

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[165] *See* European Court of Justice, "Annual Report", 2006, p. 11.
[166] Articles 221 and 224 EC Treaty and article 48 of the Statute of the Court of Justice.
[167] Article 221 EC Treaty, article 16 of the Statute of the Court of Justice, and article 52 of the Statute of the Court of Justice.
[168] Article 224 EC Treaty.
[169] Article 223 EC Treaty.

Furthermore, the Chambers by which cases are adjudicated are not divided by areas of the EC law; cases are allocated in simple order according to the date in which they are registered at the Registry. In spite of the fact that a great deal of cases that the Courts have to decide upon have an economical or commercial nature[170], few of the actual members of CFI and the ECJ have formal education and experience in economics[171].

In sum, between the CFI and ECJ and expert economic witnesses there will be asymmetry of information that should be mitigated to avoid its effects.

In the case of the US, in the proceedings where the antitrust agencies only carry out the investigation and the prosecution[172], a court is in charge of the adjudication. In fact, the District Courts have original jurisdiction over antitrust matters[173] as well as other diverse legal issues[174].

The Courts of Appeals (divided in thirteen judicial districts[175]), with the exception of the United States Court of Appeals for the Federal Circuit, have "jurisdiction of appeals from all final decisions of the district courts of the United States…"[176]. In contrast with the case of the EC, there have been Justices of the Courts of Appeals with and economic background that have made important contributions for antitrust and in general for law and economics such as: Learned Hand, Richard Posner, Frank Easterbrook, Guido Calabresi and Robert Bork, among others.

Finally, the Supreme Court that has jurisdiction to review certain decisions from the Courts of Appeals[177], is composed by a Chief Justice and eight Associate Justices[178] that have mainly a legal background.

Although it appears that the US courts have, in general, more economic background than the CFI and ECJ, there still will be asymmetry of information between them and the economic experts whenever the justices have no formal education and experience on economics.

4.3.1.2 Distribution of powers and the role of authorities and parties

In the EC the Commission is entitled to exercise investigative and adjudicative functions[179]. While the combination of these functions seems very efficient, this proceeding presents risks such as "prosecutorial bias"[180], that is not present in a system where prosecution and adjudication are separate functions carried out by

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[170] *See* European Court of Justice, "Annual Report", 2006, pp. 84, 90, 176 and 178. *Cfr*. D. Chalmers et al., 2006, p. 125.
[171] Actually not more than three of the Justices have some background in economics or antitrust. Most of the current members of the ECJ and the CFI are specialized in public, civil or international law.
[172] *See* supra section 3.1.1.
[173] Title 28 U.S. Code § 1337
[174] *See* Title 28 U.S. Code §§ 1330-1369.
[175] Title 28 U.S. Code §41.
[176] Title 28 U.S. Code §1291.
[177] *See* Title 28 U.S. Code §§ 1253-1259.
[178] Title 28 U.S. Code §1.
[179] *See* supra section 3.2.1.
[180] W. P. J. Wils explains two sources of this bias: "confirmation bias" and "hindsight bias and the desire to justify past efforts" *See* W. P. J. Wils, 2005, Chapter 6.

different entities that are independent in each other, such as in the US[181]. As a consequence of "prosecutorial bias" the Commission may be disinclined to adjudicate on grounds of the economic expertise presented by parties at the time of adjudicating a case.

The EC's antitrust enforcement system has an inquisitory nature and partisan expert testimonies are not allowed by the procedure rules, only court-appointed experts may render their reports in the proceedings. This system gives fewer incentives for parties to support their pleadings through economic expertise and there is no confrontation of expert testimonies; unless the Court appoints more than one expert, there is no cross-examination among experts.

The scarce demand for economic experts in antitrust proceedings (even the Courts rarely appoint them as expert witnesses)[182] causes a lack of a market for economic experts and of economists with experience on expert testimony, which also has consequences that are analyzed in section 4.3.4.

In contrast, the US's antitrust enforcement system has an adversarial nature and the system renders more incentives for the parties involved to invest in economic expertise to support their pleadings[183].

Recurrence to economic expert witnesses by the parties involved not only has made the proceedings more litigious and complex, but also has had an effect in the production of rules by the courts (related to the admissibility of the expert testimonies) as the demand for specialized economic experts has created its own market. The prolific academic work on economic expert testimonies (which also contrasts with its absence in the EC) is a clear signal of the existence of that market and its importance.

The confrontation of private parties makes the respective expert's testimonies frequently contradict each other. In the proceedings the parties have the opportunity to request the exclusion of the opponent's expert testimony by objecting its content and even his qualifications to testify. The Federal Rules of Civil Procedure establish a mandatory disclosure before trial of the identity of the expert and of the content of its report[184] that allows an early scrutiny of the testimony, deterring "irresponsible expert testimony"[185].

Cross-examination among experts has positive and negative effects. On one side, the experts mutually discipline themselves to produce well-grounded testimonies since any obvious lack or rigor would be revealed by the counterpart. On the other hand, due to the lack or "professional consensus" on many issues of antitrust, two completely contradicting opinions about the same facts may be legitimately argued[186].

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[181] W. P. J. Wils, 2005, p. 168. *See* supra section 3.1.1.
[182] *See* supra section 3.2.2.
[183] *See* supra section 3.1.1.
[184] Rule 26(a)(2)(c) of the FRCP.
[185] R. Posner, 1999, p. 94.
[186] *See* supra section 3.

For a non-economist adjudicator, the contradiction among testimonies will signal the partisanship of the parties' experts and would significantly diminish their value as evidence that sheds lights for the decision of the matters. In case of jurors, they may be prone to think that the contradicting testimonies cancel-out each other, not being able to choose among them. Consequently, the expertise presented by the parties will be wasted because the juror will disregard it for the decision of the case[187].

4.3.2 Procedural and evidentiary rules

The US and EC also contrast in their procedural and evidentiary rules regarding expert economic witnesses in antitrust proceedings[188]. While the US is prolific both in statutory provisions on expert witnesses and in case law that establishes rules for their admissibility (even specifically for antitrust proceedings), the EC has broad regulation for expert testimonies and almost no specific case law rules on their admissibility.

In this section the incentives that the procedural and evidentiary rules give to the different parties involved in a proceeding are analyzed from three points of view: 1) admission of testimony as evidence in trial (regarding credentials and procedure applied); 2) the role of court-appointed experts; 3) compensation for the expert's services and legal punishments in case of perjury.

4.3.2.1 Admissibility rules of expert testimonies and burden of proof

The main objective of the admissibility (qualifications, relevance and reliability) rules is to avoid poorly grounded testimonies from the parties' experts. Regarding the qualifications of the expert, parties will try to seek an expert that inspires authority to the Court, hence, a well-known scholar or professional with experience on the particular topics in the proceeding. However, this is not always possible simply because the expert may not consent to give a testimony that is aligned with the party's arguments in its pleadings. The rules have been enforced effectively in US courts in many cases, where the experts have been rejected for not meeting the requirements[189].

Regarding the requirement of the relevance and reliability of the testimony for the case, these rules aim at disciplining the expert's testimony by creating a high possibility of being rejected if the Court considers that the economic methods and their application to the facts are not well grounded.

In the EC, since only the Courts have the power to appoint experts, the rules regarding the admissibility of the report as evidence in the proceeding are very general: there are no explicit rules regarding the qualifications of the expert or about the minimum standards for his report[190]. The task and content of the opinion is strictly defined by

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[187] R. Posner, 1999, p. 93.
[188] *See* supra sections 3.1.2 and 3.2.2.
[189] *Cfr*. G. Werden, 2006, pp. 3-5.
[190] See supra section 3.2.2.

the Court's order[191] and the expert is summoned to carry out his task "conscientiously and impartially"[192].

The parties have a restricted role regarding the expert's performance. Parties have the right to object an appointed expert, within the two weeks of its appointment, because of a lack of competence or appropriateness[193]. The objection is resolved by the Court[194], which also has the exclusive power to order the examination of the expert. The parties may attend the examination of the expert and their formulation of questions is subject to the control of the President of the Court[195].

Clearly the relation between the parties and the expert appointed by the Court is very distant, which will not necessarily permit the parties to support their pleadings in the testimony.

4.3.2.2 Court-appointed experts in the US

In the US, as explained before[196], the Rule 706 FRE allows the appointment of experts by the courts. The court-appointed expert is vested of neutrality since it is not hired nor remunerated directly by the parties (at least not before the task is done) since the court sets his compensation[197]. In contrast, in the case of experts hired and paid by the parties it is difficult to expect that they give a disinterested testimony[198].

In the cases where both type of experts participate in a proceeding, parties' and court-appointed, the former will be disciplined by the presence of the latter. A discrepancy from the conclusions of the court-appointed expert may be counter-productive in terms of convincing the adjudicator of the value or the parties' expert testimony. Parties may also cross-examine the court-appointed expert.

However, as mentioned before, in the US the appointment of experts by courts is not common due to the reluctance of Judges to appoint them, possibly for the "adverse selection problem" explained in section 4.2.2.

4.3.2.3 Compensation and punishment of experts

Remuneration and punishments are factors that may determine the alignment of goals between a principal and an agent. In the US, experts called by the parties are remunerated by the parties -at any rate[199]- increasing the probability of aligning the interests between the expert and the party in detriment of the alignment between the goals of the court and the expert[200].

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[191] Article 49(4) of the ECJ RP and article 70(4) of the CFI RP.
[192] Article 124 of the ECJ RP and article 70(5) of the CFI RP.
[193] Article 50(1) of the ECJ RP and article 73(1) of the CFI RP.
[194] Article 50(1) of the ECJ RP and article 73(1) of the CFI RP.
[195] Article 49(5) of the ECJ RP and article 70(5) of the CFI RP.
[196] *See* supra section 3.1.2.
[197] Subsection (b) of the Rule 706 FRE.
[198] R. Posner, 1999, p. 93.
[199] *Ibid*. p. 93.
[200] *See* supra section 4.1.2.

Prohibition of contingency fees is the only limit that parties have in relation to the compensation of their experts in the US[201] and they are also banned in some EC MS. If the compensation of the expert was allowed to be contingent on the result of the proceeding, the party would clearly give strong incentives to the expert to align his testimony in greater degree to his client's plead to support it, thereby decreasing the rigor of the testimony.

Analogously, if the expert is a repeat player –due to his participation of any other kind of economic services such as consultancy- and the firm offers high compensations, the expert will also have a strong incentive to serve the "client", in the precise way in which the latter desires, in order to be hired in future occasions[202].

However, it must be stressed that the perverse effect of contingency fees and high-compensations with experts as repeat players is moderated by the other factors analyzed in this section. It may even be argued that high compensation for economic experts also attracts capable professionals into this kind "service" and contribute to generate a market for experts, aspect that will be analyzed in section 4.3.4.

Legal sanctions that punish experts who commit perjury may also be a powerful deterrent against undesired behavior. In the EC, if a Court finds that the appointed expert breaches his duty of impartiality, it may report the perjury of the expert before the respective competent national authority of the "Member State whose courts have penal jurisdiction"[203]; the expert's criminal liability would be decided by a national court according to his national law.

4.3.3 Stakes and capacity of adjudicators and parties

The high stakes in antitrust proceedings in the US, as mentioned before[204], are strong incentives for the parties to hire very costly economic experts to support their pleadings. The firms that are involved in antitrust cases are generally big enough and well funded to seek the service of the best (and most expensive) professionals in the matter of litigation.

In the EC the stakes of the cases have been growing in the last years due to the increase of fines[205] and may grow even more in case private enforcement is more common[206] or if criminal sanctions are introduced in the future[207]. The economical power of parties (often multinationals) involved competition disputes allows them to bear the high costs of litigation and this even explains why "cases concerned with

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[201] R. Posner, 1999, p. 93.
[202] *Cfr*. R. Posner, 1999, p. 94. J. L. Solow and D. Fletcher, 2005, p. 490.
[203] Article 6 of the Supplementary Rules.
[204] *See* supra 3.1.1.
[205] *See* supra 2.2.1.
[206] *See* supra 2.2.1.
[207] As personally suggested in an interview by Justice Bo Vedorf, president of the CFI.("Kartell-Sündern soll Haft drohen" in *Handelsblatt*, 19 June 2007.)

competition have made such a significant contribution to development of EC administrative law…"[208].

The conditions of the private parties contrasts with the situation of the adjudicators – no matter how well resourced- that will always be very constrained in terms of time and resources to carry out hundreds of proceedings, that in the case of the courts of the US and EC are not exclusively about antitrust. Once more, it must be remarked, that the sophistication of the antitrust litigations due to the intervention of expert testimonies brings very high costs both for the public entities and the private parties.

4.3.4 The market of economic experts and the scholar's community

One of the advantages (and potential pitfall) of the adversarial system of the US is the frequency that the contending parties in antitrust cases call expert witnesses that cross-examine each other. This "demand" has created, as mentioned before, an important market for economists, especially in Industrial Organization economics. The increase of "supply" of the "service" by professionals that are better prepared has a positive effect for the selection of court-appointed judges since it will allow the adjudicator to find more capable professionals available that don't have pre-defined interests.

In the EC, in contrast, there is less interest in the expert economic witnesses since only the Courts may appoint them. The lack of a developed market for economists may actually hinder the Courts from finding impartial and capable professionals and, in a vicious circle, may deter the Courts from appointing experts in antitrust cases.

On the other hand, it may be argued that there are social costs associated with the fact that economists are employed for these types of works and diverted from the academics[209]. There may be concerns about the scholars converting themselves into "hired-guns" or "special pleaders" that produce "result-driven" opinion or simply "junk economics"[210].

4.4. Mitigation of the asymmetric information problems

Some of the factors that create or augment the asymmetric information problems in the relation between adjudicators and experts, analyzed throughout the section 4, may be "corrected" by incentives that influence the behavior of the experts (and parties) and the adjudicator in such a way that aligns them with the goals of an optimal antitrust enforcement system.

The problems associated with asymmetry of information (adverse selection, moral hazard and principal-agent conflicts) can be mitigated by legal norms and social norms. In this section, both alternatives are presented in three different categories:

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[208] D. Chalmers et al, 2006, p. 413.
[209] *Cfr*. R. Posner, 1999, p. 97.
[210] F. McChesney, 1998, p. xix.

1) Evidentiary rules
2) Procedural rules and institutional design
3) A market for experts and the academic community

4.4.1 Evidentiary rules

Evidentiary rules basically set the standards to admit or reject an expert testimony in trial. In the first place, the rules regarding the qualification of the expert are a form of "screening". The rule forces the informed party (the expert) to reveal information to the uninformed party (the adjudicator). The information conveyed is not about their "product" but simply concerning the professional qualifications of its producer: education and experience in the relevant economic area.

However, the parties already have the incentive to "signal"[211] that the expert hired is very competent and that his testimony will have a high quality. Bringing a respected, competent and well known scholar or professional is a "strong" signal of quality of the testimony because this signal is easier to convey for "high-quality" professionals than for "low-quality" professionals[212]. When a party presents an expert that has no previous experience –academic of professional- in the specific economic issue debated in the case it may signal that it was unable to find a "knowledgeable economist" willing to testify in support of their arguments[213].

The EC has no specific rules regarding the minimum qualification of the expert. Since only the Court has the power to appoint an expert they will be in charge of choosing a competent professional, although the parties may object the appropriateness of the expert. Hence, signaling and screening the quality of the expert, as described in the case of the US, are not relevant issues in the EC antitrust proceeding.

Second, the admissibility rules for expert testimony in the US represent the standard of proof that the adjudicator must use to "monitor" the performance of the expert[214]. The probability that the testimony is objected either because the testimony is not based upon the sufficient facts or data and/or is product of principles and methods that are not reliable and/or these principles and methods are not applied reliably to the facts[215] sets high a standard of proof.

The fact that the performance of the expert will be disciplined by that standard depends on the fact that the expected benefit of a "biased report" (e.g. convince the court and jury and win the case) is outweighed by the expected costs. The expected costs are represented by the probability of being "detected", times the magnitude of the sanction.

The principal sanction of the failure to comply with the standard of proof is the lack admission by itself. It has negative consequences both for the party that proposes it and to the economic expert. For the party, it represents the loss of an important

[211] *See* J. E. Stiglitz, and C. Walsh 2006, pp. 335-337.
[212] See R. S. Pindyck and D. L. Rubinfeld, 2004, p. 620.
[213] R. Posner, 1999, p. 94.
[214] *Cfr*. R. S. Pindyck and D. L. Rubinfeld, 2004, p. 627.
[215] Rule 702 FRE.

evidentiary support for the pleading and a disadvantage in regard to its contender. For the expert, the rejection of its testimony is a strong blow for its reputation, among his peers and for his future professional exercise.

Nevertheless, after *Daubert* "the rejection of expert testimony is the exception rather than the rule."[216] Either the majority of the testimonies comply with the strict statutory and case law standards or there are good chances of getting away with it.

The advantage of the US's adversarial system is that the "monitoring" of the expert (the agent) is not only practiced by the court (the principal) but also through cross-examination[217]. The Court may "monitor" the expert's performance and assess the quality of its testimony not only directly (in a very precarious way s the adjudicator is non-economist[218]) but also assisted the court-appointed expert. Furthermore, the "monitoring" will also take place in form of cross-examination that is borne by the opposing party through its own expert[219].

Since the EC doesn't have detailed rules on the admissibility of the expert witness, the standard of proof set for the testimony is the same that is applied for any other evidence. The "monitoring" of the expert's performance will be practiced by the Courts and by the parties. The Judge-Rapporteur has the explicit task to supervise the task of the expert and keep informed the Court[220]. Hence, the direct "monitoring" of the Courts is precarious and costly in the sense that the Justices don't have a solid formation or experience in economics or econometrics. However this situation is mitigated by the fact that the parties have the right to examine the expert and may serve as indirect "monitors" of the performance of the expert.

In the EC the fact that the performance of the expert will be disciplined by standard of proof depends on the probability that he is "detected" and the magnitude of the sanction. There is no way to determine the frequency of "detection" since the appointment of experts has been so rare in the EC. In this case, the principal sanction in case the expert infringes his duty of impartiality will be a criminal sanction, as explained in section 4.3.2.3.

4.4.2 Procedural rules and institutional design

4.4.2.1 Court-appointed experts

In the US, the enactment of Rule 706, that allows the appointment of experts by the Courts, is a consequence of the concern related to the "practice of shopping for experts, the venality of some experts, and the reluctance of many reputable experts to involve themselves in litigation…"[221]. The Court may find useful to select and

[216] Committee, "Notes on Rules to the 2000 Amendments", FRE 702.
[217] *Cfr. Daubert v. Merrell Dow Pharmaceuticals,* p. 15
[218] J. L. Solow and D. Fletcher, 2005, p. 498.
[219] Committee, "Notes on Rules to the 2000 Amendments", FRE 702.
[220] Article 49(2) of the ECJ RP and article 70(1) of the CFI RP.
[221] US Advisor Committee, "Notes on Rules to the 2000 Amendments", FRE 706.

appoint an expert in order to have a "neutral" assessment of the facts of the case and to assess the quality of the expert testimonies presented by the parties[222].

Furthermore, the court-appointed expert's presence in a proceeding will discipline the partisan experts. The court-appointed expert would have a "sobering effect" on the expert and on the party that hires it since it would "screen" the incompetence or undue bias[223].

The participation of court-appointed experts in the proceedings may also have the long-term effect of enhancing the adjudicator's confidence on economic expertise and solve the "lemons problem" described in section 4.2.2. Nonetheless, it is necessary to remark that even court-appointed experts may be "captured" by the parties and loose their supposed impartiality.

In the US and in the EC it would desirable that parts mutually agreed upon the experts that should be appointed by the Courts[224], saving costs (instead of the "duplication of costs" when there are two partisan experts), giving more "legitimacy to the expert", and possibly increasing quality of the expert opinion[225]. Unfortunately, as remarked before, the appointment of economic experts in the US and the EC is not common.

4.4.2.2 Capacity building, specialized courts and appointing economists as adjudicators

An obvious solution to reduce the information asymmetry in the "principal-agent" relation is higher economic training of the adjudicator. Hence, if the adjudicator of the case (obviously excluding the cases where juries take the decision) were trained in economics and econometrics the problem would be significantly mitigated.

In principle, it is important that courts deciding upon antitrust matters have economical training since competition laws have an economic rationale. Nevertheless, just aiming at increasing the economic skills is a very limited answer to the problem: the opportunity cost for the adjudicator of acquiring the expertise, gathering the information and performing the empirical analysis may be too high.

Furthermore, the same argument could be said regarding any other specialized knowledge that is decisive for case: medicine, engineering, psychology, accounting etc. But, it is not economically feasible –perhaps not even desirable- that all adjudicators (especially judicial) have expertise on diverse knowledge due to the costs that it would entail and the scarcity of the State's resources.

A practical solution that many jurisdictions employ to organize the judiciary systems is a division of the courts in complex issues where the benefit of having a specialized judge outweighs its cost. This could be the case of antitrust and this is why many jurisdictions of the world have competition authorities, entities that are specialized in

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[222] *Cfr*. R. Posner, 1999, pp. 95-96 and D. L. Rubinfeld and O. Steiner, 1983, pp. 140-141.
[223] US Advisor Committee, "Notes on Rules to the 2000 Amendments", FRE 706.
[224] D. L. Rubinfeld, 1985, p. 1096.
[225] DG Competition, Annex to the "Green Paper: Damages actions for breach of the EC antitrust rules", 2005, paragraph 259.

enforcing competition laws. It is a simple development of the principle of "division or labor" where the agencies and courts are transformed into repeat players that are more qualified to decide upon matters.

In the case of courts, the decision could be taken upon having a specialized court in competition issues or allocating antitrust cases to specific chambers (EC) or panels (US) of the Courts. The latter seems feasible in both jurisdictions and wouldn't imply a big distortion of their judiciary system nor –in principle- excessive increase of costs.

The DG COMP, through working papers, has even proposed the creation of "specialist courts" or "specialist panels" for damages claims based on competition laws[226]. The latter, due to the complexity of the topic it requires an expertise that civil judges may not have and to foster "a culture of expertise of the judges involved and could play a positive role in promoting efficient enforcement of competition law"[227].

Furthermore, another possibility could be appointing economists in adjudicating positions. The EC has already given a step forward by creating a Chief Competition Economist post has been created in the Commission[228].

Finally, Chile for example has a specialized Competition Tribunal (of judiciary nature) that according to the article 6 of the Competition Act[229] is composed of five Justices: three lawyers (with antitrust background) and two persons with undergraduate or graduate education in economics.

4.4.2.3 Rules of mandatory disclosure

Mandatory disclosure rules may permit further "screening" to decrease information asymmetry. The first rule of disclosure must be related to the information and data used by the expert and the methods applied.

In the case of the US the mandatory disclosure rule[230], that establishes a very detailed list of aspects that have to be included in a written report before trial, permits to scrutinize the testimony and deters the presentation of "irresponsible" expert evidence[231].

The information that must be disclosed, according to the rule, is related not only to the testimony but also information of the expert such as:

> "…the qualifications of the witness, including a list of all publications authored by the witness within the preceding ten years; the compensation to be paid for the study and testimony; and a listing of any other cases in which the

[226] DG Competition, Annex to the "Green Paper: Damages actions for breach of the EC antitrust rules", 2005, paragraph 255.
[227] *Ibid*, paragraph 255.
[228] W. P. J. Wils, 2005, p. 153.
[229] "Decreto Ley N 211 of 1973".
[230] Rule 26(a)(2)of the FRCP.
[231] R. Posner, 1999, p. 94.

> witness has testified as an expert at trial or by deposition within the preceding four years."[232].

It is clear that the rule permits a Court to check if the current opinion of the expert deviates from a previous opinion in a similar case or in publications[233]. Furthermore, the Court may know if the expert risks having pre-defined interests, e.g. having served as a partisan expert in others cases for the same party[234].

Another mandatory rule, proposed by R. Posner, in line with purpose of "screening" the practice of "expert witness shopping" would be to oblige the parties to disclose the list of economists contacted by defendant's lawyer[235]. For that effect, it could be necessary to create a record for experts so that if a party wants to call an expert, it has to register its request. However, this may be a costly alternative that can be easily infringed without detection.

4.4.2.4 Rules regarding compensation and punishment

A solution to the problem of misalignment of interests in agency relations is reward and punishment schemes[236]. Regarding the compensation of partisan experts, the relevant question would be if contingency fees should be allowed. As discussed previously[237], if the reward of the expert is directly dependant upon the result of the case, he will have a strong incentive to argue in a way that supports the arguments of the client's pleads in detriment of a rigorous usage of facts and application of quantitative methods. Still, their bias cannot be obvious because if it was easy to detect that the expertise is not well founded in reliable data and economic methods the party would risk one of the biggest penalties: the rejection of the testimony by the court.

Court-appointed experts are not paid or hired directly by the parties; hence pecuniary compensation is not an important issue, although it is clear that Courts must set compensations that are high enough for the standards of remuneration of these specialized professionals.

Punishments may have legal origin or may have a social origin. In the EC national criminal law may be applied to the experts that incur in perjury. The deterrent effect of this rule depends on the fact that the expected benefits in exchange for his "opportunistic behavior" (e.g. consciously preparing a biased opinion in favor of one of the parties for "under the table" compensation) outweigh the expected costs of being sanctioned. This expected costs are the equivalent to the sanction (pecuniary or imprisonment) times the probability of being caught. Since there are few cases of

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[232] Rule 26(a)(2)(b) of the FRCP.
[233] In relation to the deviation of the expert from his own opinion, a mandatory rule that mandated the expert to state explicitly whenever he is going to deviate from something written in the past and to justify the change would also serve the purposes of "screening" and detecting excessively biased testimonies.
[234]. *Cfr*. R. Posner, 1999, p. 94.
[235] R. Posner, 1999, p. 98.
[236] *Cfr*. J. E. Stiglitz, and C. Walsh 2006, pp. 336-339 and R. S. Pindyck and D. L. Rubinfeld, 2004, p. 627.
[237] See supra section 4.3.2.3.

appointed experts by the Courts it is not possible, yet, to judge the level of deterrence of the penalty.

Perhaps, penal law should be left for gross cases and other sorts of sanctions may be more effective such as the risk of being rejected by the court, for the consequences for the proposing party (in terms of disadvantage in the procedure) and for the expert (in terms of reputation) that is explained in the next section.

4.4.3 A market for economic experts and the academic community

The development of reputation by an agent to "guarantee" its good quality to a principal is a form of reducing the costs of monitoring for the principal[238]. Agents whose remuneration is linked with good reputation due to the fact that they are repeat players[239] whose services are "experience goods" (as in the case of economists) will have a strong incentive to produce "high-quality" products.

Reputation issues are also related to the fact that strong academic communities may exert social punishments to an economist that produces low-quality and bias economic expertise to support pleading in court[240]. A proposal related to this fact, by R. Posner, would be to create a roster managed by an economists association or non-profit firm that contained "all testimonial appearances by members of the association… an abstract of the member's testimony… and would also record any criticisms of the testimony by the judge or by the lawyers or experts on the other side of the suit."[241]

This record would allow the academic community to "monitor its members' adherence to high standards of probity and care in their testimonial activities" [242]. Independently of the existence of the "roster" proposed by Posner, expert witnesses have the incentives to signal their quality and voluntarily may publish their testimonies for scrutiny by scholars, event that has occurred in the US[243].

Finally, the high "demand" for expert economic testimonies creates also a "supply" of competent professionals. A robust market for experts is crucial for guaranteeing the high quality of the testimonies and especially for the fact that the appointment of capable experts by the courts will be more feasible.

5. Conclusions

[238] J. E. Stiglitz, and C. Walsh 2006, p. 339 and R. S. Pindyck and D. L. Rubinfeld, 2004, p. 618.
[239] Cfr. R. Posner, 1999, p. 94.
[240] *Ibid*, p. 94.
[241] *Ibid*, p. 98.
[242] *Ibid*, p. 98.
[243] J. G. Sidak, "Expert Declaration of J. Gregory Sidak Concerning the Competitive Consequences of the Proposed Merger of Sirius Satellite Radio, Inc. and XM Satellite Radio, Inc.", 2007, available at SSRN's webpage.

There are diverse and inter-dependent factors that determine the incentives for the behavior of the adjudicator, the parties and the economic expert in antitrust proceedings in the EC and the US. These factors, analyzed throughout the document, were exposed in detail in section 4.3 according to four broad categories: 1) structure of the enforcement system and institutional design; 2) procedural and evidentiary rules; 3) stakes and, capacity of adjudicators and parties; and 4) the market for economic experts and the scholar's community.

The analysis of the consequences of asymmetric information between the adjudicator and the expert in antitrust proceedings was based on the premise that the combination of legal and social norms and their interaction determines the alignment or misalignment of the use of economic expert testimonies with the goals of antitrust. A thorough reflection upon the factors that provide the appropriate incentives for this alignment, through the mitigation of adverse selection and moral hazard, was presented in section 4.4.

The main conclusions regarding the two research questions posed at the beginning of this document are the following:

1. There are limits to the usefulness to the application of quantitative techniques in antitrust proceedings. As depicted by M. O. Finkelsten: "What mathematics offers is not a *deus et machina* for legal problems but only the opportunity for new insights into values based on a deeper knowledge of the facts"[244]. In section 2.2.3 the shortcomings of the application of quantitative techniques as evidence were thoroughly presented. Furthermore, the expertise cannot replace the work of the judge upon the decision of the matter and the expert can't become sort of a "second judge"[245].

2. There is no "one-size-fits-all" legal framework that guarantees the elimination of asymmetric information or the mitigation of its effects. There are different systems and alternatives (that are interdependent) that mitigate the asymmetric information problems. Furthermore, one alternative may be innocuous if one of the factors is absent and vice versa, since the legal and social norms are inter-dependent and affect each other mutually. For example, in an adversarial system cross-examination among parties´ experts may only shed light in a case if the experts are strongly disciplined by legal and social punishments, there is a developed market of experts, the adjudicator has strong economics background and/or if it is assisted by court-appointed experts that are capable and neutral.

3. However, there are legal and non-legal features of the enforcement system that mitigate asymmetric information and its effects. The asymmetry of information between the adjudicator and the expert may be mitigated trough: a) more economics training of adjudicator (either by specialized courts, division of tribunals in specialized chambers or the appointment of economists); b) court-appointed experts that lower the costs of "monitoring" the quality of the testimonies of the parties' experts; c) early mandatory disclosure rules that permit "screening" of the expert's credentials and quality of its testimony.

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[244] M. O. Finkelsten, 1978, p. 17.
[245] D. L. Rubinfeld and P. O. Steiner, 1983, p. 141.

The adverse selection problem may be mitigated through: a) a strong academic community (more capable experts and moral sanctions that discipline them); b) mandatory disclosure rules and/or registry; c) detailed admissibility rules (standard of proof). The moral hazard problem and principal-agent conflict of interest may be mitigated through: a) court-appointed experts (fostering that the parties agree upon one expert); b) prohibition of contingency fees; and c) a strong academic community.

4. Non-regulatory factors that evolve over time may have big influence on the effects of asymmetric information. In the case of the EC, the raise of stakes in the antitrust scenario and the possible increment of private enforcement make necessary the introduction of more detailed admissibility rules. Especially since the lack of rules gives too much discretion to the Courts. However, the codification of admissibility rules for expert testimonies wouldn't be enough, since the possibility of finding competent and honest professionals without pre-defined interests depends more upon the development of a market for experts and strong academic community that disciplines them.

5. Blind "legal borrowing" is not a recommended path for less developed enforcement systems. In theory, the same rule in different legal systems should provide similar incentives for the agents subject to its compliance; however, in practice -due to social, economical, cultural and institutional differences- the effects of a rule can be completely different. The more a legal rule corresponds to social norms, the more effective it will be and its enforcement will be less costly[246]. Hence, expert testimonies present the same advantages but also risks of pitfalls for less developed competition regimes. The latter due to the lack of the resources and capacity to assess technical economical information of competition authorities and judiciary tribunals, exacerbated in developing or transitional economies, which contrasts with the well resourced firms that hire experts for litigation.

6. There are other mechanisms to lower the enforcement costs, increase detection and increase deterrence. For example, the leniency programs that were first established in the US (1978) and that have been implemented in several jurisdictions like the EC (1996)[247], Brazil (2000) [248], Mexico (2006)[249], and Czech Republic (2007).

In sum, economic expertise may be useful –even inevitable- in certain types of antitrust cases to analyze the facts and produce evidence; nevertheless, its use in the proceedings entails high costs that must be borne either by the enforcing authorities, the private parties or society in general. These costs must be weighed with the possible benefits that economic expertise has (accuracy, legal certainty and predictability) in order to determine if their implementation will render an efficient outcome.

Hence, regarding economic expert testimonies, an antitrust enforcement system must aim at the minimization of its costs through the mitigation of the consequences of asymmetric information between the adjudicator and the expert. Therefore a cost-

[246] *See* U. Mattei, 1997 and U. Mattei and A. Monti, 2001.
[247] R. J. Van den Bergh and P. D. Camesasca, 2006, p. 309 and section 8.2.2.5.
[248] Article 35-B of the Law No 10.149 / 2000.
[249] Article 33 bis 3 of the Decree that amends the Federal Law on Economic Competition.

benefit analysis of the use of expert witnesses must take into account the incentives produced by the interaction among the different regulatory and non-regulatory features of the antitrust enforcement system.

Annex 1 –Types of economic analysis

The principal forms of quantitative techniques used in antitrust are categorized in the following Table[250]:

Purpose	Techniques	Relevance	Description
Delineation of markets (product and geographic)[251]	**1.** Hypothetical monopoly test or SSNIP (small but significant, non transitory increase in price)[252]. **2.** Causality tests[253]. **3.** Dynamic price regressions and co-integration analysis[254]. **4.** Residual demand analysis[255]. **5.** Survey techniques[256].	In any antitrust procedure, but especially useful in merger control and to determine the existence of dominant position.	**1.** Commonly used by competition authorities to establish the sensitivity of demand and/or supply substitution of product(s) or service(s) in a market[257]. **2.** The test "seeks to determine if there is causation from one [price] series to another, or if they mutually determine each other."[258] **3.** Both techniques aim at determining whether prices in one area (or product) affect prices of other area (or product) through regression[259]. **4.** Through simple regression, establishes an "estimate of the own-price elasticity of the residual demand curve [that faces a firm or group of firms]".[260] The analysis "allows the direct estimation of supply substitution effects in the

[250] For this table I adapted partially the presentation of the report of the UK OFT and added other techniques explained and developed by different authorities or scholars which are referenced in the table through footnotes. *See* OFT, 1999; M. O. Finkelsten, 1978, chapter 5; and D. L. Rubinfeld and P. O. Steiner, 1983.
[251] *See* OFT, 1999, pp. 13 – 20.
[252] OFT, 1999, p. 13.
[253] *See* OFT, 1999, pp. 59 – 61.
[254] *See* OFT, 1999, pp. 63 – 68.
[255] See OFT, 1999, section 9.
[256] See OFT, 1999, section 12.
[257] OFT, 1999, p. 13.
[258] OFT, 1999, p. 59.
[259] *See* OFT, 1999, pp. 63 – 68.
[260] OFT, 1999, p. 71.

			market for a product or service."[261] **5.** Through surveys, determines the likely behavior of consumers and market participants when a change in a variable occurs[262].
Characteri-zation of market structure[263]	**1.** Concentration indices[264] or concentration ratios[265]. Through these indices, price-concentration studies are applied[266]. **2.** Price concentration analysis[267]. **3.** Techniques to determine the existence of barriers of entry[268]. **4.** Import penetration tests, which determines the sensitivity of import to changes in domestic prices[269].	In merger control and to determine the existence of dominant position.	The techniques seek to establish the structure of a market and its relation to the capacity of the agents to increase prices above competitive levels or, in general, to act independently of other agents of the market[270].
Pricing behavior analysis[271]	**1.** Analysis of price trends, through regression analysis[272]. **2.** Use of "models of	In cases on collusion (such as price fixing or bid rigging)[277], to determine the	**1.** Regression analysis through the techniques of "event analysis" or "impact analysis". **2.** To establish the scope of

[261] OFT, 1999, p. 113.
[262] OFT, 1999, p. 83.
[263] *See* OFT, 1999, pp. 20 – 26.
[264] Indices such as the the Herfindahl-Hirschman Index (HHI) introduced in the US in the 1982 Merger Guidelines (and replacing the four firm concentration ratios of the 1968 Merger Guidelines)and widely used by competition authorities in different jurisdictions. (*See* S. Calkins, Stephen, 1998, p. 12 and notes 48 and 49. *See also* and OFT, 1999, p. 21)
[265] *See* M. O. Finkelsten, 1978, chapter 5.
[266] *See* OFT, 1999, section 13. Price-concentration studies rests in the assumption, called the "market power hypothesis", according to which market concentration affects market performance (prices and profits). This technique is frequently applied in the UK in merger cases and has been strongly criticized by economists of the Chicago School. (OFT, 1999, p. 87 - 90)
[267] OFT, 1999, p. 22.
[268] OFT, 1999, pp. 23 - 26.
[269] *See* OFT, 1999, section 10.
[270] OFT, 1999, p. 20.
[271] *See* OFT, 1999, pp. 26 – 34.
[272] OFT, 1999, pp. 26 – 30.

	competition". **3.** Price-cost tests[273]. **4.** Cross-sectional price tests[274]. **5.** Hedonic prices analysis[275]. **6.** Price correlation[276]	existence of dominant position and its abuse through predatory pricing.	independent behavior due to market power through techniques such as "diversion ratio" or through "logit demand models". In the latter the effects of a merger are simulated from the elasticities of the demand equations estimated through data such as prices, quantity of sales, margins and costs[278], **3.** To distinguish predatory pricing for legitimate competitive behavior by determining if pricing was bellow variable costs[279]. **4.** Price tests "use hypothesis testing to establish whether two sets of prices are uniform…"[280]. **5.** Through regression analysis to "compare the price of products whose quality changes over time or product space…"[281]. **6.** Measures degree of relationship (correlation[282]) between variables (e.g. among prices or market concentration).

[273] OFT, 1999, pp. 32-33.
[274] See OFT, 1999, section 3.
[275] See OFT, 1999, section 4.
[276] See OFT, 1999, section 5.
[277] OFT, 1999, p. 26.
[278] "Logit demand models" have been employed by the US DOJ and European authorities have used similar simulation models for the assessment of mergers. (OFT, 1999, p. 30.) In the case of Europe in the Kimberly/Clark/Scott merger (Case COMP IV/M.623 [1996], pars. 166 - 177) studies presented by the parties and by a competitor of the parties addressed the impact of the proposed merger in the relevant market through the estimation of market prices elasticities and cross elasticities. *See also* OFT, 1999, pp. 99-101.) Likewise, in the Boeing/McDonnell Douglas merger (Case COMP IV/M.877 - [1997]) a competitor of the parties presented a study, at the hearing, assessing the effect (reduction of the price) of the participation of one of the merging firms in aircraft-supply competitions (par. 58).
[279] OFT, 1999, p. 32.
[280] OFT, 1999, p. 43.
[281] OFT, 1999, p. 49.
[282] A correlation between two variables exists when a change in one variable is associated with a change in the other, which is not the same as determining if there is a causal relation among them. (OFT, 1999, p. 53)

Assessment of efficiencies	Verification of economies of scale[283].	In merger control (both for efficiency claims and failing firm defense[284]) and for other restrictive conducts where efficiency exceptions are claimed.	Through econometric estimation of the cost function[285].
Quantifica-tion of damages	Econometric forecasting or "but-for tests"	For civil suits related to the recovery of damages related to the anticompetitive behavior.	Through "multiple regression" predict what would have happened of an event hadn't occurred[286].

The application of the quantitative techniques, such as the ones mentioned above, is not an easy task and may be costly and time consuming. Among other things, the analyst must have an "in-depth knowledge of the industry"[287]. The results of the tests have to be interpreted so that its conclusions may shed light for the case. Interpretations are not straightforward and may open a window for subjectivity.

Furthermore, data is not always available and information is hardly ever complete or completely reliable[288]. The tests are very fragile since the inclusion or absence of a variable may lead to erroneous conclusions[289]. The issues regarding the inherent difficulties and perils in the application of quantitative techniques will be resumed in section 4.2.1.

[283] OFT, 1999, pp. 35-36.
[284] OFT, 1999, p. 36.
[285] OFT, 1999, p. 36.
[286] D. L. Rubinfeld and P. O. Steiner, 1983, pp. 102-104 (for an overview of the technique of econometric forecasting) and pp. 111-139 (for detailed assessment of their application to real antitrust suits).
[287] OFT, 1999, p. 110.
[288] "Statistical data is subject to sampling errors, biases, and changing definitions which have to be understood." (OFT, 1999, p. 110)
[289] "A further problem with the use of the correlation coefficient is that if there are common factors influencing prices this statistic can lead to erroneous conclusions." (OFT, 1999, p. 54)

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- Rules of procedure of the Court of First Instance of the European Communities
- Supplementary rules
- Council Regulation (EC) No 1/2003 of 16 December 2002 on the implementation of the rules on competition laid down in Articles 81 and 82 of the Treaty
- Council Regulation No 149/2004 of 20 January 2004 on the control of concentrations between undertakings
- Commission Regulation (EC) No 773/2004 of 7 April 2004 relating to the conduct of proceedings by the Commission pursuant to Articles 81 and 82 of the EC Treaty
- Commission Notice on the co-operation between the Commission and the courts of the EU Member States in the application of Articles 81 and 82 EC
- Commission Notice on Guidelines on the application of Article 81(3) of the Treaty
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