



DG Competition, European Commission

Office of the Chief Economist

Best Practices on the Submission of Economic Evidence and Data Collection

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1. Introduction

Over the last few years, European competition policy has been characterized by an increased analysis of effects, e.g. to identify the consequences of mergers, agreements or single firm conduct. As a result of more focused objectives, increased scrutiny by the courts and technological developments, the estimation of the direction and magnitude of these effects has now become an integral part of DG Competition's assessment, in particular regarding theories of harm and efficiencies.¹

Analyzing accurate and reliable quantitative data is often the most efficient and immediate way to validate or refute contradictory claims and opinions made by parties with opposite interests. Clearly, there is no such a thing as the ideal economic model or the perfect econometric model: all models involve simplifying assumptions and most are based on imperfect data. Yet, in many circumstances, those simplifications and imperfections do not have a material impact on the quantitative or the qualitative results of the analysis.²

¹ See e.g. Lars-Hendrik Röller, "Economic Analysis and Competition Policy Enforcement in Europe", in *Modelling European Mergers: Theory, Competition Policy and Case Studies* (Edward Elgar, ed.), 2005 and Damien J. Neven, "Competition economics and antitrust in Europe", *Economic Policy*, October, 2006.

² Consequently, "lack of unachievable perfection should not prevent an economic study from being given weight". (David Scheffman and Mary Coleman, "FTC perspectives on the use of Econometric Analysis in Antitrust Cases", in John D. Harkrider and Daniel Rubinfeld (eds.), *Econometrics*, ABA Section of Antitrust Law, 2005, page 118). Mere allusions to those simplifying assumptions and data limitations are generally not sufficient to disprove the results of a scientifically valid economic or econometric study which matches to the facts of the industry. Rather, the party who seeks to rebut that analysis should be able to establish that the relevant findings are indeed not robust to changes in the contested assumptions or the underlying data (see also the Best Practices, § 12).

Nevertheless, apparently sound but contradictory analysis are sometimes generated and submitted by opposing parties.³ Although skepticism towards economic analysis often arises in this situation, such a view stems from an understandable but incorrect belief that the professional application of rigorous methods should produce unambiguous and consistent results.⁴ When alternative studies produce contradictory conclusions, their relative merits should be carefully investigated; the right approach cannot be to discard them as if they were incorrect or unscientific. Indeed, those apparent contradictions may result from differences in the data, differences in the approach to economic modeling or in the assumptions used to interpret the data, differences in the empirical techniques and methodologies,⁵ or may be the result of unintentional mistakes. Understanding the sources of such differences often provides important insights, thus reducing the likelihood of type I (false conviction) or type II (false acquittal) errors. For experts on either side to be accountable, economic analysis needs to be framed in such a way that decisions makers can evaluate its quality and relevance.

Furthermore, the time and resources of the various parties involved in antitrust enforcement and merger control are necessarily limited. In particular, DG Competition is required, as an administrative authority, to take a decision within an appropriate or statutory time limit. This fact underscores the importance of ensuring that economic analysis meets certain minimum standards at the outset and of facilitating the efficient gathering and exchange of relevant evidence, in particular any underlying quantitative data. Similarly, it is important for the decision maker to base its decisions on all reliable and relevant evidence available during the administrative procedure, whether quantitative or qualitative.

Within this background, DG Competition published Best Practices on the submission of economic evidence (hereafter Best Practices) as part of its effort to enhance transparency and predictability in antitrust proceedings.⁶ First, the Best Practices provide recommendations regarding the *content and presentation of economic or econometric analysis*, in order "to facilitate its assessment and the replication of any empirical results by DG Competition and/or other parties".⁷

Second, they provide guidance to respond to Commission's *requests for quantitative data* "to ensure that timely and relevant input for the investigation can be provided".⁸ This note briefly

³ Charles F. Manski, *Identification Problems in the Social Sciences*, Harvard University Press, 1995.

⁴ *Final Report of Economic Evidence Task Force*, Antitrust Section, American Bar Association (ABA), 1 August 2006.

⁵ Best Practices, § 14.

⁶ "Best Practices for the Submission of Economic Evidence and Data Collection in Cases Concerning the Application of Articles 101 and 102 TFEU and in Merger Control", published for consultation on 6 January 2010 at http://ec.europa.eu/competition/consultations/2010_best_practices/, together with the Hearing Officer's guidance and DG Competition's best practices in antitrust proceedings.

⁷ See in particular § 15 of the Best Practices, which state: "[...] The goal of these recommendations is to ensure that every economic or econometric analysis submitted for consideration in a case states fully the economic reasoning and the observations on which it relies as well as to explain the relevance of its findings for the case at hand and the robustness of the results. This should allow DG Competition and all interested parties to scrutinise the economic evidence submitted during the proceedings so as to avoid that empirical results that are not robust be disguised as such and key assumptions in theoretical reasoning be presented as innocuous."

⁸ Best Practices, § 5.

reviews these two sections of the Best Practices and concludes by highlighting some practical recommendations regarding the interaction among economic experts.

2. Criteria for assessing the quality of economic analysis

It is worth distinguishing between two dimensions in the evaluation of economic analysis. First, the decision maker needs to assess the intrinsic quality of the economic evidence from a technical perspective, i.e. whether it has been generated and presented to adequate professional standards. As detailed in the Best Practices, "this involves, in particular, an evaluation of whether the hypothesis to be tested is formulated without ambiguity and clearly related to facts, whether the assumptions of the economic model are consistent with the institutional features and other relevant facts of the industry, whether economic models are well established in the relevant literature, whether the empirical methods and the data are appropriate, whether the results are properly interpreted and robust and whether counterarguments have been given adequate consideration."⁹

Second, the decision maker needs to determine how much weight to assign to the economic analysis. This depends importantly on its relevance with respect to the main issues at stake. For example, is the evidence a direct test of the theory of harm? Or does it merely provide useful circumstantial evidence? Other considerations include the potential for error when relying on certain types of evidence and the congruence and consistency of the economic analysis with other evidentiary elements (such as customer responses and documentary evidence).¹⁰

The Best Practices present recommendations concerning the main elements of economic analysis, namely the formulation of the relevant question, the data, the methodology, the presentation of the results and the robustness of the analysis. This section briefly summarizes these main elements.

2.1 Relevant question

The first step in any economic analysis, theoretical or empirical should be the formulation of a research question that is relevant to the case at hand, so as to avoid the risk of what are known as "type III errors"¹¹ — i.e., when one produces the right answer to the wrong question.¹²

The Best Practices indicate that the question studied must be formulated unambiguously and be properly motivated, "taking into account the nature of the competition case, the institutional features of the markets and industries under consideration and the relevant economic theory."¹³ The hypothesis to be tested (or null hypothesis) must be clearly spelled out as well as the alternative hypothesis or hypotheses under consideration.¹⁴ Experts should also explicitly discuss the link between the hypothesis tested and the theory of harm. Although the empirical analysis

⁹ Best Practices, § 3.

¹⁰ Best Practices, § 4.

¹¹ As opposed to type I errors or false convictions and type II errors or false acquittals.

¹² Peter Kennedy, *A Guide to Econometrics*, Blackwell Publishing, 2003, page 391.

¹³ Best Practices, § 17.

¹⁴ Best Practices, § 18.

will often shed only indirect evidence on the theory of harm, it may nonetheless be very useful if properly qualified.¹⁵

2.2 Data

The quality of empirical analysis depends on the relevance and the reliability of the underlying data.¹⁶ To this respect, the Best Practices recognize that "not all facts can be observed or measured with high accuracy and most datasets are incomplete or otherwise imperfect. Hence, parties and/or DG Competition should become familiar with the facts and data and acknowledge its limitations explicitly."¹⁷

This means that experts should not only provide all underlying data to their analysis, but they should also report how the data were gathered, thoroughly describe data sources, the sample selection process, the measurement of the variables. Experts should also carefully document data handling and data management, providing software code employed to generate the final dataset and describe the variables contained in the final dataset.¹⁸

Experts should also explain anomalies in the data and efforts made to correct them. Although "failure to observe and validate all key assumptions or deficiencies in the data should not prevent an economic analysis to be given weight", one must be exert caution in its interpretation.¹⁹ The Best Practices also point out that statistical techniques may help deal with some common data imperfections.²⁰

2.3 Methodology

Economists, statisticians and econometricians have developed many alternative methodologies to investigate economic questions empirically. Each of those methodologies has strengths and limitations. Therefore, experts should motivate the choice of empirical methodology, and discuss choices in light of (a) their data limitations, (b) the features of the market under investigation, and (c) the economic issues under consideration (the relevant question).²¹ They should make the strengths and weaknesses of the methodology explicit,²² and explain how the methodology exploits the variation in the data to discriminate between various hypotheses.²³

While motivating their choice of methodology, experts should also discuss possible alternative methodologies. Time and data constraints permitting, experts should also consider carrying out

¹⁵ Best Practices, § 19.

¹⁶ Best Practices, § 20.

¹⁷ Best Practices, § 22.

¹⁸ Best Practices, § 22.

¹⁹ Best Practices, § 23.

²⁰ Best Practices, § 23.

²¹ Best Practices, § 27.

²² Best Practices, § 24.

²³ Best Practices, § 26. Although the chosen methodology may only partially discriminate between various hypotheses, the Best Practices indicate that "At the very least, an economic model or argument must generate predictions that are consistent with a significant number of relevant facts."

empirical analyses based on different methodologies to determine the robustness of their results to alternative tests or models.²⁴

2.4 Results

The Best Practices indicate that "parties should explain the details of their models, and share any documentation needed to allow timely replication (e.g. the programming code used to run the analysis)."²⁵ The Practices also warn that Commission will not give much weight to expert reports which do not allow for replication and in particular those that do not include the code and data in electronic form.

Experts should report their results in clear and understandable fashion. In particular, the results of empirical analysis should be reported in the standard format used in academic papers (e.g. while reporting the results of a regression analysis, both the estimated coefficients and their standard errors should be reported for all explanatory variables).²⁶ Although the expert is not expected to comment on or restate every piece of information that a table contains, a table cannot "speak for itself", meaning that the expert must provide an interpretation of the data in it.²⁷ The expert should discuss not only the statistical significance of their results but also their practical relevance.²⁸ They should also discuss their results in light of the relevant economic theory.²⁹

2.5 Robustness

The Best Practices indicate that experts should check whether the empirical results are sensitive to changes in the data, the choice of empirical method, and the precise modelling assumptions.³⁰ In the case of econometric or simulation models, experts should always provide a sensitivity analysis with respect to the key variables. This means that all results from the sensitivity analysis conducted should be reported (and not only those in favour of the argument).³¹ In addition, experts are expected to compare the results of their empirical work with previous results in the relevant literature³² and should indicate whether their results can be generalized.³³

3. Responding to data requests

In recent years two trends – one technical, the other substantive – have led to an increased role for quantitative analysis in antitrust investigation and merger control. First, there has been a significant increase in the quantitative data maintained by business firms. Second, in the past few years substantive antitrust and merger analysis has gradually evolved away from structural presumptions towards a more economically thorough analysis of likely competitive effects. Quantitative data allows DG Competition to carry out a variety of empirical analysis, e.g. to

²⁴ Best Practices, § 31.

²⁵ Best Practices, § 32.

²⁶ Best Practices, § 34 and § 36.

²⁷ Best Practices, § 33.

²⁸ Best Practices, § 35.

²⁹ Best Practices, § 36.

³⁰ Best Practices, § 38.

³¹ Best Practices, § 38.

³² Best Practices, § 40.

³³ Best Practices, § 39.

establish a counterfactual, define a market or assess potential pro- or anti-competitive effects of a merger. DG Competition's ability to reach the correct decision hinges on its ability to get accurate data, with sufficient time to analyze it.³⁴

However, DG Competition is aware of the costs and delays that the antitrust or merger review process may impose on transactions, agreements or practices that are wholly or largely beneficial to consumers. The purpose of the Best Practices is to provide recommendations to reduce the burden on the involved parties posed by the production and processing of quantitative data, while at the same time ensuring and enhancing the effectiveness of DG Competition's substantive review.

In determining the adequate amount of data to request, DG Competition needs to balance the usefulness of each request against its opportunity cost given the legal or procedural deadline.³⁵ DG Competition generally seeks data that is readily available to the involved parties - i.e. data that is routinely collected and maintained for a reasonable period as part of the firm's normal business operations. In order to limit the burden on the parties, DG Competition may want to consider what is the proper sample to characterize a population to obtain a representative sample or whether third party data necessary and available to conduct any meaningful analysis.³⁶

The Best Practices sets out unambiguously that the respondents to data requests must ensure that their data submissions are complete, correct and timely,³⁷ and that this process relies on cooperation in good faith from the parties.³⁸ In particular, transparency regarding data collection and formatting is essential.³⁹ The data collecting process is also improved by early consultation and dialogue between DG Competition and the parties. For example, early consultations with DG Competition are useful to inform what type of data is available, and in appropriate cases, discuss in advance the scope and the format of the data request and consult on a draft data request and data samples.⁴⁰

4. A few practical recommendations regarding the interaction among economic experts

Throughout the sections on economic submissions and data requests, the Best Practices contain a number of recommendations concerning the interaction among DG Competition economists, the parties' and third parties' economic experts. This section further elaborates on some of the practices that are key to ensuring an effective and efficient interaction among economic experts.

First, in the early stages of an investigation, it is often useful to discuss with the parties and their economic consultants, data issues and theories that are being considered regarding the competitive effects of the merger, practice or agreement (although at an early stage discussions of theories are likely to be relatively general). This conversation should begin as a dialogue between DG Competition economists and the parties' economic experts. This discussion should include

³⁴ Best Practices, § 48.

³⁵ Best Practices, § 52.

³⁶ Best Practices, § 53.

³⁷ Best Practices, Section 3.3.

³⁸ Best Practices, § 68 and Best Practices, § 69.

³⁹ Best Practices, § 76-79.

⁴⁰ Best Practices, § 70-75.

the types of empirical analyses that might prove useful in testing the anticompetitive and/or efficiencies theories. In particular, the parties' experts can suggest potential analyses which may be easier for DG Competition economists to conduct, given its access to data from third parties. DG Competition, in turn may propose analyses they believe might be useful for the parties to conduct.⁴¹ Similarly, and as already mentioned above, an open dialogue is also key to an efficient data gathering process.⁴²

Second, in exercising their professional autonomy, economic experts should seek to communicate with the client's lawyers as to the need for data and the usefulness or limitations of empirical analysis. It is also important that the economic experts and not their clients formulate the presentation of evidence and the work undertaken.⁴³ Economic experts should avoid being coerced to reach conclusions that they cannot support; they can sustain and promote their credibility by not misrepresenting the accuracy or explanatory power of their data and methodology and by seeking to address rather than minimize uncertainty.⁴⁴ In fact, questions about the freedom of inquiry accorded to economic experts, as well as the scope and depth of their investigations, may reveal some of the limitations to the analysis being submitted.

Third, economic experts should be careful not to misleadingly appear as witnesses of fact must when they rely on facts that are provided by third parties and which they do not have the means to audit and verify. Hence, their sources of information should be carefully acknowledged, and the facts properly documented and described without ambiguity.⁴⁵ In addition, experts are expected to respond to requests for clarification on their economic submission as well as request for a meeting to discuss, *inter alia*, data issues, economic theory and modelling approaches.

Last but not least, when economic submissions rely on quantitative data, the experts should provide the data and codes timely and in an appropriate format and in accordance with the criteria laid down in the Best Practices.⁴⁶ Since the Best Practices are also meant to apply to DG Competition,⁴⁷ this means that DG Competition commits to provide the underlying data and codes of its own economic analysis, or that of third parties on which a decision relies. Where necessary to protect the confidentiality of other parties' data, access to the data and codes will be granted subject to strict confidentiality obligations and secure procedures (e.g. at DG Competition premises in a so-called data room procedures).⁴⁸

⁴¹ Best Practices, § 43.

⁴² Best Practices, § 70-75.

⁴³ More generally, substantial contributions provided by economic experts embedded into reports, letters to the Commission or even a notification should be adequately identified, and the identity of the individual authors of an economic report should normally be revealed.

⁴⁴ Best Practices, § 41.

⁴⁵ Best Practices, § 42.

⁴⁶ Best Practices, § 44.

⁴⁷ Best Practices, § 6.

⁴⁸ Best Practices, § 45.