



Best practices for econometric analysis in the EU and the US



Preliminary caveats on the use of econometrics

A number of factors might potentially induce skepticism by decision makers on the utility of econometric analyses:

- There are apparently sound econometric analyses on both sides of a key issue, thus providing sort of ‘competing results’.
- Analyses are typically based on important assumptions, yet Economists, are sometimes not clear in their assumptions, making it difficult for lawyers and decision makers to assess econometric results.



Preliminary caveats on the use of econometrics

- The scientific method highlights the benefits of having multiple studies, perhaps with conflicting conclusions, in determining the “truth.”
- No econometric analysis is technically perfect. Yet it’s difficult to deal with weighing an econometric analysis against a rebuttal based on technical econometrics arguments put forward by another economist: “Technical” critiques are outside the realm of most lawyers’ expertise.



Best Practices at FTC

An econometric study useful for decision-making at the FTC has the following characteristics:

1. Poses an empirical economic issue that is relevant to the matter at hand;
1. Utilizes an economic model that is consistent with economic theory;
1. Utilizes an economic model that is consistent with the key institutional factors and the facts in the setting being modeled and generates results that can be evaluated in the context of other evidence;
1. Uses data, statistical techniques and tests of statistical precision that are suitable to the task and to the economic issues being studied;



Best Practices at FTC

1. Provides relevant results and interpretations that realistically take into account limitations in data;
1. Generates results that stand up under various tests of “robustness”;
1. Can be sufficiently explained to and incorporated into the decision-making of non-economists.



Development of an empirical analysis

- The first important step in developing an empirical analysis is to determine the key issues underlying the possible antitrust or consumer protection concern.
- It is important to note that as the case progresses and new information is gathered, the key issues may change.
- Once the key issues are identified, one can then consider what empirical analyses can be used, given the available data.

In the following slides some very useful types of analysis are briefly presented:

- a. Natural Experiments
- b. Demand Estimation and Merger Simulations
- c. Manufactured level analysis



(a) Natural Experiments

- “Natural experiments”: try to exploit differences in data over space, time, and competitors to shed light on market definition, barriers, and the analysis of potential competitive effects.
- Common examples:
 - i. benchmark analysis across geographic and products markets
 - ii. Study of market structure’s changes over time.
- Caveat: the econometric analysis must control for factors that may vary across different markets.
- Standard reference case: *Staples/Office Depot* case by the FTC. 7



(b) Demand Estimation and Merger Simulations

- This method is useful when scanned data are available:
 - i. Obtain structural demand estimates by econometric techniques.
 - i. Use estimates of demand elasticities as inputs into a simple model of oligopoly to simulate price effects of a merger.
- Simulation is a convenient way of compounding elasticities' estimates to assess their joint potential implications and to simulate effects of price increases.
- Caveat: simulations can at best be used as crude indicators rather than solid evidence due to the complexity of econometric estimation.



(c) Manufacturer-level analysis

- Important outstanding issue of structural demand estimates is the relationship between:
 - i. Estimates of retail demand elasticities
 - i. Manufacturer pricing
- In a number of FTC mergers little, if any, variation in manufacturer's prices (both looking at list prices and standard discounts) corresponded to retail price variation. The demand estimation models fails to explain:
 - i. What is the source of variation in prices at retail.
 - i. What is the relationship between manufacturers and retailers pricing strategies.



(c) Manufacturer-level analysis

- In another matter, estimates of elasticities from scanner data were inconclusive on whether two products were close competitors, yet an analysis of manufacturer trade promotions showed that one product targeted another in its trade promotions, which provided one basis for a conclusion that the two products were close competitors
- A separate issue is that of coordinated effects. If the evidence does not support a unilateral effects theory, it is possible that a coordinated interaction theory is viable.
- Simulation of coordinated effects is a much harder task, although there has been some empirical work on that.



DG Competition Best Practices

When reading the DG Competition guidelines on the submission of economic evidence, you have the impression of a copy and paste of the list referred above.

Any econometric analysis should possess the characteristics we have seen in the context of the FTC paper.

We don't need to go through the list again



Formulating the relevant questions

The first step would be the formulation of questions that are relevant to the case at hand. The questions should be:

- i. Precisely formulated
- i. Properly motivated taking into account the nature of the competitive concern and the market structure.

An econometric report should explicitly formulate both the Null hypothesis as well as the Alternative one.

Moreover, the link between the hypothesis and any relevant economic theory should be always properly discussed.



Data relevance and reliability

The intrinsic quality of an economic theory depends on the extent to which the underlying assumptions match the economic facts. By the same token, the quality of an empirical analysis is strongly depending on the reliability of the underlying data:

- i. First, it is necessary to identify the relevant facts to validate the theoretical assumptions.
- i. Knowing that most datasets are generally incomplete, it is necessary to acknowledge the limitations explicitly and properly address the anomalies and missing data.
- i. When possible, make use of the statistical techniques developed to deal with measurement errors, missing observations and selection issues.



Choice of empirical methodology

- It's necessary to motivate how the chosen methodology exploits the variation of data. At the very least, an economic model should generate predictions consistent with a significant number of observations.
- If econometric methods are used, it is necessary to justify the methodological choices about the model in terms of:
 - i. Specification
 - ii. Observation
 - iii. Estimation
- In any case, statistical techniques should rely on generally accepted methods, and follow an approach of progressive refinement of the estimation.



Robustness

Economic and econometric analysis should always be accompanied by a thorough robustness analysis.

It is necessary to check whether empirical results are sensitive to changes in:

- i. The data
- i. The choice of empirical method
- i. Specific modeling assumptions.

At last, it is usually expected to compare the predictions of the economic model with previous findings and analysis: possible discrepancies should be always explained.



Dg Comp's Best Practices on Data Submission

Quantitative data are usually essential to conduct statistical analysis to define markets, establish counterfactual, assess the potential anti-competitive effect of a notified merger, etc.

Yet, the regulator needs to receive accurate data, and have sufficient time to analyze them.

A properly established set of best practices helps in significantly reducing the time and costs involved with the analysis and studies required by the case.

The following is an excerpt from Dg Comp's Best Practices about the submission of economic evidence.



Format of a requested dataset

A dataset suitable for submission to the Antitrust Agency should be:

1. **Complete:** it should contain a comprehensive list of variables, specifying for each variable:
 - i. A glossary of industry-specific or obscure terms
 - ii. The unit of measurement
 - iii. The level of aggregation over time
 - iv. The time range
 - v. The geographic scope

1. **Correct:** it should comply with the suggestions and/or specific requests on data formatting, variables classification and preferred electronic format (e.g. Excel worksheet, Stata dataset, etc)



Format of a requested dataset

1. **Timely:**
 - i. **The deadlines set by the Agency should be strictly respected**
 - i. **The parties should be ready to discuss every field of the data collection process (e.g. the frequency of collection, what software is used, what reports are routinely generated from the database)**
 - i. **Preliminary meetings and telephone conferences on technical matters with the personnel responsible for data-collection should be exploited to alleviate the compliance burden of producing the required information.**