Standard of proof and econometric evidence

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- **MERGERS**
  - Market Definition
  - Anticompetitive harm
    - Unilateral effects

- **ANTITRUST**
  - Abuse of a dominant position
    - Market Definition
    - Abuse (pricing abuses: rarely)
  - Cartels
    - Evidence of concertation
    - Fines

- **DAMAGES**

USE OF ECONOMETRIC EVIDENCE IN EU COMPETITION LAW

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- *Legal evidence*: "any facts considered by the tribunal as data to persuade them to reach a reasoned belief on a probandum. The term is sometimes used to refer to evidential data […] and sometimes to refer to other facts taken as established for purposes of argument"
- "**S***cientific* **evidence** means, […] the more or less observable outcomes of scientific tests such as experiments, statistical analyses and surveys" […] means hint, sign, indication of or a reason to believe (the negation of) a scientific hypothesis […] (something that furnishes) proof of or good or cogent reason to believe (the negation of) a hypothesis"
- There might be some ***conflict between the view of evidence in the legal context*** and the ***view*** that one might have in the context of social sciences, in our case, ***econometrics***
- The decision-maker may decide that she will hear as evidence *only* information that has already been accepted with good reason because it relies on some metaphysical assumptions widely accepted by the wider community or because it relies on an appropriate testing *method* which generates generally valid inferences (**admissibility requirements**).
- **Inferences and presumptions**

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Substantive assessment of economic expertise

- Exclusionary vs Discursive ethos in assessing economic evidence
- The exclusionary ethos of Daubert (1993): admissibility standards
  - "General gatekeeping obligation" of the judges
  - Four non-exclusive factors that could be taken into account for this enquiry:
    - It is important to determine whether a theory or technique is "scientific knowledge". Popperian logic of falsification.
    - Whether the theory or technique has been subjected to peer review and publication (the later not being a *sine qua non* criterion of admissibility)
    - In the case of a particular scientific technique, the court ordinarily should consider the known or potential rate of error
    - "General" or "widespread" acceptance in the relevant scientific community.

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Criticism of Daubert/admissibility standards I

- Specific US context
  - Jury
  - Class actions, very active private enforcement/Emergence of filters
- *In Europe see,*
  - DG Comp, Best practices, submission of economic evidence (2010) http://ec.europa.eu/competition/consultations/2010_best_practices/best_practice_submissions.pdf
  - Competition Commission, 'Suggested best practice for submissions of technical economic analysis from parties to the Competition Commission' (2009), http://www.competitioncommission.org.uk/rep_pub/corporate_documents/corporate_policies/best_practice.pdf
  - Bundeskartellamt, Best practices for expert economic opinion http://www.bundeskartellamt.de/wEnglisch/download/pdf/Merkblaetter/Bekanntmachung_Standards_Englisch_final.pdf
  - DG Comp Best practices, damages calculation http://ec.europa.eu/competition/antitrust/actionsdamages/economist_workshop.html

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Criticism of Daubert/admissibility standards II

- *Daubert* favors defendants//asymmetric effects to plaintiffs and defendants
- Other less restrictive alternatives exist (mandatory disclosure)
- Falsifiability does not work well for economics
- The development of procedures requiring the weighing of economic evidence (summary judgments and the expansion of the "plausible economics" inquiry)
- The modularity of the standard of proof (standard of persuasion) in evaluating and weighing economic evidence is a superior alternative than the categorical/exclusionary approach.

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The standard of proof as a probabilistic enquiry

- The standard of proof may be conceptualized as essentially a probabilistic enquiry
  - 'reasonable probability' or 'probability'. E.g. Case T-329/01, *Archer Daniels Midland Co. v. Commission* [2006] ECR II-3255, paras 176 & 178
  - Standards of proof (Oliver Budzinski & Arndt Christiansen, 2006)
    - "(a) beyond reasonable doubt (certainty);
    - (b) balance of probabilities (i.e. more likely than not, preponderance of evidence) (probability $\pi > 0,5$) [harm to consumers must be more likely than no harm];
    - (c) considerable or appreciable effects (i.e. a more than negligible probability; e.g. $\pi > 0.25$);
    - (d) plausibility (i.e. not against logic and experience);
    - (e) possibility (i.e. a positive probability; $\pi > 0$)".

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The standard of proof as a relative plausibility enquiry

- Legal proof is a form of **inference to the best explanation** that examines the comparative plausibility of the parties' stories
- "regulatory science" – "ordinary science" standards of validity (S. Jasanoff, 1995)
- Choosing among competing explanations depends on the **relative plausibility of each narrative/story**, as measured by reference to a number of criteria:
  - the **degree of coverage** (that is "the greater the portion of the evidence a story is able to account for the higher its plausibility"),
  - the **completeness/consilience of the story** (it explains more facts and has less gaps),
  - the **coherence of the narrative** (that is "the added quality of the individual elements integrating well together to yield a smooth and convincing narrative of events",
  - its **probative force** (that is the positive support it receives from the evidence).
- Plausibility refers to the **relative "strength of the explanation", as determined by the "inferential interests of the decision-maker", the context of other evidence or other contrary explanations.**

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Evidence is not evaluated in isolated pieces but, rather in large cognitive structures most familiarly in the form of narratives, stories or global accounts.

•Case T-44/02 *Dresdner Bank AG and others v. Commission* [2006] II-3567, para. 62

– With regard to the requirement of precise and consistent evidence in order to establish the existence of the infringement, the EU Courts have indeed recognized that "it is not necessary for every item of evidence produced […] to satisfy those criteria in relation to every aspect of the infringement‖, but it is sufficient if the *body of evidence* relied on by the institution, viewed as whole, meets that requirement"

•Case T-110/07, *Siemens AG v. Commission*, op. cit., para. 47

– "it is sufficient if the set of indicia relied on by the institution, viewed as a whole, meets that requirement"

– the EU Courts attach to the various pieces of evidence a "probative value", based on the "reliability of that evidence".
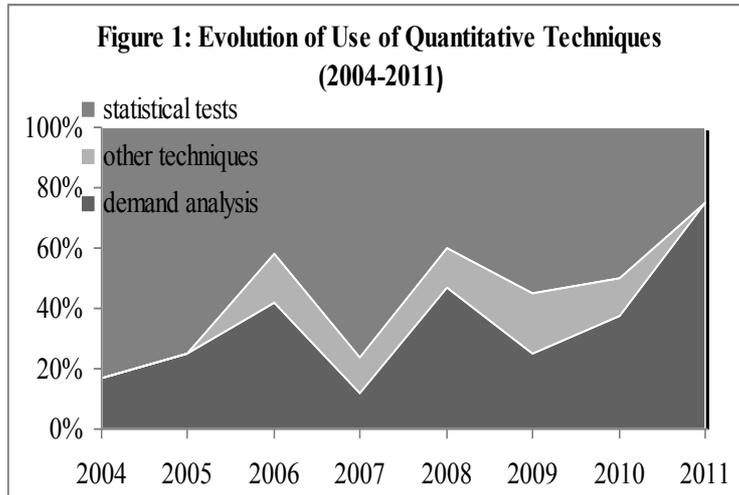
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Is it possible to make a causal claim in law based on econometric evidence?

• Econometrics differs from statistics in several ways

– Economic theory provides the blueprint for the specific set ups that will generate probabilities: the *a priori* dimension of econometrics

– Econometrics focuses on establishing causation, while statistics is content with correlation

• "Economic theory drives the selection of observations (through a data generation process that goes from sample population on whose characteristics observations are based to observations, that is data that the researcher has constructed with the help of a *theory* forming part of the data universe, "in which all the pertinent data variables reside"), as well as the interpretation of the specific theory that will be used (the *theory universe*) and which will interact with the *data universe* through the *bridge principles"* (Stigum, 2003)

• "The theory universe comprises theoretical objects that describe *toys in a toy economy"* (Stigum, 2003)

– Generalization of hypotheses made to the real world

• Laws hold only probabilistically and the inferences are not to what happens but to the probability that it happens

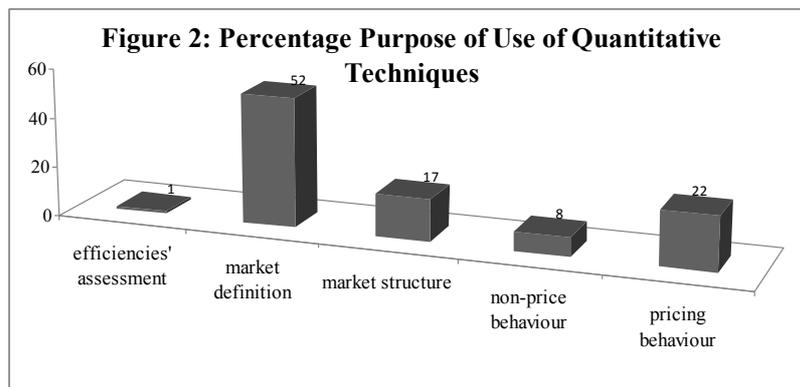• An a priori/structural perspective to causality//legal causation
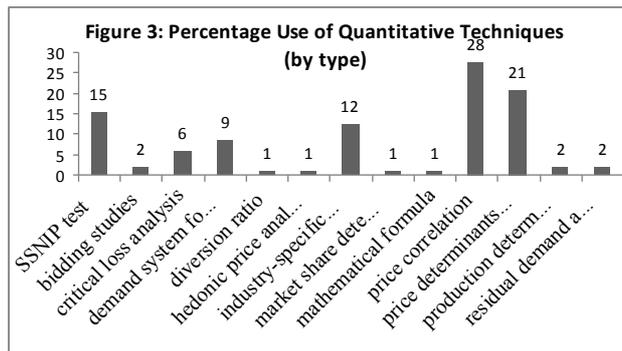
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Evolution of use of quantitative techniques

Figure 1: Evolution of Use of Quantitative Techniques (2004-2011)

- statistical tests
- other techniques
- demand analysis

100%
80%
60%
40%
20%
0%

2004 2005 2006 2007 2008 2009 2010 2011

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Percentage Purpose of Use of Quantitative Techniques

Figure 2: Percentage Purpose of Use of Quantitative Techniques

60
40
20
0

efficiencies' assessment — 1
market definition — 52
market structure — 17
non-price behaviour — 8
pricing behaviour — 22

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Percentage of use of quantitative techniques

Figure 3: Percentage Use of Quantitative Techniques (by type)

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WEIGHT OF ECONOMETRIC EVIDENCE

TABLE 5 - OPINION SCORE SCALE

Opinion Score	Interpretation
1	The technique was discarded
2	Strong objections were raised on aspects of the technique and the technique had no significant impact on conclusions
3	The technique was taken into consideration as evidence, albeit with reservations
4	The technique was taken seriously into consideration as evidence, however it was not solely relied upon to reach a conclusion
5	The technique was very convincing and constituted a solid basis for a conclusion

Source: Authors' definitions.

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Econometric evidence and the courts

- complex economic and technical assessments
  - Should we distinguish between economic and technical evidence?
  - Case T342/07, *Ryanair Holdings plc v. European Commission* [2010] ECR II-3457
    - (136) "the assertion that the non-technical evidence' cannot be taken into account unless it is supported by technical evidence' cannot be upheld. There is no need to establish such a hierarchy. It is the Commission's task to make an overall assessment of what is shown by the set of indicative factors used to evaluate the competitive situation. It is possible, in that regard, for certain items of evidence to be prioritised and other evidence to be discounted".
- Distinction between generalists and specialised courts/ tribunals? Comparison CA-European Courts

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Table 1: Causal Propositions: Formal Criteria[357]

1. Specification (clarification, operationalization, falsifiability)
    (a) What are the positive and negative outcomes (the factual and the counterfactual, or the range of variation) that the proposition describes, predicts, or explains?
    (b) What is the set of cases (the population, context, domain, contrast-space, frame, or base-line), that the proposition is intended to explain?
    (c) Is the argument internally consistent (does it imply contradictory outcomes)?
    (d) Are the key terms operational?

2. Precision
How precise is the proposition?

3. Breadth (scope, range, domain, generality, population)
What range of instances are covered by the proposition?

4. Boundedness (non-arbitrariness, coherence)
Is the specified population logical, coherent? Does the domain make sense?

5. Completeness (power, richness, thickness, detail)
How many features, or how much variation, is accounted for by the proposition? How strong is the relationship?

6. Parsimony (economy, efficiency, simplicity, reduction, Ockham's razor)

7. Differentiation (exogeneity) (antonym: endogeneity)
Is the X differentiable from the Y? Is the cause separate, logically and empirically, from the outcome to be explained?

8. Priority
How much temporal or causal priority does X enjoy vis-a-vis Y?

9. Independence (exogeneity, asymmetry, recursiveness) (antonyms: endogeneity, reciprocality, symmetry, feedback)
How independent is X relative to other Xs, and to Y?

10. Contingency (abnormality)
Is the X contingent, relative to other possible Xs? Does the causal explanation conform to our understanding of the normal course of events?

11. Mechanism (causal narrative)
Is there a plausible mechanism connecting X to Y?

12. Analytic utility (logical economy) (antonyms: idiosyncrasy, ad-hocery)
Does the proposition fit with what we know about the world? Does it help to unify that knowledge?

13. Intelligibility (accessibility)
How intelligible is the proposition?

14. Relevance (societal significance)
How relevant is the proposition to a lay audience or to policymakers? Does it matter?

15. Innovation (novelty)
How innovative is the proposition?

16. Comparison
Are there better explanations for a given outcome? Is the purported X superior (along criteria 1–15) to other possible Xs? Have all reasonable counter-hypotheses been explored?

Table 2. Causal Propositions: Criteria of Research Design[359]

1. Plenitude (evidence)
How many cases? How large is the sample (N)?

2. Comparability (equivalence, unit homogeneity, cross-case validity) (antonym: uniqueness)
2. (a) Descriptive comparability (conceptual validity): How comparable are the Xs and the Y?
2. (b) Causal comparability: How similar are the cases with respect to factors that might affect Y or the X:Y relationship of interest? Finally, can any remaining dis similarities be taken into account (controlled, modelled)?

3. Independence (antonyms: autocorrelation, Galton's problem, contamination)
How independent are the cases with respect to factors that might affect Y or the X:Y relationship of interest? Can any remaining interdependencies be taken into account (controlled, modelled)?

4. Representativeness (external validity) (antonyms: sample bias, selection bias)
Are the cases representative of the population with respect to all factors that might affect Y or the X:Y relationship of interest? Can any remaining un-representative elements be taken into account (controlled, modeled)?

5. Variation (variance)
Do the cases offer variation (a) on Y, (b) on relevant Xs, (c) without collinearity, and (d) within a particular case(s)?

6. Transparency (process-tracing)
Does the research design offer evidence about the process (i.e. the intermediate factors) by which X affects Y?

7. Replicability (reliability)
Can the research design be replicated? Are the results reliable?

Some interesting references

- I. Lianos, 'Judging' Economists: Economic Expertise in Competition Law Litigation - A European View (September 4, 2009). University College of London Centre for Law and Economics Working Paper No. 01-09. Available at SSRN: http://ssrn.com/abstract=1468502

- I. Lianos & C. Genakos, Econometric Evidence in EU Competition Law: an Empirical and Theoretical analysis, CLES Research paper, 06/12, available at http://www.ucl.ac.uk/cles/research-paper-series/research-papers/cles-6-2012

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