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The use of economic analysis in competition cases

Study by the UNCTAD secretariat

Executive summary

Competition law incorporates economic concepts. The co-evolution of industrial organization economics and competition law continues. Today, economic analysis nearly always forms part of the investigation and analysis of non-cartel competition cases by leading competition authorities, and is increasing among other authorities. According to the results of an UNCTAD survey, among competition authorities in developing countries, economics, including econometrics, is most often used in market definition. Further, some of these authorities also apply economics and econometrics in analyzing competitive effects of mergers as well as analyzing dominance abuse and vertical agreements. Barriers to greater use of economics in developing country competition cases include a resistance among the legal profession, including judges. Part of this resistance may stem from concern that economics makes competition law more costly or difficult to administer. Institutional characteristics, such as requiring economists to be among the commissioners leading authorities or members of tribunals, may also help competition law incorporate economics.

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Introduction

1. At its ninth session, the Intergovernmental Group of Experts on Competition Law and Policy underlined the importance of using economic analysis in competition cases and requested that the UNCTAD secretariat prepare a report on this topic based on contributions from member states. This study is the response to that request. The introduction briefly summarizes the evolution of the debate on the role of economics in competition cases and the push for a more economic approach. Subsequent chapters examine the factors that can influence the amount and type of economics applied in competition cases. The study concludes with a review of issues for further discussion.

2. That economics is indispensable to the execution of competition policy and the enforcement of competition law is undisputed and has been forcefully reiterated by many.[1] Justice Louis Brandeis famously opined in 1916 that "a lawyer who has not studied economics... is very apt to become a public enemy" and more recently Judge Robert Bork in 1978 stated that "to abandon economic theory is to abandon the possibility of rational antitrust law". Whilst the link between law and economics is firmly established, the weight given to economic considerations in competition law is a recurrent subject of debate. Poor economic analysis is seen as contributing to errors of analysis including, crucially, the misidentification of competition harming abuses from competition promoting conduct. But competition law must remain administrable by the persons and institutions who actually administer it. Anti-cartel law has a substantially lower quotient of economics.

3. The critiques by the Chicago School were highly influential in bringing about a shift to a more economic approach to antitrust enforcement in the United States decades ago.[2] Both before and since, developments in industrial organization economics diffuse into competition practice worldwide. Conversely, competition practice generates developments in industrial organization economics. Advances in computer technology facilitate empirical analysis both in terms of cost and practicability. The relatively recent reforms[3] in European Union (EU) competition policy from a form-based towards a more effects-based approach is an example of greater reliance on economic analysis.

4. Yet, even as global competition practice shows an inclination for economic inputs and dedicated empirical economic work, there remains a concern that a consistent and rigorous economic approach to competition enforcement is still lacking in some jurisdictions. In this context, this study examines the ability and propensity of competition authorities to make appropriate use of economic analysis and discusses what potential benefits could be derived if competition authorities worldwide assigned a higher prominence to economic analysis in competition cases.

[1] See Kovacic WE and Shapiro C (2000), for an account of how economics and antitrust law have coevolved over the past century.

[2] White (2008) describes the three paths along which the influence of economics on United States antitrust has occurred as (a) advances in economic thinking; (b) the direct involvement of economists in antitrust litigation and policy development; and (c) economist' writings about specific cases.

[3] Beginning with the new guidelines on defining relevant markets (SSNIP test) in 1997 and continuing in 1999 and 2000 with the revision of the rules on vertical and horizontal restraints, in 2004 with revised merger regulations and horizontal merger guidelines followed in 2007 with the adoption of non-horizontal merger guidelines and the issuing in December 2008 of the new guidance on certain abuses of dominance (article 82). Work on the review of community rules on vertical and horizontal restraints is in the cards.

I. The prevalence of the use of economic analysis

5. A recent survey[4] ranks the United States and the United Kingdom regimes the best among developed countries for technical competence in economic analysis in mergers and non-merger cases. These regimes lead the field both in terms of both the quality of economic analysis and its prominence within competition case analyses. The European Commission and the NMa (Netherlands Competition Authority) are ranked third and fourth respectively. Some developed country authorities, although ranked among the best, are judged to be behind the times or lacking the necessary rigour when it comes to economic thought and the use of economic analysis in cases. This finding suggests that technical competence in economic analysis is predicated on continuous learning and updating and can vary over time.

6. Comparable reviews[5] for developing countries and economies in transition are not available; however, individual country reviews[6] reveal that certain countries' competition authorities have a reputation for performing sound economic analysis (e.g. Peru and South Africa) and others have taken steps to enhance their capacity to undertake complex analysis by establishing dedicated departments endowed with the necessary resources to undertake in-house research as well as engage outside consultants (e.g. Brazil). Some developing countries have also issued guidance on their approach to analysing anti-competitive practices (e.g. Brazil).

A. Incidence of use of economic analysis

7. The incidence of economic analysis among developing countries is mixed. Responses to the UNCTAD questionnaire indicate that the level of sophistication in economic analysis used varies case by case and ranges from the very basic to complex and quantitative analysis. The use of economic analysis in market definition was widespread among respondents. Indeed, many named specific methodologies they had used, for example, for estimating demand elasticities. By contrast, the use of economics for other parts of merger evaluation was less frequently mentioned, although a fair number did use quantitative measures to help assess mergers. Some authorities responded that they used economics to analyse abuses of dominance and vertical restraints. At least one used, less often, economic analysis to evaluate indirect evidence of cartels when direct evidence was lacking.

8. Not all competition cases call for complex economic analysis. In particular *per se* violations are presumed to almost always have a negative economic impact.[7] Where a *rule of reason* is applied, economic analysis is typically used in constructing and testing theories of harm and the assessment of efficiency gains. The competition law may actually spell out the economic analysis required to establish a violation (e.g. Mexico).

9. Over time, competition authorities may develop greater expertise in undertaking more complex economic analysis. For example, the variety of techniques and sophistication

[4] KPMG 2007. Peer Review of Competition Policy. Report prepared for the United Kingdom Department of Trade and Industry.

[5] A number of surveys and research into the relative strength of competition regimes around the world do exist but they are neither comprehensive nor comparable. Moreover, many of them do not specifically rate competence in economic analysis.

[6] Organization for Economic Cooperation and Development (OECD) peer reviews of competition institutions.

[7] Over time, economic thinking changes, which forms of conduct populate the *per se* category.

of economic analysis has steadily increased in Brazil in recent years. Economic analysis occupies a central role in the analysis of some of the country's recent high profile cases (e.g. the Ambev merger and the acquisition of Brazilian chocolate manufacturer Garoto by Nestlé).

10. The influence of the predominantly North American and European conversation about economic analysis in competition law is global. Of the few responses from outside those regions that addressed the question of which economic models and econometric techniques are in use, many cited documents and papers that have originated and been discussed among practitioners in North America and Europe.

B. Institutional issues

11. Institutional design likely affects the use of economics in competition cases. The openness of the leadership of competition authorities to economic argument can be influenced by a number of factors. Leaders may have past experience working with economists and economics. Or they may themselves be economists. For example, the competition laws in many developing countries require one or two commissioners to be professional economists. Another institutional design choice that may influence whether leaders hear economic arguments is the placement of economists.

12. Competition authorities sometimes find it difficult to get the information on which to build economic analyses. Survey responses indicated that a lack of financial resources, less than satisfactory official information sources and restrictive time frames can all hamper the ability of a competition authority to conduct economic analysis and research. For example, some authorities cited the fact that private parties to a case are often the only source of information. The information provided might not be independently verifiable, selectively released by the parties or just difficult to get. Restricted access to information can restrict the level of sophistication in economic analysis possible. Hence, the role played by quantitative economic analysis will vary from decision to decision. Where quantitative data is scarce, other types of evidence must be used for economic analysis. Less information may introduce greater uncertainty as to the suitability of a given economic model to the specific case.

13. What contributes to the prominence of economic analysis in the United States competition regime, mentioned earlier? Some commentators point to staff composition (see box 1). The Antitrust Division of the Department of Justice (DOJ) and the Federal Trade Commission (FTC) collectively employ more than 100 professional economists; many if not most specialized in industrial organization economics. Similarly, the United Kingdom's Office of Fair Trading and Competition Commission employ, together, 77 economists. This contrasts with the considerably fewer economists that make up and actually undertake technical economic analysis in the newly established specialized team at the European Commission (EC).[8] Indeed, the ratio of economists to lawyers is now higher in the EC's DG Competition (1:2) than in the United States authorities, although this only recently grew from the ratio of the early 1990s of 1:7. But staff composition is an outcome, not a cause. Higher up the chain of causality, European competition law has been applied in a form-based, legalistic way, by both the commission and the courts, later than the comparable law has been in the United States.[9] Where economic arguments form a basis for court decisions, parties have incentives to make and improve them over time. The ultimate cause of this transatlantic difference is beyond the scope of this study.

[8] Neven, 2007.
[9] Oxera, 2009

Box 1. United States factors of excellence

These include:

(a) A longer history (since the 1970s) of involving economists in competition cases and of economists exerting a substantial influence on decisions;

(b) A long history of eminent economists working for the federal competition authorities;

(c) The FTC seen as pushing the boundaries of economic thought on industrial organization and competition economics and is not afraid to try new theories;

(d) Ability to request the data points needed to conduct robust econometric analysis;

(e) Employees who have a mixture of academic and consultancy experience that permits the consideration of strategic rationale; and

(f) Low private and public sector pay differentials.

Source: Adapted from KPMG, 2007.

14. Small size may be an important limitation on the use of economic analysis by competition authorities. Competition authorities, particularly in the developing world, can be very small. According to responses from competition authorities to the UNCTAD questionnaire, technical staff numbered from as low as one economist and one lawyer to 60 economists and 345 lawyers (see table 2) with the more developed countries clustered in the upper range. Of the authorities cited in table 2, the majority employed more lawyers than economists. Few competition authorities have many economists specializing in industrial organization.

15. High turnover and difficulty in attracting qualified staff can limit the use of economic analysis. Except in the United States, relatively high private and public sector pay differentials make the attraction and retention of qualified staff a challenge for competition authorities. There is a general dearth of specialized economists (i.e. Ph.D. level with specialization in industrial organization), particularly in less developed countries and competition with the private sector for these skills is fierce. High staff turnover rates are particularly acute in developing countries and economies in transition.

Table 1
Breakdown of competition authority staff technical complement by country

Country	Economists/ lawyers (No.)	M.A. (economics)	Ph.D. (economics)
Argentina	16/31	n/a	n/a
Albania	18/10	n/a	n/a
Bulgaria			
Chile	16/25	11	2
Colombia	13/16	n/a	n/a
Finland	18/15	n/a	n/a
Hungary	28/36	n/a	n/a
Indonesia	27/28	n/a	n/a
Japan	6/18	n/a	n/a
Korea, Republic of	63/30	17	6
Malawi	2/0	n/a	n/a
México[a]	[b]41/29	majority	minority
Panama	6/6	5	n/a
Russian Federation	99/108	n/a	n/a
Serbia	3/7	n/a	n/a
Sri Lanka	3/8	n/a	n/a
Sweden	48/49	n/a	9
United Kingdom (OFT)	52/35[c]	n/a	n/a
United Kingdom (CC)[d]	25/13 [c]	27	6
United States (DOJ)	60/345	n/a	n/a
United States (FTC)	58/232	n/a	n/a
Uruguay	1/1	n/a	n/a

[a] 3 of 5 members of the Board of Commissioners hold PhD's in economics.

[b] Recruitment policy requires economists to have knowledge of industrial organization and economic regulation.

[c] In some cases, staff are well versed or dual qualified in economics and law so that the number of lawyers or economists on the staff is technically higher than what official records might reflect.

[d] In addition to the technical staff, 10 of the 35 members of the commission are economists, including the Deputy Chair. Five members have a Ph.D. in economics.

n/a: not available

Source: UNCTAD survey on economic analysis.

16. Some authorities complement internal skills through extensive use of economic consultancy firms. Private parties also use them. For example, by 2007, economic consultancy in the EU (with the United Kingdom accounting for the majority of cases) amounted to about 15 per cent of total legal and economic fees relating to competition cases – converging with levels in the United States (Neven, 2007). The KFTC (Republic of Korea Competition Authority) also frequently uses external experts (usually academics) in this manner.

17. Probably every single competition authority in the world considers its decisions to be based on sound economic thinking. Nevertheless, there is clearly variation in the economic analysis applied among even so small a sample as the respondents to the UNCTAD questionnaire. These variations are illustrated in the next chapter.

II. Economic analysis methodologies

18. This chapter presents a brief overview of the various economic methodologies that are used by competition authorities. The material is drawn partly from responses to the UNCTAD questionnaire. Market definition and assessment of mergers are reviewed. The change in the assessment of vertical restraints is provided as an example of how changes in economics effect changes in law. Existence of horizontal agreements is briefly reviewed. The chapter also sheds some light on the problems that competition authorities encounter when they undertake economic analysis. Table 2 presents the kinds of economic analysis methods and techniques competition authorities apply according to the questionnaire responses received by the secretariat.

19. Guidelines provide a view of the economic analysis applied by competition authorities. It may take some forensic effort to see, but guidelines generally reflect the economic models that are most commonly used within a competition authority. Hearings and discussion papers prepared in the process of developing guidelines often explicitly refer to specific economic models. Speeches and discussion papers are thrown off by the leading edge of waves of new thinking within competition authorities. Economic consultancies, as part of their marketing efforts, comment on new models and techniques. In summary, the economic models used by competition authorities are not a mystery but are publicly available.

A. Market definition

20. Market definition is a key early step in analysis under competition rules in many jurisdictions around the world. It is, in many instances, a key step in identifying the competitive constraints acting on a supplier. It enables the calculation of market shares and market concentration. These form part of the assessment of, or at least a screen for, the degree of competition in the market. Therefore, market definition plays a major role in the assessment, or at least screening, of many cases involving horizontal and vertical restraints, abuse of dominance and mergers.

21. According to the survey responses, the hypothetical monopolist test (or SSNIP test[10]) is the most commonly used method for market definition. There is greater variation in how empirical data is used to apply the SSNIP test.

[10] SSNIP is from Small but Significant and Non-transitory Increase in Price. This is how a recursive part of the test is described.

22. "Critical loss" analysis, or "critical elasticity of demand," is a popular way to implement the SSNIP test. The UCTAD survey revealed that many competition authorities use it.[11]

23. A 2004 merger case in Argentina illustrates the use of critical loss analysis. Compañía de Alimentos Fargo was acquired by Grupo Bimbo. A key question was whether traditional bread restrained the price of industrial bread. Both merging parties made industrial bread – indeed, together they made 79 per cent of the industrial bread in the country and were seen as each other's closest competitor. The quantity of traditional bread was far larger than that of industrial bread. The parties submitted to the Argentinean competition authority econometric studies estimating the elasticity of demand for industrial bread which led to the conclusion that the parties could not profitably raise price. The commission found the methodology to be flawed, including that it did not properly consider the economic crisis during the period considered.

24. Price correlation tests and stationarity tests are used for market definition by some competition authorities, according to the survey responses. The underlying idea is that, if products are substitutes, then their prices should be correlated and the ratio of their prices should be constant. In a stationarity test, ratios of two prices (two products or the same product in different locations) are tested for whether they revert to a constant value after shocks. Unfortunately, if the prices have some other common influences, like the price of oil, then they will be correlated whether they are substitutes or not. And without information about price elasticities, non-stationarity of price ratios is not informative as to whether the two products (locations) are in different markets (CRAI, 2001).

25. Other sources of information about substitutability named in the UNCTAD survey were customer surveys and market studies.

26. Several respondents said they had difficulties getting the necessary price, cost and sales data to undertake the SSNIP and other tests on substitutability. Among the challenges highlighted were a lack of reliable sources of information and reliable current research by specialized institutions, a lack of accounting skills needed to extract data from the information provided by the firms when available, incomplete information provided by firms, limited powers to compel firms to provide information, difficulties in obtaining search warrants, lack of time series data, and lack of resources to undertake customer surveys and market studies. The difficulty of designing customer survey questionnaires to ensure reliable data was also highlighted. In some cases, data deficiencies mean that markets are defined using only qualitative data.

B. Merger assessment

27. The competition law in each jurisdiction specifies the test that must be applied to mergers. Generally, the test is an economic test, but there may be public interest tests as

[11] "The critical elasticity is the maximum pre-merger elasticity of demand for a candidate group of products and area such that a hypothetical monopolist over that candidate market would increase price by at least some established significance threshold, e.g., 5 per cent. The critical loss is the maximum reduction in quantity sold that a hypothetical monopolist would be willing to tolerate to sustain a given price increase." Werden (2002). To use the simplest version of this method, the analyst must estimate the pre-merger price-cost margin for the candidate market and the elasticity of demand, and must know the policy choice of what "small but significant" means. The basic idea is to use the price-cost margin and the threshold price increase, say, 5 per cent, to calculate what share of sales could be lost while leaving the hypothetical monopolist's profits unchanged. Then use the estimated demand elasticity to estimate whether more or fewer sales would be lost. Finally, compare the two numbers.

well. For example, the test may be whether the specified merger is likely to lead to a substantial lessening of competition or the creation or strengthening of a dominant position. This implies that facts specific to the merger and an economic model that makes reliable predictions given the specific facts are elements in the assessment.

28. Concentration measures such as HHI and CR_x[12] are used in merger assessment by many competition authorities, according to the survey responses. Market concentration was the basis for the prediction about the effects of proposed mergers during much of the second half of the twentieth century. The structure–conduct–performance paradigm was dominant in economics. This said, in effect, that in markets protected by entry barriers, concentration predicted how competitive the market would be. This paradigm informed many of the concentration measures such as CR1, CR4 and HHI. But empirical observation demonstrated that the structure–conduct–performance paradigm was wrong; in real-world markets, concentration is only one characteristic and may not be the most important. The 1974 *General Dynamics* decision by the United States Supreme Court[13] was seen, in retrospect, as opening up merger analysis in that jurisdiction by allowing a broad analysis as to whether a firm's market shares accurately indicated its ability to compete.[14] However, in many other jurisdictions, the competition law specifies market share criteria for dominance, which shifts the assessment burden onto market definition.

29. Today, market concentration and market shares remain important in merger analysis, though in some jurisdictions perhaps most important as screens to identify those mergers where more investigative resources should be spent. Empirical evidence is that more concentrated markets in the same industry have higher prices. But these statistics have less weight than previously in some jurisdictions and now competition authorities in those jurisdictions must "tell a convincing story of how the merger will actually lead to a reduction in competition" (Baker and Shapiro, 2007:5). This means that a variety of facts must be screened for relevance and incorporated in the "story", or rather, extended economic model.

30. Two basic forms of the "story of how the merger will actually lead to a reduction in competition" are coordinated effects and unilateral effects. They are not mutually exclusive.

(a) "Coordinated effects", "joint dominance" or "tacit collusion" mean that the firms in the market have a greater likelihood, as a result of the merger, of behaving less competitively. Economics provides models of how this might occur, what is necessary for it to occur, and how a merger might change incentives so as to change the likelihood or magnitude of coordination. Empirical evidence supports or disproves the application of any particular model to a particular merger.

(b) "Unilateral effects" mean that the merged firm will have the incentive to raise its own prices after the merger. Unilateral effects arise if any customers consider the merging firms to be their first and second choices among suppliers. Along with demonstrating that such customers exist, merger simulation is one of the tools that can be used to estimate the magnitude of unilateral effects. Merger simulation combines data about buyer substitution, the behaviour of rivals, and firms' costs into a mathematical model, in order to infer the price increase from the merger. Some competition authorities indicated in their survey responses that they, at least sometimes, used merger simulation.

[12] CR1 is the concentration ratio of the largest firm, that is, the share of the market accounted for by the largest firm. CR4 is the sum of the shares of the largest four firms. HHI is Herfindahl-Hirshmann Index, the sum of the squares of the market shares of all firms.

[13] United States v. General Dynamics Corp., 415 U.S. 486 (1974).

[14] Baker and Shapiro, 2007:4.

31. Economic models like those used to evaluate coordinated and unilateral effects must fit the facts of the case. Every assumption in the model should be supported by evidence or subject to sensitivity analysis.[15]

Box 2. Record of enforcement of South Africa's public interest clauses

The role of public interest would appear to be peripheral to the overall focus on efficiency in competition cases, despite the inclusion of specific public interest concerns in South Africa's competition law intended to address broad development goals and to promote employment, small businesses and an equal spread of ownership in favour of previously disadvantaged South Africans (black economic empowerment (BEE)). Accordingly, public interest matters have to be considered in all merger transactions. However, to date, the number of cases where public interest considerations have made a material difference to the outcome of a merger assessment is small.

A review of large merger transactions assessed by the Competition Commission and Competition Tribunal up to 2008 reveals that positive public interest effects are generally unlikely to prove an effective counterweight where a merger is considered to have strong anti-competitive effects. Similarly, while negative public interest effects have been noted in a few merger cases, the overall impression is that they are seldom considered strong enough grounds to prohibit a merger. BEE considerations have also not swung any merger decisions by the commission or tribunal. Neither has the ability of a firm to compete in international markets featured significantly in any decision by the competition authorities, even though it is an argument frequently evoked by merging parties.

Perhaps the key benefit of the explicit inclusion of public interest in the competition law is that it raises the profile of these policy imperatives and contributes to policy coherence across diverse policy areas. In addition, it places these issues on the agendas of firms; it is at the level of the firm that the incorporation of public interest considerations can make a significant difference.

Source: Hartzenbergh, 2008,

32. Another approach is to use a reduced-form method. One may ask, for example, what is the effect of the presence of certain companies on prices or other measures of market performance?

(a) In the Staples–Office Depot merger case, the United States FTC used a reduced-form analysis to look at a dataset composed of an index of prices charged by over 400 Staples stores in more than 40 cities over 18 months. They used no statistical methods (testimony and documents) to rule out bias from non-observable cost variations – that is, to be sure that there was not another reason for costs to vary from one store to another. They found that the price index was higher in cities where Office Depot (and any other office superstores) was absent. They estimated the effect on prices of the proposed merger between Staples and Office Depot and recommended the merger be blocked;[16]

(b) The Republic of Korea used similar analysis to evaluate a merger between supermarket chains.[17] The KFTC found that the merger would harm competition and ordered divestiture of stores in three relevant geographic markets. The KFTC compared

[15] Sensitivity analysis asks the question, "If a different value of the variable were assumed, how does the model's prediction change?"

[16] Baker and Rubinfeld, 1999.

[17] Republic of Korea, questionnaire response.

price levels in different locations and found that the presence or absence of other supermarkets had an effect, whereas that of department stores did not. Therefore, the parties' argument that the market included department stores was rejected. Second, the authority found that the acquiring firm's prices were on average 4.2 per cent lower when they were near the acquired firm's stores than when they were not. This led to the finding that the merger, as proposed, would likely harm competition;

(c) The EC also used regressions in its evaluation of the Ryanair–Aer Lingus merger to determine whether the presence of one merging party had an effect on the price of the other. It took as the variable to be explained the net average fare over a month on a given route. In addition to the presence of the other merging party on that route in that month, other explanatory variables were added to account for systemic influences on fares. Two econometric techniques were used; cross-section regression (examines differences in prices across routes) and fixed-effects regression (exploits differences in market structure of individual routes over time, such as before and after a rival's entry or exit).[18]

These three examples of reduced-form analysis illustrate that it is not sufficient to simply look for differences in price levels, depending on whether the other merging party is present in a local market. A substantial amount of work must be done to ensure that the results are not spurious.[19]

33. Bidding data may also be analyzed to estimate the competitive effect of a company, as described in a survey response. For example, the frequency with which two firms bid in the same tenders may determine how "close" or similar they are. If information about runners-up is available, one may determine how frequently the two firms are the two most competitive bidders, thus the main competitive constraint on each other. With further information and in some forms of auctions, one may be able to detect the effect on the bid prices of the presence of the other firm. However, any analysis of bidding data must take into account the precise form of the auction, including details of "who knows what when", such as when bidders learn the identity of their rivals.

34. The above discussion assumes that consumer welfare, or perhaps total welfare, is the criterion against which mergers are assessed. However, some competition laws require the application of multiple criteria for assessing mergers. Does this limit the use of economic analysis? Experience suggests it does not. For example, South Africa (see box 2) applies multiple criteria and economic analysis.

C. Assessment of vertical restraints

35. Few survey responses directly addressed the use of economics in the assessment of vertical restraints. This is, however, an area where economics has prompted change in the past few decades. This is illustrated by the changes in the EC's approach to vertical restraints. Prior to 1999, specific provisions in vertical agreements between firms were evaluated on the basis of lists, black, white and grey. Provisions on the black list were prohibited unless vetted through an onerous "individual exemption" procedure; those on the white list were exempted under a "block exemption"; and the provisions on the grey list may form part of block-exempted agreements. In its request for comments on its Green Paper, a step in the reform process, the commission noted that one of the most frequently heard complaints was, "Too much emphasis is put on analysis of clauses and not enough on

[18] European Commission, questionnaire response.

[19] The same issues arise in estimating the harm due to cartels, which also use reduced-form analysis.

the economic impact of the agreements."[20] The 1999 regulation, with its safe harbours based on market shares of the parties to the agreements and the duration of the agreements, was a movement towards greater use of economic analysis. Also, the manner in which the regulation has been applied has incorporated further advances in economic understanding. Under the old system, the commission was notified of multitudes of vertical agreements. According to its questionnaire response, the EC indicated it had not had many vertical restraints cases in recent years. Presumably, this does not reflect fewer vertical agreements.

36. A recent decision that changed the rule for judging resale price maintenance cases in the United States is a second illustration of the influence of economics. The United States Supreme Court's 2007 judgment in *Leegin Creative Leather Products, Inc. v. PSKS, Inc.* ended *per se* treatment of minimum resale price agreements in favour of a rule of reason analysis. The aspect of interest here is the explicit consideration of economics in the judgment and dissent. The first paragraph of the judgment includes the sentence, immediately after noting the shift from *per se* illegality for other vertical restraints, "Respected economic analysts, furthermore, conclude that vertical price restraints can have pro-competitive effects." Economic arguments are discussed extensively in the judgement. The dissent in this 5 to 4 judgement also discusses economic arguments and points to empirical economic studies on the effects of minimum RPM. It goes on to say:

> "Economic discussion, such as the studies the Court relies upon, can help provide answers to these questions, and in doing so, economics can, and should, inform antitrust law. But antitrust law cannot, and should not, precisely replicate economists' (sometimes conflicting) views. That is because law, unlike economics, is an administrative system the effects of which depend upon the content of rules and precedents only as they are applied by judges and juries in courts and by lawyers advising their clients. And that fact means that courts will often bring their own administrative judgment to bear…"

The dissent refers to the empirical evidence regarding the frequency of the pro- and anti-competitive effects. Much of the dissent focuses on the need for law to be administrable, including the difference between overturning a long-established precedent, on which many economic decisions have been based, and establishing a rule on a blank slate.

D. Horizontal agreements

37. Competition authorities differ in the use of economics as evidence for the existence of a cartel agreement. At least one respondent to the UNCTAD survey reported using economics as indirect evidence for the existence of a cartel.

38. In another forum,[21] the inference of the existence of a cartel using predominantly economic evidence was discussed. Economic evidence can be used to address specific elements that must be present to prove the existence of a cartel. One type of such evidence is firm conduct: it may suggest that an agreement was reached. A second type is market structure: it may suggest that cartelization is feasible, for example, if the market is highly concentrated. A third type of such evidence is evidence of facilitating practices; that is, business practices that make agreement easier to reach and sustain. Parallel conduct – pricing, capacity cuts, or suspicious pattern of bidding for tenders – is a key signal; it is evidence but it is not proof. An important hurdle is that conduct that is consistent with unilateral self-interest, absent an agreement, does not constitute good evidence in a

[20] Commission adopts Green Paper on vertical restraints in EU competition policy, Speech by L. Peeperkorn, 20/01/1997, http://ec.europa.eu/competition/speeches/text/sp1997_002_en.html.

[21] OECD Global Forum on Competition 2006, Round table on Prosecuting Cartels without Direct Evidence of Agreement (DAF/COMP/GF(2006)3).

circumstantial cartel case. Evidence of some communication is also needed. Each of these types of evidence is suggested by economic models; the evidence cannot be understood without an economic model to organize it.

39. A related practice of at least some competition authorities is to use economics to analyze whether certain conduct makes it easier for competitors to coordinate, rather than to try to establish whether the firms are in fact colluding. For example, in the early 1990s a United States competition authority settled a dispute with several airlines that had been using computer reservation systems to coordinate prices.[22]

E. Econometrics

40. A number of competition authorities reported that they seldom use econometric techniques (except basic regression for market definition) because of the need for high quality data to ensure sufficiently robust outcomes. Among those authorities that do use econometric techniques, procedures may be established to reduce the time and cost of replicating the parties' econometric work. These relate to the precise format of data and direct conversations among econometricians about precise methodologies, techniques, software and the like. The intent is to build confidence and mutual understanding about what conclusions can and cannot be drawn from the data.[23]

41. To summarize, the use of more complex economic analysis, whether for merger assessment or otherwise, appears not to be so widespread. In addition to data limitations, some of the reasons for this include limitations in personnel resources and technical skills, compounded by time pressures (particularly with mergers) and a less pronounced necessity to apply complex economic analysis in some jurisdictions (e.g. in some jurisdictions, there are no legal requirements that the competition authority consider the efficiency defence when analysing a merger, or there is as yet no experience in some jurisdictions of firms raising the efficiency defence for an anti-competitive agreement or conduct).

[22] *United States v. Airline Tariff Publishing Co.*, 1994–2 Trade Cas. (CCH) Para. 70,687 (D.D.C. 1994) (final consent decree) cited in Kovacic and Shapiro, 2000:56.

[23] A recent example, focused on but broader than econometrics, is "Suggested best practice for submissions of technical economic analysis from parties to the Competition Commission" in the United Kingdom. www.competition-commission.org.uk.

Table 2
Economic analysis methodologies

Country	Market definition	Mergers/ concentration	Other	Econometrics
Argentina	SSNIP, customer surveys, elasticity estimates, market reports	Merger simulation		
Bulgaria	SSNIP, elasticity estimates			
Chile	SSNIP, customer surveys, elasticity estimates			Has been used in predation cases
Colombia	SSNIP, Elzinga–Hogarty	HHI		
EC	SSNIP, price correlation, stationarity tests, critical loss analysis, customer surveys			Frequently used
Hungary	stationarity tests, customer surveys		Delimitis-type tests	
Indonesia	SSNIP, OLS	HHI, CR		
Japan	SSNIP, cross-elasticity estimates	Merger simulations		Has been used (bid-rigging)
Korea, Republic of	critical loss analysis, Elzinga–Hogarty, probit models, customer surveys, elasticity estimates, diversion ratio analysis	Merger simulations, HHI		Frequently used when data available
Latvia	SSNIP, critical loss analysis, elasticity estimates, Porter's 5 forces method	HHI, CR, profitability indicators	Arreda–Turner test	
Malawi	SSNIP			Not used
Mexico	SSNIP	HHI, CR		
Panama	elasticity estimates, customer surveys, probit models	HHI, CR, Lerner Index		
Russian Federation	SSNIP			
Serbia	SSNIP			
Switzerland	SSNIP, price correlation, stationarity tests	HHI, CR		Seldom used except for basic OLS for market definition
Uruguay	Qualitative data			

III. How well economic analysis is received by private parties and the courts

42. Attitudes on economic analysis in competition cases are influenced by concerns about legal certainty. Opponents to the use of economic evidence often invoke arguments along the lines of (a) economic analysis as opposed to legal evidence is overly theoretical, relying on models and assumptions which, if altered even slightly, can lead to widely disparate outcomes; (b) disagreement between economists, who submit apparently sound but contradictory analyses, is not an uncommon occurrence that leads to the inescapable conclusion that economic evidence is not reliable; and (c) lawyers and judges have little understanding or appetite for economic evidence.

43. Such arguments have been dismissed outright by many experts (e.g. Neven, 2007, Freeman, 2006; Potocki, 1996), who point out that, while economic evidence is not absolute in character, it is nevertheless robust if rooted in logical assumptions and used in conjunction with correct and relevant facts.[24] The law frequently deals with technical matters (such as medical and patent law); competition law is by no means exceptional. Further, lawyers and judges are no strangers to complex arguments. Many also recognize that competition law is different from other technical areas of law in that economic concepts are at least grafted on if not integral to competition law.

44. There are limits to economics in competition law. Justice Breyer pointed out, in the dissent in the 2007 *Leegin* decision mentioned above, that law, unlike economics, is an administrative system. It has effect through judges and lawyers advising their clients. It follows that competition law has to be administrable in the actual system. "Antitrust law cannot, and should not, precisely replicate economists' (sometimes conflicting) views." This statement on the limits of economics in competition law is similar to a comment made by two prominent competition figures at the turn of the millennium. They identified a challenge for competition enforcement to be to adapt analytic techniques that accurately distinguish anti- from pro-competitive practices to administrable rules, rules that can be applied by the competition authorities and the courts, and that are stable and predictable so that business can rely on them (Kovacic and Shapiro, 2000:58).

45. In the experience of the United States and the EU, courts have accepted and even demanded the use of economic and econometric evidence in competition cases. Of course, the courts do not always find economic evidence persuasive. For example, Finland's recent experience is that relying on more complex economic theories does not necessarily strengthen the point in relation to judicial argumentation, testimonies or evidence put forward (Organization for Economic Cooperation and Development (OECD), 2008). There is balance to be struck: the EC suffered a string of defeats in merger cases (e.g. Airtours, Tetra/Laval and GE/Honeywell) before the European Court of Justice, where the court demanded greater economic rigour. Both in Europe and North America, parties involved in competition cases and their lawyers now expect sophisticated economic analysis. Practicing lawyers have learnt how to deal with economic analysis and analysts.

46. In many developing countries, according to some respondents to the UNCTAD questionnaire, there is a lower level of economic knowledge and understanding among private parties and their legal advisors. They therefore are inclined to fixate on legalistic form rather than the effects of economic behaviour. This can act as a brake on the competition authority adopting a more economics-based approach, particularly when this

[24] Further, sensitivity analysis – which looks at the effect of changes in assumptions on the outcome of the economic model – can be used to measure the robustness of an economic model.

attitude also affects the review of competition cases in the courts. This is significant because, as pointed out above, the attitude of the courts played a crucial role in the move towards a more economic approach by the EC and the United States regimes.

47. In courts in developing countries, attitudes towards considering economic evidence varies. In a few developing countries, among them Brazil, Israel, Indonesia and South Africa, courts do use economic analysis in their decisions. But the influence of economics on decisions is gaining traction – particularly in jurisdictions with a longer enforcement experience. There is growing recognition that economics occupies a pivotal position in competition law and the analysis of competition cases.

48. The attitudes of judges towards the use of economics in competition cases might appear to be of little import in administrative law systems. Responses to the UNCTAD questionnaire indicate that most jurisdictions enforce competition law through an administrative system. The courts only have a role at the appellate stage, which is typically confined to questions of law or questions of procedure. Nevertheless, experience shows that questions of law in competition cases can frequently entail revisiting economic theories.

49. How can judges transition to greater use of economics in competition cases? The appeal of providing judges with basic training in antitrust economics is obvious and is advocated by competition authorities throughout the world. Even the most advanced jurisdictions in competition enforcement still encounter challenges in terms of judges' lack of economic knowledge. For example, a recent survey by the American Bar Association (ABA) revealed that only 24 per cent of 42 antitrust economists surveyed believed that federal court judges "usually" understand the economic issues in a case. The ABA, among others, recommends more education for judges on antitrust economics. However, the training of judges can be controversial. For example, some United States programmes have come under criticism as being designed to influence judicial decision-making and indoctrinating judges with a particular brand of economic thinking. Opposition to such programmes recently led to proposal for legislation that would effectively prohibit privately funded programmes for federal judges.

50. Procedures can be used to more effectively communicate economic analysis to persons who have no economics training or experience with competition law. Judges may be exposed to economic analysis early in a case through written statements and via developing procedures that allow judges an early opportunity to ask questions raised by the written statements of the parties. Judges may be able to appoint their own economic experts to identify, for the judge, the points of difference among the parties' experts. Or judges may be able to require battling experts to agree on their areas of differences, to better focus the enquiry.

51. Composition of tribunals or panels may affect the acceptance of economic evidence. In jurisdictions that operate an administrative system (or where specialist tribunals/courts have been set up and are populated with experienced judges specializing in competition law), economists are typically included in the panel of adjudicators to enable these bodies to have a greater understanding of economic theory in competition cases.

52. Box 3 outlines some of the techniques used by competition authorities in court to help judges understand complex economic evidence.[25] In the United Kingdom's Office of Fair Trading experience, lawyers have proved typically better at presenting economic evidence to the courts in terms that judges not versed in economics find compelling.

[25] The dissent in the *Leegin* judgement, cited earlier, provides a hint for presenting economic evidence to judges: "I do not think that we should place significant weight upon justifications that the parties do not explain with sufficient clarity for a generalist judge to understand."

Box 3. Presenting complex economics to judges

Economic argument is integrated with the factual evidence and is based on established economic theory.

Economic models are presented in a non-technical but accurate way, with explanations as to how they work, why the one chosen is suitable to the particular task, and how it leads to particular conclusions based on the facts of the specific case. Assumptions relied upon are disclosed, including explaining why alternative assumptions and parameters were not used, based on knowledge, experience and evidence in the case.

Economic arguments are presented in a manner consistent with the structure of judicial reasoning.

Visual aids such as tables, charts and diagrams are used to reinforce verbal explanations.

Source: OECD, 2008.

53. Not all economic testimony is created equal. Different jurisdictions have their own rules about whether and what expert testimony is admissible as evidence in court. For example, in the United States, certain rulings and the Federal Rules have established that "expert economic testimony in [competition] cases is inadmissible unless (a) the witness is expert in relevant aspects of economics; (b) the testimony is well grounded in those aspects of economics; and (c) the testimony applies the tools of economics to the facts of the case." Further, in a commentary on the rules, "A witness purporting to rely on econometric methods or economic models must describe them in sufficient detail to communicate the specific methods or models on which the witness purports to rely. The witness also must explain why the methods or models are relevant and how they support the conclusion reached."[26]

IV. Issues for further discussion

54. For a country not now making significant use of economic analysis in competition cases, a move towards its greater use involves substantial learning costs for staff, the competition law fraternity, and judges. Some of this learning is not sector-specific; it is easily applied in other areas of microeconomic policy such as economic regulation of infrastructure. The usual issues of staff mobility after training by competition authorities apply. In light of these costs and positive and negative externalities, what is the optimal use of economic analysis in a small competition authority in a developing country?

55. Are there areas or topics or types of cases where limited resources to engage in economic analysis should be focused? Should not be focused?

56. Based on experience, what have been effective means of upgrading a small or new authority's ability to engage in economic analysis? Are there specific resources or knowledge bases?

57. When competition authorities in different jurisdictions cooperate on a specific case, does the economic analysis (choice of models, calibration of the models) converge? Why?

58. Are competition laws with multiple objectives somehow constrained or less committed to economic analysis?

[26] Werden, 2007.

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