Supermodels, Geeks, and Gumshoes:
Forensic Economics in EC Cartel Investigations

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Introduction

Over twenty years ago, Kenneth Elzinga, one of the doyens of antitrust economics, presented a paper to a seminar at the US Justice Department entitled "New Developments on the Cartel Front".[1] As a junior official at the Commission just starting to develop a game plan for going after cartels, I was heavily influenced by Elzinga's paper. The very choice of title[2] hinted that economists should start thinking more about cartels rather than oligopoly. At the time, before the Internet made us into a global village, there was very little empirical guidance from economists about cartels, and it was only thanks to the Commission library's subscription to Antitrust Bulletin that I even found this article.

Elzinga, who had been Special Economic Adviser to the Assistant Attorney General, may not have startled his august audience by opining that in the unlikely event he were ever to head the Antitrust Division, he would be pleased if the majority of his technical staff were to consist of what mystery writers call "gumshoes". Given the choice, he would select Sam Spade, Hercule Poirot, Miss Marple and Sherlock Holmes ahead of even the most distinguished economists on the programme. Together with William Breit, then a fellow economist at UVA, Elzinga has written detective fiction under the joint pseudonym of Marshall Jevons in which his sleuth, Professor Spearman, applies rigorous economic thinking to unravel the mystery and unmask the perpetrator at the *denouement* of the novel.

As a distinguished economist himself, he could get away with it. His point was a good one, though, and succinctly put:

> *"...the economist's comparative advantage in antitrust enforcement is with regard to questions of market structure and performance. In regard to questions of conspiracy, the economist qua economist can suggest areas of economy potentially ripe for effective cartelisation. And the economist may be able to illuminate various industry practices and characteristics as to whether they represent competition or collusion...the economists role is illuminating, even profound, but it is not definitive when the task is proving conspiracy."*

The present paper is not an attempt to set out demarcation lines between economists and investigators. As Elzinga said, all good economic analysis is structured like classical detective fiction. To paraphrase the most famous fictional sleuth of all, the coldly logical and scientific Sherlock Holmes, once you have excluded the mathematics, formulae and diagrams, whatever remains, however improbable, must be the truth.[3] More frequently, rather than adhere to this troublingly suspect aphorism, Holmes solved his mysteries by applying the rationality hypothesis that is central to the economists' method. What is the rational explanation for apparently irrational behaviour? Economists tend to assume that business people act rationally. Good economists have a lot of the detective about them, and the good cartel hound will be able to analyse the mass of data and the strange behavioural mysteries that an investigation throws up in the same light of reason and logic as the best forensic economists.

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[1] Antitrust Bulletin, Vol. XXIX N°. 1, Spring 1984, p. 3. The special issue collected the papers delivered at a symposium to commemorate the tenth anniversary of the Antitrust Division's Economic Policy Office.

[2] It was derived from the well-known article by F. Modigliani, New Developments on the Oligopoly Front, 66 J. Pol. Econ. 215 (1958).

[3] The Beryl Coronet. "When you have excluded the impossible, whatever remains, however improbable , must be the truth."

The Three Chapters of Cartel Economics

This paper will actually involve some history, or at least a sort of meander down a memory lane that often crosses the paths of economists. Elzinga's paper started with an exposition of "intellectual history" which he asked the audience to imagine as "a short story in three parts, each one a different Chapter on the economic analysis of cartels- or in legal parlance- price fixing conspiracies". Elzinga said that in his "Second Chapter"- which covered 1933 to 1959, beginning with the economic revolution caused by Chamberlin and Robinson and moving on to Fellner's book, *Competition among the Few*[4], a price fixing conspiracy "was seen largely as, and merely as, a subset of the broader category of oligopoly behaviour". Indeed, as he pointed out, the economic analysis of the cartel *qua* cartel had waned because oligoplistic interdependence seemed to make formal coalitions unnecessary. Explicit price fixing was considered by mainstream economists to be an anachronism. Why go to the bother of fixing prices if you could rely on "spontaneous coordination" to do the job for you?

There was a dearth of empirical writing about cartels during this period, with the exception of Stocking & Watkins, *Cartels in Action*, Twentieth Century Fund, 1946. Elzinga pointed out that although Stocking was "greatly taken" by Chamberlin's work, he was suspicious of Chamberlin's prediction that perfect information would generate the same price and outcome as foreseen by the theory of monopoly.

The next–and for Elzinga, the then current- Chapter of the story began as far as the economics is concerned with Stigler's path breaking article - which this audience will know better than I - entitled "A Theory of Oligopoly".[5] According to Elzinga:

> *"Stigler's article recast oligopoly theory as a subset of cartel theory and underscored the critical task of policing cartel agreements whenever price exceeded marginal cost in a world of less than perfect certainty ".*

This emphasis on cartels was music to the ears of an official whose attempts to pin down cartel conduct were always being confused by the rehashed and received thinking on oligopoly. The importance of marginal cost was not immediately apparent to a non-economist, but what was striking was the introduction to the "three C's" of post Stigler literature: concurrence, coordination and compliance: for a cartel to work, there had to be an "agreement on price and output, the enactment of that price-quantity outcome and a method for policing compliance (or deterring cheating". Another insight into post-Stigler thinking was no doubt a truism for economists but for investigators was the key to the problem of detecting secret price fixing cartels:

> *"The cartel agreement must embrace more than the price vector of business rivalry in order to be effective. If the cartel members agree solely (and even strictly) upon a common price, this leaves unresolved the basic task of any cartel: to restrict output by member firms. Without further coordination, individual firms may utilize other elements of the marketing mix .... to expand each one's sales, thereby lowering the real price of the product and resulting in an expansion of market output. Moreover, unless coordination and compliance mechanisms exist, each supplier will consider chiseling on the agreed-upon price as well, by offering secret price concessions, and, upon doing so, undercutting the joint profit-maximizing price concurred upon by the colluding firms."*

[4] W. Fellner, *Competition among the Few*, 1949.

[5] Stigler, A Theory of Oligopoly, 72 J. Pol. Econ. 44.

Academic economic thinking had departed radically from the pre-Stigler assumption that tacit agreement on price alone was sufficient for cartelisation. As Elzinga put it, "Now the intellectual posture is very much reversed. Price fixing is no longer seen as an ethereal exercise in strategic interaction. If it cannot be shown that concurrence, coordination and compliance are being achieved on those vectors of competition that affect output, the prospects for effective cartelisation are minimal."

The story line in the scholarly literature was being amply demonstrated in real life as well. As early as the 1960's, the fond assumption that cartels were unnecessary since the same result could be achieved, and far less dangerously, by leaving everything to spontaneous coordination should have been shaken by the revelations in the Electrical Equipment Conspiracy.[6] By 1982, it was being recognized by industry "experts" that OPEC's efforts to fix the price for crude oil were doomed to failure unless (1) there was concurrence on the production quota of each member so as to make the price effective, and (2) there was a compliance mechanism to prevent chiseling on the agreed upon price, and of course on the agreed upon output as well.

The way the story line had changed since Elzinga's Chapter 2 was also clear in the way the authorities were starting to dismiss evidence of mere parallel pricing proffered as proof of collusion. The reverse side of the post-Stigler coin is that on its own, pure "consciously parallel" behaviour is as consistent with competition as with collusion:

> *"Frequently... plaintiffs proffer evidence of parallel conduct by defendants to support their allegations of price fixing. However parallel pricing behaviour, even when accompanied by complete knowledge on the part of industry members, is utterly ambiguous as an indicium of conspiracy."*[7]

As they moved away from the simple Cournot and Chamberlin models of oligopoly, economists were able to identify the phenomenon of the "complicating factor" that in complex markets made it all but impossible for firms to achieve a monopoly level of prices through a mere perception of interdependence. One consequence of the new thinking on cartels was the attention paid by economists to the so called "facilitating practice" or "facilitating device"- the adoption- whether by design or otherwise, and that raises further problems of legal analysis- by the players in the industry of some mechanism that helps the firms overcome complicating factors[8]. Facilitating practices was no doubt a fascinating line of study for economists and policy makers, but it did not provide the answer for those cynics who suspected that

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[6] From the "real" world, the other event was the Electrical Equipment Conspiracy that came into the public eye in 1960. Elaborate mechanisms had been developed to communicate in secret: the power switchgear group met 25 times in a year; mail was sent to private homes in brown envelopes; calls were made from public phones; and cartel meetings were code named "choir practices". Because the industry should have been so conducive to "conscious parallelism", the exposure of the cartel shook "economists' faith in the catechism of conjectural economics". If the case first brought home to US executives that they could be jailed, the scope of the conspiracy was limited to the US, the managers jailed were of mid level only and the prison sentences only of the order of on month. The most senior executives winked on the conspiracy but ensured they had plausible deniability: see John Brooks, "The Impacted Philosophers," (New Yorker, reprinted in Business Adventures, 1969). The lessons of the Electrical Equipment conspiracy were soon forgotten.

[7] Brief for the DoJ as Amicus Curiae, Weyerhaeuser Co and Williamette Industries v Lyman Lamb Co, 462 U.S. 1125 (1983).

[8] see e.g. Hay, Oligopoly, Shared Monopoly and Antitrust Law, 67 Cornell Law Rev. 439 (1982); Hay, Practices that Facilitate Cooperation: the *Ethyl* case, in Kwoka and White, *The Antitrust Revolution*.

beneath the respectable surface of major industry in Europe, and perhaps elsewhere, old cartel habits died hard. The obstacle to using a theory of "oligopolistic interdependence" as the basis for an antitrust enforcement policy was the lack of a remedy. Turner's hugely influential article on conscious parallelism[9] had argued that it was unrealistic to prohibit behaviour that made sense. A theory of the "facilitating device" at least provided something that an injunction could latch on to. But if the legislation in force allowed for penalties to be imposed - in the US there were jail sentences, at least in theory, and even in the administrative environment of the EEC, as it then was, there was (again in theory) provision for fines on companies of up to ten per cent of turnover, then the law had to be enforced. But surely you could not in all fairness fine companies or jail people for adhering to a perfectly sensible business strategy?

At the root of the problem was the conflict of interpretation. Of course, a price fixing agreement is often only provable by indirect evidence. If the participants are not talking, how is it to be proved? Cartels are not like street crime where there are by-stander witnesses. If all there was to go on was an observed pattern of behaviour seen from the outside, exactly the same set of objective facts could be relied upon to support entirely opposite conclusions. As Weissman observed, "The very facts that a plaintiff urges as evidence of non-competitive behaviour are the apt to be the ones relied upon by the defence as obvious manifestations of zealous competing."[10] Parallel pricing is this wholly ambiguous, while price wars can be taken as indicative of both intense competitive rivalry and the furore provoked when one member is discovered cheating on the other members.

Elzinga put his finger on it when he said in his conclusion that "if coordination cannot be simply spontaneous, and interdependence cannot be totally conjectural, it follows that the needed efforts at concurrence, coordination and compliance should yield sufficient smoking-gun-type evidence for conviction."

Global Cartels: Did they ever Go Away?

Cartels enjoyed their heyday between the wars. Global cartels were formal agreements and far from regarding themselves as furtive perpetrators, the participants believed their arrangements were an extension of their respective governments' policies and a form of international diplomacy.[11] Stocking and Watkins believed they reached into "practically every branch of the modern economy". Machlup cited a League of Nations study finding that a third of global trade was under some form of marketing control.[12] Cartels were especially entrenched in Europe, a State Department economist, Robert Terrill, asserting that "There were probably few important commodities in intra-European trade which by the middle 1930's were not subject to regulation as to conditions of competition through the direct or

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[9] D. Turner The Regulation of Agreement under the Sherman Act: Conscious Parallelism and Refusals to Deal, Harv. L. R. 75 (February 1962), pp. 655-706.

[10] Weissmann, Is Oligopoly Illegal? A Jurisprudential Approach, 74 Q. J. Econ. 437 (1960).

[11] See e.g. Hexner, *International Cartels*, (Pitman 1946); Harding and Joshua, *Regulating Cartels in Europe: a Study of Legal Control of Corporate Delinquency* (OUP 2003). British Industrial spokesmen in particular lauded the virtues of international cartels. Lord McGowan of Imperial Chemical Industries described cartels as a way of assuring orderly marketing, planned expansion of international trade, elimination of cut-throat prices and "all that is fair and reasonable".

[12] Machlup, paper in *A Cartel Policy for the United Nations*, (Columbia University Press, 1945), cited in Rahl, International Cartels and their Regulation, chapter in *Competition in International Business* (Columbia Univ. Press, 1981).

indirect mediation of cartels."[13] (As things turned out, he could have been talking about the 1980's or 90's as well.) US experts believed that while the same tendencies were to some extent to be found in America, tough antitrust laws made a big difference:

> *"With the Sherman Act in force...they were generally forced to avoid outright price fixing and other direct restraints of price competition and were limited to milder forms of cooperation than were prevalent in Europe and elsewhere."*[14]

One expert opined in 1968 that "global cartels have passed into history".[15] With unwitting accuracy another ventured to assert to the ABA in 1979 that "the old-fashioned private international cartel... is now rarely found"[16], a statement that with the benefit of hindsight one can say was true in the sense that the DoJ was not finding them. "A few of the old-fashioned cartels do reappear now and then," said Rahl, referring to the resurfacing of the famous Quinine cartel in 1967, which he said was "spectacular partly because of its rarity."[17]

Presumably these distinguished figures subscribed to the notion that rather than driving the cartels underground, the Sherman Act had required the would-be market manipulators to find ways of achieving their objectives by other means, price signalling and the like. At any rate, there were very few US efforts to investigate international cartels. Strangely the curious blind spot of the Justice Department in the field of international cartels persisted until the 90's. From FY 1987 to FY 1991, the Division did not bring a single case against a foreign corporation or a foreign individual.[18] The attentions of the US cartel busters were aimed exclusively at roadbuilders and milk producers. [19]

Employing Post-Stigler Insights in Detecting Cartels

In Europe however there were pragmatists who believed that international cartels were in fact operating with impunity for the European competition rules and even the Sherman Act. If there were cartels functioning out there in secret, they would on the basis of the post-Stiglerian insights surely leave a paper trail. In a major industry like plastics, where at the time there would be anything up to fifteen or more major players in the market, the sheer volume of the organization required to make a cartel workable would most definitely require a high degree of planning, monitoring - and travel. The traditional manufacturing industries like chemicals and paper typically worked on the basis of periodic "price

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[13] Terrill, paper in *A Cartel Policy for the United Nations*, n. 11 above.

[14] Rahl, International Cartels at p. 245.

[15] Vernon, Storm over the Multinationals (Harvard Univ. Press 1977), p. 75.

[16] Remarks of D. Rosenthal "An Overview of the Guide and its Objectives" in J. Griffin, ed. *Perspectives on the Extraterritorial Application of U.S. Antitrust and Other Laws* (Chicago, ABA, 1979), p. 89.

[17] Rahl, International Cartels at p. 246.

[18] Spratling, Criminal Antitrust Enforcement against International Cartels, Advanced Criminal Antitrust Workshop, Phoenix, Arizona, 21 February 1997.

[19] Joel Klein Chief of the Antitrust Division when the spectacular crackdown began, defended the Department's past inaction against global cartels thus: "This was not because of any conscious policy to avoid cartel cases.... No, we didn't bring any cases simply because we didn't have any evidence that *international* cartels continued to be a problem.": International Anti-Cartel Enforcement Conference Luncheon Address, Washington DC, 30 September 1999.

initiatives" that were faithfully reported in the trade press as "X announced a price increase to 2.25 DM per kg for (marker) grade, and when contacted by the journal, Y and Z responded that they were following." Sometimes there was a "two-step" increase with a price going up in one month and then a second increase hot on its heels. In those days before the Euro, the DM was used as the currency of reference in Europe. But to get price increases to stick, and as the trade press reported, as often as not they did, the producers would have to limit production and agree on quotas- fixing of which in an industry with many players, including both (as they put it) the "responsible producers" and the "hooligans in Europe" would be a complex operation. Temptations to cheat by shaving the cartel price and surreptitiously selling more than allocated by the Club would be manifold, and a reporting mechanism would have to be set up and implemented to detect cheating. Indeed, detection would generally be pointless without some punishment, so compensation mechanisms would have to be established for balancing market shares, and the requisite transfers, either financial or physical, would have to be effected and disguised from the auditors and authorities.

Clearly a cartel of any magnitude would generate a vast amount of paper. The problem was how to find it. Even in the relaxed (non-) enforcement environment of the time, the participants would know price fixing was illegal and take at least some precautions to keep the existence of the cartel secret. As the investigations later disclosed, the conspirators subscribed to the not unreasonable notion that Switzerland was a cartel paradise and safe haven. Meetings were all held in deluxe hotels in Zurich in locations conveniently close to "Swiss Fiduciaries" that operated industry information exchanges and in at least one case, kept the books for or even actively managed the cartels.[20] The answer lay in targeted "dawn raids". The Commission had the power in Regulation No 17 to carry out surprise investigations at companies without notice and ordered by decision, and the use of the device had already been tested and approved by the Court of Justice in *National Panasonic* in 1980.[21]

Hunting for Evidence

We knew of course that we would not find the full and identical set of cartel minutes at every producer that was visited. The defendants would protest that "purely internal" documents were not evidence of any cartel. Here, some old US cases on evidence in conspiracy cases came in aid. The common sense (and common law) rule in conspiracy cases is that since the guilty relationship forms a kind of agency between the participants, the statement of one member made "in the course and furtherance of the conspiracy" is admissible evidence against all its members. But what of the handwritten notes that each company took of the cartel meetings for its own internal use? And the proposals and suggestions that were debated internally before being submitted to the next meeting of the conspirators? A cartel of the nature that was suspected would not be a static agreement fixed in stone, more a vital, growing and constantly adapting enterprise. The parties would constantly be suggesting alterations and adjustments, preparing for meetings, reporting back on the cartel discussions and planning internally the means of best effecting the joint purpose. Inspection of some very dusty volumes of Trade Cases dug out of the DG IV library yielded a brace of cases that held that where a cartel is so complex that the members have to keep their own notes and records to be sure that they knew what it was they had to do to carry it out, such declarations were admissible as statements made to further the conspiracy.[22] Ironically, the most explicit

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[20] In *CartonBoard*, OJ 1994 L 243/1, a fiduciary company actually provided the Secretariat of the "PG Paperboard", the vehicle for the cartel, and was present at all its meetings.

[21] National Panasonic (UK) Ltd v Commission [1980] ECR 2033.

[22] US v E.I. Dupont de Nemours (DC Del 1952) 107 F. Supp 324; US v Imperial Chemical Industries (DC N.Y. 1951) 100 F. Supp 504.

case on the subject related to the carve-up of the world market in explosives, dyestuffs, ammonia, acids, fertilizers and a whole string of other products between Britain and the US dating from as early as 1897 and the eponymous protagonist was one of the main actors in the polypropylene cartel.

The highways and byways of Avenue des Nerviens No 9 were searched for volunteers, and on 13 October 1983, the Commission was able to mount simultaneous investigations at ten different companies across Europe. In those days a team consisted of two Commission officials and one person from the national competition authority. In the early days of dawn raids, there was never any question of a national search warrant to back up the investigation decision, and the folklore is rich in stories of how investigators managed to penetrate the inner sanctum of some of Europe's executive floors, or, far more difficult, got past gate security at locations where the company's commercial HQ was sited on a vast industrial complex. Those were also the days when lawyers insisted (though they usually lost the arm-wrestling bout)[23] that Commission officials could not search offices or desk drawers, and had to wait in a far off annexe or meeting room, "specify" the documents they wished to review, wait for the company to "consider their request" and bring them the "relevant document". (Eventually an unofficial contest developed among the Commission officials to see who could find the most inept set of "Dawn Raid Compliance Guidelines".)

As it happens, the Polypropylene investigation yielded a rich hoard of treasure beyond even the wildest hopes of this investigator.[24] Before the defining moment when the thick files of all the cartel minutes over several years, the details of the quota system and the proposals for revamping it to make it more effective were discovered on the window sill of a mid-ranking executive who happened to be away on holiday that day, we had never suspected the sheer level of sophistication, the complexity of structure and the careful organization that was needed. Few officials had ever even heard of the Baur au Lac and Baur en Ville Hotels in Zurich, or the Frankfurt Airport Hotel, and certainly not of the Motel Agip in an industrial suburb of Milan where – in the PVC case - the lower level of managers met on one occasion to implement the will of their superiors.

The DoJ like to think they were the first to "discover" the massive international cartels that feature in so many antitrust cases today. But the fact is that everything you may have seen in the notorious DOJ video of the Lysine cartel meetings happened in *Polypropylene* fifteen years earlier, and was documented down to the last detail. There were agreed target prices for the main grades for each country (it was long before the euro, so they took DM as the standard and then worked out the equivalent in each currency); concerted price initiatives, choreographed in each country so as to look "spontaneous"; "account leaders" whose job is was to lead the price up at each big customer; quotas, target volumes and "compensation" to balance the books. There were several layers in the hierarchy: the "Bosses" who were Divisional MDs, decided the strategy and the lower level manager "Experts" who worked out the detail – in each national currency - of the price increases. The big difference from Lysine was that in those pre-globalisation days, there were fifteen or more polypropylene producers in Europe alone, not just four or five worldwide. To manage the cartel effectively, and unbeknown to their fellow conspirators, a self-appointed *Directoire* called the "Big Four" - with 50 per cent of the market between

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23 See e.g. Hoechst A.G. v Commission [1989] ECR 2859. When the Commission carried out a dawn raid, the company managed somehow to obtain a temporary order from a local judge (soon reversed) enjoining the Commission from executing its investigation. Company executives had threatened to have the officials arrested for "Hausfriedensbruch" if they touched any documents.

24 One wonders if history might have been different if the DoJ had read the Commission decision in OJ L 230 of 18 August 1986. Perhaps it could have given it cause to reconsider its then firm conviction that there was no evidence that cartels were other than local.

them - met the day before the "Bosses" (who came from all fifteen companies) in order to agree a common position among themselves and counter the more unruly elements.

As so often happens nowadays, one case led to another. During the *Polypropylene* investigation, we came across the evidence of a cartel in PVC and another in LDPE[25], and indeed several others as well that were simply never followed up through "lack of resources". Effectively the whole of the plastics industry in Europe was divvied up between the producers. One would have thought that DG IV would throw resources at such massive and flagrant violations, but cartels ran a distant third in those days to such matters as export prohibitions on an invoice or the textual exegesis of the small print in notifications of ordinary commercial agreements.

Despite the absence of a sustained hierarchical interest in anti-cartel enforcement, there followed a steady run of about one major cartel case every eighteen months or two years. At that time, there was no incentive for companies to come in for leniency, and every SO was bitterly contested line by line, while every decision, no matter how rock-solid, was taken on to the Court of Justice, and when it was created, the Court of First Instance. It would be a nice touch to be able to say that Elzinga's paper was the *fons et origo* of the Commission's remarkable run of successes in the 1980's and 1990's in uncovering a whole series of secret, sophisticated, highly-organised and all-pervasive cartels in Europe's largest industries, covering the whole of the European Community (and beyond), involving as the main offenders many of Europe's largest and most respected companies, and run by some of the most senior executives in their respective corporations meeting in luxury Swiss lakeside hotels to set the grand strategy and direct a network of lower level working groups. The reality is somewhat less serendipitous. The "dawn raids" in *Polypropylene*, the first in the modestly long Newgate calendar of cartel decisions taken by the Commission, took place in October 1983, before the publication in Antitrust Bulletin of Elzinga's inspirational paper. And dawn raids had already been part of the landscape since the late 70's, even if the Commission, with its almost exclusive focus in those days on parallel imports, had rarely used them outside vertical restraint cases.

Cartels and Oligopoly

Having digressed somewhat, let us return to the economists. The framers of the Treaty of Rome knew very well that European industry had long been characterised not only by formal and quite open international cartel agreements but also by a web of far looser and more subtly expressed understandings and alliances which enabled national champions to reign unchallenged on their own domestic markets. The Community legislators were therefore anxious to ensure that firms could not evade the new competition rules - designed like all the Treaty provisions to break down national barriers to trade - by formally abandoning their explicit cartel agreements but continuing their cooperation in less obvious ways. The early covert cartel cases dealt with by the Commission and the Court in the late 1960's and 70's - *Dyestuffs*[26] is probably the best example - thus focused on the notion of concerted practice rather than "agreement". This approach mirrored the academic thinking in the pre-Stigler economics world identified by Elzinga in his Chapter 2 by which cartel theory was a subset of oligopoly theory. Indeed for many years there seems to have been a general acceptance that the correct way to deal with a cartel which manifested itself in a pattern of uniform industry pricing was to treat it as informal cooperation and to call it a "concerted practice". Even if it was clear from their course of dealing the parties had

[25] PVC, OJ 1989 L 74/1. Decision readopted as "PVC II" in OJ 1994 L 239/14; LDPE, O5 1989 74/21. The decision was also struck down by the CFI but was never readopted.

[26] ICI v Commission [1972] ECR 619.

somehow got their heads together, there was a distinct absence of solid documentary evidence as to what was actually discussed or agreed in meetings, let alone of an overall common plan agreed in advance.[27] A whole raft of distinguished experts had solemnly expounded in the *Dyestuffs* case on oligopoly theory, but there had been no dawn raids and remarkably little evidence of hard core cartel behaviour in that case, and the reader of the decision would search in vain for the sort of smoking gun evidence that was later to emerge in cases like *Polypropylene, Cartonboard, Pre-Insulated Pipes*[28]*, MCAA*[29] and *Methionine*[30].

The cartel world was however changing. While colluding firms may have become ever more subtle in covering their tracks, the more effective use by the Commission of its investigative powers - and no doubt the availability of the photocopier in generating incriminating evidence - has paradoxically made it possible to establish who was present in the smoke-filled room and when, what was discussed and decided behind closed doors, and exactly how it was carried out. With such strong factual evidence now being obtained, what room was there left for economic theorising?

Theoretical economists have in fact generally been rather cautious in claiming that their theories represent some incontestable natural law. After all literally dozens of theories of oligopoly of different orders of rigour have been developed. Lawyers are somewhat less reticent: the variable geometry of the oligopoly theory will fit almost every type of conduct: it can be invoked to explain both why prices stick and why they go up. In almost every parallel pricing case in the US, therefore teams of expert economists used to be produced to testify that the parallel pricing is the result of free market forces - and on the other side equally distinguished economists would give exactly the opposite opinion.

Enter the Economists

Econometrics featured heavily in *Polypropylene*, with the three German producers- BASF, Hoechst and Huels-commissioning a study by a very distinguished Professor of Econometrics (confined to the German market but supposedly representative of the EEC as a whole) that was designed to demonstrate that conditions of intense, indeed ruinous competition prevailed in the German market, that the pattern of rises and falls in price "disproved the existence of any collusion" and that prices were determined by natural market forces of supply and demand and fighting between producers for market share. The probative value ambitiously claimed for the study in rebutting collusion was somewhat diminished by the requirement for the reader to ignore the arsenal of smoking guns and leave his/her critical faculties outside the Hearing. The Commission was in debunking mode but maintained the professional courtesies:

> *"The economic study of the German market does not disprove the existence of any agreement. Factors such as those invoked in the report –market structure and price transparency- could in the absence of evidence of collusion explain a general pattern of similar pricing behaviour. However the Commission's objections are not based on general similarities...Even if there had not been direct proof of meetings, the uniformity and simultaneity of the price instructions over a*

[27] The case has been described as "immediately suggestive of both murky behaviour and tricky economics". (Harding and Joshua, op. cit., p. 123).

[28] Pre-Insulated Pipe Cartel, OJ 1999 L 24/1.

[29] MCAA, Decision of 19 January 2005 in case COMP/E-1/C 37.773.

[30] Methionine, OJ 2003 L 255/1.

long period was so marked that it (sic) would have given rise to a strong presumption of concertation...

Indeed the evidence relied upon by the Commission showed that the producers recognized that the market was affected by matters such as changes in demand or raw material price increases beyond their control. In deciding on the amount, timing, modalities and chances of success of a planned price initiative such market factors had to be taken into account by the producers. One of the main purposes of the meetings however was to try to coordinate the response of the producers to such factors."[31]

There was a dingdong battle in the Court of First Instance (this was one of its first ever cases[32]) in which the Commission's then lone in house economist, who was testifying before the court, dismissed the distinguished Professor's model as "not robust", apparently a devastating put-down in econometric circles.

It was left to Judge Vesterdorf, acting as Advocate General, to deliver the *coup de grace:*

"(T)he findings of economic experts cannot take the place of legal assessment and adjudication. ... Even if it were to be found that there were no significant effects on the market, that does not prove that no agreement was reached or that no exchange of information took place with a view to regulating prices. It is for the Court to consider what is prohibited under Article 85 (1), and the evidence for the commitment (sic) of prohibited acts, and not for economic theorists." [33]

In *Cartonboard*, another case with an *embarras de richesse* in terms of evidence, where the same layered cartel structures were employed, and the guiding maxim of the conspiracy and the key to the success of the choreographed price initiatives was the "price before tonnage "policy (maintaining a balance between production and consumption by means of coordinated mill stoppages and "downtime") nine of the producers joined to commission an economics report that purported to show that price changes were explained by changes in unit costs and demand, and that only a "loose correlation " existed between announced price increases and the actual prices paid by customers. This time, rather than argue in the face of the mountain of hard evidence that there was no cartel, the argument was that the study supported the contention that whatever had been discussed in meetings, there was "no real effect" on prices. Applying the Holmesian "rational behaviour" test, one might naively have asked whether the producers would have devoted so much effort and money to the enterprise over so many years (and even run the risk of continuing to hold meetings for almost a year after the investigations had unmasked the cartel) if it had no tangible results. The distinguished author of the report accepted (rather too frankly perhaps for his paymasters) in the course of the hearing that his findings in no way disproved the existence of the cartel.[34]

The Commission went to town in the decision: if the purpose of the study was merely to show the cartel was ineffective, it did not fulfil that objective either. The various graphs produced in the study to demonstrate that there was "no causal connection" between announced and actual prices showed a close

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[31] Polypropylene Decision, paras 72-73.

[32] Usually referred to as Hercules Chemicals v Commission [1991] ECR II-1711.

[33] Opinion of Judge Vesterdorf, acting as Advocate General, Rhone-Poulenc SA v Commission [1991] ECR II-867 at page 957.

[34] Cartonboard, OJ 1994 L 243/1, para 115.

linear relationship between the two sets of data. The net price increases closely tracked the price announcements, albeit with some time lag. (The report's author disarmingly acknowledged this during the hearing as well.)

In PVC (a decision that was to suffer a long ordeal of bizarre procedural travails before its final vindication[35]) the producers (almost the same cast of characters as in Polypropylene) for the most part could not deny that industry wide price initiatives had taken place: they argued this time however that they were the manifestation of spontaneous "barometric price leadership" where one or other of the larger producers sets a price that approximates to the competitive price and was then followed by the others without any illicit contact taking place.

By now, the Commission's drafter was losing patience:

> *"In order to accept the validity of such arguments the Commission would have to ignore the considerable documentary evidence as to*
>
> *(i) the express purpose of the regular meetings as foreseen in the 1980 planning documents;*
> *(ii) the participation in those meetings of almost all the producers of PVC;*
> *(iii) the producers' internal marketing reports which suggest that price initiatives were part of a concerted plan.*
>
> *In the light of their attendance at meetings, it is idle for the producers to claim... that they heard of impending price increases by reading commercial journals and decided independently to support them."*[36]

It was not of course the fault of any of the distinguished economists engaged by the defence that they did not fulfil the expectations of the lawyers that they would somehow constitute a *deus ex machina* to rescue their clients. Even the most brilliant theory will not controvert the parties' own incriminating documents.

From an enforcement perspective, it must have been clear by now that conceptually the best way to deal with alleged price-fixing was to invoke cartel rather than oligopoly theory. The same debate had been running in the US for years. The *Interstate*[37] opinion of the Supreme Court was often mistakenly cited as support for the proposition that that a conspiracy finding could be upheld if firms acted in parallel and were aware of one another's actions, the Supreme Court in fact always stopped short of taking this position. Interstate was in fact just an example of the 'hub and spoke' conspiracy in which the participants were each in contact with the centre (but not one another) and knew that they were part of a common plan. The question of whether parallel behaviour on its own could be deemed a Sherman Act violation was nevertheless still widely argued. Finally in 1954 the Supreme Court established beyond

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[35] The dawn raids had occurred in 1983 and 1987. The decision was declared "non-existent" by the Court of First Instance in 1992 on the ground that it has not been signed on the title page by the President and Secretary-General of the Commission. (They had put their signatures on the list of decisions adopted that day by the Commission.) The Commission readopted the decision which survived intact its next passage through the CFI. The Court of Justice did not finally dispose if the case (dismissing virtually all the arguments) until October 2002: LVM v Commission [2002] ECR I-8375. The whole saga lasted almost twenty years. For the story, see Harding and Joshua, op.cit., pp. 133-134.

[36] PVC Decision, OJ 1988 L 74/1, para 21.

[37] Interstate Circuit Inc. v US, 306 US 208 (1939).

doubt (if doubt there was) that conscious parallelism standing on its own was not to be equated with Sherman Act antitrust conspiracy.[38] At any rate, if the line of cases had confirmed that "concert of action" could aptly be applied to coordinated behaviour where no common plan had been agreed in advance, it also means that where there is nothing more on the record than parallel behaviour the Courts will not permit an inference of conspiracy. This is still broadly the position in United States antitrust jurisprudence today even if economic thinking about cartel behaviour has changed.

Pulp Fiction

However those who thought that the ground rules had by now been settled in the EC were in for a rude awakening in the ECJ's swansong as a court of direct review- the *Woodpulp* case decided in March 1993. *Woodpulp* serves as an education in the dangers of losing the focus in a cartel case. Some in the Commission had seen it as the opportunity to prove "concertation" by "economic plausibility" evidence. Although there was a good deal of evidence of actual collusion and cartel meetings, the main producers dubbing themselves the "Bristol Club" after the luxury hotel that hosted their meetings, it was curiously downplayed in the decision[39] in favour of economic plausibility factors. Unfortunately, it was never made clear in the decision whether the gist of the Commission's case was hardcore price fixing or a facilitating practice. Everything was just lumped in together. Some producers were however obviously far more deeply involved than others. Although they were low by any standard, totalling only 4 million ecu, fines were imposed, a symbol at least that the producers were doing something "wrong" and of which the Commission could legitimately disapprove. The distinction between direct cartel behaviour by some of the participants and "price signalling" by others was never drawn, nor did the decision identify with any precision the terms or nature of any underlying conspiracy or attempt to spell out the role of each alleged participant. The omission was to prove fatal. The Court savaged the Commission's decision in a judgment that has little of the judicial detachment that usually characterises its deliberations. [40]

Having thrown out all the collusion evidence on dubious grounds[41], thus leaving on the factual record little more than the parallel pricing itself, the court could perhaps have said without any intellectual prestidigitation that on the admissible evidence before it, the burden of proof was not satisfied. Instead, ignoring the indisputable evidence of collusion among at least the hard core of producers, it proceeded on the basis of competing economic theory alone to examine whether such collusion was "likely" - and found that it was not. The experts - enthusiastically endorsed by the writing judge - had justified the price uniformity as the "natural" result of the base point system and the practice of quarterly industry price announcements, but these were exactly the mechanisms that the Commission had characterised as artificial facilitating devices. Natural result or not, the players had knowingly adhered to a device that

[38] Theatre Enterprises Inc v Paramount Film Distributing Corp 346 US 537 (1954).

[39] Decision, OJ 1985 L 85/1.

[40] A. Ahlström v Commission [1993] ECR I-1307. Despite the Advocate-General's urging of caution, the Court relied heavily for its factual conclusions on an expert's report which it had commissioned itself and which, as it transpired, contained many contestable assertions. See Joshua and Jordan, Combinations, Concerted Practices and Cartels: Adopting the Concept of the Conspiracy in European Community Competition Law, Nw. J. Int'l L & Bus., Spring 2004, Vol. 24 N° 3.

[41] In a terse and baffling *non-sequitur*, the Court insisted that because of the Commission's inability to specify for each and every document individually which producers it implicated and for how long, "in the light of that reply those documents must be excluded from consideration".

made it easier to realise their declared objective of achieving price stability- surely a "concerted practice"? This was not simply a case of interdependent pricing, but of interdependent adherence to the facilitating practice.

There was however some force in the view expressed by the Advocate-General in that case that unlawful collusion should not be defined so widely by the Commission as to encompass in one catch-all charge of "concertation" conduct which could cover anything from a hard core price fixing cartel to mere opportunistic adhesion to a facilitating device.

The lesson for the Commission was that to prove collusion, economic factors are no substitute for hard evidence. It also has to have what American prosecutors call a "theory" of the conspiracy. The Court's judgement also underlines the need to distinguish in Article 81 analysis between the full price fixing conspiracy and mere facilitating devices. Cynics might say that if you scratch beneath the surface of an "industry information exchange" you will find a cartel, and in half the cases, they would probably be right.

The New Economics

Trying to prove by econometrics that there was no collusion is going to be a loser. However the Commission itself has recently discovered economics, and after the drubbing it received in a series of merger cases, it has of course beefed up its economics team.

Do they hunch over their monitors in DG Comp tracking down cartels in European industries through cyberspace? Attempts to "prove" the existence of cartels by so-called economic plausibility factors in *Woodpulp* were a disaster. According to the United States DoJ, however, it has enjoyed success by means of "cartel profiling" aimed at ferreting out new violations, but whether these are no more than intuitive – the "copper's nose" – is not clear. At any event, identifying the sectors with suspicious industry-wide "price initiatives" requires no more than a half-hour session with a trade magazine. It is no disparagement of these excellent officials to say, with Elzinga, that their role is not definitive as sleuths to uncover price fixing conspiracies.

What role is there for the private side in cartel cases? In the US, as Professor Connor describes, the huge ramp-up by the Antitrust Division of its crusade against global cartels is good news for the economists.[42] They are engaged on both the criminal and the civil side. There are forensic economists on the staff of the DoJ who have to advise prosecutors on the overcharge as the basis for negotiating the fine under plea agreements based on the US Sentencing Guidelines and the "twice the gain, twice the pain" alternative sentencing Statute. Defendants in turn will have their own economists to come up with a lower figure to put to the DoJ. If the case goes to trial, economists are engaged to provide arguments that the cartel was ineffective- such evidence is technically irrelevant, but it could sow doubt in the minds of the jury. Then, if the defendants are found guilty, economists get involved in the arguments on sentencing. Post-*Booker*, they may well play a greater role in proving or disproving difficult issues of deadweight loss.

Private antitrust suits and class actions are an industry in themselves. The European street is not however so obviously paved with gold. There are no triple damages and courts are still grappling (or avoiding grappling with) complex questions of pass-on and indirect purchaser actions. On the face of it, there

[42] Connor, Forensic Economics: and Introduction with Special Emphasis on Price Fixing, ACLE Workshop, Amsterdam, 17 March 2006.

should nevertheless be opportunities for forensic economists in cartel cases despite the near absence (compared with the United States) of private damage suits and the underwhelming response of European lawyers and litigants to Commission attempts to foster damages actions.

Different methods have been used by the Commission for calculating the fines in cartel cases. The only criteria referred to in the Regulation[43] are "gravity" and "duration." The Commission Fine Guidelines claim that the fines are based on "actual economic impact".[44] According to Part A, headed "Gravity", in assessing the gravity of the infringement, account must be taken of its nature, its actual impact I on the market, where this can be measured, and the size of the relevant geographic market. The Commission may declare in the Statement of objections that the violation is "very serious", but there are a plethora of methods for calculating overcharge or showing lack of impact. The Commission claims to have some eighty or more immunity applicants under its wing, so surely that means eighty cases in the pipeline and steady employment for forensic economists? Numbers can be crunched in different but equally respectable ways to estimate the cartel damage.

Supple Secrets of X

Unfortunately the prospects for engaging economists in damage calculations in cartel cases in the EU have rather fallen below expectations. In the first place, through its reluctance to overhaul its cumbersome administrative procedures the Commission has allowed a huge backlog of applications to build up. Instead of leading to quick resolution and fewer contested cases, leniency as an institution has made the Commission's procedures even longer and slower. The actual number of "statements of objections" (and ultimately decisions) that the Commission manages to get out a year is but a minute fraction of the total of applications that come in. Economists must thus have recourse to that old method of rationing the work, namely forming a queue.

More seriously though, the Commission's "Guidelines" are not designed to reflect any perceived need for certainty. Unlike in the US, there is no "volume of commerce" calculation nor even any use for the rough and ready assumption, espoused by OECD and others, that a cartel leads to a 20 per cent deadweight loss. The Commission will calculate fines according to the formula x gravity + y duration = basic amount.

Everything depends on the value chosen for x, a figure that may be chosen at random by an exercise of "discretion" with which the Court is unlikely to interfere. There is no sophisticated calculation, and any attempt to rationalise the selection of "x" by running the figures of published (and unpublished) decisions soon comes up against the harsh realisation that when the data are normalised, the value of x can vary by a factor of five or more.

The truth is that where moral turpitude is involved, it is the Commission's gut reaction to the bad attitude and behaviour that will "determine" the amount of the fine, not some formula that can be reverse-engineered from the decisions. The Commission makes the point itself in *Industrial Copper Tubes*[45]:

> *"The effect which an agreement or concerted practice may have had on normal competition is not a conclusive criterion in assessing the proper amount of the fine. As confirmed by case law,*

[43] Regulation N°1/2003, OJ 2003 L 1/1, Art. 23(3). (In its predecessor, Regulation N°17, Art. 15(2).)

[44] Guidelines on the method of setting fines composed pursuant to Article 15(2) of Regulation N°17, OJ 1998 C 9/3.

[45] Decision of 16 December 2003 in Case COMP/E-1/38.240 – *Industrial Tubes.*

factors relating to the intentional aspect... may be more significant than those relating to its effects, particularly where they relate to infringements which are intrinsically serious, such as price-fixing and market-sharing."[46]

If the Fine Guidelines are to be anything more than *carte blanche* for the Commission, there is however surely room for "measuring" the economic impact in cases of infringements where the infringement does not fall so easily into the category of bad conduct. With so many leniency applications, the "park" of classic hardcore cartels yet to be denounced or discovered may be diminishing, and immunity applicants are coming in with delations of "cartels" which ten or fifteen years ago might not even have been criminally prosecuted in the US. The harm of such violations must intuitively lie in the adverse economic impact on the market (akin to a sort of "rule of reason").

Yet even here, the Commission is not easily convinced. The models relied on in any econometrics report will have to comply with the rigorous standards of academic research and those used in a forensic environment, *Daubert*[47] standards and the like. Economist friends tell me that the models must be internally consistent with economic theory and also externally consistent, that is they will have to explain the facts and the data. To go back to the old shibboleth, they also have to be "structurally robust".

Cry Havoc and let loose the Dogs of War

Economic studies that fail in the Commission economists' eyes to pass these rigorous tests will have their "weaknesses" ruthlessly exposed in a Commission decision. *Industrial Copper Tubes* shows that being a well-known and respected consultancy will not confer immunity from the Commission's ire: one party submitted a report that analysed whether and to what extent the prices charged by that producer increased as a result of the alleged price discussions. Based on a data set constructed from that party's invoices alone, the report boldly concluded that the " discussions among the copper tube producers had a statistically insignificant impact on the prices actually charged to the customers of industrial tubes by the KME group."

The Commission was not content in this decision with the standard formulation that while it is not required to quantify in detail the extent to which the prices might have differed from those which might have applied in the absence of the arrangements, nevertheless there is evidence that prices were higher than under normal conditions of competition.

Instead, Mr Roeller's economists were given free rein to savage the economics of the consultants while the lawyers took a break. The "explanatory power of the study is only limited". The impact of a cartel has to be measured at a global level, not just at that of one or even a few undertakings. The decision rails against the "selection bias". "No robustness checks have been presented" regarding the main assumption that the year chosen as non-collusive for the purposes of the comparison is untainted by collusion. "Given the weakness of the comparison over time, the study collapses mostly to a cross country comparison between West European countries and others." The kicking continues through another four paragraphs while the poor economist is lying on the ground, and concludes dismissively

"Summing up, the report rests on two weak assumptions. Firstly the comparison over time is mainly a comparison of the prices before 2002 to the prices in 2001 burdened with poor data

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[46] *Industrial Tubes*, para 313.

[47] Daubert v Merrell Dow Pharmaceuticals 509 US 579 (1993) lays down the standards for admitting expert scientific testimony in a Federal trial in the US.

quality and insufficient robustness checks. Secondly, the comparison between countries does not take into account changes in production costs between countries and does not give any hint on the market structure and the degree of competition in the countries taken for comparison."[48]

Moral, economics is only going to be useful in getting the fine down in a case that is not glaringly hard core, and your model had better be consistent and robust.

The Fourth Chapter

We are now well into a fourth chapter on the economic analysis of cartels that we can add to Elzinga's three. This is the age of forensic economics. Now there is an enormous wealth of data on cartels and you no longer need to theorise. The shocking revelations of the secret DoJ video of the sordid transactions of the Lysine cartel has awakened a new breed of cartel economists, who, like John Connor, had become aware of its historical importance. As he pointed out in the preface to his seminal work on the Vitamins cartel:

> *"Unlike the historical instances of localised price fixing in the US food industries with which I was familiar, these cartels were different. They were huge, complex, geographically extensive, culturally pluralistic, illustrative of a major technology shift, and resulting in new forms of social sanctions by antitrust enforcers."*[49]

But in truth there should have been nothing new in the Lysine and Vitamins cartels. Everything that was shown on the video had featured, albeitly less graphically, in a series of published Commission decisions and had been proven through the almost Pavlovian tendency of cartel participants to write everything down. One wonders whether the participants in these cartels were all alumni of the same Swiss Cartel University, so uniform were their methods. With the exception of the last phrase, Connor's sentence about the "new" cartels could apply to *Polypropylene*, *PVC*, *Cartonboard* and a string of other cases. It is one of Antitrust's enduring ironies that when the DoJ were expending their efforts on milk producers in remote rural localities ripping off school kids, the Commission was detecting, prosecuting and sanctioning with multi-million ecu fines vast Europe-wide (and if the truth be known, possibly even global) conspiracies of the deepest dye across the most important blue chip industries. There is perhaps some obscure parallel that can be drawn with Hollywood's treatment of modern European history.

Nor can one let pass without some mild remonstration John's assertion that "the vast publicity generated by government indictments and civil litigation provided a paper trail about price fixing that was unsurpassed in the history of trusts, monopolies and cartels." Perhaps John was just thinking of American history. Having always tried to write Commission decisions in cartel cases so that- within the limits of the Commission's drafting conventions- they were at least comprehensible, I must admit to a sense of regret, though not of surprise, that, unlike Elzinga's elegant works of detective fiction, the decisions of the Commission in the pre-leniency cartel cases were not adopted by teachers of economics as "inexpensive supplements to the standard principles texts books".

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[48] *Industrial Tubes*, para. 309.

[49] Connor, *Global Price Fixing: Our Customers are the Enemy*, Kluwer 2001.