Horizontal agreements and coordinated effects

CCP training course

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oxera
compelling economics

Outline

- explicit vs. tacit coordination

- oligopoly theory
  - static
  - dynamic

- empirical methods for assessing tacit coordination

- horizontal agreements with positive effects

- quantifying damages from anticompetitive agreements

Explicit coordination

- for UK and/or European law to apply there must be an agreement or concerted practice between the undertakings involved
  - can be actual or potential competitors (e.g. 'pay for delay' cases)
- infringement of Article 101 TFEU if agreement 'appreciably restricts' competition
  - but may benefit from an individual exemption under Article 101(3)
  - object vs. effect infringements
- what role for economics?
  - in some cases (e.g. straightforward cartel) no real economic analysis at the investigation stage but in others (e.g. airline alliances) it can play an important role
  - economics/econometrics central to follow-on damages litigation

Infringement by object or by effect?
The Cartes Bancaires judgment

- some types of agreement are considered to be harmful 'by their very nature'; competition authorities do not need to demonstrate a harmful effect on competition—e.g. cartels, resale price maintenance—but over time, competition authorities and courts stretched the definition of 'by object'

- judgment by Court of Justice in 2014 clarified the scope of 'by object' restrictions

Background: Cartes Bancaires (CB) is an interbank payment card network in France; in 2002 the network introduced rules that meant members who predominantly issued cards to consumers rather than bringing merchants into the system had to pay a fee; plus a different charging structure for new members and 'dormant' members.

- European Commission had found that CB agreement was restriction of competition by object and General Court agreed on appeal—concern was that fees restricted new entry/growth

- Court of Justice found the restrictions were not anticompetitive by their very nature—e.g. there are potential efficiency justifications for the charges—case must be assessed on its effects

- important case legally—clarified the legal position on object vs. effect—also good news for economists as now harder for authorities to avoid detailed effects analysis in cases

Tacit coordination

- no explicit agreement or concerted practice so not caught under A101

- in principle can be pursued as **joint dominance** under A102 but very rarely occurs (issue in some regulated sectors – e.g. telecoms)

- most commonly assessed as an issue in **mergers** (e.g. bricks, eggs, aggregates, recorded music)
  - would the merger would lead to SLC/SIEC by creating the conditions for coordination, or by strengthening pre-existing market coordination?

- UK **market investigations**—coordinated effects form part of assessment of whether features of the market cause an adverse effect on competition (AEC)
  - framework of analysis is the same as for mergers
  - aggregates, energy, local buses are all recent examples

Where does tacit coordination sit in relation to other types of market behaviour?

- some blurring / ambiguity between the categories?

Anticompetitive agreement	Normally a written agreement or other documentary evidence between competitors, but could be e.g. a verbal agreement
Concerted practice	Short of an agreement but 'practical cooperation […] is knowingly substituted for the risks of competition' (T-Mobile Netherlands)
Tacit coordination	No agreement or concerted practice; market is characterised by oligopoly and firms behave strategically to avoid non-cooperative outcome
Non-cooperative oligopoly	Firms take each other's actions into account but maximise short run profits. Result is non-cooperative/static oligopoly outcome

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Static oligopoly

- model first presented by Cournot (1838)
- firms choose quantities to produce
- each firm selects output, assuming that rivals' output will remain constant
- market clears once outputs are chosen
- equilibrium between perfect competition and monopoly
- variants can lead to more or less competitive outcomes
  - change assumption on rival's response (conjectural variation)
  - firms as price-setters (Bertrand competition, 1883)

Airtours/First Choice
European Commission approach

- direct application of Cournot
  - oligopolistic market with few tour operators
  - firms choose capacity for year 2 at the end of year 1
  - during year 2, market clears at certain price with capacity given
- conclusion: price above competitive level
- is this sufficient to find coordinated effects from merger?

Case IV/M.1524, 22 August 1999.

Court of First Instance *Airtours* appeal

- three conditions must **all** be present for coordinated effects

1   transparency to ensure that alignment is feasible

2   deterrence to ensure incentives to maintain coordination

3   existing and potential competitors and customers must not be able to undermine the common policy

- broadly in line with the dynamic oligopoly theory

Case T-342/99, *Airtours v Commission* [2002] ECR II-2585, para. 62.

Dynamic oligopoly models

- relevant question: scope for coordinated behaviour?
  - dynamic oligopoly theory is better suited
  - multi-period nature of strategic interactions
- firms in an oligopoly compete against the same rivals over and over again
  - provides scope for coordination, signalling, and reputation-building
  - no explicit collusion required
- dynamic oligopoly theory is based on game theory

One-stage oligopoly game
Prisoner's dilemma

		Firm 2	
		High price	**Low price**
Firm 1	**High price**	Firm 1 earns £10 Firm 2 earns £10	Firm 1 earns £0 Firm 2 earns £15
	Low price	Firm 1 earns £15 Firm 2 earns £0	Firm 1 earns £5 Firm 2 earns £5

Note: (Low price, Low price) outcome represents Cournot or Bertrand competition.

Repeating the prisoner's dilemma

- to cheat or not to cheat?

- number of periods in game must be non-finite; otherwise backwards induction leads to outcome equivalent to static game (i.e. cheating is always optimal)

- if both firms cooperate at all times, the expected return is the (High, High) outcome in perpetuity: $10/r$

- if Firm 1 deviates, it receives the (Low, High) profit until Firm 2 retaliates (tit for tat), and the (Low, Low) profit thereafter—e.g. cheating for one period gives: $15 + 5(1 - r)/r$

- comparing these two outcomes determines the incentive to cooperate or cheat

Facilitating coordination: the theory

- if cheating can be detected rapidly, the (Low, High) return of 15 is earned for only a short period
  - hence *Airtours* emphasis on transparency and deterrence
- retaliation is costly to the defector if (Low, Low) return (here, 5) is far below (High, High) return (here, 10)
  - in other words, if competition is fierce in the absence of coordination
  - hence *Airtours* emphasis on retaliation
  - but: problem of 'topsy-turvy' $\Rightarrow$ conditions that facilitate fierce competition also make coordination more attractive
- discount rate matters: how 'patient' are oligopolists?

Court of First Instance *Airtours* appeal
Applying the 3 limbed test to the facts of the case

- alignment is difficult
  - capacity planning is not transparent
- detection and retaliation are difficult
  - long delay between observed 'cheating' and retaliation
  - only 10% increase in (poor) quality capacity feasible in the short run
  - retaliation through directional selling is unlikely to work

Can algorithms facilitate coordination?
Poster price fixing case

- retailers selling posters on Amazon Marketplace
- retailer A complained about aggressive pricing by vertically integrated poster wholesaler and retailer B
  - agreement on pricing rules to avoid mutual undercutting
- 'problem': manual monitoring not feasible for large number of products and high volatility of prices
- 'solution': algorithms in the form of re-pricing software applications
  - B only undercut A when other competitors offered a lower price than A and vice versa
- prosecution in UK and USA

Why do firms use algorithmic pricing?
Competitive benefits

- faster price adjustments
  - algorithms may be faster and better than humans in identifying changing market conditions
  - supply better matches demand – e.g. prices can be changed quickly in response to a demand shock
- cost reduction compared to manual price setting
  - development at high upfront cost; alternatively monthly software subscriptions
- pricing algorithms may become a new dimension of competition if firms aim to develop the 'better' algorithm

Unintended effects

Textbook 'The Making of a Fly' offered for $23,698,655.93 following a price spiral

A: 0.99 times price of B

B: 1.27 times price of A

price spiral

How algorithms may facilitate coordination
When could they lead to less competitive outcomes?

- algorithms can increase transparency by monitoring prices in real time
- rapid retaliation by algorithms decreases profits from deviation
  - can artificial intelligence algorithms learn that punishment behaviour maximises profits, even without knowledge of the programmer?
- interaction between identical algorithms used by competitors makes it easier to predict competitor reactions
- BUT: algorithms can only facilitate collusion in situations where the other necessary conditions hold
  - if prices are privately negotiated with customers, or if a maverick firm is looking to grow market share and refuses to collude, or if powerful customers can disrupt the market, then coordination is not possible with or without algorithms

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Coordinated effects in *ABF/GBI*

- Horizontal Guidelines set out conditions similar to *Airtours*
- *ABF/GBI*: quasi-duopoly in yeast production after merger
  - factors considered include: number of coordinating firms and symmetry; product homogeneity (few brands, similar cost shocks); high transparency of information; repeated interaction; low demand elasticity; high barriers to entry/expansion including new investment (economies of scale, brand, transport costs, quality assurance); scope of timely retaliation (bi-weekly supply and excess capacity)
  - empirical analysis of stability of prices (accounting for cost changes) and market shares; limited switching between suppliers
  - GBI's incentives were different from ABF and Lesaffre (different market focus, more innovative)

CC Aggregates market investigation (2014)
Techniques for assessing coordination

- analysis of overall profitability and margins over time
  - parties maintained high margins despite reduction in demand and excess capacity—consistent with coordinated outcome
- analysis of price announcements
  - simple analysis examining patterns in the data that are consistent with coordination, e.g. all players changing the price increase metric in the same round; price followers increasing price more than the price leader
- price parallelism
  - CC considered correlations over time between the parties' prices for bulk cement (monthly/quarterly, levels/differences)
  - found high correlation between main parties, less with the fringe player (Tarmac)

CC Aggregates market investigation (2014)
Price concentration analysis with a twist

- price concentration analysis found little or no impact on price from more local competitors

- entry/exit analysis found little evidence that entry or exit of plants had an effect on prices of other plants in the area

- CC concluded this was consistent with coordinated effects (and drew similar conclusions in the Anglo/Lafarge merger)
  - CC notes that result could also be consistent with strong competition, but argues that other evidence is at odds with such a conclusion
  - risks of this approach? (market definition, model specification)
  - does it add much to the evidence base?

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Agreements with positive effects

- restrictions under A101(1) and Chapter 1 CA98 may benefit from an individual exemption if the restriction meets the following cumulative criteria
  - contributes to improving production/distribution or technical/economic progress (i.e. efficiency gains)
  - restrictions are indispensable in order to achieve the efficiency gains (no-less restrictive solution)
  - consumers must receive a fair share of the resulting benefits (pass-on)
  - agreement doesn't eliminate competition
- burden of proof is on the parties, which gives the authority a lot of discretion
- Cournot effect—horizontal co-operation agreements can lead to substantial economic benefits, in particular if they combine complementary activities
  - agreement can allow parties to internalise pricing externality between complements

A++ agreement between Air Canada, Continental, United, Airlines Lufthansa (2013)

- agreement between airlines on pricing, capacity, and scheduling, as well as revenue sharing
- European Commission assessed agreement against criteria of A101(3)
  - **efficiencies**: time savings for passengers, economies of density, reciprocal lounge access (in-market efficiencies), reduction double marginalisation (out-of-market efficiencies)
  - **no less-restrictive solution**: less restrictive solutions such as code sharing do not achieve same efficiency benefits
  - **pass-on to consumers**: time savings accrue directly to consumers, variable cost savings also expected to be 75% passed (based on academic studies)
  - **competition not eliminated**: other airlines compete on the Frankfurt-New York route that was focus of Commission concerns
- accepted parties' arguments but concluded that efficiencies would not outweigh harm to competition—required commitments for agreement to go ahead

BAGS v AMRAC A101 litigation

- from 1986 until 2007, only one distributor of horseracing pictures to licensed betting offices (LBOs)
  - racecourses were dissatisfied with their income from rights
- half of British racecourses collaborated (colluded?) with a technology partner to start a new broadcaster, AMRAC, in 2007. Market now duopoly rather than monopoly
- BAGS's claim: AMRAC's contracts with racecourses are anticompetitive
  - AMRAC's exclusive LBO media rights licensing agreements with the 30 racecourses on a collective and closed basis are anticompetitive
  - AMRAC's exclusive LBO media rights agreements with 30 racecourses were not necessary to ensure viable market entry
  - consumer welfare has been reduced as a result of AMRAC's market entry

BAGS v AMRAC A101 litigation

- findings on closed selling
  - racecourse operators needed to create a JV and sponsor its entry into the market
  - hence closed selling **necessary for entry**, and not anticompetitive
  - it would be illogical to sponsor the market entry of the JV and then sell the rights to the incumbent
- findings on collective selling
  - Appeal Court ultimately found that racecourses do not compete as regards the sale of LBO media rights, in the prevalent market context
  - bookmakers need to 'complete the set' of content, and races never take place at the same time
  - complements not substitutes?

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Cartels – measuring the harm

- cartels represent an object infringement of A101
- 'perfect' cartel achieves joint profit maximisation
  - equivalent to monopoly outcome (but without the efficiency benefits)
- effect on prices from cartels can be expected to be largest when counterfactual is vigorous competition
  - e.g. compare monopoly outcome to competitive outcome
  - this kind of comparison can be used to give insight into cartel overcharges

Cartel damages

A: Effect of **higher prices** on actual customers

B: Effect of higher prices on lost customers/**loss of volume** to actual customers
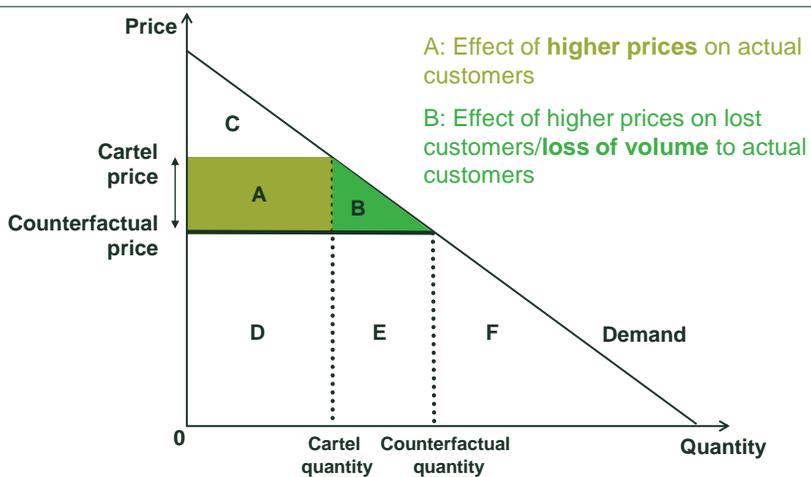
Quantification of cartel damages
What are we learning from recent experience?

- litigation experience from cases such as MasterCard, air cargo, car glass, CRTs, GIS, vitamins

Value of commerce	Overcharge	Pass-on	Interest

- volume effects and umbrella effects are valid in theory, but often not a key component in cases to date
- some current approaches to estimating overcharge:
  - **margins analysis**—compare during-cartel margins with post-cartel margins, either plain comparison or using econometrics to control for non-cartel factors
  - **price-cost regressions**—traditional approach, usually implemented as during-and-after dummy variable regression with controls
  - **cross-country analysis**—difference-in-difference if comparable non-cartel geographic market identified

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Classification of methods and models

	Comparator-based			Financial analysis-based		Market structure-based
Approach	Cross-sectional	Time-series	Difference-in-differences	Financial performance	Financial tools	Industrial organisation models
Basis for counterfactual	Markets	Before and during	A firm, market or country before, during and after	Comparator firms and industries		Cournot oligopoly
	Firms	During and after		Cost of capital		Bertrand oligopoly
						Monopolistic competition
						Perfect competition
	Countries	Before, during and after		Cost plus		Auctions
Techniques	Comparison of averages	Comparison of averages	Comparison of averages (arithmetic difference-in-differences)	Profitability	Multiples	Estimation of structural models of competition
				Event studies	Discounting	
		Interpolation		Valuation		
	Cross-sectional econometrics	Time-series econometrics	Panel data regression	Bottom-up costing		Two-model estimation

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