

Economic tools used in Merger Control

Empirical Industrial Organization I: Static models

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Outline of the presentation

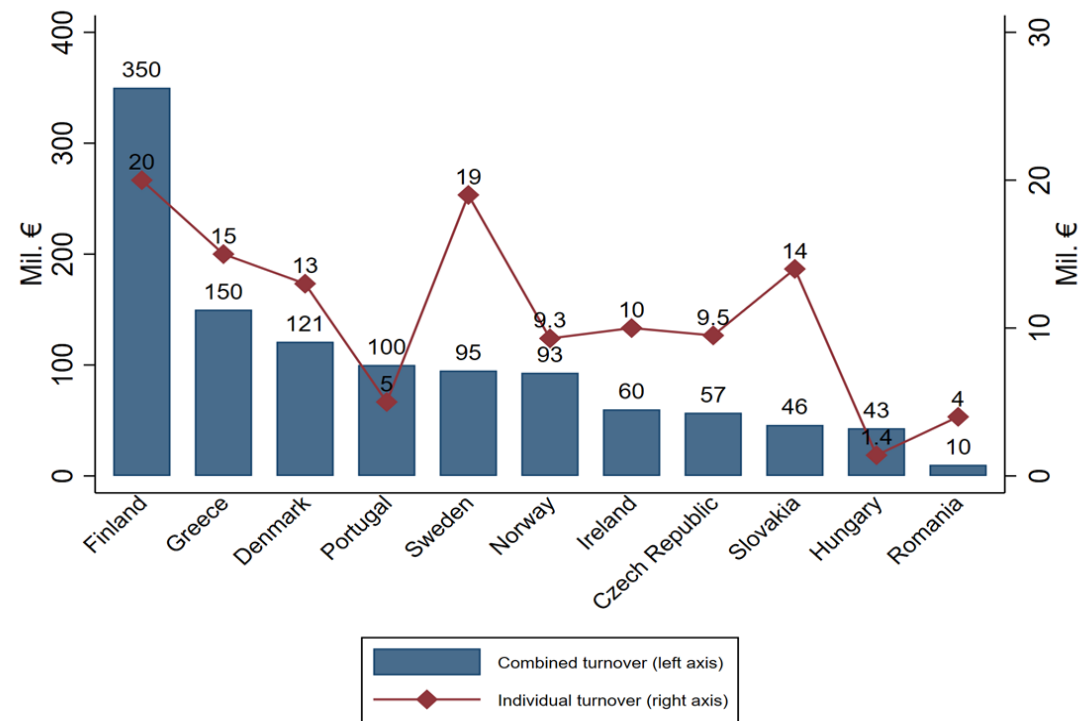
1. Short introduction of merger control
 2. Economic tools used in merger control
 3. Example I: *Mehiläinen/Pihlajalinna* (Finland)
 4. Example II: *AT&T/Spring* (US)
- **Goal of the lecture is to connect how methods taught in previous lectures are used in practice**

1. Introduction

Merger control

- Firms have incentives to carry out mergers that are potentially detrimental to welfare
 - Over 130 countries have adopted a merger control regime
- Only a subset of mergers are anticompetitive and this is why merger control requires case-by-case investigation
- In most countries only mergers exceeding a certain size threshold (turnover, value of transaction) are investigated
 - Mandatory notification if thresholds met (most EU countries)
 - Call in power-based approach (UK)
- Wollmann (2019): increasing the thresholds in US led to an increase in anticompetitive mergers, **consistent with large deterrent effects of antitrust enforcement**

Turnover thresholds in Finland



Note: comparison countries chosen based on size of economy

The legal standard

- Dominance test
 - Computation of market shares based on **market definition (geographic and product markets)**
 - Other factors: countervailing buyer power, entry barriers, efficiencies
- SIEC test ("more economic approach")
 - Quantifying the actual effect of the merger (typically on prices)
 - May better enable comparison with possible **efficiency gains**
- Nowadays most western countries (including Finland) have adopted SIEC style standard
- Legal standard within the main framework shifted by case law
 - Notable recent example is the CK Telecoms judgment by General court

Role of economics in merger control

1. Economics provides the motivation for merger control
 - 2. Economics is used to investigate which mergers should be blocked**
 3. Economics is used to improve the tools and effectiveness of merger control
 - New methods
 - Ex post-evaluation
- Academic IO economists have a key role in 1 and 3 and are also often involved in 2

2. Economic tools used in merger control

Merger analysis

- Assess the effect of a merger on prices, quality, innovation, other market outcomes
 - Is the merger detrimental to consumers and should it be blocked?
- Broad categories: **1) Horizontal mergers** 2) Vertical mergers
- The list of possible effects is long!
 - Soften price competition (-), make collusion easier (-), enhance bargaining power against upstream suppliers (+/-, who knows?), create production efficiencies (+), soften or enhance innovation incentives (+/-), internalize inefficient pricing externalities (+),...
- Recent survey articles: (i) Horizontal mergers: Miller and Sheu (2021) (ii) Vertical mergers: Slade (2021)

Different (complementary) approaches

1. Descriptive methods (*market shares, HHI*)

- Look at things that correlate with market power and high price effects of mergers

2. Quasi-experimental methods (*PCA, ex-post*)

- Use some quasi-experimental variation in data to estimate relationship between competition and prices

3. "Semi-structural" methods (*UPP, CMCR, IPR*)

- Derive the (simplified) price effects of a merger from a theoretical model as a function of some parameters (margins, diversion ratios, production efficiencies) and use different sources (surveys, churn, financial statements, due diligence reports) to parametrize the model

4. "Structural" methods (*merger simulation*)

- Estimate model of supply and demand (e.g., BLP) on pre-merger data and simulate new equilibrium outcomes
- (*Note: word structural is used differently in competition law than in empirical IO and a lawyer would call the 1st item in the list structural analysis*)

Descriptive methods

- Mergers are more likely to be detrimental to welfare if the market is concentrated and the parties have a large market share (Miller & Sheu, 2021)
- Common practice: calculate market shares and compare pre- and post-merger HHI-index
- **Key issue: what is the relevant market (denominator of share)**

Market definition and SSNIP-test

- Traditional criterion: small but significant non-transitory increase in price (“SSNIP-test”)
 - Consider a sequence of market definitions starting from the narrowest plausible market
 - Continue until you have found a market-wide enough such that a monopolist in this market would find it profitable to increase price by 5-10 %
- The SSNIP-test identifies the smallest market that would be profitable to monopolize
 - No formal justification for using this definition
- Market definition is not really needed to calculate the price effect of a merger but still in practice an important step
- Several methods have been developed to implement SSNIP-test in practice
 - Critical loss analysis (Katz & Shapiro 2003; Daljord, Sorgrad & Thomassen 2008)

Quasi-experimental methods

1. Price-concentration analysis

- Idea: What is the relationship between market concentration and prices in the industry
- Early example: analysis done in Office Depot / Staples merger
- Wide consensus among IO economists **NOT** to use price on HHI regressions (Miller et. al, 2021)
 - *Does not imply that price-concentration analysis should never be used*

2. Ex post -analysis of past mergers

- Idea: look at actual prices etc. before and after a consummated merger in the industry
- Also (or more) useful for thinking about merger policy more widely
- **Key issue: lack of (exogenous) variation in the data**

"Semi-structural" methods (1/3)

- Idea: Use an IO model (Bertrand) to derive a simplified measure of the price effect as a function of parameters that do not require demand estimation
 - Derivation requires simplifying assumptions like in UPP assuming rivals do not react to price increases by merging parties
- Key parameters: 1) Margins 2) Diversion ratios 3) Marginal cost reductions
 - Margins can be calculated using cost data from parties (note this data is not available for academic researchers)
 - Diversion ratios can be recovered from surveys or from churn analysis (see Conlon & Mortimer, 2021 for more details)
 - For production efficiencies due diligence material can often be useful
- *Both margins and diversion ratios can be recovered after demand estimation but if you have actually estimated demand why wouldn't you just run a full merger simulation?*

”Semi-structural” methods (2/3)

- Many variants: UPP, CMCR and IPR (*see formulas in next page*)
 - CMCR: How much costs would need to decrease so that the loss of competition would be compensated and post-merger equilibrium prices and quantities would remain the same (Werden 1996)
 - IPR: closest to a (proper) merger simulation and requires assuming the shape of the demand function (Shapiro 1996)
- Can be derived using other models than Bertrand
 - Bidding markets (Moresi 2009a)
 - Cournot (Moresi 2009b)
- **Key issue: even in the best-case scenario provides only a rough approximation of the true effects**

"Semi-structural" methods (3/3)

1. UPP: $d_{ij} * m_j * \frac{p_j}{p_i}$

2. CMCR: $\frac{m_j * d_{ji} * d_{ij} + m_i * d_{ij} * \frac{p_i}{p_j}}{(1 - m_j)(1 - d_{ji} * d_{ij})}$

3. IPR linear demand: $\frac{d_{ij} m_j}{2(1 - d_{ij})}$

Structural methods

- Estimate model of supply and demand (e.g., logit, nested logit, BLP) on pre-merger data
- Counterfactual simulation:
 - Change ownership structure to reflect the merger
 - Simulate new equilibrium outcomes
 - Include efficiencies (estimated/approximated outside of the model)
- What about dynamic effects like entry and exit and innovation?
 - For recent advances see Igami & Uetake (2020) and Ciliberto, Murry & Tamer (2021)
- **Key “issue”:** merger simulation often needs to be substantially modified to fit a specific industry and this is time-consuming

3. Example I: Mehiläinen/Pihlajalinna -merger

Mehiläinen/Pihlajalinna

- Notified to the FCCA in February 2020
- A merger between two of the three large players in the Finnish private health care services market
- Overlap between the parties in many markets
 - The choice of analytical tools determined by the market's characteristics and the data available
- Previous mergers between large market participants cleared unconditionally (Terveystalo/Diacor, Terveystalo/Attendo)

Product market	Geographical market	Economic analysis
(i) Physician market	Local	CLA, LOCI, IPR, CMCR, ex-post
(ii) Occupational health care	Local + multi-point	CLA, network analysis, CMCR, ex-post
(ii) Hospital services	Regional	
(iv) Fertility clinics	Capital region	
(v) Public procurement and outsourcing of health care services (several)	National	Bidding analysis
(vi) Services sold to insurers	National	CMCR

Private physician market

- The physician market consists of clinics selling doctor's reception hours and diagnostic (radiology and laboratory) services to individuals
 - Physicians set their prices, while the clinics determine at a *national (or regional) level* the price of diagnostic services (e.g. imaging and laboratory services)
 - Physicians pay a percentage share of their income as "rent" to the clinic
- In Finland public sector is the main provider of physician services and private providers supplement public healthcare
 - Private care has many distinctive features compared to public healthcare and most private clinic patients do not think that public care is a close substitute (survey)
 - ***Private physician services constitutes its own relevant market***

Stylized model and calibration for CMCR and IPR-analysis

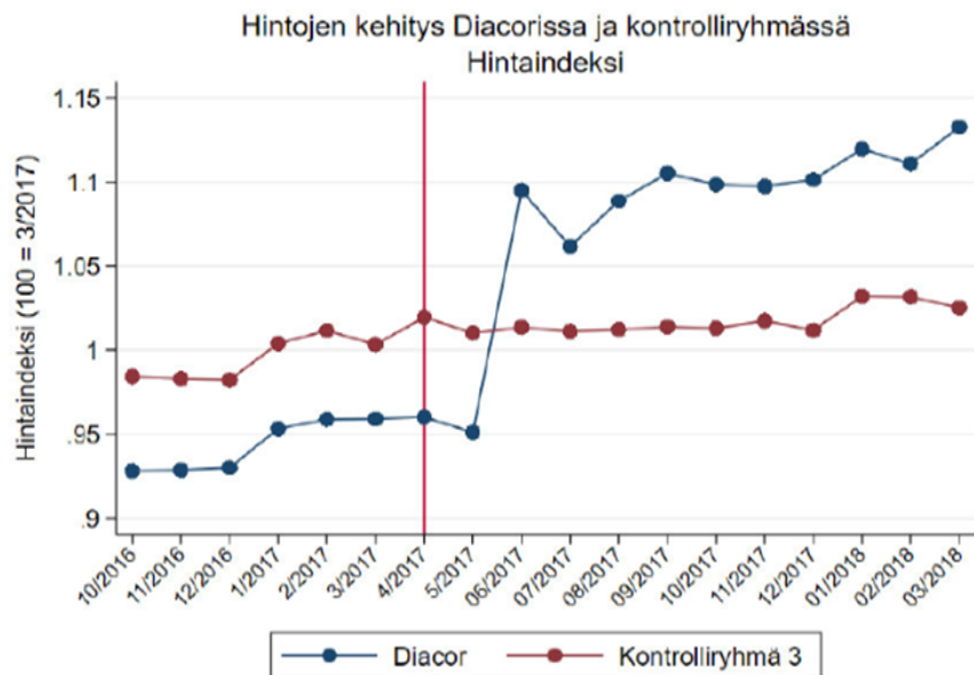
- Standard tools not directly applicable because of the special characteristics of the market
- The FCCA introduced a theoretical model capturing these features and derived new versions of the CMCR and IPR formulas
- Calibration:
 1. Diversion ratios based on a consumer survey and churn analysis on reimbursement microdata
 2. Margins based on cost data from parties
 3. Efficiencies based on due diligence reports prepared by consultants
- Result: merger would lead to higher prices in the private physician market

Ex post-analysis of past mergers in the market

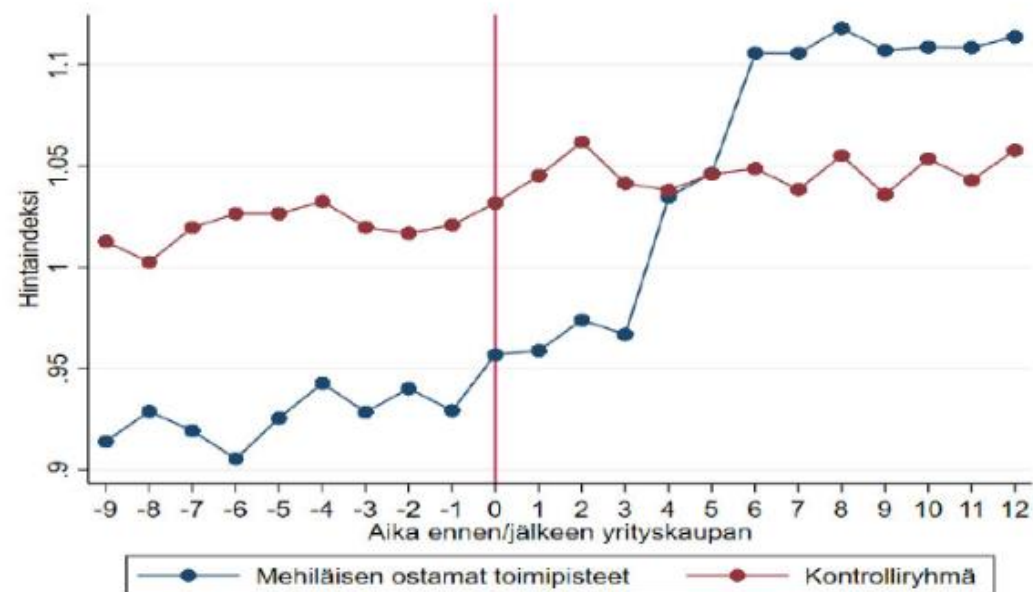
- There have been several mergers in the private physician market
- FCCA conducted an ex post-analysis to analyze the effect of:
 - Previous merger between two chains (Diacor/Terveystalo)
 - Previous acquisitions by Mehiläinen
- Due to the uniform pricing strategies employed by the chains the role of the ex post-analysis was more limited role than otherwise
 - Initial post-merger price reactions driven by price differences between the merging parties
 - Still ex post-analysis had implications on 1) How doctors react when clinic raises prices 2) Consumer behavior 3) How well competition functions in the market overall

Results from ex-post analysis

Kaavio 12 Hintakehitys Diacorin ja kontrolliryhmän toimipisteissä



Kaavio 13 Hintakehitys Mehiläisen ostamissa toimipisteissä ja kontrolliryhmässä



Much ado about nothing?

- Oral hearing at the Market Court in November 2020
- Mehiläinen announced in late November that it had withdrawn its tender offer for Pihlajalinna's shares
- On Dec 29, the Market Court issued a judgment stating only that the matter had lapsed
- I.e. no judgment on the actual subject matter
- Much of the FCCA's analysis has, however, been made public and will hopefully guide market participants in planning for future transactions

3. Example II: AT&T/Sprint- merger

AT&T/Sprint-merger

- Merging parties offered both substitutes (competing video services) and complements (AT&T broadband and Directv video services)
 - A merger between producers of competing substitutes tends to push up prices
 - A merger between producers of complements tends to push down prices by internalizing a pricing externality
- Berry and Haile implemented a merger simulation model that incorporated these opposing effects on post-merger prices
 - Result: " Across all specifications, consumer welfare strictly improves"
- Details on the merger simulation conducted by Berry and Haile available at <https://sites.google.com/site/stberry/working-papers>

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