



UNIVERSITY OF AMSTERDAM  
Economics & Business

# Calculating Cartel Damages

The Ernest Lluch Seminar

UB School of Economics

**Prof. dr. Maarten Pieter Schinkel**

19 November 2021, Barcelona



### **Action for damages**

Any person or company affected by anti-competitive behaviour as described in this case may bring the matter before the courts of the Member States and seek damages. The case law of the Court and Council Regulation 1/2003 both confirm that in cases before national courts, a Commission decision constitutes binding proof that the behaviour took place and was illegal. Even though the Commission has fined the cartel participants concerned, damages may be awarded without being reduced on account of the Commission fine.

The [Antitrust Damages Directive](#), which Member States had to transpose into their legal systems by 27 December 2016, makes it [easier for victims of anti-competitive practices to obtain damages](#). More information on antitrust damages actions, including a practical guide on how to quantify antitrust harm, is available [here](#).



## Antitrust Damages Claims have Arrived in Europe

- European Commission actively encourages victims to seek reparation
- Commission's Green (2005) and White Paper (April 2008) – compensation
- Potential conflicts with leniency programs – and settlements
- Commission's legislative initiative on Antitrust Damages Actions (June 2013)
- Directive on Antitrust Damages Actions (November 2014)
- Implementation by Member States (December 2016)
- Special Purpose Vehicle's (SPVs) – third party litigation funding
- 'Best practice rules' are taking shape – before courts



**GLOBAL  
COMPETITION  
REVIEW**

## **DG Comp seeks damages from elevator cartel**

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**13 June 2008**

The European Commission is taking private enforcement action against the four elevator manufacturers it prosecuted last year.

DG Comp fined Thyssenkrupp, Otis, Schindler and Kone €992 million - the commission's highest-ever cartel fine - for price-fixing, bid-rigging, allocating markets and sharing confidential information.

The offences took place between 1995 and 2004, but DG Comp said at the time that the effects could continue for as long as 50 years, because the company that installs an elevator usually carries out the maintenance.



# Commission loses first round in elevator damages fight

Tuesday, 25 November 2014 (2 months ago)

Harry Phillips



The EU said it paid more for lifts and escalators in its Brussels headquarters.

After fining four lift manufacturers close to €1 billion for rigging the supply of elevators and escalators in Europe, the European Commission yesterday failed to convince a Belgian court that the same cartel forced it to pay more for maintenance contracts in its Brussels headquarters.

# CDC settles hydrogen peroxide damages claim

Janith Aranze

18 October 2017



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## EU trucks cartelists suffer setback in the Netherlands

Janith Aranze  
19 May 2021

 Print article



Shutterstock/Gorodenkoff

A Dutch court has ruled that the EU trucks cartel likely caused prices to increase in the Netherlands, while also confirming that the defendants are bound by the entirety of the European Commission's settlement decision in 2016.



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## Trucks cartel had no effect on price, Spanish court rules

Charley Connor

16 April 2021

Print article





## Agenda

- Wide zone of harm in Europe
- Best practices in cartel damages estimation:
  - Understanding the cartel mechanism ('Theory of Harm', ToH)
  - Methods to determine the 'but-for' development
  - Netting for pass-on – indirect purchaser suits
- Concluding remarks



## Wide Zone of Harm in Europe

- Presumption of harm
- No punitive damages – but pre-trial interest
- Right to full compensation – *Courage* (2001), *Manfredi* (2006)
- ‘Actual loss’ and ‘loss of profit’ – including deadweight-loss

## Collusion Somewhere in the Chain of Production

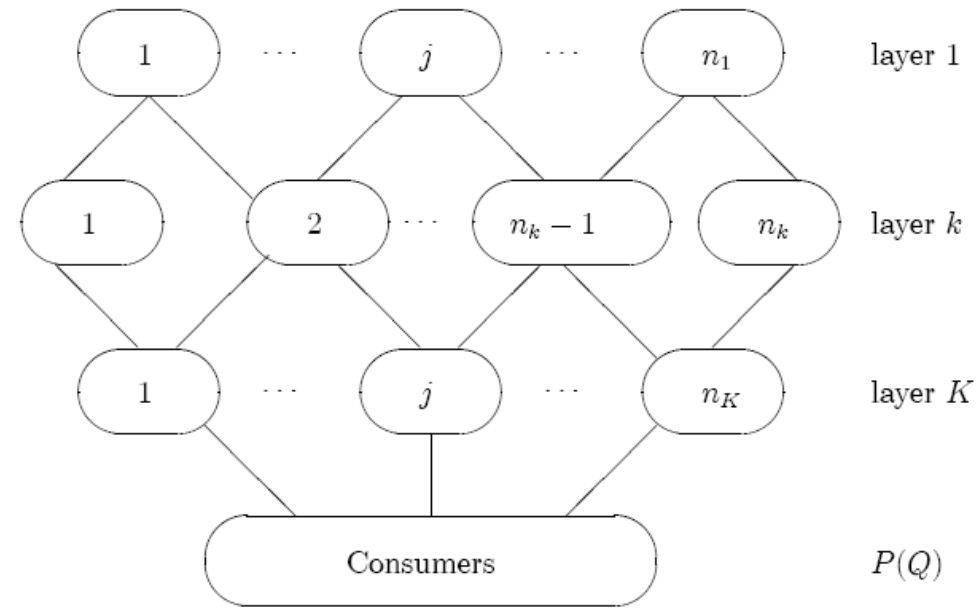
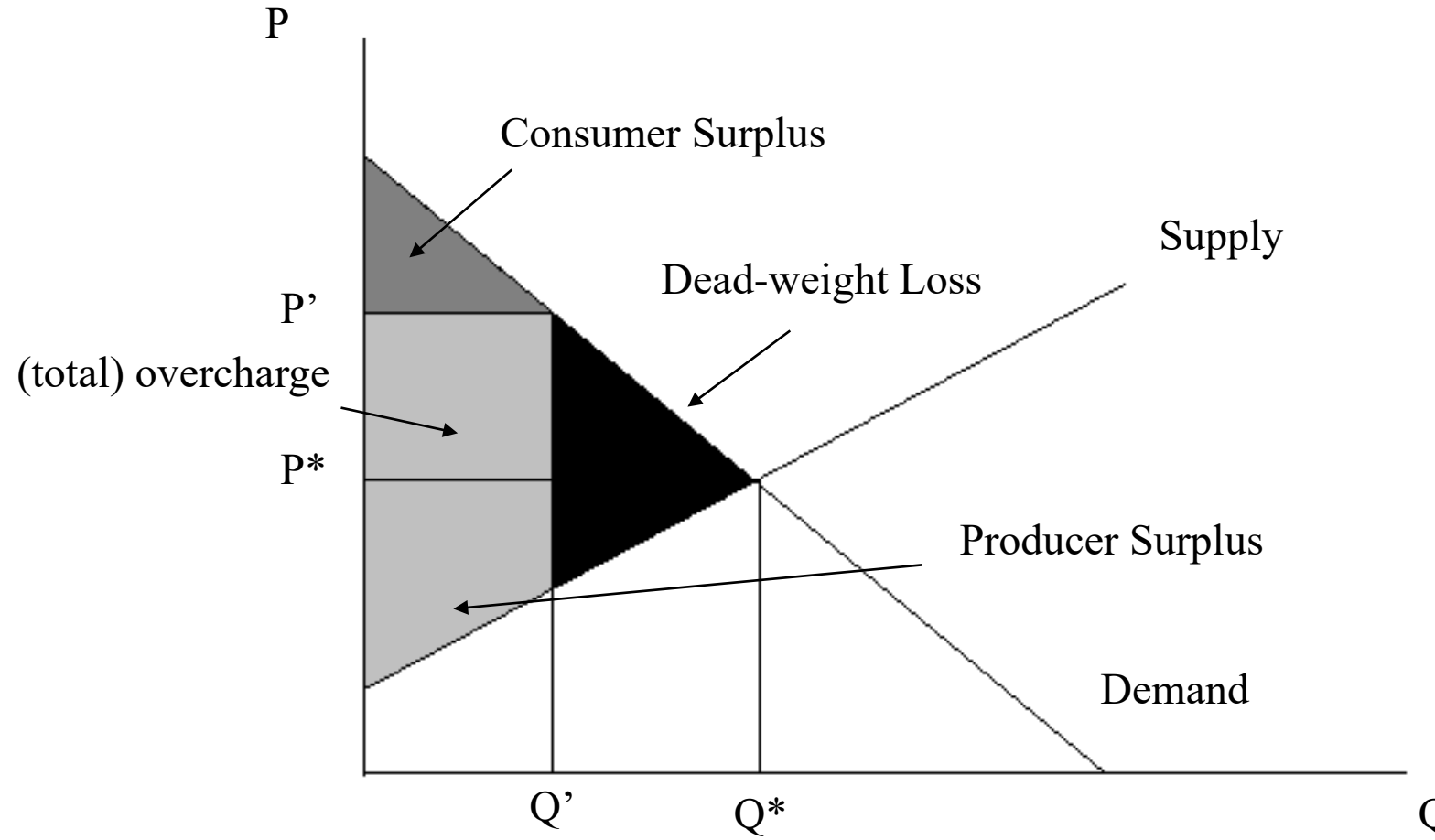
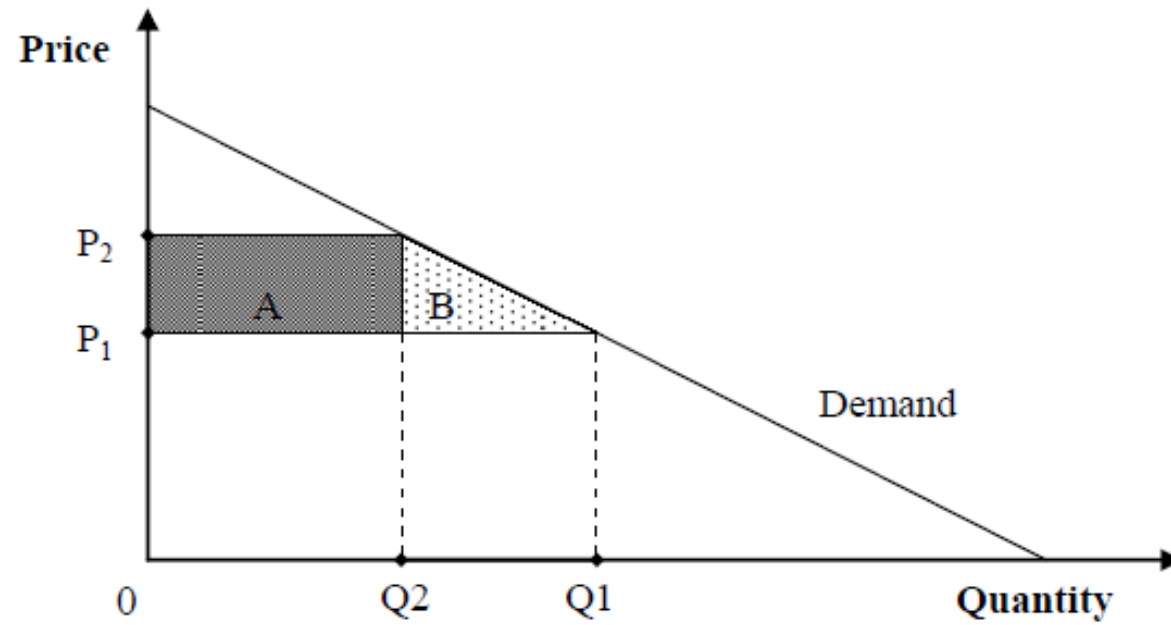


Figure 1: A vertical chain of production.

## Collusion and the Damages Done



## The Overcharge as Measure of Harm



Source: Guidance paper *Quantifying Harm* (2013)



## Wide Zone of Harm in Europe

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- Passing-on defense; indirect purchaser suits

## Upstream Cartel

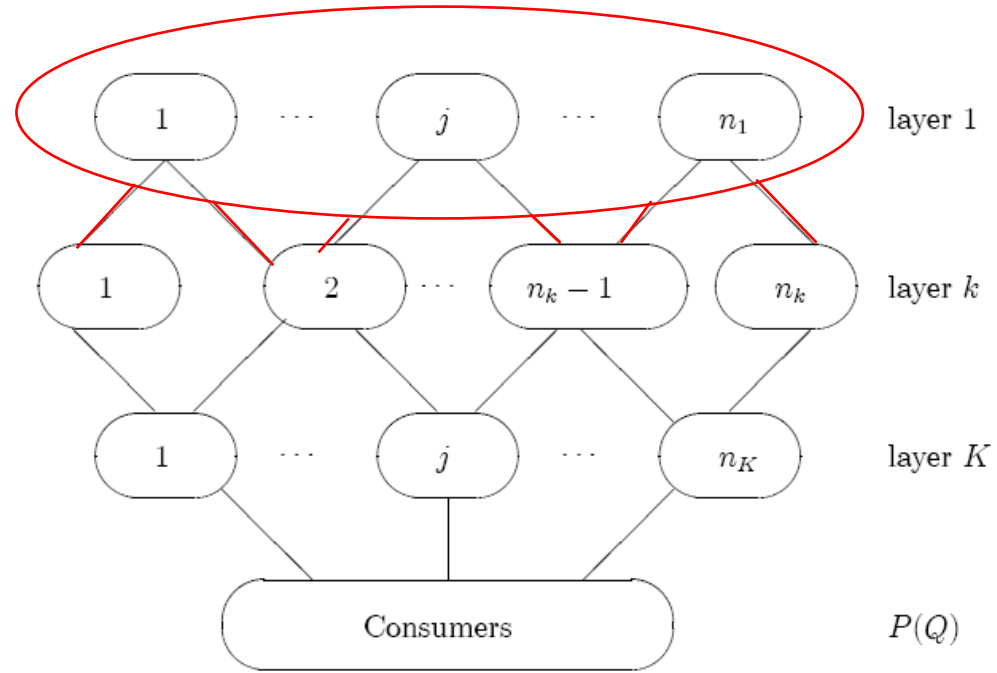
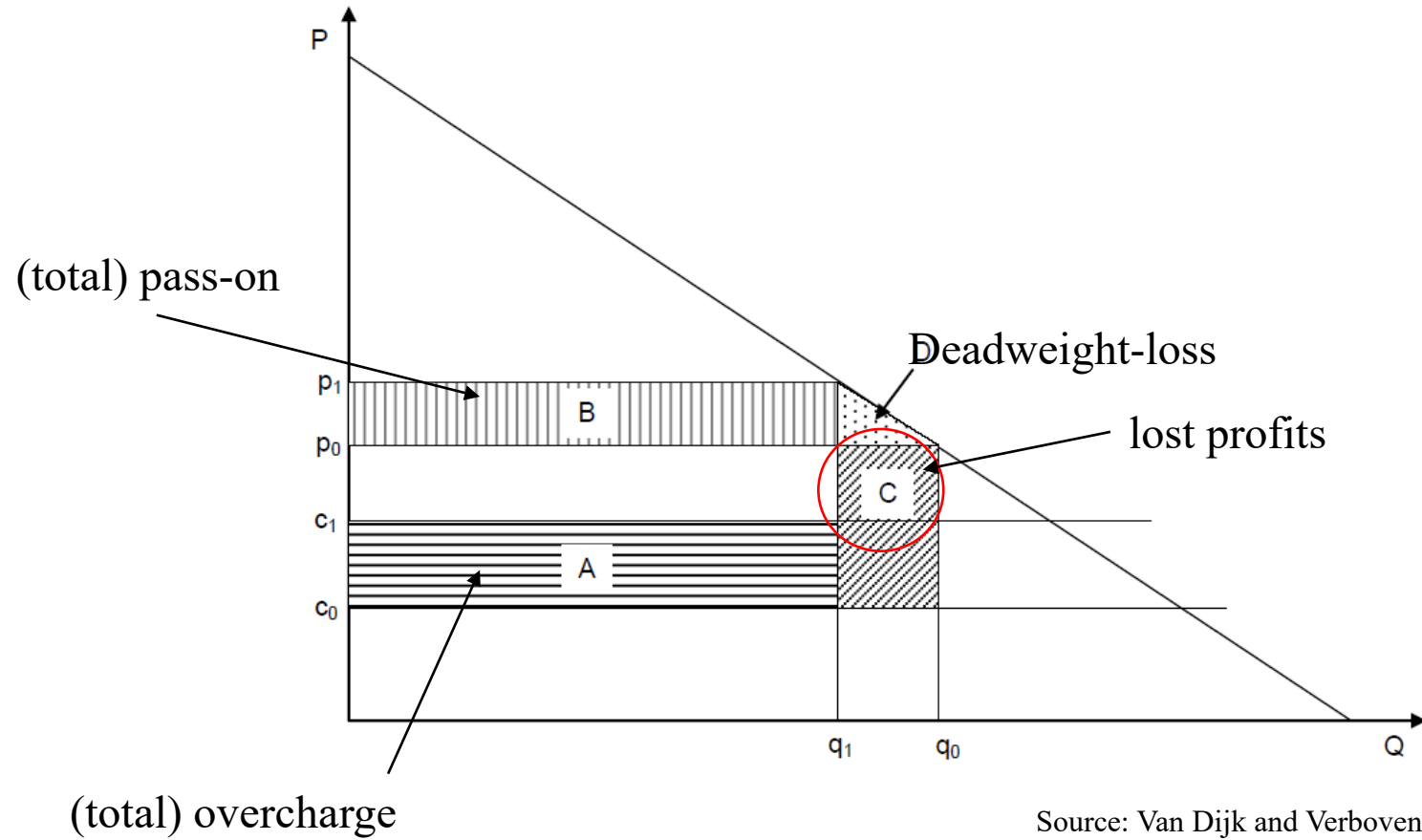


Figure 1: A vertical chain of production.

## Loss of Profits (3 layers)



Source: Van Dijk and Verboven (2010)



## Wide Zone of Harm in Europe

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- Liability for umbrella effects – *KONE* (2014)

## Umbrella Effects

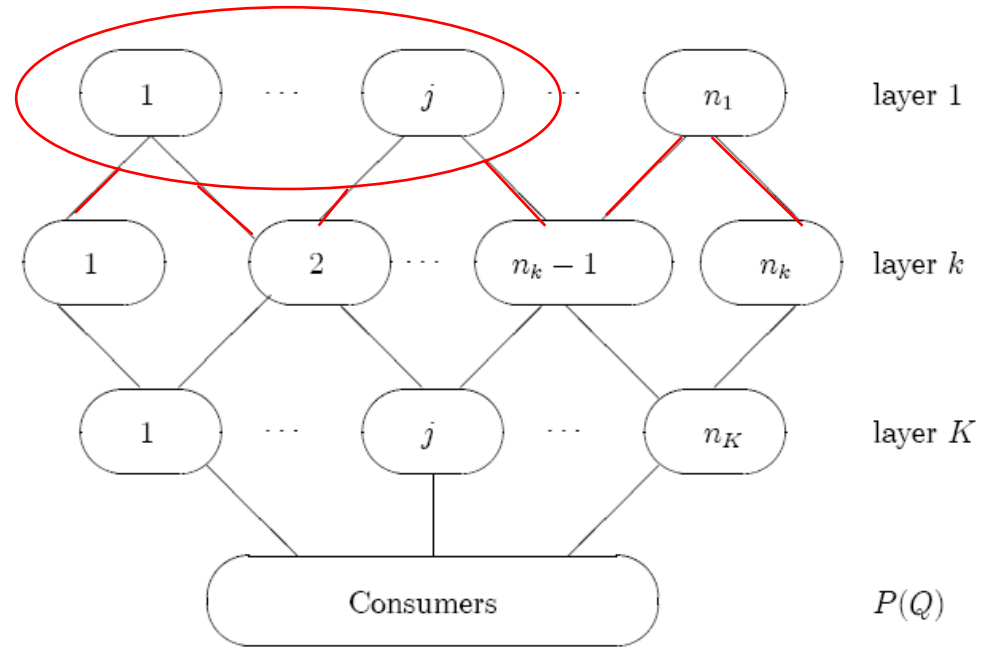


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- Liability for umbrella effects – *KONE* (2014)
- Upstream damages? – *Wilson v. Ringsby Truck Lines* (1970)

## Collusion Midway in the Chain

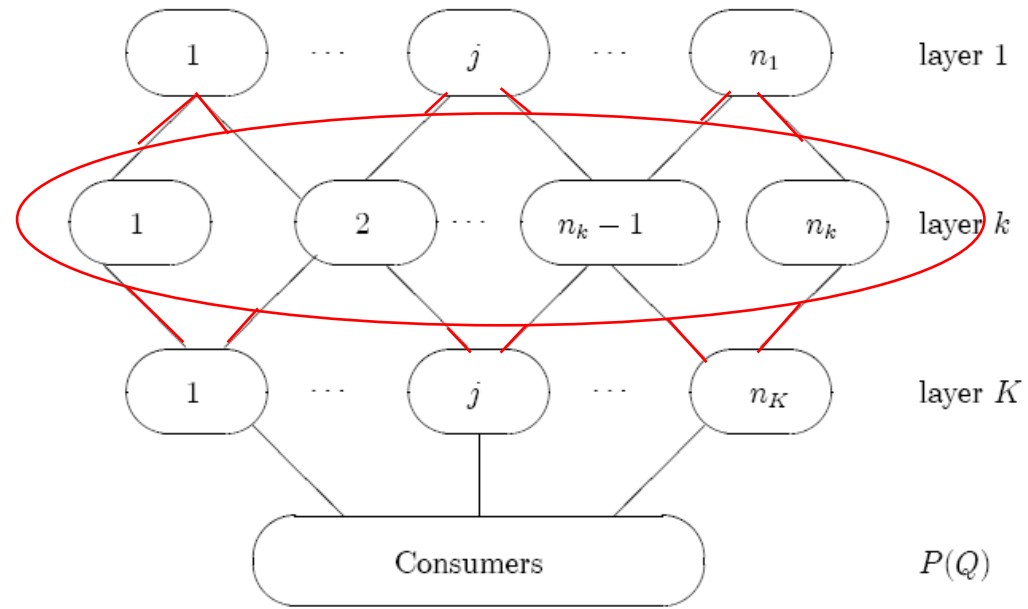


Figure 1: A vertical chain of production.



## Constraints to the U.S. Antitrust Damages Practice

- *Clayton Act* (1914), Section 4: treble damages
  - *Chattanooga Foundry* (1906): overcharge as measure of harm
  - *Hanover Shoe* (1968): passing-on defense denied
  - *Illinois Brick* (1977): standing restricted to direct purchaser
  - *Associated Contractors* (1983): upstream excluded from zone of harm
  - Hardly possible to claim harm from umbrella effects
- 
- Active practice for substantial sums of money
  - Majority are class actions of direct purchasers based on the overcharge trebled



## ‘Best practice’ in Cartel Damages Estimation

- Forensics – specifics of the cartel mechanism
- Basic assessment – ‘the spent times the overcharge’
- Refined methods to determine the hypothetical ‘but-for world’
- Netting for any pass-on – indirect purchaser suits
- Estimating ‘actual loss’ and ‘loss of profit’ – dead-weight loss
- Calculations on interest, exchange rate conversion, taxes – risks



164	RWS - Wrecht	31-12-1936	1.181.000,-	+ 0	75.000,-	gegeven met -8- lid. u. s. ZNzC.	JS	T	Afspraak f 25.000,- p.k.
1304	RWS - NN RW-28 Amc	31-12-1936	2.967.000,-	-/ 0	2.500,-	OEF-37	AdW	T	Afspraak de f 25.000,- afgeven met Gem. Neerjine / ZNzC.
1	Gem. Groningen	31-12-1936	337.000,-	+ 0	50.000,-	OEF-37	AdW	T	12 Combi Koop/Reef. Withering f 5000,- v/d Combi = f 2500,- wikkere.
2	Gem. Beilen	31-12-1936	181.000,-	+ 0	1.000,-	OEF-37	AdW	T	Aanwijzing: Van Karel / Hengman / WWS / Smitje / Koop. With. eind '96 f 50.000,-
36	Gem. Bellingwedde	31-12-1936	977.000,-	-/ 0	2.000,-	OEF-37	AdW	T	Afspraak f 2000,- eind '36.
147	RWS - 24 via Gem. Groningen	30-06-1937	5.176.000,-	0	0	-	JS	T	Koop 12 / Afspraak f 2000,- p.k. aan 17 aann. eind '96 wikkere.
									Combi = WWS / HWZ / Van Karel. Afw. = WWS 1% / HWZ 1% / Van Karel Werk besod.

336	1.181.000,-	+ 0	75.000,-	gegeven met -8- lid
196	2.967.000,-	-/ 0	2.500,-	OEF
196	337.000,-	+ 0	50.000,-	OEF
936	181.000,-	+ 0	1.000,-	OEF
336	977.000,-	-/ 0	2.000,-	OEF

Source: Bos accounts (1996)



## Cartel Damages Take Various Shapes and Forms

- Increased unit prices
- Unexploited scale economies
- Non-linear pricing, discounts and pay-back schemes – *Beer*
  
- Poor quality of product or service
- Retarded process and product innovation
- Environmental damage – *Car Emissions*
  
- More complex forms of collusion:
  - Rotation, internal bidding – *Dutch Construction*
  - Vertically integrated – *Bitumen*
  - Alignment of interests – *Euribor/Libor*
  - Only on some price elements – *Air Cargo* (fuel surcharge), *Trucks* (gross list-prices)



## The LIBOR scandal

# The rotten heart of finance

A scandal over key interest rates is about to go global

Jul 7th 2012



THE most memorable incidents in earth-changing events are sometimes the most banal. In the rapidly spreading scandal of LIBOR (the London inter-bank offered rate) it is the very everydayness with which bank traders set about manipulating the most important figure in finance. They joked, or offered small favours. “Coffees will be coming your way,” promised one trader in exchange for a fiddled number. “Dude. I owe you big time!... I’m opening a bottle of Bollinger,” wrote another. One trader posted diary notes to himself so that he wouldn’t forget to fiddle the numbers the next week. “Ask for High 6M Fix,” he entered in his calendar, as he might have put “Buy milk”.

What may still seem to many to be a parochial affair involving Barclays, a 300-year-old British bank, rigging an obscure number, is beginning to assume global significance. The number that the traders were toying with determines the prices that people and corporations around the world pay for loans or receive for their savings. It is used as a benchmark to set payments on about \$800 trillion-worth of financial instruments, ranging from complex interest-rate derivatives to simple mortgages. The number determines the global flow of billions of dollars each year. Yet it turns out to have been flawed.

Over the past week damning evidence has emerged, in documents detailing a settlement between Barclays and regulators in America and Britain, that employees at the bank and at several other unnamed banks tried to rig the number time and again over a period of at least five years. And worse

### In this section

**The rotten heart of finance**

First-mover disadvantage





Trader RBS: *“It’s just amazing how Libor fixing can make you that much money or lose if opposite. It’s a cartel now in London.”*

Trader Deutsche Bank: *“Must be damn difficult to trade man, especially if you are not in the loop.”<sup>1</sup>*

- Not obvious how collusive benchmark fixing could be sustained
- Panel banks were often on different sides of the market (long/short)
- Portfolio constitutions time-varying and partly stochastic
- Manipulating carries costs – transaction costs, risks, suboptimal trades, suspicion



## Collusive IRD Manipulations

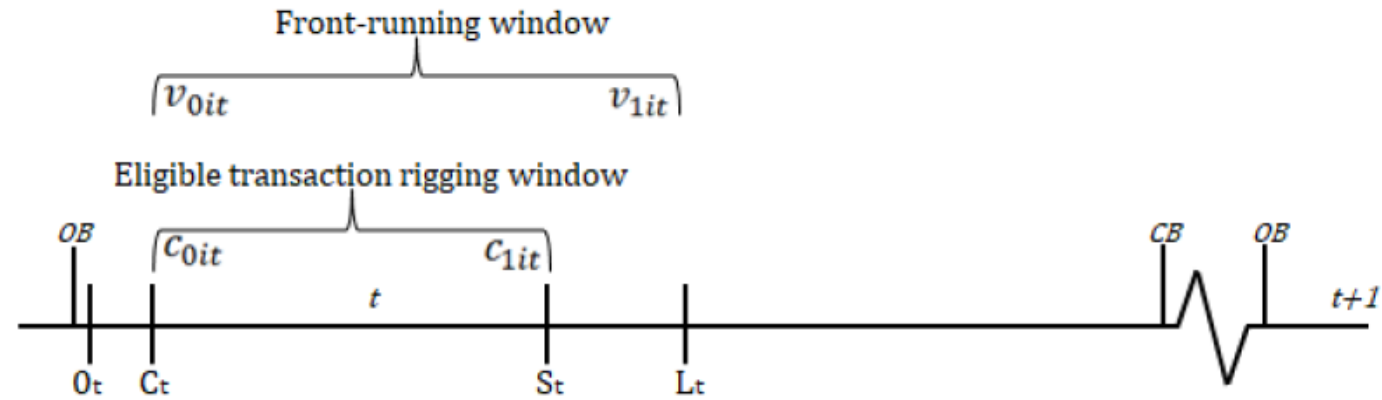


Figure 2: A trading day in the life of Libor.

Source: Boot, Klein and Schinkel (2019), Collusive Benchmark Rates Fixing

## Interday Variance Screen

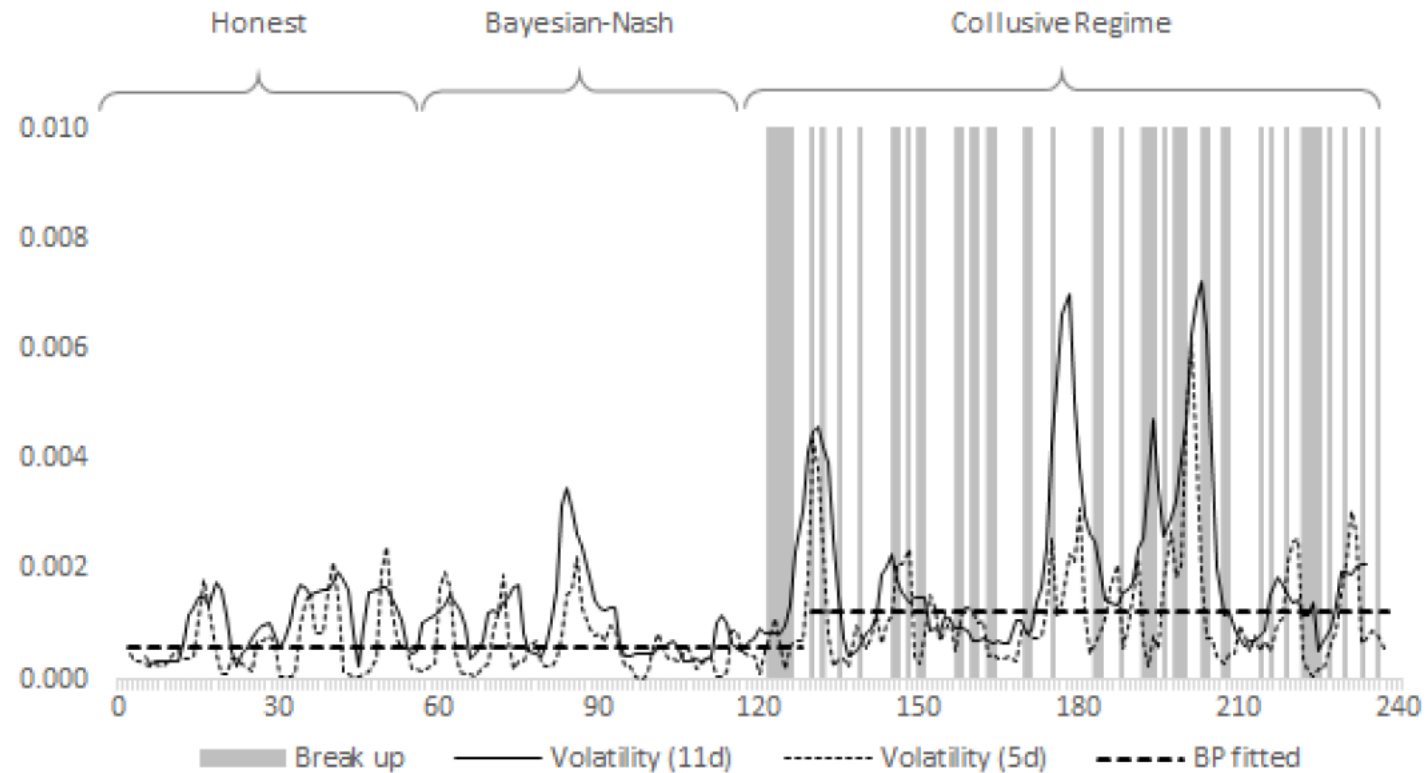


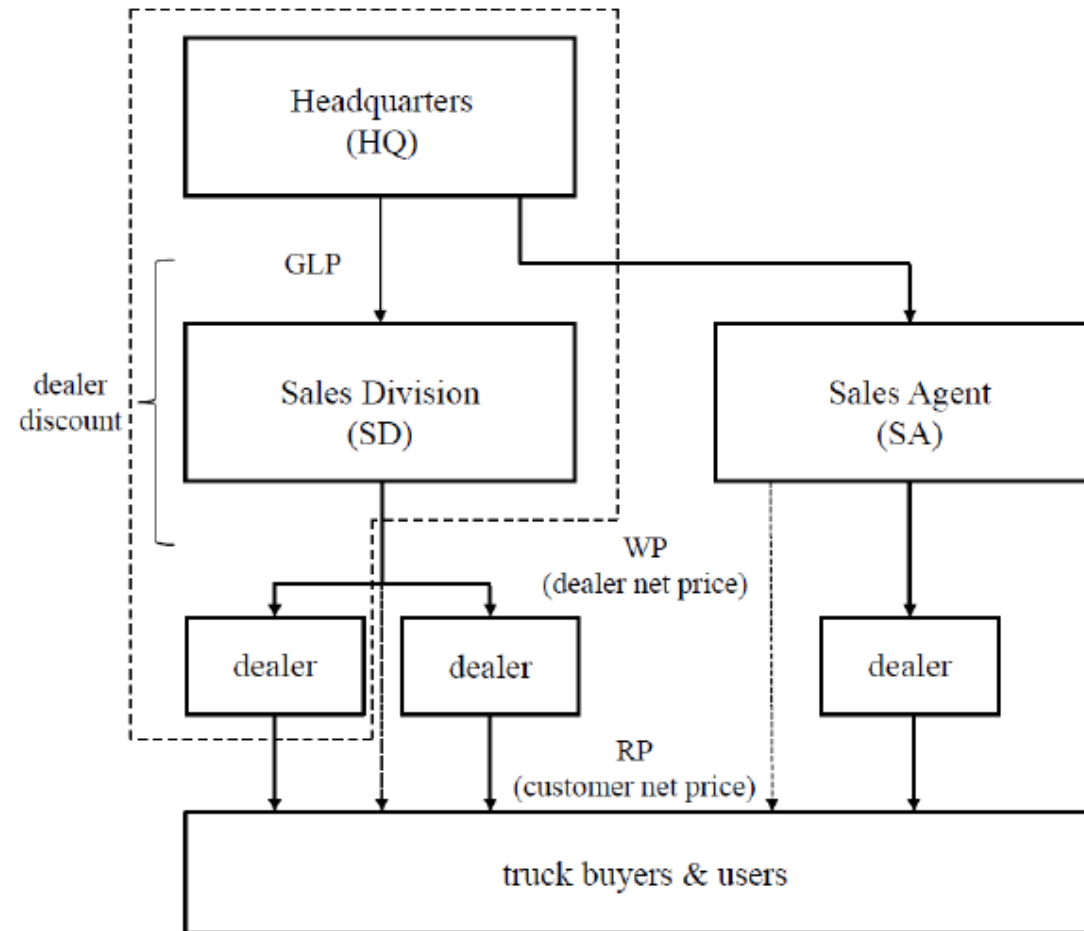
Figure 7: Volatility in quotes, 11-day and 5-day rolling window, including 5-day Bai-Perron structural break test results.

Source: Boot, Klein and Schinkel (2019)



- **coordinating prices at "gross list" level** for medium and heavy trucks in the European Economic Area (EEA). The "gross list" price level relates to the factory price of trucks, as set by each manufacturer. Generally, these gross list prices are the basis for pricing in the trucks industry. The final price paid by buyers is then based on further adjustments, done at national and local level, to these gross list prices.

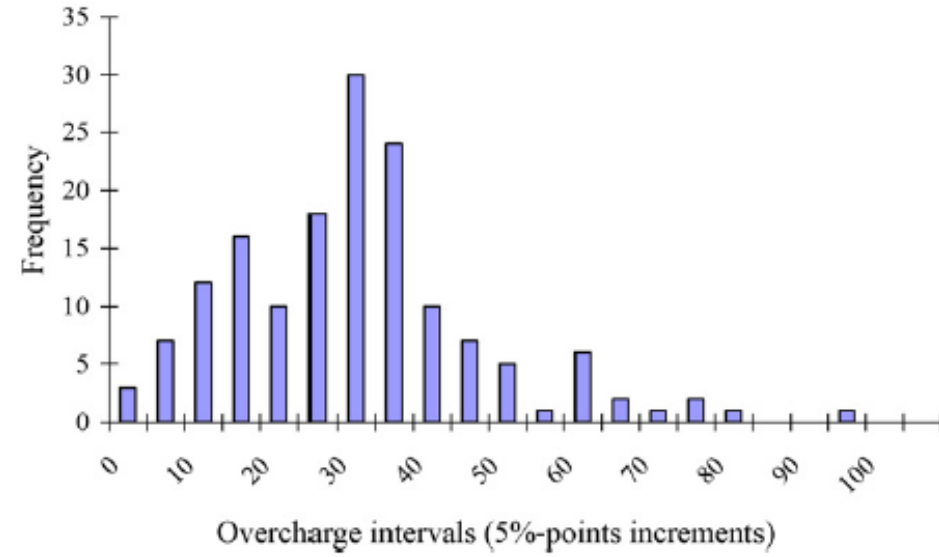
## Price Setting in Sales Chain





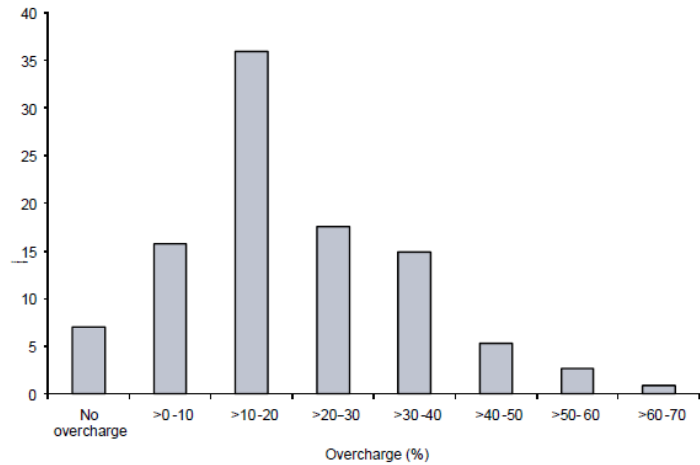
## ‘Best practice’ in Cartel Damages Estimation

- Forensics – specifics of the cartel mechanism
- Basic assessment** – ‘the spent times the overcharge’
- Refined methods to determine the hypothetical ‘but-for world’
- Netting for any pass-on – indirect purchaser suits
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Source: Bolotova (2009)

Fig. 2. Frequency distribution of cartel overcharges: modern international cartels.



Source: Guidance Paper *Quantifying Harm* (2013)



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## Various Methods to determine the “But-for Price”

- Guidance Paper (2013): “estimate of the scenario likely” (recital 9)
- Accounting-based
  - Cost approaches
  - Financial measures
- Structural modeling – calibrated simulations
- Comparator-based:
  - Yardstick methods
  - Before-During-After methods (time-series: dummy, forecasting)
- In all, potential use of structural multivariate estimation
- Cartel mechanism and quality of the data suggest the most suitable method



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JOURNAL ARTICLE

# On the Misuse of Accounting Rates of Return to Infer Monopoly Profits

Franklin M. Fisher and John J. McGowan



*The American Economic Review*  
Vol. 73, No. 1 (Mar., 1983), pp. 82-97 (16 pages)

Published by: [American Economic Association](#)

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1 of 16 pages

## On the Misuse of Accounting Rates of Return to Infer Monopoly Profits

By FRANKLIN M. FISHER AND JOHN J. MCGOWAN\*

Accounting rates of return are frequently used as indices of monopoly power and market performance by economists and lawyers.<sup>1</sup> Such a procedure is valid only to the extent that profits are indeed monopoly profits, accounting profits are in fact economic profits, and the accounting rate of return equals the economic rate of return.

The large volume of research investigating the profits-concentration relationship uniformly relies on accounting rates of return,

lowances for inflation. This is to say they are well aware of certain measurement problems which arise in using available accounting information to measure profitability. They seem, however, totally unaware of a much deeper conceptual problem, namely, that accounting rates of return, even if properly and consistently measured, provide almost no information about economic rates of return.<sup>3</sup>

The economic rate of return on an invest-

PDF

Help

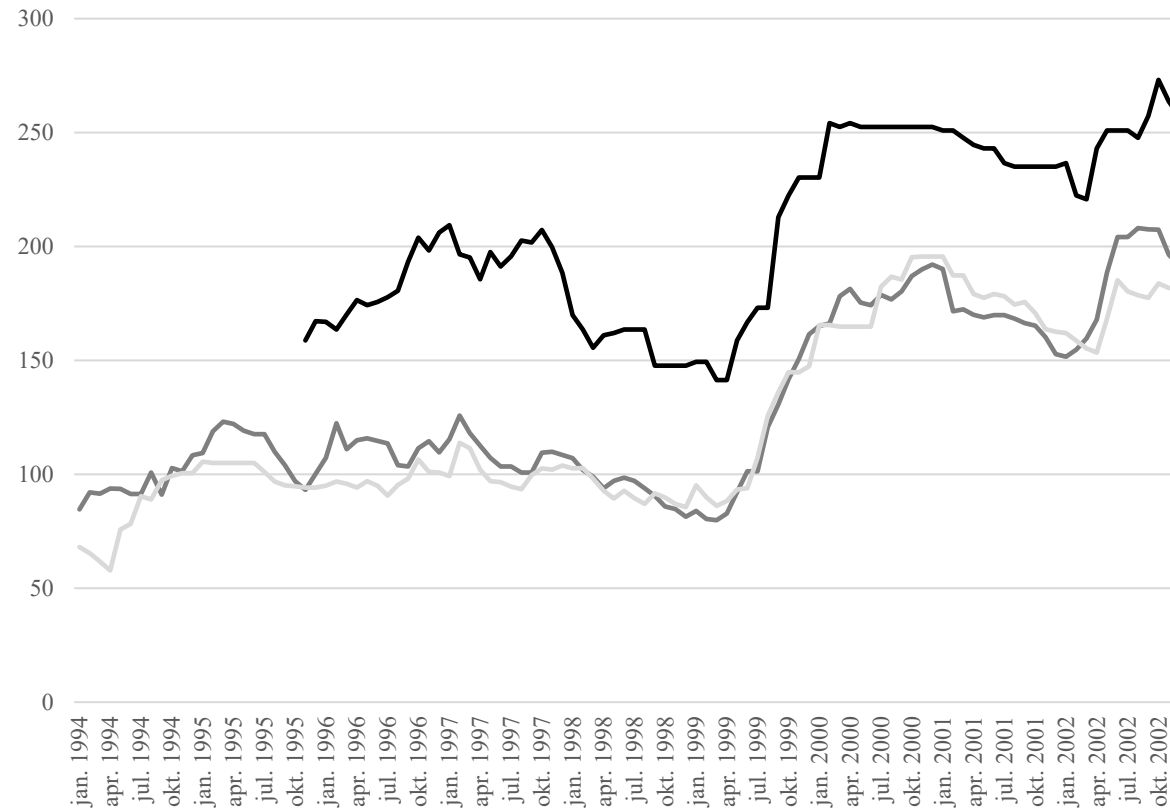


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## Yardstick Method: International Price Comparison

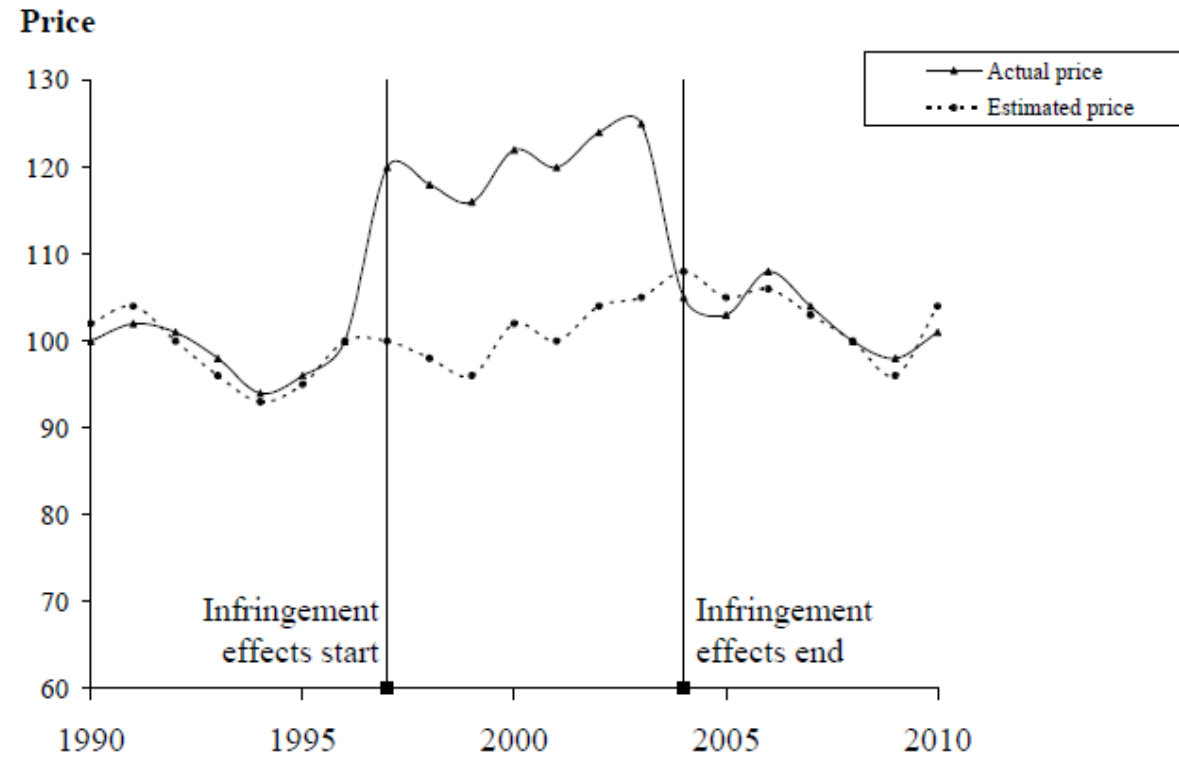




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## Before-During-and-After Method



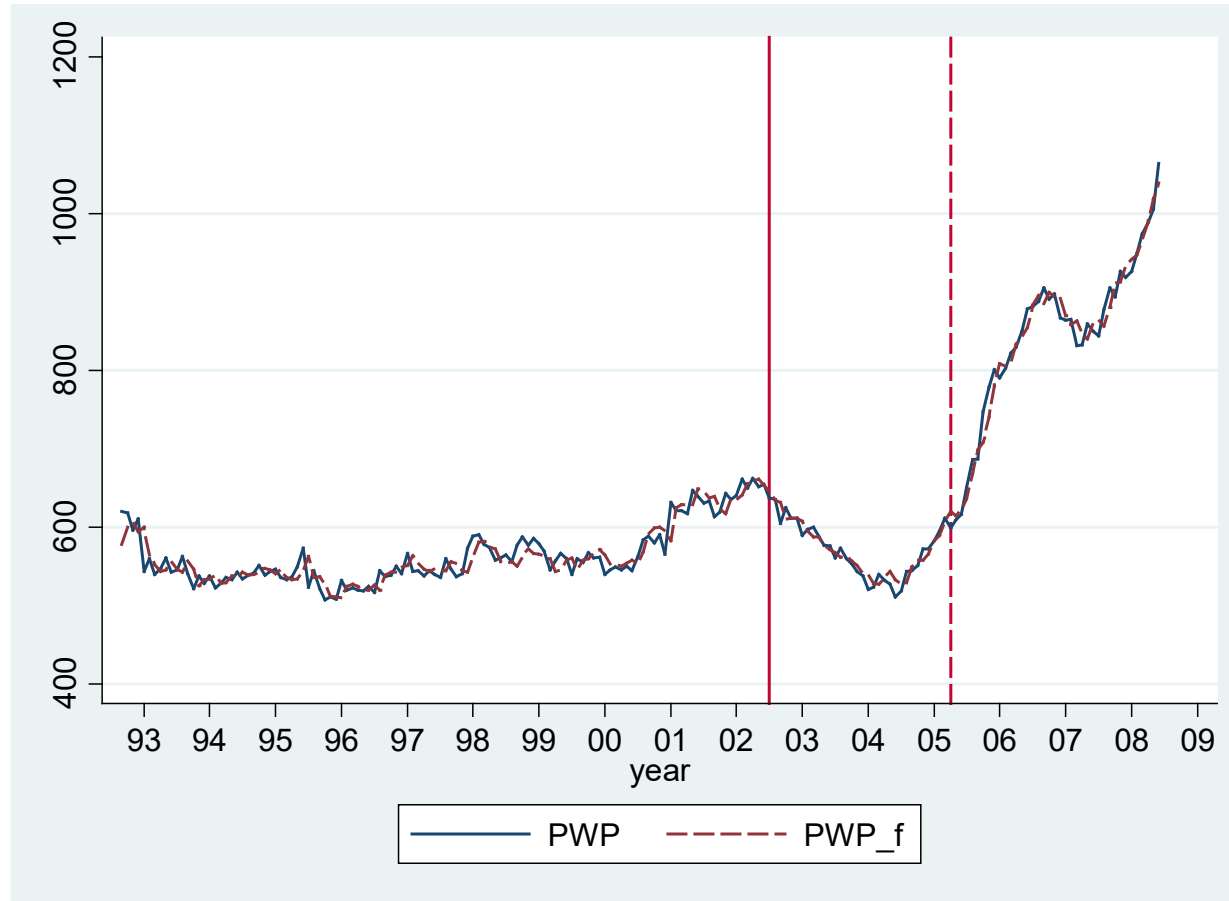
Source: Guidance paper *Quantifying Harm* (2013)

## Volume-weighted monthly average delivered prices per ton of sodium chlorate



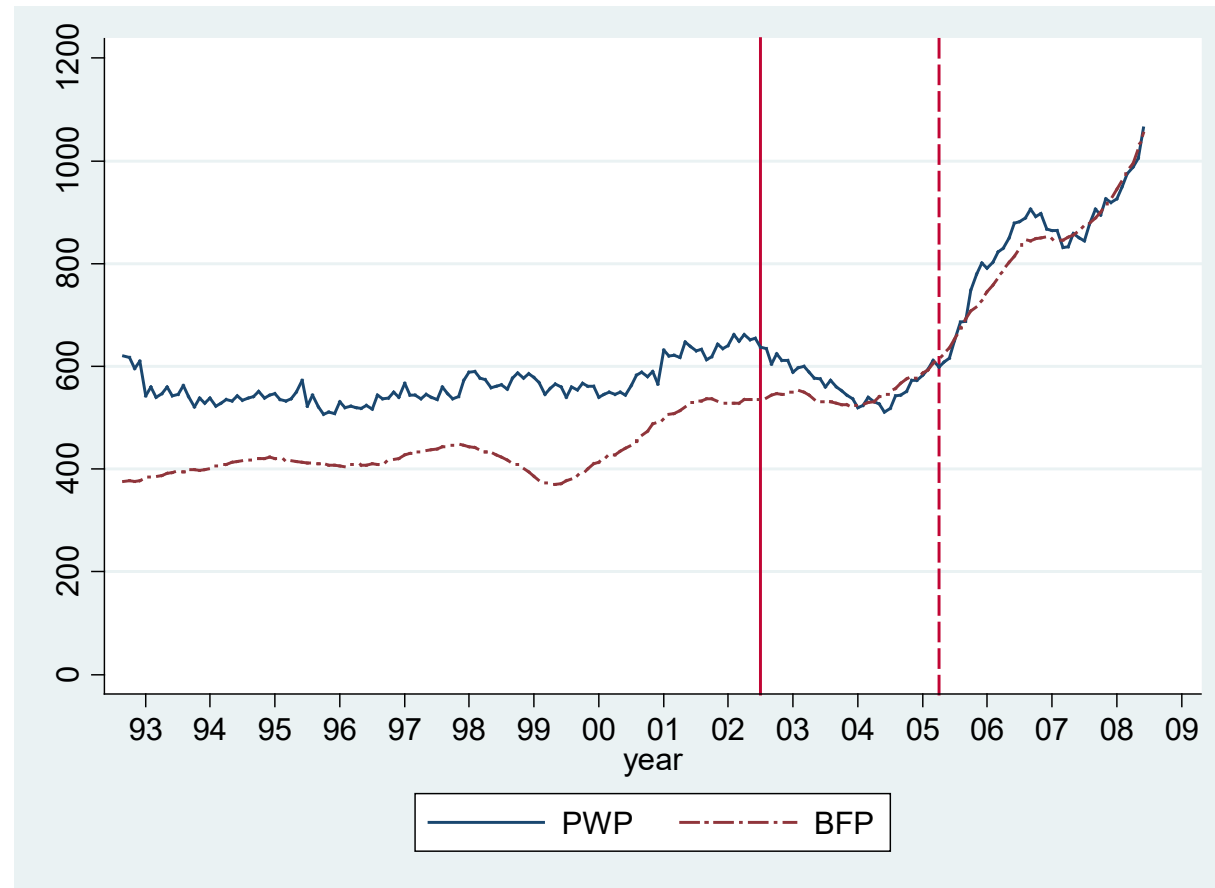
Sources: CDC. Based on invoices of several large direct purchasers – roughly half of total European demand for sodium chlorate. Boswijk, Bun, Schinkel (2018).

## Be careful with just eyeballing!

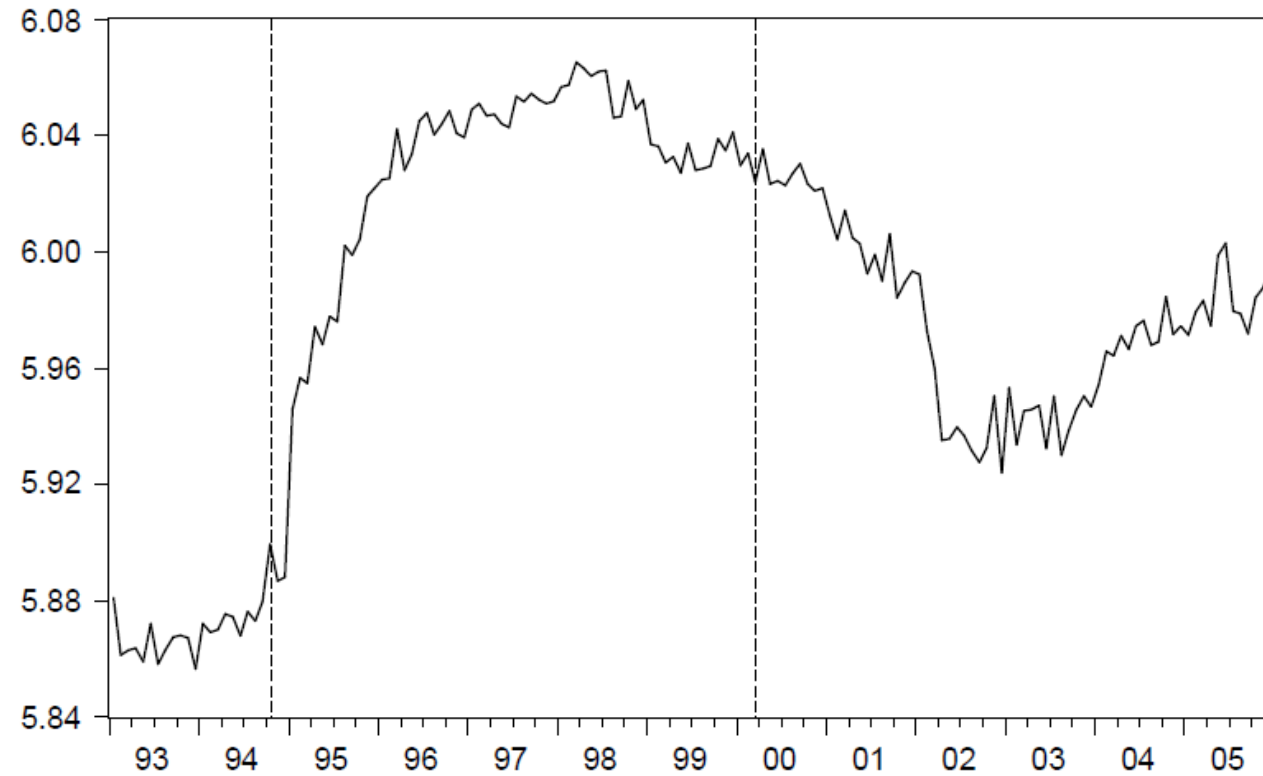




## Be careful with just eyeballing!



## Volume-weighted monthly average delivered prices per ton of sodium chlorate



Sources: CDC. Based on invoices of several large direct purchasers – roughly half of total European demand for sodium chlorate. Boswijk, Bun, Schinkel (2018).



## The European *Sodium Chlorate* Cartel

- European Commission decision of 11/06/2008 in Case COMP/38.695
- Against four groups of chemical producers; fines of 79 million Euro in total
- Successful leniency application by Akzo/EKA
  
- Pulp bleaching for printing and tissue grade paper that meets ECF standard
- Very small part in final chemical pulp prices (1%)
- Regularly renegotiated supply contracts with price adjustment clauses – annual



## Unfolding of Cartel Events

- Anticipation of TCF standard in first half of 1990's
- Evidence of first cartel meeting on 21-22 September 1994 in Helsinki
- Akzo/EKA and Kemira agreed upward price adjustments for 1995
- Smaller suppliers joined in 1995 and 1996
- Internal tensions in 1998 from secret poaching
- Resolved: coordinated price increases in 1998 and 1999
- 9 February 2000, Akzo/EKA denounced the cartel at trade association meeting
- March 2003 leniency application by Akzo/EKA



## Formal versus Effective Cartel Dates

- European Commission dates cartels to the day – evidence, negotiated:
  - “... *at least* from dd-mm-yyyy and until *at least* dd-mm-yyyy,”
  - “Single and continuous cartel infringement”
- In practice, dates are ambiguous: gradual entry and exit, delay in taking effect, post-cartel effects – ignorant buyers, long-term contracts, capacity build up, sophisticated former cartel members
- Intermittent periods of cartel instability, distrust, price wars
- Formal and effective cartel dates need not coincide
- “Econometric analysis of observed data can be a way to identify when the infringement’s effects started or ceased.” Practical Guide *Quantifying Harm* (2013), recital 43



## Application in *Sodium Chlorate*

$$p_t = \alpha_1 + \alpha_2 d_t + \beta_1 x_{1t} + \beta_2 x_{2t} + \beta_3 x_{3t} + \beta_4 x_{4t} + \gamma_1 p_{t-1} + \gamma_2 p_{t-2} + u_t,$$

- Electricity price ( $x_1$ ), labour costs ( $x_2$ ), Western European chemical pulp production ( $x_3$ ), European production capacity for sodium chlorate ( $x_4$ )
- Short-run dynamics:  $p_{t-1}$  and  $p_{t-2}$
- Logarithmic specification
  
- Step 1: Determine break dates
- Step 2: OLS estimation with formal and found cartel dates

Using the formal dates, i.e. September 1994 – February 2000, we obtain:

$$\hat{p}_t = \underset{(0.358)}{0.783} + \underset{(0.003)}{0.013d_t} + \underset{(0.011)}{0.007x_{1t}} + \underset{(0.016)}{0.023x_{2t}} - \underset{(0.019)}{0.005x_{3t}} - \underset{(0.059)}{0.054x_{4t}} + \underset{(0.077)}{0.596p_{t-1}} + \underset{(0.074)}{0.299p_{t-2}}.$$

While using the effective cartel dates, i.e. January 1995 – February 2002, we find:

$$\hat{p}_t = \underset{(0.369)}{2.033} + \underset{(0.004)}{0.029D_t} + \underset{(0.011)}{0.056x_{1t}} + \underset{(0.013)}{0.031x_{2t}} + \underset{(0.017)}{0.002x_{3t}} - \underset{(0.053)}{0.145x_{4t}} + \underset{(0.074)}{0.455p_{t-1}} + \underset{(0.067)}{0.300p_{t-2}}.$$

- Strong explanatory power (F statistic 827.70), dynamics adequate
- With effective cartel dates, explanatory variables are significant with expected signs
- Short-run cartel effect ( $\alpha_2$ ) more than twice as large

$$\widehat{bfp}_t = 2.033 + 0.455 \widehat{bfp}_{t-1} + 0.300 \widehat{bfp}_{t-2} + 0.056 x_{1t} + 0.031 x_{2t} + 0.002 x_{3t} - 0.145 x_{4t}$$

## Cartel Price Effects in *Sodium Chlorate*



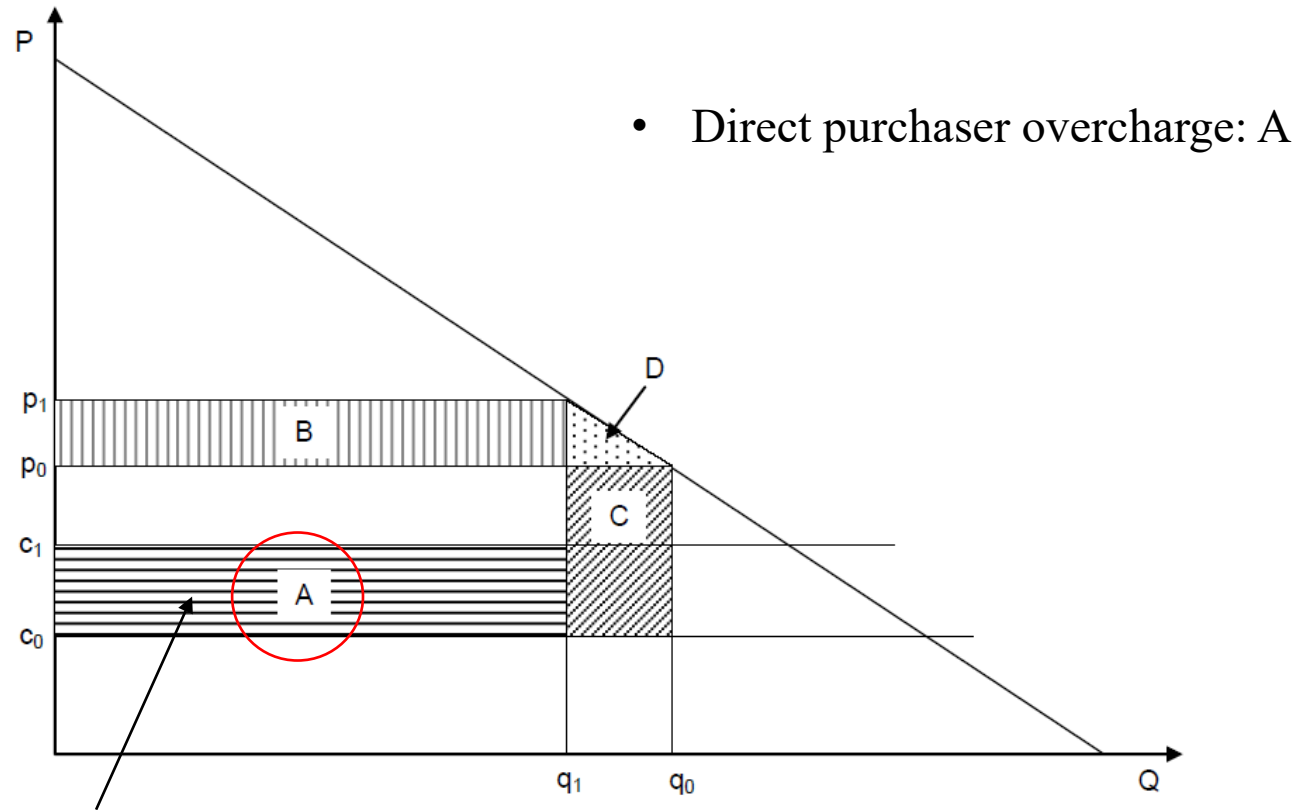
Source: Boswijk, Bun and Schinkel (2018)



## ‘Best practice’ in Cartel Damages Estimation

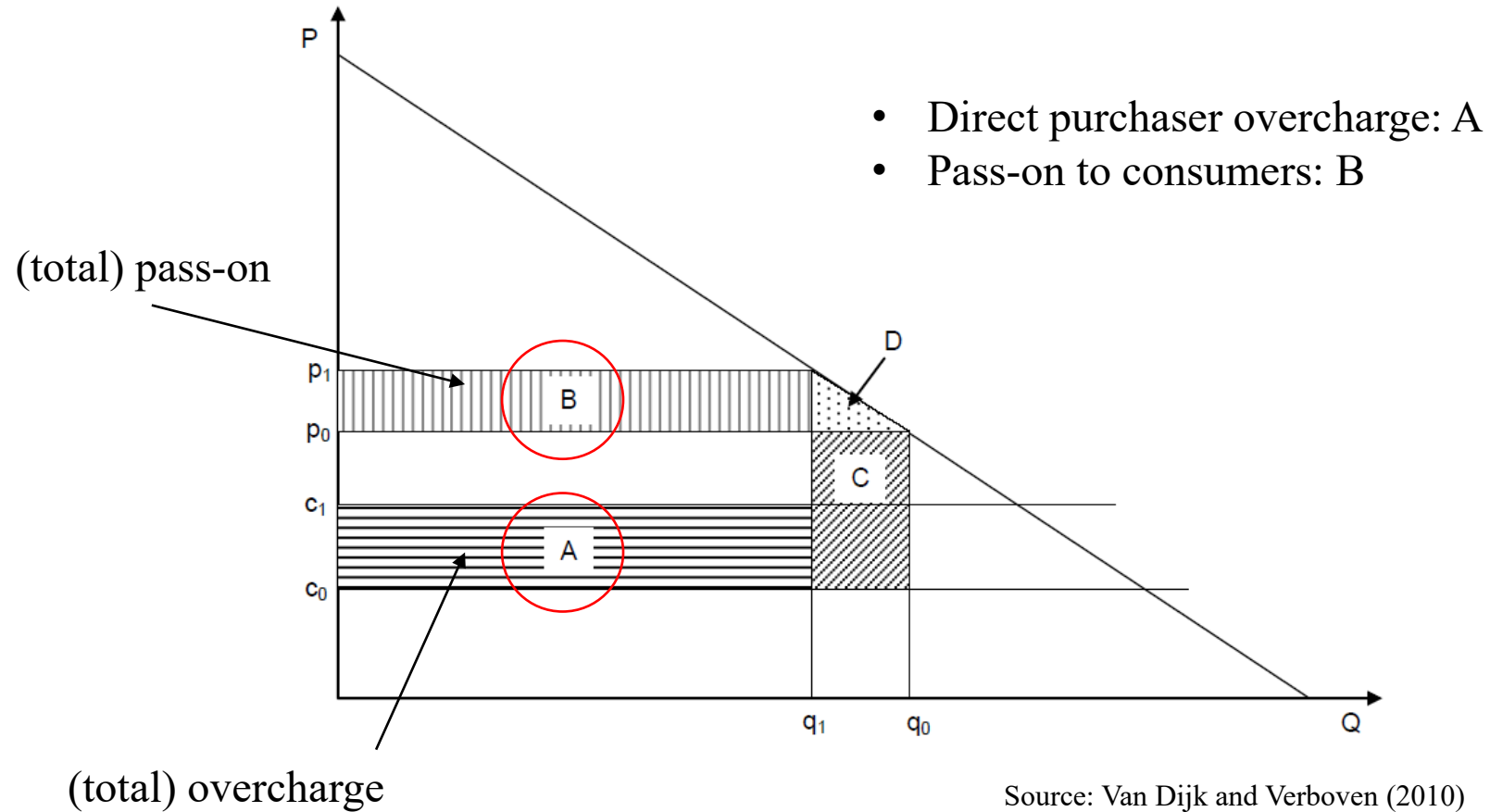
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## Pass-on with one Intermediary (3 layers)



Source: Van Dijk and Verboven (2010)

## Pass-on with one Intermediary (3 layers)





## Determining the Pass-on

- Objective is to determine the plaintiff's net damage – true harm
- Pass-on depends crucially on the market structure:
  - Type and strength of competition but-for collusion
  - Elasticity of (derived) demand
  - Cost structure
- By how much did the plaintiff raise its price in response?
  - Estimation of the cartel's effect on *output* prices (and quantities)
  - Fractioning – RBB (2016) report for the European Commission



## Fractioning based on Market Characteristics

TABLE V.A  
PASS-THROUGH RATES: COURNOT

		<i>e/b</i>		
		0.3	0.6	1
<i>n</i>	1	0.50	0.50	0.50
	5	0.69	0.77	0.83
	10	0.79	0.86	0.91

Pass-through rates (PTR).

TABLE V.B  
PASS-THROUGH RATES: BERTRAND

		<i>e/b</i>		
		0.3	0.6	1
<i>n</i>	1	0.50	0.50	0.50
	5	0.73	0.88	1.00
	10	0.83	0.94	1.00

Pass-through rates (PTR).

Source: Basso and Ross (2010)



## Issues in Determining the Pass-on

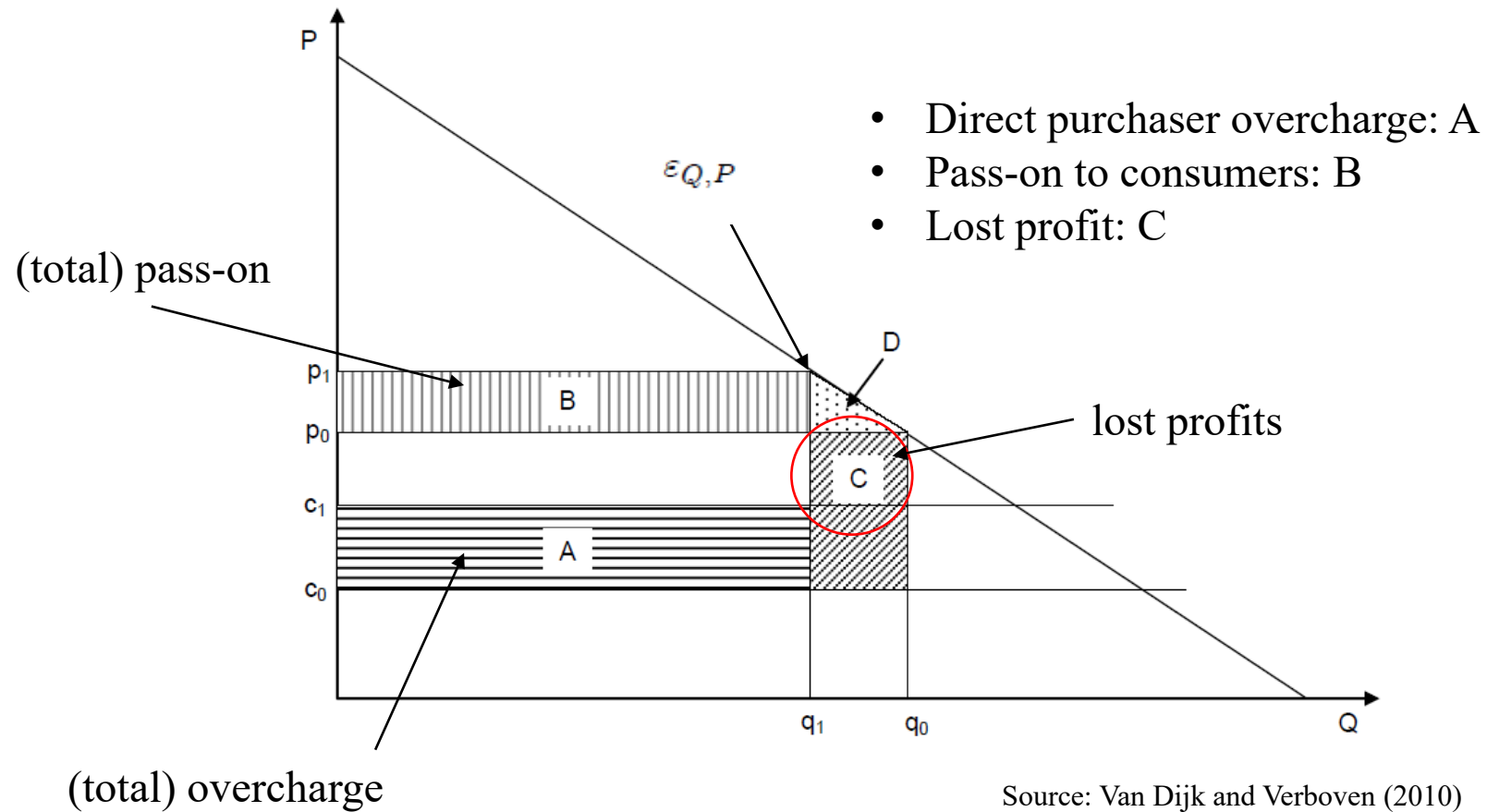
- Pass-on in simple theory between 50% (monopoly) to 100% (perfect competition)
- Sometimes negligible – espresso machine-effect; regulatory constraints to pass-on
- Any unaffected competition downstream limits the ability to pass-on – fringe competition, imports
  
- The net effect of pass-on a plaintiff's harm is very much case specific
  
- N.B. Pass-on implies lost profits – not necessarily off-setting



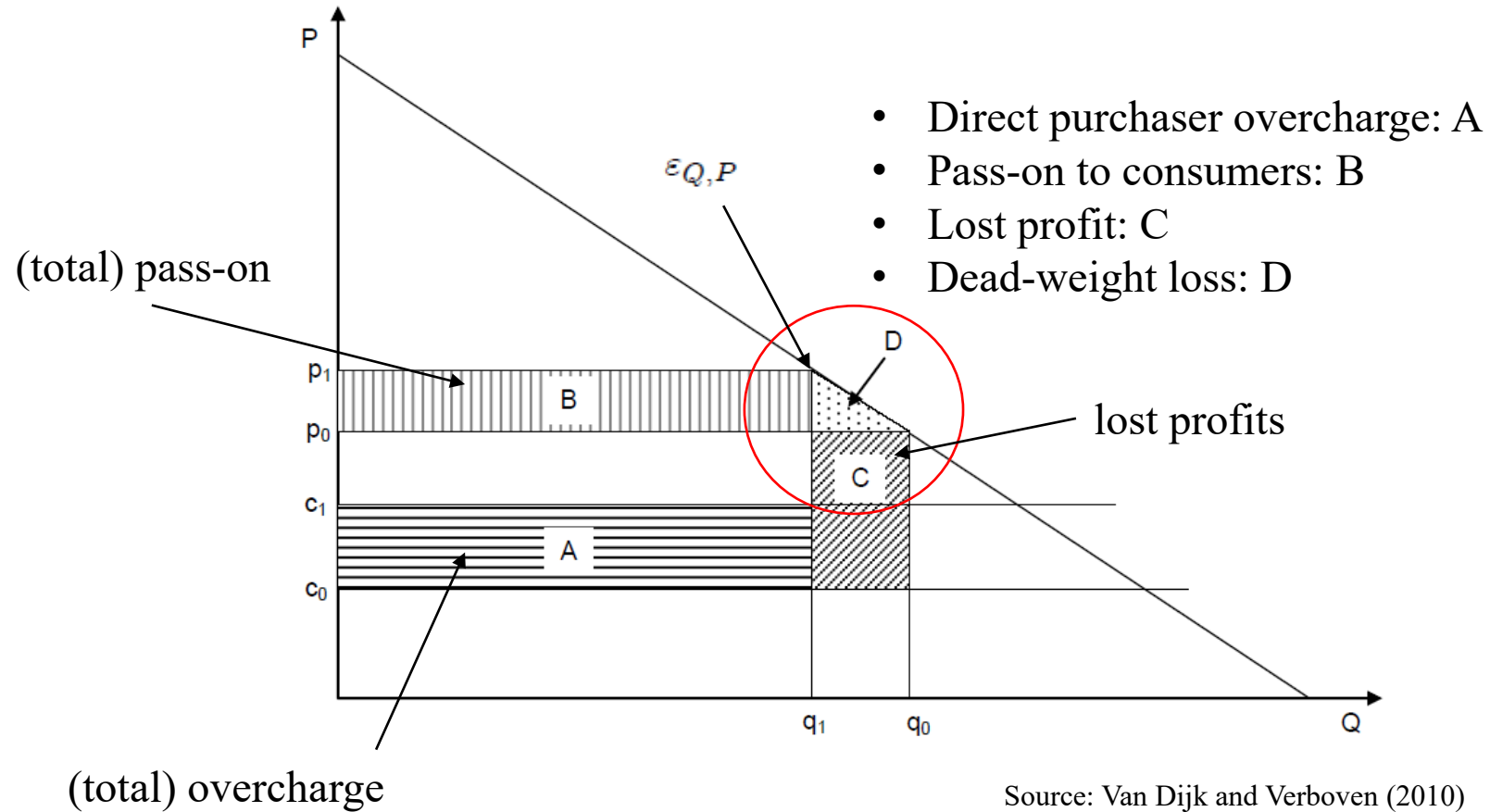
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## Pass-on Implies Lost Profits



## Pass-on with one Intermediary (3 layers)



Source: Van Dijk and Verboven (2010)



## Damages Percolate through the Chain of Production

- An overcharge on direct purchasers
- Output effect on direct purchasers
- Both incurred by indirect purchasers, due to pass on
- A dead-weight loss on final consumers
  
- Overcharge and output-effect incurred by suppliers (reduced derived demand)
  
- The extends depend crucially on key market characteristics

## Recall: Collusion Midway in the Chain

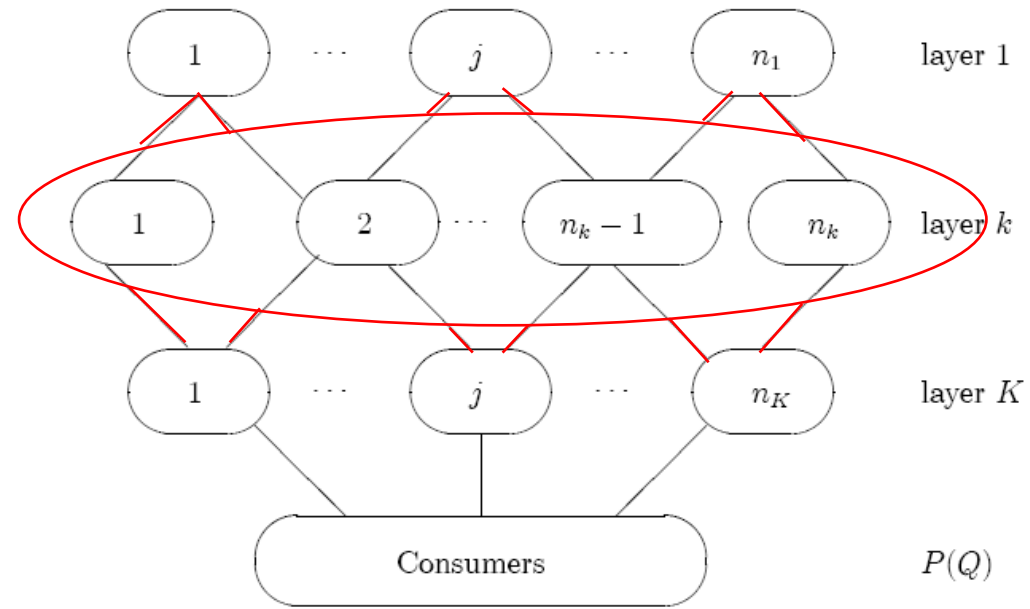
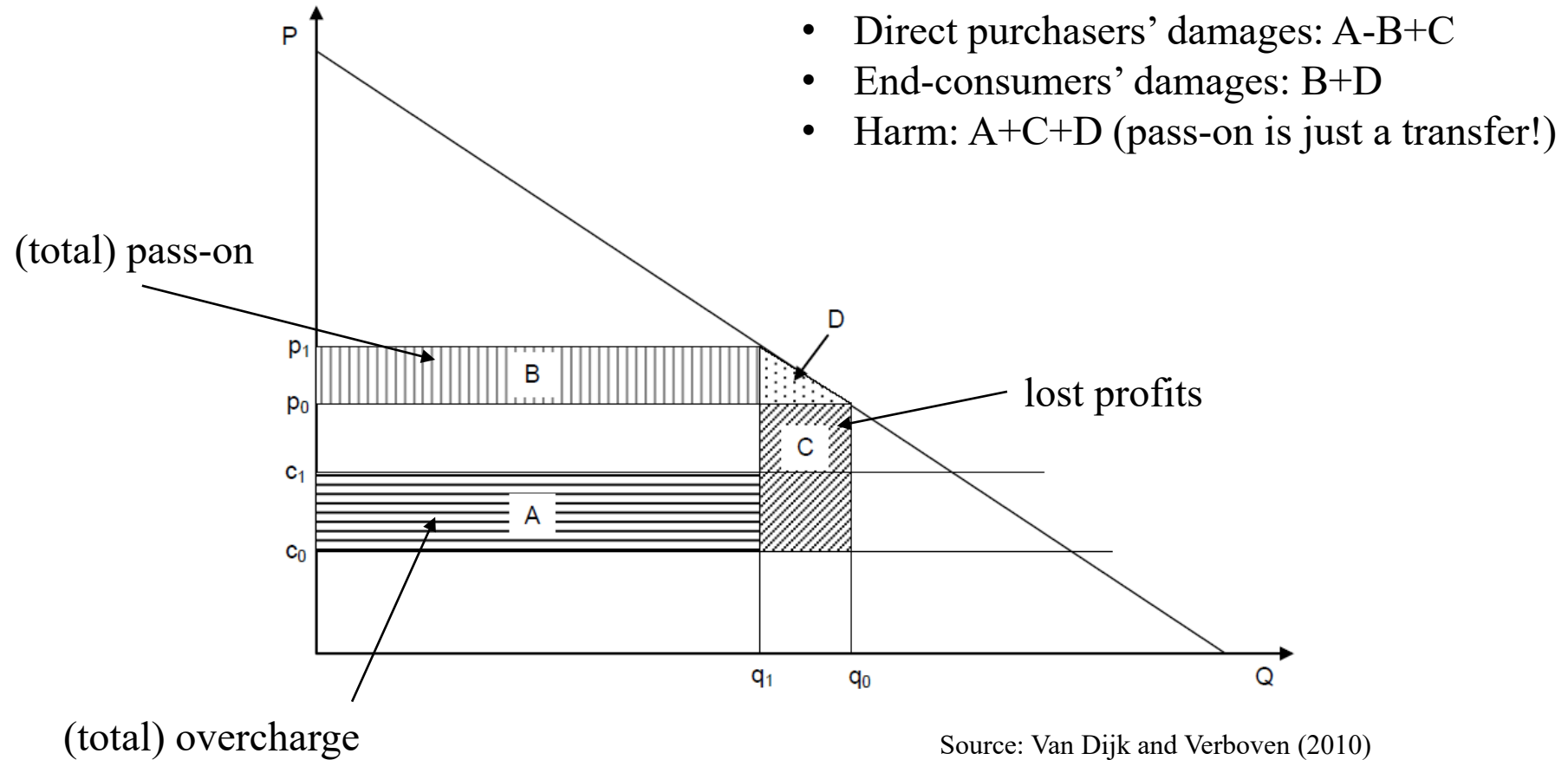


Figure 1: A vertical chain of production.

## Total Damages Spread within the Relevant Market



Source: Van Dijk and Verboven (2010)

## Wider Social Damages





## ‘Best practice’ in Cartel Damages Estimation

- Forensics – specifics of the cartel mechanism
- Basic assessment – ‘the spent times the overcharge’
- Refined methods to determine the hypothetical ‘but-for world’
- Netting for any pass-on – indirect purchaser suits
- Estimating ‘actual loss’ and ‘loss of profit’ – dead-weight loss
- Calculations on interest, exchange rate conversion, taxes – risks



## Concluding Remarks

- Lots of development in assessment of damages – Commission’s Guide leaves plenty of room
  - Key is matching facts, cartel mechanism and econometrics
  - What standard of proof will be reached? – quality of data and analysis
  - Scope for process efficiencies, defragmentation – full chain claims, Rüggeberg and Schinkel (2006)
  - Probably partial models will have to do
- 
- Keep wide zone of harm: “Lost” damages can cause perverse incentives
  - Representation of weaker victims needed – Consumer Associations, Greenpeace, Amnesty International
  - Antitrust damages claims can have a strong deterrent effect – liability plus policing