

# The Role of Economists and Economic Evidence in Merger Analysis

*How economics can help you investigate and  
review mergers regimes*

MWG Teleseminar, December 19, 2013

# Investigative Techniques Handbook for Merger Review

- Chapter 1: Investigation Tools Overview
- Chapter 2: Planning a Merger Investigation
- Chapter 3: Developing Reliable Evidence
- Chapter 4: [The Role of Economists and Economic Evidence](#)  
(updated in April 2013!)
- Chapter 5: A Private Sector Perspective

# Chapter 4: The Role of Economists and Economic Evidence

## Highlights:

1. The role of economist/economics in planning merger investigation
2. The economist's toolbox: qualitative evidence and quantitative methods
  - Price correlation and time-series analysis
  - Diversion ratios
  - Upward Price Pressures
  - Natural events /shock analysis
  - Demand estimation
3. Requirements for a solid quantitative analysis
4. Glossary, further resources & case studies



# Using economics in the early stages of an economic investigation



# ICN MWG Economic Analysis in Merger Webinar

Rivalry in merger analyses –

Cases from Brazil

December 19<sup>th</sup>, 2013



## Importance of rivalry in antitrust assessment

**Brazilian cases: BRF and Via Varejo**

- ▶ **Economic issues to complement the ICN MWG updated Chapter 4 on The Role of Economists and Economic Evidence in Merger Analysis**  
(Sections 3.1, 3.4.1, and 3.4.2)

# Understanding the economics of the market

▶ The initial goal is to identify the state of competition → it helps to assess the competitive effects that are attributable to the merger

- **Type of parties' products that compete with each other**
  - Homogeneous → capacity constraints and price are important
  - Differentiated → degree of substitutability is very relevant, and price may be less important than other product's features. Market share is an imperfect indicator regarding competitive position of the merging parties
- **How are the products sold?**
  - Listed prices
  - Negotiations
  - Bidding processes
- **Are there barriers to entry and expansion?**
- **Are imports relevant?**
- **Are there any merger-specific efficiencies?**
- **Liquid effect must be non-negative: even in the presence of harmful effects on competition, there may be some countervailing efficiencies**
- **Is remaining rivalry strong enough?**



## Potential theories of harm:

- ▶ Unilateral Effects: merging firms may find it profitable to alter their behavior independently of what their competitors do
- ▶ Coordinated Effects: a merger may diminish competition by enabling or encouraging post-merger coordinated interaction among firms
  - Tacit collusion has been more discussed in partial ownership cases

## Different economic analyses should be considered

- ▶ Quantitative and qualitative evidence should be complementary and consistent
- ▶ Detailed analysis and sophisticated methods should be applied once main antitrust issues have been identified
- ▶ Formal economic models are important, but must be based on “real world” features: beware of oversimplified hypothesis



**When there are too many markets affected, an objective threshold could be created to easily clear the less problematic cases**

- ▶ Time and resources can be saved to be applied in the most complex issues, that present potential harm



## Rivalry: different dimensions beyond price

- **Product differentiation and brand fidelity**
- **Innovation**
  - Dynamic markets: competitors and products can be replaced
- **Capacity**
  - Is there idle capacity?
  - How easy is it to expand capacity?
- **Locational differentiation**
  - How well-located are competitors
- **Mix of products**
  - One-stop-shop business models
- **Price policy and payment conditions**
  - Discount Policy (volume, e.g.)
  - Competitors can provide credit
- **Distribution channels**
- **Vertical integration**
- **Existence of a maverick firm**

**Even in oligopoly markets, remaining rivalry can be strong enough to discipline the market in price and other dimensions**

# Via Varejo case: rivalry in different dimensions

## Via Varejo = Casas Bahia + Ponto Frio/GPA (2009)

Largest retail company in Brazil

### ► Relevant markets under analysis:

- Retail market for durable goods at the municipal level → significant competitive concerns
- Online market for durable goods at the national level → no competitive concerns

### Thresholds:

- Via Varejo market share < 40%
- Preceding similar case (Máquina de Vendas): 2 competitors with market share > 20%

### ► Competitive variables:

- Distribution channels: online and offline
- Distribution centers and logistics
- Store location
- Brand: marketing
- Mix of products
- Economies of scale
- Payment conditions: credit

### ► Rivalry conditions mitigated higher concentration concerns

- Online sector intensifies competition also in offline segment
- Intense negotiation with big suppliers: tight retail margins
- Intense price competition
- Competition at national level impacts local competitive dynamics

## Perdigão and Sadia merger forming Brasil Foods (2009)

Two main food producers and longtime industry rivals in Brazil

- ▶ **Significant competitive concerns in 15 markets, such as: ham, sausage, mortadella, frozen pizza, hamburger, margarine and lasagna**
  - Concentrations ranging from 30% to impressive 90%

### ▶ **Competitive variables:**

- Firms were downstream and upstream vertically integrated
- Economies of scale and scope
- Portfolio power
- Brand fidelity: Sadia and Perdigão are leader brands
- Distribution network
- Remaining rivalry: no idle capacity
- Price is also important

**BRF merger was approved with remedies: assets enough to create a new “deputy leader”, restoring competitive environment**

**In many cases,  
remedies are designed  
to favor new  
competitors or intensify  
existent rivalry**

Too many specificities must be considered, analysis should be case by case and focused on main antitrust issues

*“All happy families are alike; each unhappy family is unhappy in its own way.”*

(Leo Tolstoy's Anna Karenina opening, 1878)





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# Types of economic evidence in merger review



# MERGER ANALYSIS:

## *Levels of Evidence*

John Kwoka  
Northeastern University  
Boston, MA



# ICN Handbook Guidance

- ICN Investigative Techniques Handbook discusses types of economic evidence:
  - Qualitative evidence on market definition, competitive effects, efficiencies, and entry
  - Quantitative techniques for analyzing same issues
    - Simpler quantitative techniques
    - Advanced techniques

*But how should a competition agency choose which type to use?*

# Guidance in Handbook

- Handbook offers two principles:
  - “As a general rule, less complex analyses should be undertaken first”
  - “Depending on the quality of the data and the expected balance between benefits and costs, ... simpler analyses may be complemented with more sophisticated techniques”

# Levels of Evidence

- This suggests an ordered rank of types or levels of evidence
- For any issue, three broad levels of evidence
  - *Level 1: Direct qualitative evidence*
  - *Level 2: Analysis of critical variables*
  - *Level 3: Econometric modeling*
- To illustrate, consider market definition

# Level 1: Direct Evidence

## ➤ *Types of Direct Evidence*

- Pricing interactions
- Company documents
- Customer interviews
- Price correlation analysis
- Product characteristics

# Level 2: Critical Variables

## ➤ *Types of Critical Variables*

- Critical loss calculation
- Diversion analysis
- Demand elasticity and cross-elasticity
- UPP

# Level 3: Econometrics

## ➤ *Types of Econometric Modeling*

- Reduced form estimation
- Structural models of price/quantity/quality equilibrium
- Merger simulation

# Why “Levels”?

- These can be ranked or ordered by:

	<i>Least</i>	<i>Moderate</i>	<i>Most</i>
<i>Costly to use</i>	L1	L2	L3
<i>Strength of Proof</i>	L1	L2	L3
<i>Audience</i>	L3	L2	L1

- Implies that benefits in terms of “proof” rise directly with costs
- But audience for higher level likely to be smaller



# Example: Staples-Office Depot Merger

- Proposed merger of Staples and Office Depot in U.S. (1997)
- Key question was market definition:
  - Did “office supply superstores” (OSS) by themselves constitute an antitrust market?
  - Only 3 such stores, but many retailers of same goods
- Two types of evidence developed
  - One “demonstrated,” the other “proved,” the result
  - Together, much more effective than either separately

# Level 1 Evidence

- Level 1 demonstration took form of “natural experiment”
  - Identified local markets where one OSS faced either or both competitors
  - Compared prices on same items with and without these competitors
- Federal Trade Commission had company price data
  - Also had public advertisements of prices

# Direct Price Comparison

Orlando, FL, *Sentinel* - Jan. 1997  
(Three Superstores)

**The Office DEPOT.**  
**The Best Selection of Business Supplies!**

Our Lowest Priced Shredder! **17<sup>99</sup>**

Guaranteed Low Price! **29<sup>99</sup>**

**27<sup>99</sup>**

**17<sup>99</sup>**

**1<sup>99</sup>**

**5<sup>75</sup>**

Order By Phone 1-800-645-8800 Or Fax 1-800-695-5310

Leesburg, FL, *Daily Commercial* - Jan. 1997  
(One Superstore)

**The Office DEPOT.**  
**The Best Selection of Business Supplies!**

Our Lowest Priced Shredder! **24<sup>99</sup>**

Guaranteed Low Price! **29<sup>99</sup>**

**47<sup>99</sup>**

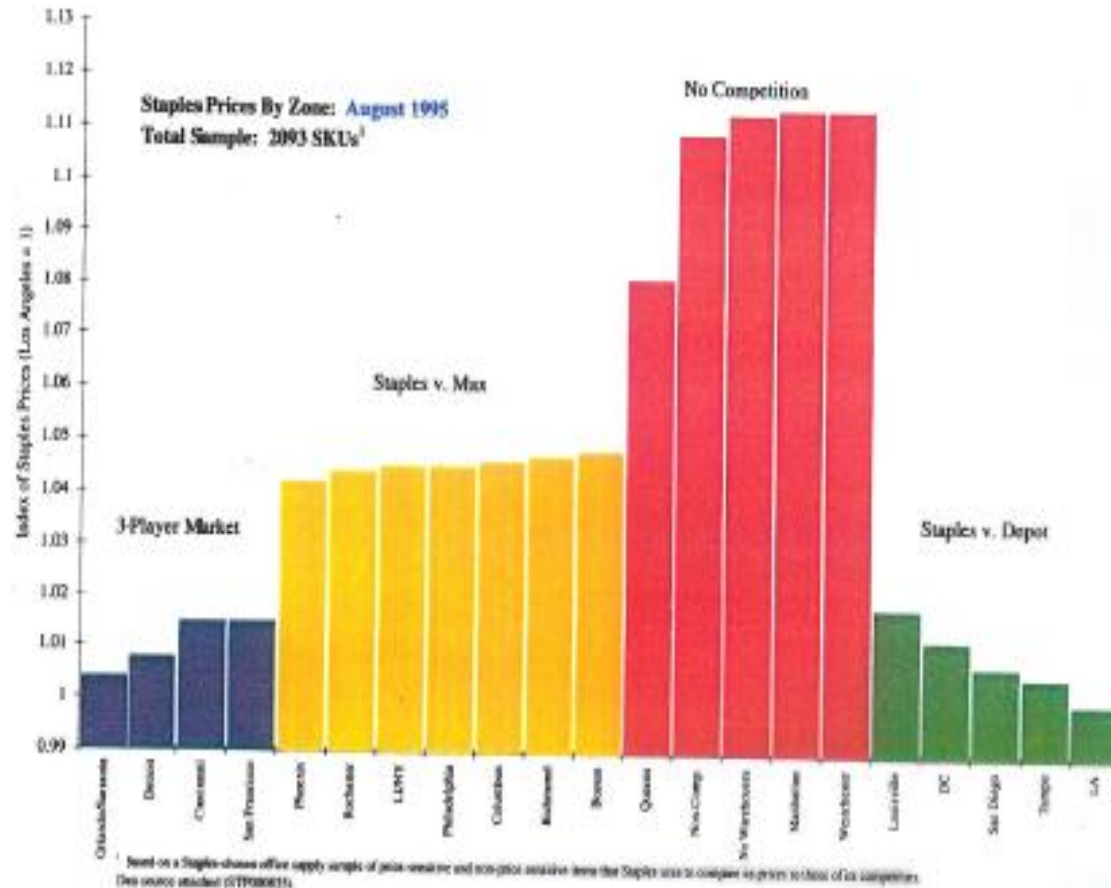
**2<sup>99</sup>**

**4<sup>99</sup>**

**7<sup>99</sup>**

Order By Phone 1-800-645-8800 Or Fax 1-800-695-5310

# Additional Price Comparisons



# Level 3 Evidence

- Econometric modeling analyzed pricing by Staples
  - Key empirical question was which specific competitors mattered in setting price: other OSS, non-OSS sellers?
  - Estimated pricing model on available data:

$$Price_1 = a + b OSS_2 + c OSS_3 + d NON-OSS_1 + e NON-OSS_2$$

- Results showed statistically significant coefficients only on  $OSS_2$  and  $OSS_3$ 
  - OSS affected each others' prices, but not other sellers
- Implication was that OSSs by themselves were an antitrust market

# Conclusions for Merger Analysis

- Type of analysis to be pursued is important decision
  - Start with simple and less costly techniques
  - Advance to others where necessary and feasible
- Audience and purpose matter:
  - For internal agency purposes, all techniques can be undertaken, even simultaneously
- For external review and decision purposes:
  - Adopt the approach that is most relevant and most likely convincing to a particular audience
  - Use multiple levels of evidence that support each other



# Further Information

- On natural experiments:  
Langenfeld et al, “Natural Experiments,” in *Issues in Competition Law and Policy*, Collins, ed.
- On Staples:  
Dalkir and Warren-Boulton, “Staples,” in *The Antitrust Revolution*, Kwoka and White, eds.
- On econometrics in Staples:  
Ashenfelter, “Econometric Analysis in Staples,” in *The Antitrust Source*
- On Staples and on similar Whole Foods-Wild Oats merger:  
ICN Handbook, p. 69





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# Empirical analysis in practice



# **CARRYING OUT SIMPLE EMPIRICAL ANALYSIS IN PRACTICE: NATURAL EXPERIMENTS IN LEON'S/THE BRICK**

**Nicholas Janota  
Canadian Competition Bureau**

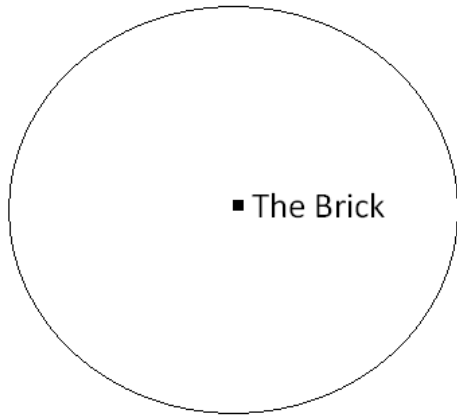
**ICN MWG Economic Analysis in Merger Review Webinar  
19 December 2013**

# CASE STUDY: LEON'S/THE BRICK

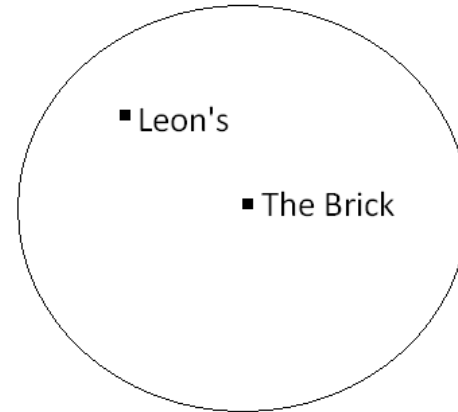
- Two close competitors in the retailing of home furnishings (i.e. furniture, mattresses, appliances, electronics)
- At the time of the merger, Leon's operated 74 retail stores across Canada and The Brick operated 231 stores
- Two types of natural experiment analyses carried out: cross section and entry/exit

# CASE STUDY: LEON'S/THE BRICK

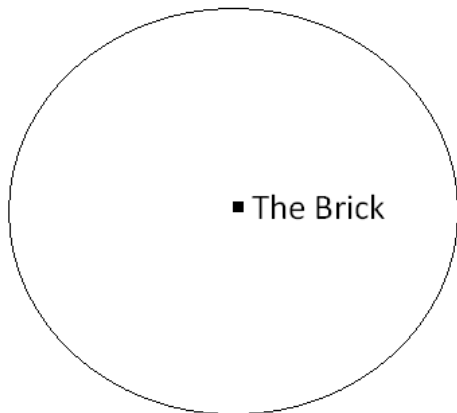
## 1) Cross Section Analysis



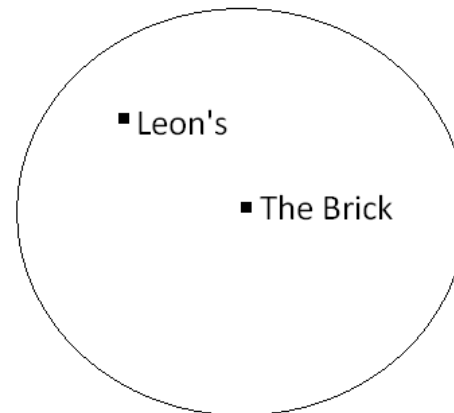
Area A  
vs. Area B



## 2) Entry/Exit Analysis



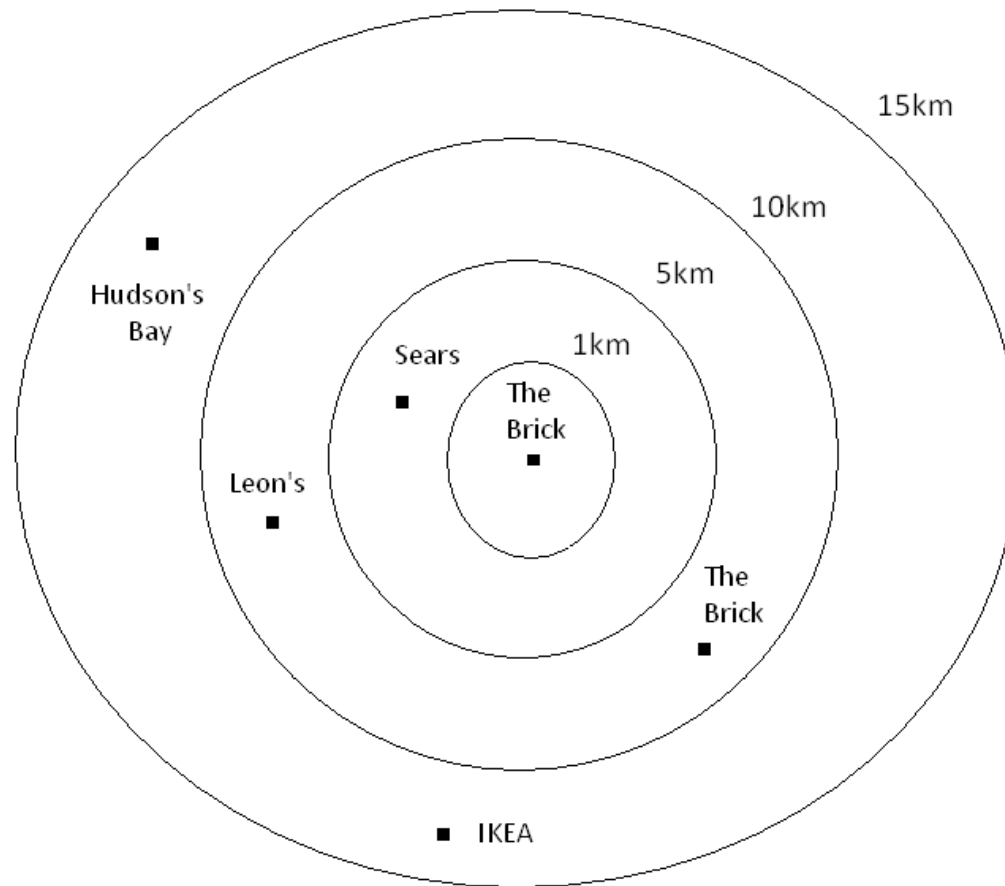
Before  
vs. After



## POINT 1: IT MAY BE POSSIBLE TO ANSWER MULTIPLE EMPIRICAL QUESTIONS WITH A SINGLE STUDY (Section 4.2)

- 1) What is the degree of rivalry between Leon's and The Brick?
- 2) What is the relevant geographic market for the retailing of furniture and mattresses?
- 3) What other competitors have an effect on Leon's and The Brick?

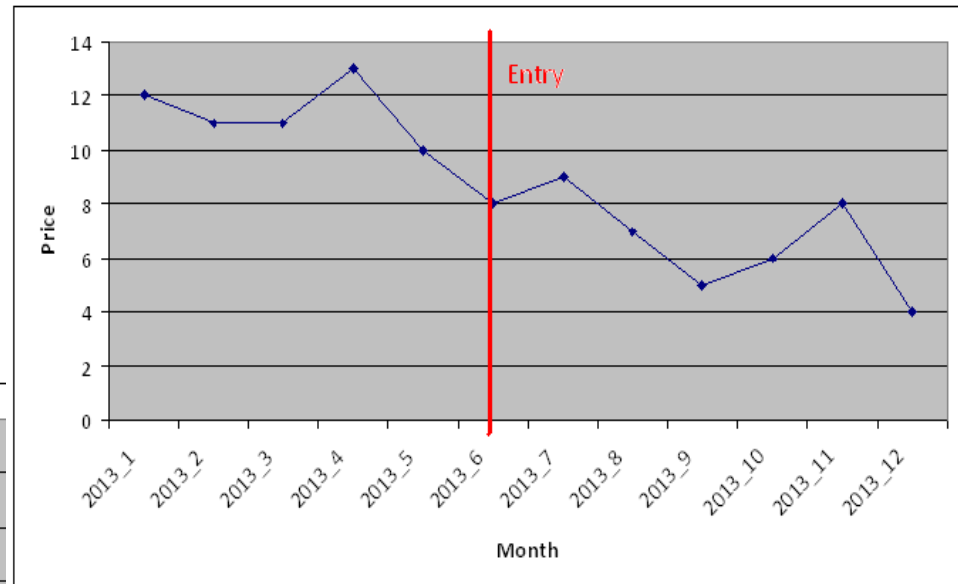
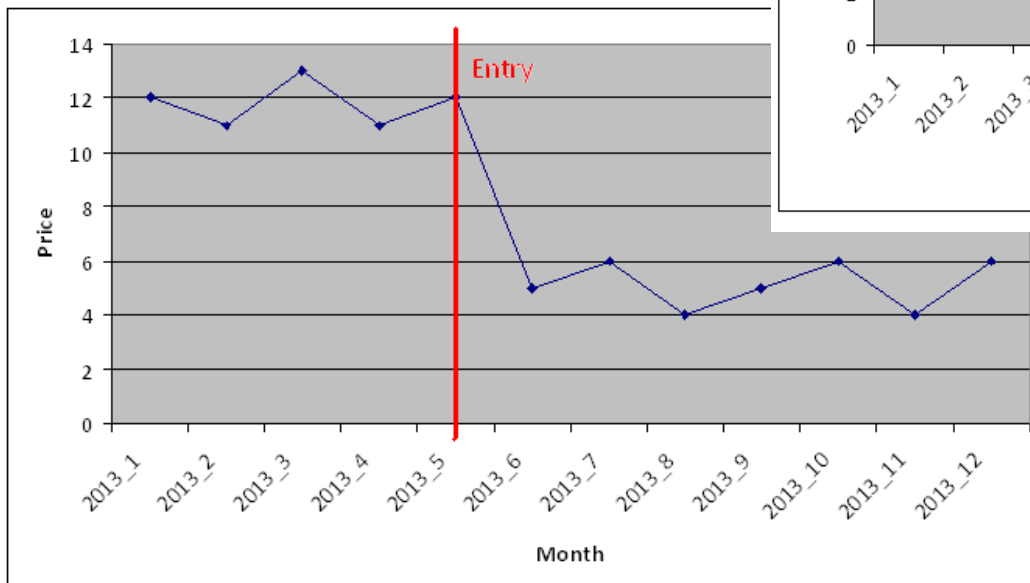
# POINT 1: IT MAY BE POSSIBLE TO ANSWER MULTIPLE EMPIRICAL QUESTIONS WITH A SINGLE STUDY (Section 4.2)



# POINT 2: SIMPLE ANALYSES MAY YIELD POWERFUL INSIGHTS (Section 4.3)

- Plotting prices over time is a useful analytical exercise

More insightful (below)...



...vs. less insightful (above)



## POINT 3: IT IS WORTHWHILE INVESTING TIME AND RESOURCES TO UNDERSTAND RELEVANT DATA SOURCES (Section 4.4)

- A robust and insightful natural experiment analysis often depends on the analyst's ability to control for other factors that may be impacting demand and supply
- Advantages to building a database on those factors early in a review (e.g. competitor database)
- A deep understanding of available demographic data can be leveraged across multiple investigations

# POINT 4: ROBUSTNESS CHECKS ARE VALUABLE (Section 4.5)

- Important for verifying sensitivity of study results
- Can also be used to take a deeper dive into the data
- Questions addressed on Leon's and The Brick through robustness checking:
  1. Do different banners compete differently (i.e. premium banners vs. discount banners)?
  2. Do competitive dynamics vary between urban and rural markets?
  3. Do competitive dynamics vary among different product categories?

# CONCLUSION AND QUESTIONS



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# Quantitative techniques and qualitative evidence in market definition

# ICN Merger Working Group

## *Quantitative techniques and qualitative evidence in market definition*

December 19, 2013

Sébastien Mitraille

Autorité de la concurrence – Deputy chief economist



# Roadmap

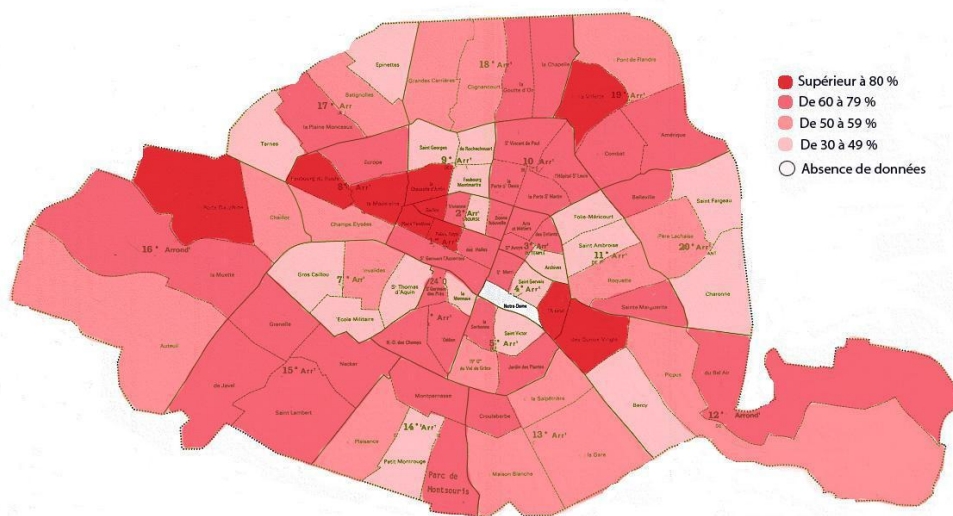
- **Introduction**
  - Mergers between grocery store chains (Casino/Monoprix)
  - Mergers between brick producers (Bouyer-Leroux/Imerys)
- **Specific issues to define relevant markets with local competition**
  - Catchment areas / intensity of competition with heterogeneous suppliers
  - Product market definition within local markets
- **Supporting qualitative evidence with quantitative analysis**
  - Casino/Monoprix
  - Bouyer-Leroux/Imerys
- **Conclusion & References**

# Introduction

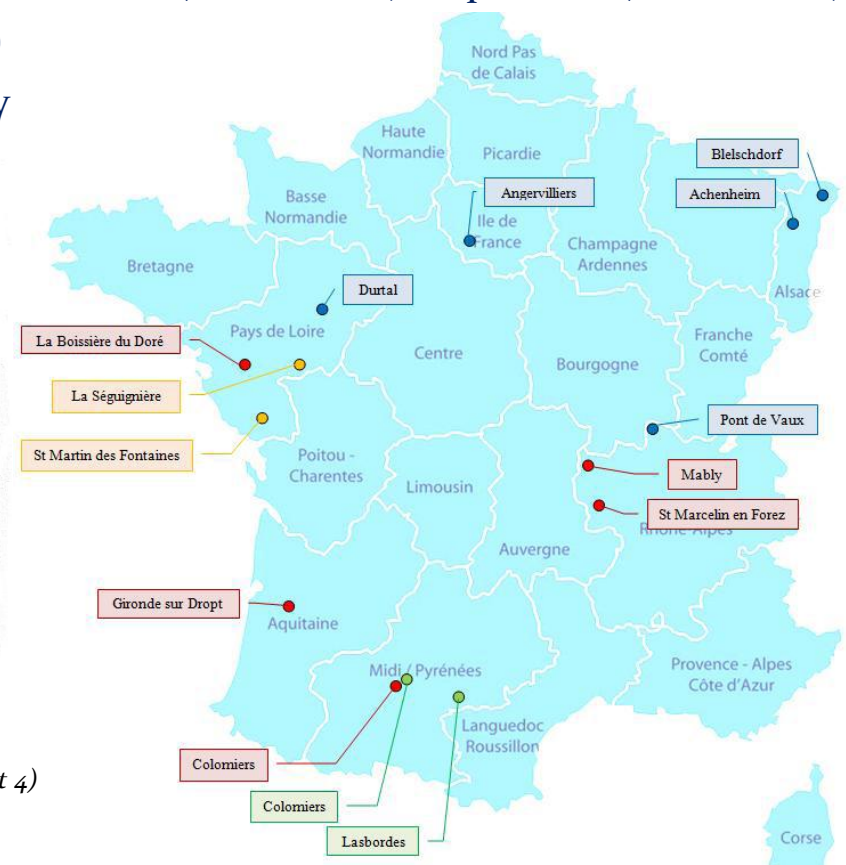
- **Two recent phase II investigations with intense implication of Chief economist team**
  - 13-DCC-90 Casino/Monoprix RETAILERS
  - 13-DCC-101 Bouyer-Leroux/Imerys BRICK MAKERS
  - Geographical dimension crucial to both, interacting with product market
  
- **RETAILERS : grocery stores within big cities, in particular Paris**
  - Local market power with heterogenous suppliers,
  - Distinction between Paris, Paris suburbs and big cities in other regions
  - Merger implied going from joint control of Monoprix (target) to single control by a major french retailer (Casino, buyer)
  - Issue: local market definition and competitive analysis within local markets taking into account product heterogeneity and the right change of profit when measuring potential change in prices (GUPPI – *see ICN MWG Ch 4: 3.4.3.8 and glossary p. 58*)
  
- **BRICK MAKERS : Subjective preferences of consumers which potentially differ locally**
  - Catchment areas defined around (few) production facilities (all next to clay quarries)
  - Outer walls bricks used in western France compete possibly with cement blocks
  - Inner walls bricks used in French Brittany compete possibly with dry walls
  - Issue: price differentials and economic shocks had to be isolated to confirm local product preferences reported in other evidence (e.g. customers surveys / industry studies)

# Some background information on cases

- **RETAILERS: merged entity market shares in 2012**
  - In some areas in Paris (in red), joint market shares exceeded 80%
  - Few joint market shares <50% (in light pink)
  - Careful : administrative area is potentially misleading, but still informative
- **BRICKS: merger yellow + red**
  - Overlaps: Bretagne/Pays de la Loire (inner walls), Aquitaine (outer walls)



Market Shares of Casino + Monoprix in PARIS (Source: Opinion 12-A-01, summary sheet 4)



Location of brick factories in France (Source: Decision 13-DCC-101)



# Some specific issues to define relevant markets with local competition

- **Catchment areas (see new mergers guidelines of July 10, 2013)**
  - Catchment area : area of a given radius centered on a production facility / distribution store
    - Radius depends on the type of facility and the geographic area considered
  - Drive time to retail store *increasing with store size* (20 minutes drive outside Paris, 10 minutes drive in big cities or Paris suburbs)
  - Distance to retail store *increasing with store size* (300 m to convenience store, or 500 m to supermarket inside Paris)
  - Distance to quarry/production facility (defined by parties and surveys)
- **Product/retailer heterogeneity taken into account**
  - « Hypermarkets » (supermarkets of more than 2500 m<sup>2</sup>) potentially compete with smaller outlets, depending on local area, but reverse is not true (asymmetric competition)
  - Product market potentially changes with localisation, depending on reported local preferences (from customers surveys/industry studies)

# Supporting qualitative evidence with quantitative analysis

- Quantitative analysis to be integrated to other evidence
  - Local competition to convenience stores inside Paris by « hypermarkets » in near suburbs measured by different methods:
    - converged to a single measure of market shares in area where this happened
  - Taking into account the change from joint ownership (50% control of Monoprix by Casino) to single control by Casino in GUPPI:
    - Monoprix was not taking into account effect of its decisions on Casino profit before the merger, according to qualitative evidence: GUPPI
    - But accepted that Casino was:  $GUPPI/2$
- Logit estimation (see ICN MWG Ch 4, 3.4.4.2) to disentangle price from subjective preference effect in local markets
  - Comparison « everything else equal » once model correctly estimated
    - purchase of bricks against outside good more likely in some regions than in others, once prices are equalized
  - Confronting to other evidence: inner walls bricks declining share every year

# Further description of GUPPI and Logit estimation used

## ● GUPPI

- Measuring incentives to increase price  $P_1$  post-merger, given the fact that product 2 gets a part of the units lost by product 1 proportional to diversion
  - Formula (see *ICN MWG Ch 4 glossary p. 58*)  $D_{12} M_2 P_2 / P_1$
  - $M_2$  is the price-cost margin (as a % of price  $P_2$ ),  $D_{12}$  diversion ratio,  $P_2$  and  $P_1$  the price index
- Data requirements: margins, price ratios, diversion ratio (in Casino / Monoprix, Logit estimation done by the parties)

## ● LOGIT

- Logit equation estimated integrating a regional fixed effect
  - Log market shares regressed against regional fixed effects, year fixed effects and prices (prices instrumented by average prices in other area of same region year)
  - How likely are bricks chosen against outside goods at average price?
- Data requirements: prices and quantities (average prices approximated by turnover/quantity on a infra-regional basis, 5 years of monthly obs.)

# Conclusion: practical implications for the review process

- Existing material very useful to review both cases in due time
  - For RETAILERS, existing material on local markets
    - Avis distribution alimentaire à Paris in 2012
  - For BRICKS, existing material on subjective preferences
    - Avis briques en Alsace in 1999
- Quantitative analysis still to be performed on short notice
  - Position of quantitative evidence with respect to other evidence
  - Retailers:
    - Reconciling consumers surveys with estimation results
  - Bricks:
    - Strongly declining consumption of bricks for inner walls (substitute: dry walls) indicating local preferences disappear
    - Strong position of merged entity in Aquitaine confirmed

# References

- **ICN Investigative Techniques Handbook for Merger Review**
  - Chapter 4, « The Role of Economists and Economic Evidence in Merger Analysis »
- **Autorité de la concurrence opinions:**
  - Avis 12-A-01 of Jan. 11, 2012 (concentration on retail market in Paris)  
<http://www.autoritedelaconcurrence.fr/user/avisdec.php?numero=12-A-01>
  - Avis 99-A-09 of June 1, 1999 (merger examined by ministre de l'économie)  
<http://www.autoritedelaconcurrence.fr/user/avisdec.php?numero=99-A-09>
- **Autorité de la concurrence decisions:**
  - 13-DCC-90 of July 11, 2013, *Casino/Monoprix*  
<http://www.autoritedelaconcurrence.fr/user/avisdec.php?numero=13-DCC-90>
  - 13-DCC-101 of July 26, 2013, *Bouyer-Leroux/Imerys*  
<http://www.autoritedelaconcurrence.fr/user/avisdec.php?numero=13-DCC-101>