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Unsophisticated assessment of the impact of a merger in the French retail banking industry

Marc Ivaldi

Toulouse School of Economics

Preliminary remarks

- Two mergers
  - Crédit Agricole – Crédit Lyonnais (2003)
  - Caisses d'Epargne – Banques Populaires (2009)
- Several people have been involved
  - Lawyers: Olivier Billard and Didiier Théophile
  - Barbara Chizzolini and Vittoria Cerasi
  - Catherine Vibes and Chantal Roucolle
  - Hervé Tranger
- Unsophisticated
  - Really simple but heavy
  - Simple but based on scientific methods
  - Not immune from measurement errors
    - Contribute to the analysis, can't be THE evidence

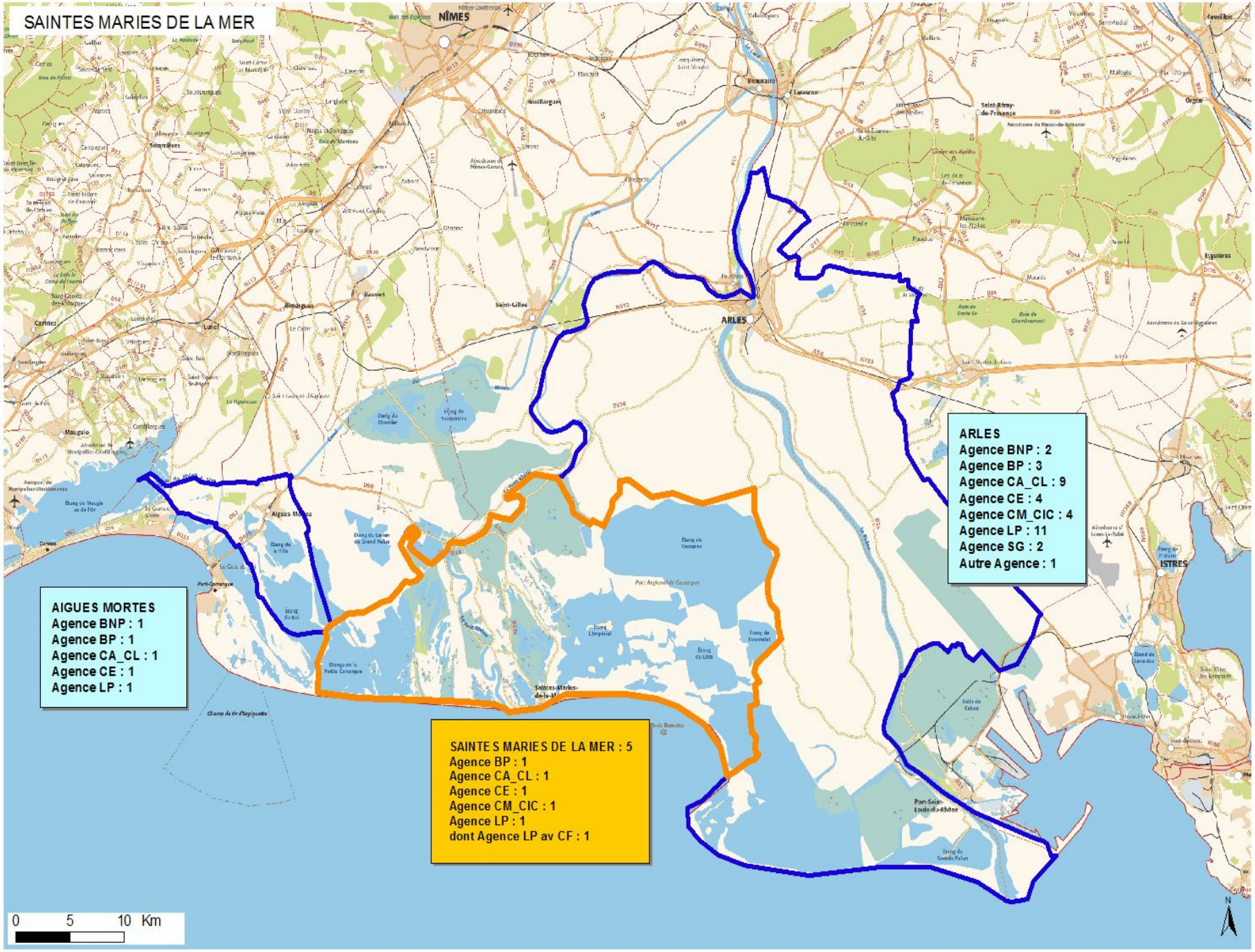
Content

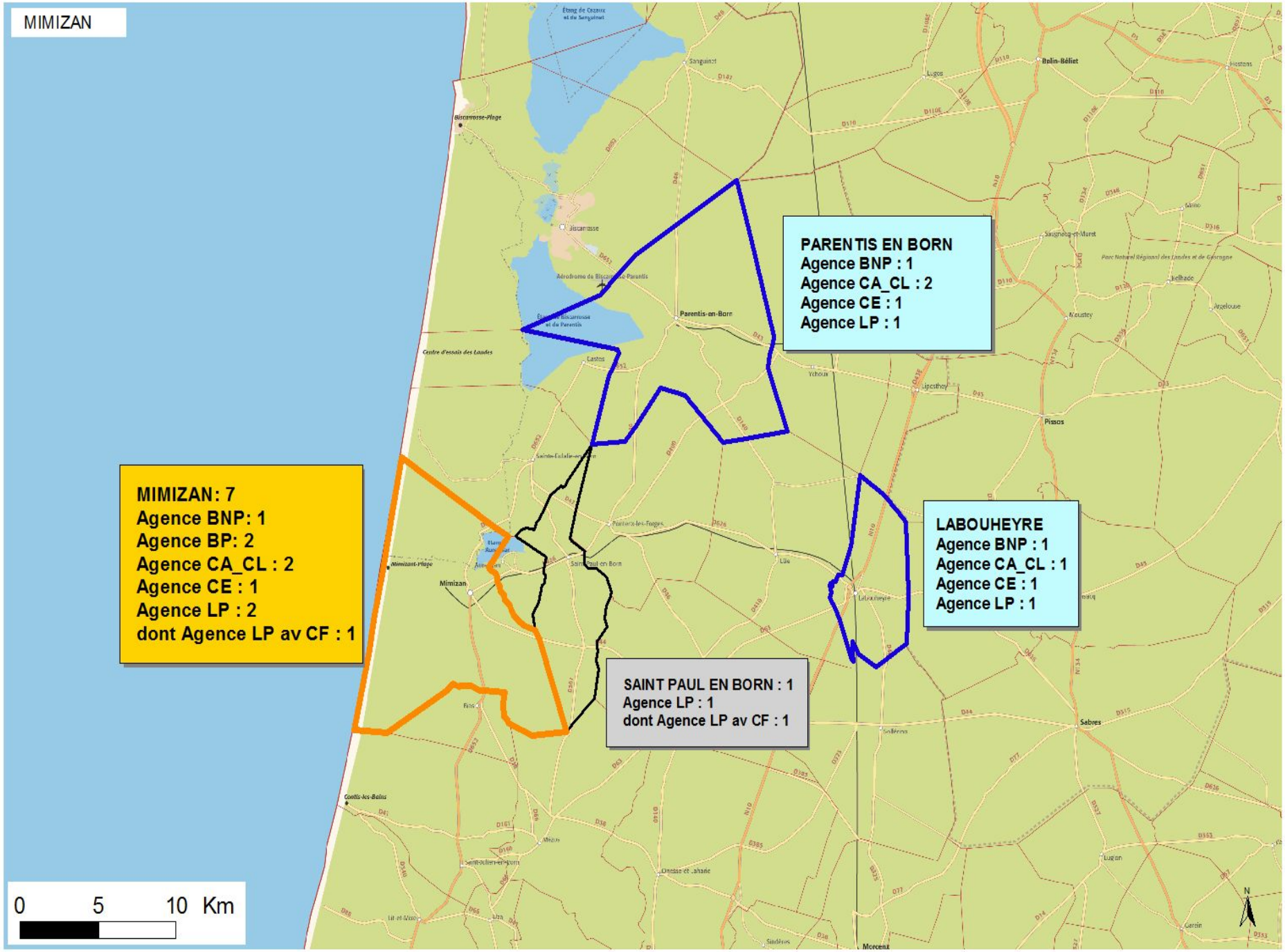
- General objective
  - To predict the impact of a merger
    - Task directly required by the directives
- Economics of the retail banking
  - Entry / exit
  - Competition in prices
- Three studies
  - Analysis to access conditions to banking networks
    - Descriptive analysis
    - Evaluation of the degree of competition
  - Analysis of the price competition

Analysis of the access conditions to the banking networks: Descriptive analysis

Objectives

- To describe
  - the dynamics of location of bank branches
  - The access conditions and the variety of the banking supply
- To detect districts (geographic area / zone) where the access conditions and variety level are not satisfied if the merger is implemented


SAINTES MARIES DE LA MER
NÎMES
ARLES
ISTRES
AIGUES MORTES
Agence BNP : 1
Agence BP : 1
Agence CA_CL : 1
Agence CE : 1
Agence LP : 1
ARLES
Agence BNP : 2
Agence BP : 3
Agence CA_CL : 9
Agence CE : 4
Agence CM_CIC : 4
Agence LP : 11
Agence SG : 2
Autre Agence : 1
SAINTES MARIES DE LA MER : 5
Agence BP : 1
Agence CA_CL : 1
Agence CE : 1
Agence CM_CIC : 1
Agence LP : 1
dont Agence LP av CF : 1
0 5 10 Km
N


MIMIZAN
PARENTIS EN BORN
Agence BNP : 1
Agence CA_CL : 2
Agence CE : 1
Agence LP : 1
MIMIZAN: 7
Agence BNP: 1
Agence BP: 2
Agence CA_CL : 2
Agence CE : 1
Agence LP : 2
dont Agence LP av CF : 1
LABOUHEYRE
Agence BNP : 1
Agence CA_CL : 1
Agence CE : 1
Agence LP : 1
SAINT PAUL EN BORN : 1
Agence LP : 1
dont Agence LP av CF : 1
0 5 10 Km
N

Access and Variety

- Merger between banks
  - Impact on branching
    - Restructuration $\Rightarrow$ closing branches
    - Remedies $\Rightarrow$ closing branches
  - Costs for the consumer / client
    - Transfer cost between branches of the same bank
    - Cost of bank change
    - Transportation cost

Access and Variety

- Impact of closing a branch
  - Restrict supply
    - Potential price increase but loss of clients
    - Decrease in cost so decrease prices
  - Not necessarily the best strategy
- Impact of a change of ownership
  - Example of an area with one Bank A branch and one Bank B branch
    - Bank A branch is now owned by Bank C
      - Variety is maintained $\Rightarrow$ Price decrease
    - Effects
      - Consumers support cost of bank change $\Rightarrow$ Price decrease
      - Higher cost for Bank B $\Rightarrow$ Higher price

Methodology

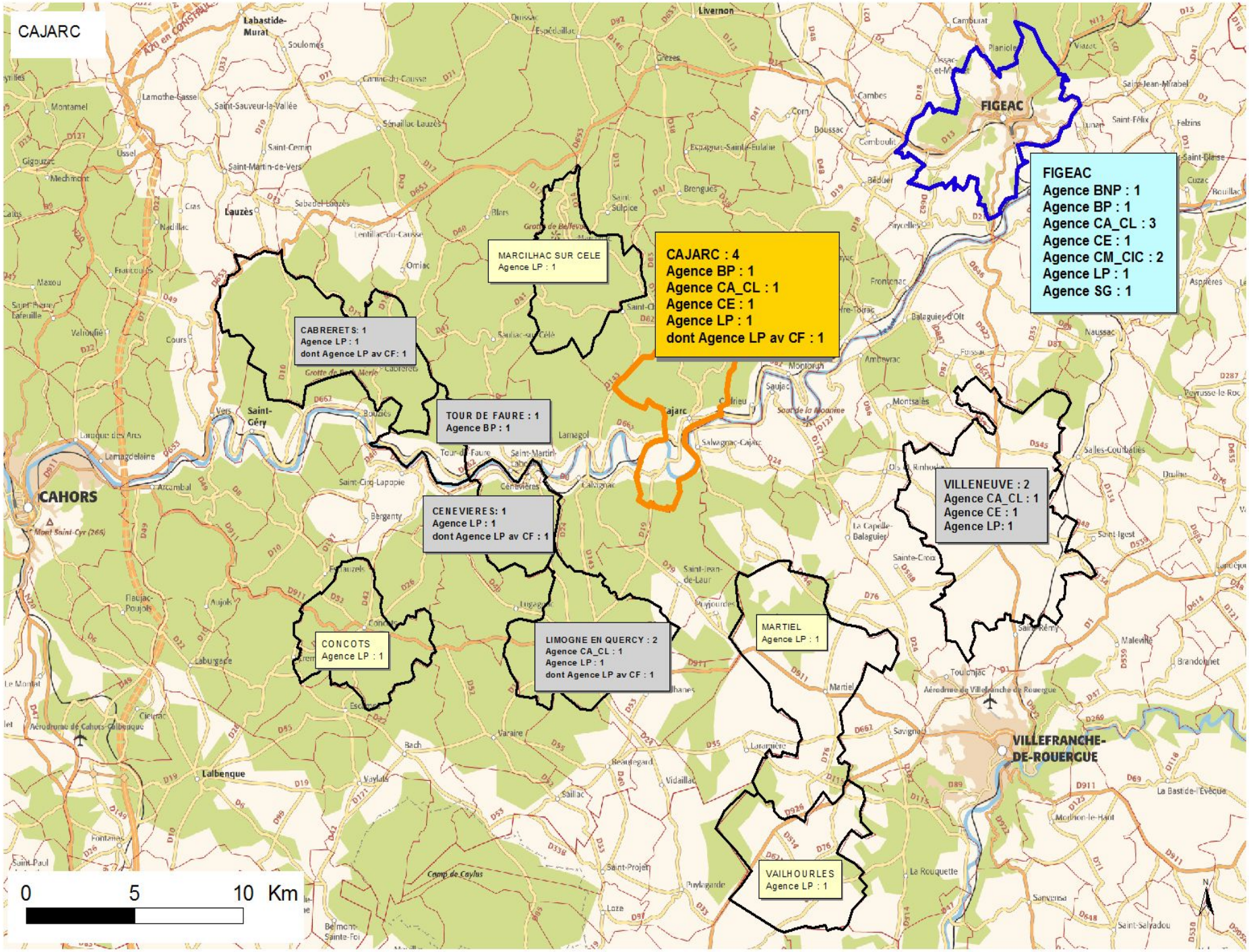
- Definition of local area
  - Circle corresponding to a 20 mn trip by car from the center
    - Test at 5, 10, 15 mn
- Selection
  - All area with at least one Bank A branch and one bank B branch
  - Market shares of merging entity (A+B) larger than 40%

Results

- Some figures
  - 36565 local areas
  - 13661 with at least one bank branch
  - 1538 areas with at least one Bank A branch and at least one Bank branch
  - 1650 areas where the entity A+B is present

Results

- The role of the postal service
  - Presence of a financial adviser
- Main identification
  - 52 20mn-areas with market share larger than 40%
    - 42 areas have at least the presence of two competing national bank networks
    - 9 areas have at least the presence of one competing national bank network
    - Only one area where there is a problem
      - No problem at 30 mn


CAJARC
FIGEAC
Agence BNP : 1
Agence BP : 1
Agence CA_CL : 3
Agence CE : 1
Agence CM_CIC : 2
Agence LP : 1
Agence SG : 1
CAJARC : 4
Agence BP : 1
Agence CA_CL : 1
Agence CE : 1
Agence LP : 1
dont Agence LP av CF : 1
MARCILHAC SUR CELE
Agence LP : 1
CABRERETS: 1
Agence LP : 1
dont Agence LP av CF: 1
TOUR DE FAURE : 1
Agence BP : 1
CENEVIERES: 1
Agence LP : 1
dont Agence LP av CF : 1
VILLENEUVE : 2
Agence CA_CL : 1
Agence CE : 1
Agence LP: 1
CONCOTS
Agence LP : 1
LIMOGNE EN QUERCY : 2
Agence CA_CL : 1
Agence LP : 1
dont Agence LP av CF : 1
MARTIEL
Agence LP : 1
VAILHOURLES
Agence LP : 1
CAHORS
VILLEFRANCHE-DE-ROUERGUE
0
5
10 Km

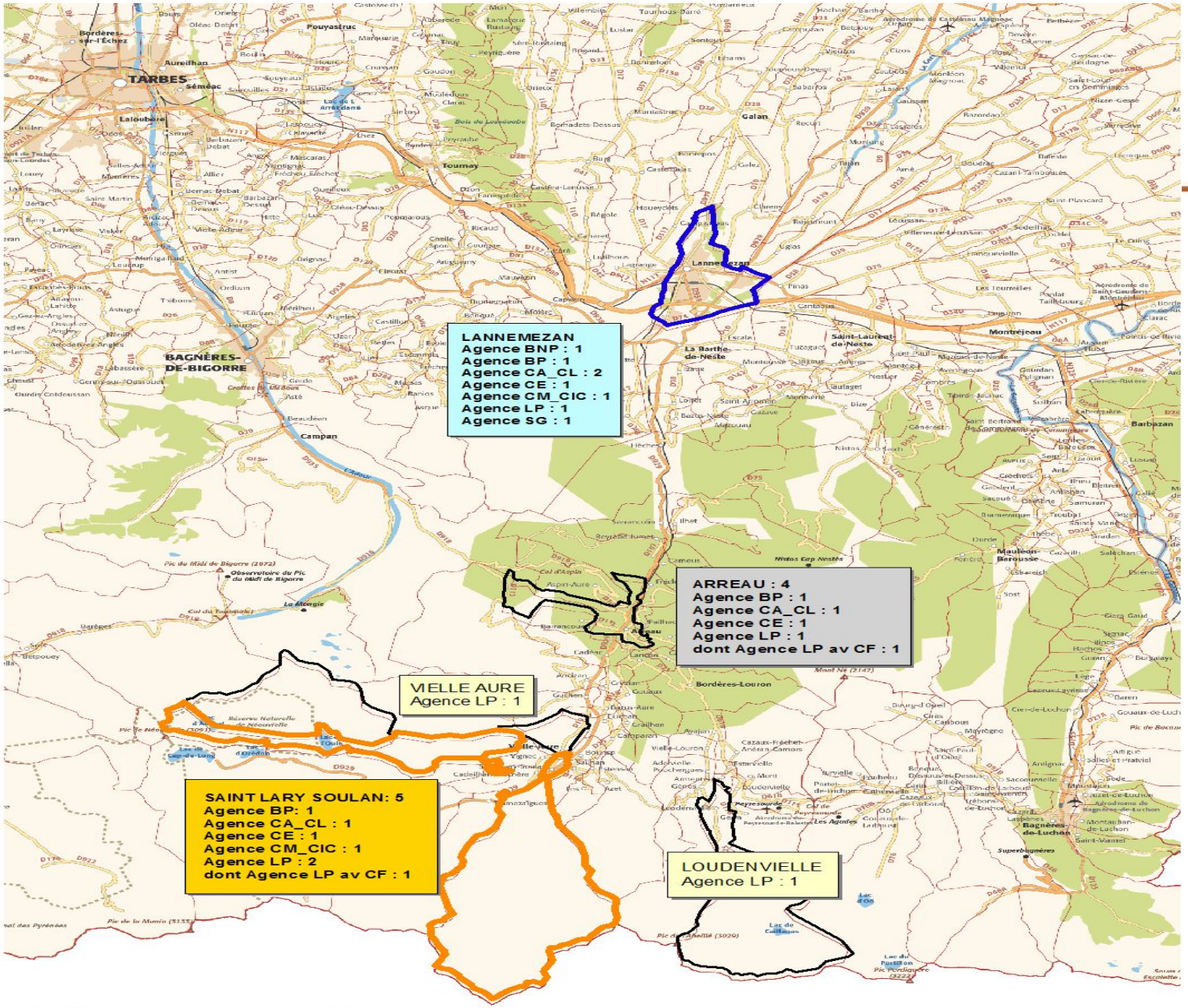

LANNEMEZAN
Agence BNP : 1
Agence BP : 1
Agence CA_CL : 2
Agence CE : 1
Agence CM_CIC : 1
Agence LP : 1
Agence SG : 1
ARREAU : 4
Agence BP : 1
Agence CA_CL : 1
Agence CE : 1
Agence LP : 1
dont Agence LP av CF : 1
VIELLE AURE
Agence LP : 1
SAINT LARY SOULAN: 5
Agence BP: 1
Agence CA_CL : 1
Agence CE : 1
Agence CM_CIC : 1
Agence LP : 2
dont Agence LP av CF : 1
LOUDENVIELLE
Agence LP : 1
TARBES
BAGNÈRES-DE-BIGORRE
Bordères-Louron
Bagnères-de-Luchon
Montréjeau
Barbazan
Campan
Galan
Tournay
Lannemezan
SAINT LARY SOULAN
0 5 10 Km

Tableau 11 - Accès et variété dans les communes à risque des DROM avec le Conseillers Financiers La Poste

Code Com.	Commune	Nombre d'agences								Offre bancaire alentour
		BNPP	CA	CM	GBP	GCE	LP	SG	Total	
97103	Baie-Mahault	1	4	1	5	4	2	2	19	Diversité maximale pour le département
97213	Le Lamentin	1	4	2	5	3	3	1	19	Diversité maximale pour le département
97302	Cayenne	1	2	2	4	2	4	0	15	Diversité maximale pour le département
97407	Le Port	1	2	0	2	2	1	1	9	Diversité maximale pour le département
97410	Saint-Benoît	1	1	0	1	2	2	1	8	Diversité maximale pour le département
97411	Saint-Denis	3	9	0	6	7	14	6	45	Diversité maximale pour le département
97412	Saint-Joseph	1	1	0	1	2	4	1	10	Diversité maximale pour le département
97413	Saint-Leu	1	2	0	2	2	4	1	12	Diversité maximale pour le département
97414	Saint-Louis	1	2	0	3	2	4	1	13	Diversité maximale pour le département
97611	Mamoudzou	0	2	0	2	2	3	4	13	Diversité maximale pour le département
97105	Basse-Terre	0	3	0	1	3	2	2	11	BNPP et La Poste à Gourbeyre, Saint Claude et Baillif
97107	Capesterre- Belle-Eau	1	1	0	1	2	3	0	8	CA et La Poste à Trois-Rivières (13km)*
97117	Le Moule	0	1	0	1	2	1	1	6	CA et la Poste à Morne-à-L'Eau (12,7km)*
97125	Saint-François	1	1	0	2	1	1	0	6	CA et La Poste à Moule (14km) et Sainte-Anne (15,2km)*
97129	Sainte-Rose	0	1	0	1	1	2	0	5	CA et La Poste à Le Lamentin (10,5km)*
97217	Le Marin	1	1	1	1	2	1	0	7	BNPP, CA et La Poste à Rivière-Pilote et Sainte-Luce
97222	Robert	0	1	1	2	1	2	1	8	BNPP, CA et La Poste à la Trinité
97228	Sainte-Marie	1	1	1	1	1	3	0	8	BNPP, CA et La Poste à Marigot et Trinité
97230	Trinité	1	1	0	1	1	1	0	5	BNPP, CA et La Poste à Sainte Marie Gros-Morne et Robert
97415	Saint-Paul	2	3	0	3	5	8	1	22	BNPP, CA et La Poste à Port et Possession (15km)*
97420	Sainte-Suzanne	1	1	0	1	1	2	0	6	BNPP, CA et La Poste à Sainte-Marie et Saint-André

*Note: * Les communes plus proches dépassent parfois les 10 km*
Source: Base DROM octobre 2008 – Calculs LECG

The measure of the degree of competition in the retail banking industry

Objective

- To analyse entry / exit
  - Opening / closing branches
  - Choosing the size of the network
    - Expansion effect
      - Attracting more clients by being closer to them
    - Competition effect
      - Cannibalizing existing branches
- To measure the degree of competition

Model

- Hypothesis
  - Step 1: Banks choose the size of their network
  - Step 2: Banks compete on interest rates
- Net income generated by a bank
  - Must be proportional of the market size
    - S = Total deposits of all banks on a territory
  - Must increase with the size of the bank network but at a decreasing rate
    - Trade-off between expansion and competition effect
    - The expansion effect is larger than the competition effect when the degree of competition is low

Formulas

$$\pi(k_i) = \frac{k_i^c}{N^{1/2}} S$$

$$\frac{d\pi(k_i)}{dk_i} = \underbrace{\frac{S k_i^{c-1}}{N^{1/2}}}_{\text{expansion effect}} - \underbrace{\frac{S k_i^{c-1}}{2N^{3/2}}}_{\text{competition effect}} = \frac{S k_i^{c-1}}{N^{1/2}} \left(c - \frac{k_i}{2N} \right)$$

The degree of competition

- The higher the elasticity of net income to the network size, the lower the degree of competition
  - The degree of competition is the inverse of the parameter *c*
- Decision to open or close a branch
  - Compare the marginal benefit to the entry / exit cost
    - Probit model
  - Impacted by the degree of competition

Formulas

$$\Delta k \geq 0 \quad \Leftrightarrow \quad \frac{S k_i^{c-1}}{N^{1/2}} \left(c - \frac{k_i}{2N} \right) \geq \varepsilon$$

$$\Delta k < 0 \quad \Leftrightarrow \quad \frac{S k_i^{c-1}}{N^{1/2}} \left(c - \frac{k_i}{2N} \right) < \varepsilon$$

Data

- « Départements »
- Network size
- Total deposits
- Several years

CARTE DE FRANCE DEPARTEMENT

Results

Approach	Parameter *c*	Marginal cost - MC	Marginal benefit - MB	(MB-MC)/MB	Profit
Bank	0.68	42.67	104.41	0.39	7212.60
Group	0.54	18.45	45.30	0.28	8907.89
SuperGroup	0.55	19.08	43.08	0.21	9982.17

Results

Statistics	Bank	Group	SuperGroup
Mean	83.86	74.78	75.35
Min	50.09	49.72	53.95
Maxi	89.66	80.10	81.49

The value of the degree of competition is equal to 83,86% of the value of degree of monopoly

Analysis of the impact of the merger on price competition

Objectives

- Characterization of the equilibrium of the retail banking industry
  - Data on locations of banks and average interest rates
  - Production of indices on the competitiveness of the market
    - Market shares, elasticities
  - Measure of consumer welfare
- Simulation of the impact of the merger on the consumer welfare

Basic mechanics

- Competition in prices
- Equilibrium
  - Margin = willingness-to-pay (inverse of the demand elasticity)
- Mechanics (estimation)
  - Estimation of the demand elasticity
  - Recovering marginal cost from margins given prices are known
- Mechanics (simulation)
  - Solve for prices given marginal costs

Formulas

$$\ln(s_i) - \ln(s_0) = \beta x_i - \alpha p_i + u_i = \delta_i - \alpha p_i$$

$$s_i = s_0 \exp\left(\delta_i - \alpha p_i\right)$$

The market share of product i is proportional to the market size and to the net value of the product.

Formulas

$$p_i - c_i = \frac{1}{\alpha\left(1 - s_i\right)}$$

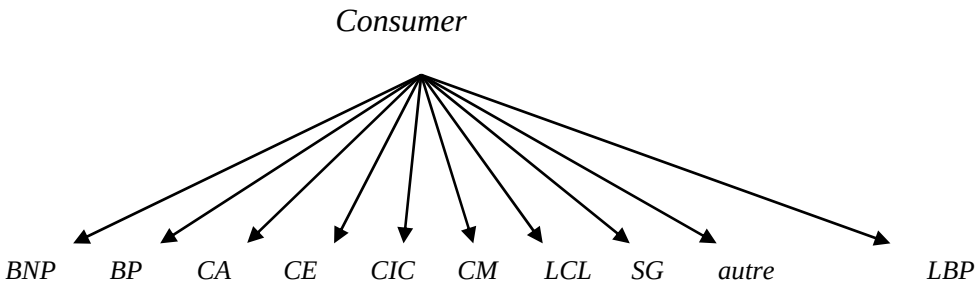
$$p_i - c_i = \frac{1}{\alpha\left(1 - s_0 \exp\left(\delta_i - \alpha p_i\right)\right)}$$

Scope of the study

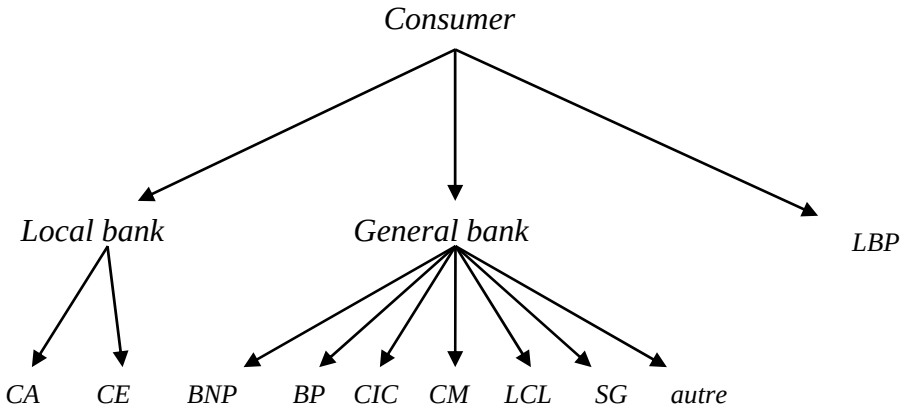
- Retail banks in France
  - Seven groups (bank group)
  - More trademarks (bank level)
- Two approaches
  - Bank level: Bertrand competition
  - Bank group: joint profit at the group level
- Two types of model
  - Horizontal differentiation
  - Horizontal and vertical differentiation

Scope of the study

nondifferentiated competition



Differentiated competition



Econometric analysis

- Data
  - 3 years
  - Location of banks
  - Interest rates
  - Macroeconomic data
- 4 models (2 types * 2 approaches)
  - From nondifferentiation to differentiation
    - Higher margin, lower elasticities
  - From bank to group
    - Higher margin, lower elasticities

Tableau 38 - Evolution des prix pratiqués par les banques dans le modèle de concurrence différenciée après simulation d'un rapprochement entre BP et CE – sous l'approche GROUPE

APPROCHE GROUPE

		Prise en compte de la catégorie "autre"								Suppression de la catégorie "autre"							
		avec rattachement toutes enseignes				sans rattach. toutes enseignes				avec rattach. toutes enseignes				sans rattach. toutes enseignes			
		Première Spécification (beta0)		Seconde spécification (beta1)		Première Spécification (beta0)		Seconde spécification (beta1)		Première Spécification (beta0)		Seconde spécification (beta1)		Première Spécification (beta0)		Seconde spécification (beta1)	
		Modèle 01		Modèle 11		Modèle 02		Modèle 12		Modèle 03		Modèle 13		Modèle 04		Modèle 14	
Banque	Prix Obs.	Prix simul	Delta prix	Prix simul	Delta prix	Prix simul	Delta prix	Prix simul	Delta prix	Prix imul	Delta prix	Prix simul	Delta prix	Prix simul	Delta prix	Prix simul	Delta prix
BNP	4,462	4,463	0,014	4,465	0,049	4,463	0,011	4,464	0,043	4,463	0,013	4,465	0,061	4,463	0,010	4,465	0,060
CA	4,438	4,443	0,129	4,454	0,378	4,442	0,101	4,453	0,340	4,442	0,094	4,456	0,403	4,441	0,067	4,454	0,360
CIC	4,484	4,485	0,034	4,489	0,117	4,485	0,026	4,489	0,105	4,485	0,030	4,490	0,146	4,485	0,024	4,490	0,146
CL	4,440	4,441	0,021	4,445	0,106	4,441	0,017	4,445	0,102	4,441	0,017	4,446	0,118	4,441	0,012	4,446	0,116
CM	4,467	4,468	0,034	4,472	0,117	4,468	0,026	4,472	0,105	4,468	0,031	4,473	0,147	4,468	0,024	4,473	0,146
SG	4,435	4,486	0,019	4,488	0,065	4,486	0,011	4,487	0,044	4,486	0,017	4,489	0,080	4,486	0,010	4,488	0,061
autre	4,354	4,355	0,009	4,356	0,033	4,355	0,014	4,356	0,055								
BP	4,435	4,459	0,540	4,554	2,677	4,457	0,489	4,562	2,862	4,452	0,374	4,551	2,604	4,447	0,268	4,549	2,557
CE	4,530	4,544	0,296	4,597	1,483	4,541	0,248	4,597	1,475	4,540	0,208	4,596	1,450	4,537	0,139	4,590	1,327
Augmentation moyenne sur le marché			0,141%		0,621%		0,114%		0,597%		0,108%		0,660%		0,076%		0,622%
Augmentation moyenne du groupe			**0,398%**		**1,940%**		**0,345%**		**1,982%**		**0,280%**		**1,892%**		**0,194%**		**1,778%**
Delta-surplus			-0,160%		-0,604%		-0,186%		-0,615%		-0,155%		-0,623%		-0,104%		-0,651%

Notes: *Prix exprimés en € ; variation de prix exprimées en %*
Source: *Infostat, JMC – calculs LECG*

Conclusion

- Weak impact on prices and consumer welfare