Mergers on Networks

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Hypothetical Example

- Gamma (Intergamma)
- Praxis (Maxeda)
- Hornbach
Cases Overview

European dimension (supermarkets)
- M.1221, Rewe / Meinl, 1999
- M.1684, Carrefour / Promodes, 2000
- M.4686, Louis Delhaize / Magyar Hipermarket KFT, 2007
- M.6506, Groupe Auchan / Magyar Hipermarket, 2012
- M.6822, Groupe Auchan / Real, 2013

National dimension (gyms, asphalt plants, betting stations, pharmacies)
- ME/3285/07, HBOS / David Lloyd Leisure, UK, 2007
- 6262, KWS infra / Bruil Ede Groep, The Netherlands, 2008
- ...
From Catchment Areas to Networks

Merging Parties

No change

Monopoly
From Catchment Areas to Networks

Merging Parties

Monopoly

No change

Given time or distance
From Catchment Areas to Networks

Given time or distance

Local Market

No change

1
2
3
4
5
6
Merging Parties

Local Market

Monopoly
From Catchment Areas to Networks

Merging Parties

Locality

Monopoly

Local Market
From Catchment Areas to Networks

Merging Parties

Given time or distance

No change

Monopoly
Model Setup and Analysis

1. Define consumer utilities

\[ U_i = \alpha \sum_{j \in N_i^+} q_{ij} - \frac{1}{2} \left( \sum_{j \in N_i^+} q_{ij}^2 + \gamma \sum_{k,j \in N_i^+ \atop k \neq j} q_{ij} q_{ik} \right) + q_0 \]

- \( N_i^+ \) – in-neighbourhood of \( i \)
- \( q_{ij} \) – how much consumer located at \( i \) buys at \( j \)
- \( q_0 \) – outside good
- \( \alpha > 0, \ 0 \leq \gamma < 1 \)

2. Solve for the aggregate demand

3. Compute the best responses

4. Solve for the equilibrium prices
Model Setup and Analysis

1. Define consumer utilities
2. Solve for the aggregate demand

\[ q_j = \sum_i g_{ji} \beta_i + \sum_{i,k} g_{ji} g_{ki} \delta_i p_k - \eta p_j \sum_i g_{ji} \]

\[ \beta_i = \frac{\alpha}{1 + \gamma (d_i^+ - 1)}, \quad \delta_i = \frac{\gamma}{\alpha (1 - \gamma)} \beta_i, \quad \eta = \frac{1}{1 - \gamma} \]

- \( g \) – adjacency matrix with \( g_{ii} = 1 \)
- \( d_i^+ = |N_i^+| \) – in-degree of shop \( i \)

3. Compute the best responses
4. Solve for the equilibrium prices
Model Setup and Analysis

1. Define consumer utilities
2. Solve for the aggregate demand
3. Compute the best responses
4. Solve for the equilibrium prices

\[ p = X^{-1} y, \quad X_{ij} = b_{v(i)ij} - 1_{i=j} h_i, \quad y_i = -a_{v(i)i} \]

\[ a_{rt} = -c \sum_{i,j} f_{rj} g_{ji} g_{ti} \delta_i + \eta c \sum_i g_{ti} + \sum_i g_{ti} \beta_i \]

\[ b_{rtj} = (1 + f_{rj}) \sum_i g_{ji} g_{ti} \delta_i, \quad h_t = 2\eta \sum_i g_{ti} \]

- \( f \) – ownership matrix
- \( v(j) = \sum_i i f_{ij} \)
Equilibrium Price Changes

2 +15%

6 +37.8%

1 +16%

3 +39.2%

4 +19% (general equilibrium)

5 +36.7%
Equilibrium Price Changes

1. +16%  
   +0%

2. +15%  
   +0%

3. +36.7%  
   +310%

4. +19% (general equilibrium)  
   +10% (partial equilibria)

5. +37.8%  
   +23%

6.
Equilibrium Price Changes

- Price increase in GE
- HHI increase

▶ Rank correlation = \(-1\)
CDFs of Rank Correlation of Price Increases

- Rank correlation $\gamma = 0.1$
- Rank correlation $\gamma = 0.9$

- All planar graphs of 6 nodes
- All partitions of shops into firms
- All possible mergers
- 122,551 cases