Geographic Market Definition - Analysis & Visualization

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Market Definition: Classic Methods and Issues

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Local market analysis: relevant, irrelevant, superrelevant?

• Where do we come from:
  - Wrong principles: …from the demand side, the Italian market (for sugar) seemed to be a market open to imports because prices in Italy were higher than in neighbouring countries…
    1992, p.359 Eridania/ ISI case cited in the XXIst Report from the Commission, cited from Damien Neven
  - and simplifications, e.g. administrative districts or plant cycles

• via (proper) survey approaches:
  *If the price of product x were permanently increased by 5 to 10% only within the home country, to what extent within a year would buyers be expected to shift their demand from product x produced at home to that produced abroad?*

• To catchment area/ radii analysis
  - Customer centred cycles vs. plant centred cycles
  - Driving distances vs. “as the crow flies”
  - Heatmaps vs. tables

• Partially driven by technology
  - Improved software for Geographical Information Systems (GIS)
  - Better data, with even open source data (OpenStreetMap) achieving usable quality

...both on analysts’ and companies’ side
Agenda

Introduction

Customer centred analysis

Chain effects

Conclusion

DISCLAIMER
- *E.CA Economics supports some of the parties to cases discussed in this presentation*
- *Facts or opinions given here do not necessarily represent the parties or E.CA position in these cases*
- *This presentation is based on the publicly available version of the EC decision text and press releases*
- *Figures illustrate the method only; numbers have been changed/modified though*
Transport cost intensive industries - the takeover of Cemex West by Holcim

• **Cemex Deutschland:** One integrated plant in West-Germany (Beckum) and one in the east (Rüdersdorf)

• **Holcim:** Two integrated plants in Germany (Lägerdorf and Höver). One integrated plant in Belgium (Obourg)

• **Business Rationale**
  - Synergies: Beckum good addition to the plant network of Holcim in Northern Germany and Belgium
  - Significant overcapacity and low profitability require consolidation
Transport cost intensive industries
Potential unilateral effects

Note: only integrated cement plants are shown. Red-dashed circles show the approximated delivery radii of 150 km-250 km.
Transport cost intensive industries
Potential unilateral effects

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Detour: Driving distances vs. “as the crow flies”, I

- Hypothetical plant/ company located in St. Leonhard (Austria)
- Geographic market definition often based on an assessment of the actual sales of the plant (e.g. 90% of total volume sold within x km)
- Assumption that is then often used: relevant market is the circular catchment area around the production site
Detour: Driving distances vs. “as the crow flies”, II

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- Same rule applied for competitors (COMP B)
Detour: Driving distances vs. “as the crow flies”, III

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- Overlapping catchment areas
Detour: Driving distances vs. “as the crow flies”, IV

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- Alternative: driving distance based catchment areas (here 25km road distance)
- Here: no overlap in activities based on driving distance catchment areas
Detour: Driving distances vs. “as the crow flies”, V
Sometime simple approaches work!

- Particularly relevant if e.g. mountains/sea/forest areas within the geographic market
- Example: 25km driving distance shapes in Austrian mountain region vs. urban region around Vienna
Transport cost intensive industries
Potential unilateral effects

- The level of the **sales volumes in overlapping regions** affects the potential for unilateral price effects
  - Strong regional complementarity speaks against unilateral price effects
- **Remaining supplier analysis:** Will the transaction affect the supply alternatives for the customers in overlapping regions?

<table>
<thead>
<tr>
<th></th>
<th>Current prices</th>
<th>After 5% price increase</th>
<th>After 10% price increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport distance (km)</td>
<td>150</td>
<td>175</td>
<td>200</td>
</tr>
<tr>
<td>Number of independent suppliers</td>
<td>4</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Free independent capacity (kt)</td>
<td>1.500</td>
<td>3.000</td>
<td>4.500</td>
</tr>
</tbody>
</table>
Remaining supplier analysis

Legend

Company

For illustration only – underlying figures have been made up

Supplier reduction (150 km radii)
- 8 or more -> 7 or more suppliers
- 7 -> 6 suppliers
- 6 -> 5 suppliers
- 5 -> 4 suppliers
- 4 -> 3 suppliers
- 3 -> 2 suppliers

Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCan, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, OpenStreetMap contributors, and the GIS User Community
HHI Heatmap

Legend
Company

For illustration only – underlying figures have been made up

Post-merger HHI (150 km radii)
- <2000
- 2001 - 2500
- 2501 - 3000
- 3001 - 3500
- 3501 - 4000
- 4001 - 4500

Sources: ESRI, HERE, DeLorme, Intermap, Inframap, INFRAG, GEBCO, USGS, FAO, NPS, NRCan, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, OpenStreetMap contributors, and the GIS User Community.
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Introduction
Customer centred analysis
Ripple effects revisited
Conclusion
EDEKA/ Kaiser’s Tengelmann

Background

EDEKA/ Kaiser’s Tengelmann

- Merger in the market for food retailing (supermarkets) in Germany
- E.CA involved to support EDEKA during the proceedings vis-à-vis the German FCO
  - Geographic market definition
  - Product market definition
  - Competitive effects

Focus of the following slides: Geographic market definition
EDEKA/Kaiser’s Tengelmann
Geographic market definition

FCO’s original market definition strictly followed administrative borders …
• No consideration of catchment areas
• No consideration of chains of substitution
… ignoring economic rationale behind market definition

E.CA submitted an analysis of chains of substitution
• Motivation SSNIP-Test (“Can a hypothetical monopolist profitably increase prices?”)
• Expansion of candidate market as long as overlap of neighbouring catchment areas prevents a price increase

Given the significant overlaps of the stores’ catchment areas, results point at city-wide markets for Berlin and Munich
EDEKA/Kaiser’s Tengelmann
Chains of substitution – the FCO’s critique

**FCO**: Dismissed chain of substitution analysis submitted by E.CA...

...arguing:
- Candidate market should include all previously linked areas
- And only constraints from one bordering area need to be considered at a time...

...but this argument is partial:
- If candidate market includes all previously linked areas ...
- ... one must consider the constraints from all bordering areas simultaneously

‡ Amended analysis by E.CA

![Diagram showing short cut of full analysis (E.CA), proposed analysis (FCO), and amended analysis (E.CA).]
Analysis points to geographic market comprising the whole city of Munich ...
EDEKA/Kaiser’s Tengelmann
Illustration Munich: example of amended analysis (cont’d.)

Analysis points to geographic market comprising the whole city of Munich ...

Step 1  Step 2  Step 3

Step 3: Will candidate market be expanded?
- Critical threshold: 37%
- Actual overlap: -?--

Challenge at that time: Catchment areas have been plotted ‘manually’:
Without an algorithm of the mapping software, the exact overlap could not be calculated mathematically … … and had to be estimated by eyeballing.

... but: weakness of the analysis due to ‘eyeballing exercise’
EDEKA/Kaiser’s Tengelmann
Illustration Munich: example of amended analysis (cont’d.)

Using geoprocessing tools like ArcMap allow calculation of overlapping area (dark blue)
Innovative geoprocessing tools like ArcMap allow calculation of complex overlapping area (darkblue)

### Step 3 (new)

Calculations support result from ‘eyeballing exercise’:
- Critical threshold: 37%
- Actual overlap: 38.4%

Expansion of candidate market in step 3 is confirmed...
...indicating that the geographic market covers the whole city of Munich.
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Geographic market definition and the Commission Notice

• Commission Notice surprisingly robust with respect to geographic market definition

  General principles
  – Market definition a first indications of competitive constraints only
  – Universal approach for mergers, 101, 102, and – with some qualifications – State aid
  – Market definition depends on the nature of competition issues being examined

Geographic market definition
  – Sufficiently homogeneous conditions of competition/ appreciably different from others
  – Supply side substitution
  – Chain effects
  – Relevant data: differences in market shares, prices, diversion of orders to other regions, demand characteristics, supply side (distribution network), barriers to switch, trade flows
  – Market integration in the Community

• More guidance helpful though:
  – Empirical methods, e.g. chain effects and supply side substitution
  – Markets with capacity constraints, e.g. role of overcapacity/ swing capacities
  – Digital markets
Thank you!