Competition and market definition in local markets

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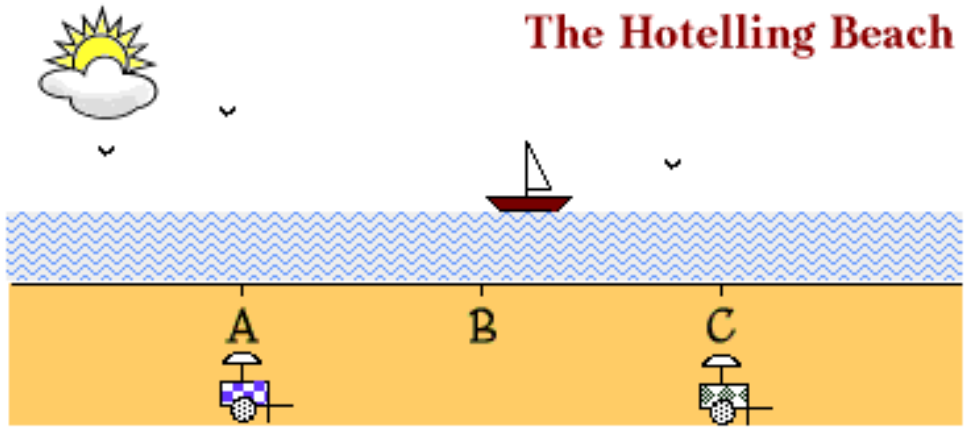
Definition: antitrust market

- Competition economists are usually interested in *antitrust markets* and consider two dimensions
  - Product market
  - Geographic market
- *SSNIP test* finds an antitrust market if a hypothetical price increase of 5-10% is profitable for a given set of products and geographical area
- Conceptually, start with narrowest market definition and if SSNIP is not profitable increase set of products and geographical area until it is
- In practice, case law or other tools are used more often than SSNIP

Definition: local market

- Can think of a *local market* as a geographical area where a SSNIP starting from a minimal area is “quickly” profitable
- “Space matters” in local markets, i.e., actually limits exchange
- Compare with early spatial models: Von Thünen, Hotelling, Salop



Why engage in local market analysis?

- Many markets are local markets
  - raw materials: raw wood, cement
  - daily needs: gas stations, groceries, ATMs
- In recent years many mergers involving local markets
- Firms and competition authorities need precise economic analysis to assess competition in local markets
- Top-down (say national) analysis too imprecise, risk of false negatives
- Parameters of competition partly local, so assessment and **remedies** can be location-specific

The economics of local markets

- Space as a market friction (reason for imperfect competition and price above marginal cost)
- Space influences trading decisions via several channels
  - Transport cost
  - Relatively high ratio of transport cost and price of good
  - Opportunity cost of time
  - Also: “spontaneity” of preferences or production (exchange cannot be well planned or delayed, e.g., when products cannot be stored after production → lower elasticity of demand)
- Main analytical tool for local market definition: *catchment area*

Definition: catchment area

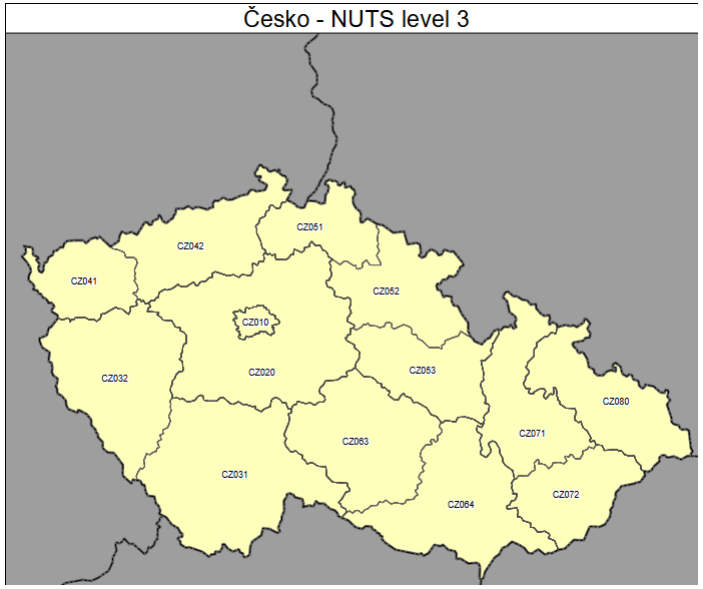
- A *catchment area* (CA) is a polygon drawn on the map such that its area includes all points “relevant” to a given location or starting point
- In economics, “relevance” is based on exchange of goods and services
- Starting point
  - Firm-centric approach
  - Customer-centric approach
- Usually, a **simple rule** is used for drawing catchment areas around starting points
- Clustering-approaches also exist, but less common in practice

Example rule: regions

- Administrative boundaries
- Similar and often more easily available: NUTS regions

Examples of administrative and non-administrative units being designated as NUTS regions are:

NUTS level	Germany	Spain	Czechia	Italy
NUTS 1	Bundesländer	*non-administrative aggregations*	Území	*non-administrative aggregations*
NUTS 2	Regierungsbezirke *(nonadministrative aggregations)*	Communidades autónomas	*Regiony soudržnosti (nonadministrative aggregations)*	Regioni
NUTS 3	Kreise und Kreisfreie Städte	Provincias	Kraje	Province



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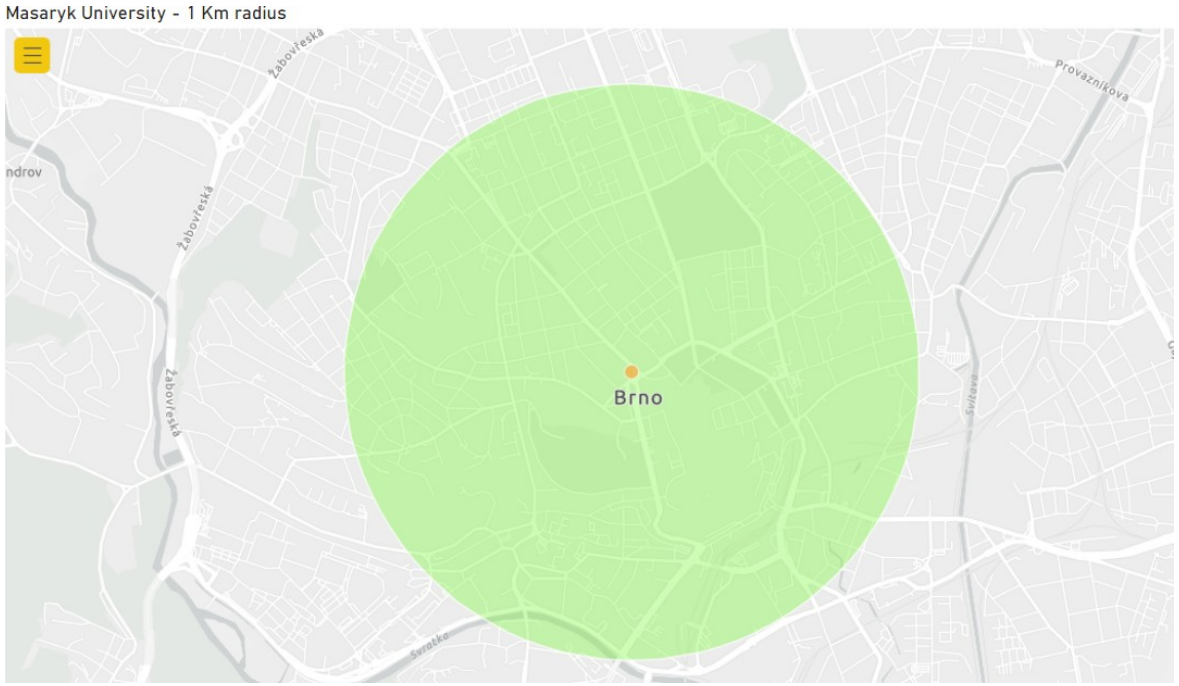
Example rule: distance as the crow flies

- Usually, consumers do not stop buying at administrative boundaries
- Outer edges of polygon mark *isodistance*
- Starting point + chosen radius



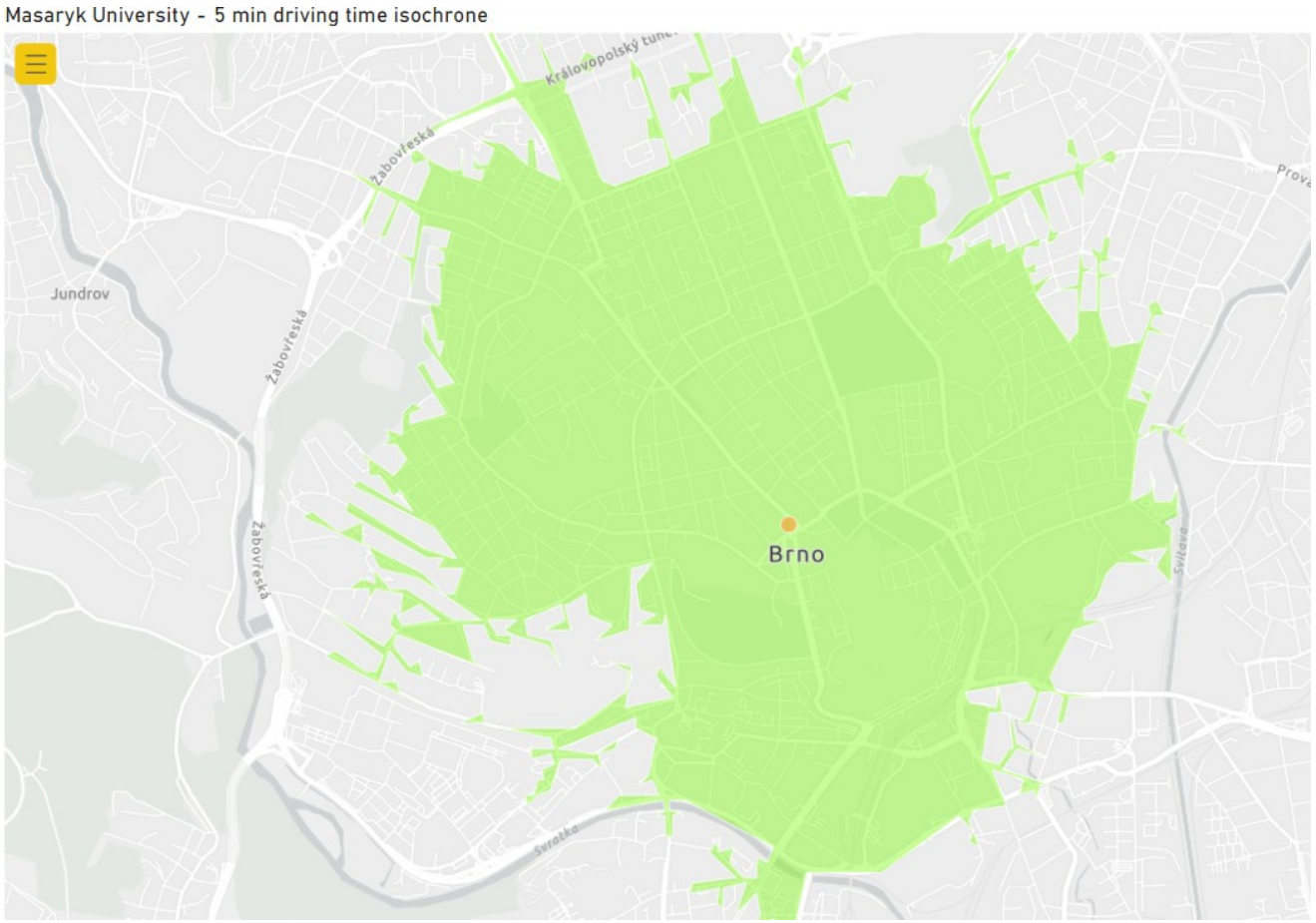
Example rule: distance based on surrounding

- Distance taking into account streets, rivers, mountains etc.
- Reasonable approximation of driving time may be possible
- Still, CAs based on actual driving time are more precise

Example rules: distance based on driving time

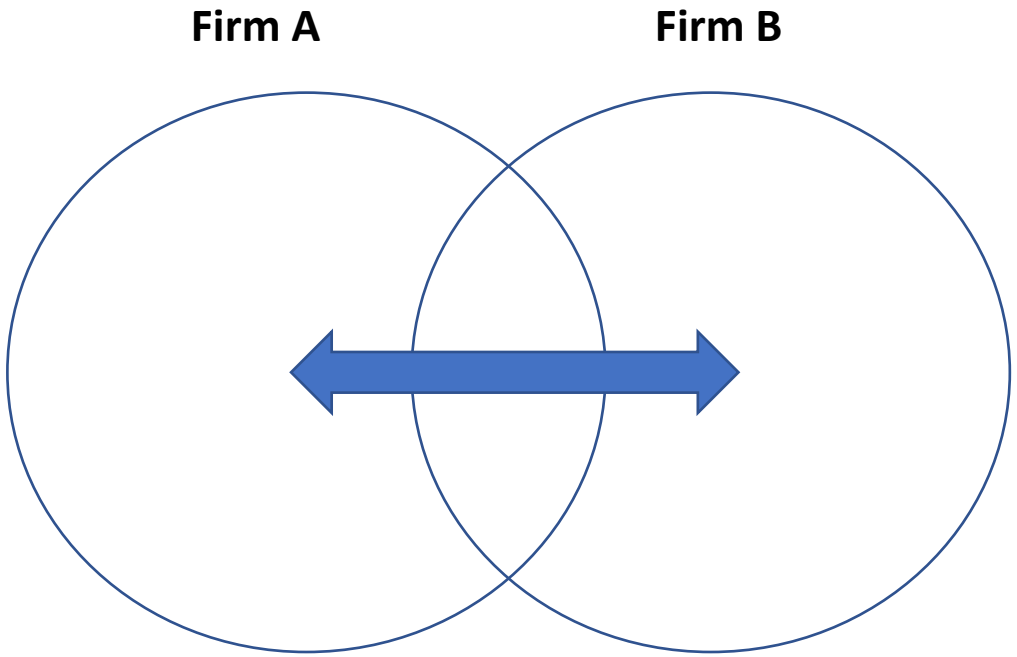
- Exact driving time depends also on speed limits and congestion
- Outer edges of polygon mark an *isochrone*
- Need to reflect if other transport options are practical (walking, ship, train)

Example isochrone



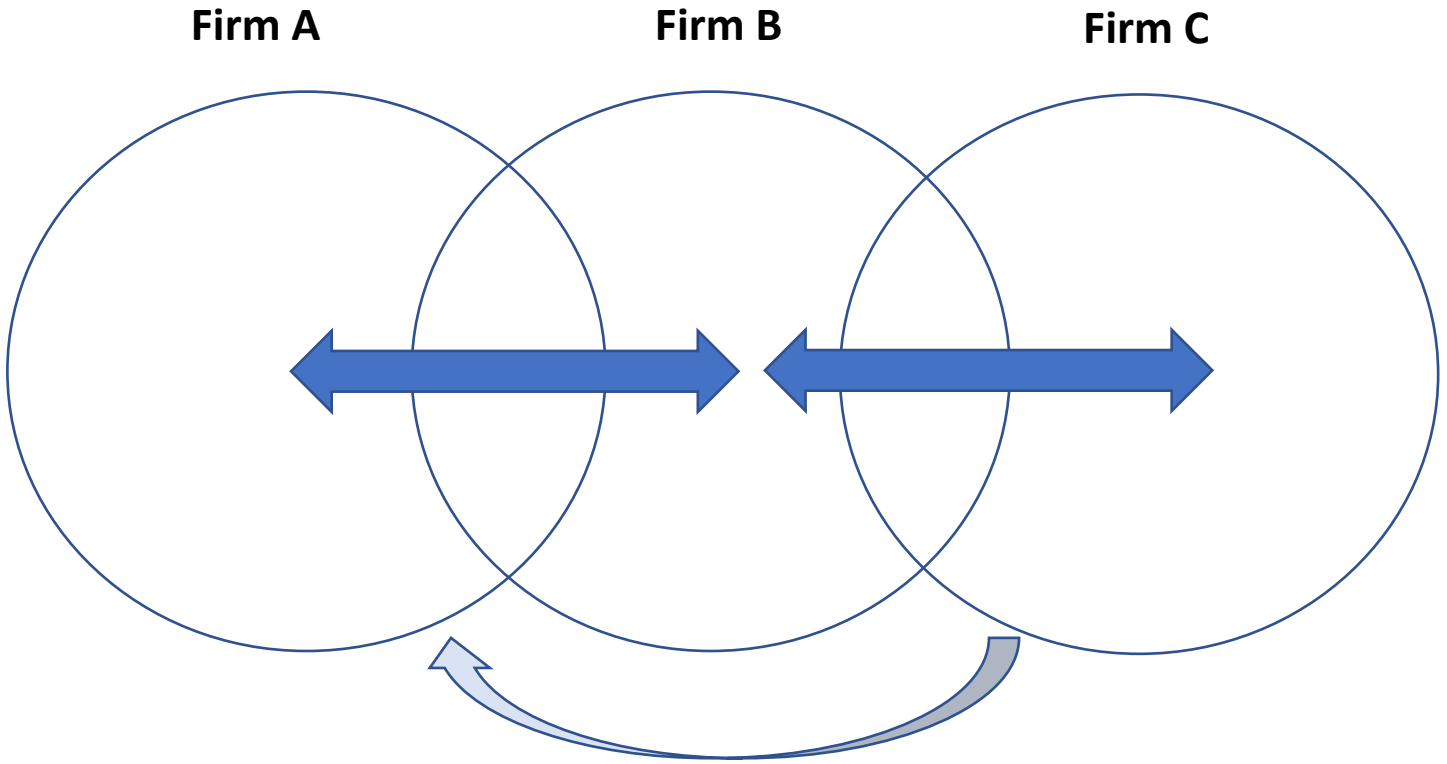
Market definition with catchment areas

- Firm-centric approach: If and only if the catchment areas of two firms overlap, they are supposed to **compete directly** with each other in the same market.



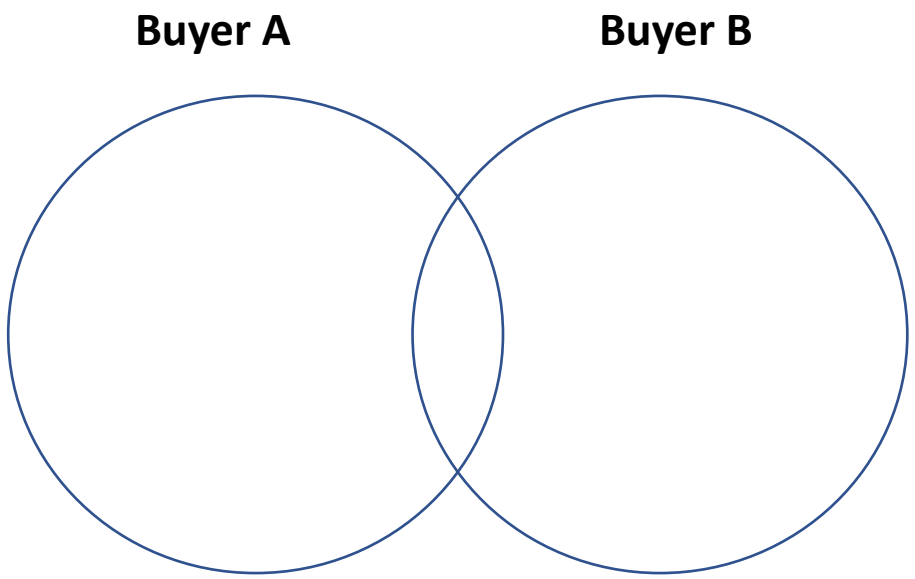
Market definition with catchment areas

- Chain of Substitution: Non-overlapping firms may still exert an **indirect** competitive **constraint** by directly constraining adjacent overlapping firms



Consumer-centric approach

- Better reflects consumer choices and thus competition (home-store)
- In B2C markets, however, the analysis often becomes non-tractable
- In B2B markets when there are few buyers, but many sellers it is the opposite (firm-centric approach is not tractable)



Calculation of local market shares

- **# Competitors.** Count number of stores by firm in CA.
- **Turnover.** Optimally, have turnover on store-level or at least have store characteristics. Then predict turnover for stores with missing turnover from stores with turnover from characteristics. Last resort: multiply with average firm-specific turnover.
- **Weighing**. Can be sensible to apply weighting (e.g., quantity-area for raw wood or brand, size, distance for supermarkets)
- Consider taking into account stores from **across the border** (e.g., gas stations) or **online retailers** (at least in the competitive assessment).

Special case: cities

- For some goods, many CAs overlap in cities
- Competition authorities have thus in the past considered regarding the area of a city (and potentially its suburban areas) as a single market
- Idea: consumer moves through the city weekly so she might consider buying in stores that are further away from her home too (e.g., those close to her office)
- Clustering of largely overlapping CAs can make sense outside of cities too, when it does not change the conclusion but simplifies the analysis

Special case: other important routes

- In some local markets (e.g., gas stations), a segment of consumers moves along certain routes (like highways)
- (Delta)MS in sequence of competitors can be higher than with CA
  - Subcase 1: only firm in CA → no delta
  - Subcase 2: several firms in CA, but some are unintuitive to reach (e.g., other side of highway) consumer may not view them as substitutes
    →can underestimate market share of parties

  In either case analyzing the local market in the order the consumer becomes aware of stores is more realistic (compare Google search results!)

Market definition: Implementation

- Data
  - Geodata (coordinates of stores, shapefiles of regions, geodatabase of roads and speed limits)
  - Store characteristics (brand, product offering, capacity, quantities, turnover)
  - Costumer surveys or industry data on radius, i.e., km distance or minutes of travelling time
  - (Population density, supply data, satellite pictures on natural resources)
- Geo-software and programming languages
  - E.g., ArcGis, Geopandas, Power BI, Stata, R
- Robustness checks (radius, weighting, etc.)

Competitive Assessment

- **Unilateral effects**
  - **Overlap analysis.** Market share or HHI analysis (level and increment)
  - **Chain of Substitution**. Non-overlapping firms might still exert indirect competitive constraints. Different for different pairs of firms (non-transitivity)
  - Define thresholds for critical areas (e.g., market share>40%, delta>20%-points) Remedy: merging parties offer divestment of stores in critical areas
  - Analysis of important routes
- **Coordinated effects**
  - Price ranking
  - Price cycles
  - Timing of price changes (propagation: price leadership, reactions, etc.)
  - Prevalence of the same set of competitors across CAs
- Implicit assumption so far: degree of product differentiation is limited, uniform cost (can be incorporated with surveys, though)

Case study: EG-OMV (cleared with remedies)

- Case B8-77/21 in front of German comp authority (BKartA)
- Market: retail fuel market (gas stations)
- Local market analysis identified several “critical areas” → merging parties submitted remedies (i.e. divest critical stations)

EG-OMV: radius

- BKartA's approach to choosing a radius:
  - Collect customer data (from loyalty cards, also non-merging competitors)
  - take all zip codes of customers of the station
  - Calculate distance between station and population-center of zip code
  - Order zip codes by driving time and calculate cumulative turnover shares
  - Average over all stations, result (p. 35):

Fahrzeit bei 75% der Umsätze/Transaktionen:	Fahrzeit bei 80% der Umsätze/Transaktionen:	Fahrzeit bei 85% der Umsätze/Transaktionen:
19 Minuten	27 Minuten	42 Minuten

  - Final choice of (uniform) radius for comp assessment: 20, 30min driving time
  - Remark: stations across the border were not considered

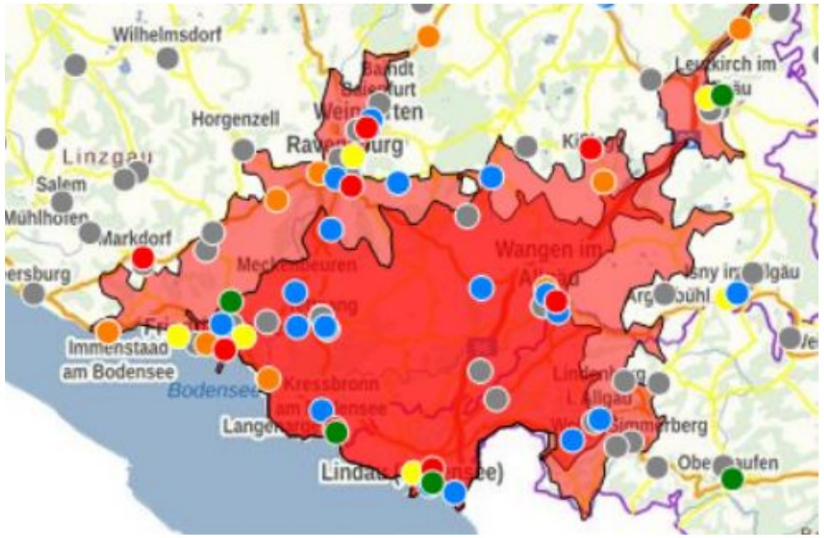
EG-OMV

- Example critical area: Bodensee

(114) Marktraum/Tankstellencluster am Bodensee mit folgenden OMV-Tankstellen:

- 88079 Kressbronn, Lindauer Str. 12
- 88131 Lindau, Kemptener Str. 14-16

(115) Einzugsbereiche des Tankstellenclusters am Bodensee, 30 Minuten Fahrzeit:



	Dieselkraftstoff in m³		Ottokraftstoff in m³	
Zieltankstelle	20 Min.	30 Min.	20 Min.	30 Min.
Kressbronn	44.000	105.000	35.000	83.000
Lindau	26.000	92.000	16.500	67.000

(301) Danach ergibt sich folgende Anteilsverteilung für das Jahr 2020:

Marktraum um Zieltankstelle	EG	OMV	EG+OMV	Aral/BP	Shell	3-er Olig.	Total	JET	ENI	Tessol (AVIA)	Sons-tige
Dieselkraftstoff 2020											
20 Minuten Fahrzeit (Anteile in %)											
Kressbronn	[5-10]	[5-10]	**[10-15]**	[30-35]	[5-10]	**[50-60]**	[0-5]	[5-10]	[5-10]	[5-10]	[15-20]
Lindau	[10-15]	[5-10]	**[20-25]**	[40-50]	[15-20]	**[80-90]**	[0-5]	[5-10]	[0-5]	[10-15]	[0-5]
30 Minuten Fahrzeit (Anteile in %)											
Kressbronn	[5-10]	[0-5]	**[10-15]**	[30-35]	[15-20]	**[50-60]**	[0-5]	[5-10]	[0-5]	[0-5]	[25-30]
Lindau	[5-10]	[5-10]	**[10-15]**	[30-35]	[15-20]	**[60-70]**	[0-5]	[5-10]	[5-10]	[0-5]	[15-20]
Ottokraftstoff 2020											
20 Minuten Fahrzeit (Anteile in %)											
Kressbronn	[5-10]	[5-10]	**[10-15]**	[25-30]	[10-15]	**[50-60]**	[0-5]	10,88	[5-10]	[0-5]	[20-25]
Lindau	[10-15]	[10-15]	**[20-25]**	[30-35]	[20-25]	**[80-90]**	[0-5]	[5-10]	[0-5]	[10-15]	[0-5]
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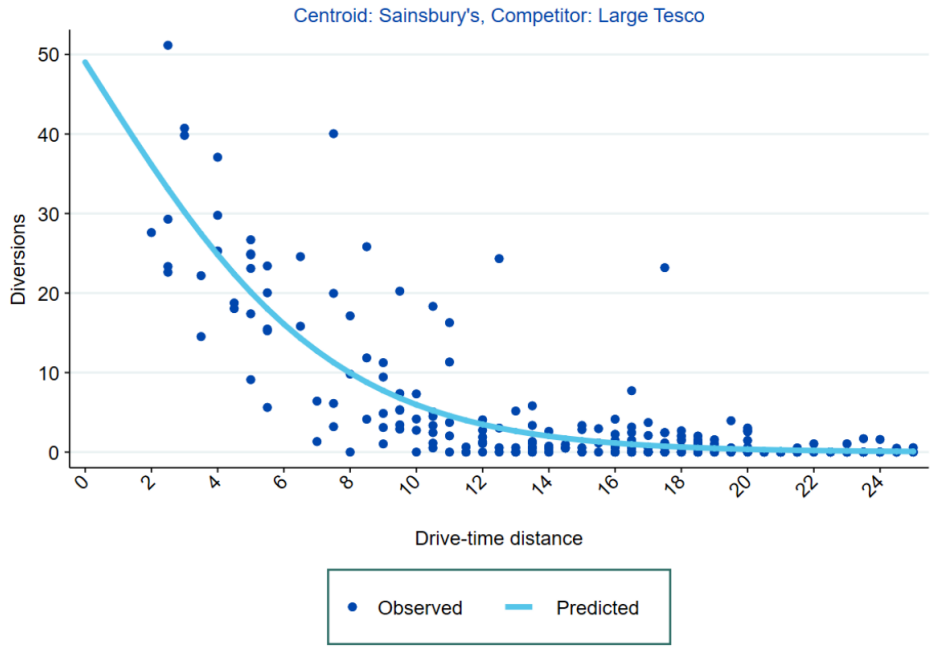
Case Study: Sainsbury's-Asda (blocked)

- Case in front of UK comp authority (CMA)
- *Top* 5 *UK Retailers* ; 1. Tesco. £53.2bn ; **2. Sainsbury's**. £29.0bn ; **3. Asda. £22.8bn** ; 4. Amazon. £19.4bn ; 5. Morrisons. £17.6bn
- 537 critical stores → CMA found only remedy was to prohibit merger
- The CMA's analysis of local markets included
  - CA's weighted by product differentiation, size, distance (from store exit survey)
  - 'out-of-market constraints', stores located further away, online delivered groceries, non-supermarket retailers
  - GUPPIs by store

Sainsbury's-Asda

- CMA analysis of the relationship between distance and diversion

Figure 8.3: Proportion of Sainsbury's customers that chose a given Tesco Large store as their next-best alternative to Sainsbury's, by distance

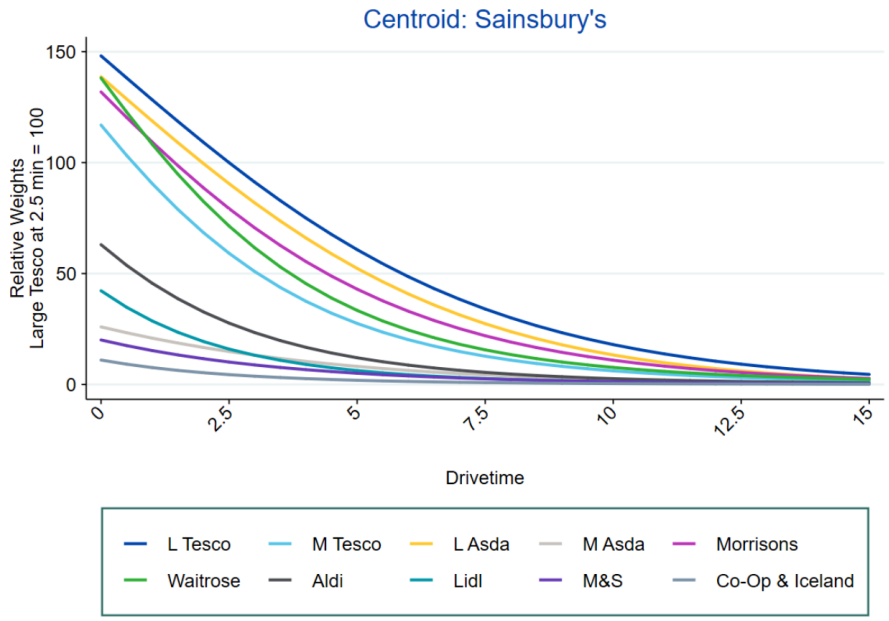


Source: CMA analysis of responses to the CMA store exit survey

Sainsbury's-Asda

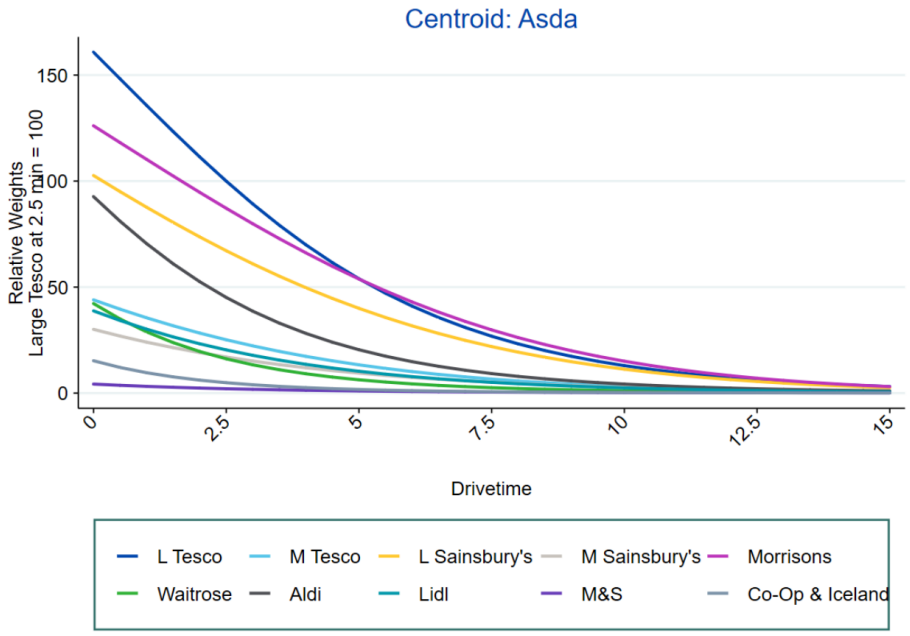
- The CMA's approach to weighted CAs

Figure 8.5: Relative weights of supermarket brand-size categories derived from the CMA store exit survey



Source: CMA analysis of CMA store exit survey responses.

Figure 8.4: Relative weights of supermarket brand-size categories derived from the CMA store exit survey



Source: CMA analysis of CMA store exit survey responses.