The regression analysis in the Somerfield-Morrisons case

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The market involved is the one for grocery distribution in the UK

The merger was referred by the OFT (phase 1) to the Competition Commission (phase 2)

Market is local: in certain areas of the country there seemed to emerge competitive concerns (as the number of fascias operating in the area would be reducing from 4 to 3 or from 3 to 2, depending on the precise geographic boundaries)

We are not interested here on the entire competitive assessment: only in market definition

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Definition of relevant markets involves several issues

Product market definition: which stores (fascias) compete with each other (Somerfield was operating with two different fascias: Somerfield and Kwik Save); which store sizes compete with each other

Geographic market definition: local ok, but how wide has to be the isochrone?

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For the second issue related to market definition and for geographic market definition, econometrics was not involved, basically those issues were settled through surveys and through the analysis of shopping behaviour (if you are interested we can discuss it tomorrow)

Basically, what these surveys show is that:

•Customers of the parties mainly do top-up or convenience shopping (secondary shopping)

• They tend to do it locally, in neighborhood of their residences (5 minutes isochrone)

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The analysis shows further that secondary shopping can be done at mid range stores (like the parties' ones) or at one-stop-shops (the very large stores)

So, interestingly, the CC arrives at an asymmetric product market definition: large stores do compete with mid range stores, but the opposite is not true.

Econometrics comes in for the first mentioned issue in product market definition: which fascias compete with each other?

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In particular, two different results are expected from the econometric contribution:

First: to have a clear view of the competitors in the same relevant market

Second: for the competitive assessment. The CC wanted to understand whether Somerfield and Morrisons were close competitors.

The claim by Somerfield was that the so-called LADs (basically discounts): Aldì, Lidl and Netto, had to be included in the same relevant market of Somerfield. The same for Marks and Spencers.

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In order to assess this claim, the CC analyzed data submitted by Somerfield on the impact of 169 competitor store openings of 18 fascias from 3/98 to 11/2004 on Somerfield sales.

Also, they looked at the impact of 141 competitor store openings of 14 fascias from 4/98 to 8/2004 on Kwik Save sales.

What the justification of regression analysis? Basically to control for factors that could bias the results of a simple correlation coefficient.

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In their regression framework they controlled for:

1. Size of both the competitor fascia opened store and the affected Somerfield or Kwik Save store
2. Drive-time distance from one to the other
3. the date the competitor opened (to control for business cycle factors in the macroeconomy): they used an indicator variable for the quarter of the year.
4. regional effects (indicator variables for each of the UK regions)
5. multiple openings

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The dependent variable: variation in sales.

Average sales in the two months following the opening – average sales in the two months before the opening

Crucial variable of interest: the CC estimated the impact on Somerfield and Kwik Save sales of different competitor fascias using a 1/0 indicator for each fascia.

Problem: you cannot put one indicator for each fascia. Why?

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Problem of multicollinearity (statistical reason)

So, what was the choice of the CC. Which indicator to omit? This is crucial because it determines the results of the analysis

The commission omitted the indicator related to the chain it was considered to be the strongest competitor. For Somerfield: Tesco. For Kwik Save: Asda

The idea is then the following: you compare the impact of opening a given fascia store with a benchmark.

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You get a coefficient for each fascia: if that coefficient is statistically not different from 0, it means that the impact of that fascia is not statistically different from that of Tesco (so the fascia should be included in the same relevant market).

If the coefficient is lower than that of Tesco, and it is statistically different, then the impact of that specific fascia is significantly lower than that of the benchmark, hence the fascia should be excluded from the market.

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The results: the estimated effects of various competitor fascia openings on Somerfield sales appear to organize themselves into two distinct groups.

- Fascias with a sales impact that is statistically lower than that of Tesco, including two of the LADs (Lidl and Aldì), but not Netto.
- Fascias with a sales impact not statistically different from that of Tesco (including Netto)

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A similar picture emerges for Kwik Save sales (Although Netto was not included in the analysis, only 1 or 2 entry episodes)

So, the CC conclusion was that the Lads should not be included in the same relevant market of Somerfield. Plus, the regression shows that Morrisons had indeed the greatest impact on Somerfield sales, although not statistically different from Tesco and Asda.

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Two caveats of the analysis:

1. missing variable in the specification: the number of stores in that area where the store was opened before the opening (!), nor data on whether the opened fascia was a new build or an acquisition

2. Also, we are comparing two months before with two months after. This might overstate the impact of the opening (the reasoning of the CC is that however the ranking should not be affected)

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Results as far as the control variables are concerned (for completeness)

- Drive time distance: significant impact. The higher the distance, the lower the reduction of sales associated with the entry episode
- Size: competitor size and Somerfield size generally not significant. For Kwik Save, the impact of both own and competitors' size is significant but small. It suggests that the bigger the Kwik Save store, the bigger the impact of entry (so, the bigger are hit harder). The contrary for competitor size, the bigger, the lower the impact

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Conclusion: we have seen another example of price-market structure studies.

In my opinion, this study suffers of two problems:

- First endogeneity, very clear (missing variables might be extremely important in explaining the observed pattern of results)
- The benchmark: is it fair to say that if your impact is lower than the strongest competitor you are in a different market? Shouldn't be used another benchmark (maybe the weakest competitor which is known to be in the market… very difficult to select)

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Obrigado!

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