

Competition analysis in UK local markets

26 March 2018



Vivek Mani and Peter Davis of Cornerstone Research

As the Competition and Markets Authority grapples with another retail deal, Cornerstone Research senior vice president **Peter Davis** and principal **Vivek Mani** in London review how the UK enforcer has been assessing competition in local markets.

The views expressed in this article are solely those of the authors, who are responsible for the content, and do not necessarily represent the views of Cornerstone Research.

The UK's Competition and Markets Authority is currently considering Co-op Group's proposed acquisition of Nisa. Since Co-op has 3,800 outlets and Nisa members operate more than 3,200 stores across the UK, it is surely a topical moment to review and evaluate the CMA's approach to evaluating local market overlaps – a topic where the agency's approach has evolved over time.

The predecessor Competition Commission experimented with significant methodological innovations in its analysis of local market overlaps and, as we show below, the experimentation has continued at the CMA in recent cases. In general, the CMA's approach is evolving away from screens based on market shares and their increments, and towards screens that emphasise the change in companies' incentives that result from the merger. As is well known, such incentives – at least in one particular but important benchmark economic model – depend directly on store margins and diversion ratios.

We review the economics underlying those developments and their potential advantages and limitations.

The CMA's framework for analysing competition in local markets

Many markets involve the sale of differentiated products and the economics profession has considered how to construct measures of market power in both product and geographically differentiated markets. The need to construct simple indicators of the change in local market power from a merger can have particular resonance in cases where markets are local, because there may be a need to evaluate merger effects in tens or even hundreds of local markets.

The UK competition authorities have over time adopted a two-stage approach to identifying a list of potentially problematic markets for detailed analysis: identify relevant product and geographic markets, filtering the set of local markets in which there may be some initial concern that the transaction might be expected to result in a substantial lessening of competition (SLC); and then evaluate the extent to which the merger will lead to an SLC in the subset of local markets which survive the filter applied at stage I.

Because the CMA seeks to ground the detail of its approach in the facts of the individual case, questions of detail – such as whether the geographic market should be defined by whole journey times or transit-times, and whether drive-time isochrones (a contiguous line on a map enveloping all the points within a fixed journey time from a specific starting location such as a store) should be based on average road speeds – have received a great deal of attention. This bespoke approach has the advantage that the facts of the individual case play a significant role, but also has the disadvantage of lacking a bright-line test easily applied to subsequent mergers.

Somerfield/Morrison (2005)

Analyses in recent cases have recognisable roots in the Somerfield/Morrison decision, the approach of which is partly summarised in Table I.

Table I: Elements of the CMA's stage I filter to identify a longlist of potentially problematic markets in Somerfield/ Morrison (2005)

Product Market Definition	Geographic Market Definition	Rule for identifying potential problem stores	Additional considerations
Market for secondary shopping (including top-up and convenience shopping) which was serviced by stores over 280 sq metres (3,000 sq feet) with various fascias (stores under common ownership are treated as a single fascia, even if branded differently), in particular Asda, Budgens, Co-op, Somerfield/Kwik Save, Morrisons/ Safeway, Sainsbury's, Tesco and Waitrose.	5 minute drive-time isochrone for urban stores and 10 minute drive time isochrone for rural stores. These capture the vast majority (i.e., 80-90%) of a store's customers.	4 to 3 fascia reduction rule to identify local markets where acquisitions might be expected to result in an SLC.	Recentering isochrones: Isochrones also centred on all other stores above 280 sq. metres (3,000 sq. feet) located within the primary isochrone and on relevant population centres located within the primary isochrone.

For its stage 2 analysis, the Competition Commission proposed adopting thresholds so that a local market overlap would potentially be an SLC if the predicted price rise associated with the acquisition were above 5%; and the diversion ratio was itself above 14.3%. (For example, two stores - A and B - in a market with a total of eight symmetrically placed stores each with 12.5% market shares pre-merger would have a diversion ratio of one-seventh, 14.3%, following a price rise at one store and provided no sales were lost to the market entirely.)

Applying this test involved measuring the proportion of customers who would choose store B as their second choice, and hence the degree to which A and B were local competitors. The commission's survey asked 5,600 customers at a total of 56 of the 115 acquired stores which other stores they would use if the individual store had not been available. Information on store margins was combined with estimated diversion ratios to predict the price rise that would result from the merger according to a particular benchmark economic model.

A modern competition audience will wonder whether the rule for identifying potentially problematic acquisitions, typically seen as consolidation from 4-to-3, and the diversion ratios (based on an 8-to-7 merger) adopted are consistent with one another. More generally though, the approach taken in Somerfield/Morrison was remarkably close to the pricing pressure screens that would be proposed in the US antitrust agencies' 2010 horizontal merger guidelines.

Private Healthcare (2014)

In the private healthcare market investigation, the CMA sought to calculate a particular weighted average market share measure, called the Logit Competition Index (LOCI). In doing so it followed the approach taken in an unpublished working paper. It aimed to use LOCI to screen for hospitals that might have local market power and also as a possible price driver in its price concentration analysis for self-pay patients.

Table 2 Illustrative calculation of LOCI

Sub-market	Number of customers (A)	Number of customers going to focal store (B)	Sub-market share of focal store (C)	Proportion of total sales of focal hospital in submarket (C)*(D)	Calculation
					(D)
SM1	2020	889	0.44	0.60	0.26
SM2	2009	557	0.28	0.37	0.10
SM3	2420	29	0.01	0.02	0.00
SM4	2519	19	0.01	0.01	0.00
Total	8968	1494	-	1	0.37

Source: Example adapted from Table 1, Appendix 6.4, CMA Private Healthcare Final Report.

The LOCI method involves computing market shares for all geographic submarkets – areas that are typically much smaller than the catchment areas – and then combining these shares into a single measure by averaging. In Table 2 LOCI is then equal to 0.63 (1-0.37). In more complex cases where multiple stores in the same local market are owned by the same chain, the formula must be adapted and is somewhat more involved.

LOCI remains relatively controversial. For example, in economists' benchmark economic model of retail market competition (developed by Harold Hotelling in the 1920s), LOCI predicts that all stores are monopolists, no matter how competitive an industry actually is. LOCI is of potential relevance because it is consistent with an index of market power in a particular underlying economic model, but obviously only of actual relevance when its underlying assumptions provide a useful approximation to real-world competitive constraints.

Both the level and increment in LOCI could be calculated in a merger case. However, the CMA has so far taken a different tack in recent merger cases, and it is to that we now turn.

Celesio/Sainsbury's (2016)

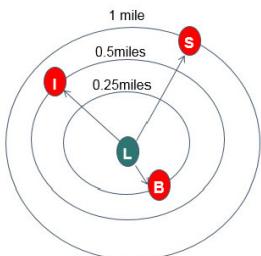
When Lloyds Pharmacy, subsidiary of Celesio and operator of 1,540 pharmacies, acquired 277 Sainsbury's pharmacies, the CMA identified 929 potential overlap stores. It defined the product and geographic markets described in Table 3 as well as a rule for identifying potential problem stores that is more complex than in earlier cases. (In contrast the geographic market definition appears somewhat crude; in practice, such catchment areas don't usually look like perfect circles).

Table 3 Elements of the CMA's stage 1 filter to identify a long-list of potentially problematic markets in Somerfield/Morrison (2005)

Product Market Definition	Geographic Market Definition	Rule for identifying potential problem stores	Additional considerations
Market for secondary shopping (including top-up and convenience shopping) which was serviced by stores over 280 sq metres (3,000 sq feet) with various fascias (stores under common ownership are treated as a single fascia, even if branded differently), in particular Asda, Budgens, Co-op, Somerfield/Kwik Save, Morrisons/ Safeway, Sainsbury's, Tesco and Waitrose.	5 minute drive-time isochrone for urban stores and 10 minute drive time isochrone for rural stores. These capture the vast majority (i.e., 80-90%) of a store's customers.	4 to 3 fascia reduction rule to identify local markets where acquisitions might be expected to result in an SLC.	Recentering isochrones: Isochrones also centred on all other stores above 280 sq. metres (3,000 sq. feet) located within the primary isochrone and on relevant population centres located within the primary isochrone.

A change of focus away from traditionally calculated market shares has been an important trend in recent years. Following *Private Healthcare*, in *Celesio/Sainsbury's* the CMA sought to construct more relevant measures of market shares than simple market wide share of volumes or value of sales. It introduced the "weighted share of shops" (WSS) as an element of the filter. An illustrative calculation of the weighted share of shops is provided in Figure 1.

Figure 1 Illustration of the calculation of Weighted Share of Shops (WSS)



	Boots Pharmacy	Independent Pharmacy	Sainsbury's Pharmacy
Distance from Lloyds (miles)	0.25	0.5	1
Weight	0.82	0.64	0.29
WSS	46.9%	36.7%	16.3%

Note: In Cellesio/Sainsbury's, the weight for each non-supermarket pharmacy in an urban area was constructed, for example as $weight\ for\ store\ B = (1 - (distanceAB/1.4\ miles))$. Weighted share of shops for a given store A relies on weights for each competitor B within the catchment area of the focal pharmacy so that, for example, if the distance between stores were 0.5 miles, then the weight given to competitor B would be 36.7%. The weighted share of shops itself for store A is then calculated as the ratio of the sum of the weights assigned to the other merging party divided by the sum of the weights assigned to all stores in the area.

The economist community has similarly suggested a change in focus away from market shares, but has favoured shifting focus towards diversion ratios and margins since these are predicted by a benchmark economic model to be directly relevant for assessing how pricing incentives change as a result of a merger.

In Cellesio/Sainsbury's the CMA estimated diversion ratios in three ways:

- By collecting survey data from face-to-face interviews with customers at a total of 32 Lloyds and Sainsbury's pharmacies spread across 16 different local overlap areas (out of a total of 929).
- By estimating a model of consumer choice of pharmacy using detailed public data on the total volume of prescriptions broken down by the pharmacy that fulfilled the prescription. The CMA model of the share of prescriptions at each pharmacy from a given GP, and show it depends on the distance between the GP and pharmacy, its opening hours and its age.
- By using a regression analysis to establish a positive relationship between diversion ratios estimated using survey data and weighted share of shops. Such a model could be used to predict ratios from weighted share of shops where survey data were unavailable.

We note that, if carefully constructed, the weighted share of shops from store A to store B can be produced as an estimate of the diversion ratio rather than simply a weighted share. Doing so requires weights which are carefully chosen to describe the proportion of sales that would be lost by store A to store B and also that the ratio includes an allowance for those customers who decide not to shop at any of the rival stores.

And in our view the CMA's filtering thresholds would most naturally be expressed in terms of estimated diversion ratios and store margins (and combinations of them which allow a threshold on the predicted incentive or price rise effects). The terminology of the weighted share is ultimately unhelpful since we are most interested in diversion ratios, not shares. Doing so would make clearer the return towards the approach to thresholds taken in Somerfield/Morrison.

Ladbrokes/Coral (2016)

In *Ladbrokes/Coral*, the CMA considered whether Ladbroke's 2,154 licensed betting offices were important competitive constraints on Coral's 1,850 betting offices. The CMA defined the product market as the supply of gambling products in licensed betting offices, and defined the geographic market as a 400-metre catchment area around a betting office, while recognising that some offices 400-800 metres away would nonetheless still impose some competitive constraint.

The CMA conducted 3,921 face-to-face interviews in a survey undertaken in 30 betting offices belonging to Ladbrokes and Coral, across a sample of 15 areas where the companies operate in close proximity to each other. The CMA aimed to find markets where the survey results would be particularly valuable in providing information on the drivers of local competition, because it was unclear *a priori* whether the merger would raise competition concerns.

As in previous cases, the CMA asked customers what they would do if the betting office where they were interviewed were closed for refurbishments for six months and, if the respondent said they would go to another betting office, to which betting office they would go. The CMA used the survey responses to estimate diversion ratios between betting offices in the local area.

The CMA sought to deliberately calibrate its model of weighted share of shops to account for its findings that:

- Ladbrokes and Coral responded to competition primarily within 400 metres of their LBOs, but there are some examples of competitive interactions or responses in relation to LBOs located further away. The CMA allowed for the weight given to stores to drop to zero only at 800m distance, but to do so at a quadratic rate (in contrast to the linear decline assumed in *Celesio/Sainsbury's*).
- That the betting office geographically closest to the surveyed betting office tends to receive more diversion than would be expected based on its distance to the centroid betting office. The CMA therefore allowed an uplift on the weight allocated to such stores by multiplying it by 1.2.
- There were weaker than average constraints imposed by independent betting office operators so the CMA multiplied the weight for independents by 0.9.
- There was some diversion to the online channel from retail betting offices, so it allowed an uplift of a diversion of 10%.

The CMA estimated a regression equation that predicted diversion ratios using data on weighted share of shops (although the resulting R-squared of only 0.42, was lower than the analogous figure of 0.79 in *Celesio/Sainsbury's*). The estimated diversion ratios were used in conjunction with the parties' accounting data for variable margins to predict a gross upward pricing pressure index. Taking an index threshold of 10-20%, the CMA then backed out a threshold for weighted share of shops of 30-40%, and eventually settled on a threshold of 35%. The need to back out a WSS threshold could be avoided if the threshold were simply placed directly on either diversion ratios and margins or gross upward pricing pressure indices.

Conclusions

These cases show how the CMA's approach has evolved away from market share screens towards screens that emphasise the change in companies' incentives that result from the merger.

In our view, the CMA should probably undertake the exercise more explicitly as one with the clear aim of developing a model of the determinants of diversion ratios. Ideally, the model's parameters will be estimated since estimation will help avoid the need for ad hoc judgments necessarily associated with calibrating the model.

In addition, to further align with the 2010 framework for merger analysis, filtering thresholds should be directly imposed on implied diversions ratios and store margins (or a combination of them in a pricing pressure test). This would impose some discipline on the process, help provide guidance for potential future mergers, and involve a return to thresholds of the *Somerfield/Morrison* type – that is, set on diversion ratios and a price-rise or price-pressure threshold.

The manner in which price rises have been predicted has varied over time: *Somerfield/Morrison* used an Indicative Price Rise (IPR) based on an assumption of symmetry, while *Asda/Netto* (2011) introduced an asymmetric IPR to predict the price rise from the merger. More recently, Ladbrokes/Coral used a threshold value on the gross upward pricing pressure index. Current best practice for predicting price rises due to mergers involves both an evaluation of the incentive effects of a merger and of the ability to actually pass-through a price rise. Therefore, we can probably expect the CMA to adapt its screening test to estimate pass-through in suitable future cases.

Of course, formulaic approaches to price effects can play a role as initial screens, but they are grounded in a particular benchmark economic model that may, or may not, properly capture the important characteristics of competitive dynamics in the market. Ultimately, for those local areas that survive the filter, it is right that the CMA's detailed analysis should carefully consider whether the merging firms' actual incentives and ability to raise prices or reduce quality would change as a result of the merger.

We end by noting that in *Celesio/Sainsbury's*, the CMA estimated a consumer choice model to estimate diversions but the dataset was not ideal and the CMA did not feel able to rely heavily on the resulting diversion ratios. Given the increasing availability of consumer level data, at least some cases seem likely to benefit more from diversion ratios calculated from consumer choice models estimated using data on store choice. The best results will likely be achievable by integrating the consumer store choice data with the survey data on diversion ratios when estimating an economic model of store choice. Doing so would follow the academic literature on demand estimation in differentiated product markets but we have not yet seen such an integrated approach from the UK competition authorities.