Oxera

Agenda

Advancing economics in business

Customer surveys and critical loss analysis for market definition

A recent paper by the UK Competition Commission examined its extensive use of customer surveys in merger investigations under the Enterprise Act 2002. In light of this research, Chris Walters, one of the authors of the paper, and now Assistant Director of Mergers at the Office of Fair Trading, discusses how to make the best use of customer surveys for market definition in first-phase merger investigations

The UK competition authorities—the Office of Fair Trading (OFT) and the Competition Commission (CC)—routinely use customer surveys in merger investigations. In particular, the OFT has recently used customer surveys in critical loss analysis (CLA) for market definition. (The OFT more often uses customer surveys for the competitive assessment of mergers, but my focus here is on market definition.) In a recently published article, the CC examined its own extensive use of customer surveys in merger control, showing how to avoid a number of pitfalls by careful survey design.[1] This article reviews three examples of the OFT's use of customer surveys for market definition in light of the CC's study.

Starting with a brief re-cap on CLA as a tool for market definition, this article then reviews the CC's analysis of its own extensive use of customer surveys, which stresses the importance of careful survey design, before giving three examples from early 2008 where the OFT has used customer surveys in CLA. It concludes that CLA using customer surveys has been a useful tool for the OFT, although the associated complications have always meant that the results have been considered in the context of other evidence.

Critical loss analysis for market definition

Although, for the OFT, market definition is a means to an end and not an end in itself, its merger investigations often (although not always) begin with market definition. In this regard, CLA is a simple and well-known empirical tool for implementing the ubiquitous SSNIP (small but significant and non-transitory increase in price) test for market definition.[2] In it, the 'critical loss' is the percentage decrease in sales that just makes unprofitable a 5–10% price increase (ie, a SSNIP) by a hypothetical monopolist of some narrow candidate market. The 'actual loss' is the predicted percentage decrease in sales in response to such a SSNIP by the hypothetical monopolist. (The terminology is clumsy—the 'actual loss' is not something that anyone actually loses at all but rather the predicted loss of a hypothetical monopolist!) If the actual loss exceeds the critical loss, the relevant market appears wider than the narrow candidate market considered.

Estimates of the critical loss can be based on gross margins (ie, sales minus the direct costs of sales), which are simple to obtain (eg, from firms' management accounts). Calculating the hypothetical monopolist's critical loss likewise is a simple arithmetic matter: it is the SSNIP divided by the gross margin plus the SSNIP. So, for a SSNIP of 10% and a gross margin of 40%, the hypothetical monopolist's critical loss is 20%—ie, 0.1/(0.1+0.4)—and the market is wider than the narrowest candidate market if the hypothetical monopolist's actual loss in response to a 10% price increase exceeds 20%.

Obtaining that estimate of the hypothetical monopolist's actual loss can likewise be a simple matter. For example, an estimate of the actual loss can also be based on firms' pre-merger gross margins. This is because if a profit-maximising firm chooses a high gross margin pre-merger, the firm evidently believes that demand for its product is not very sensitive to price (ie, that demand for its product is not very elastic). This inverse relationship between a firm's gross margins and the elasticity of demand it faces is captured by a formula called the Lerner Condition. Consequently, a firm's gross margin can yield information on the fraction of its sales that it would lose were it to raise its price by a SSNIP, which in turn can give an estimate of the hypothetical monopolist's actual loss.[3]

Of course, it is possible that firms do not maximise profits as rapaciously and myopically as assumed by the neoclassical microeconomics underpinning the Lerner Condition.[4] In which case, other evidence compiled in the normal course of business might provide direct evidence about demand elasticity. Such evidence might include a firm's market research, empirical evidence of its previous pricing experiments, or a qualitative evaluation of its customers' likelihood to switch to competing products.

In addition, and of greater relevance here, customer surveys conducted in the context of a merger investigation can provide an estimate of the actual loss, as discussed below.

Estimates of the actual loss from customer surveys

The importance of careful survey design

In its recent study, the CC examined its extensive use of customer surveys in merger control. (From the introduction of the Enterprise Act in 2003 until the end of 2006, the Commission used customer surveys in nearly half of the 31 merger inquiries it completed.) The paper points out how the UK's two-phase merger regime compels the Commission to decide on, design, and commission a customer survey almost as soon as its merger investigation begins. It then highlights the effect that this has on two areas of the Commission's merger control process that use customer surveys, including market definition. The paper illustrates, with examples, how to avoid several consequential pitfalls in using customer surveys by asking questions that are carefully designed to encourage survey respondents to re-live their purchasing decisions. This involves asking respondents sequentially about:

- matters of fact (ie, simple factual points about the context in which the purchase was made);
- matters of behaviour (ie, which alternatives were considered and which were thought the most effective);
- matters of choice (ie, what factors—such as price—led to one particular choice among the alternatives);
- matters of attitude (ie, what respondents would have done under different circumstances—for example, if the price had been 10% higher).

Questions on matters of attitude are those that are most relevant for market definition. In particular, survey responses on matters of attitude can provide estimates of the actual loss that can be used in CLA. However, the study concludes that asking questions first on matters of fact, behaviour and choice gives more reliable responses to questions on matters of attitude.

The next section discusses three recent examples of the OFT's use of customer surveys in CLA, in light of the CC study.

Using customer surveys in critical loss analysis

Dunfermline Press/Berkshire Regional Newspapers of Trinity Mirror

In February 2008, the OFT published its decision on the completed acquisition by Dunfermline Press—a publisher of 23 local and regional newspaper titles in the UK, three in Berkshire—of the Berkshire Regional Newspapers portfolio of Trinity Mirror plc, comprising six local newspaper titles and five other publications.[5] The OFT cleared the acquisition subject to the divestment of one local newspaper title.

At issue for market definition was whether the relevant product market was only local newspaper advertising, or whether it extended to advertising in other media. The OFT examined this issue using CLA. In particular, Dunfermline Press undertook a telephone survey of over 300 advertisers in the three areas of Berkshire where its local newspapers overlapped with those of Trinity Mirror: Maidenhead, Slough and Windsor. Having asked about matters of fact, behaviour and choice, the survey then asked what respondents would have done had the price of advertising in all local newspapers in each of the three areas been 10% higher (a question of attitude): 13% of respondents said they would stop advertising and a further 48% said they would reduce their advertising, although the survey did not reveal by how much. Nonetheless, Dunfermline's estimate of the critical loss was less than 13% (the exact amount is excised from the OFT's decision for reasons of commercial confidentiality), meaning that the market appeared wider than only advertising in local newspapers.

Two interesting issues for CLA emerge from this example. The first concerns Dunfermline's estimate of the critical loss. This was based not on the gross margin on all sales, but rather on the incremental gross margin on sales lost using very detailed estimates of short-run variable costs saved in response to a loss of business. This more granular approach to estimating critical loss is in fact preferable, where possible, to relying only on the gross margin on all sales.

The second concerns the two-sided nature of local newspapers, which makes it hard to rely on the Lerner Condition to obtain an estimate of actual loss. Local newspapers serve two groups of customers whose interests are interdependent: readers and advertisers. Advertisers want to reach readers but readers want

news, editorial content and features as well as advertising. The local newspaper's pricing problem is therefore to set rates to advertisers and a cover price to readers that gets the right amount of both sides on board.

A consequence of two-sidedness is that the Lerner Condition may not hold. In particular, the price to one, less price-sensitive, side of the market may subsidise the other, more price-sensitive, side. That is, for local newspapers, rates to advertisers may subsidise a free cover price to readers. In this case, however, Dunfermline used a survey to obtain an actual loss estimate and did not rely on the Lerner Condition.[6]

LOVEFiLM/Amazon

In April 2008, the OFT published its decision on the anticipated acquisition by LOVEFiLM—an online DVD rental (ODR) provider—of the UK ODR business of Amazon, Inc.[7] The OFT cleared the merger unconditionally on the basis of qualitative evidence from documents prepared in the normal course of business.

At issue for market definition was whether the relevant product market was ODR only, or also included 'bricks-and-mortar' DVD rental and other digital delivery channels for video content such as pay-TV. The OFT examined this issue with CLA. In particular, the parties undertook an online survey of more than 2,000 ODR customers. Having asked about matters of fact, behaviour and choice, the survey then asked what respondents would do if all ODR prices increased by 10% (a question of attitude): 30–40% said that they would switch to a non-ODR provider (ie, the actual loss). The OFT's estimate of critical loss—based on the parties' gross margins—was 20–30%, so the market appeared wider than only ODR (ranges are presented here because the exact figures were excised from the OFT's decision for reasons of commercial confidentiality).

An interesting issue for CLA that emerges from this example is the use of a 'one-price SSNIP' test for market definition. The combined market share of LOVEFiLM and Amazon meant that, together, they were essentially the hypothetical monopolist of the narrowest candidate market, ODR. Furthermore, according to Amazon's pre-condition to the sale, LOVEFiLM was required to offer the acquired Amazon subscribers their existing ODR rates and packages post-merger. Consequently, the OFT thought it appropriate to ask for the purposes of market definition whether it might be profitable for a hypothetical monopolist of ODR (ie, LOVEFiLM plus Amazon) to raise only LOVEFiLM's ODR prices by a small but significant and non-transitory amount (a 'one-price SSNIP' test).[8]

Using this 'one-price SSNIP' version of the hypothetical monopolist test makes the critical loss higher because the total loss in sales of LOVEFiLM and Amazon combined (the hypothetical monopolist) is reduced as some ODR sales divert from LOVEFiLM to Amazon when only LOVEFiLM's price is increased. In this case, based on gross margins, the 'one-price' critical loss for a 10% SSNIP was 30–40%, which was no longer less than the actual loss.[9] So it may have been appropriate for the OFT to define a market no wider than ODR. (In the end, the OFT's decision did not turn on market definition and the OFT left the question open.)

Homebase/27 Focus stores

In April 2008, the OFT published its decision on the completed acquisition by Home Retail Group plc (HRG)[10]—owner of the national chain of Homebase DIY (do-it-yourself) home improvement stores—of 27 DIY stores from Focus (DIY) Ltd.[11] The OFT cleared the acquisition subject to the divestment of one Focus DIY store.[12]

At issue for market definition was whether—in the 12 out of 27 local areas where Homebase and Focus DIY stores overlapped—the product market included only DIY stores or extended to 'category specialists' such as bathroom specialists, flooring specialists, kitchen specialists, furniture specialists, garden centres, hardware stores and builders' merchants. The OFT examined this issue with CLA. Using gross margins by product category (eg, decorating, garden, furniture), the OFT obtained estimates of the critical loss for each product category (excised from the decision for reasons of commercial confidentiality).

The OFT based its estimates of the actual loss on face-to-face surveys undertaken by HRG of around 1,700 DIY shoppers in the 12 overlap areas. Having asked about matters of fact, behaviour and choice, the survey then asked what respondents would do if the Focus DIY store had been shut (a question of attitude). The actual loss derived from these responses (also excised from the OFT's decision) did not exceed the critical loss for all product categories in ten local areas out of 12, meaning that the market appeared no wider than DIY stores only.

Two interesting issues for CLA emerge from this example. The first is that HRG's survey asked what shoppers would do if the Focus DIY store had been shut, not if its prices increased by 10%. A store shutting is in effect equivalent to an infinite price increase. HRG did this because consumers may sometimes view questions about percentage price increases as too hypothetical and, in a face-to-face interview, it may be hard for the interviewer to increase the monetary amount the

customer spent by 10% and ask how they would have responded.[13] Although more shoppers will divert to various alternatives (eg, other DIY stores or category specialists) following an infinite price increase than following a 10% one, the proportion diverting to each alternative (ie, the 'diversion ratio' to each) should not be affected by the size of the price increase.

The second is that HRG's survey asked only about the Focus DIY store being shut, not about all DIY stores being shut. Given that the candidate 'DIY store' market being tested with CLA encompassed a hypothetical monopoly of all fascias of DIY store (B&Q, Focus, Homebase and Wickes), a direct estimate of the actual loss could only have been obtained by HRG's survey asking about all DIY store fascias shutting. However, the OFT was still able to obtain an estimate of the hypothetical monopolist's actual loss using the 'aggregate diversion ratio' from HRG's survey. This is the fraction of sales lost by Focus when it shuts that go to the other DIY store fascias (ie, the sum of the diversion ratios to each), which HRG's survey did reveal. With some slightly more complex arithmetic, the aggregate diversion ratio yields an estimate of the actual loss.[14]

Interestingly, the diversion ratio from Focus to Homebase indicated that—in the two overlap locations where the OFT considered that the merger gave rise to a realistic prospect of a substantial lessening of competition—Homebase and Focus were each other's closest competitors. That is, the competitive assessment of the merger in those areas was the same regardless of whether it was framed as one generating high concentration within a narrow 'DIY stores' market, or as the loss of direct competition between Homebase and Focus within a broader market. This raises the possibility in such cases of eschewing market definition in favour of directly assessing (with survey evidence) the competitive effects of a merger.

Conclusions

This article has considered the use of CLA using customer surveys for market definition in first-phase UK merger control. It argues that CLA is a simple and informative tool for market definition, and shows that it has been important in three recent OFT merger clearances.

Reviewing the CC's analysis of its own extensive use of customer surveys highlights the fact that careful survey design is crucial to the proper implementation of CLA using customer surveys. The examples provided above, however, illustrate some complications of using customer surveys for CLA, in particular:

– CLA in two-sided markets;
– CLA with a 'one-price SSNIP';
– CLA with the 'aggregate diversion ratio'.

Consequently, CLA has always been considered—and will always be considered—by the OFT in the context of other evidence on market definition and the competitive assessment of the merger. For example, in LOVEFiLM/Amazon, where the OFT left open the question of market definition, the OFT concluded on the basis of documents prepared by LOVEFiLM in its normal course of business that the merger would not give it a lasting incentive to worsen its customer proposition because of the competitive discipline it faced from an array of other providers of video content.

Chris Walters

[1] Reynolds, G. and Walters, C. (2008), 'The Use of Customer Surveys for Market Definition and the Competitive Assessment of Horizontal Mergers', *Journal of Competition Law and Economics*, **4**:2, pp. 411–31.
[2] See, for example, Oxera (2002), 'The Critical Sales Loss Test in Market Definition', *Competing Ideas*, November. Available at www.oxera.com.
[3] The actual loss by a hypothetical monopolist of all firms in a market when it raises its price will, in general, be less than the actual loss by one firm in that market when it raises its price. This is because some of the sales lost by one firm will divert to other firms in the same market that all fall under the rubric of the hypothetical monopolist. Nonetheless, the Lerner Condition, coupled with information on what fraction of sales divert from one firm in a market to others when its price increases (known as the 'aggregate diversion ratio', call this A), can give an estimate of the hypothetical monopolist's actual loss as (1–A) × (SSNIP/gross margin). So for a SSNIP of 10%, a gross margin of 40%, and an aggregate diversion ratio of 25%, the actual loss is 19% (ie, [1–0.25] × [0.1/0.4]). In the present example, this does not exceed the critical loss of 20%, so the market appears no wider than the narrow candidate market considered.
[4] That is not to say that firms do not maximise profits, but merely that they may do so taking account of spill-overs to other products they sell, of customer loyalty, of reputation, of learning-curve effects, of network effects, and so forth. These considerations may mean that the Lerner Condition does not hold rigidly.
[5] Office of Fair Trading (2008), 'Completed Acquisition by Dunfermline Press Limited of the Berkshire Regional Newspapers Business from Trinity Mirror plc', OFT Decision, February 4th.
[6] Although the actual loss estimate came from a survey only of advertisers (one side of the market) and not of readers (the other side), the OFT did not consider this a problem given that Dunfermline also conducted a survey of 300 readers in Maidenhead, Slough and Windsor, which was qualitatively consistent with its survey of advertisers.
[7] Office of Fair Trading (2008), 'Anticipated Acquisition by Lovefilm International Limited of the Online DVD Rental Subscription Business of Amazon, Inc.',OFT Decision, April 15th.
[8] Although it is convention to implement the hypothetical monopolist test by asking whether it would be profitable to raise all prices by a SSNIP (see, for example, OFT Mergers: Substantive Assessment Guidance, OFT 516), there is no reason in economics why a 'one-price SSNIP' cannot also be used for market definition where appropriate (see Whinston, M., 'Antitrust Policy Toward Horizontal Mergers', pp. 2371–415, in M. Armstrong and R. Porter (eds) (2007), *The Handbook of Industrial Organization*, **3**, North Holland: Amsterdam.
[9] The formula for the 'one-price SSNIP' critical loss is simply the SSNIP divided by the gross margin. So for a SSNIP of 10%, and a gross margin of 40%, the 'one-price SSNIP' critical loss is 25%—ie, 0.1/0.4. For details see Daljord, Ø., Sørgard, L. and Thomassen, Ø. (2008), 'Making Sense of Market Delineation with the Aggregate Diversion Ratio', *Journal of Competition Law and Economics*, **4**, pp. 263–70.
[10] Office of Fair Trading (2008), 'Completed Acquisition by Home Retail Group plc of 27 Stores from Focus (DIY) Ltd', OFT Decision, March 17th.
[11] The OFT investigated the transaction under its own initiative, given that notification of mergers is not mandatory in the UK. It appointed in March 2008 a Head of Mergers Intelligence, with the aim of investigating more non-notified mergers under its own initiative.
[12] The OFT accepted a 'failing firm' defence for another of the 27 DIY stores—only the second time it has done so under the Enterprise Act at the level of an individual retail store.
[13] When customer surveys are conducted via computer-assisted telephone interview or online, this is less of a problem as the increased price can be calculated automatically. Furthermore, in this case, some of the interviews took place at locations where the Focus DIY store had shut (given the merger was completed), meaning respondents were being asked about the last time they used the Focus and may not have been able to recall how much they spent.
[14] See footnote 3.

If you have any questions regarding the issues raised in this article, please contact the editor, Derek Holt: tel +44 (0) 1865 253 000 or email d_holt@oxera.com

Other articles in the September issue of *Agenda* include:

- **market investigations: a commentary on the first five years**
- **renewing the Renewables Obligation: getting the most out of green energy?**
- **retail financial advice: is anybody listening?**

For details of how to subscribe to *Agenda*, please email agenda@oxera.com, or visit our website

www.oxera.com

© Oxera, 2008. All rights reserved. Except for the quotation of short passages for the purposes of criticism or review, no part may be used or reproduced without permission.