

# Agenda

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## Unilateral effects analysis and market definition: substitutes in merger cases?

A number of simple tests to assess the effect of a merger on the pricing behaviour of the merging firms have become increasingly popular among competition authorities in Europe and North America. This direct approach to measuring unilateral effects has been proposed by some as an alternative to traditional market definition. A recent meeting of the Oxera Economics Council discussed the merits and limitations of the approach

Market definition has traditionally been considered a central step in assessing the potential harm of a merger, since a well-defined relevant market allows for the measurement of market shares and concentration. Although the relationship between market concentration and competition is not clear-cut (ie, higher concentration does not always mean higher prices), market definition has become a standard first step in merger investigations in competition regimes around the world.

Although the use of market definition has increased the rigour of competition analysis, it has always been recognised that market definition is not an end in itself. It identifies which products and geographic areas compete with each other, but it does not assess the effects of a merger (or anti-competitive practice) directly. In the last decade or so, economists have become more confident in the theoretical models and empirical techniques that enable this intermediate step to be skipped.<sup>1</sup> As an alternative to market definition, a number of metrics have been developed that help to predict whether and how prices are expected to change following the merger, without the need to explicitly delineate a market. Known as ‘unilateral effects analysis’, this approach has become fashionable among the world’s leading competition authorities. In 2010 both the US and UK competition agencies issued new merger guidelines that placed strong emphasis on this form of analysis as a tool (while still referring to market definition, although somewhat diminishing its prominence).<sup>2</sup>

As with any new tool, it is important to be clear about its merits and limitations relative to those of the existing tools. A meeting of the Oxera Economics Council

earlier in 2011 aimed to advance the debate around unilateral effects analysis, how it fits within the current competition law framework, and to what extent it can be a substitute for a full market definition analysis.

### Market definition as an intermediate step

The traditional approach to horizontal mergers has been the identification of the relevant market, followed by an assessment of the degree of concentration as measured by the market shares of the merging parties and their competitors. The reasoning behind this approach is rooted in the relationship between structure and performance: if a market becomes more concentrated, competition lessens and prices increase. The danger of collusion (either explicit or tacit) can also increase with fewer firms in the market. Market share and concentration measures can be the means to determine negative clearance or ‘safe harbours’—ie, where the merged firm is so small in a properly defined market that it is highly unlikely to have substantial market power, and enforcement action is therefore unnecessary.

While market definition is suited to industries with homogeneous goods, it does not work as well when product differentiation is an important feature of the market. Differentiation typically means that a spectrum of products exists that are close but imperfect substitutes—for example, a whole range of cars is available, from superminis and small family cars to executive and luxury cars. Delineating a relevant market on such a spectrum can be difficult and somewhat artificial—for example, it might lead to very narrow markets, such as that for Porsche Carreras.

The Oxera Economics Council, whose members include prominent European thinkers and academics, meets twice a year to discuss the economic aspects of a wide range of policy issues. Details can be found at [www.oxera.com](http://www.oxera.com). Topics discussed at previous Oxera Economics Council meetings include FRAND pricing obligations, antitrust damages, net neutrality and behavioural economics.

It is precisely in these cases where competition authorities have begun in the last decade to use unilateral effects analysis.

## Tools for unilateral effects analysis

The market definition exercise is about determining whether products are ‘in’ or ‘out’ of the relevant market. Where products are highly differentiated, the important question becomes more about which products are each other’s closest substitutes.

The logic of unilateral effects in merger analysis is simple. Before a merger, the price of brand A is constrained by the possibility that an increase in price could lead some customers to switch to brand B. Following a merger between brand A and brand B, the owner of the two brands will have an incentive to increase the price of one or both brands. This is because profits that would have been lost to brand B following a price rise in brand A before the merger will be recaptured now that the brands are in joint ownership.

Unilateral effects analysis essentially uses a number of metrics to assess the likely price rise following a merger. Competition authorities potentially have a spectrum of tools available, as outlined below. Each metric relies on various assumptions, but all have as an advantage their simplicity and practicality.

### Upward price pressure

Joseph Farrell and Carl Shapiro—two prominent academics and senior economists at the US Federal Trade Commission and Department of Justice, respectively—have suggested a simple unilateral effects test.<sup>3</sup> This approach centres on the profit-maximising behaviour of the merging parties, which seek to minimise the ‘cannibalisation’ effect. In other words, when parties merge, they have an incentive to raise prices because these were ‘too’ low before the merger, since the merging products were ‘stealing’ each other’s customers.

The demand-side substitutability (ie, degree of customer switching) between the merging firms is the focus of the upward price pressure (UPP) test. It evaluates the net effect on prices of the two opposing forces following a merger. The elimination of competition pushes prices up, whereas marginal cost reductions (stemming from merger-related synergies or economies of scale), if any, will tend to drive prices down.

A merger between firm A and firm B creates a net upward pressure on product A if the following

inequality is satisfied (and the same expression can be used for product B, with the subscripts swapped):

$$D_{AB} * M_B > E_A$$

$D_{AB}$  is the diversion ratio—the percentage quantity lost by the price-raising firm A that is captured by the other firm, B. For example, if a 10% price increase in product A leads to 100 units lost, and the demand for product B increases by 30 units, the diversion ratio from product A to product B is 30%.  $M_B$  denotes the difference (margin) between the price and the per-unit cost of product B; and  $E_A$  is the merger-induced per-unit cost saving (efficiency) for product A.

This test should be performed for both firms in order to evaluate the possible incentives to raise prices. If the inequalities hold, it can be concluded that the merging parties do indeed have an incentive to raise prices above current levels. The higher the diversion ratios or the margins (or both), the stronger the upward pricing pressure from a merger between the two firms—ie, the higher the margins of the ‘other’ firm (the one that does not change its price), the more profitable is the diversion; and the larger the diversion, the more customers stay with the merged entity, rather than switch to other rivals.

If a potential merger satisfies the UPP inequality condition, however, this does not provide conclusive proof that the merger will harm consumers. The condition does not capture other important considerations of firm behaviour, such as supply-side responses, the multi-product character of the firms, or investment in quality. For example, if the quality of the product sold by the two firms increases as a result of the merger and this more than offsets any loss of consumer welfare from higher prices, the merger creates net benefits overall.

UPP was used by the UK Competition Commission (CC) in its recent inquiry into the merger between Zipcar Inc and Streetcar Ltd, two companies running car-sharing businesses.<sup>4</sup> Both public clubs offered to their members the ability to use a number of readily accessible vehicles parked around the London area. Users could book these vehicles on an hourly or daily basis. The CC assessed the incentive for Zipcar to increase its prices after the merger, using a number of different diversion ratios and Streetcar’s profit margin as inputs in the formula. Regardless of the debate concerning the appropriate margin to be used in this case, the CC found that it was more likely than not that Zipcar would raise its prices by a considerable amount.<sup>5</sup>

### Gross upward price pressure index

The gross upward price pressure index (GUPPI) is based on the UPP, and is described in the 2010 US Horizontal Merger Guidelines (although not referred to by this name). It was suggested by Salop and Moresi in 2009 when they were providing comments on the proposed revision of the guidelines.<sup>6</sup>

The GUPPI seeks to indicate the upward pricing incentive for the merging parties in the absence of induced entry, efficiencies and product repositioning. It is the same as the left-hand side of the UPP inequality described above, but divided by the initial price of the respective product:

$$\text{GUPPI}_A = D_{AB} * m_B * P_B / P_A$$

where  $m_B = M_B / P_B$ , or the percentage margin. The GUPPI for product B is calculated by simply switching the subscripts, as in the UPP case.

The GUPPI estimates are usually compared against an assumed 'tolerable' threshold. If they are larger than, say, 5% or 10%, the merger could raise competition concerns. Following this initial screening, consideration can be given to whether any upward pricing pressure might be offset by factors such as efficiencies, entry, innovation or product repositioning.

It should be emphasised, however, that the GUPPI estimates do not directly estimate price rises, even in the absence of these factors. Farrell and Shapiro highlighted that caution needs to be taken when interpreting the GUPPI, for two main reasons. First, the GUPPI does not take into account second-order effects such as price repositioning (re-equilibration) by the other merging firm or their competitors. Second, the estimated price rises need not materialise for final consumers. Firms might choose to 'absorb' a large percentage of the GUPPI increase when setting prices optimally. The actual price increases following a merger therefore often differ from the estimates of upward pricing pressure produced by the GUPPI.

### Indicative price rise

The indicative price rise (IPR) metric is constructed by combining the incentives of the merging parties to set the prices of both products.<sup>7</sup> As such, it is not affected by the re-equilibration issue of the GUPPI. In addition, it is derived by assuming price-setting, profit-maximising firm behaviour without the need to consider a pass-through. Its simplest version requires data only on margins and diversion ratios between the two parties.

The standard IPR formula, given below, assumes that the merging products/firms are symmetric, in the sense that they have identical margins (m), prices and

diversion ratios (D). The calculation also involves an assumption about the shape of the demand curve faced by the firms; the most common alternatives are linear demand and constant elasticity (isoelastic) demand:

IPR for linear demand:

$$\frac{m * D}{2 * (1 - D)}$$

IPR for isoelastic demand:

$$\frac{m * D}{(1 - m - D)}$$

This symmetric price rise formula has been used to inform the unilateral effects assessment in a number of recent cases, including in the UK and South Africa. The CC used it in 2005 in the Somerfield/Morrison supermarket merger,<sup>8</sup> while in 2008 the UK Office of Fair Trading (OFT) analysed indicative price increases at over 400 locations for the Co-op/Somerfield supermarket merger.<sup>9</sup> Together with other analysis, this formed the basis for the OFT's decision to clear the merger with divestments. It also informed the OFT's decision as to which of the stores should be divested because of potential competition concerns.

The IPR was also examined by the OFT in 2008 in the online DVD rental service merger between LOVEFiLM and Amazon.<sup>10</sup> Using a consumer survey that indicated that around 30–40% of LOVEFiLM customers would switch to Amazon following a 10% price, the OFT estimated a price rise of around 0–10%, while assuming that demand was linear.

If sufficient data is available, the symmetry assumption in the IPR formula can be relaxed, and a more complex IPR formula<sup>11</sup> can be used to measure the individual price-increasing incentives of the merging parties.

### A critical look

The tools detailed above are not the only ones that have been proposed to measure the incentives to raise prices after a merger. Nevertheless, UPP, GUPPI and IPR have been increasingly employed by competition authorities and merging parties in the last few years, mainly owing to their simplicity and wide recognition.

The IPR metric has a number of advantages over the GUPPI when estimating the likely magnitude of price rises. It is easier to interpret conceptually, and its formula is more flexible. It is this flexibility (for example, whether the appropriate formula assumes a linear or an isoelastic demand), however, that can lead to debates

between the merging parties and the competition authorities. The GUPPI might therefore better serve the goal of an accepted screening tool.

UPP has the advantage of being a more convenient and simple measure for screening which merger cases competition authorities should pursue, since it does not require an assumption about the 'tolerable' price rise threshold.

A contentious issue in practice that applies to all the above metrics is that it is in the merging parties' interest to argue for lower margins in order to minimise the likelihood of a finding of harmful unilateral effects. Unilateral effects analysis relies heavily on how accurately the price–cost margin is measured for a given case and industry, since this is a key input into the formulae. Evidence on consumer behaviour, such as elasticities and diversion ratios, is also critical. The quality of these variables will depend on the data used.

It needs to be stressed that the predicted price rises produced by these tools, even if good estimates are available of margins and diversion ratios, will be accurate only if the underlying model assumptions reflect the competitive effects. The proponents of unilateral effects metrics do not claim that this approach quantifies the likely equilibrium effects of a merger or captures the real complexities of firms'

behaviour. The role of these metrics is simply to inform and supplement merger investigations, in a similar way to how market share and concentration analysis has been used for decades.

## Concluding comments

So can we do away with market definition, and focus directly on unilateral effects analysis, particularly in differentiated-goods industries? The consensus at the Oxera Economics Council was that market definition is here to stay for at least some time. While market definition has its shortcomings, it is a tool that competition authorities, parties and their legal advisers feel comfortable using. There is a need for legal certainty in the business community, and market definition as a first step provides some guidance on market shares and safe harbours.

Nevertheless, increasing importance is attached to unilateral effects analysis in merger inquiries. The simple techniques available, as discussed in this article, can be very useful for assessing whether a proposed merger is likely to result in harm to consumers. This is particularly the case when delineating the relevant market and the measurement of market shares is difficult or uninformative because products are differentiated.

<sup>1</sup> See, for example, Baker, J. and Shapiro, C. (2008), 'Reinvigorating Horizontal Merger Enforcement that has Declined as a Result of Conservative Chicago Analysis', chapter 6 in R. Pitofsky (ed), *Where the Chicago School Overshot the Mark*, Oxford University Press, pp. 235–89.

<sup>2</sup> U.S. Department of Justice and the Federal Trade Commission (2010), 'Horizontal Merger Guidelines'. Competition Commission and the Office of Fair Trading (2010), 'Merger Assessment Guidelines'.

<sup>3</sup> Farrell J. and Shapiro, C. (2010), 'Antitrust Evaluation of Horizontal Merger: An Economic Alternative to Market Definition', *The B.E. Journal of Theoretical Economics*, 10:1 (Policies and Perspectives).

<sup>4</sup> Competition Commission (2010), 'Zipcar and Streetcar: A Report on the Completed Merger between Zipcar, Inc and Streetcar Limited'.

<sup>5</sup> *Ibid*, Appendix H.

<sup>6</sup> Salop, S. and Moresi, S. (2009), 'Updating the Merger Guidelines: Comments'.

<sup>7</sup> For more details, see Oxera (2010), 'Best of Both Worlds? Innovative Approaches to Modelling Merger Price Rises', *Agenda*, May.

<sup>8</sup> Competition Commission (2005), 'Somerfield plc and Wm Morrison Supermarkets plc: A Report on the Acquisition by Somerfield plc of 115 Stores from Wm Morrison Supermarkets plc', September.

<sup>9</sup> Office of Fair Trading (2008), 'Anticipated Acquisition by Co-operative Group Limited of Somerfield Limited', October 20th.

<sup>10</sup> Office of Fair Trading (2008), 'Anticipated Acquisition of the Online DVD Rental Subscription Business of Amazon Inc. by LOVEFILM International Limited', pp. 13–4.

<sup>11</sup> For the formula, see Oxera (2010), *op. cit.*, footnote 13.

If you have any questions regarding the issues raised in this article, please contact the editor, Dr Gunnar Niels: tel +44 (0) 1865 253 000 or email [g\\_niels@oxera.com](mailto:g_niels@oxera.com)

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