

# Recent economic applications in EU merger control: UPP and beyond

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More than a decade since the introduction of the ‘significant impediment to effective competition’ test (SIEC test) in the EU, it is fair to say that the application of economic analysis in EU merger control has reached high levels of sophistication. The change in merger test, which partly came in response to the concern that the previously existing ‘dominance’ test failed to take into account all cases in which mergers might result in a lessening of competition, has naturally led to a shift in the nature and relevance of the economic tests that were applied in the assessment of concentrations. Structural criteria such as market shares and market concentration ratios (HHI, or the C4 concentration index) still play an important role in the assessment, especially in ‘filtering out’ those cases for which there would likely be no competition concerns (because of low market shares, or low degrees of market concentration). However, economically better focused methods have become increasingly relevant to the final evaluation of mergers, and so has the use of empirical techniques.

This chapter addresses three of the more important assessment methods in this regard: the UPP (upward pricing pressure) method, the analysis of ‘natural experiments’ and the analysis of bidding data. We present these methods alongside recent European cases in which they have played an important role.

## UPP

### *Underlying principles*

The UPP method is a method that is being used more and more widely, especially in the context of the assessment of mergers in markets involving differentiated products. The aim is to assess how – and to what extent – pricing incentives of companies change when they merge. The UPP method is mainly advocated in those merger cases where a precise market definition is difficult (as in markets with differentiated products), and to evaluate more directly the extent to which the merger will likely lead to upward pressure on prices.

The logic of the UPP method is as follows. Prior to the merger, if one of the two merging companies planned to increase its sales through a price reduction, this company would not take into account the value of sales lost by other companies in the market, including that of the other merging party. After the merger, however, the lost sales by the other merging party will be taken into account by the new management. The ‘value of lost sales’ can be seen as an opportunity cost (relative to the situation prior to the merger), resulting in a de facto increase in the marginal cost of expanding the sales of the first company’s product.

As with other increases in marginal cost, the extra opportunity cost can be expected to translate into higher prices. Unless the merger also causes efficiency improvements (reductions in production costs) that offset the higher opportunity cost, it is very likely that the merger will result in net UPP. The closer the two products are in terms of substitutes and the higher the gross profit margin, the greater the effect is likely to be.

Let us consider a numerical example. Two companies in the market for coffee machines each sell their products at a price of €100. The marginal production costs are €75, leaving a gross margin (profit contribution) of €25. Let us further assume the two products are relatively close substitutes, as expressed by a diversion ratio of 40 per cent between the two products (ie, if Company A sells 10 additional units by lowering its price, four of those (40 per cent) would stem from Company B, the other units would be diverted away from the other sellers or

be additional sales in the market). If, prior to a merger, Company A planned to increase its sales by, say, 10,000 units (by lowering the price for the product), this would have a negative effect on the sales of the other companies in the market, including Company B. The diversion ratio of 40 per cent means that Company B would sell 4,000 fewer coffee machines and therefore would lose the gross margin on these units, leading to a fall in profits of €100,000 (= 4,000 × €25) for Company B. When companies A and B merge, the lost profit on Company B’s products becomes an opportunity cost for the merged entity when pricing the products of brand A: to obtain a 10,000 increase in sales of brand A, €100,000 in profit is lost on brand B. This loss translates into an opportunity cost of €10 per unit for brand A (€100,000 loss divided by 10,000 additional sales of brand A). Suppose now that there are no significant efficiencies in the form of cost savings and we know (eg, from past experience) that increases in costs by Company A are normally 60 per cent passed on in the form of a price increase to customers. In that case, we can expect that the opportunity costs of €10 per unit will increase the price for brand A by approximately €6 (60 per cent × €10), or an increase of 6 per cent of the original price (which was €100). This price prediction, based on the UPP method, is often called the ‘illustrative price rise’ (IPR).

In its original form, the UPP method compares the increased marginal opportunity cost (lost gross margin of the merging partner, divided by the number of additional units sold) with the efficiency improvements resulting from the merger to see whether there is a net upward pressure on prices. In merger control, however, potential efficiency gains are typically only assessed in a second step, when it has been established that the merger is likely to have significant anticompetitive effects (assuming no efficiencies). In practice, therefore, the gross upward pricing pressure index (GUPPI) is used as the first filter. This index gives the opportunity costs expressed as a percentage (‘index’) of the price of its product before the merger (in the example: €10/€100 = 10 per cent). As such, the GUPPI represents the (theoretical) predicted price increase of the merger, assuming full pass-on of opportunity costs, while not yet taking into account potential efficiencies (hence: ‘gross’). In cases where the initial analysis suggests that the merger will lead to upward pricing pressure, any efficiency claims can be examined and quantified at a later stage of the investigation, and compared to the GUPPI to see if they are high enough to offset UPP.

Abstracting away from efficiencies, the question remains to know what should be viewed as a ‘critical’ level of GUPPI (ie, when is the expected upward pricing pressure ‘high enough’ to give cause for concern). To answer this question, it is necessary to know the degree of cost pass through (ie, to what extent an increase in the marginal cost of a product translates into a higher price). Precise estimates are not normally available for this purpose, especially not in the early stages of the merger investigation. A pragmatic way of proceeding, which has been proposed in the relevant academic literature, is to use a ‘default’ pass-through rate as a starting point. One such proposed value is 50 per cent, corresponding to the pass-through rate found in certain standard economic models of competition. In that case, if a 5 per cent price increase for the products of the merging firms is regarded as problematic (not yet taking into account efficiencies), an estimated GUPPI in excess of 10 per cent is to be viewed as critical.

In summary, three components come together in a UPP analysis: diversion ratios, gross margins and prices before the merger. Combined

with standard assumptions for cost pass-through, the UPP method is a valuable tool to identify mergers that should be further explored and mergers for which this is not necessary. In a second step, the UPP method can be used to draw more precise conclusions based on a more detailed analysis of the nature of competition in the market concerned, potential efficiency gains and the likely pass-through rates.

### *UPP in practice*

In recent years, the UPP method has been increasingly integrated in the European Commission's evaluation process, in particular for mergers and acquisitions in the mobile telecommunications sector. That market has been characterised by a wave of consolidation, with merger filings in: Austria (Hutchison 3G Austria/Orange Austria, 2012 – approved with remedies); Ireland (Hutchison 3G UK/Telefónica Ireland, 2014 – approved with remedies); Germany (Telefónica Deutschland/E-Plus, 2014 – approved with remedies), Denmark (TeliaSonera/Telenor/JV, 2015 – notification withdrawn); the UK (Hutchinson 3G UK/Telefónica UK, 2016 – blocked by the Commission), as well as Italy (Hutchison/Wind/JV, 2016 – approved with remedies). In all these cases the Commission applied the UPP method in the assessment of the competition impact of the merger.

The application of the UPP in these cases also illustrates the issues that are, in practice, the main points of difficulty. The UPP method has the appearance of being sophisticated and precise, but its proper use remains heavily dependent on the quality of the data and its correct implementation. For instance, in Telefónica Deutschland/E-Plus, the Commission made use of various definitions of cost and accounting information to determine the relevant gross margins. The gross margin used in the UPP method should, in principle, include only those costs that impact the price behaviour of a company, in particular, the marginal costs of production or, more broadly, the incremental costs over the relevant time period. In practice, however, it is not always clear which costs are the most relevant for pricing. Typically, in capital-intensive industries such as the telecom sector, there are several cost factors that are neither fully sunk (and therefore not directly relevant to price behaviour in the short or medium term) nor fully variable. Thus, the choice of cost variables must be carefully substantiated in order to avoid errors. The Commission ultimately relied on several cost definitions. This inevitably requires working with 'ranges' or intervals of gross margins, thereby complicating the interpretation of results.

The diversion ratios, in turn, were estimated using historical data of customers who switched supplier ('switching data'). Here the question was whether all observed changes in supplier should be regarded as relevant for understanding competition within product markets: certain types of switching (eg, switching from prepaid to post-paid) were not deemed relevant, as such observed switching behaviour might not only have been the result of price competition (and other competition) between companies, but also be related to changing preferences of individual consumers over time. Finally, the Commission also tried to obtain more accurate diversion ratios by modelling changes in the overall demand following a price increase (entailing assumptions about the diversion ratio to an outside option). Clearly, arguments can be made as to the appropriateness of these assumptions.

The Commission concluded, partly based on the predictions of its UPP analysis, that the elimination of competition between the merging parties as a result of the merger would likely lead to significant price increases in certain segments of the market. In this case, the UPP method was ultimately not only used as a first filter but also in conjunction with other, more sophisticated analyses carried out during the in-depth investigation, such as a merger simulation based on an estimated demand function for mobile services. Interestingly, the Commission explicitly did not make a decision as to which of the various analyses was to be seen as more important or precise.

### **Natural experiments**

#### *Underlying principles*

Another valuable source of information for assessing the potential effects of a merger are 'events' or 'shocks' that have occurred in the (recent) past in the relevant industry. Insofar as these events are sufficiently 'exogenous' (external in character) one can use these events as 'natural experiments' to study how customers and companies have responded. The Commission has typically applied this kind of analysis in the more distant past for market definition, but the added value is

also substantial for the more direct assessment of the likely competition effects of a merger.

The 'events' can be of various kinds. For instance, reliable insights on product substitutability may be obtained from past instances of market entry. Consider the entry of a Company A in the market. If, following the entry, Company B lost a lot of customers whereas Company C did not, this may be seen as an indication that the degree of substitutability between the products of companies A and B is greater than that between companies A and C. In other words, products A and B are particularly close substitutes.

Other examples of useful 'events' to consider are sudden shortages occurring in the supply of a given product (eg, because of capacity outages), shocks in the prices of key input factors, changes in terms of regulation, technological changes, new product introductions and promotional activities. For example, if promotional activities for a given product (such as an advertising campaign, or strong discounts) led to a loss of market share particularly for another specific product, one can take this as 'evidence' that the two products are close competitors.

### *Natural experiments in practice*

An interesting example of a recent merger case where events from the past, or a natural experiment, played an important role is ArcelorMittal/Ilva (2018). This case related to the acquisition by ArcelorMittal of Italian company Ilva, owning Europe's largest single-site integrated plant for flat carbon steel in Taranto, Italy. The transaction raised concerns as both companies were significant producers in Europe of hot rolled, cold rolled and galvanised flat carbon steel, even if Ilva had also been facing serious financial and environmental problems in recent years, as a result of which it had entered into special administration.

In this case, the Commission used two types of events as natural experiments to assess the extent to which ArcelorMittal and Ilva should be considered close competitors, as well as the role of carbon steel imports into Southern-Europe (the focus of the competitive assessment). First, it used the fact that both in 2012 and in 2015, Ilva was forced to significantly cut production levels (reduce effective capacity) as a result of court proceedings in the context of the environmental problems. Whereas the level of imports increased on both occasions, ArcelorMittal was found to be one of the main beneficiaries of the production cap on Ilva (notably, the 2012 event). This finding, based on a regression analysis, constituted one of the elements on the basis of which the Commission concluded that ArcelorMittal and Ilva were strong contenders in the relevant geographic area. Second, the Commission sought to assess the impact of the imposition of antidumping duties, in late 2016, to assess the extent to which the competitive constraint of imports was affected by these duties. It deemed the results inconclusive, however, noting in particular the short period of time following the imposition of antidumping measures available for analysis. Ultimately, the merger was deemed to lead to a lessening of competition, and cleared on the basis of a set of remedies.

Another specific example of the application of a natural experiment can be found in INEOS/Solvay (2014). In this case, the Swiss company INEOS AG and the Belgian company Solvay SA sought permission to bring together their European chlorovinyls activities in a new joint venture. At the centre of attention was the relevant market for commodity grade suspension-polyvinyl chloride (s-PVC), a type of resin that is used in the production of pipes and window profiles. In north-west Europe, INEOS was the clear market leader and Solvay the second largest provider. The question was, however, whether the geographic market could be limited to north-west Europe and whether other factors, such as the possibility to transport s-PVC over greater distances and the relatively high overcapacity in north-west Europe (and beyond), could not prevent anticompetitive effects.

INEOS had made, in previous years, two other acquisitions in the same product market and in the same geographic region of north-west Europe (INEOS/Kerling of 2011 and INEOS/Tessenderlo of 2008). This allowed the Commission to evaluate the effect of these earlier mergers. To do that, the Commission compared the development of prices for s-PVC in north-west Europe in recent years, with those in the rest of the EU. It turned out that prices in north-west Europe had increased compared with prices in the rest of the EU (controlling for other relevant factors). Based on this and other economic evidence, the Commission concluded that there was a causal link between the previous concentrations and the observed divergence in prices. According

to the Commission, this could be seen as evidence that INEOS already possessed a degree of market power before the transaction. It also became clear that the relevant geographic market was probably no wider than north-west Europe, as the competitive pressure from producers in the rest of Europe was (judging from the event analysis) not strong enough to avoid a price increase. Consequently, it was concluded that certain previously held insights on the degree of competition in this market (because of spare capacity, the threat of customers to switch suppliers and the relevance of imports from countries outside north-west Europe) had to be adjusted.

### Analysis of bidding data

#### *Underlying principles*

Certain markets can be characterised as bidding markets. Usually, these are markets where firms compete for contracts. The term 'bidding market' covers both situations where customers use formal bidding rules (eg, public procurement) and situations where customers ask potential suppliers for better offers during contract negotiations.

A relevant question in the context of bidding markets is what role market shares play in assessing competition in the market. For every contract there is normally only one winner. The fact that another company has not recorded sales owing to the contract opportunity being lost does not mean that this company has not exerted any relevant competitive constraint on the winning company. In such a situation, market shares (although they may be an indication of the success that companies have had in bidding for contracts) do not give a good indication of the relevance of a company as a competitor. This is particularly the case when the number of contracts in a given period of time (eg, a given year) is relatively small. If the number of contracts is large, however, it is likely that the market shares of the relevant companies more adequately reflect their competitive force.

The analysis of bidding data is often very informative in assessing the nature of the interaction and competition between companies operating in the market. A brief overview of the questions that can be addressed by analysing bidding data:

- Which companies participated in the tender (frequency of encounter analysis)?
- How often was the other company the best alternative for contracts where one of the merging companies won (runner up analysis)?
- Does participation from one company have a statistically significant negative effect on the probability for the other company to win (winning probability analysis)?
- Were resulting margins lower when both companies participated compared to tenders in which only one of them participated (margin analysis)?

All these types of bidding analyses can shed light on the effect of a given transaction on the competitive pressure in the market.

### *Analysis of bidding data in practice*

A prime example of a merger case in which the analysis of bidding data in procurement markets played an important role is the GE/Alstom case (2015). In this case, the European Commission opened an in-depth investigation into the proposed acquisition of the thermal power, renewable power and grid businesses of Alstom (France) by General Electric (US). This transaction would have created significant horizontal overlaps, mainly in relation to the supply of heavy duty gas turbines (HDGTs) where, both in the EEA and at a worldwide level (excluding China), GE was the market leader and Alstom was the third largest competitor, with only two other 'full technology' players, Siemens and MHPS.

In order to assess the impact of the merger, the Commission conducted a series of analyses based on bidding data. First, the Commission analysed how often the merging parties competed against one another in tenders (frequency of encounter analysis). The analysis indicated that when GE participated in tenders, it most often encountered Siemens and Alstom (both in terms of participation and short-lists), much more so than it encountered MHPS and niche players such as Ansaldo. According to the Commission, this evidence indicated that Alstom was a close competitor to GE in this concentrated market. By contrast, the merging parties argued that potential price effects would be limited only to the tenders for which the merging parties were both the winner (ie, the number one-ranked bidder) and the runner-up bidder (ie, the number two-ranked bidder), and that price effects were likely to be contained given the importance of a third player (Siemens). The Commission considered that the merging parties' arguments were primarily applicable under the economic framework of a descending bid second-price auction (which is the procurement equivalent to an ascending bid second-price auction in a selling context) in which each bidder can fully observe the offers made by rival bidders before submitting its own final offer. In that context, the only constraint on the winning price is indeed the price proposed by the number two-ranked bidder alone (ie, the runner-up bidder). However, in the present case, the Commission came to the view that a 'sealed bid auction' framework ('first-price auction') is more appropriate to describe tenders for HDGTs, in light of the significant uncertainty faced by original equipment manufacturers when submitting bids and the limited information conveyed by customers on rival offers during the tender process. In that context, each firm knows that by bidding less aggressively, it will increase its profit margin in the cases in which it wins the contract, but, at the same time, it will reduce its probability of winning. The merger would remove the direct competitive constraint between the merging parties existing prior to the merger, resulting in both firms bidding less aggressively.

In its bidding analysis, the Commission further found that GE had lost a significant number of tenders to Alstom when it submitted a firm bid (fewer than to Siemens, but significantly more than to MHPS and Ansaldo), and that Alstom was often successful in these cases.

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The Commission also performed a regression analysis, showing that Alstom's participation was associated with a lower winning probability for GE, even after controlling for other factors. Finally, the Commission examined the relation between Alstom's participation and GE's profit margins in tenders. Even controlling for other factors, GE's margins were significantly lower in tenders in which Alstom participated. The quantitative evidence therefore indicated that the transaction would have led to a significant loss of competition.

#### Concluding remarks

Since the introduction of the SIEC test, economic methods to assess complex concentrations have increased in relevance. In the foregoing sections we have presented three such economic methods: the UPP method, the analysis of natural experiments and the analysis of bidding data. These tests have in common that the underlying economic principles are quite accessible and intuitive, which is probably one of the reasons why they have been successfully applied in several cases in recent years.

However, for these kinds of analyses to be carried out effectively, very detailed data are typically required. It is often not easy for the businesses concerned to provide these data, for instance because it is not collected in the course of normal business, occurred too distant in the past or is simply very voluminous. It is therefore important that

competition authorities limit these kinds of analyses (and the associated data requests) to cases and specific markets where there is a real risk that competitive distortions may occur. Structural criteria (market share, HHI) therefore continue to be relevant for this selection process.

Finally, as always, the devil is in the details. Even simple methods may be misleading when erroneous data or assumptions are used. Therefore, these methods not only require extensive economic expertise, but also transparency about the data used and assumptions applied, both by the Commission and the economic advisers of the merging parties. A useful guideline is the Commission's working paper on 'Best practices for the submission of economic evidence and data collection in competition cases', which was first published in 2010. In our opinion, this document provides a strong basis for a thoughtful and efficient interaction between the Commission and the merging parties when it comes to presenting and evaluating economic analysis.

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