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Merger Assessment in Oligopolistic Markets: Lessons from Interbrew/Bass

by

Lorenzo Coppi* and Paul W. Dobson**

December 2002

Abstract
This paper considers the means by which mergers are assessed by competition authorities in oligopolistic markets. The focus of the paper is on whether a merger would lead to the emergence of conscious parallel behaviour arising from the joint dominance of the leading players. This assessment is typically conducted informally relying on a checklist of known market conditions that support the formation of cartels. This paper highlights the problems that can arise with this approach and the need for competition authorities to place greater emphasis on empirical assessment of market conduct. By way of illustration, the paper considers market conduct in the UK beer market in light of the conclusion of the UK Competition Commission that co-ordinated behaviour would arise following the Interbrew/Bass merger. The analysis here points to flaws in the Competition Commission’s arguments and consequently challenges its findings.

Key Words: Merger; Joint Dominance; Competition; Beer

JEL Codes: L41, L66, L13

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1. Introduction

Investigation and regulation of activity in the UK beer market has been a regular occurrence throughout the last decade or so. In 1989, the “Beer Orders” were introduced on the recommendation of the Monopolies and Mergers Commission (MMC, 1989) with a series of behavioural and major structural remedies intended to increase competition.\(^1\) The authorities have also subsequently investigated a string of proposed mergers with varying conditions for clearance (e.g. MMC, 1990, 1992) through to completely blocking mergers (e.g. MMC, 1997). In addition the Office of Fair Trading has undertaken industries reviews focusing on wholesale pricing (completed in 1997) and the effects of the beer orders (OFT, 2000). Most of the concerns expressed have focused on vertical ties in the on-trade market. However, successive tied estate and brewery divestments have led to the situation where the market today is largely characterised by vertical separation with dedicated brewers supplying specialist public house companies (known as “pubcos”). Yet, as evidenced by the Competition Commission (“CC”) inquiry into the merger of Interbrew SA and the brewing interests of Bass PLC (CC, 2001), the authorities continue to seek to block mergers in the industry. Now the concerns expressed relate to the prospect of joint dominance emerging with the leading players tacitly colluding with conscious parallel behaviour.

Concerns about the prospect of joint dominance arising in a post-merger situation have been increasingly cited as reasons for competition authorities in Europe blocking mergers or requiring undertakings in oligopolistic markets. Traditionally, the key focus in merger assessment has been on unilateral effects arising from single-firm dominance. But examination of mergers in regard to the likelihood of the merger leading to co-ordinated effects arising from joint dominance (also known as “collective” or “oligopolistic” dominance) has become an important feature of the assessment of mergers in oligopolistic markets. The European Commission, in particular, has invoked the principle of co-ordinated effects in a number of decisions. In early cases where this consideration has been made, such as *Nestle/Perrier*\(^2\), *Mannesmann/Vallourec/Ilva*\(^3\), *Pilkington-Techint/SIV*\(^4\) and *Kali-

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\(^1\) The major element of the Beer Orders was the restriction on the number of pubs that a brewer can own or have an exclusive beer supply agreement with, resulting in the leading brewers selling off thousands of pubs.

\(^2\) Case IV/M190 [1993] 4 C.M.L.R. 17; [1992] O.J. L356/1

\(^3\) Case IV/M315 [1994] O.J. L102/15

\(^4\) Case IV/M358 [1994] O.J. L158/24
Salz/Mdk/Treuhand⁵, the mergers were ultimately allowed (but with divestment conditions in certain cases). More recently, the European Commission has blocked mergers on these grounds. This has applied in Lonrho/Gencor⁶ where the merged enterprise with its leading rival, Amplats, would together have controlled some 90% of underground platinum reserves. More controversially, the EC’s decision to block the proposed acquisition of First Choice by Airtours⁷ was in the context of a dynamic market (with a history of fluctuating business fortunes and changing market shares) where, post-merger, the top three firms would have controlled around 80% of the UK package holiday market. The Court of First Instance has recently annulled the EC’s decision, calling into question the Commission’s entire procedures for assessing mergers in oligopolistic markets.⁸

To a large extent the finding of joint dominance in these EC cases has been based solely on the grounds that the level of market concentration and industry characteristics were in line with known conditions that are conducive to the formation of cartels.⁹ This approach is predominantly structural in nature going through a checklist of market conditions indicating the likelihood of tacit co-ordinated behaviour post-merger: high market concentration, symmetric market shares and cost structures, no maverick firms, weak competitive fringe, stable and inelastic market demand, transparent and observable market activity, relatively homogeneous products, unsophisticated or weak buyers, frequent transactions or contract bids, excess capacity, and significant entry barriers. This exercise has rarely involved detailed empirical assessment of the likelihood of co-ordinated effects arising.¹⁰

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⁵ Case IV/M308 [1994] O.J. L186. Here the EC concluded that the merger would create or strengthen an oligopolistic dominant position. However, this decision was challenged successfully in the European Court of Justice – Cases C68/94 & 30/95 French Republic v. E.C. Commission [1998] 4 C.M.L.R. 829-953.
⁶ Case IV/M619 [1997]; OJ L11
⁷ Case IV/M1524 [2000]; O.J. L093/1
⁹ However, the European Commission has shown a greater willingness to statistical analysis to aid market definition, such as the cointegration analysis it employed in Lonrho/Gencor.
¹⁰ Certainly, this approach in Europe is substantially different to that in the US where the emphasis is on unilateral effects and where sophisticated econometric analysis has been used in merger investigations. This is exemplified by the Federal Trade Commission case against the Staples/Office Depot merger (Federal Trade Commission v. Staples, Inc. and Office Depot, Inc., Civ. no.97-701 (TFH), 1997). In this case, the FTC found that local prices varied by nationally operating superstore office-stationers (essentially Staples, Office Depot and OfficeMax) depending on local competition conditions. The FTC found that prices were on average 13% higher in local markets where only one of the three national operators was present and 6% higher when two national operators were present compared to when all three were present. This finding was used effectively to argue that the merger would be anti-competitive and allow for higher local prices (on average 7-9%). The merger was subsequently prohibited. See Baker (1997) for a full discussion of the case and the empirical analysis used.
The approach taken by the UK Competition Commission in its investigation of the Interbrew/Bass merger was broadly similar to the analysis in EC decisions, relying on a checklist of conditions to argue that the merger would lead to a duopoly situation involving conscious parallel behaviour by the two leading firms. In this case, the merger would allow Interbrew/Bass and Scottish & Newcastle PLC to control jointly around 60% of the UK beer market. For the Competition Commission, this joint level, in view of the markedly lower market shares controlled by the other major brewers, was viewed as being critical in allowing for market behaviour to change from being fundamentally non-cooperative to being co-operative and characterised by conscious parallel behaviour and shared avoidance of price competition. To this end, the Commission pointed to a number of market conditions that would suit such tacitly collusive behaviour (e.g. the similar product ranges and broadly symmetrical market shares and cost structures of Interbrew and Scottish & Newcastle, stable and inelastic market demand, and high barriers to entry). It also expressed the view that the two leading players would share a common interest in raising margins.

However, the Competition Commission’s report does not establish how such co-operative behaviour would be effected in practice. Indeed, this paper contends that such an outcome is most unlikely and goes against both current trends in the market and the nature of how wholesale prices to individual retail customers are determined. In particular, the market is far from transparent in regard to the actual level of wholesale prices that win individual contracts. Price dispersion is a natural consequence of this and focal prices simply do not exist and in their absence it is difficult to see how pricing behaviour could be tacitly co-ordinated.

At the broad market level, a number of studies have pointed to the substantial manner in which the market has changed since the Beer Orders were introduced. This has been borne out in an industry review by the Office of Fair Trading (2000) as well as by numerous academic studies. A notable example of the latter is Slade’s (1998) theoretical and empirical treatment of the changes introduced by the Beer Orders. However, it is conceivable that this paper and others (e.g. Abbot et al. (1998) and Pinske and Slade (2000)) underestimate the full impact of these changes for a simple reason: these studies have used either retail prices which (dedicated) brewers have no direct influence over or they have used list prices to measure the level of wholesale prices. This data limitation has severe implications on the analysis as in the past decade list prices have increased while average wholesale prices, net of discounts, have been decreasing steadily. As we show, this has important implications for the analysis
of the effects of the merger. Empirical evidence presented here suggests that increased 
brewer concentration may in fact lead to further reductions in wholesale prices. More 
certainly, the empirical evidence provided on individual customer-level wholesale prices 
indicates that co-ordinated behaviour is unlikely to arise in this market. As Slade’s (2002) 
empirical analysis suggests it would therefore have been more appropriate for the 
Competition Commission to focus its concerns on possible unilateral effects rather than co-
ordinated effects.

The plan of the paper is as follows. The next section reviews the Competition Commission 
decision and makes explicit the main economic assumptions on which it is based. Section 3 
discusses the recent history of the UK beer market, in particular highlighting the extent of 
vertical separation in the industry and the rise of pubcos as a major force in the on-trade 
market. Section 4 assesses the likelihood of the emergence of tacitly collusive outcomes in the 
market, drawing on evidence concerning disaggregated wholesale price data at the brand 
level. Section 5 considers the concerns of the Competition Commission giving rise to 
increased non-price competition at the expense of price competition. Section 6 presents the 
paper’s conclusions arguing for competition authorities to assess mergers in oligopolistic 
markets primarily in regard to unilateral effects rather than co-ordinated effects. An appendix 
details the econometric analysis on the relationship between aggregate wholesale prices and 
concentration at the retailer and brewer level.

2. The Competition Commission’s findings on the Interbrew/Bass merger

In January 2001 the UK’s Secretary of State for Trade and Industry, in accordance with the 
recommendations of the Competition Commission (2001), requested that Interbrew SA 
should divest the brewing interests of Bass PLC (“Bass Brewers”) in the UK, effectively 
blocking their merger. The Secretary of State accepted the Commission’s view that the 
merger would have created an effective duopoly in the UK brewing industry (with Interbrew 
UK Ltd and Scottish & Newcastle PLC allegedly holding a joint dominant position) and that 
this would have been against the public interest. The decision was eventually overturned by 
the High Court in May 2001, following Interbrew’s successful application for judicial review. 
The ruling held that Interbrew was not given the opportunity to comment on all possible 
effective remedies. Subsequent to this, agreement with the UK authorities has allowed 
Interbrew to retain part of the brewing interests acquired but divest certain brewing capacity
and key brands (including the UK’s leading brand “Carling” which has subsequently been sold to the US firm Coors).

The Interbrew case is remarkable in several respects. It has made legal history in that for the first time the High Court overturned a merger decision made by the Secretary of State. It has certainly set the record for the longest merger review process in the UK, as it passed more than one year from the initial notification in July 2000 to September 2001 when, after the High Court ruling, the Office of the Fair Trading (OFT) advised the Secretary of State on appropriate remedies. It also was the first time that joint dominance concerns were coupled with portfolio power arguments, and the first time these arguments and concerns were made explicit in the UK.

While the case is clearly significant on several levels, the aspect which we wish to focus on here is the merits of the conclusions reached by the Competition Commission on the prospective joint dominant position and on the public interest. In this regard, the economic analysis used by the Competition Commission relies solely on market share analysis and their assessment of other market characteristics.¹¹ Essentially, the Competition Commission’s conclusions take the view that pre-merger there is only one scale monopolist (Scottish & Newcastle with a market share of 28%) and a number of viable competitors to prevent this scale monopolist abusing any market power it might have. But post-merger there would have been two scale monopolists (with market shares each exceeding 25%) who, although not significant in their own right (and thus not raising concerns about single-firm dominance), jointly would give rise to serious concern that competition would be adversely affected.

The two duopolists, the Competition Commission argued, would (presumably by tacit collusion) shift from price competition to non-price competition (i.e. advertising and marketing), leading to an increase in net wholesale prices, and ultimately in retail prices. The increase in non-price competition would lead to an increase in barriers to entry to new brands and in barriers to expansion for existing, competing brands while encouraging brand rationalisation (and thereby reducing consumer choice).

¹¹ From the report by the Competition Commission (2000), paragraphs 2.105 - 2.120 (pp. 24-27) cover the Commission’s assessment of the creation of a duopoly while paragraphs 2.124 – 2.128 (p. 28) covers its assessment of the effects of a duopoly.
However, we would contend that there are three critical aspects that the Commission has failed to take adequate account of in making its judgement. First, the nature of competition has changed considerably in the years following the introduction of the 1989 Beer Orders. In particular, competition between brewers has been considerably intensified by the emergence of pubcos. Secondly, critical empirical evidence on conduct and in particular on the nature of pricing was presented to the Commission but appears to have been ignored. This empirical evidence is particularly pertinent to claims about likely “parallel pricing” and joint dominance. Thirdly, evidence that increased advertising and brand promotion has been associated with a period where wholesale prices have fallen considerably appears to have not received adequate consideration in the Competition Commission’s assessment that advertising to promote brands is likely to be anti-competitive and these effects reinforced by the merger.

The next three sections of the paper explore each of these aspects in turn. In each case, it is the actual nature and outcomes of competition in the market to which we wish to draw attention to.

3. Changes in the UK Beer Market following the 1989 Beer Orders

Unlike the Office of Fair Trading in its review of the Beer Orders,\(^\text{12}\) the Competition Commission did not seem to attach much importance to the stark industry trend of reduced vertical integration and greater concentration at the retail level. The 1990s were characterised by a long process by which many formerly integrated brewer/retailers divested their brewing interests to concentrate on the more lucrative aspect of retailing. This, compounded by the falling level of beer sales, led to a consolidation of the brewing sector.

With the substantial weakening of vertical integration and brewer-pub ties, the nature of competition has changed substantially. From a vertically integrated structure with limited direct head-to-head brewer competition, the brewing industry has rapidly evolved into a much more openly competitive structure. With the separation of Whitbread’s and Bass’s pub estates from their brewing interests (as purchased by Interbrew), vertical ties in the industry have been further reduced. At the same time, consolidation at the retail level has continued to the

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\(^{12}\) OFT317; The Supply of Beer; December 2000. See, for instance, paragraphs 2.11; 2.15; 2.16; 4.4; 4.6; 4.12; 5.4.
point that recently pub chains owned 52% of the UK pubs.\textsuperscript{13} Brewers are now faced with considerable buying power at both the on-trade level (pubcos) and the off-trade level (the major supermarket groups).

These changes in the structure of brewing and retailing have conceivably had a pro-competitive effect. Evidence for this has been the continuous fall in wholesale beer prices. This would support the view that as brewing concentration has increased so efficiency has increased (operating and distribution costs have been lowered and inefficient excess capacity has been reduced). At the same time, retailers have been better placed to assert their bargaining power over brewers and extract lower wholesale prices, which have been possible as a consequence of the increased efficiency of brewers flowing from the consolidation and rationalisation process.

With less vertical integration and increased retail concentration brewers face intense bidding competition to win contracts from unaffiliated pubcos and obtain shelf space in off-trade retailers. The trading behaviour of the multiple pub groups is now very much in line with the multiple grocers and off-licences in the off-trade, with purchasers buying in bulk and becoming increasingly price sensitive. The decision as to which beers to stock is often the result of a tender process with the retail group selecting beers on the basis of a range of criteria, including price, brand position and service levels. The size of each of the independent pub groups is such that each brewer is incentivised to compete strongly to retain or win a supply contract. The possible loss of a supply contract is a sufficient threat to ensure re-negotiation on terms favourable to the retail customer. This is particularly so in view of the fact that there is a high proportion of fixed costs associated with brewing, and the loss of a significant volume of sales therefore results in a substantial reduction in cost recovery.

Direct head-to-head competition between brewers arises not only in bidding situations to win supply contracts but also in-pub as choice to the consumer has risen with the ending of exclusive dealing and in-store as brands line up against each on the shelves of the major supermarket and off-license chains. Consumers appear now much less likely than they were in the past to restrict their beer purchases to one single brand. Retailers in the on-trade and the off-trade have reacted to this and now stock an increasingly large range of brands.

\textsuperscript{13} Pub Industry Handbook.
Younger customers in particular are affected by brand innovation. This can be seen from the high growth rate of premium-bottled lager. Brewers have had to react to this increase in “brand promiscuity” and have had to compete more intensely in order to sell their products to retail outlets.

As a result of the more open market a greater emphasis is placed on brand-by-brand competition and retail customers may accordingly take beers from a number of brewers. In such situations, bidding may be expected to be intense. The pubco will tend to hold the upper hand in such situations since its greater freedom in choosing suppliers (where switching costs are low to non-existent) will encourage competitive bidding from brewers who have no other immediate options for increasing sales. This difference in relative bargaining positions allows even small pubcos controlling small market shares to play off major brewers against one another. While the losses of beer volumes have a direct impact on brewers’ profitability, pubcos can afford not to stock a certain brand of beer, given that the beer offered in a pub ranks only seventh amongst the reasons given by consumers for choosing a particular pub.\textsuperscript{14}

Similarly in the off-trade, competition for limited shelf space is placing brewers under increasing pressure given that as retail concentration increases fewer but larger contracts come up for tender while de-listing threats remain credible even against the very largest brewers.

The recent market trends on prices and concentration are very clear. As shown in Figure 1, wholesale prices have been falling over recent years and retail concentration increasing, while retail beer prices in the on-trade have increased sharply indicating that pubcos and other retailers have been simultaneously able to exercise buyer as well as seller power. Econometric analysis contained in the Appendix of this paper shows under a range of model specifications that the wholesale prices are significantly negatively correlated with on-trade retail concentration and, it seems, also with brewing concentration. As an illustration of the lack of impact of a merger, the 1995 merger between Scottish & Newcastle and Courage did not reduce the rate of decline in wholesale prices, which, if anything, increased after 1995. One possible explanation is that increased brewer concentration has allowed for greater efficiency and reduced costs (borne out by brewery closures and a general reduction in excess

\textsuperscript{14} Competition Commission (2001, p. 61, table 4.2).
capacity in the market) but the benefits of this have been passed on to retailers in the form of lower wholesale prices. This is likely to have arisen as pubcos have increasingly sought to use their increased scale to negotiate better terms with brewers, in the process spurring on other retailers to negotiate lower wholesale prices. These factors suggest that the Interbrew/Bass merger would not have reversed the downward trend in wholesale prices, given that apparently this had been driven by changes in the structure of the retail sector, over which the merger had no effect.

**Figure 1: Average Wholesale and Retail Prices vs. Pubco Concentration**

Source: *Pub Industry Handbook, BLRA*

4. **The parallel pricing argument**

The credibility of the Competition Commission’s view that conscious parallel pricing behaviour (essentially tacit collusion and devising means to avoid intense price competition) would emerge in this market rests on its interpretation of the market conditions favouring such behaviour. Based on previous cases and economic theory, it is accepted that there are a number of market conditions that, when simultaneously arising, strengthen the possibility or feasibility that such behaviour might occur. However, critical to this line of argument is that the parties concerned should be able to focus on a set of prices which they independently

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15 See for example the discussion on EC cases and applications of economic theory in Bishop and Walker (1999).
understand to be appropriate, which they would then gravitate towards and that once they reach that point and set common prices they do not deviate from this position.

The two most important conditions are that (i) prices are transparent, i.e. all parties can see all prices in the market (to enable them to see what is going on in the market and particularly how rivals price), and (ii) a market-wide or segment-wide price (or equivalent parity of prices which reflect accepted quality differences in the products) can emerge. In many situations, this is indeed the case: firms tend to charge similar prices to every customer in the same class as their competitors and these can be observed by their competitors. This is absolutely essential in order for parallel pricing to occur, as rival firms need a price to focus on and coordinate around. However, it should be clear that this is not possible in this market as it is characterised by bidding competition and strong buyer power and where all negotiations with customers are private and terms not publicly disclosed.

To illustrate the issue, Figure 2 shows the net wholesale price charged to each of the leading customers of a leading beer brand. As evidenced, customers are rarely charged the publicly quoted wholesale list price. In fact most large customers manage to negotiate substantial discounts, yet this is not in any straightforward, predictable manner in relation to volumes sold. As the figure shows, there is a large dispersion of net wholesale prices even when different volumes are taken into consideration. Certainly, particular types of customer tend to be more effective in negotiating lower prices. This particularly applies to the pubcos that have shown considerable propensity to switch suppliers and brands sold and use this feature in negotiations. Yet even within the classes of customers (e.g. pubcos, managed pubs, leased/tenanted pubs, independent free trade, and independent wholesalers) there is considerable price dispersion with prices apparently determined by an array of factors, generally unobservable to rival brewers and other customers.

The key implication of Figure 2 is that brewers have no clear way of predicting the individual prices charged by their competitors on the basis of volume taken (as one would expect in a

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16 This information was presented to the Competition Commission. Collectively, the customers represented in the figure account for the vast bulk of the brand’s on-trade sales. To protect confidentiality we have not named the beer brand or its producer save to say that the brand belongs to one of the parties involved in the merger investigation.

17 Note that the data have been scaled in such a way as to ensure confidentiality in respect of the customers served. Moreover, it should be pointed out that the brand selected was not unique in terms of the extent of price dispersion. The degree of price dispersion exhibited here appears to be a common feature in the market.
market with homogenous client needs that would be susceptible to price coordination). The Competition Commission took the view that, notwithstanding all the various discounts and service elements bundled into wholesale prices, ultimately the net price per barrel could be measured and be seen in the industry allowing key brewer rivals to determine focal price points around which to coordinate and in so doing avoid undercutting each other. This evidence dispels that view. There is no single price rule and prices are set in a series of heterogeneous bidding processes.

**Figure 2: Net Wholesale Price vs. Net Volume for one brand**

![Graph showing net wholesale price vs. net volume for one brand](image)

*Source: one of the Parties.*

This evidence of price dispersion indicates how buyers choose to bargain and the extent to which they could credibly threaten to shift to another supplier and thereby seek to play off different brewers against each other. Moreover, there is no simple segmentation of the market that brewers could undertake. It is clear from Figure 2 that there is no clear separation into two, three or even four groups for which “pricing rules” could be devised.

A further point is that this evidence does not necessarily imply that we are in the presence of price discrimination that indicates that brewers are exploiting their market power. Such
outcomes can prevail in an effectively competitive market when customer preferences and bargaining situations are heterogeneous. Indeed, price dispersion in wholesale prices was an aspect examined in an OFT investigation. Its conclusion then was that there was no unfair price discrimination in the market (or none that at least warranted remedies). The OFT (2000) again examined price discrimination in its recent review of the Beer Orders and found no need to impose any remedy to the current situation.

Again, as in the case of the industry trends previously described in the previous section, the merger would not have had any impact on price dispersion and the change in market structure brought about by it, and analysed by the Competition Commission, could not have made coordination easier. This is because the nature of competition in the market through numerous private negotiations rather than single publicly posted prices would be unchanged by the merger.

The Parties put clear evidence on the extent of price dispersion before the Commission – this has been ignored. In fact, the Competition Commission admits “the market is not completely transparent in terms of prices”, but it does not address price dispersion. It sidesteps the issue by pointing to “complex contract terms coming down into a single net price per barrel”, arguing that “this is a focal point around which tacit understandings can occur”. Figure 2 shows this is a completely inappropriate conclusion to draw. By the Commission’s reasoning every different price agreed is a focal point even though there is clearly a considerable spread of prices for the same brand, all privately negotiated and thus obscured from rival brewers and rival retailers. Hence, in our view, the Competition Commission did not address the single most important piece of evidence relevant to the issue of parallel pricing and it failed to show how brewers could coordinate on a market price if there is no such thing as a market price.

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18 The OFT inquiry into the wholesale price of beer focused on the question whether tenants of tied pubs pay more for beer than their competitors in the free trade, and, if so, whether any action was justified under UK competition legislation. The outcome of the investigation was that the Director General did not consider that there were sufficient grounds to refer the issue to the Monopolies and Mergers Commission nor, consequently, to seek undertakings in lieu of a reference (Source: OFT Press Release; Carlsberg Announces Results Of Enquiry Into Brewers' Wholesale Pricing Policy; May 27, 1997).

19 All quotes are from Competition Commission (2001, p. 26, paragraph 2.116).
5. Joint Dominance Leading to Increased Non-Price Competition

In addition to arguing that the Interbrew/Bass merger would create a duopolistic situation allowing for a reduction in the level of non-price competition, the Competition Commission also argued that this would lead to increase in non-price competition in a manner that would serve against the public interest. This is argued to arise through increased advertising leading to enhanced barriers to entry and brand rationalisation resulting from marketing effort centred on just the leading brands. However, it is not established that a rise in non-price competition will necessarily be adverse to competition, or consumers, overall. There is no evidence produced to suggest that increasing intensity of non-price competition is damaging.

Indeed, over the last decade marketing intensity has increased while wholesale prices have fallen. According to the Competition Commission’s logic we should already be seeing ineffective competition (prices rising, etc.). There is no evidence for this. Indeed, the opposite is happening – prices have been falling while advertising has been increasing. Of course, non-price competition is still a form of competition and it is surprising that a regulator should take such a negative view of it without evidence of its actual effects. In contrast, the Office of Fair Trading (2000, p.35, paragraph E.45) has expressed the view that “increased advertising expenditure is a sign of enhanced inter-brand competition in the on-trade”.

Interestingly, the theory of advertising as an endogenous barrier to entry (that is a barrier generated by the conduct of the players) referred to by the Commission is somewhat at odds with the Commission’s view that the merger would have resulted in tacit collusion. First, brand promotion and the intensifying advertising escalation to promote product differentiation and build customer/consumer loyalty would result in heterogeneous and differentiated products and hence reduce the possibility of adopting a conscious parallel behaviour for which the homogeneous nature of the products is a favourable condition. Second, central to the economics of endogenous barriers to entry or expansion is the fact that these are an expensive way (as advertising is costly) for firms to escape too strong head-to-head price competition. Economic studies in this area show how the escalation in advertising expenditure is often brought about by an increase in price competition (e.g. Sutton, 1991). Increased advertising is undertaken to allow a brand-owner to raise its price above that of its competitors. Then it is clear that, if price competition were softened by conscious parallel behaviour, there would be very little incentive to increase advertising, as the price that could
be charged to consumer would depend only on the tacitly coordinated industry price, which is largely independent from the specific firm’s amount of advertising.

6. Conclusion

The reality of the recent events in the UK beer market is that the decision of Whitbread and Bass to retain their retailing interests while selling their brewing interests marked a key point in a long process by which the continuing pressure on wholesale prices has left brewers with the choice between consolidating and rationalising their operations or exiting the brewing market altogether. Many formerly integrated brewer/retailers have voluntarily divested their brewing interests to concentrate on the more lucrative aspect of retailing (particularly the former regional brewers). The pressure on prices exerted by the emergence of pub chains has resulted in some concentration, albeit far less than that experienced by any other significant national market (with the sole exception of Germany), but not a market that offers brewers substantial profits. Here, a telling feature is that from a position where the UK market was fundamentally controlled by domestically-owned incumbent brewers only a few years ago, now only one of the top six brewers is British owned, the rest originate from other countries and operate as dedicated brewers without tied estates. Yet, all six are multi-nationals pursuing global strategies in the striving to remain profitable businesses.

In a number of critical respects outlined above, the Competition Commission has not undertaken sufficient empirical analysis nor sufficiently accounted for empirical evidence put before it in reaching its conclusions about the economic effects of the Interbrew/Bass merger and possible remedies. In the absence of these considerations, the Competition Commission’s conclusions and proposals lack strength as they rely mainly on a structural analysis of the market and abstract from the evidence of conduct and rivalry between firms. Regulatory scrutiny of mergers needs to go beyond such a simple analysis of market structure to consider more formally the nature of competition and rivalry between firms to produce more convincing analysis.

In essence, when pursuing joint dominance claims, there should be an onus on competition authorities to provide sound economic reasoning to justify a view as to why and how a sudden shift in market behaviour will arise when all the indications are of a present market that is increasingly competitive. In the present case, the Competition Commission offered no
effective arguments on how, after the merger was concluded, the firms in the market would suddenly learn to avoid competition. Most notably the Commission provided no arguments for how parallel pricing and other forms of tacitly collusive behaviour may emerge when the UK wholesale beer market is based on a large series of privately negotiated contracts where resulting prices are hidden and unknown to rivals and where there is widespread price dispersion even over the same brand of beer, to the extent that it is completely unclear as to how key focal prices could possibly emerge. The telling fact is that the UK beer market is increasingly one characterised by bidding competition orchestrated by astute (on-trade) retail customers, where scale in brewing matters and the pressure to win contracts is sufficient to ensure that prices will remain competitive whether there are four major players or three major players along with other operators with the potential to expand.

At a more general level, this UK case and certain others handled by the European Commission highlight the difficulty that competition authorities have in producing convincing analysis that a merger will likely lead to the emergence of conscious parallel behaviour amongst leading players. Interbrew appealed successfully for judicial review and won its court case but only to the extent that partial rather than full divestment of Bass Brewers was ultimately required. The European Commission has also been successfully challenged in the courts. In the case of *Kali-Salz*,20 the European Court of Justice annulled the Commission’s decision on the grounds that it had not adequately established that an oligopolistic dominant position would be created or strengthened as a result of the merger.21 Yet it is perhaps the Court of First Instance’s judgement to overturn the Commission’s decision in *Airtours/First Choice* that will probably have the most profound effect in altering how mergers in oligopolies are assessed by the EC in the future. Unfortunately, Interbrew’s partially successful judicial review in the UK is unlikely to have the same effect on the British authorities, where the use of simple checklist procedures without rigorous economic analysis may well continue.

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20 See footnote 6 above for case references.
21 On the face of it, the European Commission’s case was strong. The merged entity and SCPA accounted for approximately 80% of total production of potash in the European Community. This was noted by the Commission to be a mature commodity market characterised by a largely homogenous product and a lack of technological innovation. In addition, the market was transparent with information on prices, production, demand and trade all being generally available. Market shares of the two parties had been stable for a number of years. Also, both parties had been previously involved in joint ventures and joint arrangements.
The position in Europe with its continued emphasis on examining *co-ordinated* effects is in sharp contrast to that currently pursued in the United States where Department of Justice and Federal Trade Commission cases are largely founded on an examination of *unilateral* effects. Here, the US authorities have made considerable strides in employing sophisticated econometric analysis to estimate directly price effects and simulate the effect of a merger (as in *Staples/Office Depot*). The emphasis is on identifying whether the merger will lead to "softer" pricing (i.e. price rises) in the market generally, while recognising that non-cooperative behaviour is likely to continue to characterise market conduct. This approach allows for effective empirical assessment based on present prices and market outcomes and does not rely on arguments that the merger will trigger a sudden change from non-cooperative to cooperative-type market behaviour.

Given the problems that competition authorities in Europe appear to have in producing arguments and evidence on likely co-ordinated effects there is a case for them moving towards the US position and focusing primarily on unilateral effects in assessing mergers in oligopolistic situations. However, such a move would appear to pose problems for the European Commission in regard to current EC regulations that do not allow mergers to be prohibited unless they create or reinforce dominance. However, the same restriction does not apply to the UK authorities.

Certainly in the case of beer markets, as the work of Hausman *et al.* (1994) on US beer price elasticities indicates, there is considerable potential for merger simulation work. More recently, Pinske and Slade (2000) and Slade (2001) report similar, if more sophisticated analysis on own-price and cross-price elasticities for beer brands in the UK. As an extension of this work, Slade (2002) shows how econometrically unilateral effects and coordinated effects can be distinguished. Her analysis of brewing data from the mid-1990s uncovers no evidence of collusion (coordinated effects) but rather points to brewers having substantial market power associated with unilateral effects. However, as with most other studies of this type, the analysis is based on retail data and thus it is not clear that the effects detected relate purely to the market power of brewers given the likely exercise of retailer power in what has become an increasingly vertically separated market.22 Nevertheless, such analysis points the

22 Indeed of the retail price of draught beer, only 13% of this is accounted by brewing and wholesaling costs while retailing costs account for 55% on average (Competition Commission, 2000, Figure 4.4, p. 66). Furthermore, Figure 1 above suggests that the proportion accounted by brewing costs has been falling as wholesale prices have fallen whilst retail prices have risen.
way forward for competition authorities and offers the prospect that future monopoly and merger investigations of the sector will employ such techniques, hopefully drawing on detailed wholesale price data as well as retail data which will at least help assess the unilateral effects of a merger and may well give some important insights on whether post-merger co-ordinated effects are likely to be a concern.
APPENDIX - Wholesale beer prices and market concentration

This appendix presents econometric results concerning the relationship between wholesale price and wholesale and retail concentration. The empirical literature on the relationship between price and concentration has, of course, its origin in the SCP approach. Weiss (1989) provides a collection of papers on the subject and Schmalensee (1989) reviews the general literature. Our analysis differs from the existing literature in one important respect. While almost the entire literature (with the odd notable exception, e.g. Barton and Sherman (1984)) focuses on cross-sectional studies (across different industries or within one industry in different geographic markets), our analysis has a time-series dimension. This raises potential problems of autocorrelation, with which we tackle using different models.

Wholesale price movements in the beer market are represented here are captured by the net wholesale price index (NWP) as collected by the Brewers and Licensed Retail Association. This measures real average wholesale price, ex-duty and net of discounts. This data covers the period from January 1996 to April 2000 and has monthly frequency. From the BLRA is also the monthly data on total beer sales (in thousands of barrels) over the same period (Q).

Brewer concentration is represented in terms of the Herfindahl-Hirschman Index. We calculated the lower-bound Herfindahl-Hirschman Index at the level of brewers (HHIBR) on the basis of the top selling beers in the on-trade segment, as reported by AC Nielsen. These have bi-monthly frequency from January 1996 to July 1997, monthly thereafter. We did not include off-trade sales, as these are collected with a lower frequency (bi-monthly) and hence would reduce the number of observation significantly. The on-trade Herfindahl is anyway a very good proxy for overall concentration, as sales to the on-trade account for around 70% of total beer sales in the period being examined.

In the case of the retail on-trade, there is a clear distinction between the multiple pub group operators and other retailers (including brewer-managed pubs and the independent free trade) with the former seeking to exploit buyer power through initiating competitive tendering for supply contracts. To take account of this distinction, we proxy concentration at the level of

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23 The BLRA recently changed its name to British Beer and Pub Association.
24 AC Nielsen reports data for the top 29 draught ale, the top 27 packaged lager and the top 28 draught lager brands. They only report total stout sales. We estimated monthly stout sales by brewers by multiplying yearly market shares to reported monthly volumes.
beer retailing using the percentage of UK pubs owned by multiple operators (PUBCO), as reported by the Pub Industry Handbook. The frequency of this data is yearly.

Finally, we use the price index of materials and fuels purchased by the alcoholic beverages industries (ALCPPI), as reported by the Office of National Statistics, as a proxy for factor prices.

As a preliminary step, we analyse the degree of integration of the various series. Table A1 reports the results of the augmented Dickey-Fuller test for the various data series. Only Q appears to be stationary (at the 1% level), while the null hypothesis that the series is a unit root cannot be rejected at the 10% level for any of the other series, with the exception of ALCPPI for which the null hypothesis can be rejected at the 10% but not at the 5% level. The fact that three of the five series are not stationary may raise the possibility of autocorrelation.

<table>
<thead>
<tr>
<th>Table A1: Augmented Dickey-Fuller Test</th>
<th>NWP</th>
<th>Q</th>
<th>HHIBR</th>
<th>PUBCO</th>
<th>ALCPPI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Statistic</td>
<td>-1.970</td>
<td>-5.477</td>
<td>-0.801</td>
<td>-1.325</td>
<td>-2.703</td>
</tr>
</tbody>
</table>

This is reinforced by a closer look at the price series. Figure A1 shows the correlogram of NWP. While partial autocorrelation drops significantly after the first lag, oscillating in the –0.25/+0.25 range, autocorrelation is very high up to 20 lags, suggesting a long memory which is not uncommon in price series.

Figure A1: Correlogram of the Net Wholesale Price series
In order to account for autocorrelation, we used various estimation models and procedures: OLS; FGLS; a geometric distributed lag model; and an error correction model. The resulting estimates are reported in Table A2 (t-statistics in parenthesis). The basic model is:

\[
NWP_t = \beta_0 + \beta_1 Q_t + \beta_2 HHIBR_t + \beta_3 PUBCO_t + \beta_4 ALCPPPI_t + u_t
\]  

Before estimating this model with OLS, we are required to make sure that the three non-stationary series are cointegrated, to avoid spurious results. We estimate the following cointegration relationship:

\[
NWP_t = \alpha_0 + \alpha_1 HHIBR_t + \alpha_2 PUBCO_t + u_t
\]  

We then calculate the series \( ECT_t = NWP_t - \hat{\alpha}_1 HHIBR_t - \hat{\alpha}_2 PUBCO_t \) and verify that it is stationary (where the Dickey-Fuller statistic is \(-4.599\)) and hence that the three non-stationary series cointegrate. We therefore estimate model (1) with OLS. The results are reported in the first column of Table A2.

As can be observed, the coefficient of on-trade retail concentration (PUBCO) is statistically and economically significant, suggesting a strong association between increasing concentration at the retail level and decreasing wholesale prices. Interestingly, we find a statistically significant negative association between wholesale prices and concentration at the brewing level (HHIBR). The importance of the other two variables is less clear-cut, as quantity (Q) does not have a statistically significant effect, while factor cost (ALCPPI) is significant (albeit with the wrong sign). As the Durbin-Watson statistic shows, the OLS estimation is vitiated by autocorrelation in the residuals, which implies that OLS is an inefficient estimator.
<table>
<thead>
<tr>
<th></th>
<th>OLS</th>
<th>FGLS</th>
<th>GLM</th>
<th>ECM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q</td>
<td>-0.00044</td>
<td>-0.00024</td>
<td>-0.00011</td>
<td>0.00008</td>
</tr>
<tr>
<td></td>
<td>(-0.917)</td>
<td>(-0.525)</td>
<td>(-0.255)</td>
<td>(0.153)</td>
</tr>
<tr>
<td>HHIBR</td>
<td>-0.0109</td>
<td>-0.0093</td>
<td>-0.0041</td>
<td>-0.0134</td>
</tr>
<tr>
<td></td>
<td>(-2.611)**</td>
<td>(-1.850)*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PUBCO</td>
<td>-29.06</td>
<td>-23.23</td>
<td>-10.34</td>
<td>-28.72</td>
</tr>
<tr>
<td></td>
<td>(-5.413)**</td>
<td>(-3.417)***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ALCPI</td>
<td>-1.113</td>
<td>-0.374</td>
<td>-0.167</td>
<td>1.188</td>
</tr>
<tr>
<td></td>
<td>(-2.364)**</td>
<td>(-0.739)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R²</td>
<td>0.80</td>
<td>-</td>
<td>0.85</td>
<td>0.40</td>
</tr>
<tr>
<td>N</td>
<td>43</td>
<td>43</td>
<td>43</td>
<td>33</td>
</tr>
<tr>
<td>D-W</td>
<td>1.144</td>
<td>1.596</td>
<td>0.213</td>
<td>1.938</td>
</tr>
</tbody>
</table>

*** Significant at 1% level  
** Significant at 5% level  
* Significant at 10% level  
a Durbin h statistics.  
b The long run effects are reported in italics. The coefficient of the lagged dependent variable is 0.51 and its t-statistic is 3.523***.  
c The reported coefficients are for the first differences.  
c The coefficient of the error correction term is 0.54 and its t-statistic is 2.860***.

To correct for this, we use the Prais-Winsten two-step FGLS iterated estimation procedure. The results are reported in the second column of Table A2. Significantly, the signs of the coefficients are unchanged and their magnitude is close to that estimated with OLS. While the significance and the magnitude of the negative effect of the two concentration variables on net wholesale prices is confirmed, together with the lack of statistical significance of the effect of quantity, factor prices lose their significance using this estimator. This is probably due by the fact that this model specification tends to give more weight to long-run effects. As prices and the two concentration measures are non-stationary, it is of little surprise that their respective trends are strongly correlated, while less trended variables such as quantity and factor prices have somewhat less explanatory power.

The transformed Durbin-Watson statistic shows that neither the null nor the alternative hypothesis can be rejected, thus leaving the doubt of whether autocorrelation is properly accounted for. The presence of autocorrelation in the residuals of the estimates could be a sign of omitted variables and hence imply that our estimates are not unbiased and efficient.
However, the previous discussion on the autocorrelation of the wholesale price series suggests that the autocorrelation problem may be a feature of the true data generation process rather than the symptom of a misspecification of the model.

To account for autocorrelation while at the same time testing whether the short-run effects are different from the estimated long-run relationships, we estimate two models with richer dynamics: a geometric lag model and an error correction model. The distributed geometric lag model we estimate is:

\[ NWP_t = \beta_0 + \lambda NWP_{t-1} + \beta_1 Q_t + \beta_2 HHIBR_t + \beta_3 PUBCO_t + \beta_4 ALCPPI_t + u_t \]  

(2)

This model incorporates infinite lags of the regressors and assigns geometrically decreasing weights to increasingly distant lags. The model is conveniently estimated by introducing a lagged dependent variable. The estimated coefficients represent the impact effect of the variables and the long run effects can be calculated as functions of the coefficients of the regressors, including that of the lagged dependent variable.

The estimation results are reported in the third column in Table A2. None of the coefficients of the independent variables are statistically significant at the 10% level (the closest being PUBCO with a p-value of 0.15). This is not entirely unexpected given the previous discussion on the autocorrelation of the price series. Its strong autocorrelation implies that lagged values of wholesale prices are very good predictors of their current values. As NWP is significantly correlated with the regressors, it turns out that NWP\(_{-1}\) is also correlated with the regressors, introducing the possibility of collinearity. Also, it is consistent with economic theory that concentration variables tend to have less significant effects on prices in the short run. Nevertheless, it is clear that the long-run effects estimated with this model are very close to those estimated using the FGLS procedure with the additional benefit that there is no residual autocorrelation. Hence, these results tend to support the conclusions previously discussed. Finally, we estimate the error correction model:

\[ \Delta NWP_t = \beta_0 + \beta_1 Q_t + \beta_2 \Delta HHIBR_t + \beta_3 \Delta PUBCO_t + \beta_4 ALCPPI_t + \gamma ECT_t + u_t \]  

(3)

where \( ECT \) is the error correction term, constituted by the estimated residuals of the cointegrating regression (1.1). This term can be interpreted as expressing the movements from the long-run equilibrium relationships, measured by the coefficients \( \hat{a}_1 \) and \( \hat{a}_2 \) in the
cointegrating regression (1.1). The results are reported in the final column of Table A2. The ECM, as the GLM, shows no sign of autocorrelation allowing for confidence in the results reflecting genuine common movements in the series under examination. Only the coefficients of the concentration variables are significant at the 10% level, confirming the robustness of our conclusions on concentration at the retail level their effect on prices to different model specification. The coefficients of the ECM, both the short run effects reported in Table A2 and the long run effects estimated in (1.1), are very close to those obtained with other models.

To summarise, the estimation of the various models consistently shows that concentration at the retail level has a strong effect on net wholesale prices in the long run. For each percentage point increase in the share of public houses owned by multiple operators, net wholesale price index decreased on average by two to three percentage points. The increase in concentration upstream, at the level of brewers, has not been balanced this effect. In fact, increased brewers concentration is associated with reduced wholesale prices. For each 100 points increase in the HHI, the wholesale price index decreased on average by 0.7 to 1 percentage points. It is less clear what is the influence of the other variables on wholesale prices. Demand effects (controlled for by quantity) do not seem to have a significant impact on price. The effect of input costs is also uncertain, as it seems to be negative in the long run and positive ‘out of equilibrium’.

In conclusion, these results support our thesis that bargaining power is increasingly with retailers as retail concentration rises in the process driving down wholesale prices. Furthermore, the negative association between wholesale price and concentration at brewing level is also consistent with the hypothesis that the latter results in efficiency being generated by brewers and extracted by retailers.
REFERENCES


