Competition Policy Towards Brewing:

Rational Response to Market Power or Unwarranted Interference in Efficient Markets?[1]

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1 Introduction

The brewing industry has been heavily scrutinized by competition authorities in the EU and in many member nations.[2] It is not clear, however, whether such attention is warranted. Is the brewing industry very different from, say, the fast–food industry? In both, there are large firms that sell worldwide as well as smaller local firms, and there are many retail establishments with different sorts of contractual relationships with their upstream suppliers. In spite of perhaps superficial similarities with other sectors, however, beer brewing and retailing appear to be more closely monitored.

In my paper, I ask if this scrutiny is a natural response by competition authorities to the threat of market power at some level of the vertical chain (i.e., input procurement, brewing, wholesaling, or retailing), or if it is an unnecessary interference in markets that are workably competitive and are functioning efficiently. If the former is true, then consumers can be made better off by government intervention that lessens market power and leads to lower markups and retail prices, whereas if the latter is true, consumers can be harmed by higher costs that will be, at least partially, passed on to them in the form of higher retail prices.

As with so many economic problems, the question is complex and does not lend itself to a simple yes or no answer. In particular, any attempt to come to grips with the question must consider the structure of the specific market, or really markets since there are large differences across geographic regions, as well as the more general issues that a beneficent competition authority must confront. In my paper, I attempt to do just that. Specifically, I start by discussing some general issues that authorities must take into account in designing a policy towards the industry. This analysis considers both horizontal and vertical issues (i.e., interaction in the same product market versus interaction between links in the vertical chain). After that, since the answer to the question that I propose depends on the setting in which the firms interact, rather than paint a broad–brush picture, I review some case studies that illustrate UK policy towards the brewing and retailing industry. Finally, I attempt to draw some conclusions based on the analysis, both general and specific to the industry.

Before looking at general policy issues, I would like to highlight a number of issues that I do not cover. First and perhaps most important, I do not describe or contrast

[2] To illustrate, the decades of the 1970s and 1980s witnessed 28 reviews of the industry by EU and UK authorities.

competition policy and legal enforcement in the EU and in its member nations. In fact, my discussion is relatively free of legal detail. I have chosen to ignore these issues because, unlike the general considerations upon which the design of policy should be based, the policies and laws themselves change periodically, causing any in–depth analysis of antitrust enforcement and legal stances to become fairly quickly outdated. Moreover, the structure of the industry in each market is to a large extent shaped by decisions that were taken in periods when policies were different from those that prevail today.

Second, my discussion of the pros and cons of horizontal concentration and vertical arrangements does not attempt to be comprehensive. I do this because, although there are many theories that address these issues, from a practical point of view, some of them have proved more productive than others. Moreover, some are more relevant to brewing than others. I therefore emphasize what I feel to be the most important considerations, which often turn out to be those that antitrust authorities are most concerned with.

Finally, I do not consider relationships between brewers and their suppliers (e.g., sellers of hops and malting barley). This was done primarily because authorities have been less interested in these relationships than in those between brewers and their wholesalers and retailers. Perhaps for this reason, it is also true that there appears to be less data on brewer/supplier interactions.

2 General Policy Issues

Almost all markets have horizontal and vertical aspects, where the former refers to interactions among firms in the same product market and the latter to interactions among firms that buy from or sell to one another (i.e., input/output relationships). Not surprisingly then, competition authorities have been concerned with possible anticompetitive consequences of both sorts of arrangements. In what follows, I discuss possible pro and anticompetitive impacts of changes in the structure of vertical and horizontal markets from a general point of view. By this I mean that I consider time–invariant economic issues that underlie competition policy rather than the practical details of that policy as it manifests itself in different countries, industries, and time periods.

Before discussing possible impacts, however, it is useful to consider how one might define a market.

2.1 Market Definition

Market definition is an important aspect of many cases that authorities are asked to consider. This is true because it is not possible, for example, to say that a market has few firms if we don't know what that market is. Economists generally agree that a market has both a product and a geographic dimension. To illustrate, one can ask if the relevant product market is draft beer, beer, alcoholic beverages, or drinks and if the geographic market is local, regional, national, or worldwide. The way in which one chooses to define a market will determine the number of firms in that market, with broader definitions leading to more firms. One normally presumes that, unless proven otherwise, firms that operate in markets with few rivals have more market power than firms in markets with many competitors.

A product market is usually determined by the ease of substitution among products (e.g., brands of beer), with those that are in the same market being close substitutes and those that are outside being very imperfectly substitutable with those that are inside. Of course, this is rarely a cut–and–dry issue. For this reason, any choice will almost surely be disputed by some. In particular, the firms in the industry usually argue for a broad definition, whereas competition authorities often argue for a narrower choice.

A geographic market is also determined by the ease of substitution among products that are inside and outside the market, and some of the same considerations apply. However, with geography substitution is spatial (i.e., within and across geographic regions). Furthermore, whereas product–market substitution often depends on product characteristics (e.g., alcohol content and product type – lager, ale, and so forth), geographic–market substitution often depends on transport costs relative to value. For this reason, for example, the geographic market for spirits is apt to be larger than that for 'real' or cask–conditioned ale.

Once one has chosen a market, which often pertains to the manufacturing stage (e.g., brewing), that choice also determines the suppliers, wholesalers, and retailers that are in the market. With respect to brewing, a convention that is often adopted is that the product market is beer and the geographic market is national. However, the choice is not clear cut, and some would argue, for example, that on and off–license trade constitute separate markets, and that, within on–license, draft and packaged products are separate. Furthermore, others might argue that, due to differences in tastes across regions within a country, beer markets are not national but are regional or local. Finally, it is also possible that brewing is a national market, since products can easily be shipped throughout the country, whereas retailing is local, since consumers don't travel far to purchase a six pack of beer or to find a pub.

2.2 Vertical Practices: Efficiency Enhancing or Market Power Strengthening?

Firms are involved in a vertical relationship if they operate at different levels of the production/distribution chain.[3] All upstream/downstream or input/output relationships are vertical, and those relationships can take many forms. In this paper, I am interested in the restrictions that one member of a vertical chain can impose on members of another link. Competition authorities mainly focus on a set of price and non-price restrictions known as vertical restraints (VR). The former refers to resale price maintenance (RPM), where a manufacturer either sets the price or sets a maximum or minimum price that retailers can charge, whereas the latter includes exclusive dealing – requiring that a retailer sell only the manufacturer's products, exclusive territories – dividing the geographic market into territories and assigning one reseller to each, quantity forcing – requiring that each retailer purchase a minimum amount of the manufacturer's product, and tying – selling one product to a retailer only if that retailer purchases another product from the manufacturer.

Vertical restraints most often arise in retail settings, with the upstream firm or manufacturer typically restricting its downstream firm or retailers' choices. For example, a brewer might limit a pub's product line to her own brands (exclusive dealing) or might set the retail price (RPM). In the UK when the former occurs, it is somewhat confusingly known as tying.

In what follows, I discuss some of the most important efficiency–enhancing aspects of vertical restraints and then go on to discuss possible market–power strengthening motives for adopting such restraints.

2.2.1 Efficiency Motives for Adopting Vertical Restraints

Many of the efficiency–enhancing motives for using VR are based on the idea of aligning incentives between manufacturer and retailer. Indeed, when those two links in the vertical chain are independent firms, each has its own objectives, and those

[3] This subsection is based on Lafontaine and Slade (2008).

objectives can diverge. Normally, inefficiencies result from the lack of agreement. Fortunately, this problem can often be overcome or lessened through the use of VR.

Dealer Services and Free-Riding Issues

Manufacturers who invest in improving retail outlets, promoting retail products, or training outlet managers might worry that retailers will free ride on those investments. For example, brewer investment in pubs enhances sales of not only own brands but also of the brands of rivals. Brewers might therefore worry that, for example, bartenders will encourage customers to switch to a rival brand that has a lower price — thereby making the sale easier — or that has a higher retail margin — thereby making the sale privately more profitable. Exclusive dealing resolves this problem by making it impossible for the bartender to propose an alternative brand. In this context, exclusive dealing is a mechanism that enables brewers to protect their investments against potential retailer opportunism. Furthermore, in its absence, potentially profitable investments might not be undertaken.

Alternatively, dealer services at the point of sale (e.g., keeping draft lines clean and maintaining carbon dioxide at appropriate levels) can enhance the demand for a brewer's product. However, the goodwill thus generated might cause some customers to purchase the brand from another pub. The brewer captures this externality or spillover but the retailer does not. The bartender might therefore provide a level of service that is suboptimal from the brewer's point of view. Furthermore, the problem worsens as the fraction of repeat business that pubs face falls. In other words, bartenders in tourist locations, for example, have less incentive to provide services.

In general, not only do retailers have incentives to free ride on the value of the brand and put in too little effort, a vertical externality, they also have incentives to free ride on services offered by other retailers (e.g., promotion), a horizontal externality. If service is important to the sale of a brewer's product, brewers will need to ensure that retailers provide it. Klein and Murphy (1988) proposed that manufacturers can use vertical restraints, such as minimum resale prices or exclusive territories, to ensure that their retailers earn above normal returns, which means that those retailers have something to lose if their contracts are terminated. Those returns, in combination with ongoing quality or service monitoring and the threat of termination, entice retailers to provide the desired level of quality or service. Since the quality and service levels in question are valued by customers — if it were otherwise brewers would not value them — quantities sold and consumer satisfaction should be enhanced.

Double Marginalization:

The typical double marginalization or succession–of–monopoly problem arises when an upstream firm with market power sells a product to a downstream firm at a price above marginal cost. If the downstream firm also has market power, it is well known that it will choose a price that is higher, and a quantity that is lower, than the price and quantity that would maximize joint profits.[4]

In the retail context, it is well known that this problem can be overcome by the use of fixed fees (i.e., fees that retailers pay to manufacturers that are independent of the amount purchased). Indeed, the upstream firm can sell its product to the retailer at marginal cost, the retailer can take his profit downstream, and the manufacturer can then use the fixed fee to extract the downstream profit. In the brewing industry, however, retailers rarely pay fixed fees. Nevertheless, rental payments can serve the same function. For example, UK brewers often own pubs that they rent to retailers at rates that are independent of realized sales and need not equal market rates. Those rental payments can thus be used to extract profit or to subsidize operations. Vertical restraints can also overcome the problem. Maximum RPM is an obvious candidate. Alternatively, brewers can use a minimum quantity requirement.

When double marginalization is an issue, the imposition of vertical restraints will not only increase the overall efficiency of the vertical structure but also lead to lower prices for customers. In this context, therefore, restraints usually enhance wellbeing.

2.2.2 Market–Power Motives for Adopting Vertical Restraints

Vertical restraints are often viewed with suspicion because comparable horizontal practices are frowned upon. For example, resale price maintenance is vertical price fixing, exclusive territories can create monopoly power, and exclusive dealing can inhibit entry. Nevertheless, as we have just seen, real efficiencies can be associated with those restraints. Competitive harm, however, can also result. Competition authorities often focus on two anticompetitive motives for adopting VR – collusion and exclusion.

Collusion at Some Link of the Chain

[4] See Spengler (1950) for a discussion of the monopoly case and Greenhut and Ohta (1979) for the oligopoly case.

It is often claimed that VR can strengthen retail cartels (e.g., minimum RPM can enforce a higher retail price). However, I have little to say about this since it does not explain why manufacturers would want a high retail price. VR can also facilitate manufacturer cartels. For example, when RPM is adopted, upstream market rivals can infer that retail price changes signal manufacturer intent, and this reduction in uncertainty facilitates cartel stability.

Foreclosure and Raising Rival's Costs

The main worry of antitrust authorities when it comes to vertical restraints is the possibility that their use will foreclose entry by competitors at some level of the vertical chain. In the context of brewing, a brewer that establishes an exclusive retail network (i.e., exclusive dealing) that involves most pubs, might prevent competitors from gaining access to customers at a reasonable cost, if at all. This in turn could prevent entry of rival brewers and perhaps even lead rivals to exit.[5] Exclusive dealing, which has sometimes been referred to as vertical integration by contract, is the form of restraint for which foreclosure arguments are most frequently made.

In the end, if vertical restraints are used to lessen competition at some level of the vertical structure through foreclosing or disadvantaging rivals, prices to consumers should be higher, quantities sold smaller, and consumer choice more limited than they would be in the absence of such restraints. If restraints are adopted to increase efficiency, in contrast, costs in the vertical structure, and thus retail prices, should be lower.

2.3 Horizontal Practices: Efficiency Enhancing or Market Power Strengthening?

Horizontal practices involve firms that are in the same product market. Although there are many horizontal practices that competition authorities are concerned with (e.g., abuse of dominance, predation, and preemption), I emphasize mergers here for two reasons. First, unlike the above–mentioned practices, horizontal mergers are often efficient, and second, there have been many mergers in the brewing industry, and those mergers have been hotly debated.

Mergers are extremely common, and most of those mergers are not even considered by competition authorities. Indeed, most jurisdictions have 'safe harbors' or thresh-

[5] See, e.g., Krattenmaker and Salop (1986), Aghion and Bolton (1987), and Comanor and Rey (2000).

olds for market concentration and the value of assets involved in a merger such that, when the merging parties are below those thresholds, the merger is not challenged. Instead, since market power motives are unlikely, it is assumed that the merger is undertaken for efficiency reasons. When mergers are investigated, they can still be allowed to go forward if it is established that there will be little competitive harm or if efficiencies will outweigh the harm. It is therefore important to understand the motives for and consequences of undertaking a merger.

2.3.1 Efficiency Motives for Mergers

Many aspects of efficiency must be considered when evaluating a horizontal merger. However, potential economies of sale and scope are perhaps the most important.

Economies of Plant Size and Scope

Economies of scale occur when costs fall more than proportionately with size, and many of those economies occur at the plant level. These include spreading up–front set–up costs over a larger number of units produced and longer production runs, both of which lower average costs.

Economies of scope are multi–product economies. For example, it might be cheaper to produce several brands of beer in one plant than it is to produce each brand in a separate plant, since those brands can share some equipment. Keeping plant size constant, however, joint production is not always efficient, since it results in shorter production runs.

Multiplant Economies of Scale and Scope

It is often difficult to capture plant–level economies after a merger, since the configuration of plants can remain unchanged. Multi–plant economies, however, can still be very important. Those savings can occur at the procurement, production, and/or distribution stages. For example, a larger firm can bargain more effectively with suppliers and can often purchase inputs more cheaply. It can also coordinate production decisions over a larger number of plants and can thus control inventories and delivery times more efficiently, and it can facilitate closure of inefficient plants.[6] Finally, it can employ a larger but leaner distribution system.

Economies of scale and scope also include economies of shared facilities such as product development, marketing, and advertising. Furthermore, after a merger, the

[6] Merging parties often claim plant closures as potential efficiencies. However, those parties should be required to demonstrate why closures could not have occurred absent the merger.

number and characteristics of brands can be rationalized, and those brands can be marketed and promoted more effectively.

In order to assess the costs savings associated with a particular merger, it is therefore necessary to determine what fraction of costs are due to each factor as well as how those costs will change. To illustrate, whereas distribution costs constitute a large share of the total costs in the electricity and natural gas industries, they probably account for a much smaller share in the beer industry.

2.3.2 Market Power Motives for Mergers

Not all jurisdictions allow merging firms to claim efficiencies in defence of a merger, perhaps because it can be difficult to quantify efficiencies and to demonstrate that they are merger specific.[7] However, virtually all jurisdictions consider possible competitive harm as a reason for denying a merger. It is therefore natural to ask how competitive harm arises.

Increases in Market Concentration: Unilateral Effects

Market concentration refers to the number and size distribution of firms in the market. All else equal, concentration increases as the number of firms falls and as their shares become more asymmetric.

When a merger occurs, two or more firms become one. This reduces the number of decision makers in the industry and creates a firm that is larger than either of its constituents. Not only does a larger firm have a larger market share, its demand is usually less elastic. To see this, consider a dominant firm.[8] When such a firm increases its price, customers have few alternatives to choose from. The dominant firm therefore looses a smaller share of its customers and its demand is less elastic. A large firm thus has a unilateral incentive to raise its price relative to the prices that were charged by its (smaller) constituent firms, where by unilateral, I mean it has that incentive even if rivals don't follow its price changes.[9] However, in equilibrium, smaller firms will also raise their prices. This is true because, when the dominant firm raises its price, it looses some of its customers to its rivals. The demands of the non–merged firms therefore shift out.

[7] For example, the EU only introduced an efficiency defence in 2004.
[8] I discuss a dominant firm only as an example. The argument is the same for any oligopoly.
[9] For an analysis of unilateral and coordinated effects, see Slade (2004a).

Increases in Market Concentration: Coordinated Effects

Coordinated effects refer to increased scope for collusion, tacit or otherwise, where by collusion I mean that firms adopt practices that allow them to realize higher profits than they would earn if they behaved in an uncoordinated fashion. Many economists believe that collusion is easier to sustain when firms are few, and a merger reduces the number of firms in the market. The possibility and effectiveness of collusion should therefore be enhanced. However, the situation is not quite so simple, since it is also claimed that collusion is more difficult to sustain when market shares are more asymmetric. This means that, if two of the largest firms merge, shares become more asymmetric, and a cartel might be less effective. However, if two small to medium sized firms merge, market shares can become more symmetric, thus facilitating a cartel.[10] Before claiming that a merger in a concentrated market is detrimental to consumer interests therefore, many factors must be evaluated. Moreover, competition authorities often consider coordinated effects to be less important than unilateral effects, since the theories that underlie the former are more fragile and more sensitive to the assumptions that underlie the models.[11]

3 UK Case Studies

To set the stage for an analysis of the case studies, it is helpful to place the UK industry in a European context. First, relative to many Western European nations, the UK is a large producer and consumer of beer, both absolutely and in per capita terms. Second, most of the beer consumed in the UK is also produced there. Guinness, however, which is Irish, is a notable exception. Third, a large fraction of UK consumption is 'on–license', where on–license refers to beer consumed in licensed premises. 'Off-license', in contrast, refers to beer purchased in a store and consumed elsewhere. Finally, the UK is an outlier when it comes to consumption of draft beer, with a draft share of nearly 60%.[12]

Turning to competition policy, the analysis in the last section suggests that, even when there is a case to be made that competitive harm is likely, due to, for example,

[10] See, e.g., Compte, Jenny, and Rey (2002).

[11] This does no mean that, from a practical point of view, unilateral effects are easy to quantify and are not sensitive to assumptions. See Slade (2009) for a demonstration of this and an application to the brewing industry.

[12] Draft beer is a subset of on–license consumption, since packaged products can also be consumed in bars.

the use of exclusive dealing when entry is difficult or a merger when the market is concentrated, mechanical rules do not suffice. Instead, in most instances, the particulars of the case — the structure, practices, and culture of the market — must be carefully examined. In this section, I consider two cases that pertain to the UK brewing and retailing industry. The first case, which is vertical, involves restraints in contracts between brewers and pub operators, whereas the second, which is horizontal, involves mergers between large brewers.

One might ask if these UK cases are relevant for competition policy towards the beer industry in other countries. It should be clear that mergers occur in most regions and that the UK merger cases have relevance that extends well beyond the UK. The vertical case, in contrast, involves brewer ownership of pubs and exclusive dealing or 'tying', a practice that is not allowed in all countries. For example, in the US brewer ownership of retailers is prohibited.[13] The tie, however, is a common feature in other countries such as Germany and Belgium.[14] Moreover, in 2003 the EU forced the largest Belgian brewer, Interbrew, to break its ties with its Belgian retail establishments (see, e.g., Atsma 2003). It should therefore be obvious that the tie is not just a peculiar UK practice.

3.1 A Vertical Case: Exclusive Dealing and Two–Part Tariffs

In 1989, the UK Monopolies and Mergers Commission (MMC) recommended measures that eventually led brewers to divest themselves of 14,000 public houses. The MMC claimed that their recommendations would lower retail prices and increase consumer choice. There is considerable doubt, however, that their objectives were achieved. This case study is based on Slade (1998), which contains an econometric analysis of the transition period. The analysis is based on a theoretical model of the relationship between retail price and retail organizational form that emphasizes how exclusive-dealing clauses and strategic factors interact.

The theoretical analysis in that paper suggests rankings of wholesale prices, retail prices, and brewer profits that differ by organizational form. Oligopolists should therefore prefer certain contractual arrangements over others. If instead the industry were monopolistic or perfectly competitive, brewers would be indifferent concerning

[13] Even in the US, however, it is common for brewers to impose vertical restraints such as exclusive territories on their wholesalers (see, e.g., Sass and Saurman, 1993).

[14] For a discussion of tying in Germany, see Adams in this volume, and for a discussion of tying in Belgium, see Wauters and Van Passel (2009).

many of those choices. In particular, when the retail sector is perfectly competitive, there can be no double marginalization; when the manufacturing sector is a monopoly, there is no role for exclusive-dealing contracts; and under both market structures, strategic behavior is excluded.

The The Market and the Contracts

Prior to the MMC report, most contractual relations between brewers and pub operators, which ranged from complete vertical integration to arms-length transactions in a market, took one of four standard forms.

- Managed Houses: Managed houses were owned by the brewer. Moreover, the manager and the staff were the brewer's employees. The brewer set the retail price, bore all of the costs of operation, and received all of the profit.

- Tenanted Houses: Tenanted houses were also owned by the brewer. The tenant, however, was an independent entrepreneur who bought beer at a wholesale price and set the retail price. Furthermore, sales were subject to exclusive dealing clauses, and rents were paid to the brewer for the use of the premises.

- Free Houses with Loan Ties: Free houses were owned by the operator. Brewers, however, provided capital to loan-tied houses at below-market rates in exchange for exclusivity for their products (exclusive dealing) or for a minimum throughput (quantity forcing).

- Free Houses without Loan Ties: With the final class of public houses, there were no legal ties between brewers and pub operators, and transactions were truly arms length.

The first two arrangements were known as the tied trade. With the tied trade, the brewer specified which beers might be sold and where they must be purchased, usually from the brewer himself. The third and fourth arrangements were known as the free trade, which is perhaps a misnomer given that, for many of those houses, only ownership was 'free.'

A typical large brewer owned both managed and tenanted pubs. Managed pubs, which were often larger and newer, tended to place greater emphasis on non–beer amenities such as food service. Moreover, the manager was apt to be more loyal to the brewer than to the pub. Indeed, promotion often took the form of a move to a larger public house where a higher salary could be earned.

Tenanted pubs, which were often 'corner' houses, tended to be smaller. Moreover, they catered to a more regular crowd of beer drinkers. The tenant, who was a fixture in the pub, was apt to be more loyal to the neighborhood and the regular customers than to the owner.

In the mid 1980's, just prior to the issue of the Monopolies and Mergers Commission report on the supply of beer, six national brewers accounted for 75% of total production. Fifty two regional and local brewers controlled 17% of the market, and three brewers without tied estate were responsible for most of the remainder.[15] In addition, there were over 160 micro breweries operating at very small scales. The market was thus moderately concentrated, particularly in certain regions. No single firm, however, had an overall market share of over 25%. This made brewing in the UK less concentrated than in most continental European and North American countries. Moreover, the largest brewers produced more than 100 brands each, ranging from ale and stout to lager. This large variety of products, coupled with strong differences in regional preferences, implied that even the largest breweries probably produced at a rate that was less than minimum-efficient scale.

In the same period, 75% of public houses were in the tied trade. Within the tied sector, approximately 30% of the houses were managed. Managed pubs, however, which tend to be larger than tenanted, accounted for more than 30% of sales. Finally, approximately 25% of the free houses were tied to brewers through loans. The completely free sector was therefore small. Nevertheless, there existed a slow but steady trend towards a lessening of vertical integration and control.

The MMC Report and the Beer Orders

In 1987, the Office of Fair Trading (OFT) began an investigation of the brewing industry. Its principal concerns seem to have been high prices, large price differentials across regions and products, and limited consumer choice. The OFT investigation led to a recommendation that an industry review be undertaken by the Monopolies and Mergers Commission. The product of this investigation was the 500 page MMC report entitled *The Supply of Beer*, which appeared in February of 1989.

The MMC recommended that i) A ceiling of 2,000 be placed on the number of on licenses that any brewer could own. This ceiling would require divestiture of 22,000 premises by the national brewers. No regional or local brewer would be affected. ii) All loan ties be eliminated, with current loans subject to grandfather clauses.

[15] Brewers without tied estate are not vertically integrated into retailing.

iii) Tenants be allowed to purchase a minimum of one brand of draft beer from a supplier other than the landlord, the so called 'guest' beer. iv) Tenants be brought within the provisions of the Landlord and Tenant Act of 1954. v) Brewers publish wholesale-price lists.

The MMC believed that its recommendations, if adopted, would reduce prices and widen consumer choice. Those recommendations, however, were never implemented. Following the publication of the report, a period a intense lobbying ensued and a weaker set of regulations was put into place, the so-called 'Beer Orders.' The principal changes were i) Either divestiture or *a release of ties on one half of the pubs in excess of 2,000* (11,000 pubs affected). ii) Loan ties *subject to termination by the recipient with three-months notice upon repayment of the loan.* iii) Bartenders in tied premises of national brewers allowed to serve at least one *cask-conditioned ale* from a supplier other than the owner, where a cask–conditioned ale is one that continues to ferment in the keg — a 'real' ale.

Changes in recommendation i) considerably reduced the number of pubs affected. In addition, it allowed brewers to keep their pubs if they broke the tie. Few chose, however, to maintain ownership of pubs without ties. Loan ties remained, but were subject to what the government considered best market practice. Finally, the guest beer mandate was changed to a cask-conditioned product. This was done to avoid the prospect of tenants of regional and local brewers being allowed to sell one of the most popular national brands. In spite of these changes, however, the spirit of the recommendations remained.

It is not clear from the MMC Report if any large interest group was in favor of the recommendations. Consumer organizations were principally concerned with local retail-market share and not with brewer ownership *per se*. Regional and local brewers were in favor of the tie, whereas brewers without tied estate had no strong views. The belief that there was something seriously wrong with the industry, therefore, seems to have been internal to the OFT. Moreover, since the *Supply of Beer* report contained little economics, it is difficult to understand the reasoning that lay behind the recommendations.

After 1989, the UK-beer industry underwent radical changes. During the transition period, brewer ownership of on licenses fell from 53 to 37% of all licenses held. Furthermore, total brewer ownership declined by more than 14,000, which is more than the mandated 11,000. This decline is partly a continuation of a gradual trend. However, sharp reductions occurred in 1991 and 1992. Since managed pubs tend to be larger and more profitable than tenanted, most of the pubs that were sold were tenanted houses. Moreover, many of the remaining tenanted pubs were converted from three-year to long-term leases. When this was done, the tenant became responsible for a much larger share of the capital improvements.

One of the major changes in ownership patterns that emerged is the formation of public–house chains. Many non–brewers, often in the hotel, food, or entertainment business, took advantage of the massive sales and bought large blocks of pubs. Most of those chains, however, signed long–term purchasing agreements with national brewers, and many of the agreements included exclusive dealing clauses. When this change occurred, although exclusive dealing remained, the removal of rental payments to brewers was equivalent to the removal of two–part tariffs, where a two–part tariff is a payment of a fixed fee plus a price per unit purchased. Although the industry seems to have anticipated the emergence of pub chains, there is little analysis of its consequences in the MMC Report.

The industry therefore had two new contractual arrangements in addition to those listed earlier. These are:

- Leased Houses: Leased houses were owned by the brewer and operated by the lessee under a long–term lease. The lessee or retailer purchased beer at a wholesale price and set the retail price. In addition the retailer was responsible for most capital improvements. The difference between tenanted and leased pubs is similar to that between rental and lease–hold housing.

- Chain Houses: Chains are multi–establishment retail operations. Chains bargained with brewers over wholesale prices, but their retailers set retail prices. Since the chain owned the pub, no rent was paid to the brewer.

The Effects of the Beer Orders

The econometric analysis is described in appendix A. That analysis revealed that, after the Beer Orders, prices in the formerly tied houses rose.[16] Moreover, they rose faster than those in the control group, the free houses. The analysis also showed that profits in the tied houses fell. These findings are consistent with the introduction of double marginalization after the tied houses were sold. As explained earlier, although pub operators did not pay fixed fees, they paid rental rates that were determined by

[16] Price changes after the Beer Orders were modeled as a one–time break in trend (slope and intercept) with unknown break point.

the brewers, not by conditions in the real estate market. Such rental rates can play the same role as fixed fees and, when those fees are removed, double marginalization can be reintroduced.[17]

What about the effects of the tie (i.e., the exclusive dealing clauses)? Unfortunately, that issue is impossible to evaluate for this case. The problem is that, to a large extent, the pubs were acquired by pub chains and those chains continued to operate under exclusive–dealing clauses, at least for the first few years. This means that the MMC remedies had the unexpected effect of removing the two–part tariffs but allowing the ties.

The MMC predicted that their remedies would lower retail prices and increase consumer choice. We have seen that their hopes concerning prices were disappointed. Their desire for greater consumer choice, however, fared better. In particular, many retailers took advantage of the right to serve a 'guest' cask-conditioned ale. In addition, the number of lagers with foreign trademarks increased substantially.

Should the Commission be chastised for its decision? That is a difficult question to answer. In practice, it is virtually impossible to anticipate all of the ramifications of mandated changes. Nevertheless, the situation in beer suggests that more attention should have been paid to recent theories of vertical restraints before far–reaching measures were advocated. In particular, the analysis suggests that the restraints were probably imposed on retailers for efficiency reasons. Specifically, whereas exclusive dealing protected brewers' investments in retail facilities, two–part tariffs aligned incentives between brewers and retailers.

3.2 A Horizontal Case: Mergers in the UK Brewing Industry

After the Beer Orders were adopted, large changes in the structure of the market occurred. Historically, the UK brewing industry was relatively unconcentrated. More recent years, however, have witnessed a succession of successful mergers that have increased concentration in the industry, as well as proposed mergers that, if successful, would have added to that trend. It is thus natural to ask how those mergers changed both product pricing and product offerings. In particular, the mergers could have resulted in higher prices, a reduction in the number of brands, an increase in brand uniformity, and a move towards competition through national advertising.

[17] Of course, vertical restraints can also overcome double marginalization. However, brewers had less control over pub chains than over individual retailers and were in a weaker position to impose restraints.

This case study is based on Pinkse and Slade (2004). In that paper, we attempted to assess the effects of actual mergers and to predict how unsuccessful mergers would have affected the industry. The formal analysis was limited to price changes, but other consequences were analyzed informally.

Merger simulations were used to assess the price effects of the mergers. The goal of a merger simulation is to predict the equilibrium prices that will be charged and the quantities of each brand that will be sold under the new, post–merger market structure, using only information that is available pre merger. The advantage of such an approach is that, if the simulation can forecast accurately, it is much more efficient to perform an *ex ante* evaluation than to wait for an *ex post* assessment. In particular, competition authorities are reluctant to impose costly divestitures once a merger has been approved, and it is much more difficult to impose an *ex post* remedy under the legislation.

The Market and the Mergers

In 1990, there were six national brewers: Bass, Allied Lyons, Scottish & Newcastle, Grand Metropolitan (Grand Met), Courage, and Whitbread. Moreover, those six firms had dominated the market for decades. Since 1990, however, a sequence of mergers increased concentration in brewing. First, three large mergers were approved by UK competition authorities: Courage and Grand Met merged to form Courage, Allied Lyons and Carlsberg merged to form Carlsberg–Tetley, and Courage and Scottish & Newcastle merged to form Scottish Courage. Although the cases were horizontal, with all three mergers the remedies restricted vertical relationships between brewers and retailers.

After 1995, however, horizontal–merger policy became less lenient. Indeed, a proposed merger between Bass and Carlsberg–Tetley was denied, and still more recently, when the Belgian firm Interbrew acquired the brewing assets of Bass and Whitbread, it was ordered to sell its Bass breweries. We discuss the two mergers that we evaluate in greater detail.

The Courage/Scottish & Newcastle Merger: The third merger occurred in 1995, when the merged firm Courage combined with Scottish & Newcastle to form Scottish Courage. This event reduced the number of national brewers from five to four and created the largest brewer in the UK with a market share of 28%. In spite of the fact that the majority of the groups that were asked to comment on the merger favored a full investigation by the Monopolies and Mergers Commission, the Office of Fair Trading did not refer the matter to the MMC. Instead, it allowed the merger to proceed subject to a number of undertakings, all of which involved relationships between brewers and their retailers.

The Bass/Carlsberg–Tetley Merger: A fourth merger was proposed in 1997 but not consummated. This involved the numbers two and three brewers, Bass and Carlsberg–Tetley, and would have created a new firm, BCT, with a market share of 37%. The MMC estimated that, after the merger, the Hirshman/Herfindahl index of concentration (HHI) would rise from 1,678 to 2,332, where the HHI is the sum of the squared market shares of the firms in the market multiplied by 10,000. Furthermore, it noted that the US Department of Justice's 1992 Merger Guidelines specify that a merger should raise concerns about competition if the post–merger HHI is over 1,800 and the change in the HHI is at least 50 points. Nevertheless, the MMC recommended that the merger be allowed to go forward.[18] In spite of the MMC's favorable recommendation, however, the BCT merger was not consummated because the president of the Board of Trade did not accept the MMC's advice.

UK competition authorities' views towards horizontal concentration in brewing seemed to change over the decade of the 90s. In particular, early on the Commission was more concerned with vertical relationships, even though they claimed that market power resided in brewing. By the end of the decade, however, a concern with horizontal concentration assumed prominence. Was increased concern with horizontal–market power justified? As a first cut to answering that question we examined the market shares of the firms before and after each merger. That exercise revealed that, with all three consummated mergers, a few years after the merger the merged firm's market share was less than the sum of the premerger shares of its constituents. This suggests that increased efficiency did not overwhelm increased market power. While it is suggestive, a more formal analysis of specific mergers is required.

Analysis of the Mergers

Brewers either transfer beer internally to establishments that they operate, in which case the brewer sets the retail price, or they sell beer at wholesale prices to independent or affiliated retailers, in which case the retailer sets the retail price. In the former situation of vertical integration, the joint surplus, brewing plus retailing, is maximized. In the latter situation, the transaction between brewer and retailer is usually not arms–length. Indeed, fixed rental fees are involved that can be used to

[18] The one economist on the Commission, David Newbery, wrote a dissenting opinion.

distribute the surplus. We assumed that nonintegrated brewers and retailers bargain efficiently to maximize the total surplus, given rival prices.[19] The division of that surplus, however, which determines the wholesale price, will depend on the relative bargaining strengths of the two parties. Furthermore, those strengths can change over time.[20] Our assumption is equivalent to having a single party choose the retail price optimally from the firm's point of view.

Our analysis, was based on the simulation model that is described in the appendix. We assumed Bertrand competition (unilateral effects) in a game among brewers. Mergers and divestitures were modeled as games with different numbers of players or decision makers. In other words, a merger involves a game with a smaller number of players whereas, after a divestiture, there are more players.

The formal analysis indicates that, whereas the (consummated) merger between Courage and Scottish & Newcastle had little effect on prices, the proposed merger between Bass and Carlsberg–Tetley would have raised prices by a more substantial amount. This conclusion relies heavily on our findings about the structure of demand. Indeed, the local market shares of the post–merger firms would have been similar, so that, if competition had been symmetric, the effects of the two mergers would also have been similar. With localized competition, in contrast, the identity and product mix of each merging partner is key in determining whether a merger will be anticompetitive.

4 Conclusions

What should we conclude from this analysis? There are a number of things. First, antitrust cases, both horizontal and vertical, that involve large firms with substantial market shares are rarely straight forward and should be carefully considered on a case–by–case basis. In particular, with both horizontal and vertical cases, the possibility of competitive harm must be balanced against the potential for realizing production, distribution, and organizational efficiencies. However, the two sorts of cases – horizontal and vertical – are not the same. Indeed, in my opinion, vertical issues should be treated more leniently, not for a lack of theories that predict that harm will occur,

[19] In other words, the vertical game between retailer and brewer is cooperative with side payments, whereas the horizontal retail game among brewers is noncooperative.

[20] For example, on average, the retail price of beer in the UK increased faster than the wholesale price, implying that retailers received a larger fraction of the total, a fact that is consistent with a change in bargaining power.

but because the empirical evidence of harm is at best weak (see Latontaine and Slade 2007 and 2010).

Second, whereas market definition, market shares, and indices of market concentration can be reasonable indicators of the potential for harm when the products of the merging firms are homogeneous,[21] they can be very misleading when products are differentiated, as is the case with beer. In particular, when a merger simulation is used, there is no need to define the market. Instead, the entire matrix of cross–price elasticities is estimated, and that matrix is used to assess substitutability among products or brands of the merging firms.[22]

Finally, while it is true that market shares, and indices of market concentration are highly imperfect indicators of the potential for damage, they can be useful for screening purposes. In particular, they can help determine which mergers should be investigated but are less useful for determining which should be prohibited. Moreover, merger simulations are not a panacea either, as they can also lead authorities to draw incorrect conclusions (see Slade 2009). In fact all quantitative measures of market power and increases in that power should be used with caution and should be considered complementary to more informal assessments.

Turning to the two UK cases, I believe that the attack on brewer ownership of public houses was misguided. Specifically, when two–part tariffs were removed, double marginalization was introduced. Moreover, the potential for double marginalization was exacerbated by the formation of public–house chains. Indeed, those large multi–establishment retail enterprizes were in a better position to bargain with brewers and, as a consequence, a shift in power from brewers to retailers occurred. That shift led in turn to retail prices that increased faster than wholesale prices. The shift in itself would have been of little concern to public policy makers. However, increased market power on the part of retailers led to markups at the retail level that were higher than what would have been chosen if each brewer had maximized joint (brewing plus retailing) profits. The removal of the two–part tariffs, therefore probably made both consumers and firms worse off.

The MMC Report is unclear about the economic reasoning that led to its decision to force divestiture. Moreover, its proposals do not seem to have stemmed from external pressures. Nevertheless, with one exception, the Commissioners alleged that brewer ownership of public houses protected the upstream position of the firms. In my

[21] See, e.g., Slade (2004b).

[22] The new US FTC/DOJ proposed Merger Guidelines (2010) agree with this position.

opinion, however, it was a mistake to attack the vertical structure if, as they alleged, market power resided upstream in brewing. In fact, it is almost always better to attack the source of a problem rather than to opt for indirect solutions.

With respect to the mergers, the decisions that were eventually made seem to have been sensible. In particular, although the market shares of the merged firms after the two mergers that we considered would have been similar, product substitutability across merging firms was quite different. This fact in turn led us to conclude that the first merger (Scottish Courage) should have been allowed whereas the second (BCT) should have been prohibited, the decisions that ultimately prevailed. Nevertheless, the MMC originally recommended that the BCT merger be allowed to go forward. It was the president of the Board of Trade who overruled that decision and stopped the merger.

Earlier in the decade, merger decisions were less sensible. Indeed, almost all remedies that the MMC proposed as preconditions for allowing a horizontal merger to proceed, involved vertical relationships between brewers and their affiliated retailers, in spite of the fact that the alleged problem was horizontal. Fortunately, however, the Commission's thinking has changed over the years, and I believe that it is unlikely that the current Competition Commission would advocate such indirect remedies today.

5 Appendices

5.1 Appendix A: The Data and Econometric Model for the Vertical Case

The econometric analysis of the vertical case involves a detailed assessment of prices and brewer profits during the transition period. The data that I used to assess the mandated changes consist of three panels: two on retail prices by product type and ownership arrangement and the third on firm profitability.

Prices: I obtained price and volume data by product and public–house type. The product categories, all of which are draft beers, are bitter, lager, standard lager, premium lager, mild, and stout. The pub types are tied and free houses. These data are available at bimonthly intervals from StatsMR, a subsidiary of A.C. Nielsen Company. My data begin in January/February 1988 and end in March/April 1994. There are thus six cross-sectional and 38 time-series observations in each of the first two panels.

Profits: The profit data consist of accounting information from all of the brewing firms that were incorporated in the UK and traded publicly during the 1985-1993 period. These data came from the World Equities (formerly Euro Equities) financial database. There are fourteen firms or cross-sectional units and nine years or time-series observations.

In addition to the dependent variables, I collected data on demand variables such as unemployment and a house–price index[23] and supply variables, such as the prices of the major inputs to brewing.

A preliminary analysis of the data revealed that, after the Beer Orders, retail prices rose and brewer profits fell. It is not clear, however, if those trends were due to the Beer Orders or to other factors. An econometric model is needed to distinguish between the two.

The equations that were estimated are reduced-form price and profit equations. The dependent variables are i) the price of beer sold in tied houses, ii) the price of beer sold in free houses, and iii) company net profit divided by sales revenue. The explanatory variables are the supply and demand variables mentioned earlier. In addition draft-type (lager, ale, stout, etc.) and firm fixed effects were included.

The effects of the Beer Orders were modeled as a one–time exogenous break in

[23] The period surrounding the Beer Orders was one of declining real estate prices. It is therefore important not to attribute the trend in profits that was due to this factor to the Beer Orders.

trend (intercept and slope). The date when the Orders were published is well documented. Nevertheless, a great deal was known about their content prior to publication. In addition, the brewers were given three years to comply. If a regime shift occurred, therefore, it is not obvious when it began. For this reason, the break point was estimated in addition to the model parameters. A difference–in–difference specification was also estimated with the free houses as the control group, since those houses were not affected by the Beer Orders.

5.2 Appendix B: The Data and Econometric Model for the Horizontal Case

The horizontal case makes use of merger simulations that are based on a structural model of demand, cost, and market equilibrium. The equilibrium assumption must be carefully chosen. We assumed a static pricing game (Bertrand competition), which is a model of unilateral effects. Before calculating the equilibrium, however, one must estimate the building blocks — demand and cost. We estimated a very flexible specification of the demand for brands of a differentiated product (beer) and we used our estimated demands, together with engineering data on costs, to predict equilibrium prices and margins under the ownership structure that prevailed in the period of the data (1995). We then assessed the effects of the mergers by solving for equilibria of games with different numbers of players. In other words, changes in market structure — mergers and divestitures — were modeled as changes in the number of decision makers, where each decision maker controls the prices of some set of brands. This means that when two firms merge, some pricing externalities are internalized. Moreover, since brands of the differentiated product are substitutes and price competition was assumed,[24] all prices should rise after a merger or at least should not fall. The question is: by how much will they rise?

To build the simulation model, we first considered demand. With a differentiated product, market shares alone are not very informative, and substitutability among brands is key. To illustrate, suppose that two large firms merge but each firm's brands are very imperfect substitutes for those of the other firm. In those circumstances, prices should change little. On the other hand, if the firms' brands are highly substitutable, prices should increase. It is therefore necessary to estimate cross–price elasticities for each brand pair.

[24] Formally, prices are strategic complements.

Estimation of flexible demand for brands of beer, one that does not constrain the cross–price elasticities, requires very disaggregate data. Such data were obtained from StatsMR, a subsidiary of A.C. Nielson. The data are for 63 brands, two bimonthly time periods — Aug/Sept and Oct/Nov 1995, two regions of the country —London and East Anglia, and two types of establishments — multiples and independents, where multiples are pubs owned by a large retailer, usually a brewer or an independent pub chain. The 63 brands were owned by ten brewers, the four nationals, Bass, Carlsberg–Tetley, Scottish-Courage, and Whitbread, two brewers without tied estate, Guiness and Anheuser Busch, and four regional brewers, Charles Wells, Greene King, Ruddles, and Youngs. The data also include brand and market characteristics.

Our data were collected in a period after the Courage/Scottish & Newcastle merger had occurred but before the Bass/Carlsberg–Tetley merger was proposed. We began by solving for the pricing equilibrium under the market structure that prevailed when the data were collected. When we were satisfied that the simulation model predicted the observed prices well, we evaluated a divestiture and a merger. The divestiture was modelled as a breakup of the Courage and Scottish & Newcastle merger, whereas, with the merger, the proposed Bass and Carlsberg–Tetley merger was allowed to go forward. In other words, we modeled the first (second) as an increase (decrease) in the number of decision makers.

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