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LETTER FROM THE EDITOR

In the Autumn 2012 issue of the *CPI Journal*, we are very pleased to present a Symposium on Tying (structured around the recent *Brantley* case), a Colloquium on Media Plurality, and a special article on the risks of excessive litigation for online platforms. Our Classic for this issue is Michael Whinston's groundbreaking 1990 article.

The Tying Symposium includes reactions to the issues raised by the recent *Brantley* v. *NBC Universal* class action case that concerned bundling multi-channel packages in cable and satellite TV services. The Symposium begs the question: Have the economists and the lawyers gotten closer to an agreement surrounding vertical restraints or are these simply divergent views on an important antitrust conduct?

Dennis Carlton & Michael Waldman's article looks at the current state of the economic theory of tying. They note that the *Brantley* decision is in line with economic theory, which stresses the importance of ensuring that no unambiguous reduction in social or consumer welfare be possible before discouraging tying behavior. In contrast, Peter Carstensen proposes a return to a traditional view of tying, where *tying* - while not necessarily *per se* illegal - should remain presumptively illegal unless a defendant can offer a legitimate justification for it. One of his arguments is that, as one of the prohibited conducts targeted by Congress in 1914, a presumption of illegality is a rational policy judgment.

Dan Crane then looks at the policy implications of *Brantley*: Should a conduct that results in transfers from consumers to producers (exploitative conduct), but that does not change the level of market power, be prohibited? The article presents a discussion on whether exploitative theories belong in the realm of antitrust. Whether tying should be viewed under a *per se* vs. a rule-of-reason lens is the focus of the article by Sonia Di Giannatale & Alexander Elbittar that, in reviewing the economics literature and some recent antitrust decisions, concludes that even where competition legislation appears to use *per se* approaches for condemning tying, there are conditions that require a rule-of-reason approach.

The final piece in the Symposium, by Herb Hovenkamp, summarizes the extreme positions taken in this debate (*per se* legality and *per se* illegality) and notes the nuances and difficulties that increase the possibility of erring in tying decisions. A key point he makes is that the antitrust problem must arise from an exclusion of a rival or a restraint of trade producing higher prices, not from the unwillingness of a seller to offer the number or size of products a consumer may wish to purchase.

The Colloquium on Media Plurality begins with Antonio Bavasso's discussion of whether Europe's regulatory regime - and more particularly the U.K.'s - requires a major overhaul in light of the increasingly blurred boundaries between traditional and new media. The article highlights a number of elements that regulation should consider in light of new technology and changing news consumption patterns, chiefly among them access and editorial neutrality. Rob Kenny focuses on the welfare effects of plurality interventions - those aimed at changing rules relating to the number of persons with control of media companies - and calls into question the merits of media ownership controls as changing consumption patterns (multi-sourcing) reduce the influence of any one provider.

Our special article this issue is by David Evans who argues that many online platforms that provide free services to businesses are likely to be subject to excessive litigation, which exposes them to small probabilities of catastrophic remedies. These platforms can attract millions of business users and are exposed to antitrust complaints in part because of their economic importance in multiple jurisdictions. If even a tiny fraction of these businesses pursue complaints these platforms can be subjected to extensive investigations and court cases and face risks of false positive decisions against them.

The issue concludes with our Classic, Michael Whinston's article, *Tying, Foreclosure, and Exclusion*. Eliana Garcés provides an introductory essay describing how Whinston's analysis helped move antitrust away from judgments, no longer relying on a "strong presumption" of foreclosure but looking at evidence of anticompetitive harm.

We hope you delve into the papers that comprise our 2012 Autumn CPI Journal and enjoy this lively and thought provoking debate among experts.

Elisa V. Mariscal
President and Editor-in-Chief
Competition Policy International

BRANTLEY VERSUS NBC UNIVERSAL: WHERE'S THE BEEF?

*Dennis W. Carlton & Michael Waldman**

ABSTRACT:
As with other important cases involving firms such as Kodak and Microsoft, the recent Brantley case raises interesting questions concerning appropriate antitrust policy in situations where firms practice a form of tying. Such cases are particularly difficult from an antitrust perspective because tying is pervasive in the economy and in many cases - actually probably most - the tying behavior has an efficiency justification. Even in cases where the justification may not be efficiency, as might occur in some instances where tying enables price discrimination, the practice may have nothing to do with harming competition. So the difficult issue faced by the courts in analyzing tying under the antitrust laws is to prohibit tying which harms competition and welfare without prohibiting tying that has an efficiency justification and thus improves welfare or where tying has a justification that is unrelated to harming competition.
In this short paper we discuss the specific issues raised by the Brantley case. We begin by describing the case in more detail and then discuss the relevant economic theories that have been developed to understand the type of tying behavior practiced in the case. We then discuss appropriate antitrust policy and end with a concluding discussion.

I. INTRODUCTION

Standard behavior in the cable and satellite television industry is to sell multi-channel packages to consumers rather than sell channels individually. In the recently decided *Brantley* case, various programming companies such as NBC Universal and FOX, along with distributors like Time Warner and DIRECTV, were sued in an antitrust class action suit brought by cable and satellite television subscribers. The suit was recently dismissed by the U.S. Court of Appeals for the Ninth Circuit because, it was ruled, the plaintiffs did not allege that competition was hurt but alleged only that the practice caused harm to consumers.

As with other important cases involving firms such as Kodak and Microsoft, this case raises

* Dennis W. Carlton is the David McDaniel Keller Professor of Economics at the University of Chicago Booth School of Business, and Michael Waldman is the Charles H. Dyson Professor of Management and Professor of Economics at the Samuel Curtis Johnson Graduate School of Management, Cornell University.

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interesting questions concerning appropriate antitrust policy in situations where firms practice a form of tying. Such cases are particularly difficult from an antitrust perspective because tying is pervasive in the economy and in many cases - actually, probably most - the tying behavior has an efficiency justification.[1] Even in cases where the justification may not be efficiency, as might occur in some instances where tying enables price discrimination, the practice may have nothing to do with harming competition. So the difficult issue faced by the courts in analyzing tying under the antitrust laws is to prohibit tying which harms competition and welfare without prohibiting tying that has an efficiency justification and thus improves welfare or where tying has a justification that is unrelated to harming competition.

In this short paper we discuss the specific issues raised by the *Brantley* case.[2] We begin by describing the case in more detail and then discuss the relevant economic theories that have been developed to understand the type of tying behavior practiced in the case. We then discuss appropriate antitrust policy and end with a concluding discussion.

II. THE CASE

Anyone who has cable or satellite television will be familiar with the behavior in this case that was the subject of the complaint, i.e. that the standard cable or satellite television package bundles together a large number of channels. The typical package contains some popular channels like ESPN and TNT but also a large number of channels where viewership is limited and which many customers would probably not order if given the choice. Further, it is typically the case that the cable or satellite company does not also offer individual channels in an unbundled fashion where consumers can pick and choose which channels to order.

At different stages of the case the plaintiffs made two arguments concerning this behavior. One argument, which was the basis for the most recent appeal, is that the bundling behavior reduced consumer welfare by eliminating consumer choice and forcing consumers to purchase

[1] Discussions of efficiency rationales for tying can be found in Dennis W. Carlton & Jeffrey Perloff, *Modern Industrial Organization* (2005); David S. Evans & Michael Salinger, *Why do Firms Bundle and Tie? Evidence from Competitive Markets and Implications for Tying Law*, 21 Yale J. Regulation 37, 37-89 (2004).

[2] For general discussions of our views of antitrust policies concerning tying see Dennis W. Carlton & Michael Waldman, *How Economics can Improve Antitrust Doctrine Towards Tie-In Sales*, 1 Competition Pol'y Int'l 27, 27-40 (2005); Dennis W. Carlton & Michael Waldman, *Tying,* in Issues In Competition Law And Policy (2008)

unwanted channels as a condition for purchasing the more popular and desired channels.

Note that this is an unusual antitrust argument since similar behavior is, in fact, quite common, and in other instances where this behavior is observed there are typically no arguments concerning an antitrust violation. For example, consider a collection of an author's short stories packaged together into a book, where the publisher does not sell any of the short stories individually. If the author's stories vary in quality and popularity as would be expected, then from the standpoint of the first argument, this scenario has basically the same features as the bundling practices of the cable and satellite providers. That is, consumers who are interested only in the higher quality and more popular stories are forced to purchase the less popular stories they have no interest in. Consumers, according to the plaintiffs' argument in *Brantley*, are hurt by the practice and would be better off if the antitrust authorities forced the author and publisher to make the stories individually available, in which case the consumers could pick and choose which stories to purchase. But we know of no one who argues that such behavior by authors and publishers should be of serious concern to the antitrust authorities.[3]

The court rejected this argument ruling that the alleged behavior does not violate the antitrust laws because no harm to competition was alleged. That is, without ruling on the plaintiffs' theory that the bundling reduced consumer welfare by reducing consumer choice, the court ruled that no violation of the antitrust laws was alleged by the plaintiffs since the complaint included no claim that the practice hurt competition.

At an earlier stage in the litigation, the plaintiffs also made the second argument that the conduct had anticompetitive effects. Specifically, the claim was that the bundling practice had foreclosed independent programmers from entry and successfully competing in the market for channels. The court allowed the case to proceed with this claim but after preliminary discovery the plaintiffs abandoned this claim.

III. THEORY

Determining the appropriate antitrust policy in this case requires understanding what economic theory tells us concerning the welfare effects of this type of tying. There are a number of parts of the tying literature that are potentially relevant. These include bundling to reduce het-

[3] In the decision the court acknowledged this type of similarity and seemed concerned about what a decision that the behavior constituted an antitrust violation would imply concerning the legality of analogous behavior in other markets where no one has alleged a violation of the antitrust laws.

Probably the most relevant argument in the tying literature concerning this case is Stigler's argument concerning price discrimination, and subsequent extensions of that argument.

erogeneity in willingness to pay, efficiency rationales for tying and bundling, and anticompetitive rationales for tying and bundling. We look at each one of these next.

A. Bundling Used to Reduce Consumer Heterogeneity

Probably the most relevant argument in the tying literature concerning this case is Stigler's argument concerning price discrimination, and subsequent extensions of that argument.[4] According to this theory, firms sell bundled products because it decreases heterogeneity across consumers concerning willingness to pay and the reduced heterogeneity increases profitability.

Consider a monopolist that sells two goods, denoted A and B, to two consumers, denoted 1 and 2. Suppose consumer 1 has a willingness to pay equal to $20 for a unit of A and $5 for a unit of B, while consumer 2 has a willingness to pay equal to $11 for A and $14 for B. Also, to keep the argument simple, assume that the firm has zero costs for producing each good. Suppose initially that the monopolist does not bundle and cannot price discriminate by charging different prices to the two consumers (maybe because of constraints imposed by resale). For each good the monopolist can charge either a low price and sell to both consumers, or charge a high price and only sell to the consumer with a higher willingness to pay for the product. Given the numbers specified for willingness to pay in this example, the monopolist maximizes profits by charging $11 for A and selling A to both consumers and $14 for B and only selling B to consumer 2. Further, letting π denote firm profitability, we now have that, in the absence of bundling, $\pi=2(\$11)+\$14=\$36$.

Now suppose the monopolist bundles A and B together instead of selling the products individually. Consumer 1's willingness to pay for the bundle is given by $20+$5=$25 while consumer 2's willingness to pay for the bundle is $11+$14=$25. So if it bundles it charges $25 and sells the bundle to both consumers. This yields profits given by $\pi=2(\$25)=\$50>\$36$. Thus, if the monopolist has the option of bundling or not bundling, it chooses to bundle.

Note that in this example bundling allows the firm to perfectly price discriminate because each consumer's willingness to pay for the bundle is the same, so bundling in this case increases social welfare as is standard with perfect price discrimination. Specifically, in this example, social welfare rises with bundling because when products are sold individually, consumer 1 does not purchase product B, which constitutes a deadweight loss, while with bundling each consumer purchases both products. But note further that, in this example, bundling reduces

[4] George J. Stigler, *United States v. Loew's Inc.: A Note on Block Booking*, 1963 Supreme Court Econ. Rev. 152, 152-157 (1963).

consumer welfare because perfect price discrimination means that the monopolist extracts all the potential surplus from consumers. Specifically, when goods are sold individually consumer 1 receives positive surplus from the consumption of A given by \$20-\$11=\$9, while with bundling consumer 1's surplus from consuming A equals zero.[5]

The result that bundling results in perfect price discrimination is, of course, not a general result. It arises in our example because the two consumers had identical valuations for the bundle. Without this it could still be the case that bundling is used to reduce differences in willingness to pay, but the result would not be perfect price discrimination. However, to the extent that bundling is used to move towards perfect price discrimination it should be expected that in many, if not most, cases of this sort the practice will increase rather than decrease social welfare.

The example analyzed above illustrates Stigler's initial argument that bundling can be used to increase profits by reducing differences in willingness to pay when there is a negative correlation in valuations. A negative correlation in valuations means that, as in our example, the consumer or consumers with a higher willingness to pay for one product have a lower willingness to pay for the other product. But subsequent papers in this literature make it clear that the negative correlation in valuations is, in fact, not required for bundling to improve profitability in these types of cases.[6]

We think that this argument, originally due to Stigler, likely captures an important element of why bundling is so heavily used by cable television and satellite television providers. Consider a market with a monopoly cable service that has eleven channels - ESPN and channels which we call 1 through 10. Suppose further that there are 1000 consumers in this market and ESPN is popular with all the consumers - each of the 1000 consumers has a willingness to pay equal to \$15 for ESPN. Each of the other channels is popular with only a small subset of consumers. Specifically, consumers 1 through 100 like channel 1, consumers 101 through 200 like channel 2, etc. We assume that each consumer has a willingness to pay equal to \$12 for

[5] Price discrimination, whether achieved through bundling or otherwise, generally has an ambiguous effect on both social and consumer welfare. *See,* for example, Dennis W. Carlton & Jeffrey M. Perloff, Modern Industrial Organization, Ch. 9 (2005).

[6] *See,* for example, Richard Schmalensee, *Gaussian Demand and Commodity Bundling*, 57 J. Business S211, S211-S230 (1984); Preston McAfee, John McMillan, & Michael D. Whinston, *Multiproduct Monopoly, Commodity Bundling, and Correlation of Values*, 93 Quarterly J. Econ. 371, 371-383 (1989); *Yannis Bakos & Erik Brynjolfsson, Bundling Information Goods: Pricing, Profits and Efficiency*, 45 Management Science 1613, 1613-1630 (1999).

the non-ESPN channel he or she likes, while willingness to pay equals $1 for each of the other channels (which we refer to as the "least-liked channels"). Also, just as in our original example, assume there are no costs to the cable provider of selling channels to consumers.

Suppose initially that the seller does not bundle. Then it will sell ESPN to all consumers at a price of $15, while each of the other channels will be offered at a price of $12, but each of these other liked channels will only be purchased by the consumers with willingness to pay for the channel equal to $12. Monopoly profitability in this case is given by π=1000($15) +10(100($12) = $15,000+$12,000=$27,000. Now suppose, instead, that the monopolist bundles all the channels together into a single multi-channel package. Each consumer's willingness to pay for the bundle equals $15+$12+9($1)=$36, i.e., willingness to pay for the bundle equals the value of ESPN plus the value of the other channel liked by the consumer plus the value of the remaining 9 channels. This behavior yields profitability given by π=1000($36)=$36,000>$27,000. So the monopolist increases his profits by bundling and social welfare also increases because each consumer now also receives the least-liked channels, each of which is associated with a small but positive social surplus. In other words, there is nothing concerning the cable situation of a few popular channels and many less popular ones that stops Stigler's insight from applying.

As in our initial example, in this example all consumers have the same willingness to pay for the bundle so bundling results in perfect price discrimination which means, as just pointed out, social welfare rises. In contrast to the original example, however, bundling here does not decrease consumer welfare. In the original example one of the consumers had positive surplus when products were sold individually, so when the monopolist used bundling to perfectly price discriminate the result was that consumer welfare fell. In contrast, in this example consumers receive no surplus when products are sold individually, so bundling - which again results in perfect price discrimination - increases social welfare and leaves consumer welfare unchanged.

Now we change the example just slightly to show that it is possible that bundling in this type of setting can even increase consumer welfare. Suppose everything is the same as before except that there is some heterogeneity concerning willingness to pay for the least-liked channels. Specifically, within each consumer group of 100 individuals there are 10 consumers whose willingness to pay for the least-liked channels is $2 rather than $1. If the monopolist does not bundle, then pricing is exactly like it was before. That is, ESPN is sold to all consumers at a price of $15, while each of the other channels is sold at a price of $12 but only to consumers with willingness to pay for the channel equal to $12. As before, this yields profitability for the monopolist given by π=$27,000.

Now consider bundling. Within each consumer group 90 individuals have a valuation

on the bundle equal to \$15+\$12+9(\$1)=\$36 just like before, while 10 individuals have a valuation on the bundle equal to \$15+\$12+9(\$2)=\$45. Since the proportion of individuals in the population with the higher willingness to pay for the bundle is small, optimal bundling behavior consists of the monopolist setting the bundle price equal to \$36 and selling the bundle to everyone. So just like before, bundling yields profitability given by π=1000(\$36)=\$36,000> \$27,000. In other words, we again have the monopolist increasing profitability by bundling.

Social welfare rose because under bundling, but not under individual pricing, consumers purchased their least-liked channels, which was efficient.

Although this example is the same as the previous one in terms of pricing and profits for both selling the products individually and bundling, it is nevertheless the case that the welfare implications of the two examples are different. In the previous example bundling resulted in perfect price discrimination, which means it raised social welfare. Social welfare rose because under bundling, but not under individual pricing, consumers purchased their least-liked channels, which was efficient. In the new example, bundling does not result in perfect price discrimination because the consumers with the higher valuations for their least-liked channels are left with some surplus. But, just as in the previous example, in the new example bundling raises social welfare because consumers purchase their least-liked products.

More important is the distinction between the two examples in terms of the effect of bundling on consumer welfare. In the previous example bundling did not change consumer welfare - under both individual product selling and bundling, consumers were left with no surplus. In contrast, in the new example bundling actually improves consumer welfare. In this example when the firm sells individual channels each consumer purchases ESPN and the consumer's other liked channel, and prices are equal to willingness to pay. So consumers receive no surplus. When the monopolist bundles, then consumers purchase all the channels so social welfare clearly rises. But it is also the case that the price of the bundle reflects willingness to pay for the bundle for those consumers with a lower willingness to pay. So the consumers with a higher willingness to pay for the bundle receive positive surplus.

The point of our last example is not that bundling used to reduce variability in willingness to pay must increase consumer welfare. We think that whether or not this is the case will depend on the facts of the particular situation. Rather, our point is that there is no reason to believe that this type of bundling will necessarily decrease consumer welfare, which seems to be the position taken by the plaintiffs in the *Brantley* case. Further, even if it were possible to estimate whether bundling would raise or lower consumer welfare, we would not favor intervention in cases where analysis of the facts suggested that consumer welfare would decrease.

The reason is that such calculations are fraught with error. Further, given the widespread use of price discrimination in a typical market economy, we think it is infeasible and likely to cause significant inefficiencies to attempt to ban price discrimination, generally, or the one particular form achieved through bundling. Note that our argument here contradicts a position recently taken by Einer Elhague concerning bundling used for price discrimination where he incorrectly uses a result of Schmalensee to argue that price discrimination of this sort typically reduces consumer welfare.[7,8]

Finally, notice that nothing in these examples involve any element of competition.

B. Efficiency

A second part of the tying literature that is potentially relevant for understanding the *Brantley* case is the literature that focuses on efficiency rationales for tying. There are a number of efficiency-based arguments for tying and we think probably the most relevant argument for this case is the one from Kenney & Klein concerning search and sorting costs.[9]

The Kenney & Klein argument is that bundling is used to reduce search and sorting costs when units vary in quality. The main real world example that Kenney & Klein put forward to illustrate their argument was De Beers' practices in the diamond market. As described by Kenney & Klein, De Beers sold diamonds in bags containing a number of diamonds and employed a take-it-or-leave-it strategy, i.e., a buyer was offered a single bag at a single price and, if the offer was declined, the buyer was not offered an alternative nor was he invited back to be a buyer in the future.[10] The Kenney & Klein argument is that this practice reduced the seller's costs because De Beers did not have to individually grade each diamond, and it also reduced buyers' search costs.

This argument potentially applies to the bundling of television channels. If channels are

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[7] Einer Elhauge, *Tying, Bundled Discounts, and the Death of the Single Monopoly Profit Theory*, Harvard L. Rev. 397, 397-481 (2009); Schmalensee, *supra note* 6, at S229.

[8] Schmalensee shows that bundling typically reduces consumer welfare in settings characterized by symmetry of demands across products. But in many real world examples of bundling, demands are not symmetric across products, and therefore Schmalensee's results do not necessarily apply in those situations. For example, in the *Brantley* case and in our cable television examples above, some channels were quite popular with most consumers while popularity for other channels was quite limited.

[9] *See* Roy W. Kenney & Benjamin Klein, *The Economics of Block Booking*, 26 J. Law & Econ. 497, 497-540 (1983).

[10] We do not know whether De Beers still employs these practices.

sold individually, then the cable or satellite provider needs to estimate willingness to pay for each channel individually and this is likely much more costly than estimating willingness to pay for a single bundle (or a menu consisting of a small number of bundles). Additionally, consumers need to potentially investigate the quality of each individual channel when channels are sold individually before deciding what to purchase. So, from a search cost standpoint, it is very likely that becoming informed requires much less effort when products are bundled and consumers need to identify the quality of only a single bundle, or small menu of bundles, rather than the quality of each individual channel.

C. Anticompetitive Arguments

The other part of the theoretical literature on tying that is potentially relevant to understanding the *Brantley* case is the part focused on how tying is used to harm competition and extend market power. That is, even though the argument made by the plaintiffs in the final stage of the case did not include an allegation that bundling was used to hurt competition, it is worth considering whether, in the abstract, it is plausible that this type of bundling could be an anticompetitive practice.

The Chicago School argument is that tying or bundling will not be used to hurt competition because a monopolist in one market can extract all the potential surplus from a complementary market through the pricing of the monopoly product, so there is no reason to tie in order to harm rivals and extend a monopoly position.[11] But a number of more recent papers show that there are various circumstances in which the Chicago School argument breaks down and tying can be used to harm competition.[12]

For example, in his important 1990 paper (which is reproduced in this issue), Michael

[11] *See* Aaron Director & Edward Levi, *Law and the Future: Trade Regulation*, 51 Northwestern Univ. L. Rev. 281, 281-296 (1956); Ward S. Bowman, *Tying Arrangements and the Leverage Problem*, 67 YALE L. REV. 19, 19-36 (1957); Richard A. Posner, *Antitrust Law, An Economic Perspective* (1976); Robert H. Bork, *The Antitrust Paradox: A Policy At War With Itself* (1978).

[12] *See* Michael D. Whinston, *Tying, Foreclosure and Exclusion*, 80 American Econ. Rev. 837, 837-859 (1990); Jay Pil Choi & Christodoulos Stefanadis, *Tying Investment and the Dynamic Leverage Theory*, 32 Rand 52, 52-71 (2001); Dennis W. Carlton & Michael Waldman, *The Strategic Use of Tying to Preserve and Create Market Power in Evolving Industries*, 33 Rand 194, 194-220 (2002); Barry Nalebuff, *Bundling as an Entry Barrier*, 119 Quarterly J. Econ. 159, 159-187 (2004). *See also* Dennis W. Carlton & Michael Waldman, *Upgrades, Switching Costs and the Leverage Theory of Tying*, 122 Econ. J. 675, 675-706 (2012).

The important point to note is that there is a difference between the behavior in Brantley and the bulk of the tying literature described above concerning tying used for anticompetitive purposes.

Whinston shows that in a class of settings the Chicago School argument holds when the monopolist's primary good is essential, but that tying of a complementary good may be used for anticompetitive purposes when the primary good is not essential. The term essential here means that all uses of the complementary good require the primary good. The basic logic for why the Chicago School argument breaks down when the primary good is not essential is that, if there are economies of scale in the production of the complementary good, tying can stop complementary good rivals from achieving scale. In turn, the result can be increased market power for the monopolist in the sale of the complementary good for uses that do not require the primary good.

In our 2002 paper we investigate a related argument in which a primary good monopolist ties a complementary good - not to increase market power in the sale of the complementary good, but rather to preserve its monopoly position in the primary good market. In this model the firm has a monopoly position in the primary market today but faces potential entry in the primary market next period. We show that, if there are network externalities or the rival faces complementary good entry costs, then tying can be profitable for the monopolist because it stops complementary good entry, which, in turn, also stops the rival from entering the primary market.

The question regarding *Brantley* is whether the type of tying in the case is subject to the Chicago School argument or whether the Chicago School argument does not apply and, as a result, it is plausible that the tying hurts competition. The important point to note is that there is a difference between the behavior in *Brantley* and the bulk of the tying literature described above concerning tying used for anticompetitive purposes. In most of this literature the tying firm sells and produces multiple products, in one of which it has a monopoly position, and the issue is whether the firm can use tying to either extend or preserve its market power. But this situation is different than the facts in the *Brantley* case. In that case cable television and satellite television providers bundle channels mostly produced by other firms.

This difference means that the Whinston argument as to when tying can create an anti-

competitive effect does not apply and so this rationale seems unlikely to be driving tying in this industry. In the Whinston argument the tying is used to increase the tying firm's market power in selling the complementary good in other markets. But in many, if not most, cases the cable and satellite television providers are bundling channels purchased from content providers rather than channels produced by the cable and satellite firms, so increasing the market power of the channels in other markets does not seem to be the likely justification for the bundling.

Alternatively, another possibility is that the Carlton & Waldman argument for when tying can be anticompetitive applies. As discussed, in that argument a monopolist of a primary good ties a complementary good to preserve its market power in the primary good market. But in that argument, when the monopolist ties the complementary good the result is that it stops entry into the complementary market, which then results in no entry into the primary market. But it does not seem that a lack of channels is serving to reduce entry of additional cable or satellite television providers into this industry, so the Carlton & Waldman argument also does not seem to be a reasonable explanation for bundling in this industry.

In summary, although there are a number of theories concerning how tying and bundling can be an anticompetitive practice, we do not see any that match the facts of the case. In other words, based on the current state of the economic theory of tying, the bundling behavior in the *Brantley* case does not raise competitive issues.

IV. APPROPRIATE ANTITRUST POLICY

One final question regarding *Brantley* is whether the case was decided correctly from the standpoint of the antitrust laws. We think the answer is an obvious yes. The antitrust laws bar behavior that harms competition rather than behavior that hurts consumer welfare in the absence of harm to competition. There was no allegation (in the final stage of the case) or evidence put forth (at any stage of the case) concerning harm to competition. Also, existing theories on tying/bundling used to foreclose competition are not consistent with the facts of this case. So we think it is clear cut as a matter of economics that the courts correctly decided that there was no antitrust violation.

V. CONCLUSION

There are many reasons why firms might bundle or tie. In the *Brantley* case firms in the cable and satellite television industry bundled channels. The aspect of the behavior focused on by the plaintiffs was that less popular channels were bundled with popular channels so, in a sense, consumers were "forced" to purchase channels they did not want. The relevant questions are: (i) was the behavior a violation of the antitrust laws; and (ii) does the behavior reduce consumer and/or social welfare in which case one might entertain the possibility that the behavior should be discouraged (and then the question is how).

The answer to the first question is clear. There is no evidence and no theory that would indicate that competition was harmed. So there was no antitrust violation. We think the answer to the second question is almost as clear cut. The most plausible justifications for the behavior are efficiency and price discrimination and neither possibility suggests an unambiguous reduction in social or consumer welfare. Moreover, as explained earlier, we think it is unwise to ban price discrimination generally or in the particular case of bundling. So we see no convincing argument for why the behavior should be discouraged.

TYING - STILL A COMPETITIVE EVIL

*Peter C. Carstensen**

ABSTRACT:
This article examines the unavoidable adverse effects on consumer choice, consumer prices, and competition in the market for the tied (as well as the tying good) that necessarily result from unjustified tying by any firm with any appreciable capacity to affect competition in the markets for either good. My thesis is not that all tying is or should be absolutely illegal, but rather it ought to remain presumptively illegal and should be condemned after only a "quick look" unless the defendant can plead and prove a legitimate justification, i.e., one that does not involve primarily exploiting customers or excluding competitors.

I. INTRODUCTION

Congress in 1914 expressly prohibited any restriction by a seller on the buyer's freedom to buy goods from other sellers when such conduct "may . . . substantially lessen competition or tend to create a monopoly in any line of commerce."[1] The condemnation speaks to situations in which either there is a cognizable potential effect on competition or a tendency to create a monopoly "in any line of commerce." This action reflected a profound Congressional concern with the ways in which dominant firms can distort competition by the use of such restrictive terms to the detriment of consumers, and exclude equally efficient rivals from markets. Tying was one type of conduct that Congress targeted with this provision in direct response to the Supreme Court's *A. B. Dick* decision that allowed patent tying practices.[2]

Today economists and lawyer apologists for large enterprises have come up with a number of "justifications" for tying that, in some economic sense, advance aggregate welfare.[3] However, as the Chief Justice observed in the recent health care decision, legislators and constitutional

* Peter Carstensen is Professor at the University of Wisconsin Law School where his scholarship and teaching have focused on antitrust law and competition policy issues. He has published a number of articles in the field, including a number analyzing aspects of the relationship of antitrust law and regulation.

[1] 15 U.S.C. §14 (Clayton Act §3).

[2] *See*, Motion Picture Patents Co.v Universal Film Mfg. Co., 243 U.S. 502, 517 (1917) overruling Henry v. Dick Company, 224 U. S. 1 (1912).

[3] *See*, e.g., Herbert Hovenkamp, *Federal Antitrust Policy The Law of Competition and Its Practice* 474 (4th Ed. 2005) ("Tying is not even arguably in the category of highly suspicious restraints for which the per se rule is reserved.")

Merely exploiting consumers and/or excluding competitors were, until recently, not deemed to be a legitimate justification for tying.

draftsmen are not engaged in the metaphysics of economics.[4] They are engaged in the practical management of the nation and its economy. In that management, if the goal is to protect the competitive process from undue interference, and if particular practices on balance are likely to have adverse effects on that process, then creating a presumption that such practices are illegal is a rational policy judgment by "practical statesmen" even if the "metaphysical philosophers" of economics want to justify that which Congress forbad.

The prohibition on tying, as manifest in Clayton 3, is one of presumptive illegality whenever there is a discernable potential or actual effect on the market. Mislabeled as a *per se* rule,[5] tying doctrine, in fact, allowed ties when there was a legitimate, non-exploitive, non-exclusionary justification and no reasonable alternative.[6] However, merely exploiting consumers and/or excluding competitors were, until recently,[7] not deemed to be a legitimate justification for tying. By transforming the issue from a concern for the competitive process to one focused on the metaphysical abstractions of economic theory, modern tying doctrine has diminished the impact of the law and, in doing so, has harmed the long-run efficiency of the market process.

In what follows, the argument examines the unavoidable adverse effects on consumer choice, consumer prices, and competition in the market for the tied good (as well as the tying good) that necessarily result from unjustified tying by any firm with any appreciable capac-

[4] In justifying the rejection of the "free rider" argument for imposing a health insurance requirement on all adults, the Chief Justice proclaimed: "To an economist, perhaps, there is no difference between activity and inactivity; both have measurable economic effects on commerce. But the distinction between doing something and doing nothing would not have been lost on the Framers, who were "practical statesmen," not metaphysical philosophers." Nat. Fed. Ind. Bus. v. Sebalius, __U.S. __, 132 S.Ct. 2566, 2589 (2012).

[5] *See*, Hovenkamp, *supra* note 3, at 473 (noting requirement of competitive effect–"market power" and the fact that affirmative defenses are permitted).

[6] The case law refers to the prohibition as a "*per se*" rule but this reflects the poverty of legal doctrinal labels in antitrust law.

[7] In *Independent Ink*, the Court implicitly sustained a tie-in whose only apparent function was to "meter" the value of the tying product by excluding competition in the tied product thereby both exploiting buyers and harming competition. *See* Illinois Tool Works Inc. v. Independent Ink, Inc., 547 U.S. 28 (2006).

ity to affect competition in the markets for either good.[8] My thesis is not that all tying is or should be absolutely illegal, but rather it ought to remain presumptively illegal and should be condemned after only a "quick look" unless the defendant can plead and prove a legitimate justification, i.e., one that does not involve primarily exploiting customers or excluding competitors.[9]

Implicit in the foregoing is a perspective on the goals of antitrust law that is at odds with the views of many commentators. The goal of antitrust is to facilitate, protect, and enhance the competitive process. As Mike Scherer observed many years ago: "the political arguments . . . and not the economist's abstruse models . . . have tipped the balance of social consensus toward competition [because] . . . competition decentralizes and disperses power [, limits] the conscious exercise of power held in private . . . or government hands [, and advances] freedom of opportunity."[10]

And besides political arguments, there are powerful economic reasons as well to take as the basic goal of competition law and policy the process itself and not some economic manifestation of its operation. Such a perspective advances the longer run interest in market dynamics by preserving and protecting the ability to enter and compete. Economic models, especially those resting on static comparisons, fail to take account of the overall interest in retaining a dynamic and flexible economy with as few restraints on participation as feasible.

II. THE TRADITIONAL STANDARDS AND LEADING CASES - STUDIES IN EXPLOITATION

The doctrinal analysis of tying has suffered from the limited vocabulary of antitrust law. Given a choice between describing the law governing tying as an application of a "rule of reason" which implied an open-ended inquiry into the merits of a particular restraint and a *per se* rule, the Supreme Court opted for the *per se* label. This label reflected the unfortunate doctrinal fact

[8] Even Hovenkamp, a tying apologist, recognized seven ways in which tying might be explained; six involve harms to competition while only one arguable advances legitimate interests in either economic efficiency or the competitive process, Herbert Hovenkamp, *Federal Antitrust Policy The Law Of Competition And Its Practice*, 3rd Ed 398 (2005). Yet he advocates an open-ended rule of reason in which the victim must bear all the risks of rejection. Id. at 432-433.

[9] A central procedural implication of this framework is that justification for any tying is a matter of affirmative defense with all relevant burdens on the party engaging in such tying.

[10] F. M. Scherer & David Ross, *Industrial Market Structure And Economic Performance* 18-19 (3rd Ed. 1990).

that the Court had cabined itself into a binary categorization for the analysis of restraints. The poverty of doctrinal language, however, cannot totally obscure the analysis leading up to the conclusionary label.

A conventional tying case requires a challenger to establish four elements:[11] 1) that two or more distinct goods or services are involved, 2) that they are tied, 3) that the "tying" good has some distinctiveness or market power such 4) that there is an appreciable effect on the marketplace. But even when those elements existed, the defendant can escape liability based on a legitimate business justification.

The two products or services criterion is often problematic and contentious. Whether the issue is newspaper advertising[12] or the use of anesthesiologist in connection with surgery,[13] the issue can be complex and its resolution should turn in substantial part on the goals of competition law. Does the putative tie actually foreclose access to the market for the "tied" service or product?

The issue of whether there is a "tie" is also one that is debatable. In some cases the tie is overt and clear - the buyer can get the desired product if, and only if, the buyer takes the tied product. But in other cases there is a price difference, i.e., the package has a price that is substantially more favorable than buying the elements separately,[14] or the buyer can opt out of the tie if it can get a lower price or equal quality goods.[15] Again the analysis, viewed realistically,

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[11] Hovenkamp, *supra* note 3, at 435, advances a five step analysis that distinguishes between "tying" and "coercion" while Sullivan & Grimes identify a three-step analysis that is essentially similar. Lawrence A. Sullivan, Warren S. Grimes, *The Law Of Antitrust: An Integrated Handbook* 383 (2000).

[12] *See*, Times-Picayune v. United States, 345 U.S. 594 (1953) (combined sale of advertising in two commonly owned newspapers did not involve two products); but *see* Associated Press v. Taft-Ingalls, 323 F2d 114 (6th Cir.1963) (requiring purchase of additional news services from a press service involved two or more products).

[13] I remain a skeptic about the characterization of anesthesia as a separate product from the components of surgery despite the Supreme Court's contrary view. Jefferson Parish Hosp. Dist. No. 2 v Hyde, 466 U.S. 2 (1984). My observation is that there is little demand for anesthesia as a separate service but that almost everyone undergoing major surgery does use it. Moreover, it is used in fixed ratio with the overall service being provided, i.e., surgery. Hence, it is a component, separately produced and provided, that is an element in surgery. But just as one would not regard a car maker's choice of engine components - all essential to the car's operation - as unlawful tying, so it has always seemed a stretch to call anesthesia a distinct product. This implies that the hospital offers a surgical service or that the surgeon is the "manufacturer" of the service and, in either case, the customer is buying the full service and not its components. *See*, *id*. at 43-45 (O'Connor J., concurring). Hence, Justice O'Connor's view that the *Hyde* case should be examined as an exclusive dealing case makes sense as the appropriate analytic framework to consider its competitive effects. *Id*. 45-46 (O'Connor concurring).

[14] *See*, e.g., Cascade Health Solutions v. PeaceHealth, 542 F.3d 668 (9th Cir. 2008).

[15] International Salt Co. v. United States, 332 U.S. 392 (1947).

focuses on when the combination interferes with the functioning of either the tied or tying market and there is no legitimate explanation for that combination.[16]

The third element, market power, is one that has changed most notably. In the older cases, it was a marginal consideration since the fact of a tie, affecting commerce in some appreciable degree, sufficed to show its adverse effect on the market. This analysis was particularly relevant to applications of the Clayton Act with its unidirectional focus on adverse effects while the Sherman Act, because of its more general interpretation, more readily accommodated a requirement of some market power.[17] What is striking when one looks at the older cases such as *Northern Pacific*[18] or *International Salt*[19] is how little market power is evident. But when the elements of the bundle can be obtained separately elsewhere in the market, then there is no adverse tying effect.[20]

The final step is to show that the tie has some effect on a market. Here again, the older cases were willing to find risks of harm based on modest absolute sales or dollar values.[21] One can read these decisions as reflecting again a policy of presumptive illegality. If the tie had some demonstrable or even credible potential adverse effect on competition, it was presumptively illegal because tying itself was in fundamental conflict with the ideal of competition on the merits. An effective tie - whether of packages of motion pictures for use on television,[22] land and rail services in Montana,[23] or salt injecting machines and salt[24] - had the effect of foreclosing some level of competition.

The primary focus was on the market for the tied product where the effect of the tie was to foreclose those sellers who lacked access to the tying product from access to customers who needed the tying product. Thus the test was whether competition was foreclosed in any degree. If it was, the conduct necessarily had an adverse effect on the market. That effect might be mi-

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[16] Although legitimate business justification is primarily an affirmative defense, it also enters here if the business can show that it experiences cost savings by selling the package. This justification is different from a claim that the buyer experiences lower search costs that the seller captures - that does not provide an excuse for denying buyers other options.

[17] *See* generally, Times-Picayune v. United States, 345 U.S. 594 (1953).

[18] International Salt Co. v. United States, 332 U.S. 392 (1947).

[19] Northern Pac. Ry. Co. v. United States, 356 U.S. 1 (1958).

[20] *See*, U.S. Steel Corp. v. Fortner Enterprises, Inc. 429 U.S. 610 (1977) (the tying product, 100 percent financing for a housing development, was available in the market from other sources).

[21] International Salt Co. v. United States, 332 U.S. 392 (1947); Northern Pac. Ry. Co. v. United States, 356 U.S. 1 (1958); United States v. Loew's, Inc., 371 U.S. 38 (1962).

[22] United States v. Loew's, Inc., 371 U.S. 38 (1962).

[23] Northern Pac. Ry. Co. v. United States, 356 U.S. 1 (1958).

[24] International Salt Co. v. United States, 332 U.S. 392 (1947).

What is striking when one looks at the older cases is how little market power is evident.

nor or major, but to make that determination would invite courts to "set sail on the sea of doubt"[25] and determine how much foreclosure, unjustified except as means of exploitation or exclusion, would be lawful.

But proof of these four elements did not necessarily result in absolute (true *per se*) illegality. The defendant could justify its tying practice based on some legitimate, non-exploitive, business explanation for its action. In addition, the defendant had to demonstrate there was no reasonably acceptable alternative way to achieve its legitimate goal. Hence, if the quality of an input was at issue, the general response was that quality standards communicated to buyers should suffice. But the tie was excused where there were greater risks of passing off products that would affect the manufacturer's goodwill,[26] or where some technical constraint required the linking of the components (in essence an argument that there was functionally a single product),[27] The paucity of such cases tells us that, in fact, the need to tie two products or services was, and is, relatively rare in order to achieve legitimate business needs.

If one reviews the cases where the *per se* label is invoked, the economic analysis of the facts as seen by the Supreme Court[28] consistently shows it rejected tying practices where its analysis showed that the tie either had an exploitive or exclusionary explanation or lacked any legitimate business justification. In contrast, another group of cases running through the history of tying show that the Court has allowed ties that (i) protected trademark goodwill,[29] (ii) involved repair part reputation,[30] and (iii) were needed to ensure successful entry into a new market.[31]

The *Jerrold* decision is perhaps the most significant because the Supreme Court upheld a tie in a period when it was considered to be at its most extreme phase of antitrust rigidity. The significant fact in *Jerrold* was that it was a new entrant into a business (providing cable televi-

[25] *See*, United States v. Addyston Pipe, 85 Fed. 271, 284 (6th Cir. 1898).

[26] Pick Mfg. Co. v. General Motors Corp., 299 U.S. 3 (per cur. 1936); F.T.C. v. Sinclair Refining Co., 261 U.S. 463 (1923).

[27] Dehydrating Process Co. v. A. O. Smith Corp., 292 F.2d 653 (1st Cir. 1963).

[28] One of the persistent challenges for outside observers and commentators is to take seriously the facts as the Court sets them forth. Using extra-record facts or hypothetical facts, one can come up with plausible counter stories, but that does a disservice to the analysis being investigated if the focus of the argument is whether or not the Court's analysis made sense in the context of the factual assumptions it made.

[29] FTC v. Sinclair Refining Co., 261 U.S. 463 (1923).

[30] Pick Manufacturing Co. v. General Motors Corp., 299 U.S. 3 (per cur.1936).

[31] United States v. Jerrold Electronics Corporation, 187 F. Supp. 545 (ED Pa 1960) aff'd per cur. 365 U.S. 567 (1961).

sion systems) needed to ensure its viability at that entry stage, and so controlling the engineering element for the installation of its systems was therefore vital to accomplishing entry.

The central observation is that tying does, in fact, distort the market process and affects adversely both buyers and competitors, actual and potential, of the firm employing the tying device.

This argument speaks directly to the dynamics of competition and the competitive process. *Jerrold*'s defense makes sense if the goal of antitrust law is to protect and promote competition, but it makes no sense in the metaphysical world of economics where everything is known and hence buyers of cable system equipment are both perfectly able to select their own engineering services and they can tell, if there is problem with the system, whose fault it was. Hence, the *per curiam affirmence* of the trial court in this case demonstrates that the Supreme Court understood the presumption against tying to be in service of the market process and not some economic abstractions. Moreover, the trial court also condemned continuation of the tie-in because *Jerrold* had, by the time of trial, established market credibility for its products. Continuation of the tie would have foreclosure effects on providers of engineering services and thus deny customers the benefits of competition on the merits in that market.[32]

The lower courts invoked these precedents to uphold other tying agreements when they saw the non-exploitation, legitimate business justification as valid. For example, the *A.O. Smith* case affirmed a tie between a special type of silo and a specific loading machine because the manufacturer established that it was necessary to link the two to avoid serious product failure problems.[33] In the *Mercedes repair parts* litigation, two different courts reached opposite conclusions about whether the tying had a legitimate business justification.[34] The two decisions reflect differing interpretations of the facts and the options available to the original equipment manufacturer of competing components.

Thus, a better historic statement of the law of tying is that it created a presumption of illegality whenever there was evidence of market power or a cognizable actual or potential impact on the market measured in dollar terms. The defendant then had the burden of proof to justify its conduct, not by arguing *de minimus* effect, but by providing a legitimate non-exploitive

[32] *See*, 187 F. Supp. at 557.

[33] Dehydrating Process Co. v. A.O. Smith Corp., 292 F.2d 653 (1st Cir. 1963).

[34] *Compare* Metrix Warehouse, Inc. v. Daimler-Benz Aktiengesellschaft, 828 F.2d 1033 (4th Cir.1987) (upholding tying claims involving auto repair parts) *with* Mozart Co. v. Mercedes-Benz of North America, Inc., 833 F.2d 1342 (9th Cir. 1987) (finding no violation because the car maker lacked "market power" in the tying product market defined as car dealerships in a particular brand of vehicle).

explanation for the conduct that demonstrated it was reasonably necessary to accomplish the legitimate purpose.[35]

The next two parts of this article examine in more detail why the courts adopted this perspective. The central observation is that tying does, in fact, distort the market process and affects adversely both buyers and competitors, actual and potential, of the firm employing the tying device. Given a policy goal of promoting and protecting competition on the merits, especially in light of the specific commands of Section 3 of the Clayton Act, the presence of these effects as the inherent consequence of tying explains the traditional presumption of illegality. Moreover, that presumption is entirely consistent with a broader view of the competitive process and the concern for both static and dynamic efficiency.

III. HARM TO BUYERS FROM TYING

A core objection to tying is that it denies buyers the opportunity to make unfettered choices in the tied product or service market. This directly impairs competition on the merits in which the market process provides the choices for consumers and registers their preferences accurately. Choice is important in a fully understood market process. Variety allows individual buyers to express their preferences among a range of options. Averitt & Lande have argued that choice is, in fact, as important an element of the competitive process as is price itself.[36]

Second, tying allows a firm with some market power to exploit its customers by discriminating among buyers. The classic example is the metering of demand, with those buyers gaining greater utility from the product forced to pay a higher price. Indeed, in the extreme case, the tying good is sold below cost so that the high demand buyers wind up subsidizing the lower demand users. This distorts the preference system of buying and results in a misallocation of resources.

In addition, tying allows for more invidious discrimination. High-volume buyers are often

[35] This analytic framework is similar to that adopted by the DC Circuit in the Microsoft case, United States v. Microsoft, 253 F.3d 34, 58-59 (D.C. Cir. per cur. 2000) and the Second Circuit in the Visa and Mastercard cases. United States v. Visa U.S.A., Inc., 344 F.3d 229, 238 (2nd Cir.2003).

[36] Neil W. Averitt & Robert H. Lande, *Using the 'Consumer Choice' Approach to Antitrust Law*, 74 Antitrust L. J. 175 (2007); *see* also, Neil Averitt, Robert Lande, & Paul Nihoul, *"Consumer Choice" Is Where We are All Going - So let's Go Together*, 2-2011 Review Concurrences 1(arguing that both American and European competition law have as a primary objective the preservation and protection of consumer choice).

able to negotiate around the tie while low-volume buyers are forced to accept the tie-in and pay above-market prices for the tied good or service. For example, in the *Image Technologies* case, the facts showed that Kodak sold parts to its large volume buyers who then were able to establish their own in-house repair and maintenance services. This would presumably be a lower cost and more reliable system than Kodak's service. Smaller buyers and entities without the ability or skill to demand such advantages were compelled to take Kodak's more expensive and less desirable services after Kodak excluded the independent service providers.[37] Another example involves computer printers where the ink is expensive when purchased from the original equipment maker. Here again, a large volume buyer will get either deep discounts on its ink cartridges or else will be given the technology to refill the cartridges.

As a matter of economic theory, the discrimination demand curve is always inside the non-discrimination demand curve except in the rare case where a buyer's "income effect" would not result in any increase in purchases of the good whose demand curve is being modeled. The logic of this observation is quite simple. A buyer that values one unit of a good or service highly, but who pays a price well below the price (value) the buyer would have paid, has an "income"effect in that they do not pay as much as they might have. Some of that income will be spent elsewhere, but usually some or all buyers will now take more units because the price is lower.

Therefore, a uniform price demand curve reflects the increased volume that results from buyers with high valuation of the good taking more units. In a perfect price discrimination situation, the price is set for each buyer exactly at the level that equals their valuation of the good. This eliminates the income effect altogether, and so reduces the total quantity taken at lower prices, since the only buyers will be those who start with lower valuation of the good. Hence, despite claims that perfect price discrimination will result in the same output as perfect competition, the models properly analyzed show that such an outcome can occur only under one extreme condition.

The *Loews* case presented yet another type of exploitation.[38] The economic theory was that, if the sellers priced movies separately, they would be compelled to use lower prices than

[37] Eastman Kodak Co. v. Image Technical Services, Inc., 504 U.S. 451 (1992).
[38] U.S. v. Loew's, Inc., 371 U.S. 38 (1962).

If the goal of competition policy is consumer welfare, then the use of tying in this circumstance results in higher costs to consumers than would have existed absent the tie.

if they bundled the movies because different buyers with different valuations of individual movies were forced to take the bundle to get the films they really desired.[39] This is a pure exploitation explanation for tying. It directly affects the ability of buyers to make unfettered choices at prices reflecting competitive valuation among a range of options. Moreover, the buyer, having spent its budget, will now be unable to buy other goods or services. Hence, part of the effective exploitation of the buyer with respect to its most preferred good is to deny the income effect (more value for less price) that would have allowed increased purchases from other producers.[40] So long as competition on the merits is the goal of policy this kind of exploitation is presumptively bad.

Another justification for tying is that it can reduce customer search costs for some substantial segment of buyers. Again, this meets with the initial objection that it reduces search costs for favored buyers by imposing the cost of loss of choice on other buyers who would have preferred another option. Second, while the favored customers are the ones with the initial gain from the search cost savings resulting from packaging the two products together, by refusing to sell the units individually, the seller can and will raise the price of the package (by denying the customer the option of buying individual items the seller forecloses either a customer or third-party packaging the elements to compete with its own bundle), thereby appropriating some or all of the gain the favored buyer got from the packaging. This kind of wealth transfer is sometimes said to involve no competitive harm, but if the goal of competition policy is consumer welfare, then the use of tying in this circumstance results in higher costs to consumers than would have existed absent the tie. Moreover, once again, the customers who did not want the tied product or service are subsidizing those who wanted that combination.

Legalizing tying, or even making it presumptively lawful, encourages this kind of exploitation of buyers and the development of bundles and packages that do not allow the customer to make choices. Thus, such a legal system creates an incentive structure that encourages and

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[39] *See*, George Stigler, *United States v. Loew's Inc: A Note on Block-Booking*, 1963 Sup. Ct. Rev. 152. If A will pay $100 for movie X and $50 for movie Y, while B's preferences are the reverse, the seller will price both movies at $50 in order to make two sales and will collect a total of $200. But if it ties the two movies into a package, it can price the package at $150 (the combined value of the package for each buyer) and sell to both buyers with a resulting revenue of $300.

[40] To return to the hypothetical in note 39, *supra*, but for the tie, each buyer would have had $50 to spend on other purchases whether on programs or some totally unrelated good or service.

rewards exploitation and the development of multi-product lines of business. That, in turn, further weakens the access to choices that is the cornerstone of a workably competitive market.

IV. HARM TO PRODUCERS FROM TYING

Just as the buyers' freedom of choice is impaired by tying, the producer of the excluded goods finds its market constrained by the exclusionary effect of a tie-in. The prototypical example is the producer in the tied product market that has lost access to potential customers. It cannot compete on the merits of the specific product with the firm engaged in the tying. Regardless of how competitive the market for the tied good might otherwise be, or how large the aggregate volume, the effect is necessarily to diminish the scope of the market open to the excluded seller. Thus, tying always has an adverse effect on competition in the tied product market.

Recent scholarship has identified other potential adverse effects. The tie may be employed to exclude potential competition in the tying good market. Microsoft may well have used its tied internet browser as means of eliminating what it saw as a potential competitor in the operating system market. By driving Netscape from the market, it sought to entrench its dominance in the related market.[41] The effect of that exclusionary conduct was also to retard and diminish the innovation and dynamics of the browser technology. The evidence is that when the browsers were untied and competition re-emerged, the effect was to increase innovation and improve quality of the product.[42] These are the usual results of competition.

The impact of exclusion extends beyond the immediate loss of opportunity for the excluded seller. Potential entrants into the tying product market may need to expand into the tied market as well in order to offer a competitive product line. For example, beyond the metering exploitation evident in the IBM punch-card case, another competitive element in that case was that there was little or no production of the high quality cards needed to make tabulating machines work well because IBM and its major competitor had controlled access to that market. Hence, a potential tabulating machine manufacturer would also have to find or develop a source for the punch cards.[43] This type of requirement, therefore, raises the barriers to entry into the tied market. That sometimes the increase in the barriers will not be substantial does

[41] Dennis Carlton & Michael Waldman, *The Strategic Use of Tying to Preserve and Create Market Power in Evolving Industries*, 33 *Rand J. Econ*. 194 (2002).

[42] For current market share data *see*, e.g., http://gs.statcounter.com/, which shows that three major browsers have around 30 percent of the market.

[43] International Business Machines Corp. v. United States, 298 U.S. 131, 136 (1936).

Tying will inherently affect adversely the capacity of excluded firms to compete.

not detract from the consistent fact that the effect will be a recurring one. Only its degree of impact will vary.

The use of tying can also obscure the value of the tying product that may be priced at a low nominal price because the tied component carries the excess price. This is the standard metering concept. But this approach can make it much less attractive to enter and compete in the tying product market. Unless the competitor can also engage in a parallel tie, it faces the problem that the price of the tying good by itself is low. Hence, competition in the sale of that good will be unprofitable. So the would-be entrant has to find a way to obtain and tie the tying good, which it can then offer at a "discount" from the dominant firm. These combined effects mean that tying can be a significant deterrent to entry and competition in the tying good market.

The central point is that there is a predictable adverse effect on competition and particularly on the dynamics of competition in both the tied and tying good markets. This is a cost and detriment to the competitive process. Hence, the traditional tying law would not excuse harm based on any *de minimus* claim, but rather would require that there be a proven affirmative justification for the adverse effect on competition.

Another adverse implication for the competitive process of tying is that it creates incentives for firms to integrate or consolidate to provide multiple related products where the only reason for doing so is to match the "package" of another firm. This has a potential efficiency cost as the consolidated enterprise must now manage production and distribution challenges in two or more product lines when it could be more efficient to specialize. Second, potential entrants into any one line will find that they face a more complex and less attractive entry condition. The specialist entrant may well have to package its good with one or more other goods if bundling or tying is pervasive. If it is not, the specialist still faces the challenge of getting access to the full range of potential customers since it cannot easily deal with those customers whose purchases are tied. The loss of that potential element of the market reduces the value of the individual specialist and makes its sale to the integrated, tying firm a more likely outcome. The result here is that there is a tendency to increase concentration; reduce incentives for individualized, specialized innovation; and reinforce the dominance of the existing market leaders.

In sum, tying will inherently affect adversely the capacity of excluded firms to compete. It can also make competition in the tying product market more difficult and thus reduce the incentives to enter and compete in that market. Again, the argument is that these effects inhere in tying. The degree of effect will probably vary depending on the market context. Given

that there is a cost or burden to the competitive process by allowing tying, and given a goal of protecting and advancing competition, the fact of harm should demand that the party causing the harm have a convincing justification.

V. THE GAINS TO STATIC EFFICIENCY AND DYNAMIC COMPETITION FROM A RETURN TO TRADITIONAL TYING RULES

The inherent effect of tying is to foreclose options for both buyers and sellers. Thus, over time, there is an unavoidable impact on market dynamics as well as on the short-run range of options available to both the buying and selling side of the affected markets. Cast in conventional economic terms there are costs to the competitive process from any tying where there is any effect on consumer choice or seller access to consumers. For this reason, economic logic would seem to dictate that no tying should be permitted unless there is an offsetting gain to the competitive process.

Again, by definition, that goal involves furthering the competitive process and not the interests of particular competitors or even particular customers. It is for this reason that traditional tying law recognized an affirmative defense where the tie advanced a legitimate, non-exploitive, non-exclusionary goal. To avoid the risks of false negatives, moreover, the law put the burdens of pleading, evidence, and persuasion on the proponent of the tie-in. In the absence of clear justification, the presumption was that the harm to competition outweighed any ambiguous benefits. The rationality behind this presumption, as illustrated in the case law reviewed earlier, is (in part) that rarely is tying the only, let alone the best, solution to any specific legitimate need of a seller. Thus, from an efficiency perspective, the traditional rules are more efficient than an open-ended, rule of reason in which the victim must bear the risks of harm if the evidence is ambiguous.[44]

From the perspective of longer run market dynamics, the argument against tying is even stronger. Competition on the merits should, in general, require that each product or service stand on its own and not rely on its having a compulsory relationship with some other good or service. For the reasons canvassed in Part III, the tying can cause serious distortions with respect to both entry and effective competition in both the tied and tying markets. A presumption against tying serves the public interest in maximizing the dynamic potential of the markets. Only when there is a strong case to justify the tie as an essential step in some legitimate non-ex-

[44] *See*, W. David Slawson, *A Stronger, Simpler Tie-In Doctrine*, 25 Antitrust Bull. 671 (1980).

From the perspective of a policy goal of favoring competition and the competitive process, the resulting strong presumption against tying is an apt, rational, and efficient response.

clusionary, non-exploitative interest of the party imposing the tie is there any justification for imposing a dynamic economic cost on the economy. Again, then, this analysis points toward the model governing tying that was built by experience: a strong presumption of illegality tempered by the right of the party to defend its conduct by proof that it has a legitimate justification.

VI. CONCLUSION

In 1980, David Slawson wrote: "Experience has shown that economic theory tends to be vague and abstruse and that economic data tend to be voluminous and ambiguous."[45] Turning his attention to tying law in particular, Professor Slawson observed: "The foreclosure which any tie-in effects in the markets for both the tying and the tied products is in itself a lessening of competition, without more. . . . Competition is reduced when buyers' alternatives are reduced because competition is buyers' alternatives."[46] His conclusion, similar to the one advanced in this analysis, is that tying should be broadly illegal with a clear recognition of an affirmative defense for legitimate packaging of goods. In the more than 30 years since Professor Slawson wrote, the law has moved in the opposite direction, denying the self-evident harms to competition that tying causes and developing any number of economic theories that might explain and so excuse such harms.

It is possible (but not probable) that the Supreme Court, or at least the Chief Justice, has had an epiphany:[47] Economic metaphysics is a limited guide to the solution of economic policy issues. Practical statesmen and legislators have made choices based on insights drawn from the real world of experience. The law of tying, with its clear root in Section 3 of the Clayton Act, is such a practical statement of a conclusion about the social and economic value of tying. The traditional case law and resulting rules carried out that policy. Moreover, from the perspective of a policy goal of favoring competition and the competitive process, the resulting strong presumption against tying is an apt, rational, and efficient response.

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[45] *Id* at 671

[46] *Id* at 676 (emphasis in the original).

[47] *See* note 4, *supra*

TYING AND CONSUMER HARM

*Daniel Crane**

ABSTRACT:
Brantley raises important issues of law, economics, and policy about tying arrangements. Under current legal principles, Brantley was on solid ground in distinguishing between anticompetitive ties and those that might harm consumer interests without impairing competition. As a matter of economics, the court was also right to reject the claim that the cable programmers forced consumers to pay for programs the customers didn't want. The hardest question is a policy one - whether antitrust law should ever condemn the exploitation of market power in ways that extract surplus from consumers but do not create or enlarge market power. I shall argue that Brantley got this last question right as well.

I. INTRODUCTION

In *Brantley* v. *NBC Universal, Inc.*,[1] the Ninth Circuit rejected a putative class action by cable television subscribers against cable television programmers because the subscribers' tying claims were unsupported by any theory of anticompetitive effects. Note that the court rejected the plaintiffs' case because of the absence of allegations of *anticompetitive* effects and not merely the absence of *exclusionary* effects. As the court recognized, tying can be anticompetitive without being exclusionary when it facilitates horizontal cartelization. The important principle of *Brantley* is that tying that allegedly harms consumer welfare, but without reducing the competitiveness of any market, is not cognizable under the antitrust laws.

Brantley raises important issues of law, economics, and policy about tying arrangements. *Brantley* raises important issues of law, economics, and policy about tying arrangements. Under current legal principles, *Brantley* was on solid ground in distinguishing between anticompeti-

* Daniel Crane is Professor of Law at the University of Michigan Law School where he teaches contracts, antitrust, antitrust and intellectual property, and various advanced antitrust courses.

[1] 675 F.3d 1192 (9th Cir. 2012)

tive ties and those that might harm consumer interests without impairing competition. As a matter of economics, the court was also right to reject the claim that the cable programmers forced consumers to pay for programs the customers didn't want. The hardest question is a policy one - whether antitrust law should ever condemn the exploitation of market power in ways that extract surplus from consumers but do not create or enlarge market power. I shall argue that *Brantley* got this last question right as well.

II. THREE THEORIES OF CONSUMER HARM FROM TYING

Tying arrangements can harm consumer interests in three broad ways that could be relevant under the antitrust laws:[2] when they exclude competitors,[3] facilitate cartel arrangements,[4] or extract surplus from consumers.[5] The first theory - exclusion - is the one most commonly pursued in antitrust cases. It occurs when the tying firm leverages its market power in the tying market to diminish the competitiveness of the tied market by foreclosing the opportunity of rivals to obtain competitive traction in the tied market. The seller might do this in order to try and extract a second monopoly rent from the second market, although this theory raises the one monopoly profit theory and its detractions. Alternatively, the seller might obtain market power in the second market in order to circumvent rate regulators in the tying market or to erect barriers to entering the tying market. The *Brantley* plaintiffs initially pursued such a foreclosure theory, but then dropped it in their third amended complaint when discovery showed that the alleged tie hadn't excluded independent programmers from the programming market.[6]

Second, tying arrangements could be anticompetitive if agreed to collusively by vertically integrated competitors selling in both the tying and tied markets.[7] The *Brantley* plaintiffs made no such claim.[8]

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[2] *See generally* Daniel A. Crane & Graciella Miralles, T*oward a Unified Theory of Exclusionary Vertical Restraints*, 84 S. Cal. L. Rev. 605 (2011).
[3] Eastman Kodak Co. v. Image Tech. Servs., Inc., 504 U.S. 451, 481-85 (1992).
[4] *See* Christopher R. Leslie, *Tying Conspiracies*, 48 Wm. & Mary L. Rev. 2247 (2007).
[5] *See* Einer Elhauge, *Tying, Bundled Discounts, and the Death of the Single Monopoly Profit Theory*, 123 Harv. L. Rev. 397 (2009).
[6] 675 F.3d at 1196.
[7] Leslie, *supra* n.4.
[8] 675 F.3d at 1201.

This left a third possibility, that the programmers' tying or bundling harmed consumers without excluding rivals or enabling collusion. The *Brantley* plaintiffs alleged that the typical American consumer is only interested in watching 16-17 cable channels, and that "the average cable subscriber is forced to pay for 85 channels that he/she does not watch in order to obtain the approximately 16 channels he/she does watch."[9] The plaintiffs thus argued that the anti-competitive effect at issue was not due to the tying arrangement's exclusion of any rival from the market but from the direct exploitation of market power to force cable customers to buy more channels than they desired.

III. NON-ANTICOMPETITIVE TIES AND THE CONSUMER INTEREST

Lurking in the background of *Brantley* is a suspicion that dominant firms sometimes use their market power over one thing to force consumers to buy other things that they do not want. As noted, the *Brantley* plaintiffs alleged that they were being forced to purchase cable programs that they did not want: "Many small cable companies have testified that they are coerced by programmers into taking channels they do not want, and forced to resell them to consumers who similarly do not want certain channels."[10] Such claims resonate with Justice Stevens' statement in *Jefferson* Parish that "forcing" someone to buy a product he "did not want at all" is the core harm in a tying case.[11] Being forced to buy something you don't want sounds coercive and wrongful.

But at the heart of this claim lies a fundamental misconception. Contrary to popular belief, it is impossible for a seller to force a buyer to purchase something she *does* not want, unless the seller deceives the buyer about what she is buying or the buyer changes her mind after the purchase (in which case she hasn't really bought something she doesn't want but has bought something that she does want and then regrets her decision). Buyers will only pay for what they are willing to buy.

This proposition may seem intuitively wrong, because in many circumstances buyers may feel coerced to purchase something that they don't really want. But in every case where decep-

[9] *Brantley v. NBC Universal, Inc*., No CV07-06191 CAS (VBKx), Third Amended Complaint at ¶ 21.

[10] Third Amended Complaint at ¶ 44.

[11] Jefferson Parish Hosp. Dist. No. 2 v. Hyde, 466 U.S. 2, 12 (1984).

This proposition may seem intuitively wrong, because in many circumstances buyers may feel coerced to purchase something that they don't really want.

tion is not at issue, the buyer is actually buying something she really does want and may find additional things thrown in for free. The contrary perception is an illusion.

Take, for instance, the extreme case of a seller holding a gun to the buyer's head and forcing her to cough up money for a product she has absolutely no interest in buying - the proverbial sale of sand to a Bedouin. To say that the Bedouin is forced to pay for sand isn't quite right. What she is really buying is her life - the sand is not any real part of the transaction. That the seller has wrongfully held a gun to her head obviously makes the transaction morally objectionable, but it does not diminish the fact that the buyer has secured something that she values more than her money - something that given the circumstances, she wanted to buy.

The same observation holds as to any circumstances where the seller wrongfully creates the buyer demand; for example, the miscreant who poisons the town well and then offers to sell the townspeople the antidote. The fact that the townspeople would not have wanted the antidote but for the criminal act does not diminish the fact that, faced with the illness, the townspeople are buying something they really do want.

The same observation applies in the far less extreme example of tying and bundling, which involves no criminal or otherwise unlawful threat. No matter how great its market power, the seller cannot force the customer to pay for something that she doesn't value. Suppose that the customer values Channel A at $3, Channel B at $1, and Channel C at $0. The seller can charge a price of up to $4 for an AB bundle. If it adds C to the bundle, it still cannot charge more than $4 for the bundle. The customer who pays $4 for the ABC bundle is only really buying A and B. If the seller throws in a hundred additional channels that the customer also doesn't value at all, the same follows. If the seller does not value the extra channels, she will not pay for or watch them. The seller can't exceed the buyer's reservation price. It can only extract payment for things that the buyer values.

Of course, sellers can sometimes charge buyers more than they prefer to pay for the things they do want. Indeed, sellers almost always charge buyers more than buyers want, since buyers would prefer to get everything they want for free. Buyers obviously can't get everything they want for free, since without payment there wouldn't be production or sales. In market economies, however, there is a general assumption that competition will drive prices down toward the cost of production, such that consumers reap all of the surplus of trade in exchanges with producers. Antitrust law arguably establishes marginal cost pricing as the normative baseline from which sellers cannot deviate through prohibited conduct.

So the real question as to non-anticompetitive ties is not whether customers are being forced to pay for something they don't want, but whether one of two other possible effects is occurring: (1) they are being forced to pay more than they should for the things they do want; or (2) they are forced to buy the things they do want from a disfavored seller. Let's examine the second circumstance before turning to the first.

On the other hand, there could be circumstances where the buyer has a preference for a rival's product and therefore suffers a loss in utility when forced to buy under a tying arrangement.

Effect (2) - buying something desired but from a disfavored seller - could be nothing more than an elaboration of (1) if the reason that buyers prefer not to buy from the tying seller is because they can buy the tied good less expensively elsewhere. In *International Salt*,[12] for example, the salt injection machine lessees all wanted to buy salt, without which the leased machines would have been quite useless, but may have wanted to buy from their salt requirements from other sellers in order to get a lower price. If the tying seller's salt was fungible with salt of the same grade sold by rivals - as the Supreme Court assumed was true - then the customer may simply have paid a higher price, at which point effect (2) collapses into effect (1).

On the other hand, there could be circumstances where the buyer has a preference for a rival's product and therefore suffers a loss in utility when forced to buy under a tying arrangement. If the buyer values a rival's good more than the tying seller's tied good, but her utility for the rival's good exceeds her utility for the tied good by less than the price of the rival's good, then she will decide to consume the tied good rather than make an additional purchase of the rival's good. At this point she may suffer a loss in utility as compared to being able to buy the tied and tying goods independently, even though she may have paid no more for the tied good than she would paid for the rival's good. In a world of low transactions costs the buyer might pay the seller to be relieved of the tie, but many different kinds of transactions costs could impede the bargain from that efficient solution.

The possibility that customers might lose some surplus because of the loss of a variety preference is an intriguing one, but it has no application to *Brantley*. The class alleged that they were being forced to pay for channels that they didn't want, not that they were being forced to give up channels they did want. Since, as already explained, the customers weren't actually being forced to pay for channels they didn't want, their claim only makes economic sense as a

[12] International Salt Co. v. U.S., 332 U.S. 392 (1947).

claim that they were being forced to pay *too much* for the channels that they did want.[13]

The mechanism by which this could have happened is well understood, having been explained long ago by George Stigler with reference to the block-booking cases.[14] Where different buyers have uneven and differentiated utility for a set of goods, the seller can increase the effective price for the goods by selling them in a package or block. Without knowing any customer's reservation price for any individual good in the block, the seller comes closer to customers' reservation price for all of the goods in the package. The seller thus uses tying to increase prices without harming the competitiveness of the market.

Should exploitation of this kind be covered by the antitrust laws? The normative case for illegality under the antitrust laws is weak, particularly given the draconian implications of the treble damages remedy.[15] Where tying arrangements do not diminish the competitive functioning of the market, but merely result in some possible extraction of consumer surplus, courts should not find liability, for two reasons.

First, the absence of an anticompetitive element means that the exploitation of market power through tying is conceptually no different from any other non-anticompetitive exploitation of market power that the antitrust laws do not cover. If a car buyer in a small rural town with a single car dealer has to pay 10 percent more than he would pay for the same car in a more competitive market, the dealer has exploited its market power to extract surplus from the consumer. If the dealer chooses to charge 10 percent less for the initial purchase price but requires the buyer to purchase his replacement tires from the dealer, thereby extracting a similar 10 percent premium over the life of the car, the economic effect on the consumer is identical. Why should it matter legally whether the exploitation of market power takes the form of a simple price premium on the car or a tying arrangement with the tires? The world is full of market power exploited by sellers. It is hard to find a principled reason to condemn one form and not another, unless the first form results in an enlargement of market power and the second does not.

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[13] The Third Amended Complaint in *Brantley* seems to recognize at points that the bundling at issue results in cable subscribers paying more for the shows they do want to watch rather than paying for shows that they don't want to watch. *See* Third Amended Complaint at ¶ 1 ("[T]he existing requirement that consumers purchase 50 or more expanded basic cable channels in the form of bundled tiers results in consumers paying inflated prices for the channels they do want to watch.").

[14] George J. Stigler, *United States v. Loew's Inc.: A Note on Block Booking*, 1963 Sup. Ct. Rev. 152.

[15] The case might be different in the patent misuse context, where the remedy is quite different.

It is hard to find a principled reason to condemn one form and not another, unless the first form results in an enlargement of market power and the second does not.

Second, the level of adjudicatory complexity and the risks of false positives caution against allowing claims of non-anticompetitive ties. Complexity and false positives are intertwined here, because a court could not come to a robust judgment that the tying arrangement harmed consumer welfare without considering the many pro-competitive possibilities for such arrangements. As is well understood, tying arrangements can enhance consumer welfare in a number of ways: for example, by reducing production, distribution, or transactions costs; eliminating double marginalization; and permitting a seller to allocate its fixed costs to the customers with the least elastic demand which, in turn, allows it to increase output.

While these same efficiency considerations, and hence concerns over complexity and false positives, are also present in cases involving allegedly anticompetitive ties, the interest in pursuing the claim is considerably higher. Firms that manipulate their present market power to obtain more power pose risks that firms that merely exploit their current power do not. Further, there is a principled basis for distinguishing legally between the exploitation of market power, which is ubiquitous and largely uncontrollable, and the deliberate enhancement of market power through exclusion or collusion, which is more contained and preventable.

IV. CONCLUSION

The *Brantley* court was correct to recognize that tying arrangements can have both exclusionary and collusive anticompetitive effects. Hence, foreclosure of rivals should not be a necessary condition for the illegality for tying arrangements in every case. The *Brantley* court was also correct in holding that some theory of anticompetitive effect from the tying arrangement - that is to say, some theory of how the tying arrangement reduced the market's competitiveness - should be required in every tying case. Pure exploitation theories of tying do not contain the necessary antitrust ingredients.

BUNDLING AND TYING: SHOULD REGULATORS USE THE *PER SE* APPROACH OR THE RULE-OF-REASON APPROACH? LESSONS FROM THE ECONOMICS LITERATURE

Sonia Di Giannatale & Alexander Elbittar***

ABSTRACT:
A firm that practices tying in the United States can be committing a per se violation of the antitrust law, and it can be also considered a per se violation of the Article 102 of the EC Treaty. However, there is evidence for the use of the rule-of-reason approach in some courts' decisions in tying cases, such as United States vs. Microsoft in 2001 and the case against Microsoft in the EC in 2004. Therefore, the question of when a tying case should be ruled under the per se approach or under the rule-of-reason approach is valid and has policy implications. This article is written to shed light into what could be the appropriate answer by presenting several lessons that we can learn from the economics literature.

I. INTRODUCTION

Bundling is a sales practice in which firms sell two or more goods or services in one package. This practice comes in two varieties: "Pure bundling" refers to cases in which the goods or services are only available through the package, while "mixed bundling" refers to situations in which the goods or services are available either through the package or each sold separately. Tying is a sales practice related to bundling, and it is characterized by the fact the primary product of the package (tying good) is not available without having to buy the package's secondary product (tied good). Pure bundling can be considered tying, as well as some cases of

* Centro de Investigación y Docencia Económicas (CIDE), Research professor. E-mail: sonia.digiannatale@cide.edu.
** Centro de Investigación y Docencia Económicas (CIDE), Research professor. E-mail: elbittar@cide.edu. Corresponding Author.

mixed bundling.[1]

A firm that practices tying in the United States can be committing a per se violation of the antitrust law, and it can be also considered a per se violation of the Article 102 of the EC Treaty..

Bundling and tying are widespread practices in the real world; for instance, left and right shoes are sold together, the different sections of a newspaper are sold in a single item, cable companies sell a group of channels together, and so on. There are various plausible explanations for the existence of bundling and tying, including explanations that attempt to tackle cases with distinct characteristics such as: (i) very little demand for separate products when they are perfect complements, (ii) firm's cost-efficiencies in offering their not-necessarily-complementary products through packages, (iii) demand-side incentives for bundling, and (iv) consumers and firms' transaction and assembling costs where consumers' transaction costs of assembling several components is higher than the firms' costs of doing so (personal computers, for example.) Bundling and tying are controversial practices because they can sometimes be strategies that incumbent firms use to either deter entry of competitors or to extract more surplus from consumers by using them for price-discrimination purposes.

In fact, a firm with market power in the tying good that practices tying in the United States can be committing a *per se* violation of the antitrust law, and it can be also considered a per se violation of the Article 102 of the EC Treaty. However, there is evidence for the use of the rule-of-reason approach in some courts' decisions in tying cases, such as *United States vs. Microsoft* in 2001 and the case against Microsoft in the EC in 2004. Therefore, the question of when a tying case should be ruled under the *per se* approach or under the rule-of-reason approach is valid and has policy implications. The rest of this article is organized to shed light into what could be the appropriate answer by presenting several lessons that we can learn from the economics literature.

In the next section, we will review the price discrimination view of tying. In Section II, we will present models that explain tying as a strategy used by firms with market power to foreclose competition. In Section III, we will focus on the literature in competitive markets that explains tying through cost efficiencies. Finally, we present some concluding remarks.

[1] David. S. Evans & Michael Salinger, *Why do Firms Bundle and Tie? Evidence from Competitive Markets and Implications for Tying Law*, 22 Yale J. Regulation 37-89 (2005).

Price discrimination occurs when there are heterogeneous consumers with some of them willing to pay more than the monopoly price while others unwilling to pay the monopoly price but willing to pay more than the marginal cost.

II. THE PRICE DISCRIMINATION VIEW

Stigler[2] pioneered the price discrimination view with the objective of providing an alternative explanation for tying. He proposed this as an alternative to the courts' commonly adopted position that tying was a strategy of firms with market power in the tying product to leverage their dominance into the tied product market. Stigler's explanation was based on the idea that bundling should only matter if the bundle's price is different from the sum of the components' prices, and that there is price discrimination if the price difference is not due to cost efficiencies. Moreover, this article is focused on those cases in which bundling occurs for motives that are neither cost efficiencies nor foreclosure strategies.

Price discrimination occurs when there are heterogeneous consumers with some of them willing to pay more than the monopoly price while others unwilling to pay the monopoly price but willing to pay more than the marginal cost. Bundling might offer the possibility of extracting surplus from the first group and getting the second group to buy both products. This strategy is successful when the surplus gains from people who buy both goods are greater than the costs to consumers that want just one product but are left with just the possibility of buying the bundle.

The fundamental assumption of this theory is that marginal cost is zero or very low. The justification of why bundling of information goods is profitable (cable television, software, movie distribution) is based on this assumption. Bakos & Brynjolfsson[3] (1999), for instance, find that when marginal cost is zero or very low, bundling allows for an increase in demand without a change in cost.

How profitable bundling is as a strategy for extracting consumers' surplus through price discrimination, depends on the valuations of those heterogeneous consumers. Adams & Yellen[4] and McAfee et al.[5] analyze conditions under which bundling is a profitable strategy for a monopolist. The first paper demonstrates that a monopolist who sells several products to consumers who value those goods independently of whether they are consuming them or not, bundling is a profitable strategy that allows the monopolist to extract surplus from consumers

[2] G. Stigler, *A Note on Block Booking*, The Organizaton of Industries, 165 -170 (G. Sitgler ed., 1968).
[3] Y. Bakos & F. Brynjolfsson, *Bundling Information Goods: Pricing, Profits and Efficiency*, 45 Mgmt. Sci. 1613-1630 (1999).
[4] W. Adams & J. Yellen, *Commodity Bundling and the Burden of Monopoly*, 90 Quarterly J. Econ. 475-498 (1976).
[5] P. McAfee, J. McMillan, & M. Whinston, *Multiproduct Monopoly, Commodity Bundling, and Correlation of Values*, 104 Quarterly J. Econ 371-383 (1989).

in a way that cannot be achieved through independent pricing. In the second paper, this analysis is generalized to obtain the conditions under which bundling is a profitable strategy for a multi-product monopolist. McAfee et al. determine that bundling is profitable whenever (i) the valuations of the consumers are independently distributed, and (ii) the monopolist can monitor the purchases of consumers. Bundling then dominates independent selling for almost all joint distributions of consumers' valuations.

Aghion & Bolton show that an incumbent firm, facing the possibility of a competitor entering his market, might benefit from signing long-term contracts with other firms that will partially preclude the entry of more efficient firms.

Moreover, there has been empirical evidence that tying can also be regarded as a device for metering, as determined by Hartmann & Gil,[6] because it allows the monopolist to charge a higher price for the tied product to consumers who value it more. Examples in which tying can be a device for metering include printers and toner cartridges, razors and blades, cameras and films, and popcorn and movie tickets.[7]

Given that bundling and tying are not usually regarded as innocuous practices, in the next section we will review the literature that explores the foreclosure explanation for bundling and tying.

III. THE FORECLOSURE VIEW

Previous to the Chicago School argument that once a monopolist is earning monopoly profits in one market, he cannot extend his power into another market - a result known as the "single-monopoly-profit theorem" - the U.S. courts ruled all cases of tying as attempts by a monopolist to leverage its market power into another market. The Chicago School view intended to provide a positive explanation for tying; however, more recent literature has put foreclosure as one of the dominant explanations of tying in situations in which this theorem does not hold. Specifically, the foreclosure explanation for tying emphasizes the monopolist's need to protect the market power he has in the market in which he operates as a monopoly, ruling out the need to leverage his monopoly power into another market.

Aghion & Bolton show that an incumbent firm, facing the possibility of a competitor entering his market, might benefit from signing long-term contracts with other firms that will partially preclude the entry of more efficient firms. In this analysis, it is emphasized that it is

[6] W. Hartmann & R. Gil, *Empirical Analysis of Metering Price Discrimination: Evidence from Concession Sales at Movie Theatres*, 28 Marketing Sci. 1046-1062 (2009).

[7] P. Belleflamme & M. Peitz, *Industrial Organization: Markets And Strategies* (2010).

not the length of contracts that constitutes a barrier to entry, but how a contract secures several parties into a relationship. The structure of these contracts can be varied and complex, including tying contracts among several firms that want to protect their respective market power; this might be a reason why antitrust authorities could have difficulties in recognizing situations in which agreement contracts may or may not constitute barriers to entry.

Whinston[8] intends to provide a defense of the foreclosure argument for tying. Assuming the existence of production scale economies in the tied good and strategy interaction, Whinston proves that tying is a good mechanism for changing the structure of the tied good's market, leading to its monopolization through foreclosure and therefore to detrimental welfare effects. However, tying is profitable for monopolists only when there is the possibility of precommitting to tie. In his concluding remarks Whinston recognizes the difficulty for antitrust authorities of recognizing the instances in which tying actually constitutes an effort aimed at foreclosing competition.

Carlton & Waldman,[9] building on Whinston,[10] analyze how tying complementary products can result in the preservation and creation of monopolies. They obtain that if, in the present period, a product's monopolist uses tying with a complementary good to deter entry in his market then he can preserve his monopoly power in future periods. Also, they find that tying can be used to extend monopoly power into a newly emerging market in industries of products with a short lifespan that are also characterized by rapid technological innovation and the presence of network externalities. However, they issue a warning that extending these theoretical results, which suggest harmful effects of tying, into policy suggestions is not straightforward.

From this literature we understand that it is possible that tying might be the result of monopolists' attempts to foreclose competition under certain circumstances, and in certain industries. However, identifying tying contracts' characteristics - static or dynamic - that are truly intended to deter entry is not an easy endeavor, and hence antitrust authorities should be cautious when taking into account these results.

IV. THE COST-EFFICIENCY VIEW

In the previous sections, we analyzed bundling and tying in environments where firms have

[8] M. Whinston, *Tying, Foreclosure, and Exclusion*, 80 AMER. ECON. REV. 837-859 (1990). Also included in this number.

[9] D. Carlton & M. Waldman, *The Strategic Use of Tying to Preserve and Create Market Power in Evolving Industries*, RAND J. Econ. 194-220 (2002).

[10] Evans & Salinger, *supra* note 1.

market power, and we also learned that not all cases of bundling and tying necessarily result in more market power for monopolists or in lower consumer surplus. In this section, we present a model, proposed by Evans & Salinger,[11] of bundling that produces cost-efficiencies in a competitive setting.

The authors conclude that using the per se approach in cases of tying is wrong, and that proving the existence of cost-efficiencies as required by the rule-of-reason approach is difficult in both competitive and non-competitive settings.

First, assuming that a primary good, that is homogeneous, is produced by a duopoly, and a secondary good is produced under perfect competition, they show that bundling constitutes a product differentiation strategy resulting in lower price competition and welfare. That is, under these circumstances, bundling is harmful. Next, in the case of two competitive firms that sell compatible components of a system, and if consumers have a low reservation price for the system, bundling intensifies competition and separate selling is the more profitable strategy. If the consumers have a high reservation price for the system, the equilibrium outcome is separate selling. So, bundling might not have harmful effects if the components of a system are produced by competitive firms and the consumers have a low reservation price.

The assumed cost-efficiencies of Evans & Salinger's main model come from fixed-cost savings from bundling, which has two implications: (i) offering the two products separately may not be efficient, even when some consumers might prefer separate selling, and (ii) the demand for the tied product may increase from tying and, hence, the firm would have achieved a greater scale of production than it could have achieved from separate selling. Three facts established in the paper have important implications for tying doctrine: tying occurs in competitive markets, product-specific scale economies are needed to understand tying. and product-specific scale economies may be hard to detect when they are present.

In this model, the assumptions of (i) heterogeneous consumer preferences, (ii) prices equal to average total cost, and (iii) the existence of fixed costs of the offering products create the possibility for marginal costs savings from bundling. The authors find that the existence of marginal cost savings is neither a necessary nor a sufficient condition, and that the existence of fixed costs is a necessary but not a sufficient condition for the emergence of tying in competitive markets. So, firms use tying when it reduces fixed costs associated with offering one or the two products separately.

On the other hand, the reasons for the emergence of bundling in competitive markets are both the existence of moderate fixed costs when there is a high demand for both products and

[11] Evans & Salinger, *supra* note 1.

Models of price discrimination ties that do not assume a price cut and output increase in the tying product create false positives to the extent that they do not reflect reality.

a low demand for at least one of them, as well as the existence of high fixed costs. Finally, firms may sell one, but not all, the products separately when the demand for the bundle and the demand for one of the separate products is high, but demand for the other is low.

The authors conclude that using the per se approach in cases of tying is wrong, and that proving the existence of cost-efficiencies as required by the rule-of-reason approach is difficult in both competitive and non-competitive settings. Therefore, the antitrust authorities should be cautious when ruling on tying cases because the possibility of a high rate of false convictions is not trivial.

V. CONCLUDING REMARKS

Both in Europe (Papandropoulos[12]) and in the United States (Evans & Salinger[13]) antitrust legislations use the per se approach to condemn bundling and tying when the following conditions hold: (i) the bundled or tied products are different, (ii) there is market power either in the tying or the tied good market, (iii) there are potential effects of foreclosure from bundling or tying, and (iv) there are no efficiency-effects from these practices. However, these conditions contain elements requiring the rule-of-reason approach.

When faced with ruling about bundling and tying cases, the antitrust authorities should empirically test whether these conditions hold. This task is not without tremendous difficulties. First, demand analysis is required in order to test the first condition, as well as to test whether there is significant demand for the bundle and a low demand for both products separately. Second, identifying foreclosure effects of bundling and tying is not trivial, as concluded in the theoretical foreclosure papers described previously, because of the complexity of the contracts that can arise among different firms. Finally, documenting efficiencies from bundling and tying in both competitive and non-competitive markets is sometimes hard to do in practice.

All these difficulties lead Evans & Salinger[14] to recommend always using the rule-of-reason in judging bundling and tying cases. Moreover, these conditions do not explicitly consider the welfare gains that can arise in cases where price discrimination is the reason behind bundling and tying. So, when the above conditions are satisfied, probably the *per se* approach should be modified by considering more aspects from the demand-side and taking more caution when empirically ruling out possible efficiencies that might not be so easily documented.

[12] P. Papandropoulos, *Article 82: Tying and Bundling. A half step forward?* COMPETITION L. INSIGHT (June 2006).
[13] Evans & Salinger, *supra* note 1.
[14] *Id*.

ANTITRUST AND NONEXCLUDING TIES

*Herbert Hovenkamp**

ABSTRACT:
Notwithstanding hundreds of court decisions and scholarly articles, tying arrangements remain enigmatic. Conclusions that go to either extreme, per se legality or per se illegality, invariably make simplifying assumptions that frequently do not obtain. For example, by ignoring double marginalization or tying product price cuts it becomes very easy to prove that a wide-range of ties are anticompetitive. At the other extreme, by ignoring foreclosure possibilities one can readily conclude that ties are invariably benign. Even when one considers consumer welfare alone, the great majority of ties very likely are competitively benign, with a few exceptions that involve realistic threats of anticompetitive foreclosure.

I. INTRODUCTION

A tying arrangement occurs when a seller of two separate products refuses to sell one unless the buyer also takes the other, either simultaneously or else as aftermarket purchases. For example, a hospital may refuse to offer its surgical services unless a patient also purchases its anesthesiological services,[1] or a franchisor may refuse to enter a franchise contract unless the franchisee promises to use certain of the franchisor's products.[2]

Under the idiosyncratic *per se* rule that antitrust law applies to tying arrangements under §1 of the Sherman Act, a tie is unlawful when the products are legally "separate," when the seller has market power in the tying product and actually conditions sales of the tying product upon purchases of the tied product, and a "not insubstantial" amount of commerce is affected by the arrangement.[3] If one or more of these requirements fails, tying is also reachable under

* Ben V. & Dorothy Willie Professor of Law, University of Iowa.

[1] Jefferson Parish Hosp. Dist. No. 2 v. Hyde, 466 U.S. 2 (1984).

[2] E.g., Queen City Pizza, Inc. v. Domino's Pizza, Inc., 124 F.3d 430 (3d Cir. 1997); Kypta v. McDonald's Corp., 671 F.2d 1282 (11th Cir. 1982); Krehl v. Baskin–Robbins Ice Cream Co., 664 F.2d 1348 (9th Cir.1982).

[3] *See* 9 Phillip E. Areeda & Herbert Hovenkamp, ANTITRUST LAW ¶¶1700-1702 (3d ed. 2011); Herbert Hovenkamp, FEDERAL ANTITRUST POLICY: THE LAW OF COMPETITION AND ITS PRACTICE §10.1 (4th ed. 2011).

Nearly all ties involve complementary products, which means that they are interrelated in either production or consumption.

a rule of reason under §3 of the Clayton Act,[4] or as an exclusionary practice under §2 of the Sherman Act.[5] The §2 analysis requires a showing of greater market power but is less categorical about the specific tying requirements.[6]

The tie is typically, but not always, created and enforced by a written or oral contract. In some cases a tie can be proven in the absence of an explicit contract by looking at the record of previous sales.[7] In other cases the tie is "technological," which means that it is created by a design feature that permits two products to be used only with each other.[8]

Nearly all ties involve complementary products, which means that they are interrelated in either production or consumption. "Complements in production" are things that are cheaper if made together, even though they might be used separately. For example, it may be cheaper to offer primary, secondary, and tertiary health care out of a single facility, because much of the equipment can be used for all three, even though individual patients require only one type of care.[9] Or it might be cheaper to bundle a large number of individual television stations into a single cable TV service, even though customers watch only one station at a time and any particular customer may not regularly watch more than a half dozen stations in their 100-station bundle. Once the significant fixed-cost cable installation is put in place, adding additional channels costs very little more than the licensing fee.

Complements in use are things that are used together by the customer. For example, the camera/film tie in *Berkey Photo* involved complements in use: a photographer could not use the camera without using the tied film, or vice-versa, but there is no obvious reason for thinking that it is cheaper to manufacture the camera and film together. Complements are said to be "perfect" when each item has no value except when used with the other. For example, cameras are largely useless without film, or vice-versa. As noted below, imperfect complements may explain bundled discounts, which occur when tying is not absolute but two things are sold together at a lower price than they are sold separately. Purchasers who regard the two items as

[4] Times-Picayune Pub. Co. v. United States, 345 U.S. 594 (1953).
[5] E.g, United States v. Microsoft Corp., 253 F.3d 34 (D.C. Cir. 2001) (condemning "commingling," and thus tying, of browser code into operating system).
[6] *See* 3B Phillip E. Areeda & Herbert Hovenkamp, ANTITRUST LAW ¶777a (3d ed. 2008).
[7] 10 Phillip E. Areeda & Herbert Hovenkamp, ANTITRUST LAW ¶¶1755-1756 (3d ed. 2011).
[8] *Id*. at ¶1757. See, e.g., Microsoft, 253 F.3d 34; Berkey Photo, Inc. v. Eastman Kodak Co., 603 F.2d 263 (2d Cir.1979).
[9] E.g. Cascade Health Solutions v. Peacehealth, 515 F.3d 883 (9th Cir. 2008).

complements can purchase them together at a lower price, while customers who want only one item can continue to buy just the one item.

Complementarity affects tying analysis mainly as it relates to production costs or consumer need or satisfaction. As a result, it typically shows up in an efficiency analysis. At the same time, however, often it is not decisive. For example, cowhide and beef are complements in the production of beef, but that does not serve to explain why they must be tied in subsequent sales. By contrast, per channel cost savings may explain why a cable company bundles large numbers of channels into a single package.[10] By the same token, cameras and film are complements in use, but a purchaser could buy each from different sellers and in different transactions.

Ties have historically been thought to produce two kinds of competitive harm: leverage, or extraction; and foreclosure, or exclusion. The two theories are not mutually exclusive. Indeed, the premise of the foreclosure theory is that exclusion of rivals is harmful because it enables a firm to keep prices up, or prevent prices from falling, in response to the entry of new competitors. Ultimately, anticompetitive foreclosing ties must harm consumers.

The leverage theory suggests, however, that certain ties can harm consumers as a group even though exclusion of rivals is not in prospect. For example, in the Carbice case Justice Brandeis opined in his opinion for the court that by tying unpatented dry ice to its patented ice box the patentee was able to extract two sets of monopoly profits – one on the patented ice box, which was legitimate, and the other on the unpatented dry ice, which was not.[11] At that time virtually every town in the country had a plant for making dry ice, which used a common unpatentable refrigerant for the iceboxes of the day. As a result, exclusion in the dry ice market was not a possibility.[12]

In 1957 Ward Bowman severely crippled this theory by showing that when the tying and tied products are strong complements, meaning that most users require both, they will attribute their willingness to pay to the combination rather than to each product separately.[13] As a result, a monopolist of *either* the icebox or the dry ice could obtain all available monopoly profits, and could not earn greater monopoly profits by combining the two. Judge (then Professor) Posner has identified this rejection of the "leverage theory" as one of the most important hallmarks of Chicago School antitrust.[14]

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[10] E.g., Brantley v. NBC Universal, Inc., 675 F.3d 1192 (9th Cir. 2012).

[11] Carbice Corp. of Am. v. Am. Patents Dev. Corp., 283 U.S. 27 (1931)

[12] *See* Christina Bohannan, IP *Misuse as Foreclosure*, 96 Iowa L. Rev. 475, 482-83 (2011).

[13] Ward S. Bowman, Jr., T*ying Arrangements and the Leverage Problem*, 67 Yale L.J. 19 (1957)..

[14] Richard A. Posner, *The Chicago School of Antitrust Analysis*, 127 U. Pa. L. Rev. 925 (1979).

Assuming that at least some ties should be deemed anticompetitive on grounds of foreclosure of rivals,[15] is there any reason for thinking that ties that do not foreclose anyone should be condemned?

Assuming that at least some ties should be deemed anticompetitive on grounds of foreclosure of rivals,[15] is there any reason for thinking that ties that do not foreclose anyone should be condemned? The issue can arise in several different contexts. The most common is the "unwanted" tied product. The purchase does not want the tied product at all and is objecting about being forced to take and pay for it. This is basically the fact of the *Brantley* case, in which cable television consumers complain that the defendant cable television provider offers programming only in large packages of channels. The plaintiffs would prefer to purchase a smaller subset of channels and pay only for those. However, the complaint was dismissed because the plaintiffs could not identify any independent program providers who were foreclosed, or excluded, by the arrangement.[16]

Another subset of cases involves customers complaining about the way the seller allocates the price between the tying and tied goods, typically in order to facilitate a type of price discrimination. These cases, which are discussed below, can roughly be divided into two piles. In one pile the tied product is sold in variable proportions and the seller's return varies with the number of tied units sold. In the other the products may be sold in fixed proportions, but the buyers may have differential demands for the goods within the package.

II. STRUCTURING THE INITIAL QUERY

Showing results that are competitive or anticompetitive is often heavily dependent on how the tying query is structured. One way, which might be termed the "hostility approach," is to begin by assuming that the tie is nothing more than a manipulation in pricing, and consider defenses only after a rather easy *prima facie* case has been made against the tie. In an extreme version of this position the burden of proof may be placed on the defendant to justify its tie. The other way, which might be termed the "benign approach," is to seek out the rationale for the tie in cost savings or product improvement and go to anticompetitive explanations only if the first query turns up little or nothing. Assignment of the burden of proof can be critical in these cases, because the facts are difficult to interpret in all but the clearest circumstances.

[15] E.g., Jefferson Parish Hosp. Dist. No. 2 v. Hyde, 466 U.S. 2 (1984); United States v. Microsoft Corp., 253 F.3d 34 (D.C. Cir. 2001).

[16] Brantley v. NBC Universal, Inc., 675 F.3d 1192, 1196 (9th Cir. 2012); *see also* BMI v. Moor-Law, Inc., 527 F. Supp. 758, 763, 767–68 (D. Del. 1981), *aff'd*, 691 F.2d 490 (3d Cir. 1982).

Many, if not most, tying challenges today involve manufactured goods with a significant fixed-cost or research component. As a result, most of these goods are sold at markups above marginal cost and are subject to "double marginalization." If each of two producers of complementary goods has a certain amount of market power it will set a price higher than marginal cost. If the two should merge, or if one firm acquired a similar position in the second good, it would also set a price higher than marginal cost, but the increase would be typically less across both goods than when each firm maximizes separately.[17]

Elimination of double marginalization has always been a robust explanation for vertical integration—as, for example, when a gasoline refiner integrates into a retail market that has been subject to collusion or some other kind of noncompetitive pricing. But the theory works just as well for complementary goods. It is particularly strong for intellectual property rights, where price-cost margins are typically high.[18] For example, if LCD monitors are subject to price-fixing, the reduced output will reduce the sales of computers, a complementary product.[19] In that case the computer maker can increase its profits by entering LCD monitor production and selling computer/monitor packages. Further, the package price will be lower than the sum of individual prices had been before.

Further, quite aside from double marginalization, bundling can yield significant transaction costs and some production cost savings, particularly in innovation-intensive markets. For example, in the case of blanket music licenses the bundled form of the license enables licensees to have instant, protected access to every song in the bundle without having to negotiate individually. Patent pools can often accomplish the same thing, although the ambiguity of patents makes them subject to greater abuses.[20] In a case such as *Cascade*, which dismissed a challenge to the defendant's bundling of primary, secondary, and tertiary health care, the bundled discount was very likely justified because, while these three levels of care are distinctive, they also rely on a great deal of common equipment and staff. As a result, it is far cheaper to offer the three together out of a common facility than to operate separate facilities. Many bundled discounts are justified by the presence of joint costs.[21] For the same reason, a firm may be able to offer a combination of television, telephone, and internet service out of a single wire than

[17] *See* Erik N. Hovenkamp & Herbert Hovenkamp, *Tying Arrangements,* in Oxford International Handbook of Competition Policy (Roger D. Blair & Daniel Sokol, eds., 2013) (in press).

[18] Christina Bohannan & Herbert Hovenkamp, *Creation Without Restraint: Promoting Liberty And Rivalry In Innovation* 29-32 (2012);

[19] *See*, e.g., In re TFT-LCD (Flat Panel) Antitrust Litig., 781 F.Supp.2d 935 (N.D.Cal. 2011).

[20] *See* Bohannan & Hovenkamp, *supra* note 18, at 325-64.

[21] Cascade Health Solutions v. Peacehealth, 515 F.3d 883 (9th Cir. 2008). *See* Herbert Hovenkamp & Erik Hovenkamp, *Complex Bundled Discounts and Antitrust Policy*, 57 Buff. L. Rev. 1227, 1234-35 (2009).

would be charged by three different companies separately delivering the services.

Finally, most types of ties find analogues in firms lacking power, meaning that there must be explanations for them that are premised on something other than the assertion of market power.

III. HARM FROM NONEXCLUDING TIES

Tying and exclusive dealing are closely related offenses, except that they are treated very differently under the law.[22] Exclusive dealing is subject to a rule of reason and one of the requirements is proof of an inference of foreclosure, which means that at least one rival or potential rival is shut out of the market (or relegated to inferior or more costly distribution channels). Under tying law's unusual *per se* rule, market power in the tying product must be shown, but foreclosure in the tied product need not be.

A. Leverage

The simple leverage argument that Justice Brandeis made in the *Carbice* case has little or no credibility in economics today. To the extent two goods are complements a seller with market power can assign its markup to either or both together, but it cannot earn a double monopoly profit by assigning the full markup to the tying product and an additional markup to the tied product. If the goods are imperfect complements, however, the seller might be in a position to force the second good on a buyer who does not want it. But if there are no savings from combination, and no prospect of foreclosure, such a seller would ordinarily be harming itself.

To illustrate, suppose that a firm has a monopoly in a particular saucepan but its lid is generic and sold in a competitive market. The saucepan has costs of 10 and a profit-maximizing price of 15, and the lid is sold in a competitive market at 3. The saucepan seller can sell the saucepan and lid separately, earning economic profits of 5 on the pan and zero on the lid. It can also tie, where its profit-maximizing price will be 18. However, suppose that a certain group of customers do not want the lid at all. For these the seller will be charging too high a price and it will lose at least some of these sales, unless we can also assume that the particular buyers who do not want the lid are also willing to pay more for the pan. Because the monopolist's profits are in the pans, this tie will not be profitable.

For example, suppose that out of 100 potential customers 80 want the pan/lid combination while the remaining 20 want only the pan. By charging its profit-maximizing price of

[22] On exclusive dealing, *see* 11 Herbert Hovenkamp, *Antitrust Law* Ch. 18 (3d ed. 2011).

15 for the pan, and the competitive price for the lid, the seller captures all the customers and earns 500. Suppose now that it ties the two at a price of 18. It still earns 5 on each sale that it makes, but at least some, and perhaps all, of the customers who do not want the lid will walk away. Indeed, if only one of these customers of the unwanted tied product walks away the tie will be unprofitable.

So the "pure" leverage argument fails. In order to use it we need to assume that a double markup is possible vis-à-vis the customers who want both products together, which is economically irrational. Otherwise the tying firm's gains must come from some other source, such as economies that accrue to joint provision or else foreclosure of a rival in the lid market.

B. Variable Proportion Ties and Price Discrimination

In a variable proportion tie a seller ordinarily prices two (or more) complementary products by reducing the price of the tying product from its standalone level, tying the second product, and increasing the price of that product. For example, a manufacturer of printers that use ink cartridges specifically designed for that printer might have a standalone printer price of $200 and a standalone cartridge price of $20. It then cuts the printer price to $100, and ties cartridges at a price of $25. Consumer gains accrue from the price cut in the tying product, which both brings new customers into the market and increases the surplus of some existing customers. Any consumer harm accrues from the price increase in the tied product. As a result, these two effects have to be netted out.

Models of price discrimination ties that do not assume a price cut and output increase in the tying product create false positives to the extent that they do not reflect reality. In virtually every case in which the relevant numbers are reported, these variable proportion ties have been accompanied by a price decrease in the tying product and a price increase in the tied product. Sometimes the tying product price increase is said to be to "cost" or "below cost," and in a few cases it is even zero.[23] Unfortunately, case law reporting on the issue is haphazard because price changes in the tying product are not relevant to tying law's *per se* rule.

In the above example, where the seller cuts the printer price from $200 to $100 and increases the cartridge price from $20 to $25, the seller "breaks even" when a buyer purchases twenty cartridges over the life of the printer. In that case the buyer will have paid $100 less for the printer, but $5 more on each of the twenty cartridges, or $100. Ignoring producer profits, the following three effects can occur:

[23] *See* Erik Hovenkamp & Herbert Hovenkamp, *Tying Arrangements and Antitrust Harm*, 52 Ariz. L. Rev. 925, 942-43 & n. 77 (2010) (collecting numerous decisions).

Models of price discrimination ties that do not assume a price cut and output increase in the tying product create false positives to the extent that they do not reflect reality.

1. For high use buyers who use more than twenty cartridges the tying scheme is costly, because the lower price they pay for the printer is more than offset by the higher price they pay for the twenty-plus cartridges that they purchase.

2. For lower intensity buyers who would have purchased under pre-tie pricing but who use fewer than twenty cartridges over the printer's life, the tying scheme saves money because the price increase for the cartridges that they purchase is less than the cost savings from the reduced printer price; they also purchase fewer cartridges. On the margin, this buyer might print somewhat less because of the higher cartridge price, but its total cost would be lower so long as it used fewer than twenty cartridges.

3. For a third group of buyers the tie is an unambiguous improvement because they would not be in the market at all at the previous printer price of $200, but they come into the market when the price is cut to $100.

To illustrate, at the untied price of $200 for the printer and $20 for the cartridge, a minimum purchase is $220. A consumer will not purchase at all unless she places this value on the use of the printer over its life, considering alternatives. Under tying the price for a minimum purchase will be $100 for the printer and $25 for each cartridge, or $125. Customers whose willingness to pay is at least $125 (but less than $220) will purchase. Tying would increase the welfare of all consumers in this group over the life of the printer.[24] Transactions in this range also profit the seller, assuming that the prices are above cost, because they would not be made at all absent tying.

A second class of customers is willing to purchase even at the $220 entry price, because while they print fewer copies they place a higher value on each copy. However, they pay less under tying until the cartridge overcharge exceeds the cost savings on the printer. For example, someone might use only ten cartridges per year over a printer's life of, say, five years. However, she values individual copies by a very high amount because the cost of printing is small in proportion to the value of the documents and the convenience of not having to send her printing out. These customers also come out ahead under tying even though they print less.

[24] For example, assuming 1000 prints per cartridge, the cartridge costs 2 cents per page at the untied price and 2.5 cents per page at the tied price. A buyer who prints 5000 pages over the printer's life would pay $200 plus $100, or $300, at the untied price, and $100 + $125, or $225 at the tied price. If his reservation price were 5 cents per page he would not purchase at all at the untied price but would at the tied price and still have $25 in consumers' surplus. Note that at the margin this customer would print less than if cartridges were sold competitively, but not less than if he did not purchase at all

Ignoring producer welfare, whether the scheme benefits customers on balance depends on the size and per unit surplus realizations in each of these three categories. The relevant factors are the durability of the primary product, the size of the primary product price cut, the elasticity of demand for the primary product at the pre-tie price, the size of the tied product price increase, and the elasticity of demand for the tied product. Other relevant factors include economies of scale in producing the tying product. For example, if the impact of cutting the printer price from $200 to $100 is that tying product output doubles, per unit manufacturing costs could be much lower. Given that many of these ties occur in markets for manufactured goods with a significant R & D component, the inference is strong that the increased output will yield lower per unit costs. Finally, because the seller does not tie unless it is profitable, any outcome that increases consumer welfare will also increase general welfare.

C. Fixed Proportion Ties

In a fixed proportion tie the seller joins two products together and sells them in a fixed proportion, typically of one-to-one. For example, a computer manufacturer may refuse to sell a computer without a preinstalled operating system, or the owner of copyrighted movies or television programs might refuse to license them individually, but insist on doing so only in "blocks."[25] Ties like this are sometimes said to facilitate "interproduct" price discrimination to the extent that different buyers place differential values on the individual components of the package, or "block." To illustrate, suppose that a firm is offering to license two films called Alpha and Beta to two different customers. Given that the films have already been made, marginal costs are very low and we assume them to be zero. The two customers will take both movies but their willingness to pay differs, as follows:

	Alpha	Beta
Customer 1	7	4
Customer 2	3	13

If the seller licenses the two movies individually it has some price points to select from. It can charge the higher price for each movie and license to only one buyer. That is, Customer 1 would license Alpha and Customer 2 would license Beta. Total profits would be 20, and consumer surplus would be zero. Alternatively it could charge the lower price and license to both

[25] E.g., United States v. Loew's, Inc., 371 U.S. 38 (1962) (block-booking of films licensed to television stations).

customers, earning 6 from Alpha and 8 from Beta. In that case its profits would be 14 and consumer surplus would be 13. Finally, it could tie the two movies together at a price of 11, which would give it 22 in profits and yield consumers' surplus of 5.

This case is interesting because consumers' surplus under tying (5) is considerably less than the consumers' surplus under the second unbundled choice (13). However, if prohibited from tying the seller would not take the second unbundled choice. It would take the first one, which gives it even greater profits but yields a consumers' surplus of zero. The only way antitrust intervention would improve consumer welfare in this case would be if we both prohibited the tie and regulated the seller's standalone prices, forcing it to select the lower number. Different assumptions about willingness to pay will yield different outcomes, and bundling will not always be the most profitable strategy.

Interproduct price discrimination such as this generally requires that the seller have market power in all (or both) of the products in the bundle. This entails a strong likelihood that someone who sells both of the products together will eliminate double marginalization and thus maximize its profits at a lower price and higher output than would occur if different sellers sold the two goods individually. Double marginalization may not be the only reason that a seller combines two goods into a single deal. Such combinations can also reduce transaction costs, particularly in cases where the buyer does not know in advance which goods it wants or in what proportion. For example, blanket licensing of copyrighted digital music permits a licensee such as a radio station or restaurant to purchase the license in advance and later pick and choose what it wants to play, on short notice and with complete assurance that it is not committing copyright infringement.[26]

D. Nonexcluding Bundled Discounts and Imperfect Complements

When two goods in a fixed proportion bundle are perfect complements, each purchaser wants the combination. If the bundle either eliminates double marginalization, or reduces production or transaction costs, then both the seller and all purchasers will be better off. For example, suppose that the standalone profit-maximizing price of A is $5 and the standalone profit-maximizing price of B is $4, but a seller who sells both maximizes its profits for an AB bundle at $8. If all buyers want the AB combination then both producer welfare and consumer welfare are increased by the bundle.

If the two goods are imperfect complements, however, the story is more complicated. Suppose, for example, that all users of B require an A, but that only 80 percent of A users want a B. In that case bundling will still benefit the set of consumers who want both products.

[26] E.g., BMI v. Moor-Law, Inc., 527 F. Supp. 758, 763, 767–68 (D. Del. 1981), *aff'd*, 691 F.2d 490 (3d Cir. 1982)

The purchasers who prefer to have an A alone may not be better off, however. On the one hand, they enjoy the price reduction for the combination. On the other hand, they are forced to purchase a unit of B that they do not want. Whether they are better off or worse off depends on whether their gains from the price reduction exceed or are less than their losses from having to take an unwanted B.

Even when one considers consumer welfare alone, the great majority of ties very likely are competitively benign, with a few exceptions that involve realistic threats of anticompetitive foreclosure.

This is a situation where the value of bundled discounts comes in. When complements are imperfect some buyers may want the seller's combination but others will not. Depending on the nature of the product and the nature of the tie it may be feasible for the seller to combine the two and pass on the cost savings to those who wish both products, but to offer the higher separate prices to those who prefer only one of the products.[27] So in the above example, the 80 percent of customers who want the AB bundle will buy it at $8, while those who want only A will pay $5 for A alone.

IV. CONCLUSION

Notwithstanding hundreds of court decisions and scholarly articles, tying arrangements remain enigmatic. Conclusions that go to either extreme, *per se* legality or per se illegality, invariably make simplifying assumptions that frequently do not obtain. For example, by ignoring double marginalization or tying product price cuts it becomes very easy to prove that a wide-range of ties are anticompetitive. At the other extreme, by ignoring foreclosure possibilities one can readily conclude that ties are invariably benign. Even when one considers consumer welfare alone, the great majority of ties very likely are competitively benign, with a few exceptions that involve realistic threats of anticompetitive foreclosure.

To be sure, customers may be injured when they want to purchase a smaller package than a seller wishes to sell. The customer might wish to buy a single lot rather than a rancher's 1000 acre spread, or a consumer may wish to purchase two slices of bread out of a loaf. If the seller refuses to oblige that is not an antitrust problem. Neither exclusion of a rival nor a restraint of trade producing higher prices is in prospect. Indeed, in a case such as *Brantley*, the per channel cost of delivering a large number of channels is almost certainly lower than the per channel cost of delivering a few. The fixed-cost component of a cable television system is a significant portion of its costs and the incremental costs of adding channels are almost certainly very low. The *Brantley* plaintiffs simply want the seller to offer a smaller product than it wishes to offer. That is fundamentally not an antitrust problem.

[27] *See* Hovenkamp & Hovenkamp, *Tying Arrangements, supra* note 23.

MEDIA PLURALITY: UNDER THE SKIN OF CONTROL - CONCEPT, CONTEXT, AND REFORM

*Antonio Bavasso**

ABSTRACT:
The concept of media plurality has achieved a remarkable degree of prominence recently, particularly in the United Kingdom and more generally in Europe. This article looks at the U.K. experience and, on that basis, it aims to illustrate how the legal concept and policy aims have been affected by transformational effects of new media forms. The first section considers the current regulatory regime applicable to traditional media and the concept of media plurality the regime aims to protect, and illustrates the wide range of interventions already in place. The second section argues for the importance of judging the plurality of media, and thus the need for any further intervention, on the basis of a cross-media assessment, rather than taking individual types of media in isolation. The third section considers how technological developments are shaping the outlook for media plurality today. Based on this analysis, I question whether the regulatory regime relating to plurality requires either a major overhaul and/or the emphasis that it currently attracts in the regulatory reform agenda. On the other hand, it seems clear that we need to remain vigilant about new and more subtle forms of influence on public discourse that flow from the evolving methods of news distribution and consumption.

I. INTRODUCTION

The concept of media plurality has achieved a remarkable degree of prominence recently, at a time when the transformational effects of the internet are taking an increasingly defined shape and have already produced a tangible impact in patterns of media consumption. Media plurality not only relates to the number of persons with control of media companies, but (per the U.K. Ofcom) also refers to the number of persons with a broader "ability to influence and inform public opinion."

In the United Kingdom, regulatory authorities and courts have had the opportunity to review the concept and relevant statutory provisions as a result of acquisitions, mostly in the

*Partner, Allen & Overy LLP; Visiting Professor of EU Competition Law and Co-Founder and Executive Director of the Jevons Institute for Competition Law and Economics at University College London. The author is grateful to Chris Best for his work on this paper.

broadcasting sector.[1] In addition, a number of parliamentary and departmental initiatives, and, perhaps most prominently, a judicial inquiry chaired by Lord Justice Leveson, have reviewed directly or indirectly the concept of, aims, and policy relating to media plurality.

The concept of media plurality has achieved a remarkable degree of prominence recently, at a time when the transformational effects of the Internet are taking an increasingly defined shape and have already produced a tangible impact in patterns of media consumption.

A central aim of the Leveson Inquiry is to make recommendations "for a new and more effective policy and regulatory regime which supports the integrity and freedom of the press, the plurality of the media, and its independence."[2] Following a request from the Secretary of State for Culture, Olympics, Media and Sport in October last year, Ofcom has consulted upon questions relating to media plurality (in particular, its measurement), and in mid-June this year published a report which will be taken into consideration both by the Leveson Inquiry and the Government's ongoing Communications Review.[3] Roughly in parallel with this, the House of Commons' Culture, Media, and Sport Committee has been conducting an inquiry into media plurality and completed a public consultation on the topic in January this year.[4] The Secretary of State has also replied to Ofcom requesting further advice on certain points by September, which will, in turn, be fed into the Communications Review.[5]

There are also signs of activity at European level. In October 2011 Commissioner for the Digital Agenda Neelie Kroes inaugurated the High Level Group on Media Freedom and Pluralism, which will report by the end of this year on the adequacy of current legal frameworks. The goal is to ensure respect for media pluralism and make recommendations for reform with particular attention to the level (i.e. national, EU, or international) as to which action should be taken.[6]

This flurry of reform activity comes at a time when the impact of the internet on the media

[1] Specifically, in proceedings relating to the acquisition by British Sky Broadcasting Group plc ("Sky") of shares in ITV and News Corporation's proposed acquisition of the remaining shares in Sky (referred to as "Sky/ITV" and "News/Sky" respectively). The author advised Sky in the Sky/ITV case and News Corporation in the News/Sky case

[2] Point 2(a) of the Inquiry's terms of reference. The author made submissions on media plurality to the Leveson Inquiry on behalf of NI Group Limited.

[3] Ofcom, *Measuring media plurality: Ofcom's advice to the Secretary of State for Culture, Olympics, Media and Sport*, June 19, 2012, *available at* http://stakeholders.ofcom.org.uk/binaries/consultations/measuring-plurality/statement/statement.pdf

[4] Details of which are *available at* http://www.parliament.uk/business/committees/committees-a-z/commons-select/culture-media-and-sport-committee/inquiries/parliament-2010/media-plurality/

[5] http://www.culture.gov.uk/images/publications/SoS_letter-to-Ofcom-18-June-2012.pdf

[6] http://ec.europa.eu/information_society/media_taskforce/pluralism/index_en.htm

landscape is more and more evident as it becomes, increasingly, the platform of choice for the provision, consumption, and exchange of ideas. The danger that proponents of reform resulting in more intrusive plurality regulation pose is that often their thinking remains rooted in a paradigm which the industry and media consumption have already moved away from - a world in which public debate and free speech could be dominated by one or a small number of controllable sources - by a "master switch" to borrow the expression used by Tim Wu.[7]

This article aims to illustrate how any threats to the policy aims that plurality regulation is intended to protect do not come from traditional media. The first section considers the current regulatory regime applicable to traditional media and the concept of media plurality the regime aims to protect, and illustrates the wide range of interventions already in place. The second section argues for the importance of judging the plurality of U.K. media, and thus the need for any further intervention, on the basis of a cross-media assessment, rather than taking individual types of media in isolation. The third section considers how technological developments are shaping the outlook for media plurality today. Based on this analysis, I question whether the regulatory regime relating to plurality requires either a major overhaul and/or the emphasis that it currently attracts in the regulatory reform agenda. On the other hand, it seems clear that we need to remain vigilant about new and more subtle forms of influence on public discourse that flow from the evolving methods of news distribution and consumption.

II. THE EXISTING REGULATORY FRAMEWORK

In order to identify the relevant regulatory architecture, it is useful to begin with an understanding of the public interest considerations underpinning the concept of plurality. These were expressed by the House of Lords Communications Committee in 2008 as follows:

> In 2001, the Government published a consultation paper on media ownership in which it was stated that "A healthy democracy depends on a culture of dissent and argument, which would inevitably be diminished if there were only a limited number of providers of news." This was a sentiment shared by the previous Conservative administration: A free and diverse media are an indispensable part of the democratic process. They provide the multiplicity of voices and opinions that informs the public, influences opinion, and engenders political debate. They promote the culture of dissent which any healthy democracy must have. If

[7] Tim Wu, The Master Switch (Knopf, 2010).

> one voice becomes too powerful, this process is placed in jeopardy and democracy is damaged.[8]

There is a broad consensus in the relevant academic literature that the need for media plurality derives primarily from its importance for democracy.

There is a broad consensus in the relevant academic literature that the need for media plurality derives primarily from its importance for democracy.[9] That is, in broad terms, a range and variety of voices, none of which has too much influence over public debate and the political agenda, contributes to healthy and effective democratic discourse.

As expanded upon below, U.K. regulators and courts have likewise endorsed this range and variety of voices as the aim of the U.K. media plurality regime. However, the same goal is also furthered by a range of other regulatory instruments. In considering them, it is important to recognize their respective ambits of application and their complementarities, as well as the areas of tension and trade-offs.

A. The Broader Regulatory Landscape

1. Competition and General Merger Control Rules

Media companies are subject to ordinary competition rules prohibiting anticompetitive agreements and subjecting any company holding a position of market dominance to special responsibilities as to its market conduct. Indeed, during consultations and debates leading to the Communications Act 2003 ("CA 2003") many commentators felt that competition rules in the United Kingdom, which had themselves recently been strengthened in the Competition Act 1998 and the Enterprise Act 2002 ("EA 2002"), would be sufficient to guarantee that U.K. media would remain free and competitive. However, it was felt that some additional degree of regulation was still needed. Lord McIntosh of Haringey expressed the Government's position on the matter as follows:

> Media plurality is important for a healthy and informed democratic society. The underlying principle is that it would be dangerous for any one person to control too much of the media because of his or her ability to influence opinions and set the political agenda. It is therefore essential to set limits on concentrations of

[8] First Report of the House of Lords Select Committee on Communications, June 11, 2008 (http://www.publications.parliament.uk/pa/ld200708/ldselect/ldcomuni/122/12208.htm), ¶ 202.

[9] Summarized in Annex 7 of Ofcom's June 2012 report.

> ownership. Competition law will do that to some degree and may, in fact be all that is needed in many cases. But there is no guarantee that that will always be so.
>
> That is particularly true in the case of cross-media concentrations, where the competition authorities may well take the view that the markets are separate and that consequently there is no effect on competition. That is a completely proper conclusion as regards competition but it may not be sufficient to safeguard the appropriate level of plurality.[10]

Consequently, additional protections to address this concern and to safeguard plurality were included in the CA 2003, as described below.

Any media company in the United Kingdom that seeks to grow by acquisition must either (depending on the application of fixed-revenue thresholds) seek prior clearance from the European Commission or be subject to the jurisdiction of the Office of Fair Trading ("OFT") and the Competition Commission. Any merger that substantially threatens competition can be blocked and/or unwound on competition grounds. The Secretary of State has additional powers to intervene to protect the public interest, on the basis of certain public interest considerations set out in section 58 of the EA 2002. A number of these are relevant to media markets. The Secretary of State has the power to intervene on the basis of the following specified considerations:

> (2A) The need for:
>
> (a) accurate presentation of news; and
>
> (b) free expression of opinion;

in newspapers is specified in this section.

> (2B) The need for, to the extent that it is reasonable and practicable, a sufficient plurality of views in newspapers in each market for newspapers in the United Kingdom or a part of the United Kingdom is specified in this section.
>
> (2C) The following are specified in this section:
>
> (a) the need, in relation to every different audience in the United Kingdom or in a particular area or locality of the United Kingdom, for there to

[10] Hansard, HL Deb, 2 July 2003, cc 912-913. (http://www.publications.parliament.uk/pa/ld200203/ldhansrd/vo030702/text/30702-09.htm).

> be a sufficient plurality of persons with control of the media enterprises serving that audience;
>
> (b) the need for the availability throughout the United Kingdom of a wide range of broadcasting which (taken as a whole) is both of high quality and calculated to appeal to a wide variety of tastes and interests; and
>
> (c) the need for persons carrying on media enterprises, and for those with control of such enterprises, to have a genuine commitment to the attainment in relation to broadcasting of the standards objectives set out in section 319 of the Communications Act 2003.

Considerations 2B and 2C(a) expressly concern plurality, the first in relation to newspapers and the second in relation to those in control of media enterprises (defined in section 58A(1) of the EA 2002 as consisting in or involving broadcasting). Considerations 2A, 2C(b) and 2C(c) provide the Secretary of State with additional flexible tools to intervene to protect certain aspects of the functioning of media markets should adverse consequences be anticipated as the result of an acquisition.

Media plurality is also a separate and distinct consideration from competition, which by contrast has its own well-established field of analysis and range of economic tools. It is desirable that media plurality regulation should avoid duplicating the territory covered by a competition review based on a rigorous economic assessment. For instance, the proper place for a forward-looking analysis of market behavior and of the potential for future market exclusion is as part of a rigorous competition law assessment.[11]

2. Broadcast Content Regulation Generally

The United Kingdom also has specific rules on impartiality which apply only to broadcast news providers. As explained below, the absence of such rules in the case of the U.K. press leads to a greater range and variety of voices among newspaper titles, meaning that newspapers make

[11] This distinction is reflected by the division of competencies in the U.K.'s regulatory regime applicable to mergers raising media public interest concerns: the Secretary of State must follow the advice of the relevant competition authorities (the OFT and, in the case of a second-stage review, the Competition Commission) as to the competition aspects of the transaction, but retains ultimate decision-making power as to any media plurality concerns and is not obliged to accept the advice of Ofcom.

[12] As noted above "accurate presentation of the news" for newspaper is also a relevant public interest consideration in relation to newspaper mergers under s. 58(2A)(a) EA.

Prior to 1954, the BBC held a monopoly on public service broadcasting and its strict internal rules on impartiality were viewed as sufficient.

a greater overall contribution to media plurality.

Sections 319 and 320 of the CA 2003 require Ofcom to set standards for the content of television and radio news programs. Ofcom sets such standards in a "Broadcasting Code," which requires broadcasters to ensure that news is reported with "due accuracy"[12] and "due impartiality" and that no undue prominence is given to any one point of view, particularly in matters of political or industrial controversy or current public policy.[13]

Impartiality and accuracy obligations imposed on broadcasters were first introduced by the Television Act 1954, which provided for the creation of ITV (the main U.K. commercial broadcaster). Prior to 1954, the BBC held a monopoly on public service broadcasting and its strict internal rules on impartiality were viewed as sufficient.[14] The Television Act 1954 required the *Independent* Television Authority to satisfy itself that, so far as possible, the programs that it broadcast complied with requirements, including:

> that any news given in the programmes (in whatever form) is presented with due accuracy and impartiality;[15]
>
> and
>
> that due impartiality is preserved on the part of the persons providing the programmes as respects matters of political or industrial controversy or relating to current public policy.[16]

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[12] As noted above "accurate presentation of the news" for newspaper is also a relevant public interest consideration in relation to newspaper mergers under s. 58(2A)(a) EA.

[13] § Five of the Broadcasting Code (http://stakeholders.ofcom.org.uk/binaries/broadcast/831190/broadcastingcode2011.pdf). It is worth noting that in this context impartial means balanced not neutral: This is how the concept is explained in the Broadcasting Code Meaning of "due impartiality": "Due" is an important qualification to the concept of impartiality. Impartiality itself means not favouring one side over another. "Due" means adequate or appropriate to the subject and nature of the programme. So "due impartiality" does not mean an equal division of time has to be given to every view, or that every argument and every facet of every argument has to be represented. The approach to due impartiality may vary according to the nature of the subject, the type of programme and channel, the likely expectation of the audience as to content, and the extent to which the content and approach is signaled to the audience. Context, as defined in Section Two: Harm and Offence of the Code, is important.

[14] See Reville, Broadcasting Law and Practice (Butterworths, 1997), ¶ 3.31

[15] § 3(1)(c).

[16] § 3(1)(f)

The concept of a specific code for content was introduced in the Television Act 1964 and retained in subsequent broadcasting legislation,[17] with the immediate predecessor of Ofcom's Broadcasting Code being the content code established by the *Independent* Television Commission under the Broadcasting Act 1990.[18] The Broadcasting Act 1990 set out very similar guidelines for news content to those which apply today and required news content to be "presented with due accuracy and impartiality."[19]

The particular situation of broadcast media in the United Kingdom, and the differences between broadcast media and other media formats, were explicitly acknowledged in the legislative process leading up to the CA 2003. The White Paper, *A New Future for Communications*, acknowledged that the level of regulation of public service broadcasting which had previously existed was rooted in spectrum scarcity and would not, in future, be able to be justified for these reasons:

> 5.2.2 […] At first spectrum scarcity meant that there could be only a few radio, and then television, channels. Since there could not be many providers to ensure choice, it was decided that broadcasting should be publicly owned and that there should be variety and range within the channels. The independence and impartiality of broadcasting were also quickly established.
>
> […]
>
> 5.2.4 […] the era when the extent of broadcasting was determined by spectrum scarcity is drawing to a close. With the switchover to digital expected between 2006-2010, we are less than a decade away from every television household having access to dozens of channels. [20]

However, despite the increased ease of access for broadcasters, the White Paper argued for the retention of accuracy and impartiality requirements in respect of broadcast news specifi-

[17] § 4(1)(a). For a comprehensive account of the development and regulation of commercial broadcasting in the United Kingdom, *see Independent Television In Britain* (volumes written by Bernard Sendall, Jeremy Potter, and Paul Bonner and Lesley Aston; published at intervals between 1982 and 2003).

[18] §§ 6(3) and 7.

[19] § 6(1)(b)

[20] 5.2.2 and 5.2.4 of the White Paper (Cm 5010)

cally as a counterweight to the partiality of news in non-broadcast media and due to the level of public trust that had built up in broadcast media over time:

> One of the cornerstones of broadcasting in the UK has been the obligation on all broadcasters to present news with due accuracy and impartiality[…] The Government believes that these obligations have played a major part in ensuring wide public access to impartial and accurate information about our society and the opportunity to encounter a diverse array of voices and perspectives. They ensure that the broadcast media provide a counter-weight to other, often partial, sources of news. They therefore contribute significantly to properly informed democratic debate [...]"[21]

> The level of public trust in the broadcast media is such that broadcasters have been able to build on trusted brand names to extend the provision of such accurate and impartial news into new media […]"[22]

Lord McIntosh of Haringey, speaking for the Government during a House of Lords debate on an amendment to the Communications Bill relating to the public interest test in newspaper mergers, drew the following distinction between newspapers and broadcast media:

> […]the broadcast media are different from newspapers. Newspapers are free in this country; no licence is required to publish a newspaper. But, because of spectrum scarcity over many years, there has been in place a system of licensing for broadcast media. It is under that system, ever since plurality of broadcasting started - with Radio Luxembourg before the war and ITV in 1955 - that governments have exercised the public interest criterion through the licensing procedure. […]

> We have a plurality test for newspapers because there are no licences, and we have to ensure the accurate expression of news and the free expression of opinion -

[21] ¶ 6.6.1. The Department for Culture, Media and Sport also emphasized this counterweight function in a memorandum submitted in connection with the House of Lords Communications Committee's First Report in September 2007 (*available at* http://www.publications.parliament.uk/pa/ld200708/ldselect/ldcomuni/122/8040202.htm)

[22] ¶ 6.6.2 of the White Paper.

> although not within a single newspaper […] If we started to say that individual newspapers had to be balanced we would be transforming our view of the relationships between Government and a free press. In broadcasting the licensing regime makes it possible to set simple rules, based on licence holdings, and there are already statutory requirements for accurate and impartial news and the prominence that can be given to any particular viewpoint.[23]

Generally, ongoing content regulation on impartiality is best suited to monopolistic or highly concentrated markets. In areas that lend themselves to licensing regimes, such as broadcasting, there could be additional content requirements that either promote plurality directly or otherwise help achieve an informed public. For example, in the United Kingdom, ITV (the main commercial broadcaster) is required to provide a range of high-quality and diverse programming, including high-quality news and current affairs programs.[24]

3. Broadcast Content Regulation - Direct Market Presence

State intervention in the provision of media services, in particular news services, is another form of regulatory intervention. The BBC is one of the most successful manifestations of this type of intervention. It is by far the most influential news organization in the United Kingdom. According to Ofcom, the BBC has a significantly wider reach than any other organization (more than 80 percent of U.K. adults) and is the market leader in each platform where it has a news presence, including online.[25]

The BBC's Royal Charter obliges it to be independent from political and commercial interests and to produce high quality news content, and the BBC's obligations regarding news are bolstered in the BBC Agreement. The BBC is held to account by the BBC Trust, which ensures that it continues to meet its public interest objectives, specifically including the provision of accurate and impartial news and analysis of current events and ideas.[26]

The BBC's position and prominence means that the specific regulatory regime applying to it indirectly influences the U.K., news environment more broadly, not only in television but

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[23] Hansard, HL Deb 05 June 2003 vol 648 cc1447 – 1449 (http://www.publications.parliament.uk/pa/ld200203/ldhansrd/vo030605/text/30605-05.htm). Strictly, prior to 1990 licenses were not granted. Rather, programs were produced under contracts awarded by the Independent Television Authority (later the Independent Broadcasting Authority).

[24] § 279(1) of CA 2003

[25] Ofcom, *Measuring media plurality, supra* note 3, ¶ 5.139.

[26] Clause 6(1) of the BBC Agreement.

Plurality primarily concerns the number and range of 'voices' and not whether those voices are impartial.

also online and therefore cross media.

B. Plurality, Impartiality, and "Media Capture"

Despite their occasional confusion in public debate, it is important to understand that the concepts of "accuracy" and "impartiality" central to broadcast content regulation are not the same as plurality.

The key point is that **plurality** primarily concerns the number and range of "voices" and not whether those voices are **impartial**. Plurality can be achieved by a multiplicity of voices that are not subject to specific regulatory requirements of impartiality. This is currently the case for print media and, to a large extent, for online news provision. Most importantly, pursuing plurality as a policy aim postulates that availability of **diversity** of views (including very partial views) is a key factor that underpins democratic debate.

That said, impartiality requirements may increase plurality where they contribute to the availability of a multiplicity of separate voices within an individual media group, particularly those active across media. Where only some of the activities of a media group are subject to impartiality requirements, this is likely to lead to greater "internal plurality" within a media group (e.g. in the United Kingdom, where a group comprising newspaper and broadcast will be more internally plural because of the additional impartiality obligation applying to broadcast news which does not apply to newspapers).

However, such "internal plurality," while it helps complete the picture, does not entirely replace the need for a plurality of media controllers. Impartiality provisions were taken into account as part of its overall analysis by the Competition Commission when considering the extent of "internal plurality" in its review of Sky/ITV:

> In television news, existing regulatory mechanisms - including quality controls (eg in the Broadcasting Code), requirements for impartiality and quotas for television news and current affairs programming - reduce the scope for influence over editorial decisions by owners of television channels which broadcast news.[27]

Finally, we need to consider the extent to which plurality contributes to prevent or reduce "media capture." Governments have strong incentives to control the media industry.[28]

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[27] ¶ 5.54 of the Competition Commission's report in Sky/ITV, *Acquisition by British Sky Broadcasting Group plc of 17.9 percent of the shares in ITV plc*, 14 December 2007 (the "Competition Commission's Report").

[28] A. Pratt & D. Stroember, *The Political Economy of Mass Media*, February 11, 2011 http://econ.lse.ac.uk/staff/prat/papers/mediasurvey11.pdf, p. 45

Pluralism can help reduce their ability to do so. But there are equally - if not more - pernicious forms of distortion in news provision when the agenda of the news provider is influenced by commercial motives relating not to the media industry but to unrelated activities of the controllers.[29] We should be particularly vigilant where media owners form part of groups that otherwise have nothing to do with media. In this light, there is a risk that the fragmentation that plurality requirements help achieve may be an obstacle to a media organization attaining the scale necessary for financial viability in its own right, which is the best guarantee of its *independence and credibility*.

C. The U.K. Legal Concept of Plurality

In the United Kingdom the principal legislation giving effect to the concept of media plurality is the EA 2002 as modified by the CA 2003. Prior to 2003 media regulation tended to focus on restricting ownership of media.[30] However, strict media ownership rules were felt to be inflexible and increasingly inappropriate in a fast-developing media landscape, and contrary to trends in modern regulation.[31] Therefore, a wide range of specific media ownership and cross-media ownership restrictions were removed by the Communications Act 2003 at the same time that powers were granted to the Secretary of State to ensure that media plurality was maintained.

Restrictions on cross-media ownership were retained specifically as regards "Channel 3"

[29] *In The Observer and George Outram & Company Limited*, (a report on the proposed transfer of *The Observer*, a newspaper of which Atlantic Richfield Company is a proprietor, to George Outram & Company Limited, a subsidiary of Scottish and Universal Investments Limited, whose parent company is Lonrho Limited, 29 June 1981), under the FTA the Monopolies and Mergers Commission recommended that conditions be attached to the Secretary of State's consent to safeguard editorial independence against a potential conflict of interest arising out of the extensive business interests of Lonrho.

[30] These rules on media ownership were bolstered by more general obligations imposed on the regulators to ensure range and variety in content; for example, under the Broadcasting Act 1990, to "ensure that a wide range of [television programme services] is available throughout the United Kingdom." Similar obligations to ensure a suitable variety of broadcast content are replicated at section 3(2)(c) of the Communications Act 2003.

[31] *See* Cm 5508 *The Draft Communications Bill – The Policy ("Policy")* which explained the government's position with regard to the need for reform of media regulation, in particular ¶¶ 9.1 and 9.2.

The legal concept hinges on the notion of control over a voice. However, looking at controllers in isolation is not sufficient to guarantee variety and range.

licences (the majority of which are held by ITV plc)[32] – often referred to as the "20/20 rule."[33]

The EA 2002 (as modified by the CA 2003) empowers the Secretary of State to intervene in a merger to ensure that the transaction is not contrary to the public interest in terms of any one of a number of specified public interest considerations. As noted above, the relevant considerations for present purposes are, for newspaper mergers:

> The need for, to the extent that it is reasonable and practicable, a sufficient plurality of views in newspapers in each market for newspapers in the United Kingdom or a part of the United Kingdom.[34]

And for other media mergers:

> the need, in relation to every different audience in the United Kingdom or in a particular area or locality of the United Kingdom, for there to be a sufficient plurality of persons with control of the media enterprises serving that audience.[35]

In assessing the public interest considerations relevant in the Sky/ITV review, the Competition Commission stated that: "a plurality of control within the media is a matter of public interest because it may affect the range of information and views provided to different audiences." [36]

The legal concept hinges on the notion of "control" over a voice. However, looking at controllers in isolation is not sufficient to guarantee variety and range. A purely quantitative enumeration of voices under **separate** control cannot be a paramount policy imperative *per se*. Indeed, the value of a multiplicity of voices is questionable when those voices have to operate within strict limits of "impartiality."

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[32] The licenses under Chapter II of Part I of the Broadcasting Act 1990 pursuant to which the various television services comprising Channel 3 broadcast.

[33] These rules are set out in Schedule 14 of the CA 2003 and apply to any person who: (i) runs a national newspaper having a national market share of 20 percent or more; or (ii) runs national newspapers which together have a market share of 20 percent or more. Such a person is not permitted to hold a Channel 3 licence or to have more than a 20 percent interest in a body corporate that holds a Channel 3 licence.

[34] *Id*., § 58(2B).

[35] *Id*., § 58(2C).

[36] Competition Commission's Report, ¶5.10.

Nor does a number of **distinct** voices under **separate** control necessarily translate into variety and range. For instance, in the U.K. broadcasting sector the combined effect of content regulation and the presence of the BBC results in a limited range of styles of news broadcasting.

Equally, one cannot simplistically assume that there cannot be plurality among voices under common control.

D. Under the Skin of Control: Internal and External Plurality

The Sky/ITV case put in sharp focus these important distinctions. Plurality of controllers is ancillary to the ultimate policy aim of plurality of viewpoints. The latter may also be, to a certain extent, achieved within the same corporate group if common ownership does not translate into unity in viewpoint output, for instance as a result of regulatory and/or behavioral constraints.[37] This underpins the distinction, now mainstream in regulatory jargon, between "external plurality" (distinct voices which operate under separate control) and "internal plurality" (distinct voices within a media group). The contrast was made explicit by the Competition Commission in Sky/ITV:

> We thought it important to draw a distinction between the plurality of persons with control of media enterprises and the implications of that plurality for the range of information and views made available to audiences. We also thought that it was appropriate to distinguish between the range of information and views that are provided across separate independent media groups (external plurality) and the range that are provided within individual media groups (internal plurality).[38]

This analysis was supported by the Court of Appeal:

> […] it seems to us that the Commission was correct to hold that, whereas in reckoning the number of controllers of media enterprises for the purposes of section 58(2C)(a) only one controller is to be counted in respect of both or all of the relevant enterprises (here Sky and ITV), nevertheless, when it comes to assessing the plurality of the aggregate number of relevant controllers and to considering the sufficiency of that plurality, the Commission may, and should, take into account the actual extent of the control exercised and exercisable over a relevant

[37] For example, impartiality requirements applying only to the broadcast activities of a media group.

[38] ¶30 of the Competition Commission's Report.

The assessment therefore has to be a qualitative one taking into account a number of factors: the actual degree of control, the regulatory and behavioral constraints on the supply side, and patterns of consumption on the demand side.

enterprise by another, whether it is a case of deemed control resulting from material influence under section 26 or rather one of actual common ownership or control.[39]

Ofcom, the U.K. sectoral regulator, which initially rejected this distinction in Sky/ITV, has now endorsed this position:

> We note that a diversity of viewpoints can be formed within an organisation and between organisations. Both are relevant to the question of plurality.[40]

As well as the availability of a range and variety of voices, patterns of news consumption, and the extent to which consumers tend actually to have exposure to a range and variety of opinions, form an essential part of an overall plurality assessment.

The assessment therefore has to be a qualitative one taking into account a number of factors: the actual degree of control, the regulatory and behavioural constraints on the supply side, and patterns of consumption on the demand side.

The public interest review in the Sky/ITV merger case required - as provided for in the EA 2002 - an assessment of the sufficiency of plurality of persons in control of media enterprises in the United Kingdom. The Competition Commission recognized that this required a qualitative assessment of the range and variety of views available:

> We took the concept of plurality of persons with control of media enterprises to refer both to the range and number of persons with control of media enterprises. We concluded that a plurality of control within the media is a matter of public interest because it may affect the range of information and views provided to different audiences. [41]

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[39] *British Sky Broadcasting Group Plc v Competition Commission* [2010] EWCA Civ 2, ¶ 121.

[40] ¶ 3.10 (emphasis in the original) of Ofcom's June 2012 report (*supra* note 3).

[41] Competition Commission's Report, *Acquisition by British Sky Broadcasting Group plc of 17.9 percent of the shares in ITV plc*, sent to the Secretary of State for Business, Enterprise and Regulatory Reform on 14 December 2007 (http://www.competition-commission.org.uk/rep_pub/reports/2007/fulltext/535.pdf) (hereafter, the Competition Commission's Report), ¶¶ 5.10 and 30.

The Competition Commission's understanding of plurality as a qualitative test was supported by the Court of Appeal in the appeal of the Competition Appeal Tribunal's decision in the same case:

> We agree with the Commission on this […] The word plurality can connote more than just a number exceeding one. It may carry an implication of range and variety as well. Certainly it has that meaning in subsection (2B). We consider that it does so in subsection (2C)(a) as well.

and

> The Secretary of State, Sky and the Commission submit, and we agree, that the Commission's task is not just to count the number of media enterprise controllers, but also to make a qualitative assessment of the position following from the [relevant merger situation].[42]

In its recently-published report, Ofcom formulated its own definition of plurality based on these precedents in the following, essentially qualitative, terms:

> a) ensuring there is a diversity of viewpoints available and consumed across and within media enterprises and b) preventing any one media owner or voice having too much influence over public opinion and the political agenda.[43]

Significantly, Ofcom also confirmed that ensuring a range of viewpoints should be the main focus of its regulatory activities, since this, in turn, constrains the influence of any particular media owner over the political process.[44]

E. The Scope of Media Plurality

A further question is which genres of content media plurality regulation should cover. It might seem relatively clear that the range and variety of voices in relation to certain genres are not a matter of sufficient public interest to justify regulatory intervention, but for other genres

[42] *British Sky Broadcasting Group Plc v Competition Commission*, ¶¶ 90 and 118.
[43] *Measuring Media Plurality,* ¶ 1.3
[44] *Id*., ¶ 3.6

However, news and current affairs content is the type of media content that is most key to the formation of public opinion on important issues.

this question may be more finely balanced (political drama, for example).[45]

However, news and current affairs content is the type of media content that is most key to the formation of public opinion on important issues. It is for that reason that this kind of content has been appropriately regarded as the focus of media plurality assessments. This was confirmed by the Competition Commission in its review of Sky/ITV (and a similar approach was also adopted by Ofcom in its review of the News/Sky deal and its recent report on measuring media plurality):[46]

> The parties overlap in a broad range of content, but news and current affairs are the genres most closely connected with the formation of public opinion about issues of national significance through the communication of a range of information and views. National news is an important genre of programming for both ITV and BSkyB. Considering all content genres, including current affairs, documentaries and satire, viewers rank news first in terms of 'societal importance', with a majority of the public saying that news helps them feel part of the democratic process. We also believe that news provision is a reasonable indicator of, and better defined than, a wider range of other content relevant to the formation of public opinion about issues of national significance. We therefore focused on national news and refer to the range of information and views communicated to audiences through the news as the 'plurality of news'.[47]

Historically, this concern for news and current affairs content has concentrated on newspapers, television news, and radio news. Increasingly, however, the internet is an important source of such content for many consumers, and, as discussed in more detail in Section IV, the

[45] Although Ofcom's June 2012 report ultimately concluded that news and current affairs genres should be the focus of plurality assessment, section 2.4 of Annex 7 summarizes academic literature highlighting the democratic importance of other genres. For example, Curran suggests that films and TV series have influenced public conceptions of war and U.S. national security, while Franklin notes that politicians may use other genres such as chat shows to communicate with the electorate, often addressing larger audiences. See, respectively, J. Curran, *Entertaining Democracy*, Media and Society (J. Curran, ed.) (2010) and B. Franklin, *Talking Past Each Other: Journalists, Readers and Local Newspapers' Reporting of Election Campaigns*, 4(4) J. Public Affairs pp. 338-346 (2004).

[46] E.g. ¶ 3.16: "We believe news and current affairs are the most relevant forms of content for the delivery of the public policy goals. We recommend that the scope of any plurality review should be limited to these."

[47] Competition Commission's Report, ¶ 5.32. The Court of Appeal did not directly address this point, but quoted without criticism the Competition Commission's assessment that "a plurality of control within the media is a matter of public interest because it may affect the range of information and views provided to different audiences" (¶ 100 of the Court's judgment, emphasis added).

resulting proliferation in news sources and increasingly plural consumption must be taken into account in assessing plurality.

III. MEDIA PLURALITY IN A CROSS MEDIA ENVIRONMENT

Before concluding with an assessment of the outlook for media plurality in the United Kingdom, it is worth making a few observations on how this plurality should be measured; a question that was the particular focus of Ofcom's recent consultation and report.[48]

The vital point is this: A meaningful assessment of media plurality must consider all news sources and, importantly, **all media**. It is not enough simply to look at one medium in isolation, since this would fail to consider the full range and variety of voices available to audiences and could therefore lead to an inaccurate assessment of the public interest.

This point is underscored by the increasingly blurred boundaries between traditional media and new media. It is increasingly difficult to conduct a meaningful analysis of any one news medium, for example newspapers, without taking into account the provision of news content over the internet. Many people who read content produced by a particular newspaper title will now read that content on-line or via an app rather than in a print newspaper. This blurring of the boundaries reflects the fact that the internet is a "converging medium." Offline news sources such as newspapers and broadcasters also tend to be the most important online news sources (although it is important to understand that the internet also increases plurality in news reporting by adding to conventional offline sources and providers, a point returned to below).

Another factor emphasizing the importance of measuring plurality across all media is the declining influence of traditional news sources - in particular newspapers - relative to other sources. In 2005, according to Ofcom, 16 percent of consumers cited newspapers as their main source of U.K. news. By 2010, this figure had fallen to 6 percent, and Ofcom recently found that the percentage of U.K. adults claiming to use newspapers as even one of their news sources had declined from 73 percent in 2007 to 53 percent today.[49] During the same period, the proportion of customers citing the internet as their main source of news was slowly rising, reaching 7 percent - and overtaking newspapers - in 2010. All national daily newspapers have seen declines in print circulation of at least 2 percent per year since 2006, with many suffering

[48] *See supra* note 4; *see* also R. Kenny, *Plurality Regulations – Still a Wise Market Intervention?*, 7(2) CPI at 5, (Autumn, 2012).

[49] ¶ A4.7 of Annex 4 to Ofcom's June 2012 report (*supra* note 3).

larger declines.[50] In aggregate, newspaper circulation has fallen by just under a quarter since 2000. In place of traditional newspapers, consumers are tending to consume ever more numerous and diverse sources of news, particularly online, as explained further below.

The upshot is that it is not sufficient to consider **intra-medium** plurality in isolation (i.e. the range and variety of voices available within one specific traditional medium, e.g. the range of printed newspaper titles available in the United Kingdom). Instead, plurality assessments must also take account of **inter-media** or **cross-media** plurality. Indeed the market has moved away from this paradigm and, in the United Kingdom, the National Readership Survey now combines print and website data.[51] This is likely to affect significantly the findings of any assessment of media plurality in the United kingdom today and therefore s.58(2B) which may appear to look at newspapers in isolation is anachronistic.

Taking 2003 as a benchmark, when a deliberate decision was taken by Parliament to relax media ownership restrictions in the Communications Act 2003, the U.K. printed press is not less plural today, to any appreciable extent. In terms of national titles there have been only two significant changes. There has been a loss of one voice - the *News of the World*. There has also been a new entry into national newspaper print media in the form of I; the first national daily to launch since *The Independent* in October 1986.

Broadly, therefore, looking at printed media alone, it must be concluded that the U.K. press is as plural today as it was in 2003. This single-media perspective is increasingly inappropriate in a modern media landscape, however, as noted above. [52]

Taking a broader - cross media - perspective, it is clear that the U.K. media environment is becoming more plural, and exponentially so. In particular, on the supply side, new technolo-

[50] According to ABC circulation figures.

[51] http://www.nrs.co.uk/padd.html.

[52] While the relevant considerations in the competition context are not identical (e.g. the impact of a merger on the choice available to advertisers is viewed as particularly important), it is nonetheless interesting to note that the OFT accepts the need to consider cross-media constraints in assessing newspaper mergers. In a 2009 report on the local and regional media merger regime, the OFT found that there was no need for legislative change in large part because the existing regime was able to take account of competitive constraints arising cross-media (Ofcom, *Review of the local and regional media merger regime: final report*, ¶ 4.71 (June 2009)). Likewise, in its recent decision on the anticipated acquisition by Northcliffe Media Ltd of Topper Newspapers Limited (June 1, 2012), the OFT found that alternate media would pose at least some competitive constraint post-merger (e.g. ¶ 126).

gies have facilitated the availability of an increasing range and variety of news sources.[53]

These developments provide convincing evidence that there is no lack of plurality in the U.K. media today. However, they also bring new challenges for regulators.

IV. THE OUTLOOK FOR MEDIA PLURALITY TODAY

Technological developments have had an important impact on the ready availability of a wide range and variety of news and current affairs content for many consumers. Not only are consumers able to access a far wider range of traditional news sources such as TV news channels, but they are also able to access entirely new sources of news such as dedicated smartphone and tablet apps, go online, and interact with the debate in new ways. Technological advances have made multi-sourcing easy as there is an increasing convergence in the platform of access to news. This enhanced choice is reflected in actual consumption patterns, which show increasing multi-sourcing and thus decreased influence on the part of any specific media outlet. Accorded their proper importance by a cross-media approach to assessing plurality, these developments provide convincing evidence that there is no lack of plurality in the U.K. media today. However, they also bring new challenges for regulators.

A. New Technology and News Consumption

In TV news, there has been a marked increase in the range of choice of TV news channels now accessible to the majority of households. Even excluding non-English language news channels, there is an increasingly wide choice of news provision available to many U.K. viewers.

There has also been an explosion in the number of online news sources accessible to most consumers. In the United Kingdom, comScore tracks monthly visitors to over 550 news websites, of which more than 150 have over 100,000 UK visitors per month; many of whom will, of course, visit more frequently.[54] The daily traffic of individual news sites is substantial; for example, *The Guardian* has 1.5 million daily U.K. visitors online (considerably higher than its daily print readership).[55]

Most U.K. consumers now have access to broadband internet, which facilitates access to this wealth of content. At the time of the Communications Act in 2003 only 13 percent of U.K. consumers had a broadband connection, whereas today this is 76 percent of U.K. house-

[53] Ofcom identified the impact of new technologies in this respect in its first review of media ownership rules in 2006, ¶ 2.29

[54] Monthly total unduplicated unique visitors accessing news/information, comScore, November 2011.

[55] ABC figures, July 2012. *See also* Kenny, *supra* note 48, p. 4.

holds.[56] Further, those with access to online services are ever more likely to use the internet for news.

Online news sites include not only traditional U.K. news organization websites (broadcasters and newspaper publishers) but also non-U.K. news websites such as the *New York Times* which have a considerable readership in the United Kingdom, online-only news titles such as the *Huffington Post* (owned by AOL since 2011), news agencies (PA and Reuters), and news aggregator sites (Google News, Yahoo, YouTube). The *Huffington Post* now attracts more U.K. visitors than online sites for *The Independent* or *The Times* (the latter of which is now behind a pay-wall); it launched a U.K.-specific site in July 2011.[57] Indeed, it is noteworthy that of the top 10 sources of internet news used "nowadays" by U.K. internet news consumers identified by research for Ofcom's media plurality report, only half were associated with traditional offline news providers, with Facebook and Google News in second and third place after the BBC website and ahead of any newspaper or commercial broadcaster's website.[58]

As online access increasingly involves access via mobile devices, dedicated news applications are an important mechanism for media companies to reach their audience. Seven U.K. news sources have applications with over half a million downloads.[59] *The Daily* was the first major international title to be launched especially for tablets but is unlikely to be the last. Around 67 percent of iPad owners and 72 percent of iPhone owners have downloaded a news application (the second most popular category for downloads after social networking).[60]

The increasing degree of ubiquity of internet access (the United Kingdom had an 80 percent internet take up in 2012) and the explosion in the number of smartphone and tablet users also encourage consumers to consume more content and to actively engage in distributing news content and commenting on stories of interest to them which might originate in a wide variety

[56] Communications Market Report, Ofcom, July 18, 2012 p. 4, http://stakeholders.ofcom.org.uk/binaries/research/cmr/cmr12/CMR_UK_2012.pdf.

[57] According to comScore data for November 2011.

[58] Kantar Media quantitative research study, results set out at Figure 10 of Annex 4 to Ofcom's June 2012 report.

[59] Android Market, Economist, Guardian, Times report.

[60] Apps Tracker, News International Insight

of news sources. Around 39 percent of consumers now use their mobile phones to access web content, an increase of 29 percentage points since 2009;[61] around 44 percent of consumers use their mobile phones to access general news (21 percent regularly).[62] In 2011 almost 10 percent of traffic to key U.K. newspaper websites now comes from non-computer devices[63] and 17 percent of U.K. adults state that they get news via mobile internet or apps, a dramatic increase from 3 percent in 2007.[64]

Social media is one aspect of online media that potentially has the most transformative effects on news gathering and provision.

Forty-one percent of U.K. adults use the internet for news. The share is still smaller of those using TV (85 percent) and radio or newspapers (53 percent) but it is growing rapidly. In 2007 the same figure was 27 percent.[65]

Internet news is not limited to well-known media brands but also includes a long tail of additional voices. The internet has transformed the ability of smaller media organizations, individual commentators, politicians and, indeed, institutions such as government departments, companies, and charities to speak directly to relevant audiences. This can be via direct emails, blogs, websites, Twitter, Facebook, YouTube or other means - each is suited for different purposes.

Blogs are an important, and plural, source of news and contribute greatly to the genuine plurality of views available on the internet. Political bloggers and political websites have demonstrably been able to break stories that were subsequently picked up by traditional media outlets. Political bloggers such as Paul Staines (founder of the *Guido Fawkes* blog) and Matt Drudge (the *Drudge Report*) are acknowledged to have significant influence and can bring to public attention stories that are initially bypassed by mainstream media.

B. The Role of Social Media

Social media is one aspect of online media that potentially has the most transformative effects

[61] Communications Market Report, Ofcom, 18 July 2012 p. 221 (http://stakeholders.ofcom.org.uk/binaries/research/cmr/cmr12/CMR_UK_2012.pdf).

[62] Communications Market Report, Ofcom, 18 July 2012 p. 225 (http://stakeholders.ofcom.org.uk/binaries/research/cmr/cmr12/CMR_UK_2012.pdf).

[63] Ofcom International Communications Market Report, 2011 (http://stakeholders.ofcom.org.uk/binaries/research/cmr/cmr11/icmr/ICMR2011.pdf).

[64] ¶ A4.9 of Annex 4 of Ofcom's June 2012 report (*supra* note 3).

[65] Ofcom, "Measuring media plurality," *supra* note 3, ¶ 5.40.

on news gathering and provision. It is through social media that the fragmentation, which is one of the defining characteristics of the internet (and, indeed, one of the reasons why it was invented),[66] challenges the traditional media. Twitter now has over 100 million active users worldwide and plays a number of roles in the new media landscape.

In terms of news distribution, Twitter provides a mechanism for key individual players to communicate directly with the public and to add their voices directly to the public debate. This can include companies, senior business figures and commentators, politicians, and celebrities.[67] Indeed, the increasing significance of Twitter as a platform to break news, and the level of competition between Twitter and traditional media in keeping people informed, is further illustrated by recent announcements that newsrooms at the BBC and Sky have adopted formal Twitter policies forbidding their journalists from breaking stories on Twitter without first notifying newsrooms.[68]

Social media platforms such as Facebook, YouTube, and Twitter are increasingly important as a source of news and enable consumers to directly influence the news agenda by posting links to content or re-Tweeting stories of interest as well as adding new contributor voices directly by distributing their own user-generated content.[69] This contributes significantly to the plurality of sources available to and accessed by consumers.

Twitter and other social media sites also increasingly play an important role in breaking news in real time, often due to the direct contribution of content by individual users who

[66] ARPANET the pre-cursor of the internet was originally invented by the U.S. military to preserve communications in case of nuclear attack on its headquarter. The idea was that messages would be converted into packages and transmitted in disaggregated form to be reassembled on receipt. This reduced the risk of a successful attack on the communications system in the same way as the use of the internet today reduces the risk of centralized threat to voices transmitted to it.

[67] *See* Kenny, *supra* note 48, p. 8, which notes, for example, that the aggregate Twitter following of just ten U.K. politicians reaches 3.4 million (albeit with a degree of duplication), and that other public figures can reach a yet wider audience.

[68] http://www.guardian.co.uk/media/2012/feb/08/twitter-bbc-journalists.

[69] It is interesting to note that people who use Twitter for news rate its importance to them highly compared to the importance afforded several traditional media outlets by their users. According to Kantar Media research for Ofcom, such Twitter users rated its personal importance to them as a source at an average of 7.2/10; higher than the ratings given by readers of the *Times, Telegraph*, Channel 4 or the *Daily Mail* to those outlets respectively. *See* Figure 17 of Annex 4 to Ofcom's June 2012 report.

witness newsworthy events. For example, the death of Osama bin Laden was first reported on Twitter.[70] Both President Obama and President Sarkozy chose to announce their presidential campaigns on Twitter in 2012.[71] When a plane crashed into the Hudson in New York in 2009, Twitter broke the news around 15 minutes before the mainstream media alert.[72] Twitter also spread the news of terrorist attacks in Mumbai in 2008 well ahead of the mainstream media.[73] This makes live blogs and Twitter better positioned to cover ongoing (real-time) events. And followers have a large choice of reporters to follow.

More than 50 percent of social networks users aged 18-24 use social media to access breaking news:

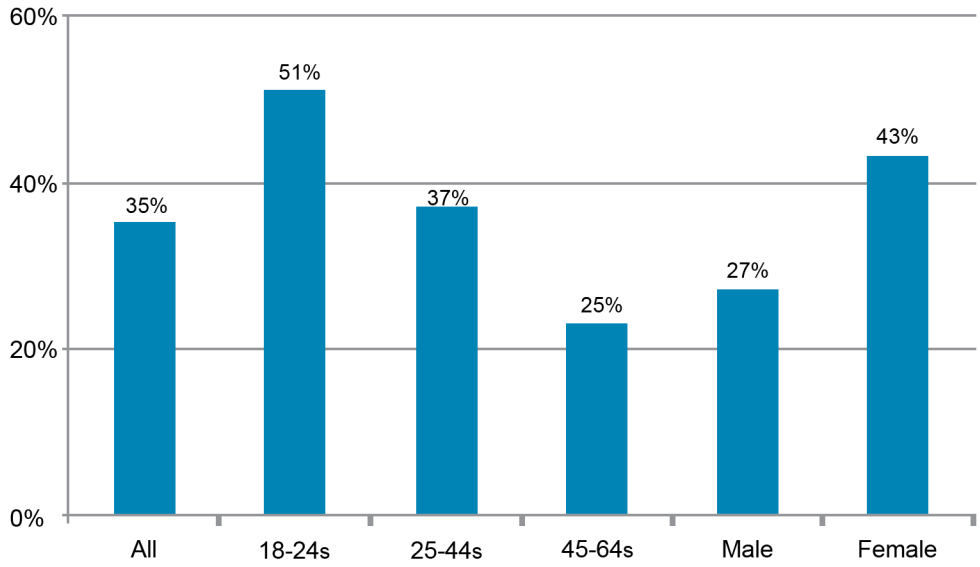

Figure 1: Proportion of social network users who use social media to access breaking news[74]

[70] http://www.reuters.com/article/2011/07/08/us-twitter-factbox-idUSTRE76700F20110708. http://www.guardian.co.uk/technology/blog/2011/may/02/twitter-osama-bin-laden-death-leaked.

[71] http://www.reuters.com/article/2011/07/08/us-twitter-factbox-idUSTRE76700F20110708 and http://www.guardian.co.uk/world/2011/apr/04/barack-obama-twitter-facebook-election; http://articles.cnn.com/2012-02-15/world/world_europe_france-sarkozy-election_1_twitter-account-marine-le-pen-french-people?_s=PM:EUROPE

[72] http://www.telegraph.co.uk/technology/twitter/4269765/New-York-plane-crash-Twitter-breaks-the-news-again.html.

[73] http://socialmediainfluence.com/2008/11/27/twitter-redefining-the-concept-of-breaking-news/.

[74] Ofcom Communications Market Report, August 2011.

This increased ability for individuals to communicate directly with enormous audiences, and for information to be rapidly dispersed on a global basis, weakens traditional news organizations' control of the dissemination of news and the news agenda.

Of course social media is not only an alternative to traditional centrally edited forms of news distribution. Traditional media organizations can use Twitter to generate interest in their stories and content. Individual journalists can use Twitter in a similar way to generate interest in their more formal journalistic content and to communicate directly with audiences. The BBC alone lists 1,163 Twitter accounts for different BBC news feeds, correspondents, staff, and programs.[75]

The dispersed nature of news provision, together with the endorsement of social media including Twitter, by the traditional media means that users are empowered to enrich the plurality of the views that they wish to hear to the degree that they wish. The famous 140-character limit on Twitter does not prevent tweeters constantly cross-referencing longer pieces. Therefore, a Twitter user can become his/her own editor by choosing the sources of news he or she wishes.

With this significant proliferation of direct channels of communication, consumers are exposed to an increasing variety of sources.

C. Trends in Multi-Sourcing

The effects of new technology in facilitating access to a wide range of news sources are magnified by trends in multi-sourcing. A market in which individual consumers consume news from multiple sources is more plural than a market in which each consumer uses fewer sources, even if more sources are available.[76]

Already today most consumers use multiple sources of news on a regular basis and, despite the absence of relevant official data, the available evidence makes clear that this trend is increasing. A BBC survey conducted in 2011 found that consumers tended to use around 3.2 distinct news sources across media (excluding regional newspapers and certain other sources), and Kantar Media research in 2012 found that U.K. news readers use an average of 3.3 news providers.[77]

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[75] Sourced from Twitter.

[76] This idea is illustrated in a table contained in Figure 1 of the Perspective report submitted to Ofcom by News Corporation in the context of the News/Sky review. See also Kenny, *supra* note 48

[77] At the retail level (average of 3.1 wholesale providers)—*see* ¶ A4.64 of Annex 4 to Ofcom's June 2012 report.

It is also clear that consumers tend to use more than one type of media to consult news sources. For example, FD's 2010 Media Monitor report suggested that the average consumer used around five different news media. FD's findings in this respect had changed markedly since the survey was launched in 2003 when more than half of the sample stated that they used two or fewer media. Mintel estimated that the average consumer accessed around five different news media.[78]

Online news consumers have a tendency to be much more promiscuous in terms of content consumption than those who rely primarily on more traditional media.

There are marked differences within each medium as to the extent to which consumers tend to consult multiple sources of news. Online news consumers have a tendency to be much more promiscuous in terms of content consumption than those who rely primarily on more traditional media. This is only to be expected given the ease, immediacy, and low (often zero) cost of accessing multiple views online, especially using search engines[79]

News aggregators bring a vast range of sources to their audience, including many they would otherwise likely never come across. Google News claims to use 4,500 English language news sources from around the globe and provides unprecedented access to an international perspective on news stories. Among the news aggregators, each of Yahoo!, MSN, AOL, CNN and Google News now has over a million U.K. visitors per month.[80] YouTube is increasingly playing a similar role as a centralized site to access multiple sources of audiovisual news content. It has a "news and politics" subcategory featuring content from a wide variety of news providers as well as user-generated content.

Social media also makes an increasing contribution to the plurality of consumption. According to the Bureau of Investigative Journalism:

> Social media is of increasing importance for the dissemination of news, and allows people who would never normally read a particular newspaper to be aware of its journalism by recommendations by people they are connected to via social media sites.[81]

[78] Mintel report, Consumer Perceptions of News Media, September 2010.

[79] Oxford Internet Institute, Next Generation Users: The Internet in Britain, October 2011, and *see also* Kenny, *supra* note 48 at 5.

[80] Press Gazette, Top 40 UK news websites: BBC still leads Mail Online, September 7, 2011 (http://www.pressgazette.co.uk/story.asp?sectioncode=1&storycode=47827&c=1).

[81] House of Lords Select Committee on Communications, *Inquiry into the future of investigative journalism - Oral and written evidence*, 12 September 2011 (http://www.parliament.uk/documents/lords-committees/communications/Investigativejournalism/IJev.pdf).

This disaggregated form of access to news means that media organizations have less influence over which stories generate most consumer attention.

The increasing use of the internet as a source of news therefore leads to increasingly plural patterns of consumption. While TV remains the most important source of news for consumers, as mentioned above the internet has recently overtaken newspapers with seven percent of consumers citing the internet as their main source of news.

Therefore, as the internet becomes an increasingly important source of news, it is to be expected that an increasing proportion of the population will be regularly exposed to a wide variety of "voices."

Another important consequence of the internet's ubiquity is that internet sources facilitate the ability of consumers to cross-check news stories with primary sources. This can be directly with companies, charities, politicians, or other individuals who are the subject of news stories (tweets, blog postings, and press releases can all be accessed directly by consumers) or by searching for information from individual witnesses.

Reporting its 2010 survey of online news consumers, Mintel highlighted the increasing possibility for consumers to check stories directly at source:

> With the variety of written and broadcast media channels providing news, including the internet, this is now much more possible than it was five or ten years ago, so that people can check other media sources but can also go direct to the subject of the news itself because it will often have a website.

According to the Mintel survey, 66 percent agree that "[t]he internet means that it is easier to access news directly from its source (e.g. via websites, Twitter feeds etc.)"[82] and this increases the ability of consumers to cross check facts.[83]

Finally, and I believe most importantly, this disaggregated form of access to news means that media organizations have less influence over which stories generate most consumer attention. In aggregate, search and social media websites account for almost 50 percent of traffic to typical newspaper websites.[84]

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[82] *Mintel*, *Consumer Perceptions of News Media*, September 2010.

[83] N. Fenton (ed.), *New Media, Old News*, 2010.

[84] Alexa research, January 2011. (N.B. Alexa reports are generated from self-selected internet users and so may not be fully representative.)

If we start from a concept of plurality designed to both achieve a diversity of viewpoints and preserve excessive influence over public opinion, measuring such plurality can be a daunting task. It seems clear that diverse ownership is not a surrogate (or even a guarantee) of diversity. This is no more than a starting point of a more complex analysis.[85] The prevalence of social media and search as a route into news websites means that media organizations have a reduced ability to influence which stories are most read. Therefore, the emphasis of control shifts away from ownership.

The impact of consumers creating and self-selecting content cannot be ignored by news organizations. Newsrooms have screens informing staff in real time of the most popular stories on its website and the strength and immediacy of public opinion also influences any editorial agenda. Combined with the ability of individuals to make their views known to a wider audience via social media in particular, this marks a fundamental shift in the relationship between the media and "the public."

In a digital world this paradigm shift in access to news is accelerating. Therefore, looking forward, we need to consider forms of regulation that take into account the role of access as a key ingredient in ensuring diversity in the media landscape. At the moment "digital intermediaries" (search engines, aggregators, and social media platforms) do not exercise editorial control, except in the embryonic form of content guidelines. The incentives of powerful digital intermediaries to do so may change as their role evolves.[86]

Even the growing importance and prevalence of supposedly "editorially neutral" online search engines are not without consequences for the diversity of the media landscape. Most search engines seek to make results relevant to the profile of the users, as a key way to compete. The consequence of this is a confirmation bias reducing the variety of viewpoints otherwise available online.

New dangers may also arise from the relationship between traditional media outlets and these digital intermediaries. Whereas media plurality regulation has, in the past, focused specifically on the ownership of news media which is rooted in a paradigm where ownership translates into an homogenous output of viewpoints, the increasing importance of online content raises the possibility that ownership of the intermediaries facilitating access to that content may be more determinative of the range of voices to which consumers are exposed.

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[85] This is, for instance, recognized by Ofcom in *Measuring media plurality, supra* note 3, ¶ 5.38

[86] R. Foster, *News Plurality in a Digital World*, July 2012 Report for the Reuters Institute for the Study of Journalism of the University of Oxford, p. 41.

Properly understood and measured appropriately, there is no lack of plurality in the U.K. media today.

For instance, a vertically integrated group comprising a search provider or other key intermediary and news outlets might be able to exert considerably greater control than any traditional media group, by directing consumers towards those outlets and not those of competitors. The potential for digital intermediaries to influence the web content accessed by the public has been underscored by the European Commission's ongoing investigation into Google, which is based in part on allegations that the company is favoring its own non-search services over competing services in how it ranks search results.[87]

While the contribution of this type of media to the plurality of dissemination and consumption of news and opinion (and the consequent reduced ability of influencing stories read and, generally, the news agenda) seems indisputable we need to preserve the incentives to invest in content and journalism. Social media facilitates distribution of content and opinion but it is not a substitute for other traditional forms of professional journalism, which - as a result of these new forms of news distribution - is at risk of following the same trajectory of decline. Regulatory intervention needs to consider effects on those form media that are more likely to invest in journalism.

V. CONCLUSION

Properly understood and measured appropriately, there is no lack of plurality in the U.K. media today. There is also no lack of tools available to protect the interests of viewers and readers and to ensure a competitive, vibrant, and plural media landscape. This suite of regulatory tools reflects deliberate policy choices during previous regulatory initiatives which have sought to ensure that regulation did not stifle innovation or unduly constrain market developments or investment in U.K. news content, while maintaining adequate protection for U.K. consumers. It is essential that we are clear as to the appropriate policy objectives before embarking into an exercise of further regulation focused on ownership and market structures. Fragmentation of ownership cannot be a policy imperative. It is, at most, one factor to be taken into account (among many others relating to how news are produced and consumed) in order to achieve

[87] *See* Cases COMP 39.775 *1plus/ejustice.fr*, 39.765 *Francotel*, 39.740 *Foundem* and 39.768 *Ciao*. *See also* the House of Lords' Select Committee Communications and its call for Evidence on Media Convergence and Public Policy Access http://www.parliament.uk/documents/lords-committees/communications/mediaconvergence/MCcfe020812.pdf.

the desired level of diversity of views alongside the requirements for investment, innovation, creativity, and program quality.

The current U.K. regime preserves the possibility of control over consolidation but there is no mechanism for structural regulatory interventions (e.g. break up or divestment) in the absence of a merger. Such interventions made in the name of re-establishing a supposed "plurality" that the market has moved away from would be worrying. The threat of regulatory fragmentation would risk undermining the financial independence of media enterprises, making them vulnerable to political influence or dependent upon proprietors with commercial interests unrelated to media.

Most importantly, new structural regulation would arguably miss the point as to the most significant potential threat to pluralism in the changed media paradigm: controlling access to and delivery of news and ideas through the internet.

PLURALITY REGULATIONS – STILL A WISE MARKET INTERVENTION?

*Robert Kenny**

ABSTRACT:
Plurality rules have long been used to ensure diverse ownership of media, with the expectation that this leads to the availability of diverse news coverage to citizens, which in turn supports democratic discourse. In several countries there is current debate as to whether plurality rules need to be strengthened, and particularly so in the United Kingdom, where News' bid for Sky and the subsequent phone-hacking scandal have brought plurality issues to the fore. However, fundamental developments in the market mean that the costs of plurality interventions are rising, and the benefits are falling. This paper examines how the costs and benefits of plurality regulation are changing, using the United Kingdom as a case study.

I. INTRODUCTION

Plurality rules (rules relating to the number of persons with control of media companies) have long been used to ensure diverse ownership of media, with the expectation that this leads to the availability of diverse news coverage to citizens, which in turn supports democratic discourse. In several countries there is current debate as to whether plurality rules need to be strengthened, and particularly so in the United Kingdom, where News' bid for Sky and the subsequent phone-hacking scandal have brought plurality issues to the fore.

However, fundamental developments in the market mean that the costs of plurality interventions are rising, and the benefits are falling. These developments include:

- the rapid growth of online news;
- the associated rise of multi-sourcing - the extent to which consumers hear news from many different sources;
- the disintermediation of news providers by politicians, organizations, and other subjects

* Robert Kenny is a founding member of Communications Chambers, which advises on issues of telecoms and media strategy and policy. He has worked extensively on issues of plurality, advising Sky, News International, Global Radio, and the BBC and has written reports for submission to Ofcom and the Leveson Inquiry.

of news coverage, who can now speak to citizens directly via the internet; and
- the serious economic challenges facing the newspaper business (and, to a lesser extent, TV news).

These trends suggest that citizens are likely hearing an ever-wider spectrum of opinion - plurality measured by consumption is rising. Conversely, the cost of plurality of ownership - or put another way, market fragmentation - is increasing. This calls into question the merits of increasingly strict controls of media ownership in pursuit of the benefits of plurality.

This paper examines how the costs and benefits of plurality regulation are changing, using the United Kingdom as a case study. My focus is on national news providers, though many of the same issues apply to regional and local news.

II. THE WANING BENEFITS OF PLURALITY RULES

A. The Expected Consequences of Plurality

Securing media plurality has been an objective of legislation around the world. While there are ancillary cultural goals, at heart the reason for seeking plurality has generally been to safeguard democratic discourse.

The European Commission noted in its 2007 report, "The European Union is committed to protecting media pluralism as an essential pillar of the right to information and freedom of expression."[1] In the United Kingdom the House of Lords Communications Committee described the thinking behind the U.K.'s plurality legislation[2] as follows:

> In 2001, the Government published a consultation paper on media ownership in which it was stated that "A healthy democracy depends on a culture of dissent and argument, which would inevitably be diminished if there were only a limited number of providers of news." This was a sentiment shared by the previous Conservative administration "A free and diverse media are an indispensable part of the democratic process. They provide the multiplicity of voices and opinions that informs the public, influences opinion, and engenders political debate. They promote the culture of dissent which any healthy democracy must have. If one voice becomes too powerful, this process is placed in jeopardy and democracy is damaged.[3]

[1] European Commission, *Media Pluralism in the Member States of the European Union* (January 2007).
[2] Communications Act 2003.
[3] House Of Lords Select Committee on Communications, *The ownership of the news* (June 27, 2008).

The plurality is a "proxy" objective, sought for its likely (but not certain) consequences for the content offered to consumers.

It is clear from this that plurality, as measured by number of media owners, is a means to an end - it does not have value in of itself, but rather through intermediary steps (critically a multiplicity of voices) is seen to support the healthy functioning of democracy.

Indeed, ownership plurality is a blunt instrument and not guaranteed to deliver this outcome. For instance, a press with many owners, but where all titles happened to take the same political perspective, would do little to support a "culture of dissent and argument." Conversely the news media as a whole might be closely held, but if each owner owned multiple titles with highly distinct stances this could easily be just as effective in supporting democracy as a more diversely held media.

Thus plurality is a "proxy" objective, sought for its likely (but not certain) consequences for the content offered to consumers. (It sits alongside much more direct interventions regarding news content, such as impartiality rules for broadcasters.)

B. The "Chain of Influence"

The rationale for legislating for plurality implicitly depends on the assumption of a "chain of influence." In this chain, the opinions of owners or proprietors influence the output of the media outlets they own. This output, in turn, influences the knowledge and opinions of the members of the audience, which is particularly relevant when they are acting as citizens engaged in the democratic process and political debate.

Figure 1: Illustrative "Chain of Influence"

Naturally this is just a simple model, but I believe a helpful one.

In practice neither of the links in this chain is static. The degree of linkage can wax or wane, and in practice both links have become much weaker over the last decade, since (as I discuss in more detail below):

- Citizens are increasingly sophisticated news consumers, taking a healthily skeptical view and drawing on multiple sources – this inevitably reduces the influence of

content from any one provider.

- That content itself is ever more subject to a range of influences quite separate from proprietors and editors. These influences include the consumers themselves (via the internet) and increasing financial pressure. This dilutes the influence of proprietors.

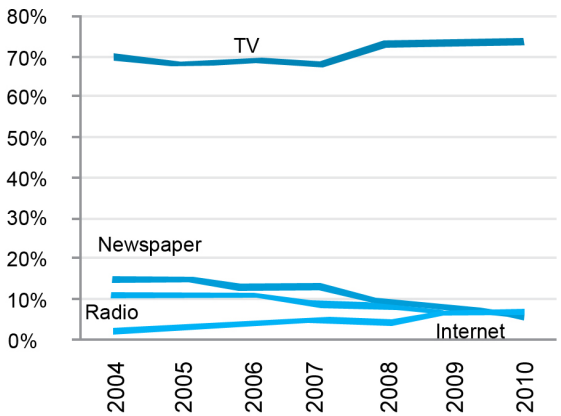
Consequently the impact on the democratic process at the right end of the chain is significantly less dependent on the state of ownership at the left end of the chain. By extension this would suggest that "owner focused" regulation (such as plurality) is less likely to make a meaningful difference to the ultimate objective of a healthy democracy than it once was.

C. Waning Influence of Individual News Outlets on Consumers

Over the last decade news consumption has changed significantly. As we set out below, the internet (and, to a lesser extent, the wider availability of multichannel TV) has enabled far greater multi-sourcing of news - that is, consumption of news from more sources by the average consumer. Perhaps as a result, news consumers have become more sophisticated and skeptical. This suggests that the ability of any one outlet to influence citizens has diminished. These changes in news consumption are set out below.

1. The Rise of the Internet as a News Source

Figure 2: "Main Source of U.K. News" for Consumers[4]

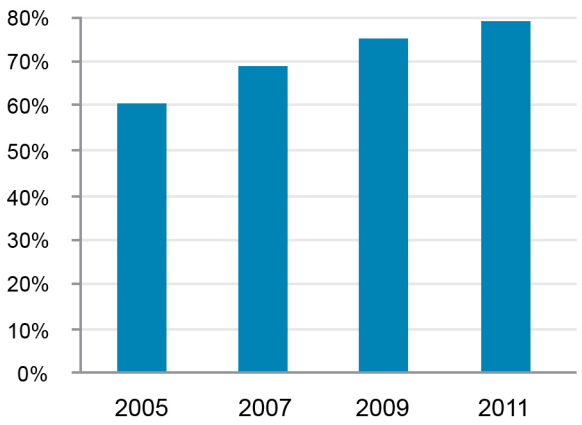


What media citizens favor for news has changed dramatically. In 2004, according to Ofcom, 15 percent of consumers cited newspapers as their main source of U.K. news. By 2010 this figure had fallen to 6 percent. At the same time, those citing the internet as their main source had risen to 7 percent, overtaking newspapers (Figure 2: "Main Source of U.K. News" for Consumers). (U.S. research shows an even starker picture, with

[4] Ofcom, *The Ofcom Media Tracker survey: 2010 survey results* (July 2011) and Ofcom, *Report to the Secretary of State (Culture, Media and Sport) on the Media Ownership Rules* (November 17, 2009).

the internet overtaking newspapers as far back as 2008, and now gaining on TV.)[5]

Figure 3: Portion of Those Online Using the Internet for News[6]



This reported preference is confirmed by data on online news usage. When the U.K.'s current plurality rules were established by the 2003 Communications Act, broadband penetration was 13 percent. Today it is 76 percent.[7] Further, those online are ever more likely to use the internet for news - 79 percent now do so (see Figure 3: Portion of Those Online Using the Internet for News).

The daily traffic of individual national newspaper sites is substantial. The *Guardian* has 1.5 million daily U.K. visitors online (higher than its daily print readership) and the *Mail* has 2.7 million.[8] Both are dwarfed by the BBC, by some margin the largest U.K. news site. The combination of more people online, and those online using news more, means that online news has expanded very rapidly.

2. The Rise of Multi-Sourcing

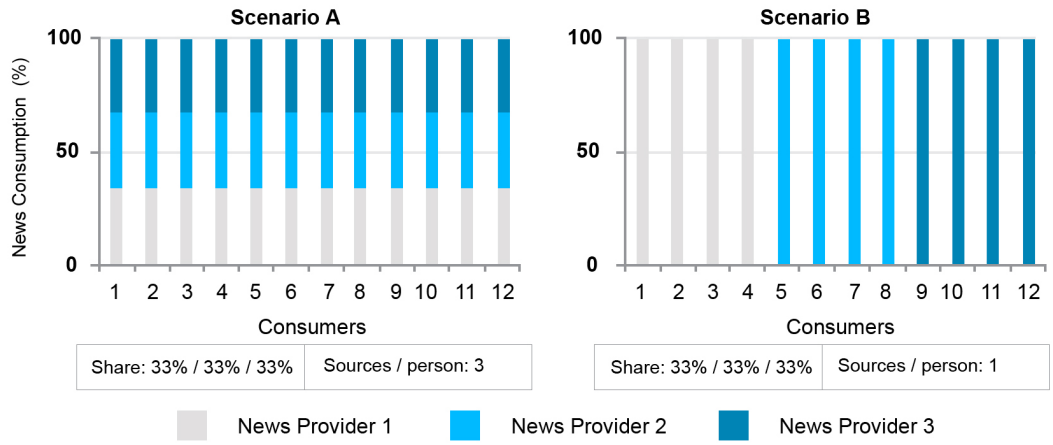
One consequence of the move online has been the rise of multi-sourcing - the consumption by individual consumers of news from multiple outlets. When citizens multi-source their news, they can hear diverse voices, cross check, and make up their own mind. Moreover, multi-sourcing significantly inoculates audiences against the possibility of one media organization burying an important story. As we will see, the vast majority of consumers do in fact multi-source, to a substantial and increasing extent.

[5] Pew Research Center, *Internet Gains on Television as Public's Main News Source* (January 2011).
[6] Oxford Internet Institute, *Next Generation Users, The Internet in Britain* (Oct. 2011).
[7] Ofcom, ONS.
[8] ABC (July 2012).

Competition regulators, used to using market share as a key yardstick, can sometimes miss the importance of multi-sourcing to plurality. Consider Figure 4: Illustrative Multi-Sourcing Scenarios:

Thus multi-sourcing is today the dominant mode of news consumption.

Figure 4: Illustrative Multi-Sourcing Scenarios



In both scenarios, the market share of the three news providers is one-third each, and a typical competitiveness assessment might see little difference between the two. However, in Scenario A, each consumer hears from three different news sources. In Scenario B, each consumer hears from one only. Thus it is undoubtedly the case that Scenario A is healthier for society and less concerning from a plurality perspective.

This is much more than a theoretical issue, since most consumers do in fact multi-source (and, as we will see, do so deliberately). Recent Ofcom research[9] has found that the typical U.K. news consumer takes news from 3.1 news providers,[10] and only 14 percent rely on a single source (primarily the BBC).

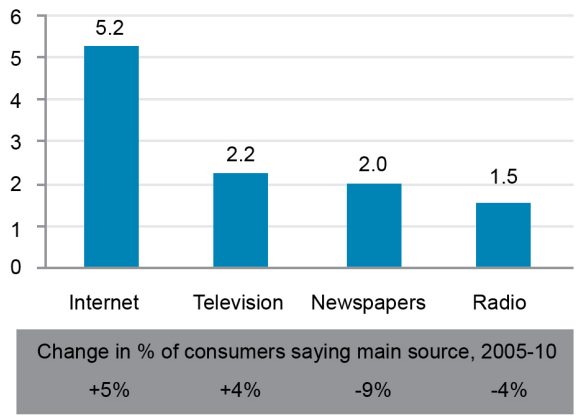
Thus multi-sourcing is today the dominant mode of news consumption. Moreover, it is

[9] Kantar Media for Ofcom, *Measuring News Consumption and Attitudes* (June 29, 2012).

[10] Ofcom's figure is at a "wholesale" level; it is based on ownership not on outlet (so someone using BBC TV news and bbc.co.uk would be counted as taking news from one provider).

almost certainly increasing, not least because of the internet where news consumption is inherently more "promiscuous" than offline consumption.

Figure 5: News Sources Per News User, by Media[11]



Those using news online consume news from 5.2 sources. This compares to newspapers, where the average newspaper reader sees 2.0 titles (national and local). As Figure 5: News Sources Per News User, by Media also shows, consumers are shifting their news consumption from media with lower multi-sourcing (such as radio and newspapers) to media with higher multi-sourcing (the internet and, to a lesser extent, TV).[12]

There are numerous reasons for high levels of multi-sourcing online, including:

- It is (generally) free to use news from multiple sources, encouraging sampling and diverse consumption.
- Social media points users to news stories, encouraging use of outlets they might not normally default to.
- Users search for stories about a particular topic and may select by - say - relevance or immediacy, rather than going to a familiar outlet. (Those using search as their main way to look for information online has risen from 20 percent to 61 percent since 2005.) [13]

Users can access specialist titles for a particular topic that might not have been

[11] Level of multi-sourcing from PaidContent.org, *Research: Internet Is UK's No. 2 News Source, But Only 3.8 Percent Pay* (December 28, 2011), Change in main source derived from Ofcom, *The Ofcom Media Tracker survey: 2010 survey results* (July 2011), and Ofcom, *Report to the Secretary of State (Culture, Media and Sport) on the Media Ownership Rules* (November 17, 2009).

[12] O&O have also reported broadly similar figures for multi-sourcing, see Paidcontent.org, *Research: Internet Is UK's No. 2 News Source, But Only 3.8 Percent Pay* (December 28, 2011).

[13] Oxford Internet Institute, *Next Generation Users: The Internet in Britain* (October 2011).

available offline. For example, the *New York Times* is an important online news source for those in the United Kingdom, perhaps for its U.S. coverage (though of course it also covers U.K. stories).

Cross-checking of stories is not merely a happy by-product of online consumption—it appears to be a deliberate habit of many consumers.

Aggregators such as Google News introduce unfamiliar or less used outlets. (For example, use of Google News' Local News feature resulted in a 12 percent uplift in the number of local news outlets visited.)[14]

3. Cross-checking of News Sources Online

As we have noted, multi-sourcing enables (indeed implies) cross-checking of stories and news agendas. This cross-checking of stories is not merely a happy by-product of online consumption - it appears to be a deliberate habit of many consumers. According to a 2010 Mintel survey of online news consumers, 51 percent said they agreed they "often check more than one source to confirm news stories I've read."[15] Mintel goes on to highlight that this has been enabled by changes in the market, not least the possibility to hear directly from the source of the story:

> With the variety of written and broadcast media channels providing news, including the internet, this is now much more possible than it was five or ten years ago, so that people can check other media sources but can also go direct to the subject of the news itself because it will often have a website.

Fleischman Hillard makes a similar point:

> Internet users tend to look at many sources when seeking information, not relying on one source, apparently believing the truth is something average to the information found on those outlets. This appears to be one more example of

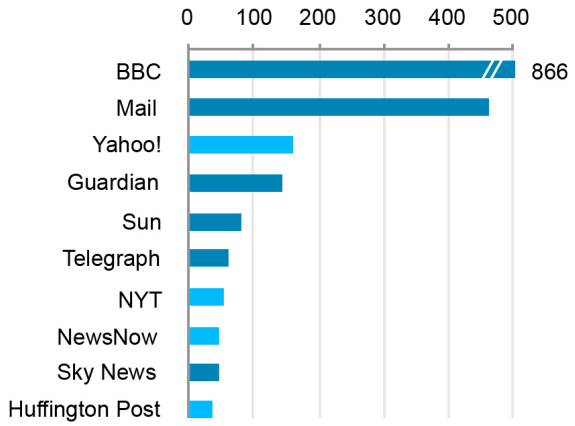
[14] S. Athey & M. Mobius, *The Impact of News Aggregators on Internet News Consumption: The Case of Localization* (February 2012).
[15] Mintel, *Consumer Perceptions of News Media*, (September 2010).

> the disintegration of the old mass media model. Where consumers once trusted information funneled to them through a few mass channels, the credibility of the information they consume today seems tied to their ability to retrieve information from a variety of sources and cross-check among them.[16]

Clearly such an approach reduces the extent to which any one organization can influence citizens' outlooks.

4. Different Sources of News Online

Figure 6: UK Time on Website (mins/month)[17]



Online news is not simply the websites of traditional news sources (though they are certainly important). The top ten most used national news sites in the United Kingdom include four "non-traditional" news sources for U.K. consumers - three online-only properties, and the *New York Times*. In addition, there is a long tail of lesser-known non-traditional sites serving various niches that individually are small, but in aggregate are important. Such sites contribute one-quarter of the time spent online within Comscore's news and information category.[18] Clearly this represents a dilution of influence for traditional media outlets.

5. The Ability of Non-Media Organizations to Reach Citizens Directly

A further change wrought by the internet is that citizens can now hear directly from the subjects of news stories, diluting the influence of all media, new or old.

Before the internet, organizations and individuals had very limited options to reach a mass

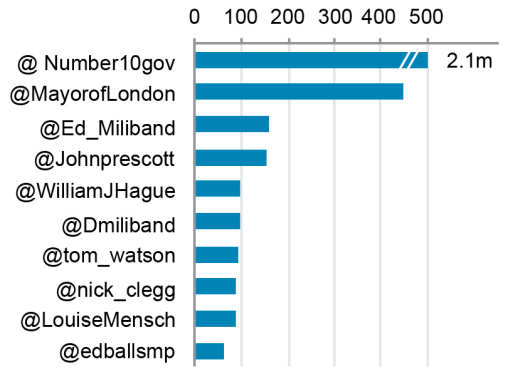
[16] Fleishman Hillard, *Understanding the role of the internet in the lives of consumers* (2010).
[17] Comscore, November 2011.
[18] Author's analysis of Comscore, November 2011. Includes online-only and non-U.K. sites.

audience other than via the media. They could buy advertising or direct mail, but this was expensive and not a practical regular option for many. Consequently, which stories the media chose to cover, and how they chose to cover them, had the potential to materially influence the attitudes of their audience.

The internet has transformed this. Politicians, government departments, companies, charities, and many other institutions can speak directly to relevant audiences. This can be via direct emails, blogs, websites, Twitter, Facebook, YouTube, or other means - each is suited for different purposes. The critical point is that each enables the disintermediation of traditional media.

This has a two-fold impact. It lessens the extent to which such organizations are beholden to the media, and it dilutes the influence of media. If citizens can hear directly from a particular politician (say), this presents an alternative view to that which may be being painted by the media. Neither view is necessarily inherently more accurate, but the critical point is that the audience has more viewpoints on which to base their own judgment. Moreover, the audience well understands this. As we have seen, many report actively cross-checking and, according to the Mintel survey, 66 percent agree that "[t]he internet means that it is easier to access news directly from its source (e.g. via websites, Twitter feeds, etc.)."[19]

Figure 7: Twitter Follower Count ('000) of Select U.K. Politicians[20]



Consider the Twitter accounts of just ten politicians. The group shown in Figure 7: Twitter Follower Count ('000) of Select U.K. Politicians has a total follower count of 3.4 million. (The total for all MPs and leading politicians will be appreciably higher.) There will undoubtedly be some duplication within this, with some individuals following more than one of these politicians, but this is substantial reach. Compare, for instance, to the

[19] Mintel, *supra* note 15.

[20] *Twitter*, follower count as of September 5, 2012. Ten leading accounts, though not necessarily the ten largest.

readership of the *Telegraph* (the best selling broadsheet) at 1.4 million.[21] Moreover, Twitter will allow these politicians to communicate with their followers in real time, multiple times per day. As we have noted, Twitter is just one means of internet communication open to them, in addition to email, websites, and so on.

This is not to argue that everything on Twitter should be regarded as authoritative. Twitter is no more inherently trustworthy than a letter, but the existence of junk mail does not invalidate the bank statement. Twitter users are well able to distinguish pub banter among the friends they follow on Twitter from tweets announcing new policies from @10Nomber10gov or @BarackObama.

Indeed, the media themselves take Twitter (or rather some of the individuals on it) to be credible and important. According to Steve Hermann, editor of the BBC News website, "it is taken as read for anybody working in news gathering that Twitter is a key source that you need to be across."[22] Anthony de Rosa, Social Media Editor at Reuters, says: "To bury our head in the sand and act like Twitter … isn't increasingly becoming the source of what informs people in real-time is ridiculous."[23]

Twitter is just one online tool that organizations and individuals are using to communicate with each other (albeit an important and rapidly growing one). For more extensive commentary, blogs tend to be the tool of choice.

There is limited aggregated data for blogs, but one single provider, Wordpress, hosts over 55 million blogs (globally)[24] attracting approximately 400,000 U.K. visitors per day.[25] Tumblr, another blogging service, has 72 million blogs[26] with 300,000 U.K. visitors per day.[27] These blogs cover a wide range of topics from the profound to the trivial (not unlike newspapers).

Among them are a number of blogs focused purely on U.K. politics (though of course these are not the only blogs offering political comment). TotalPolitics tracks over 1000 of them just for England.[28] Some are national in their focus, some regional. Many are highly partisan. Any one may have a small voice, but in aggregate they are more significant. Ten of the largest

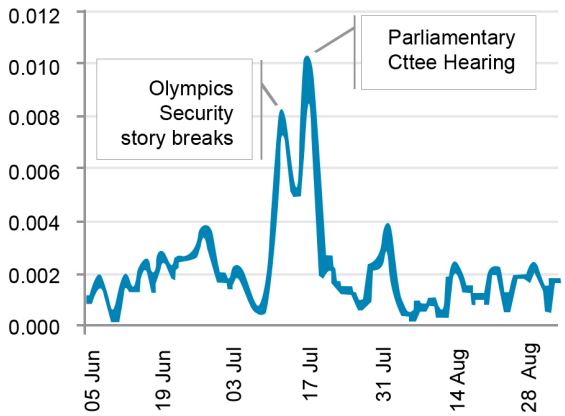
[21] *NRS*, July 2011 – June 2012.
[22] Nic Newman (Reuters Institute for the Study of Journalism), *Mainstream Media and the Distribution of News* (September 2011).
[23] Quoted in BBC, *Associated Press reporters told off for tweeting*, (November 17, 2011).
[24] Wordpress website.
[25] Google Ad Planner.
[26] Tumblr website.
[27] Google Ad Planner.
[28] TotalPolitics Blog Directory.

have a summed reach of 180,000 people in the United Kingdom each month.[29] While this is small relative to the total audience of a typical newspaper website, it is likely more significant when compared to the usage of hardcore political content on a given newspaper site, which is the more relevant comparison.

Twitter is just one online tool that organizations and individuals are using to communicate with each other (albeit an important and rapidly growing one). For more extensive commentary, blogs tend to be the tool of choice.

Even quite obscure subjects can receive substantial coverage via blogs. There have, for instance, been almost 6,800 blog posts on "media plurality."[30]

Figure 8: Global Reach (%) of G4S Website[31]



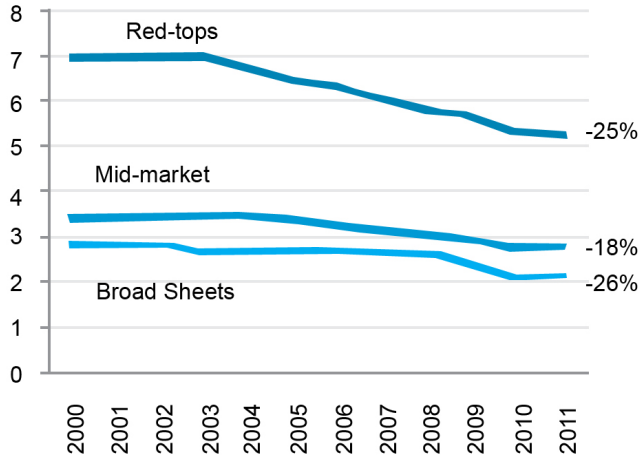
Websites are another tool for organizations to communicate directly to citizens, by-passing the media. Consider the case of security firm G4S, which failed to provide promised security guards for the Olympics, resulting in widespread media criticism and hostile questioning of its CEO by a parliamentary committee. Traffic to the company's website surged at the time of those events, giving it an opportunity to put its side of the story directly to consumers, rather than relying on the media.

[29] Google Ad Planner.
[30] Google search of blogs for the phrase "media plurality" (September 8, 2012).
[31] Alexa.

Thus Twitter, blogs, websites, and other online communications tools have become, among other things, a means for experts and stakeholders in many fields (in addition to ordinary citizens) to reach out directly to the audiences interested in those topics. This increasingly dilutes traditional media's influence.

6. Declining Consumption of Newspapers

Figure 9: Daily National Papers' Circulation (m)[32]



Traditional media's influence (and, in particular, newspapers') is further reduced because they are simply being consumed less. All U.K. newspapers have been seeing rapid declines in circulation, with national dailies each losing at least 2 percent per year since 2006, and most have been facing declines of 6 percent or more.[33] As a result, newspaper circulation has in aggregate fallen by just under one-quarter since 2000, and all segments of the market have suffered, as Figure 9: Daily National Papers' Circulation (m) shows. (By contrast, U.K. TV news consumption continues to hold steady, with a spike in 2010 likely caused by the election.)

[32] ABC. Figures for January of respective year. "Red-tops" are mass market titles, with a greater portion of "soft" news (such as celebrity gossip) in addition to hard news. "Broadsheets" are the more traditional titles (such as the *Times of London*), more similar to, say, the *New York Times*.

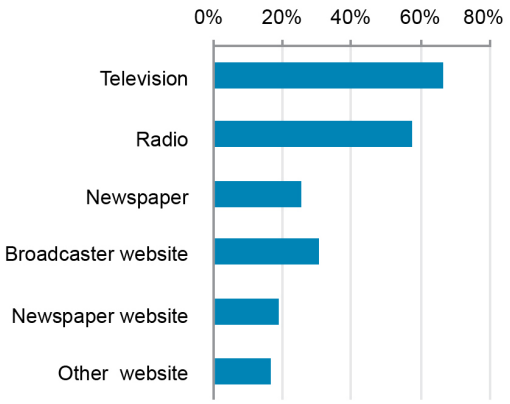
[33] While the United Kingdom is facing relatively high declines, it is far from alone. Among 34 OECD countries, 30 saw declining paid newspaper circulations between 2000 and 2008. OECD, *The Evolution of News and the Internet* (June 2010).

Clearly, if the print editions of newspapers are today less read, they must be less influential. This critical point is often missed - there can be undue focus on share of the newspaper market, but in assessing influence it is the absolute level of consumption that matters.[34]

7. Consumers as Sophisticated News Users

Of course even consumption does not guarantee influence. As we have seen, multi-sourcing is increasing, and the evidence suggests that consumers have a sophisticated and healthily skeptical understanding of the news they consume.

Figure 10: Portion of Individuals Saying News Source is Impartial[35]



As noted above, consumers actively cross-check, and they are well aware that newspapers are less likely to be impartial than broadcast news. (In the United Kingdom, broadcast news has a regulatory obligation to be impartial.) Nor is it simply the case that they are aware of the partialities of papers but all choose to read one that matches their own partialities. For instance, though the *Sun* is regarded by many as right-leaning, and though the title endorsed David Cameron at the last election, only a minority of its readers actually voted Conservative in 2010.[36]

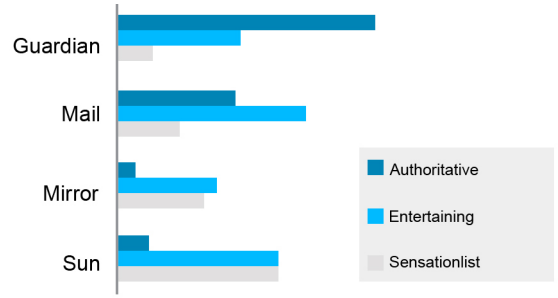
All this argues against the idea that readers take their outlook "spoon fed" from their daily paper.

[34] Looking at this specifically in a political context, Prof. Deacon and Dr. Wring of Loughborough University have observed, "downward trend in circulation between [the 2005 and 2010 electoral] campaigns inevitably diminishes the electoral potency of the press," *See* D. Wring & D. Deacon, "*Patterns of press partisanship in the 2010 General Election*," 5 British Politics 436–454 (2010).

[35] Ofcom, *The Ofcom Media Tracker survey: 2010 survey results*, (July 2011). Those scoring 1 or 2 on a scale of 1 to 5 of decreasing impartiality.

[36] Wring & Deacon, *supra* note 34.

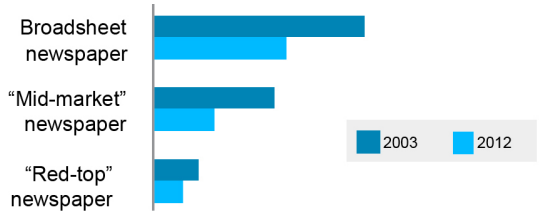
Figure 11: Words Associated With Newspaper Titles by Their Readers[37]



Moreover, within media, consumers have very different perceptions of the newspapers they read. Some titles (such as the broadsheet the *Times*) are read for their perceived authority and accuracy. Others (such as the red-top the *Sun*) are read for their entertainment and sensation.

Notably, the ratings given to the *Sun* by its readers across a wide range of such dimensions are not notably different than those given to the *Sun* by the population in general.[38] This also suggests that the readers of the *Sun* are not in some way "captured" by it - they see its strengths and weaknesses in much the same way as non-readers do.

Figure 12: Percent of Individuals Trusting Journalists From Different News Organizations[39]



Moreover, across news outlets, consumers have become much less trusting over the last decade. While those outlets lament this development, from a societal perspective it may be positive that audiences are applying more skepticism to what they see and read.

This all suggests an audience that is sophisticated in its news consumption, and one with a healthy caution that is a counterbalance to the influence that individual media outlets might have on citizens.

[37] Mintel, *supra* note 15.
[38] *Id.*
[39] YouGov, *Whom do the public trust?* January 2012. Those saying trust "a great deal" or "a fair amount."

8. Conclusion

Across news outlets, consumers have become much less trusting over the last decade

In the "chain of influence," the link between news content and citizen outlook has come under particular pressure. A number of major trends have acted to weaken it:

- consumers are increasingly getting their news from multiple sources;
- they are accessing completely new news sources online;
- they are increasingly skeptical of the news they consume;
- perhaps because of this skepticism they are consciously cross-checking what they consume among ever more news sources;
- they also now hear directly from expert commentators, politicians, and other major subjects of news stories, diluting the influence of all media; and
- the influence of newspapers in particular has been greatly reduced by their fall in circulation over the period.

We now turn to the initial link in the chain - how much influence proprietors have on the content consumed.

C. Waning Influence of Proprietors on News Content Consumed

The evidence suggests that the influence of proprietors on what content is consumed is waning. There are two strands to this - less influence on which stories are covered and how, and less influence on which covered stories are actually consumed by audiences.

For a variety of reasons, the choice of news stories, the way in which they are treated, and their prominence are all subject to much greater external influences than they once were. Some of these developments are positive, some are negative, but all act to dilute the influence of owners on a news outlet's content.

1. Dependency on Wire Services

As news outlets, and newspapers in particular, have come under increasing financial pressure (and increased their editorial page count), they have been making heavier use of wire copy (from the Press Association and other news agencies) as a way to save costs. Research by Cardiff University (in 2006) found that 49 percent of stories in the four main broadsheets and the *Mail* were entirely, or largely, based on wire copy. A further 19 percent were entirely or largely based on PR material.[40]

To the extent to which newspapers (and broadcasters) are dependent on the same set of news agency and PR material, this will inevitably lead to homogenization of output. This has the side effect of reducing the possibility of proprietorial (and indeed editorial) influence. An editor is in a weaker position to set the news agenda or the angle of his stories if he is substantially dependent on third parties for much of his copy.

2. Declining Overall Importance of the Media's News Agenda

While a news agenda is, in part, about which stories get covered, it is at least as much about the hierarchy of stories. A critical choice for editors is which stories to lead with - to place on the front page, top of a bulletin, and so on. Offline, such choices have material impact - what is on the front page is certainly more likely to be read. However, news consumption online is much more atomized. Audiences typically do not consume (in order) a slate of news from a particular provider - they may arrive on any page of a website, not just the home page.

A consequence is that editors' views (regardless of whether or not they match the proprietor's) of which stories are most important matters much less online. The correlation between lead stories and which stories are actually read most is far weaker.

Consider the news home page of the BBC at the time of writing.[41] Of the five lead stories on that page (those selected by the editor as the most important), only two make it into the list of the ten "most read" stories. Clearly the news agenda, as experienced by the reader, is rather different from the agenda as set out by the editor.

As we have noted, one of the reasons why consumption does not follow the editor's hierarchy is that readers may arrive at any page in the site, not simply the home page. Indeed, this is true of much of a typical newspaper's traffic. There are two prime reasons for this: search and

[40] J Lewis et al (Cardiff School of Journalism, Media and Cultural Studies), The Quality and Independence of British Journalism, 1 February 2008

[41] bbc.co.uk/news/ at 7pm (September 7, 2012).

social media.

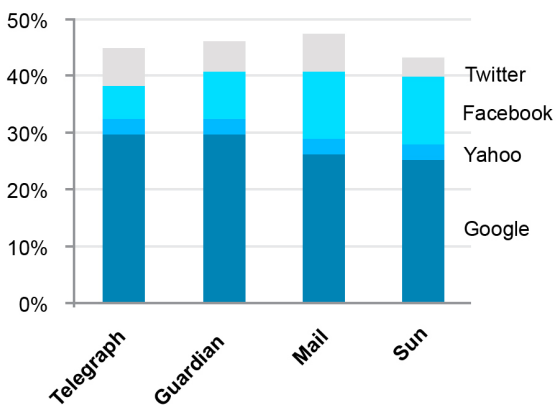
The correlation between lead stories and which stories are actually read most is far weaker.

Search is an important aspect of online news consumption - users frequently search for topical terms to find coverage. Such searches will result in direct links to relevant pages from many different news sources (and the web more generally). As Athey & Mobius put it:

> there are a number of longer-term threats to news outlets created by news aggregators, including loss of the curation role which affects the brand perception of the news outlet as well as its ability to promote news that is for any reason not selected by Google news.[42]

News consumption via social media is generally more reactive. A tweet or a Facebook post provides a friend's recommendation of an interesting story (or an interesting angle on a well-known story). Up to that point, the reader might have had no particular interest in that story, and of course the choice of news source is the recommender's, not the readers.

Figure 13: Sources of Traffic for Sample U.K. Newspaper sites: [43]



In aggregate, search and social media account for almost 50 percent of traffic to a typical newspaper website (see Figure 13: Sources of Traffic for Sample U.K. Newspaper sites:). Such inbound traffic is fundamentally driven by the agenda of the audience, rather than the editor of the site itself, which is one of the reasons for the disconnect we saw with the

[42] S. Athey & M. Mobius, *supra* note 14

[43] Alexa, January 2011, based on upstream sites—those visited immediately prior to visiting the newspaper site. Note that due to Alexa's limitation (e.g. a non-representative panel of users) these figures should be taken as indicative. However, they are broadly consistent with those in, for instance, Nic Newman (Reuters Institute for the Study of Journalism), *Mainstream Media and the Distribution of News* (September 2011), allowing for the rapid growth of social media traffic. Note that for technical reasons Twitter referral traffic has been frequently underreported until recently, see TNW, *Twitter just got the respect it deserves* (August 21, 2011).

While editorial judgment remains critical in all these newsrooms, it is now tempered and influenced by the wisdom of the online crowd (or at least its opinions).

BBC site. According to Alan Rusbridger of the *Guardian*, "[p]eople on Twitter quite often have an entirely different sense [from the press] of what is and what isn't news."[44] The audience is (effectively) taking a collective view of the news agenda, which dilutes the power of any one news outlet to set the general agenda for all.

Finally, social media is influencing which stories remain visible. For example, a *Daily Mail* article about the Olympics opening ceremony provoked a strong reaction on Twitter and blogs, with many saying they found the article racist. The *Daily Mail* quickly substantially rewrote the article, and then deleted it entirely.[45]

3. Increasing Influence of Users on Offline Content

For the reasons set out above, the choice of stories consumed online is much more in the control of the reader than the editor. That said, important though online is, it is only one form of news media. However, the data news organizations get from their online audiences is increasingly influencing their output on other media such as print and TV.

According to the *Economist's* Digital Editor Tom Standage:

> In parts of [2010] we were growing by 20% a month on the amount of traffic from these [social media] sites so we've started to adjust and have started to think about doing journalism in a different way.[46]

Alan Rusbridger of the *Guardian* makes a similar point:

> What seems obvious to journalists in terms of the choices we make is quite often markedly different from how others see it – both in terms of the things we choose to cover and the things we ignore. The power of tens of thousands of people articulating those different choices can wash back into newsrooms and affect what editors choose to cover. We can ignore that, of course. But should we?[47]

[44] Guardian, *Alan Rusbridger: Why Twitter matters for media organisations* (November 2010).
[45] Guardian, *Language, Laughter and the Paralympics*, (September 6, 2012).
[46] Nic Newman (Reuters Institute for the Study of Journalism), *Mainstream Media and the Distribution of News* (September 2011).
[47] Guardian, *Alan Rusbridger: Why Twitter matters for media organisations* (November 19, 2010).

According to BBC News Channel anchor Ben Brown, interacting with the audience via the internet "gives us a better idea of what they are actually interested in if we can hear from them not day-by-day, but minute-by-minute." The Sky newsroom has screens informing staff in real time of the most popular stories on the broadcaster's website.[48]

Online interaction is influencing not just what to cover, but how to cover it. According to Nic Newman (writing in 2009):

> Indeed, on several occasions the strength and immediacy of reader opinion has influenced the BBC's wider editorial line. … [S]trong and consistent negative reaction to the Archbishop of Canterbury's speech on Sharia Law (9,000 emails) changed the agenda that afternoon, prompting the 6 o'clock news to "feature the strength of reaction and lead on the story.[49]

While editorial judgment remains critical in all these newsrooms, it is now tempered and influenced by the wisdom of the online crowd (or at least its opinions). Internet traffic is influencing the agenda choices and story content for print and broadcast as well as online itself. Again, the effect of this is to dilute the influence of the proprietor.

4. Conclusions

For a variety of reasons, media content is far more subject to external forces that it was. These reasons include:

- Greater reliance on wire services;
- Greater flexibility for audiences to select particular stories rather than accept an agenda; and
- Far greater audience influence (articulated via online traffic) on editorial choices.

This inevitably means that owners have lost appreciable control of what their audiences consume (the first link in the chain of influence).

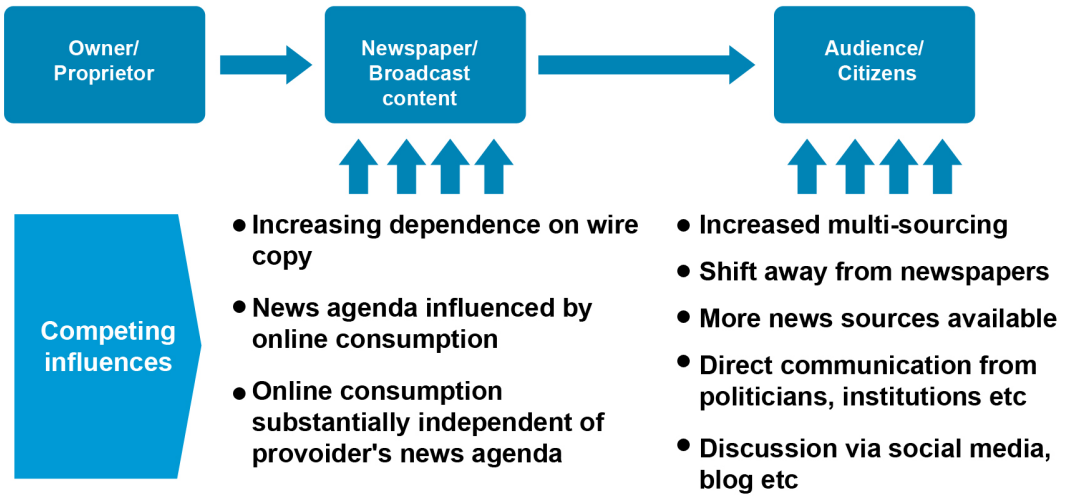
[48] *New Media, Old News* (N. Fenton, ed. 2010).

[49] Nic Newman (Reuters Institute for the Study of Journalism), *The rise of social media and its impact on mainstream journalism* (September 2009).

D. Implications for the Benefits of Plurality Regulation

As we have seen, the "chain of influence" between proprietor/owners and the democratic process has been weakened substantially. In particular, any one news source is far less likely to be able to dominate the perspective of a given citizen, given the changes in the news market:

Figure 14: Changes to the "Chain of Influence"



Influence has become both more diffuse and more iterative (in that audiences now influence news content much more than previously). The effect has been to dilute the influence of owners. Moreover, these trends will continue, with ever more news consumption shifting online, as use of social media rises, as newspaper circulation continues to fall, and so on.

As we have noted, the purpose of plurality regulation is to achieve outcomes on the right-hand side of this diagram - primarily to ensure a healthy and informed political discourse between citizens and politicians.

However, if the chain is growing weaker, then regulatory interventions at the left-hand of the chain are ever less likely to bring substantial benefit. Plurality rules are just such an intervention, and simply tightening plurality rules looks unlikely to enhance their ability to achieve their objective.

III. THE GROWING COSTS OF PLURALITY RULES

In the United Kingdom (and in most other markets with such rules), plurality rules function by preventing mergers and acquisitions. Almost any market intervention carries costs to be weighed against its benefits. In the case of plurality, those costs are the direct administrative burdens of the application of the rules, and the more intangible burden of the potential inappropriate blocking of "healthy" market consolidation. (Of course, more general competition rules apply to media mergers, and these should anyway block consolidation that is unhealthy from a consumer perspective.)

A. The Administrative Burden and Uncertainty

Many jurisdictions have relatively simple, "bright-line" tests in their regulations for plurality. For instance, in Australia one person may not own a TV station, radio station, and newspaper with overlapping coverage.[50] In France a person may not own more than 49 percent of a national TV broadcaster with 8 percent audience share or greater (with an exclusion for France Télévision).[51] In the United States no entity can own more than one local TV channel in an area (or two in an area with at least eight channel operators).[52]

Such bright-line tests do have the great virtue of simplicity, both in application and in anticipation. Potential merging parties can easily assess in advance whether their merger is likely to be acceptable, rather than making a public offer and then seeking uncertain approval.

However they are, by their very nature, somewhat blunt instruments. It is easy to imagine scenarios below these thresholds that would be problematic and, conversely, scenarios above these thresholds that would present no meaningful threat to democratic discourse. They also need regular updating, to ensure they are still set at the right levels - both the United States and Australia have recently reassessed their plurality rules.

Finally, bright-line tests can be more challenging to frame for cross-media mergers - for instance, a newspaper group buying a broadcaster. What should be the common currency between (say) one newspaper reader and one viewer of an evening news bulletin? Italy has a rule that says that no one player shall have more than 20 percent of the revenues of the "integrated

[50] Broadcasting Services Act 1992 (as amended). Note that, as with the other examples that follow, this is only one of the restrictions for plurality contained within the Act.

[51] Loi relative à la liberté de communication 1986 (as amended) [Léotard Law].

[52] Telecommunications Act 1996.

communications system," which includes traditional media, pay TV, the internet, film, and so on.[53] However, it is far from clear that influence is proportional to revenue - is, for instance, the revenue that a pay TV operator garners from sports channels relevant?

Other jurisdictions simply block cross-media ownership. The United States does not allow common ownership of a newspaper and a broadcaster serving the same area (with some exceptions). The U.K.'s approach has been to avoid bright-line tests.[54] The 2003 Communications Act cites as a public interest (on which grounds mergers may be blocked) "the need, in relation to every different audience in the United Kingdom .... for there to be a sufficient plurality of persons with control of the media enterprises serving that audience."[55]

While this allows for a case-by-case assessment, taking into account the specifics, it creates a number of different problems. Not least, the Act does not offer any guidance as to how to measure plurality, nor what a "sufficient" level might be.

At its crudest, plurality might simply be the number of persons with control, but it is widely accepted that this is far too blunt a definition. In seeking to apply this test, Ofcom has, therefore, considered issues of market share, internal plurality,[56] levels of multi-sourcing, wholesale versus retail provision,[57] and so on. (It did not, however, go as far as recommended by a 2009 study published by the European Commission, which suggested a battery of 166 metrics to be used for assessing plurality.)[58]

All parties involved in U.K. media mergers under review have wrestled with what might represent sufficiency. Absent any explicit benchmark, reference has been made to the situation as it was in 2003 when the relevant legislation was passed - post merger, would plurality be higher or lower than it was pre-merger? However, there is no guidance as to whether plurality in 2003 was ample (meaning that even if plurality dropped to below that level it still might be

[53] Norme di principio in materia di assetto del sistema radiotelevisivo e della RAI-Radiotelevisione italiana Spa, nonché delega al Governo per l'emanazione del testo unico della radiotelevisione 2004 (as amended).

[54] One exception is the "20/20" rule, which says that an entity that owns national newspapers with a 20 percent market share may not also own 20 percent of a Channel 3 license (the licenses held by ITV, the leading commercial broadcaster).

[55] For newspapers in particular, the same Act cites "The need for, to the extent that it is reasonable and practicable, a sufficient plurality of views in newspapers in each market for newspapers."

[56] Content diversity within a single media group.

[57] Ofcom used "wholesale" to refer to situations where an entity prepared news bulletins on behalf of a third party, though that party was the brand evident to consumers, and which retained ultimate editorial control and responsibility.

[58] KU Leuven et al., *Independent Study on Indicators for Media Pluralism in the Member States – towards a risk-based approach* (April 2009).

sufficient) or borderline, meaning that even the smallest diminution should be blocked.

At its crudest, plurality might simply be the number of persons with control, but it is widely accepted that this is far too blunt a definition.

While competition cases often involve a degree of subjectivity, there is at least a corpus of case law, metrics such as the Herfindahl–Hirschman Index with recognized thresholds that might indicate excessive concentration, and so on. There is no equivalent body of precedent and practice for plurality assessment. Indeed, since the Act was passed in the United Kingdom almost ten years ago, the plurality test has only been applied in two cases - Sky's acquisition of a stake in ITV, and the abandoned News Corp. bid for Sky. (A third case is now under consideration - Global Radio's bid for GMG Radio.) And because media is a relatively small industry, and one where mergers are perhaps less likely than in some others (for instance, because of major state-owned entities in many markets including the United Kingdom), any body of practical experience is likely to be slow to build.

The combination of a highly subjective test coupled with a lack of precedent results in significant regulatory uncertainty. Bids may be made that are doomed to be blocked on plurality grounds and, conversely, bids may be left unmade out of an inappropriate belief that they might be blocked.

The U.K. government is currently considering a "standing" plurality test - that is, potential interventions that would not be triggered by M&A, but rather by market developments. While it is clear (as Ofcom has argued) that plurality problems could arise otherwise than by a merger, such a standing test has even greater potential for unintended consequences. For instance, an organization could be subject to plurality remedies simply as a result of launching a product that was attractive to consumers, or even because of the demise of a news provider in an entirely different media. Thus there appears to be the potential for a material chilling effect on innovation and competition (particularly given that the boundaries of a plurality problem are so unclear).

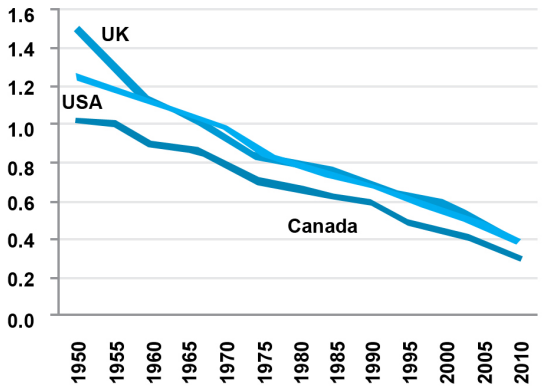
B. Blocking Media Consolidation

Desirable media plurality has the potential to be problematic media fragmentation. In markets facing significant challenges, consolidation may bring benefits for consumers by creating a smaller number of healthy players, rather than a plethora of weaklings. As we will see, news provision is certainly facing great challenges, and might (plurality concerns aside) greatly benefit from consolidation. Interventions to support plurality need to be seen in this context.

Desirable media plurality has the potential to be problematic media fragmentation.

1. Declining News Consumption and Revenues

Figure 15: Daily National Newspaper Paid Circulation, Copies Per Households (m)[59]



As we have already seen, newspaper circulations in the United Kingdom have been fallen rapidly over the last decade. This reflects a long running and international trend (see Figure 15: Daily National Newspaper Paid Circulation, Copies Per Households (m)) Declining circulation has led to falling revenue. U.K. national newspaper revenues fell 14 percent in real terms between 2005 and 2010, both due to declining copy sales and the associated loss in advertising revenue.[60] (The latter problem has been exacerbated by the dramatic shift of advertising online, particularly classified.)

Note that the fall in revenues would have been even worse had newspapers not been increasing their cover prices significantly. U.K. broadsheet prices rose by 61 percent in real terms from 2000 to 2008 and tabloids by 13 percent.[61] Clearly such a strategy is not sustainable in perpetuity.

Consumption of TV news has held up better, with total viewing broadly flat from 2006 and 2011. However, this aggregate picture hides a stark contrast between the BBC and commercial news consumption - while the former rose 27 percent, the latter fell 24 percent.[62]

[59] Communications Management Inc., *Sixty years of daily newspaper circulation trends* (May 2011).
[60] Author's analysis of figures in Clare Enders, *Competitive pressures on the press* (October 2011).
[61] *Advertising Association, Advertising Statistics Yearbook 2009* (2009).
[62] Author's analysis of figures from Ofcom, *PSB Report 2012 – Information Pack: Section C – PSB Viewing* (June 2012).

2. Reduced Spend

News outlets have reacted to declining consumption and pressure on their revenues by cutting costs. Spend on national news and current affairs programming by the main U.K. broadcasters[63] has fallen by 15 percent in real terms since 2006, and again it is likely that the drop is starker for the commercial players.[64] Between 2005 and 2010, national newspapers cut their operating expenses by 14 percent in real terms.[65] (Setting aside the *Financial Times*, which increased its spend, the decline would be 17 percent.)

While some of these reductions (which represent the continuation of a longer-term trend) have come through efficiencies, such as integrated newsrooms, others have come at the expense of the quality of output. Such changes[66] include:

- increased use of wire copy (from news agencies);
- increased use of PR material;
- a reduction in coverage of regional stories;
- a reduction in foreign correspondents;
- a reduction in budgets for investigative journalism; and
- an increase in soft news.

Some of these changes, such as increasing reliance on wire copy, represent a reduction in content diversity, even if the number of media owners remains unchanged. If all titles are dependent on the Reuters version of a particular event, then the potential for diverse coverage is clearly reduced.

3. Absence of Consolidation

In most industries facing such a continuing decline in revenues (particularly coupled with the relatively high fixed costs of news), one might expect to see consolidation to create fewer,

[63] BBC, ITV, Channel 4, and five.

[64] Ofcom, *PSB Report 2012 – Information Pack: Section B – PSB Output and Spend* (June 2012).

[65] Author's analysis of figures in Clare Enders, *Competitive pressures on the press*, (October 2011).

[66] For discussion of these issues see, for example, Nick Davies, Flat Earth News, Vintage (2008); and Martin Moore, *Shrinking World – The decline of international reporting in the British Press*, MST (November 2010).

The range of potential acquisitions is far smaller than might be the case in another industry with similar economics and number of participants. This raises the possibility that titles could simply shut down rather than be merged.

healthier market participants. There has been no such consolidation in U.K. national news. The number of national newspapers and their owners is unchanged since 1995 (though the *News of the World* has closed and the *i* has launched). The number of broadcast news players has increased in the same period, with niche players such as *Al-Jazeera* and *Russia Today* joining the market, and new services such as the BBC News Channel coming from existing players.

There are at least two reasons for this lack of consolidation.

First, some market participants are unlikely ever to be bought due to their ownership. The BBC is a major player and is, of course, state-owned. The *Guardian* is owned (and substantially subsidized) by the charitable Scott Trust, which has as its objective the financial and editorial independence of that paper. TV news operations are generally embedded within broadcasters with much wider interests, and would be awkward to separate out.[67]

Second, newspapers are owned for reasons other than financial return. They are "trophy assets" which bring prestige, or they may be owned for the wider influence they bring. For instance, when Alexander Lebedev acquired the *Independent* in 2010, he commented "I do not treat newspapers as business. I treat them as my responsibility. I think newspapers are the only instrument which, through investigative reporting, can ferret out everything about international corruption."[68]

These factors mean that the range of potential acquisitions is far smaller than might be the case in another industry with similar economics and number of participants. This raises the possibility that titles could simply shut down rather than be merged. For instance, the *Guardian*'s rate of losses is such that it may in time exhaust the resources of the Scott Trust. Some are worried that the loss-making *Times* has been kept afloat for sentimental reasons by Rupert Murdoch, and that more financially oriented owners of News Corp Publishing might shut it down.[69]

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[67] In pursuit of its acquisition of Sky, News Corp agreed to separate out the Sky News channel, to satisfy plurality concerns. However, Sky News was substantially loss making and therefore required a guaranteed subsidy from the merged entity. Even so, considerable doubts were raised about the viability of this arrangement.

[68] BBC, *The Independent bought by Lebedev for £1* (March 25, 2010).

[69] MediaTel, *The only surprise is that Murdoch didn't do it before...*(June 27, 2012).

4. The Costs of Blocking Consolidation

Against this background, it is clear that there is a risk in blocking consolidation for plurality reasons. It may maintain an unhealthy level of fragmentation in the market, resulting in many weak players with limited news-gathering budgets, rather than fewer, potentially stronger, players. As we have noted, this may have the perverse consequence of reducing diversity of content, the very opposite of the intent of the plurality intervention. Since there are relatively few potential mergers given the nature of media ownership, each blocked merger is more significant in its implications for reduced consolidation.

These are general comments, and obviously each potential merger needs to be considered on its specifics. However, they do suggest that the costs of the plurality intervention may be rising.

IV. CONCLUSIONS

A well-informed citizenry, exposed to diverse viewpoints, is a key underpinning of democracy and civil society. In decades past, traditional media was uniquely placed to deliver such diversity, and owners of traditional media played a pivotal role in media content.

However, media owners' influence on the content of media, and the influence of that content on citizens, are both waning. This suggests that market interventions at the owner level - in the form of plurality regulations - are likely to have diminishing benefits.

Moreover, as the economics of news media provision grow ever more challenging, consolidation looks to be a natural market outcome. To the extent to which plurality rules block such consolidation, they may carry increasing costs.

Thus those considering whether to tighten plurality rules, or extend their scope, should proceed with caution. The costs may outweigh the benefits.

WHY SOME PLATFORM BUSINESSES FACE MANY FRIVOLOUS ANTITRUST COMPLAINTS AND WHAT TO DO ABOUT IT

*David S. Evans**

ABSTRACT:
In the last decade a number of internet-based multi-sided platforms have emerged that provide free services to, in some cases, millions of businesses. This article argues that under current norms in adversarial proceedings these platforms are likely to face large numbers of complaints in multiple jurisdictions, a substantial likelihood that at least one of these complaints will result in a false-positive decision against the platform, and material risk of a false-positive decision that results in catastrophic consequences. These effects result from a combination of business users of free services receiving a free litigation option they can pursue if they have any complaints; an adverse-selection problem that results from free services being particularly attractive to start-ups that do not have or want to invest capital in their businesses; and the sheer number of free-business users resulting in a high cumulative probability of at least one false-positive decision. After documenting these phenomena, this article argues that government policymakers, including competition authorities and courts, should adopt a heightened level of scrutiny concerning complaints from free business users. This heightened level of scrutiny is necessary to counteract the impact of excessive litigation on innovation by multi-sided platforms.

I. INTRODUCTION

Over the last several decades many multi-sided platforms have emerged that provide free services to large numbers of businesses worldwide. These include social networking, search-engines, and software platforms. Businesses that receive free services sometimes object when the platform takes actions that these businesses perceive reduce the value of the free services to them. In some cases they have pursued complaints to competition authorities, started private

* Chairman, Global Economics Group; Lecturer, University of Chicago Law School; Visiting Professor and Executive Director of the Jevons Institute, University College London. I would like to thank Keith Hylton, Elisa Mariscal, and Richard Schmalensee for helpful comments; Lauren Chiang, Steven Joyce, Jacqueline Murphy, and Vanessa Zhang for excellent research help; and Google for research funding. None of these individuals or entities necessarily agrees with me and I retain sole ownership of any errors.

litigation, lobbied for government investigations, and advocated regulation of the platform. A common complaint by business users is that the platform has violated various competition laws of the various jurisdictions.[1]

This article argues that successful multi-sided platforms that provide free business services are subject to "excessive litigation"[2] that can result in false-positive decisions as a result of three mutually reinforcing phenomena.

The first phenomenon involves the litigation option. Businesses that use platform services obtain an option to sue that platform or to advocate policies that could impose significant costs on the platform.[3] As the platform becomes more successful there is an increasing chance that courts or competition authorities will find that the platform is a dominant firm or that legislators will find appealing arguments that the platform should be regulated or otherwise restrained.

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[1] The following cases involve allegations by business users of free multi-sided platform services that the platform violated the competition laws, often as well as other laws, of one or more jurisdictions. *See, e.g.*, Opinion by Beijing No. 1 Intermediate People's Court, Civil Case No. Yizhongminchuzi 845/2009 [Renren v. Baidu] (alleging Baidu reduced Renren's website search rankings in violation of the Chinese Anti Monopoly Laws); Case T201/04 R, Microsoft v. Comm'n, [2004] E.C.R. II-4463; *KinderStart.com, LLC v. Google, Inc.*, No. C 06-2057 JF (N.D. Ca. Mar. 16, 2007) (alleging Google reduced Kinderstart's website search rankings in violation of Section 2 of Sherman Act); Complaint, Sambreel Holdings LLC vs. Facebook, Inc., No. 12 CV 0668 W KSC (S.D. California, March 19, 2012) (alleging Facebook sought to reduce user and advertiser use of the Sambreel's Yontoo Platform in violation of U.S. and California competition laws). See also Jhon Ribeiro, Facebook *Faces Antitrust Suit From Advertisement-Sponsored Skins Developer*, PCWorld (Mar. 20, 2012), *available at* http://www.pcworld.com/businesscenter/article/252189/facebook_faces_antitrust_suit_from_advertisementsponsored_skins_developer.html; Aldridge v. Microsoft Corp., 995 F. Supp. 728 (S.D. Texas, 1998); Aldridge v. Microsoft Corp., 995 F. Supp. 728 (S.D. Texas, 1998); Jeff Bliss & Brian Womack, *FTC Begins Twitter Antitrust Inquiry*, Bloomberg (July 1, 2011), http://www.bloomberg.com/news/2011-07-01/ftc-said-to-have-begun-antitrust-inquiry-into-twitter-s-developer-policies.html (concerning FTC investigation over Twitter's policies toward developers).

[2] Excessive litigation means more litigation than is socially optimal. A socially optimal legal system will result in "bad" complaints—ones that an all-knowing power would recognize are not valid—simply because the legal system has imperfect information and transactions costs. The problems identified here result in more bad complaints being brought. If the legal authorities fail to account for these effects, there will be more false positives (that is, wrong findings of guilt), which would discourage investment in free platform services and induce platforms to avoid improvements desired by users simply because it might harm some firms' business models.

[3] Buyers always have an option to sue for product liability, breach of contract, or other legal theories. The difference here is that buyers are obtaining that option for free.

The second phenomenon concerns large numbers. Several of these web-based multi-sided platforms attract millions of businesses. That is a consequence of their global reach, the types of services they are offering, and the attractiveness of free services. As the size of the affected population increases, a larger number of businesses are likely to believe they have been negatively affected by changes in platform policies concerning free services and pursue litigation or other adversarial proceedings.

The third phenomenon is adverse selection. Free-platform services are, all else equal, relatively more attractive to entrepreneurs that cannot secure funding. Investors are more likely to fund entrepreneurs that have better prospects of success. As a result of adverse selection, the businesses that rely on free platform services are more likely to encounter business problems. Some of these businesses may seek to obtain compensation or beneficial changes in the platform's terms by pursuing a government intervention—for example, by filing an antitrust complaint or threatening to do so.

These three phenomena compound each other. Applied to a very large population of businesses the use of the litigation option, combined with the adverse-selection problem, can result, on average, in many opportunistic complaints that consume management time, result in a significant likelihood of one or more false-positive decision against that platform, and pose a material risk of a catastrophic decision.

Multi-sided platforms may engage in anticompetitive practices or unfair business practices behavior just like any firm. Competition authorities, for example, should therefore maintain vigilance over these firms given their economic significance. The litigation option, adverse selection, and large number phenomena suggest, however, that public authorities should be more skeptical of businesses whose complaints stem from using free services provided by multi-sided platforms. This article proposes a heightened standard of review for these complaints in order to better balance false positives and false negatives.

II. MULTI-SIDED PLATFORMS AND FREE SERVICES

A multi-sided platform provides a place for people and businesses to find each other, engage in interactions, and exchange value.[4] They generate value by reducing transactions costs between

[4] *See* David S. Evans & Richard Schmalensee, *The Industrial Organization of Markets with Two-Sided Platforms, in* 1 Issues in Competition Law and Policy 151 (W. Dale Collins ed., 2008); Glen E. Weyl, *A Price Theory of Multi-Sided Platforms*, 100(4) Am. Econ. Rev. 1642 (2010).

members of two or more groups that could benefit from getting together. They do that by reducing the costs of finding trading partners, increasing the quality of the matching between these partners, and lowering the costs of exchange.

Public authorities should be more skeptical of businesses whose complaints stem from using free services provided by multi-sided platforms.

Each distinct group served by a multi-sided platform is often called a platform "side." For instance, retailers and shoppers are the two "sides" of the shopping mall platform. Economists have shown that theoretically the profit-maximizing price for one side can be below marginal cost, including at or below zero.[5] As a matter of fact, for many multi-sided platforms the price on at least one side is at or below marginal costs.[6]

Businesses often comprise at least one side of multi-sided platforms. In some cases multi-sided platforms do not charge these businesses much for obtaining access to the platform, using services provided by the platform, or interacting with users on the other sides of the platform. They get everything for free or below cost.

Software platforms commonly offer free services to business users.[7] A software platform acts as an intermediary between developers of applications and users of those applications. The platform makes code available to application developers through "application programming interfaces" ("APIs") and provides them with "software development kits" ("SDKs"). These APIs and SDKs help developers write applications that work on the platforms and are provided to people that want to use applications on the platform. The availability of these applications makes the platform more valuable to users. Computer operating system providers such as Apple and Microsoft provided free or low cost access to APIs and SDKs to stimulate the pro-

[5] *See, e.g.*, Jean-Charles Rochet & Jean Tirole, *Platform Competition in Two-Sided Markets*, 1(4) J. Eur. Econ. Ass'n 990 (2003); Mark Armstrong, *Competition in two-sided markets*, 37(3) RAND J. Econ. 668 (2006). Schmalensee has shown for two of the leading models of two-sided markets that these below-cost prices arise when the demand functions of the two sides are sufficiently different from each other. *See* Richard Schmalensee, *Why is Platform Pricing Generally Highly Skewed?*, 10(4) Rev. Network Econ. 1274 (2011).

[6] *See* David S. Evans, *Some Empirical Aspects of Multi-sided Platform Industries*, 2(3) Rev. Network Econ. 191, 193 (2003).

[7] *See* David S. Evans, Andrei Hagiu, & Richard Schmalensee, Invisible Engines: How Software Platforms Drive Innovation and Transform Industries (2006).

duction of applications for their platforms.

Many internet-based platforms have also created APIs and SDKs to help developers create applications for their users. Typically, the software platform that helps developers reach users is just one part of their business; that is, they have appended a software platform to add a developer side to another multi-sided platform. Social networks such as Facebook and LinkedIn, for example, have developed software platforms that enable developers to access their social graphs.

Search engines typically provide free services to websites, including those operated by businesses. They identify these websites, include them in the search engine database, index them using sophisticated algorithms, and enable users to find content from these websites (and links to them) in response to search requests. They typically provide websites with code and directions for helping the search engine index the content on their sites.[8] The search engines typically do not charge websites anything for these services.

Businesses obtain value from all these free platform services. Application developers obtain code that reduces their cost of development. More importantly, they obtain access to customers. Websites obtain the ability to make themselves known to a global audience of searchers. In fact, businesses can earn significant profits as a result of receiving free platform services. Lotus 123, for example, was the leading spreadsheet software for personal computers from the early 1980s until the early 1990s. It relied on Microsoft's MS-DOS and Windows software platforms. Microsoft did not charge Lotus 123 for the ability to use its platforms. Lotus also developed other software applications for personal computers that relied on free access to the software platform. Lotus was sold to IBM for $3.54 billion in 1995.

Modern multi-sided platforms have attracted very large numbers of businesses to their free services. Table 1 provides a summary for selected platforms. It reports approximate numbers when they are available and rough orders of magnitude when they are not. In many cases there is data on the number of applications; some businesses may write multiple applications. While the figures in the table do not provide a precise count of businesses that use free services of multi-sided platforms, they show the likely range goes from the hundreds to thousands to the many millions.

[8] *See, e.g.*, Bing Webmaster Tools, http://www.bing.com/toolbox/webmaster (last visited Feb. 23, 2012).

Table 1: Free Business Users of Multi-Sided Platforms

PLATFORM	NUMBER OF BUSINESSES APPLICATIONS	EXAMPLE
Microsoft Windows	4 million[9]	TurboTax
Facebook Software Platform	More than 550 thousand active applications[10]	Zynga's Farmville
Facebook Fan Pages	37 million with 10 or more likes[11]	Lady Gaga
Search Engines (Baidu, Bing, Google, and Yahoo)	Tens of millions[12]	PYMNTS.com
Google Android	450,000[13]	Out of Milk
Apple iOS	500,000[14]	Angry Birds
PayPalX	1000s[15]	Rentalics
Twitter Broadcasts	1000s	Discover Card
Twitter Software Platform	1 million[16]	Twitscoop

III. EXCESSIVE LITIGATION OVER FREE PLATFORM SERVICES

As shown earlier, multi-sided platforms can maximize private profits and social welfare by providing free platform services. However, by providing free services these platforms can sow the seeds of their own destruction through litigation or other governmental process. This section explains why.

[9] Ina Fried, *Live-blogging Steve Ballmer*, CNET (Jan. 6, 2010), http://www.cnet.com/830131045_1-10426723-269.html.

[10] http://en.wikipedia.org/wiki/Facebook_Platform. This figure was from 2010. Facebook does not currently report a separate number on active applications.

[11] *Id*.

[12] *February 2012 Web Server Survey*, Netcraft, http://news.netcraft.com/archives/2012/02/07/february-2012-web-server-survey.html (last visited Mar. 10, 2012).

[13] Andy Rubin, *Android@Mobile World Congress: It's all about the ecosystem*, Google (Feb. 27, 2012), http://googlemobile.blogspot.com/2012/02/androidmobile-world-congress-its-all.html.

[14] The iPhone App Store, http://www.apple.com/iphone/built-in-apps/app-store.html (last visited Mar. 8, 2012).

[15] Damon Hougland, PayPal X Developers Driving Innovation, PayPal Blog (May 25, 2010), https://www.thepaypalblog.com/2010/05/paypal-x-developers-driving-innovation.

[16] Jennifer Van Grove, *Twitter's Ecosystem Now Includes 1 Million Apps*, Mashable (July 11, 2011), http://mashable.com/2011/07/11/twitter-1-million-applications.

Modern multi-sided platforms have attracted very large numbers of businesses to their free services.

A. The Litigation Option

The "litigation option" refers to the ability to file a complaint, or more generally pursue an adversarial proceeding, against the platform in the event that certain events happen that could make a lawsuit or other use of government processes to seek redress viable. This option has positive expected value. The business does not have to file a lawsuit, for example, just as a person does not have to exercise a stock option. The business will file a lawsuit in the future if it has positive expected value at that time, just as the purchase of a stock option reflects the expectation that it has positive value. Since litigation is costly, the business will choose to incur these costs only if it expects the benefits of doing so to outweigh the costs. Moreover, the costs of lodging a complaint with a competition authority, for example, are relatively small.

Businesses, of course, always acquire an option to sue their suppliers, customers, or other business partners when they enter into an arrangement. Typically, these disputes result in breach of contract lawsuits for failure to pay or failure to perform. Generally, the business that sues successfully should be able to collect its actual losses (perhaps including attorneys' fees). These business disputes would usually occur in the civil courts unless there was criminal conduct—fraud for example—at issue. Government authorities would not ordinarily get involved in these contract disputes between businesses.

Businesses can pursue their complaints in a variety of venues and a number of ways and thereby impose costs and risks on their platform provider.[17] They can pursue complaints under a variety of legal theories. For example, in *Aldridge v. Microsoft* the application provider sued the platform for business disparagement, defamation, tortuous interference with contract, tortuous interference with business relations, monopolization, and attempted monopolization.[18] They can pursue complaints in multiple jurisdictions or the laws of multiple jurisdictions. A California-based company that has a merchant page on Facebook and that sells globally could, for example, file claims under California, U.S., and E.U. laws, as well as possibly the laws of many other jurisdictions.

[17] The cost and benefit of pursuing complaints varies across jurisdictions. In the United States, private litigation is costly and the odds of success for antitrust plaintiffs are long; however, treble damages can make the awards high especially for class-action lawsuits. In other jurisdictions, modest expenditures can result in a regulatory authority initiating an investigation. The complainant would not get damages directly but could get beneficial remedies.

[18] Aldridge v. Microsoft Corp., 995 F. Supp. 728 (S.D. Texas, 1998).

In addition to lawsuits, businesses can lobby for the passage of laws or regulations that restrict the platform on the grounds, for example, that it is an essential facility that should be subject to common carrier regulations. The prospect that platforms will be subject to what Judge Posner has described as "cluster bomb" attacks is increased by the fact that, given the global reach of the internet and the ability to replicate the digital delivery of products and services across many countries, both the platform and its business users are likely to operate in many jurisdictions.[19]

One of most common complaints by business users of free platforms is that the platform has engaged in anticompetitive practices. To help explore the scope of the litigation option it is useful to focus on this particular claim. To pursue this claim in many jurisdictions the business user has to argue that the platform has significant market power—a "dominant firm" under E.U. law or a "monopoly" under U.S. law—and that it has pursued practices that exclude competition from the market.

Under E.U. law a firm is presumed "dominant" if its market share exceeds 50 percent,[20] although some cases have considered firms to be dominant with shares as low as 40 percent.[21] In the United States, under Section 2 of the Sherman Act,[22] a firm is considered to have monopoly power if it has a predominant market share; some courts have held that 90 percent is enough to meet that standard, possibly 70 percent or more, but probably not as low as 60 percent.[23] Generally, competition authorities and courts have a great deal of latitude for defining markets narrowly for the purpose of determining these shares. Therefore, complainants have

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[19] Richard A. Posner, *Antitrust and the New Economy*, 68 Antitrust L.J. 925 (2001) 925.

[20] Case C62/86, AKZO Chemie BV v. Comm'n, 1991, 5 C.M.L.R. 215, at ¶ 60, *available at* http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:61986CJ0062:EN:PDF. The Court ruled that market shares in excess of 50 percent are "…in themselves, and save in exceptional circumstances, evidence of the existence of a dominant position."

[21] In *British Airways plc v. Commission*, British Airways was found dominant in the context of Article 82 with a share that had declined from 46.3 percent to just under 40 percent during the period of abuse. *See* Case T-219/99, British Airways plc v. Comm'n, 2003 E.C.R. II-5917, ¶¶ 211, 225 (Ct. First Instance), *available at* http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:61999A0219:EN:HTML. The finding relied heavily, though, on the fact that the rest of the market was very fragmented.

[22] Sherman Antitrust Act, 15 U.S.C. §2 (1890)

[23] For a summary of the case law, see Chapter 2: Monopoly Power, in U.S. Dep't of Justice, Competition and Monopoly: Single-Firm Conduct Under Section 2 of the Sherman Act, *available at* http://www.justice.gov/atr/public/reports/236681_chapter2.htm. Under Article 102 TFEU a dominant firm has "a special responsibility not to allow its conduct to impair competition on the common market. *See, e.g.*, Case 322/81, NV Nederlandsche Banden Industrie Michelin v. Comm'n, 1983 E.C.R. 3461, ¶ 57, *available at* http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:61981CJ0322:EN:HTML. *See also* Case T-201/04, Microsoft v. Comm'n, 2007 E.C.R. II-3601, ¶ 229 ("that undertaking has a special responsibility, irrespective of the causes of that position, not to allow its conduct to impair genuine undistorted competition on the common market . . . ."), *available at* http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:62004A0201:EN:NOT.

the prospect of persuading the competition and courts that the platform is a dominant firm.

To pursue an antitrust complaint—under Section 2 of the Sherman Act or Article 102 TFEU, for example—business users generally have to be able to persuade competition authorities or courts that the platform is foreclosing competition. That would usually involve showing that the user and the platform are competing with each other in the same market, or that the platform is trying to extend its alleged dominant position in one market to a downstream market in which the user is competing. That imposes some limitation on the ability of free users of platform services to pursue an antitrust claim. However, the antitrust laws provide complainants with considerable flexibility in fashioning theories and interpretations of facts that can result in facially plausible claims. In particular, in the European Union and other jurisdictions, dominant firms have a "special responsibility not to … impair competition" and that language can be interpreted to condemn many business practices.[24]

Generally, complainants can argue that they compete with the platform in a primary market. Examples include:

- a software platform provider and an application provider that exposes APIs and therefore could provide platform features;
- a search engine provider and a website that curates content; or
- a social network and an application that in part provides connections between people.

Complainants can also argue that the platform is trying to leverage its platform dominance into a downstream market and thereby excluding competition from that market. Examples include:

- a software platform provider that includes a feature that could also be provided by an application;
- a search engine provider that provides various services as part of its search results; or
- a social network that provides services including applications.

[24] A*nswer given by Mr Almunia on behalf of the Commission*, eur. parl. (Mar 1. 2011), *available at* http://www.europarl.europa.eu/sides/getAllAnswers.do?reference=E-2011-000252&language=DE.

In some jurisdictions, business users of free platform services can argue that the platform is an essential facility to which they should have access on a fair, reasonable, and non-discriminatory ("FRAND") basis. The Supreme Court decision in *Trinko* sharply narrowed circumstances under which a court could conclude that a refusal to supply access was anticompetitive.[25] However, other jurisdictions, including the European Union and China, have an essential facilities doctrine under which it is possible for business users to claim that a denial of, or reduction in service or access, by a platform is anticompetitive, and to require access on a FRAND basis.[26]

The value of the litigation option to business users of free platform services arises in several different ways. As a result of a complaint a court or competition authority may require the platform to make changes in its business terms that would benefit the complainant. The complainant may also be able to obtain concessions from the platform, including monetary compensation, to withdraw a complaint or not to file it in the first place. In addition, the United States allows complainants to obtain treble damages.

The expected value of the litigation option varies depending on the circumstances of the entrepreneur and the platform and can evolve over time. The value of the option becomes higher over time as the platform becomes more successful. As the platform becomes more successful there is a higher likelihood that the courts and competition authorities will find that it is a dominant firm. The value of the option is also higher for firms that anticipate potential difficulties which would have a large effect on their profits and that they can blame on the platform. In fact, the option provides a valuable hedge against the risk of failure.

B. Large Numbers

Almost every significant business in the United States has a website. Most major brands in the United States also have a Facebook merchant page.[27] A recent survey found that more than 75 percent of independent restaurants and more than 95 percent of all chain restaurants

[25] *Verizon Communications Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398 (2004).

[26] *See* Christian Ahlborn & David S. Evans, *The Microsoft Judgment and its Implications for Competition Policy Toward Dominant Firms in Europe*, 75(3) Antitrust L.J. 887, 926 (2009); Freshfields Bruckhaus Deringer, *China Issues Guidance on Anti-Competitive Practices* 2, (Jan. 2011) http://www.freshfields.com/publications/pdfs/2011/jan11/29540.pdf,

[27] BrightEdge, *BrightEdge Says 61 Percent of World's Top Brands Create Google+Pages in Just One Week* (Nov. 16, 2011), *available at* http://www.brightedge.com/2011-11-16-BrightEdge-November-SocialShare (last visited Mar. 15, 2011).

The value of the litigation option becomes higher over time as the platform becomes more successful.

have Facebook merchant pages.[28] The number of business users of Facebook and Google just in the United States likely exceeds 5 million.[29] As Table 1 describes, other platform businesses that provide free services also have thousands, if not millions, of business users.

The large number of business users of multi-sided platform services, combined with the fact that these platforms could be defined as dominant firms, impose a high risk of antitrust scrutiny, and the possibility of a catastrophic result, on these platforms. Suppose, for example, that the probability of a business filing an antitrust complaint is .01 percent (i.e., 1 out of 10,000 businesses files a complaint). The expected number of complaints would be 1 with 10,000 business users, 10 with 100,000 business users, and 100 with 1 million business users.

A slight increase in the propensity to sue as a result of adverse selection can yield a significant increase in the number of complainants in the case of multi-sided platforms that offer free services. Suppose, for example, that the probability of a business exercising the litigation option increases by .001 percent (i.e., from 1/10,000 to 1/100,000). The expected increase in the number of complainants would be only 1 with 100,000 business customers, but would be 10 with 1,000,000 business customers and 100 with 10,000,000 business customers.

Table 2 reports estimates of the expected number of complaints per year for various assumptions concerning the number of businesses and the likelihood of any business filing a complaint. The number of complaints is significant with even very small probabilities of complaints.

[28] Restaurant Sciences LLC Online Presence Survey, March 2012.

[29] U.S. Census Bureau, *Statistics about Business Size (including Small Businesses)*, http://www.census.gov/econ/smallbus.html (last visited Mar. 23, 2012).

Table 2: The Number of Complaints by Free Platform Users

ANNUAL PROBABILITY OF COMPLAINT				
	0.0001%	0.001%	0.01%	0.1%
NUMBER OF BUSINESS USERS	**ANNUAL NUMBER OF COMPLAINTS**			
10,000	0	0	1	10
100,000	0	1	10	100
1,000,000	1	10	100	1,000
2,000,000	2	20	200	2,000
5,000,000	5	50	500	5,000
10,000,000	10	100	1,000	10,000

C. Adverse-Selection[30]

Businesses realize there are benefits and costs of relying on free services provided by a platform. Platforms tend to attract businesses that want free services either because investors have not been willing to fund the entrepreneurs adequately or because the entrepreneur themselves are not confident enough in their own prospects to invest themselves. Assuming these expectations are correct, and there is no apparent reason they would not be, these "liquidity-constrained" business are more likely to encounter business problems. As a result there is adverse selection into relying on free platform services. More vulnerable businesses are more likely on average to sort themselves into working with a platform that provides free services and into relying more on those free services.[31]

[30] The arguments in this section are developed more fully in David S. Evans, *Excessive Litigation by Business Users of Free Internet-Platform Services*, University of Chicago Institute for Law & Economics Olin Research Paper No. 603 (August 7, 2012). *Available at* SSRN: http://ssrn.com/abstract=2085029.

[31] This is the well-known "self selection" problem that has been studied by economists extensively on the context of labor markets. *See* A.D. Roy, *Some Thoughts on the Distribution of Earnings*, 3 Oxford Econ. Papers, 135 (1951) (presenting what is now considered the classic model of self-selection in labor markets).

The point is not that entrepreneurs that rely on free platform services are mainly poor or vulnerable entrepreneurs. Rather, the thesis is that platforms tend to pull more of these liquidity-constrained firms, which tend to have lower *a priori* odds of success, into their free programs.

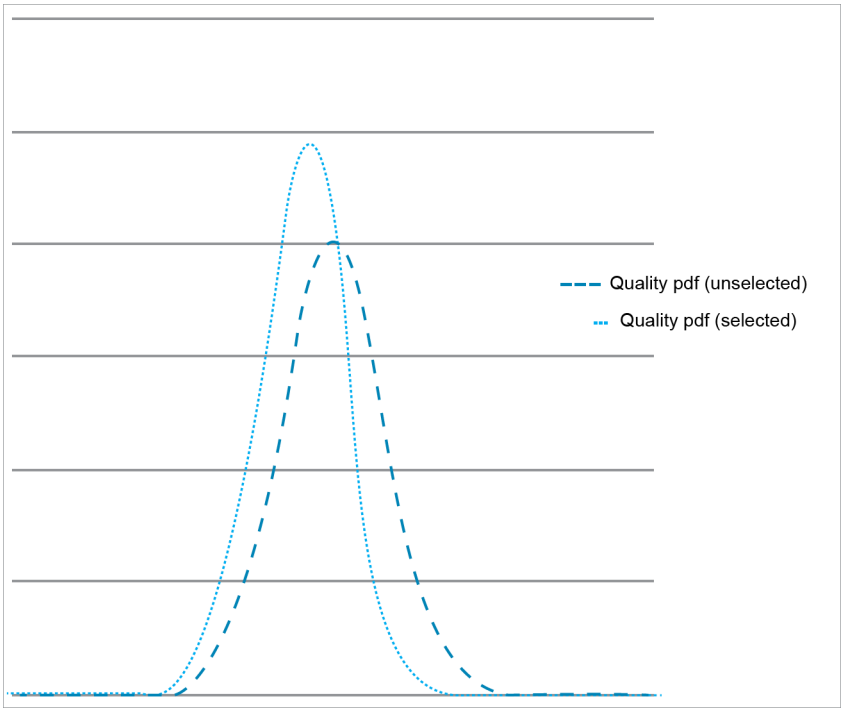
For illustrative purposes suppose, as shown in Figure 1, there is a metric of "quality" for entrepreneurs that stands-in for the likelihood that the business will be successful.[32] There are many high quality entrepreneurs that rely on free platform services and many low quality entrepreneurs that do not. The adverse selection problem results in the "average" entrepreneur that relies on free platform services having, however, a lower quality than the average entrepreneur in the population. It also results in the fraction of low quality entrepreneurs being higher for businesses that rely on free platform services than for the population overall.[33]

As a result of adverse selection, platforms that provide free services will tend to have a disproportionate number of businesses that do not do well. These businesses are more likely to complain for two reasons. They are more likely than successful businesses to be able to claim that they have been injured as a result of something the platform has done. The value of the litigation option is also higher for them.

[32] Of course, in reality, many factors influence the likelihood that a business will succeed. However, to illustrate the impact of adverse selection it is helpful to use a single hypothetical "quality" measure.

[33] The figure was generated using the following assumptions. Let Q be firm quality and E be everything else that affects the firm's choice of business model. Q and E are both distributed as independent standard normal variables. Let the firm choose a search reliant business model if $Q + E \leq 0$. The lines in the figure represent the density function (pdf) for the distribution of quality in the unselected population of firms and in the population of firms that self-select into search-reliant business models. Simpson's rule for numerical integration was used in the calculation of the selected density. As can be seen in the graph, the selected density assigns more probability mass to the lower quality regions.

Figure 1: Density Function for Selected Versus Unselected Firm Quality



IV. Search-Engine Based Platforms

To document the phenomena discussed above, it is useful to focus on search engines and the businesses that use free services for several reasons. First, there are a number of businesses that use free search engine services and they are economically significant. Many businesses have websites that rely to varying degrees on search engines to direct users to them. Businesses opened websites quickly after the start of the commercial internet in the mid-1990s. Most businesses have websites now. They rely on them to varying degrees from providing a simple listing to being the basis for the entire business. Two industries related to search engines have emerged. In 2010 U.S. eCommerce accounted for $165.4 billion of sales (4.2 percent of all sales)[34] and online advertising accounted for $26.04 billion of advertising spending (20 per-

[34] U.S. Department of Commerce, *U.S.Census Bureau News* Feb. 17, 2011 *available at* http://www2.census.gov/retail/releases/historical/ecomm/10q4.pdf, (last visited March 15, 2012).

Not surprisingly, given the large number of web-based businesses and the number of years they have been in existence, there have been many complaints to the courts and competition authorities.

cent of all advertising spending).[35] Search engines became widely used in the late 1990s and have become an integral part of eCommerce and online advertising businesses.

Second, it is relatively straightforward to measure, and obtain data on, the reliance of these web-based businesses on free platform services. Web traffic can come from viewers finding the site through a **search engine**; going directly to the website, which means they must have some prior knowledge of the site; or being referred there by another site. Yelp, for example, is heavily reliant on search engines while Angie's List is not.

Third, not surprisingly, given the large number of web-based businesses and the number of years they have been in existence, there have been many complaints to the courts and competition authorities. Therefore, it is possible to examine these complaints and the associated businesses to assess the possible importance of adverse selection.

A. Search Engine Business Model

Search engines have three major customer groups:

1. Websites that want people to be able to find them and their content.
2. People that are looking for information and hope to find it on the web.
3. Advertisers that want to present advertisements to people.

The business model is straightforward despite the complexity of the technology. The search engine aggregates content across the web. It uses that content much like any advertising-supported media company would to attract viewers. It then sells access to those viewers to advertisers.

[35] Interactive Advertising Bureau, *IAB Internet Advertising Revenue Report 2010 Full Results, available at* http://www.iab.net/media/file/IAB_Full_year_2010_0413_Final.pdf (last visited March 23, 2012); *Kantar Media, Kantar Media Reports U.S. Advertising Expenditures Increased 6.5 Percent in 2010* (Mar. 17, 2011), *available at* http://kantarmediana.com/intelligence/press/us-advertising-expenditures-increased-65-percent-2010 (last visited Mar. 16, 2012).

Search engines have algorithms that predict the relevance of web pages to the search query that an individual has submitted. Google initially focused on the quality of the web page based on the number and quality of the web pages that linked to the web page using its PageRank measure. It has become far more sophisticated. As of the end of 2011, Google used 200 factors, including PageRank, to select web pages and rank them in response to a query.[36] The results are then presented in order of relevance with results extending to multiple web pages. The probability that a person will click on a result declines sharply with the order in the rankings with a very sharp decline after the results on the first page. Websites that value traffic want to appear on the first page and as high on the first page as possible.

As the search engine business has developed, search engine companies have provided ways for websites to make it easier for the search engines to find the necessary information for ranking the website and therefore to achieve greater visibility in searches. Websites can submit information to the search engine such as a sitemap that the search engine can use to make it easier to find information on the site. Search engines provide websites with tools they can use to make sure that the search engine can find relevant content. They also provide advice on how to design and manage websites to increase the likelihood that users will be able to find relevant content. Search engines do not charge for indexing websites, for the tools or advice they provide to websites to improve their rankings, or for presenting web pages to users.

Because a high ranking generates more clicks, websites often invest in "search engine optimization" ("SEO") to improve their rankings. (These investments are typically not specific to the search engine.) That results in a major source of tension between the search engines and websites. The websites are interested as a business matter in making sales, attracting customers, or obtaining users for selling advertising. Websites all want to obtain high rankings but, of course, a higher rank for one is a lower rank for another. They therefore have incentives to trick the search engines into thinking that they are more relevant than they really are.

The search engines are interested as a business matter in attracting users. They do that in large part by presenting relevant results to those users. Successful efforts by websites to trick the search engine into thinking a site is more relevant than it is imposes costs on users, and ultimately lowers the reputation of the search engine as a reliable source of information.

[36] Google Webmaster Tools, *Google Basics: Serving results*, http://support.google.com/webmasters/bin/answer.py?hl=en&answer=70897(last visited Feb. 28, 2012).

B. Search Engine Reliance

Websites obtain traffic in several ways. Direct traffic occurs when a user types in the url for the website into her browser or uses a bookmark that directs the browser to go to that website. Search traffic occurs when an individual uses a search engine to conduct a search and as a result clicks on a link that takes him to that website. Referral traffic results when a user clicks on a link from a website that is not a search engine.

When a new website is launched, people who are not affiliated with the website would have no way to know that it exists except by coming across it inadvertently. A website can do various things to become known. Like any business it can engage in marketing activities, including advertising, to let people know that it exists. These activities drive direct traffic. It can also persuade other sites to link to it. Sites refer users to another site because they are providing a service to their users who would benefit from knowing about the other site. Sites also engage in swaps: you refer my site and I will refer yours. Websites can undertake search engine optimization to increase the likelihood that their sites will appear in search results.

The share of traffic that comes from search results provides a proxy for search-engine reliance.[37] Sites that are getting the preponderance of their traffic from direct and referral sources have made investments to establish their brands. Sites that are getting the preponderance of their traffic from search have primarily invested in tactics to increase their search rankings.

Data from compete.com show the distribution of the search shares. The analysis reported here is based on the 15,000 largest websites ranked by traffic and a stratified random sample of 15,000 of the next 1 million most heavily visited websites. The figures have been weighted

[37] It is not a perfect proxy because some people use search toolbars to type in the name of a URL. These navigational searches are similar to typing in the name of the site in the browser. Navigational searches, however, are likely to be positively correlated with direct referrals since they both result from people remembering the name of the site to enter. For example, in the case of Yelp, direct referrals are 5.83 percent of all visits, and navigational searches are 10 percent of all search referrals; in the case of Angie's List direct referrals are 14.74 percent of all visits, and navigational searches are 72 percent of all search referrals. Thus, Angie's List has both a higher share of direct referrals, and a higher share of navigational searches. Compete.com PRO Database, February 2012.

to reflect the sampling and therefore reflect the distribution of the largest 1 million websites.[38]

Table 3 reports summary statistics on these websites. We report total search, which includes some paid search resulting from advertising, because it is most comparable to other data we will report below on the Google complainants. The mean share of non-paid search traffic was 22.7 percent. Two-thirds of the websites (17th percentile through the 83rd percentile) have search shares between 10.4 and 40.9 percent.

Table 3: Distribution of Search Shares

PERCENTILE	NON-PAID SEARCH	TOTAL SEARCH
10th	5.41%	6.91%
20th	9.99%	11.52%
30th	13.64%	16.27%
40th	18.80%	21.13%
50th	22.65%	25.20%
60th	26.82%	28.67%
70th	31.17%	33.29%
80th	37.44%	38.90%
90th	44.80%	47.89%
Median	22.65%	25.20%
Average	25.06%	27.41%

C. Search-Engine Litigation

A number of websites have filed complaints against Google in the courts or before competition

[38] Formally, the sample consists of two strata—15,000 observations from the top 15,000 websites and 15,000 observations from next one million websites. From this sample of 30,000 websites, websites with missing data on the share of search traffic were excluded, leaving 11,892 websites. Even those websites with missing search traffic data included non-missing data on the total number of visits. This enables the estimation of the probability of missing search data using a logit model with data on all 30,000 websites. To appropriately weight the observations with non-missing search data, each observation should be weighted by the inverse of its probability of inclusion in the sample. This can be done, assuming that once the number of visits is controlled for the probability of missing data on search traffic is independent of the search traffic share. Under this assumption, if the fitted probability of non-missing data (from the estimated logit model) for observation i is p_i, then the weight for observation i will be $1/p_i$ if i was from the top 15,000 websites, and $(1/p_i)*(1{,}0000{,}000/15{,}000)$ otherwise.

A number of websites have filed complaints against Google in the courts or before competition authorities alleging that the Google search engine reduced their search rankings or ad placements and engaged in anticompetitive conduct in doing so.

authorities alleging that the Google search engine reduced their search rankings or ad placements and engaged in anticompetitive conduct in doing so. This article focuses on the extent to which these complaints come from businesses that have relied heavily on search engines and the implications of this reliance. It does not address, and takes no position on, the merits of these complaints.

One of the first businesses to sue Google was KinderStart. The complaint, filed in federal court in the United States by this "source of parenting and fun learning information,"[39] is typical of many of the others. Started in May 2000, KinderStart's business model involved attracting viewers to its site and selling advertising to entities that wanted to reach those viewers. To get viewers, it relied on search engines such as Google to list it in response to inquiries by consumers for parental advice. KinderStart claims it had "[s]teady, organic growth in visits and page views."[40] By early 2005, it had more than 10 million page views, a common measure that is used in selling web-based advertising.[41]

According to KinderStart, Google effectively blocked its site starting in March 2005. As a result, KinderStart claimed that its traffic dropped by 70 percent, and its advertising revenue declined by 80 percent. To generate traffic, it had used Google's AdSense program, which paid affiliated websites a share of revenue generated from ads that Google placed on the websites.

A year later, KinderStart sued Google on a number of grounds including violating KinderStart's right to free speech and for engaging in anticompetitive and unfair business practices. KinderStart sought certification of a nationwide class of similarly affected businesses whose websites had been blocked or penalized by Google. This article focuses on the claims

[39] KinderStart – About Us, http://www.KinderStart.com/footerlinks.jsp?articleID=96 (last visited Feb. 13, 2012).

[40] *See* Second Amended Class Action Complaint at 7, *KinderStart.com, LLC v. Google, Inc.*, No. C 06-2057 JF (N.D. Cal. Mar. 16, 2007).

[41] *See* Second Amended Class Action Complaint at 7, *KinderStart.com, LLC v. Google, Inc.*, No. C 06-2057 JF (N.D. Cal. Mar. 16, 2007). The complaint does not provide a date for the peak but it is presumably before the decline in traffic starting in March 2005, which is the subject of the complaint.

that Google had violated Section 2 of the Sherman Act.[42]

KinderStart made several notable observations in its complaint that foreshadowed future allegations against Google:

First, KinderStart claimed that search engines constituted a relevant antitrust market and that Google had monopoly power in this market as evidenced by having a share of more than 50 percent of that market.[43]

Second, KinderStart claimed that its website "is a directory and search engine that offers vital links to information and sites on key subjects affecting young children, including child rearing, child care, child development, food and nutrition, and education . . . ."[44] It claimed that it competed with Google in the search market.[45]

Third, KinderStart characterized Google as "a common carrier that makes a public offer to provide communications facilities for subscribers to freely use its facilities to link to and connect with one or more Websites that are hosted on the Internet."[46] It also asserted that any "[w]ebsite seeking to gain visibility, site traffic and page views must rely upon Defendant Google's Google Engine as an **essential facility** for receiving search query hits."[47]

Fourth, KinderStart claimed that Google attained and maintained monopoly power in the search engine market by reducing the search rank or denying access to its search engine for listings of KinderStart and other websites that competed in the search engine market.[48]

As it turns out, the court dismissed KinderStart's complaints holding that KinderStart failed to plead a relevant antitrust market and failed to allege causal antitrust injury.[49] The case is relevant because it is prototypical of subsequent actions brought against Google and Baidu. When a website experiences a reduction in its rank on Google search results it has become

[42] The discussion below is based on KinderStart's original and amended complaints and the ruling by the court of Google's successful motion to dismiss. The discussion focuses mainly on the Sherman Section 2 claims regarding the search market. *See id*. at 50-53.

[43] *Id*. at 7, 50.

[44] Class Action Complaint at 4, *KinderStart.com, LLC v. Google, Inc*., No. C 06-2057 JF (N.D. Cal. Mar. 16, 2007) (emphasis added).

[45] *Id*. at 10.

[46] First Amended Class Action Complaint at 10, *KinderStart.com, LLC v. Google, Inc*., No. C 06-2057 JF (N.D. Cal. Mar. 16, 2007).

[47] *Id*. at 12 (emphasis added).

[8] Second Amended Class Action Complaint at 51, *KinderStart.com, LLC v. Google, Inc*., No. C 06-2057 JF (N.D. Cal. Mar. 16, 2007).

[49] Order Granting Motion to Dismiss at 16, *KinderStart.com, LLC v. Google, Inc*., No. C 06-2057 JF (N.D. Cal. Mar. 16, 2007).

common for websites to file a complaint which claims that: (1) online "search" is a relevant antitrust market, (2) Google has monopoly power in that market, (3) Google's search engine is an essential facility, (4) the website also does search and therefore competes with Google in the search market, and (5) Google reduced the search rank of the website to maintain a monopoly or dominant position.

To study the relationship between litigation and search reliance, we have identified 21 major complaints that were filed against Google in the United States and European Union. The results are summarized in Table A in the appendix. The majority relate to organic search, which Google provides at no charge. In each case the table identifies the type of website, the main allegation, the venue of the case, and the website's traffic if it was still active. It also reports the percentage of traffic from search and the percentile in the search-reliance distribution for each complainant. A total of 21 complaints were identified. The number of complainants is minute relative to the number of businesses that obtain free website indexing and search from Google (there were about 662 million active websites worldwide as of May 2012). Of the 21 complainants it was not possible to obtain search data for three. Of the 18 complaints for which search data were available, six were in the top 10 percentile of the distribution of search reliance and 13 were in the top 40 percentile of the distribution. The complaints against Google therefore came disproportionately from firms that had extreme search reliance: 33 percent of the complaints for which there was data (6 out of 18) were in the top 10 percent of the distribution and 72 percent (13 out of 18) were in the top 40 percent. These results, however, are based on data after the complaints were filed in most of these cases. Since many of the complaints claim reductions in search rankings it is likely that the search shares were even higher before the complaint was filed.[50]

V. THE IMPACT ON SOCIAL WELFARE OF THE ADVERSE SELECTION AND LARGE NUMBERS PROBLEM

As noted earlier, multi-sided platforms are often economically significant firms. They have the same temptations as any powerful firm does to engage in harmful behavior. Competition

[50] Judging by their complaints, KinderStart and TradeComet were even more dependent on search than indicated here. KinderStart claimed that after Google reduced its search ranking, its page views plummeted to 30 percent of previous levels (Second Amended Complaint at ¶ 31), implying search dependence of greater than 70 percent. Similarly, TradeComet claimed that after Google raised the minimum AdWords bids required from TradeComet, traffic to its webpage dropped to 1 percent of its previous level (Complaint at ¶ 8), implying search dependence of 99 percent.

authorities, for example, should monitor these firms for all the same reasons they consider other significant companies. The adverse selection and large number problems, however, can generate numerous complaints from firms that have experienced problems largely because of their own failings but have chosen to exercise their litigation option opportunistically against the platform.

If courts and competition authorities had perfect information they could simply identify which complaints have merit and which do not. In practice, these decision makers do not have perfect information and therefore need to determine how much effort they should expend looking into these complaints. Even after investigation and adjudication they would not have perfect information and could, on occasion, condemn pro-competitive practices—what is known in error-cost analysis as a "false positive."[51]

This section argues that if competition authorities and courts ignore the adverse selection and large number problems, multi-sided platforms would be subject to excessive litigation and false positive decisions, which would reduce social welfare. The next section then describes how competition authorities and courts should adjust their decisions on allocating scarce resources—and ultimately their screens for assessing anticompetitive behavior—given these problems. In both cases, the analysis applies beyond competition authorities to any consideration of government policy towards multi-sided platforms based on complaints by users of free business services.

A. Adverse Selection, Large Numbers, and False Positives

Most antitrust cases arise from complaints by firms. In the United States, most antitrust litigation results from private lawsuits; firms bring most of these lawsuits with the exception of class action price-fixing cases involving consumer goods.[52] In most jurisdictions, competition authorities pursue cases as a result of complaints brought by firms. In the European Union the European Commission receives complaints and must make specific decisions on whether or

[51] This is also known as a Type II error. See Frank H. Easterbrook, The Limits of Antitrust, 63 Tex. L. Rev. 1 (1984); David S. Evans & A. Jorge Padilla, Designing Antitrust Rules for Assessing Unilateral Practices: A Neo-Chicago Approach, 72 U. Chi. L. Rev. 72, 73 (2005); Richard Posner, Economic Analysis of Law (8th ed. 2010).

[52] In the 12-month period ending March 31, 2011, private antitrust actions accounted for 537 out of the 555 antitrust cases filed in the federal courts (97 percent). Administrative Office of the U.S. Courts, Federal Judicial Caseload Statistics 2011, Table C-2, available at http://www.uscourts.gov/Viewer.aspx?doc=/uscourts/Statistics/FederalJudicialCaseloadStatistics/2011/tables/C02Mar11.pdf

If competition authorities and courts ignore the adverse selection and large number problems, multi-sided platforms would be subject to excessive litigation and false positive decisions, which would reduce social welfare.

not to pursue those complaints.[53] In the United States, although the Justice Department and the Federal Trade Commission do not have any obligation to pursue complaints, many of the monopolization cases they do pursue arise from complaints by businesses.

The previous sections have shown that several factors can result in competition authorities receiving large numbers of complaints concerning multi-sided platforms. Firms can fashion complaints that articulate a superficially plausible antitrust claim. Changes in platform rules can harm some of the business users of free platform services. A portion of those users may exercise their litigation option and file a complaint in court or before a competition authority. Although the likelihood that any particular user of free platform services files a complaint may be very low, because of the large numbers involved for some platforms, the cumulative likelihood that at least one complaint arises can be very high. In fact, as shown earlier, when a platform serves millions of businesses, a very small probability that a business will sue can result in hundreds of complaints and the virtual certainty of someone complaining.

These complaints are likely to come disproportionately from businesses that had relatively low *a priori* odds of success and, because of liquidity constraints, relied on free platform services relatively more than more successful companies. When a platform makes a change that harms some users the ones who use it the most are likely to be harmed the most. The businesses that are overly reliant on the platform are also likely to be more vulnerable businesses and therefore more likely to be pushed over the edge, into failure, as a result of the changes. The litigation option may be their only asset.

In the United States and other jurisdictions that allow private plaintiffs to recover treble damages businesses tend to have higher valued litigation options—all else equal—if they have been adversely affected by the platform change and rely heavily on the platform. In other jurisdictions these businesses may be able to secure concessions from the platform as a condition of not filing a complaint or withdrawing a complaint that has been filed.

[53] Council Commission Notice on the handling of complaints by the Commission under articles 81 and 82 of the EC treaty O.J. (C 101) 65-77.

The argument is not that cases brought against platforms necessarily lack merit. However, large multi-sided platforms that provide free services are likely to be subject to many complaints from firms that have failed as a result of their own low quality combined with decisions to rely mainly on the provision of free platform services. These firms are opportunistically using their litigation option to obtain compensation for problems they have, in effect, caused themselves. As noted, if courts and competition authorities had perfect information they could simply screen these cases out.

Information is imperfect, however, and it only takes one complaint to lead to a negative and possibly catastrophic outcome for the platform. Here is where the large number problem raises the stakes for multi-sided platforms. Suppose there is a 99 percent probability that the court or competition authority will reject a complaint that lacks merit and a 1 percent probability that it will rule in a complainants' favor, even though its complaint lacks merit. Consider a platform that has 1 million business users. The platform could expect to face 100 complaints if there were a .01 percent (i.e., 1/10,000) probability of a business user filing a complaint. Assuming the decisions on complaints are independent, one would expect that these 100 complaints would lead to one false positive.

While one could debate the specifics of this calculation, in both directions, the point is that as the number of business users increases, the probability of false positives increases. For platforms with millions of users each year, the probability of a false positive, over the duration of putative dominance, could approach certainty under plausible assumptions.

If antitrust lawsuits were simply about paying damages this result would not be of much concern. It would just be a cost of doing business for the platform. The problem is that a decision by a competition authority or court can apply to other business users of the platform in similar circumstances. That can result from either behavioral remedies[54] or a decision by the platform to change certain behavior to avoid costly litigation and damages in the future.[55]

B. False Positives and Negative Externalities

When a false positive arises, by assumption, the multi-sided platform has not engaged in an-

[54] For example, Microsoft was required to make certain information available to firms to facilitate their interoperating with Microsoft's Windows server operating system and to distribute a version of Windows that did not include certain media playing functionality. *See* Case T-201/04 R, Microsoft v. Comm'n, [2004] E.C.R. II-4463.

[55] *See* Claudine Beaumont, Microsoft and EU reach browser settlement, Telegraph (Dec. 16, 2009), *available at* http://www.telegraph.co.uk/technology/microsoft/6825561/Microsoft-and-EU-reach-browser-settlement.html.

ticompetitive behavior. In this case one can infer that the platform has adopted business practices, including decisions involving managing positive and negative externalities and balancing the sometimes competing interests of platform members, to maximize profits.[56] Economic theory finds that, although the balance struck by multi-sided platforms may not exactly equal the socially optimal balance, the direction and magnitude of the bias (if any) will depend in a complicated way on a host of hard-to-measure factors (such as marginal costs on all sides, demand elasticities on all sides, and the intensity of competition for end-users on all sides) and that there is no reason to believe that multi-sided platforms in general exhibit a substantial bias towards a particular side.[57]

Facebook, for example, has to balance the interests of the people who use its platform to send and receive communications, the merchants and other users that are interested in reaching these people, advertisers interested in reaching these users, and application developers. Almost any decision that Facebook makes concerning access to a user's News Feed can have an impact on the user, the user's friends, advertisers, merchants, and developers.

Platforms are likely to alter the balances they strike between different parts of the community when courts or competition authorities reach a false positive decision. In this case the court or competition authority would have reached a conclusion that a business practice involving one side of a multi-sided platform is unlawful. The platform would suspend the practice either as part of a behavioral remedy or to avoid future penalties.

Suppose, for example, Google were compelled to change its practices for ranking websites, or for punishing websites that violate its practices. Some websites would necessarily do better in the rankings but others would do worse and would therefore lose. In addition, to the extent

[56] *See generally* Rochet & Tirole, *supra* note 5; Weyl, *supra* note 4. For a platform with market power there are two possible sources of welfare loss. One is the usual welfare loss resulting from the exercise of market power, which results in the elevation of overall prices. The other is a possible welfare loss which results in tilting the price structure in such a way that one side is bearing more, and another side less, of the cost of operating the platform that a social welfare maximizing regulator would.

[57] Rochet & Tirole, *supra* note 5. Some authors have identified specific exceptions, such as with payment cards, where under some assumptions the profit-maximizing platform operator may tilt prices more towards one side more than a social welfare-maximizing platform operator would. See Özlem Bedre-Defolie & Emilio Calvano, Pricing Payment Cards (ESMT, Working Paper No. 10, 2010), at 5-6. Calvano observes, however, that even under these assumptions the privately and socially optimal prices are unlikely to differ dramatically. *See* Emilio Calvano, Note on the Economic Theory of Interchange, Comment on the Federal Reserve's Proposed Regulation II (2011), *available at* http://www.federalreserve.gov/SECRS/2011/March/20110328/R-1404/R-1404_030811_69122_621890579792_1.pdf.

that Google's ranking decisions were correct to begin with, consumers would get lower quality search results. If consumers reduced their use of search because of this reduction in quality then advertisers would have less ability to reach these consumers.[58]

False positive decisions cause negative externalities and thereby reduce social welfare. Platforms seek to maximize the value of the platform to the members after taking into account positive and negative externalities between these members. When one of these decisions is reversed it is likely that the platform will either create fewer positive externalities or more negative externalities. That could result directly from reversing rules that generate positive externalities among members by, for example, making it easier for them to get together and interact or that suppress negative externalities by, for example, discouraging members from disseminating bad information. That could also result indirectly from changing pricing decisions or rules that reduce platform participation by some members. For example, suppose the platform is required to increase prices to a group of platform participants. The platform would have chosen prices given the positive externalities between members to maximize the value of the platform. By raising prices to one group, the platform would reduce their participation, and by reversing positive feedback effects, would reduce the value of the platform to other groups.

C. The Impact of False Positives on Platform Decisions, Design, and Innovation

A false positive decision can have spillovers from the narrow matter that was under consideration for that decision. It can set a precedent that the platform must abide by in other related decisions. A decision concerning platform practices or rules concerning the use of free services by businesses can directly affect those practices or rules. A decision may enjoin a particular type of practice. A decision can also lead the platform to modify other practices or rules that seem like they would be subject to similar complaints and thus similar adverse decisions. A false positive decision can also set a precedent that raises the likelihood that similar practices and rules adopted by other platform companies will be subject to adverse decisions. Other platforms will therefore alter those practices and rules in anticipation of costly litigation and negative rulings.

The primary cost of false positive decisions arising from the adverse selection and large number problems, however, involves distortions in decisions that platforms, and their entrepreneurs, make prospectively concerning the adoption of business models, the direction of in-

[58] Gord Hotchkiss, *Why Results Quality is So Important to Search Engines*, Search Engine Land (May 20, 2011), http://searchengineland.com/why-results-quality-is-so-important-to-search-engines-77957; *In Search of the Perfect Search: Can Google Beat Attempts to Game the System?*, Knowledge@Wharton (Mar. 16, 2011), http://knowledge.wharton.upenn.edu/article.cfm?articleid=2731.

novation, and governance rules. The thesis of this article is that these problems result in a high probability, if not a certainty, that large, global multi-sided platforms will face false positive decisions concerning the business users of the platform. That expectation could lead platforms to increase the price to business users to compensate for the risks and incremental costs they will bear, to avoid innovations that could harm some business users, and to vertically integrate into applications rather than relying on an open platform. At the margin the likelihood of false positive decisions—i.e., adverse decisions over pro-competitive business practices—reduces the incentives to start platforms or to consider platform models that involve providing services for free to businesses.

Any reduction in the supply of free business services by multi-sided platforms could have knock-on effects on innovation. An open platform model in which entrepreneurs are encouraged to develop applications and other complementary products decentralizes innovation. This type of model moves the control of the direction and pace of innovation from the platform owner to a large population of entrepreneurs.[59] This fact is seen from the success that several of the global multi-sided platforms have had as shown in Table 1. It is hard to imagine a centralized firm accomplishing so much innovation in such as short space of time.

D. Impact on Competition Authority Resource Allocation

The large number and adverse selection problems could result in a further inefficiency. Uncorrected, these problems could lead antitrust authorities into misallocating their resources and investigating multi-sided platforms more than other industries that have the same or higher likelihoods of having engaged in wrongdoing. Given that competition authorities have scarce resources, the failure to adjust decisions to pursue cases given these phenomena would result in underinvestment in pursuing other complaints.

To see the essence of the problem consider a competition authority that has to evaluate whether to invest resources on the investigation of various companies. Company A is a global multi-sided platform that provides free business services and Companies B and C are not multi-sided platforms. All three firms have the same revenue and market value. The authority has 20 complaints against company A, only one against company B, and none against com-

[59] Joel West & Scott Gallagher, *Challenges of open innovation: the paradox of firm investment in open-source software*, 33 R&D Manage. 319, 320 (2006); Georg von Krogh et al., *Community, joining, and specialization in open source software innovation: a case study*, 32 Research Pol'y 236, 237 (2003).

pany C. All else equal the authority might conclude that the agency should focus on company A because of the volume of complaints. But company A could be subject to many complaints as a result of the large number and adverse selection problems. There is no a reason, *a priori*, to believe that company A is more likely to have engaged in anticompetitive behavior than companies B or C.

At the margin the likelihood of false positive decisions reduces the incentives to start platforms or provide services for free.

VI. HEIGHTENED ANTITRUST SCRUTINY OF COMPLAINTS BY BUSINESS USERS OF FREE MULTI-SIDED PLATFORM SERVICES

This article proposes that courts and competition authorities should impose a higher level of scrutiny on complaints brought by business users of free multi-sided platform services. Before describing what this means in practice it is helpful to emphasize that the proposal itself is modest. There is no suggestion that antitrust decision makers should ignore possible antitrust violations by multi-sided platforms, much less give them a free pass. Some of these platforms are economically significant and anticompetitive actions by them could impose serious harm. Nor does this article suggest that competition authorities or courts should presume that platform business practices concerning business users of free platform services are pro-competitive.

However, this article has shown that the litigation option, adverse selection, and large number phenomena are likely to lead to false positive decisions against multi-sided platform providers of free business services and that those false positives, and the anticipation of them, reduce social welfare. The reduction in social welfare could be significant since it could lead to an increase of negative externalities on large multi-sided platforms that are subject to an adverse decision and because it could have follow-on effects on innovation and decisions at other, including formative, multi-sided platforms.

A. How Decision Makers Should Adjust Their Assessments

The first part of the proposal is that courts and competition authorities should consider the litigation option, adverse selection, and large number phenomena in forming judgments con-

cerning the weight that a particular complaint by a business user of free plaintiff services should be given.[60] Courts and competition authorities ultimately need to make judgments on whether or not to pursue a complaint. In the United States, courts have to decide motions to dismiss a complaint and motions for summary judgment.[61] Competition authorities in all jurisdictions need to decide how to allocate resources across different industries. They must also choose which complaints to pursue and how aggressively. Whether they acknowledge it or not, these decisions are based in part on judgments concerning the weight to be accorded to various kinds of evidence and, ultimately, the likelihood that further consideration will uncover anticompetitive behavior.

Any particular complaint against a multi-sided platform that provides free services may result from a low-quality business that has failed largely through its own shortcomings, opportunistically exercising their litigation option. That probability increases with the number of businesses that use free platform services. Moreover, competition authorities and courts should discount multiple complaints, at a point in time or over time, against a multi-sided platform provider of free business services according to the number of business users served by a platform. It would be wrong to infer that multiple complaints necessarily suggest a pattern of anticompetitive behavior or signal a serious problem, given the very larger number of entities that interact with the platform.

B. Heightened Scrutiny of Complaints

The analysis set forth indicates that courts and competition authorities could reduce the likelihood of reaching a false positive decision by taking the following factors into account in assessing a complaint:

- The extent to which the harm alleged by the complainant is the result of business practices engaged in by the platform versus the failings of the complainant itself. For this purpose it is useful for the decision maker to examine the quality of the business including the entrepreneur, the management team, the business model, business execution, and financial backing.

[60] D.H. Kaye, *Burdens of Persuasion: What Bayesian Decision Rules Do and Do Not Do* 3 Int. J. Evid. Proof 1 (1999).

[61] Such motions are decided according to the tests set out in *Bell Atlantic Corp. v. Twombly*, 550 U.S. 544 (2007) and Ashcroft v. *Iqbal*, 556 U.S. 662 (2009).

- The number of business users of free platform services. With a large number there is a higher probability that the particular complaint is an aberration, due to the peculiarities of the business in question, and not evidence of anticompetitive behavior.
- The impact of enjoining the behavior on other platform users. That should consist of other business users as well as other sides of the business. A change in business practices that benefits particular types of business users, but harms other business users and other platform users, would likely decrease social welfare.
- Whether the decisions regarding the complainant follow a governance system for reducing negative externalities. In this case there is a strong presumption that the decision is pro-competitive and the burden should be placed on the complainant to show that it is not.[62]

These factors could be taken into consideration at any stage of the analysis. For competition authorities these factors would be taken into account at the point of deciding whether to devote resources to a complaint, whether to move a complaint into a full-fledged investigation, whether to pursue a complaint, what issues to focus on, and which behavioral remedies to advocate. For U.S. courts these factors would be considered during procedural phases (motion to dismiss and summary judgment) as well as during consideration of the merits of the case and remedies.

C. Application to Search Litigation

In the case of the Google search litigation this analysis indicates that the courts or competition authorities should take several factors into account in considering complaints.

1. **The relative number of complainants**. Google has provided free listing and search services to millions of business websites for more than a decade. The number of complainants relative to the population of businesses that have obtained similar free services from it is extremely low. It also appears that

[62] *See* David S. Evans, *Governing Bad Behavior by Users of Multi-Sided Platforms*, 27(2) Berkeley Tech. L. J. (Autumn, 2012).

Some of these businesses have pursued complaints against Google in part because they have received help from one of Google's competitors.

some of these businesses have pursued complaints against Google in part because they have received help from one of Google's competitors.[63] In effect, a platform competitor has in effect purchased the "litigation options" of these businesses to impose costs.

2. **Search dependency**. It appears that most of the companies that have filed complaints against Google (in contrast to other sites) are highly search dependent. About a third of the complainants had developed businesses that relied almost entirely on search for traffic to their websites. That is consistent with these businesses having decided that, given their abilities and their ideas, it was not worth investing in branding that would attract direct traffic.

3. **Adverse selection**. Many of the complaints concern reductions in search rankings. These have mainly come from web sites pursuing business models offered by many similar sites. These firms would not have had a high likelihood of success—since such "me-too" sites do not generally—regardless of changes in their search rankings. In addition to relying excessively on search, these businesses perhaps ran into difficulties for the same reason that other business do that fail to distinguish themselves.

4. **Alleged harm results from governance system**. Most of the complainants claim that they were harmed as a result of Google either reducing their search ranking as a punishment or as a result of Google changing its algorithms. Having a governance system that counters the incentives of websites to engage in self-serving manipulation of their rankings is economically efficient. As noted earlier, complainants should bear a heavy burden in challenging practices that result from the application of a platform governance system. In particular,

[63] *Microsoft Encourages Google Antitrust Complaints*, Utility Exchange (Mar. 1 2010),http://www.utility-exchange.co.uk/microsoft-encourages-google-antitrust-complaints-5445/.

a complaining party should be required to certify that the information provided to the agency is, to their knowledge, accurate. The agencies should also establish a mechanism for sanctioning third parties that mislead the agencies into imposing costs on other parties.[64]

By providing free services multi-sided platforms stimulate a great deal of effort by entrepreneurs. But they also tend to attract firms that cannot secure funding or that do not want to invest because of the risk.

5. **Negative externalities**. As a general matter it is economically efficient for search engine platforms to penalize websites that artificially inflate their rankings and to modify their algorithms to reduce the ability of websites to game the system. Moreover, it is impossible in the real world to design governance systems that have zero false positives—just as it is impossible to design a legal system to have zero false positives. Action by a court or competition authority that would discourage the use of these economically efficient methods would impose negative externalities on the other platform participants including websites (some of whom would have lower rankings in the absence of methods to deter opportunistic efforts to increase rankings) and search users (who will obtain less relevant search results).

This article does not argue that these factors by themselves should lead to the dismissal of complaints against Google or other search engines in similar situations. Rather, the point is that courts and competition authorities should consider these factors in their decision making.

VII. CONCLUSIONS

In the last two decades one of the most remarkable developments in the history of business has occurred. Multi-sided platforms, operating globally, have developed internet-based software that enables businesses to access hundreds of millions of consumers who also use these

[64] Although the agencies have tools to punish particularly egregious conduct, these additional measures would provide additional protections that both conserve agency resources and protect targets and third parties from opportunistic abuses. If a party is dissuaded from submitting a complaint because of the requirement to swear as to its veracity, the agencies likely are better off not having received it.

platforms for services. These platforms not only provide this access for free, in many cases, but also provide other assistance to help these businesses. Millions of businesses use free services provided by firms such as Facebook and Google. In some cases these multi-sided platforms provide extensive software assistance that enables entrepreneurs to develop businesses based on applications that work with these platforms. Hundreds of thousands of applications have been created by software platforms that run on personal computers, mobile devices, or in the cloud.

By providing free services multi-sided platforms stimulate a great deal of effort by entrepreneurs. But they also tend to attract firms that cannot secure funding or that do not want to invest because of the risk. Many of these entrepreneurs who rely on free platform services may be highly capable. But there are reasons to believe that platforms that provide free business services attract entrepreneurs that want to rely on free services because the entrepreneurs and potential investors do not have enough confidence to risk losing their capital investments. As a result, when the platform makes changes that adversely affect some business users, these low quality firms are the ones most likely to complain. In some cases, changes made by the platform push them into bankruptcy or would if they could not get a reprieve. The only asset they have left is a litigation option.

The fact that multi-sided platforms serve very large numbers of business users raises a further problem. These large numbers increase the likelihood that changes made by a platform will cause some business to file a lawsuit. It takes only a miniscule propensity to sue to generate a complaint—indeed many complaints—given the large numbers of businesses served. Furthermore, when applied to a very large number of businesses the adverse selection of entrepreneurs into reliance on free business services results in a significant number of complaints coming from relatively poor businesses that are exercising their litigation option.

Competition authorities and courts should take the litigation option, adverse selection, and large number phenomena into account in evaluating complaints. Otherwise global multi-sided platforms will be swamped with litigation in multiple jurisdictions around the world. Unless courts and competition authorities make adjustments in their decision making, these platforms are virtually guaranteed that they will be subject to a false positive decision at some point. These false positive decisions would result directly in the reduction in social welfare created by the targeted multi-sided platforms, which would have to rebalance business practices in ways that would necessarily harm some non-complaining users. They would also tend to

discourage multi-sided platforms from operating open platforms that provide free services to business users and discourage multi-sided platforms from engaging in legitimate balancing decisions.

APPENDIX TABLE

Examples of Antitrust Complaints Against Google's Search Engine [i]

Complainant	Service	Year	Allegation	Venue	Monthly Unique Visitors	Percent of Visits from Search	Search Percentile
Search King	Search	2002	Demotion of search ranking	US	1,447	33%	69th
KinderStart	Parenting resources	2006	Demotion of search ranking	US	807	52%	92nd*
Christopher Langdon	Blog	2006	Refusal to place ads	US	Defunct	-	-
Carl Person	Vertical search	2006	Manipulation of AdWords auctions; favoring other sites	US	2,165	65%	97th
Trade Comet	Business directory	2009	Manipulation of AdWords auctions; favoring other sites	US	2,701	72%	97th
myTriggers	Comparison shopping	2010	Manipulation of AdWords auctions	US	6,155	72%	97th
D'Agostino	eCommerce	2010	Mistaken identification as duplicate site, resulting in a reduction in search ranking	US	Defunct	-	-
Yelp	Local reviews	2010	Favoring Universal Search; excessive utilization of complainant's content	US	16,316,263	50%	91st
TripAdvisor	Travel	2010	Favoring Universal Search	US/EU	13,802,658	31%	65th
Expedia	Travel	2010	Favoring Universal Search	US/EU	33,706,382	13%	23rd
Kayak	Travel	2010	Favoring Universal Search	US	6,569,610	17%	31st
Nextag	Comparison shopping	2010	Favoring Universal Search	US	18,176,620	34%	71st
Ciao	Shopping portal	2010	AdSense exclusivity and other restrictions	EU	-	33-40%	69th – 82nd

Foundem	Comparison shopping	2010	Demotion of search ranking; Favoring Universal Search	EU	-	46%	88th
1PlusV	Vertical search	2010	Removal of webpages from Google's index; Demotion of search ranking	EU	-	56-73%	94th – 98th
Deal Du Jour	Deals	2011	Demotion of search ranking	EU	-	27%	53rd
HotMaps	Online maps	2011	Demotion of search ranking; favoring Universal Search	EU	-	41%	83rd
nntp.it	Newsgroups	2011	Demotion of search ranking	EU	-	13%	23rd
Elf Voetbal	Football resources	2011	Favoring Google OneBox	EU	-	10%	16th
Interactive Lab	Referral services	2011	Manipulation of AdWords auctions	EU	-	-	-

[i] Traffic is visits from U.S.-based browsers in January 2012 as reported by Compete.com. For U.S. websites, the search percentage is the percentage of visits from U.S.-based browsers referred by search engines, taken from Compete.com if available, and from Hitwise US otherwise. For E.U. websites, the search percentage is the percentage of visits from browsers worldwide referred by search engines, taken from Alexa.com. Regardless of the source of the search percentage data, the search percentile is found by comparing the search percentage to the distribution of search percentages computed from Compete.com data as described in the text. In cases where the complainant discussed multiple websites for which data were available, the table shows a range of search percentages. Note that due to differences in data sources, the search percentages reported here for KinderStart and Trade Comet differ somewhat from the search percentages reported in the Complaints, *supra* note 50. Also note that the search data reported here includes both paid search and navigational organic search. For most of these websites, the split between the different types of search is unavailable. As a consequence, the search percentages reported here are overstated relative to non-navigational organic search. But since the percentile rankings make the apples-to-apples comparison of total search percentage for these websites to the overall distribution of total search, this problem is alleviated when looking at the rankings. There may be some remaining difference if the ratio of non-navigational organic search to total search is substantially different for the complainants than for the general sample of websites. In our sample of websites, paid searches constitute only 9 percent of total searches on average, and other studies have found that navigational searches are infrequent relative to total searches (Brian J. Jansen, Danielle L. Booth & Amanda Spark, Determining the Informational, Navigational, and Transactional Intent of Web Queries, 44(3) Info. Processing & Manage. 1251 (2008), so this effect is likely to be small on average, and there is no particular reason to expect it to work in either direction

AN INTRODUCTION TO TYING, FORECLOSURE, AND EXCLUSION BY M.D. WHINSTON

*Eliana Garcés**

ABSTRACT:

After its publication in 1990, Michael Whinston's article on Tying, Foreclosure, and Exclusion quickly achieved fame for being the first formal mathematical demonstration that the practice of tying two separate products in a sale had the potential to foreclose competition and could therefore be used for such a purpose. The paper demonstrated that it was possible, under certain conditions, to use the monopoly power in one market to foreclose competitors in another market, as long as that other market had fixed costs to entry and was not perfectly competitive. Whinston's paper quickly became the reference paper for those who instinctively believed that the commercial tying of two products in different markets could have a harmful effect on consumers. Because this presumption was under heavy assault at the time when the article was published, its results and the arguments it laid out were greeted with particular enthusiasm by some and, in all cases, with a lot of interest.

I. Introduction

After its publication in 1990, Michael Whinston's article on *Tying, Foreclosure, and Exclusion*[1] quickly achieved fame for being the first formal mathematical demonstration that the practice of tying two separate products in a sale had the potential to foreclose competition and could therefore be used for such a purpose. The paper demonstrated that it was possible, under certain conditions, to use the monopoly power in one market to foreclose competitors in another market, as long as that other market had fixed costs to entry and was not perfectly competitive. Whinston's paper quickly became the reference paper for those who instinctively believed that the commercial tying of two products in different markets could have a harmful effect on con-

[1] Originally published in *The American Economic Review*, Vol. 80, No. 4 (Sep., 1990), pp. 837-859. Reprinted in this Autumn 2012 issue of the *CPI Journal* by special permission of the American Economic Association, The *American Economic Review*.

* Eliana Garcés is a member of the Cabinet of the Vice-President of the European Commission in charge of Competition Policy. Comments should be construed to be her own and in no way reflect the position of the European Commission.

Whinston's paper quickly became the reference paper for those who instinctively believed that the commercial tying of two products in different markets could have a harmful effect on consumers.

sumers. Because this presumption was under heavy assault at the time when the article was published, its results and the arguments it laid out were greeted with particular enthusiasm by some and, in all cases, with a lot of interest.

II. The *Per Se* Treatment of Tying Practices in Antitrust Law

The idea that tying was a coercive practice that hurt the proper functioning of markets had a long history and was particularly ingrained in the legal profession. Since 1922, the jurisprudence in the United States consistently interpreted the practice of tying two separate products as a *per se* violation of antitrust law, be it under the Sherman Act or the Clayton Act. Between 1922 and the mid-1970s, U.S. courts condemned under the *per se* rule the tying of shoemaking machines with auxiliary machines, tabulating cards with tabulating machines, salt with salt canning machines, the tying of movies in distribution, the tying of land lease and shipping services, and the tying of credit services and pre-fabricated homes.[2] The reversal in the latter case— establishing the illegality of making the credit services provided by U.S. Steel Corporation conditional on the purchase of pre-fabricated homes in 1977—marked the beginning of a hesitation relating to the harmfulness of tying. In this case the reversal was based on the fact that the company was not proven to have had an advantage in the tying market of credit provision.[3]

These series of judgments condemning the practice of tying were characterized by the presumption that tying the sale of one product to another could have no other purpose than to give an unfair advantage to the tying firm on the tied market. There was little weight put on the possible efficiencies of the practice, nor was there any analysis of the market conditions that might allow tying to cause harm to competitors. This series of judgments may or may not have been appropriate, but what is notable is that they relied on a strong presumption of foreclosure and actual harm and provided little evidence as to the mechanisms by which such foreclosure or harm would actually take place.

In Europe, tying has also traditionally been examined by the European Commission with a de facto *per se* approach. The practice of tying a product to another separate product supplied

[2] United Shoe Mach. Corp. v. United States, 258 U.S. 451, 459 (1922); IBM v. United States, 298 U.S. 131, 140 (1936); Int'l Salt Co. v. United States, 332 U.S. 392, 396 (1947); United States v. Paramount Pictures, Inc., 334 U.S. 131, 156 (1948); N. Pac. Ry. Co. v. United States, 356 U.S. 1, 3 (1958); Fortner Enters., Inc. v. U.S. Steel Corp., 394 U.S. 495, 50004 (1969).

[3] U.S. Steel Corp. v. Fortner Enters., Inc., 429 U.S. 610, 622 (1977).

by a dominant firm can be challenged under the Art. 102 of the Treaty on the Functioning of the European Union ("TFEU")—previously known as Art. 82 of the Treaty on the European Union. In the quite representative case *Hilti*, a nail gun producer was accused of foreclosing manufacturers of nails compatible with its machines by requiring that its patent-protected cartridges be supplied with *Hilti* nails.[4] The Commission established that *Hilti* was dominant in the market of nail guns and that there was a separate market for *Hilti* compatible nails where several suppliers had been active. These elements were sufficient to establish an abuse of dominant position under antitrust law. This case is representative of the European Commission's established approach where the combination of dominance in the tying market, and the demonstration of a separate market for the tied product, may be sufficient to establish an infringement.

III. The Chicago Critique

The legal treatment of antitrust practices was, in the 1970s, already at odds with the Chicago school of thought ("Chicago School") that had been rapidly developing since the 1950s. The Chicago School was a radical application of neoclassical economics that emphasized the natural tendency of markets to reach efficient equilibria with optimal welfare results. This school of thought, inspired by the principles of general equilibrium theory, experienced a phenomenal increase in influence all the way to the late 1970s when its formal application started reaching its limits. The main body of this research describes how economic agents, following rational optimization exercises, reach equilibrium outcomes that are both efficient and optimal from a welfare point of view.

The practical application of the Chicago school of neoclassical economics to antitrust was epitomized in the book, *The Antitrust Paradox*, published in 1978 by Robert Bork. In this book Bork argued that the role of antitrust policy was to protect consumer welfare and not competitors, and that markets left to operate freely were more likely to achieve this goal. In particular, it noted that antitrust enforcement with the view of protecting the presence of competitors in a market might result in higher prices for consumers due to the protection of less efficient producers. In fact, according to Bork, antitrust enforcement should consist of little more than

[4] Eurofix vs. Hilti (1988) OJ L65/19.

fighting cartels, the harm of which remained undisputed.

This book exemplified two trends of thought that were gaining weight in the 1970s. One was that antitrust law had to rely on rigorous economic analysis. The other was that the best economic policy was one of laissez-faire as unilateral conducts of firms in a market where entry was possible were rarely inefficient. With his 1976 *Antitrust Law: An Economic Perspective,* Judge Richard Posner became another strong proponent of the use of economic analysis in the antitrust field, also proposing efficient motivations for commercial practices that had been previously assumed harmful. Needless to say, this movement practically advocated the *per se* legality of many previously suspicious behaviors, including tying.

The strongest critique of the *per se* condemnation of tying practices came in the form of the "single monopoly rule." Neoclassical economists argued that a monopolist does not have anything to gain from tying the sale of another product to the good over which it has a monopoly. If the tied good is a complementary good to be uniquely combined with the principal good, the producer can extract all monopoly rent by adequately pricing the primary good over which it has a monopoly. It can gain nothing by tying both products since the value of the bundle for the consumer does not change with the tie. This means that if it raises the price of the complementary good above its competitive price, it will have to decrease the price of its monopolized good in order not to lose demand for its good. The price of the bundle will be unaffected. In fact, the monopolist will have the incentive of keeping the secondary product as competitive as possible in order to increase the value of and the demand for its monopolized good.

In the case where both the tying market and the tied market are monopolized, consumers will still be better off with a single firm producing both goods since that firm will have a stronger incentive to lower the price of any of the goods as it will benefit from the increase in the demand of its other good. Tying was perceived as preventing the "double marginalization" effect. Finally, in the case of unrelated goods, there was even less of a case for tying since by linking its product to another that may or may not be valued by the monopolist's customers, the demand of the monopolized good might fall because the bundle becomes unattractive for some.[5]

Chicago neoclassical economists therefore argued that there were no profits to be made by using tying to increase market power. The logical implication was then that manifestations of commercial or technical tying could only be motivated by efficiency considerations.

[5] *See* K. Hylton & M. Salinger, *Tying Law and Policy: A Decision-Theoretic Approach*, (69) ANTITRUST L.J. 469 (2001).

IV. Efficiency Defense of Tying Practices and the Weakening of the Legal *Per Se* Approach

Efficiency reasons for tying were formally developed over the years and generated a rich analysis of the circumstances under which firms can benefit from tying without having any anti-competitive intent. It was already acknowledged that tying was obviously efficient when it led to decreases in production or distribution costs that resulted from producing and selling the goods together. This efficiency was somewhat imperfectly incorporated in the *per se* analysis that considered that tying did not fall under scrutiny if the tied and tying products were considered to be part of the same market. Recent research in behavioral theories has also demonstrated that there can be demand side efficiencies from tying several products or services into a package, simplifying and reducing the cost of decision-making for the consumer.

A producer might also have an incentive to tie a complementary product to ensure the quality of the entire bundle. An investment in the quality of the main product can be lost on the user if the complementary product fails. There will be more incentives to invest in quality if the manufacturer is sure to appropriate the benefits of a higher valuation by ensuring the quality and proper functioning of the complementary components. A similar argument relates to the protection of the brand when the user is not able to tell the origin of a malfunction in the operation of a bundled product or service.

Tying can also be a way for a producer to impose price discrimination in the case of users with different degrees of usage intensity. The metering of usage can be achieved by tying a variable component that increases with usage to the main product. In this case, the demand for the two products is positively correlated, but different users will buy different amounts of the tied complementary good. One can think of printers and ink cartridges, or drink dispensers and cups. Tying the variable component to the main product allows the producer to charge intensive users more while keeping a lower price for those users that have less usage and assign less value to it.

Further arguments relating to pricing efficiency were developed for the context in which a producer has a monopoly in several markets. In that framework, it was shown that bundling together products that have a negatively correlated demand allows the producer to better approximate prices to the actual valuation of the entire bundle by the consumer. If we consider two products where consumers tend to have a very strong preference of either one over the other, then selling the products separately results in lower prices for each. This is because both prices will be lowered to capture some of the consumers with lesser valuations. If the two products are combined, the lower valuation for one product will be compensated by the higher valuation of the other product so that the price of the whole bundle need not go down so

much. In fact this argument has been extended to cover cases where the demand of products is actually unrelated, although in such cases tying is more susceptible to productive and allocation inefficiencies as the size of the bundle grows.[6]

Let us note that tying for the purpose of metering or price discrimination does not necessarily increase total consumer welfare. But all these efficiency-enhancing reasons for tying have in common the fact that they constitute behavior that is profitable for the firm without any need of a resulting foreclosure of competitors. Firms can therefore engage in tying without necessarily harming the competitive process.

The increased acceptance of these possible efficiency motivations for the practice of tying resulted in a more cautious approach by the U.S. courts with respect to the automatic application of the *per se* rule against tying. This was symptomatic of a gradual but general process of retreat of *per se* reasoning by U.S courts, which continues today.

The emblematic judgment on tying came in 1984 with the U.S. Supreme Court judgment in *Jefferson Parish Hospital*.[7] That case, which started in 1977, concerned the exclusive sourcing of anesthesiologists from a specialized firm by Jefferson Parish Hospital. This resulted in independent anesthesiologists not being able to supply the hospital with their services. The Supreme Court judgment established a modified *per se* rule requiring that, for tying to constitute an antitrust violation, consumer harm in the form of "forcing" the consumption of the tied good had to be demonstrated. It also required the demonstration of substantial negative effects on trade. In this case the Court ruled that the market for anesthesia services was not sufficiently affected.

This modified rule was not the *per se* legality argued by the Chicago neoclassicists but it made the *per se* approach conditional on: (i) defining separate product markets for the tying and tied products, (ii) the tying entity possessing some market power in the tying market which made it possible to cause consumer harm, and (iii) there being a substantial effect on the trade of the tied market.

Despite the more nuanced approach of the courts, the strongly advocated *per se* legality treatment of tying never came to see the light. Besides a natural resistance to condone a practice that had long been assumed to be harmful, by the 1980s economic thinking was already evolving away from the simplistic theoretical framework of neoclassical theory to a much rich-

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[6] *See* W. Adams & J. Yellen, *Commodity Bundling and the Burden of Monopoly*, 90 (3) Quarterly J. Econ. 475-498 (1976); McAfee, McMillan, & Whinston, *Multiproduct Monopoly, Commodity Bundling, and Correlation of Values*, 104 (2) Quarterly J. Econ. 371-383 (1989).

[7] Jefferson Parish Hospital District No. 2 v. Edwin G. Hyde, 466 U.S. 2 (1984).

er game theoretic approach.

Despite the more nuanced approach of the courts, the strongly advocated per se legality treatment of tying never came to see the light.

V. The Evolution of Neoclassical Economics and the Rise of Oligopoly Theory

Neoclassical economics, the principles of which still form the main body of applied economics, developed as an extremely formalized branch of economics that put at the center of all analysis the determination of the equilibrium between supply and demand. In neoclassical economics the existence of equilibrium is always assumed and the path towards this equilibrium is of no importance. In the study of markets there is no analysis of the dynamics of the competitive process, but only an interest in determining a static equilibrium to which the market is assumed to naturally converge. The mechanism that determines the equilibrium is described by a set of "rational" decision-making rules adopted by firms and individuals, which are mathematically modeled as constrained maximization exercises.

Despite the success of neoclassical economics, its field of application was actually quite limited. Decades of research in general economic theory could not demonstrate whether the general equilibrium theory can be universally applied and, in fact, its applicability in markets of imperfect competition could not be established. Similarly, non-linearity and issues relating to non-price competition were difficult to assimilate in this framework. Consequently, most of the market analysis under neoclassical economics was limited to comparative statics between the equilibria derived from changing circumstances in either a monopoly or a perfect competition setting. The single monopoly rule is an example of such an exercise. It is a comparison of profit under the equilibria with the tying of two products and without the tying of such products in markets where there is a monopoly in the tying product and perfect competition in the potentially tied market.

By the early '80s, comparative statics could not address many of the relevant real world questions. This led to the increased popularity of a richer analytical framework based on game theory that was able to incorporate dynamic interaction between competitors. Game theory continued to be neoclassical in that it relied on rational decision-making rules of optimization. But there was room for a process of interaction and strategic behavior that led to a richer set of possible equilibria. Many more variables, such as investment in innovation or sunk costs, were the subject of strategic decision-making as opposed to being determined by some kind of "natural" state. The framework allowed for strategic behavior where actors took decisions today that were profit maximizing only by their effects in other peoples' future decisions. This resulted in a whole new literature on non-cooperative competition.

The publication and success of Whinston's article on *Tying, Foreclosure and Exclusion* can be understood in this setting. In his article, Whinston shed light on the limitations of the neoclassical analysis of tying. He demonstrated the limited scope of applicability of the single monopoly profit and showed that under a richer framework the conclusions of the Chicago School leaning towards a *per se* efficiency of tying did not hold.

VI. Whinston's Seminal Article

In his seminal article, Whinston pointed to the limitations of the single monopoly profit approach. In particular, he contested the assumption that the price in the tied market is taken as given so that a tying monopolist is a price-taker in that market. In contrast, Whinston argued that tying two products had the potential of changing the price in the tied market as well, potentially also affecting the market structure in that market. The key to Whinston's argument is the possibility that the tied market is neither a perfectly competitive market nor a monopoly but rather an oligopoly. He defines the tied market as a market with fixed costs of entry and economies of scale.

The main premise of Whinston's reasoning is that by tying the sale of a product to another product in which he has a monopoly, a producer can reduce the demand of the tied product that is available to other producers. In this way, it can reduce the profitability of competitors by denying them the necessary economies of scale. In some cases tying can lead to foreclosure. But correlation of tastes across goods and consumers matters for the efficacy of this strategy, therefore Whinston analyzes the different scenarios under which this strategy is likely to be more effective.

Whinston also introduces the notion of pre-commitment to tied products, something akin to a technical tying for its irreversibility. He argues that when the tying and tied products have independent demand, and when consumers are all similar, tying without pre-commitment will make no difference. The Chicago School notion that a firm will not risk losing sales of its monopolized products because of the tying of a less valued product holds. The firm will therefore never tie if consumers do not value the tie enough, or always tie if they do, but then the implicit price of the tied good will be the same as the price absent the tie as predicted by the neoclassical economists. The market outcome is similar to the no tying situation.

If the firm can pre-commit to the tying by not making available just the tying product alone, then foreclosure can occur because, in order not to lose profitable sales of its monopolized product, the firm will have to lower the price of the tied product. The higher the margin on the monopolized product, the more it will have an incentive to lower the price of the tied

product. This can happen to the point that even a more efficient competitor in the tied market becomes unprofitable and has to exit. Tying is costly to the tying firm because it reduces the profit on the bundle compared to a situation of independent pricing. In this case, tying only makes sense if it leads to foreclosure. In fact, tying makes sense not only if foreclosure is achieved but also if there is no re-entry. If consumers attach low value to the tied product this strategy will not be effective even with foreclosure due to the overall decrease in the demand of the monopolist's principal product.

More interesting results are obtained when consumers are allowed to have diverse tastes for both the tied and tying product in a market. In this case, tying will cause a more aggressive pricing of the tied product if a sufficiently large number of consumers find the monopolized product attractive and have strong preferences for one or the other of the tied products. In this case alone attaching the tied product will decrease the profits of competitors in the tied market. Otherwise pre-commitment to tie can still be profitable, but will not necessarily lead to foreclosure as the price in the tied market may rise.

In fact tying can be profitable even without pre-commitment and in the presence of an ability to sell the monopolized product without a tie. This is a reflection of the pricing efficiency motivations detailed above. Whinston adds to this literature the possibility that this sort of bundling also has foreclosure effects through the reduction of available demand to competitors in the tied market and the denial of scale efficiencies.

When the tying and tied products are complementary, Whinston argues that the general result of the neoclassical theory mostly holds and the monopolist will have an interest in keeping the market for the complementary product as competitive as possible. He identifies, nonetheless, two exceptions to this rule. When the product in the potentially tied market has a secondary use that does not require purchasing the main product, the monopolist of the principal product can use tying to foreclose producers of the tied product who serve those customers that do not purchase the tying product. Also, when there is an inferior alternative to the monopolized product, tying the complementary component might eliminate the opportunity to supply the complementary product independently and therefore will also foreclose the suppliers of the alternative to the monopolized product. These two exceptions relate to situations in which increases in the demand of the complementary product do not necessarily increase the demand for the monopolist's product.

With his article, Whinston established that in oligopolistic markets there were both efficiency motivations and strategic motivations for tying and that the strategic foreclosure of competitors was possible under certain conditions. Whinston also established the importance of customer valuations in the implementation of such a strategy. He then made clear that the nature of the link between the two products to be potentially tied was an important element in the incentive to foreclose.

Since Whinston, the premise that the tying of two products can result in strategic foreclosure has never been questioned. Quite the contrary, a whole body of literature has developed to investigate further the strategic and efficiency motivations of tying with the purpose of establishing some guidance for a rule of reason approach.

VII. Tying in Oligopolistic and Dynamic Competition

After Whinston established the potential exclusionary effect of tying, research built on a game theoretical approach to investigate the various possible motivations and consequences of tying. Most research focused on results for markets that were oligopolistic and where firms faced rivalry on several markets at a time. Also, several new elements of reality were incorporated with new dimensions of choice, such as the decision to enter new markets, the decision to invest in R&D, or the ability to differentiate.

Nalebuff (2004) demonstrated the possibility of the exclusionary motivation of tying identified in oligopolistic markets of complementary products where the tying firm is not a monopolist. He showed that tying can be used to protect market power in both markets by depriving competitors of the sufficient scale to enter profitably in any one of the tied markets. In this case the entry deterrence effect is obtained through an increase in the tying firm's pricing efficiency.[8]

Matutes & Regibeau (1992) showed that when firms compete on several complementary components of a system, they will offer discounts for users to buy all components from them, thereby creating an effective bundling. This strategy, unlike Nalebuff (2004), can be followed by competitors, which generates excessive competition compared to a situation where there is

[8] B. Nalebuff, *Bundling as an Entry Barrier*, 119 (1) QUARTERLY J. Econ. 159-187 (2004).

no bundling.[9]

Matutes & Regibeau (1992) showed that when firms compete on several complementary components of a system, they will offer discounts for users to buy all components from them, thereby creating an effective bundling.

Carbajo et al. (1990) and Chen (1997) showed that tying by firms competing in several markets can lead to a softening of competition when the market of the tying product is oligopolistic. In this case, and unlike in the Whinston single monopolist framework where tying commits to more aggressive pricing, tying the goods is done in order to increase the degree of differentiation in the market, thereby reducing the incentives to price aggressively.[10]

Carlton & Waldman (2002) developed a model in which tying is a profitable strategy to protect a monopoly in the tying market when there is a threat of entry by the tied product producer into that market. In this case, the incentive to either foreclose or reduce scale in the tied market is to preempt competition in the monopolized market. This strategy is profitable when entry in a tied market affects the likelihood of entry in the tying market by generating economies of scope.[11]

Choi (2004) showed that tying complementary products can serve as a commitment strategy to invest in R&D. Tying can be used as a commitment to more aggressive R&D in the tied market since this will reduce costs in that market and increase demand in the tying market.[12] R&D might also increase in the tying market in order to secure the monopoly in both markets.

Farrell & Katz (2000) addressed the effects of tying on innovation in the case of complements where one of the goods is monopolized. The tying firm will invest more in innovation in the tied firm, forcing other independent suppliers to lower the price of the complementary product. This strategy does not necessarily lead to foreclosure but is still profitable for its effects

[9] C. Matutes & P. Regibeau, *Compatibility and Bundling of Complementary Goods in a Duopoly*, 40 (1) J. INDUS. ECON. 37-54 (March 1992).

[10] J. Carbajo, D. de Meza, & D.J. Seidmann, *A Strategic Motivation for Commodity Bundling*, 38 (3) J. INDUS. ECON 283-298 (1990); Y. Chen, EQUILIBRIUM PRODUCT BUNDLING, 70 (1) J. BUS. 85-103 (1997).

[11] D. Carlton & M. Waldman, *The Strategic Use of Tying to Preserve and Create Market Power in Evolving Industries*, 33 RAND J. ECON 194-220 (2002)

[12] J. Choi, *Tying and innovation: A dynamic analysis of tying arrangements*, 114 (492) ECON. J. 83–101 (2003).

on the monopolist's demand. The behavior might nonetheless lead to R&D inefficiencies.[13]

Choi and & Stefanadis (2001) showed that tying can be used by a monopolist to defend itself from entry, both in its monopolized markets and in the market for complements, when entry in either market requires risky investment in innovation.[14] In these circumstances, tying will require that entry be successful in both markets simultaneously. The increased risk of failure may discourage the innovation investment and entry.

The extent of the literature reveals that introducing dynamic competition, barriers to entry, product differentiation, and rich consumer preferences produce a wide range of possible results. A decade after Whinston's article there was no overwhelming calls for a *per se* legal or *per se* illegal approach. Rather the economic profession, was more inclined to access tying with a rule of reason.

VIII. Towards a Rule of Reason: An Attempt at Formalizing Decision Rules

The legal community was not completely unaffected by this more sophisticated economic approach to tying. The Microsoft case towards the turn of the century served as a sort of catalyst. In this case, comparative static analysis was clearly inappropriate given the rate of technological innovation and the obvious dynamic effects. In both the United States and the European Union, the Microsoft case helped establish in practice that tying could harm dynamic competition.

The European Commission's 2004 Microsoft decision of 2004 was the first time the European Commission attempted to demonstrate effects in a tying case.[15] Before this, the assessment of the harmfulness of tying relied on the existence of two products in distinct markets being combined by a firm dominant in one of the markets. The European Union had been immune to the revolution spurred by the Antitrust Paradox and had continued with a quasi '*per se*' *per se* approach, as exemplified in *Hilti* (1988) and even *Tetra Pak II* (1992). But in 2004, the European Commission found that Microsoft had abused its dominant position in the PC operating system market by tying Windows Media Player with Windows operating system.

[13] J. Farrell, & M.L. Katz, *Innovation, Rent Extraction, and Integration in Systems Markets*, 48 J. INDUS. ECON. 413-432 (2000).
[14] J. Choi & C. Stefanadis, *Tying, Investment and the Dynamic Leverage Theory*, 32 RAND J. ECON 52-71 (2001).
[15] Microsoft Commission decision of 24 March 2004, Case COMP/C-3/37.792.

The decision relied on finding that Microsoft was dominant, that there was a separate market for the tied product, that consumers were subject to the tie, and that the tying foreclosed competition. The Commission argued that the network effects available to the Windows Media Player, once it was tied to Windows, provided it with an unfair advantage. The Commission rejected Microsoft's efficiencies arguments.

The U.S. Microsoft case that started in 1998 related to the tying of the Explorer internet browser with Windows. The Court of Appeals found in 2001 that *Microsoft*'s bundling of its internet-browsing software to its operating-system software did not necessarily violate section 1 of the Sherman Act, and that a rule of reason had to apply to tying arrangements involving platform software products because of their novelty. The plaintiffs also had to demonstrate that the harm outweighed the benefits. The case settled in 2001.

Foreseeing a shift towards a rule of reason approach in the assessment of tying, the academic community provided several attempts at summarizing the lessons learned from the economic literature. The search was for a set of robust criteria that would weigh on the likelihood of harm in cases of tying. One such example is Nalebuff (2003), who identified factors that relate to different motivations for bundling. These factors relate to market power in one or several markets, complementarity of goods, consumer dispersion in valuations, low marginal costs, and the presence of network effects.[16] He also proposed a decision -making tree to evaluate the risk of anticompetitive tying in the context of mergers. This test requires establishing the incentives to tie, examining the static effects on consumers, examining the effects on competitors, and evaluating the likelihood of permanent exit.

In another example, Hylton and Salinger (2001) analyzed whether entry barriers, complementary goods, network effects, and technologically dynamic markets can be useful criteria for a *per se* diagnostic and found that they all have imperfect predictive power.[17] They argued for a very high threshold for plaintiffs to show consumer harm.

Evans et al. (2003) reasoned along the same lines and proposed that the cost efficient

[16] B. Nalebuff, Bundling, Tying, and Portfolio Effects, DTI Economics Paper No. 1(2003).

[17] K. Hylton & M. Salinger, *Tying Law and Policy: A Decision Theoretic Approach*, 69 ANTITRUST L.J. 469-521 (2001)

The acknowledgment of the need for both more sophisticated analysis and the need to define assessment criteria for something more akin to a rule of reason culminated in modernization exercises by antitrust authorities in both Europe and the United States.

policy is to adopt *per se* legality.[18] They assumed that tying is more likely to be efficient and that the likelihood of a false acquittal is low. On the other hand, the likelihood of false convictions in a *per se* illegality regime is very high. A rule of reason would require a careful factual analysis of the possibility of an anticompetitive effect under the mode of competition and the facts of the case. It would also require a careful balancing between efficiencies and harm. This, they argued, is a costly and uncertain process, and it is more socially efficient not to pursue the practice given the high likelihood of its efficiency enhancing effect.

Ahlborn et al. adopted a similar strong presumption for the efficiency of tying, but propose a framework for a rule of reason approach that require first establishing some necessary conditions are fulfilled to create the possibility that tying has an anticompetitive effect and then that such anticompetitive motivation is plausible. The first stage involves establishing (i) the market power in the tying market, (ii) the oligopolistic nature of the tied market, (iii) the inability of competitors to match the tie, (iii) their inability to survive, (iv) the existence of entry barriers, and (iv) the lack of buyer power. The second stage requires building a theory of harm and checking the facts for its plausibility. Finally, the potential harm needs to be balanced against the effects.[19]

Kuhn et al. (2005) provided a vigorous response to such a strong presumption of legality.[20] They pointed to an erroneous interpretation of some facts, such as the Cournot effect, as being an efficiency-enhancing justification for tying. Also, they pointed out that many of the efficiency defenses relate to competitive markets and are therefore outside of the scope of antitrust policy. The screening criteria they proposed for necessary conditions for harm were (i) market power in one market, (ii) complementarity of the goods, and (iii) asymmetry in product lines. The plausibility assessment requires a coherent theory supported by the facts of the industry, which demonstrate that foreclosure effects are plausible. For this there must be some intertem-

[18] D. Evans, J. Padilla, & M. Salinger, *A Pragmatic Approach to Identifying and Analyzing Legitimate Tying Cases*, EUR. COMPETITION L. ANNUAL 2003: What is an abuse of a dominant position? (2003).

[19] C. Ahlborn, D. Evans, & J. Padilla, *The antitrust economics of tying: a farewell to per se illegality*, 49 Antitrust Bull. 287 (2004).

[20] K. U. Kühn, R.T. Stillman, & C. Caffara, *Economic Theories of Bundling and their Policy Implications in Abuse Cases: An Assessment in Light of the Microsoft Case*, 1 Eur. Competition J. 85-122 (2005).

poral link between the tying practice and the market conditions in the future, such as network effects or R&D investments.

Tirole (2005) also argued for a less lenient approach to tying and recommended that tying be assessed under the rule of reason and in the framework of a predation test.[21]

The acknowledgment of the need for both more sophisticated analysis and the need to define assessment criteria for something more akin to a rule of reason culminated in modernization exercises by antitrust authorities in both Europe and the United States. In Europe this process culminated in 2009 with the European Commission's *Guidance Paper*.[22] In the United States, in 2008, the DOJ issued the *Report on Single-Firm Conduct under Section 2 of the Sherman Act*.[23] Both documents address the issue of tying.

The Commission's *Guidance Paper* recommended that tying be assessed with the criteria used in the *Microsoft* case. The firm must be dominant in the tying market, the tying and tied products must be distinct products for consumers, and the tying must be likely to lead to anticompetitive foreclosure. The *Guidance Paper* identified criteria that increase the likelihood of anticompetitive effects. These are mainly the existence of "durable" tying, including technological tying, dominance in more than one product, and the complementary nature of the products. In the case of multiproduct bundling, the test is akin to predation in that it examines whether an "as efficient competitor " is able to enter any one of the markets. Bundle -to -bundle competition is also evaluated under a predation test.

The DOJ Report cast a more favorable light on the practice of tying by greatly emphasizing its potential efficiencies. It mentioned criteria that impact the likelihood of harm and these are, again, the complementary nature of the product, the presence of scale economies, the possibility to decrease rival's profits in the tied market, and the presence of switching costs. The Report recommended dropping the *per se* illegality and adopting a presumption of positive impact on consumer welfare. Tying should considered illegal only if the potential harm to competition was shown to be "disproportionate" to the potential benefit to consumers.

It is striking to note that, in the end, both the U.S. and European jurisdictions shied away from their own work. In 2009 the DOJ repealed its own report on the grounds that it was biased against the protection of consumer's interest. In 2008, the European Commission had also decided to issue its paper as a guidance document, depriving it of the more authoritative status of formal guidelines. These actions were clear testimony of a general uneasiness by regu-

[21] J. Tirole, *The Analysis of Tying Cases*: *A Primer,* 1 (1) COMPETITION POL'Y INT'L (2005).

[22] Communication on the Guidance on the Commission's enforcement priorities in applying Art.82 of the EC Treaty to abusive exclusionary conduct by dominant undertakings. OJEU C 45/7 of 24.2.2009.

[23] http://www.justice.gov/atr/public/reports/236681.htm.

lators about adopting a framework that might have been more lenient toward tying practices for lack of a solid enough framework to effectively demonstrate their possible harm.

IX. Challenges Ahead

Tying and bundling seem to be ever more common commercial and technological practices. There is an increased level of sophistication in the provision of new products and services that very often involve bundling and package offers. Efficiency arguments must be playing a large role since this activity is happening in many markets without dominance. Yet this does not mean the practices should not be examined, as arguments relating to the softening of competition or collusive arrangements might apply. Similarly the ability to raise price efficiency is rapidly increasing with technology and information, which may eventually result in questions about the welfare effects of price discrimination. These issues might have to be addressed under consumer policy. In the antitrust field, the information, technology, and communication ("ITC") sector is increasingly developing as a competition between bundles or "ecosystems" in market with high levels of intellectual property rights ("IPR"), high network effects, and high technological change.

Will our analytical tools be sufficient to tackle the level of complexity of the economic and technological interactions in these sophisticated markets? Can we satisfactorily reduce the issues at stake to a dimension tractable by our analytical tools? Will there be further progress in our economic analysis?

Today, the limitations of rational decision models and the insurmountable problems of dealing with insufficient information in game theory are motivating new areas of research. The analysis of complex systems is also timidly spilling over from natural science into economics. What natural science brings is a world of non-equilibrium and adaptive behavior. Complex game theoretical approaches are already being developed where actors, in the presence of very high costs of collecting and processing information, develop rules for decision-making that may be non -optimal but may be effective. In adaptive game theory, actors in highly networked, highly heterogeneous, and highly non-linear environments learn, adapt their behavioral rules, and then fail or survive.

It will be very difficult to find a formalization of complex economics that is tractable enough to be useful in policy, and we can expect rational decision -making and the basis of neoclassical economics to stick around for a while. The search for rule of reason criteria based on the current analytical framework is, for the moment, the best we have. But the legacy of Whinston's article is also to remind us that, at any point in time, a piece of research can come

that will impact minds and change opinions.

X. Conclusion

Antitrust analysis has evolved accordingly even though the legal community seems to have paused in the face of so much indeterminacy.

Whinston's *Tying, Foreclosure, and Exclusion* article represented a milestone in the literature of tying. At a time when the debate seemed to be between an outright condemnation or an outright acceptance of the practice of tying, Whinston created a richer and better framework to illustrate the complexity of the matter. All subsequent research has drawn inspiration in one way or another from the basic framework he laid out.

Antitrust analysis has evolved accordingly even though the legal community seems to have paused in the face of so much indeterminacy. Still, in any particular case, practitioners should not shy away from relying on a careful analysis of the facts. The literature of tying is full of such guidance for a reasoned analysis of tying. The courts may eventually move towards a full rule of reason. The use of such rule of reason in policy-making should, nonetheless, be embedded in an environment that remains open to learning. This is the big lesson of the Whinston article and one that we need to embrace.

Tying, Foreclosure, and Exclusion

By MICHAEL D. WHINSTON*

In recent years, the "leverage theory" of tied good sales has faced heavy and influential criticism. In an important sense, though, the models used by its critics are actually incapable of addressing the leverage theory's central concerns. Here I reconsider the leverage hypothesis and argue that tying can indeed serve as a mechanism for leveraging market power. The mechanism through which this leverage occurs, its profitability, and its welfare implications are discussed in detail. (JEL *610)*

A firm engages in tying when it makes the sale (or price) of one of its products conditional upon the purchaser also buying some other product from it. Tying has a long history of scrutiny under the antitrust laws of the United States, and throughout this history it has been harshly treated by the courts.[1] A primary basis for this condemnation has been the courts' belief in what has come to be known as the "leverage theory" of tying: that is, that tying provides a mechanism whereby a firm with monopoly power in one market can use the leverage provided by this power to foreclose sales in, and thereby monopolize, a second market.

In recent years the leverage theory has come under heavy attack from a number of authors whose arguments are traceable to the University of Chicago oral tradition associated with Aaron Director (see, for example, Director and Edward Levi, 1956; Ward S. Bowman, 1957; Richard A. Posner, 1976; and Robert H. Bork, 1978). A typical rendition of their criticism goes along the following lines: Suppose that a firm is a monopolist of some good A that a consumer values at level v_A and that costs c_A to produce. The consumer also consumes some other competitively supplied product B that she values at level v_B and that can be produced at a unit cost of c_B. Now, the monopolist *could* require the consumer to purchase good B from him if she wants good A, but what will he gain? The consumer will only purchase such a bundle if its price is no larger than $v_A + c_B$, and so the monopolist can do no better than earning $(v_A - c_A)$, the level he earns selling good A independently. In short, there is only one monopoly profit that can be extracted.

Similar arguments are given for the case of complementary products. Richard Posner (1976), for example, comments as follows:

> [A fatal] weakness of the leverage theory is its inability to explain *why* a firm with a monopoly of one product would want to monopolize complementary products as well. It may seem obvious..., but since the products are by

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[1] Tying doctrine was originally developed in patent cases (*Motion Pictures Patents Co. v. Universal Film Manufacturing Co.*, 243 U.S. 502 (1917)). Since then a long line of case law has developed under both Section 1 of the Sherman Act and Section 3 of the Clayton Act. (See, for example, *International Salt v. U.S.*, 332 U.S. 392 (1947) and *Northern Pacific Railway Co. v. U.S.*, 356 U.S. 1 (1958).) Similar ideas have also been developed under Section 2 of the Sherman Act. (See, for example, *U.S. v. Griffith*, 334 U.S. 100 (1948) and *U.S. v. United Shoe Machinery Corp.*, 110 F. Supp. 295 (D. Mass. 1953).) Two cases involving less harsh treatment are *Times-Picayune Publishing Co. v. U.S.*, 345 U.S. 594 (1953) and *U.S. v. Jerrold Electronics Corp.*, 365 U.S. 567 (1961).

> hypothesis used in conjunction with one another..., it is not obvious at all. If the price of the tied product is higher than the purchaser would have to pay on the open market, the difference will represent an increase in the price of the final product or service to him, and he will demand less of it, and will therefore buy less of the tying product. To illustrate, let a purchaser of data processing be willing to pay up to $1 per unit of computation, requiring the use of 1 second of machine time and 10 punch cards, each of which costs 10 cents to produce. The computer monopolist can rent the computer for 90 cents a second and allow the user to buy cards on the open market for 1 cent, or, if tying is permitted, he can require the user to buy cards from him at 10 cents a card —but in that case he must reduce his machine rental charge to nothing, so what has he gained? [p. 173]

Thus, the critics contend, if a monopolist does employ tying, his motivation cannot be leverage. In its place, they point to a number of socially beneficial, or at worst ambiguous, alternative explanations for tying: for example, price discrimination (Bowman, 1957), achieving economies of joint sales, protection of goodwill, risk sharing, and cheating on a cartel price. Almost inadvertently, the more formal economics literature on tying (Meyer L. Burstein, 1960; Roger D. Blair and David L. Kaserman, 1978; Richard Schmalensee, 1982) has reinforced this view as a result of its exclusive focus on price discrimination motivations for the practice. Thus, Posner (1976) goes on to note that "the replacement of leverage by price discrimination in the theory of tie-ins has been part of the economic literature for almost twenty years."[2] These criticisms have, in fact, had a tremendous impact in both legal and economic circles.[3]

In an important sense, however, the existing literature does not really address the central concern inherent in the leverage theory, namely, that tying may be an effective (and profitable) means for a monopolist to affect the market structure of the tied good market (i.e., "monopolize" it) by making continued operation unprofitable for tied good rivals. The reason lies in the literature's pervasive (and sometimes implicit) assumption that the tied good market has a competitive, constant returns-to-scale structure. With this assumption, the use of leverage to affect the market structure of the tied good market is actually impossible. Thus, in contrast to a concern over the effects of tying on market structure, the existing literature's focus is on a demand-side notion of "leverage": the idea that, taking the prices charged by tied good competitors as given, a firm might be able to extract greater profits from consumers by tying.[4]

In this paper, I reexamine the leverage hypothesis. In particular, I examine several simple models that depart from the competitive, constant returns-to-scale structure assumed in the existing literature. In contrast,

[2]Bork (1978) sums up his discussion of tying more emphatically: "[The leverage] theory of tying arrangements is merely another example of the discredited transfer of power theory, and perhaps no other variety of that theory has been so thoroughly and repeatedly demolished in the legal and economic literature."

[3]In a recent antitrust textbook, for example, Blair and Kaserman (1985) comment that "according to this view, somehow the seller expands or levers his monopoly power from one market to another. This, of course, is not possible. A seller cannot get two monopoly profits from one monopoly.... Thus, the leverage theory of tying is unsatisfactory." The 1985 Department of Justice Vertical Restraints Guidelines state that "Tying arrangements often serve procompetitive or competitively neutral purposes.... [They] generally do not have a significant anticompetitive potential." For a recent rebuttal to this view in the legal literature, however, see Louis Kaplow (1985).

[4]Indeed, this is exactly the sense in which the existing literature can be said to focus on price discrimination aspects of the practice; it analyzes whether tying is a profitable strategy *given* the prices of tied good competitors (which can be thought of as creating an induced demand structure for the monopolist). In contrast, here my focus is on the ability of tying to *change* those prices, in particular, by making continued operation unprofitable for competitors.

here I assume that scale economies exist in the production process for the tied good, and as a result, the structure of that market is oligopolistic.

In these models I address three basic questions. First, can tying succeed in altering the market structure of the tied good market, and if so, how? Second, is it a profitable strategy? Third, what are the welfare consequences? As we shall see, tying can lead to a monopolization of the tied good market. Most interestingly, the mechanism through which this exclusion occurs is foreclosure; by tying, the monopolist reduces the sales of its tied good market competitor, thereby lowering his profits below the level that would justify continued operation.

Tying is frequently a profitable strategy for the monopolist in these models, and it is often so precisely because of its potential for altering the market structure of the tied good market. The particular circumstances in which tying is a desirable strategy for the monopolist, however, depend in part on whether he is able to make a precommitment to tie. In many circumstances this is indeed possible. One of the primary ways in which this can be accomplished is through product design and the setting of production processes, both of which may involve significant sunk costs. By bundling components of its system together or by making interfaces between the separately sold components incompatible with their rivals' components, firms can precommit to their marketing strategy. IBM, for example, was accused of incorporating increased amounts of storage into its central processing units in order to prevent sales by plug compatible memory manufacturers and also of trying to achieve interface incompatibility for the same purpose (Franklin M. Fisher, John J. McGowan, and Joen E. Greenwood, 1983, pp. 332–33). Kodak was accused of designing its new film and camera in a format incompatible with rival manufacturers' products (*Berkey Photo v. Eastman Kodak Co.*, 603 F. 2d 263 (2d Cir., 1979)).

On the other hand, in a significant number of tying cases little more than an easily changed marketing decision seems to be involved. For example, in *Times-Picayune Publishing Co. v. U.S.* (345 U.S. 594 (1953)), the publisher of the only morning newspaper in New Orleans only sold an advertisement in his morning paper with an advertisement in that day's evening newspaper (which faced competition from another evening newspaper). In *U.S. v. Griffith* (334 U.S. 100 (1948)), a movie theater chain refused to show films in its theaters in towns in which it possessed a monopoly if the distributor did not give it that film in towns where it faced competition. In *United Shoe Machinery Corp. v. U.S.* (110 F. Supp. 295 (D. Mass. 1953)), United Shoe bundled repair service with its shoe machinery leases.

Finally, when tying does lead to exclusion of rivals, the welfare effects both for consumers and for aggregate efficiency are in general ambiguous. The loss for consumers arises because, when tied market rivals exit, prices may rise and the level of variety available in the market necessarily falls. Indeed, in the models studied here, tying that leads to the exit of the monopolist's tied market rival frequently leads to increases in all prices, making consumers uniformly worse off. More generally, though, as is common in models of price discrimination, some consumers may be made better off by the introduction of tying. The effect on aggregate welfare, on the other hand, is uncertain because of both the ambiguous effects of price discrimination and the usual inefficiences in the number of firms entering an industry in the presence of scale economies and oligopolistic pricing (A. Michael Spence, 1976; N. Gregory Mankiw and Whinston, 1984).

Though most tying cases involve products that are complements (particularly those where precommitment is involved), for expositional purposes I begin below by considering the case of independent products. In Section I, I first analyze the simple case where all consumers have an identical valuation of the monopolized product, so that the monopolist, if he chooses to price his goods independently, can fully extract all of the surplus from his monopolized good. I

show that, *absent precommitment*, tying is not a useful strategy for the monopolist; any equilibrium outcome will be equivalent to one where only independent pricing is allowed. Despite this fact, however, a *precommitment* to tying can be a profitable strategy for the monopolist because of its potential for excluding his tied market rival. This exclusionary effect arises because of what I call "strategic foreclosure": tying represents a commitment to foreclose sales in the tied good market, which can drive its rival's profits below the point where remaining in the market is profitable. This strategic incentive to foreclose sales in the tied good market occurs because once the monopolist has committed to offering only tied sales, it can only reap its profit from its monopolized product by making a significant number of sales of the tied good. Thus, in this model, tying necessarily lowers the profits of the monopolist's tied good rival. I then discuss the implications of such a commitment to tying for the monopolist's profits, for consumers, and for aggregate efficiency, and present a simple example to illustrate these points.

In Section II, I investigate how the presence of heterogeneous preferences among consumers for the monopolized good affects these results. Two basic findings emerge. First, with heterogeneous preferences for the tying good, tying no longer necessarily results in strategic foreclosure and the lowering of the monopolist's tied good rival's profits (though it still does in many circumstances). If, for example, a significant number of consumers in the tied market have low valuations of the tying good, tying (not surprisingly) will not be a successful exclusionary device. In addition, a more subtle effect may prevent a commitment to tying from lowering the tied good rival's profits. This occurs when tying substantially decreases the responsiveness of the monopolist's demand to price changes relative to the level previously prevailing in the tied good market.

Second, with heterogeneous valuations, tying can now also be a profitable strategy in the absence of precommitment. There are two senses in which this is true. First, in a purely static sense, the monopolist may find tying to be a profitable strategy given its rival's price. This motivation for tying is analogous to that in the monopolistic bundling literature (for example, W. J. Adams and J. L. Yellen, 1976; R. Preston McAfee, John McMillan, and Whinston, 1989), but here it can have important competitive effects: tied product rivals can find their sales foreclosed and continued operation unprofitable. Second, even when tying is not profitable in this static sense, it may be in a dynamic sense when the exclusion of rivals through predation is possible. In such cases, tying can be a profitable strategy for the monopolist precisely because it forecloses the sales of the monopolist's tied market rival.

In Section III, I turn to the case of complementary products used in fixed proportions. I first consider a model of fixed proportions that is essentially an extension of the simple example quoted above from Posner (1976) to the case where the tied good market involves scale economies and oligopolistic behavior. Despite these differences, Posner's central contention continues to hold: a monopolist of one component never finds it worthwhile to tie in order to reduce the level of competition in the market for the other component. The reason lies in the fact that when the monopolized product is essential for all uses of the two products, the monopolist can always benefit from more competition in the nonmonopolized market through sales of its monopolized product. Nevertheless, I then show that in two natural extensions of this model where the monopolized product is no longer essential for all uses of the nonmonopolized components, tying once again emerges as a profitable exclusionary strategy. In one case, the presence of an inferior, competitively supplied alternative to the monopolized component leads to results that parallel those for independent products. In the other case, the existence of a second use for the nonmonopolized product (such as a replacement part market) can give the monopolist an incentive to tie in order to reduce competition in this other market.

Finally, I conclude in Section IV with a brief discussion of the implications of these findings.

I. Independent Products

I begin by considering an extremely simple model with independent products. There are two markets, which I label A and B. Market A is monopolized by firm 1 (say, because of a patent). Market B, on the other hand, is potentially served by two firms, firm 1 and firm 2. The products of firms 1 and 2 in market B are differentiated. Production in market B involves fixed costs of K_i plus an expenditure of c_{Bi} per unit for firm i. Unit costs for good A are c_A. For expositional simplicity, I ignore the possibility that there are fixed costs for product A.

Consumers, who are indexed by $d \in (0,1)$ with total measure 1, each desire at most one unit of good A and one unit of good B. All consumers have a reservation value of $\gamma > c_A$ for good A, while a consumer of type d has a valuation of $v_{Bi}(d)$ for a unit of firm i's product B. Resale of products by consumers is assumed to be prohibitively costly. In the absence of tying by firm 1, consumers simply respond to individual product prices (P_A, P_{B1}, P_{B2}). Firm i's sales of product Bi are then given by some function $x^i(P_{B1}, P_{B2}) \leq 1$, which I assume to be everywhere differentiable and satisfy (subscripts denote partial derivatives) $x^i_j(P_{B1}, P_{B2}) \geq 0$ if $j \neq i$ and ≤ 0 if $j = i$, with strict inequalities if $x^i(\cdot,\cdot) \in (0,1)$. That is, products $B1$ and $B2$ compete with each other for consumer purchases.

When bundling is not permitted (which I will refer to below as an "independent pricing game"), it is easy to see that firm 1 will always set $P_A = \gamma$. It is also useful for what follows to define each firm i's best response correspondence in market B by $P^*_{Bi}(P_{Bj})$, which solves

$$\max_{P_{Bi}} (P_{Bi} - c_{Bi}) x^i(P_{B1}, P_{B2}).$$

I assume that this correspondence is single-valued, continuous, and differentiable with $P^{*\prime}_{Bi}(P_{Bj}) \in (0,1)$ (so products $B1$ and $B2$ are strategic complements in the sense of Jeremy I. Bulow, John D. Geanakoplos, and Paul D. Klemperer, 1985).

In the next two subsections I analyze the use of tying both for cases where firm 1 can precommit to tie and where it cannot. For the case without precommitment, I analyze a simple two-stage game. In stage one, each firm simultaneously decides whether to be active in market B. If firm i decides to be active, it incurs the cost K_i. In stage two, the firms pick prices (simultaneously if both are active). If firm 1 is active in market B, it can offer three different items for sale: good A at a price of P_A, good $B1$ at a price of P_{B1}, and a bundle consisting of one unit of good A and one unit of good $B1$ at a price of $\bar{P}$. If firm 2 is active, on the other hand, it can only offer good $B2$ at price P_{B2}. Throughout I assume that firm 1 is unable to monitor customer purchases; this assumption rules out the use of requirements contracts (where a consumer agrees as a condition of buying good A not to buy good $B2$) and also implies that a bundle will be purchased only if $\bar{P} \leq P_A + P_{B1}$.

To analyze the case where precommitment is possible, I extend this game to three stages. In the (new) first stage of the game, firm 1 commits to which subset of three possible products—good A, good $B1$, and a bundle—it will be able to produce. For example, firm 1 can commit itself to a position where it will only be able to produce a bundle. The second and third stages are then identical to the no commitment game, but with firm 1 only able to offer for sale those items that it is able to produce.[5] Thus, as discussed in the introduction, by setting its design and production process, firm 1 is able to commit to a tying strategy.

Finally, at various points below I make comparisons between the outcomes of these two games and those of a game where firm 1 only offers goods A and $B1$ indepen-

[5]Note that as long as firm 1 can produce both goods A and $B1$ separately it can still offer a bundle for sale.

dently (more precisely, a game that is the same as the no precommitment game but where bundling is prohibited). I refer to this game as the "independent pricing game." Firm 1 is said to tie whenever its pricing is not identical (or, more generally, economically equivalent) to that arising in this independent pricing game.

A. *Tying Without Precommitment*

Consider first the no commitment game. If firm 1 is active in market B, then in the second stage of this game it selects three (nonnegative) prices: $(P_A, P_{B1}, \bar{P})$. As the following proposition makes clear, however, tying is not a useful strategy in this game.

PROPOSITION 1: *Any subgame perfect equilibrium outcome of the no commitment game is economically equivalent to a subgame perfect equilibrium outcome in the independent pricing game.*

PROOF:

The proposition is established by arguing that in the subgames of the no commitment game in which firm 1 is active in market B, any Nash equilibrium in prices is equivalent to a Nash equilibrium in the corresponding subgame of the independent pricing game. Then, given the equivalence of the equilibria in the pricing subgames, firms' decisions about whether to be active in market B must also be equivalent in the two games.

Consider the subgame where both firms are active in market B. The equivalence of equilibria is demonstrated by arguing that for any set of prices $((P_A^0, P_{B1}^0, \bar{P}^0); P_{B2}^0)$ that constitute a Nash equilibrium in the no commitment game there is a set of independent prices $(\hat{P}_A, \hat{P}_{B1})$ such that sales and profits are the same for *both* firms under prices $((\hat{P}_A, \hat{P}_{B1}); P_{B2})$ as under prices $((P_A^0, P_{B1}^0, \bar{P}^0); P_{B2})$ when $P_{B2} = P_{B2}^0$ and are the same for firm 2 for *any* P_{B2}. This implies that $((\hat{P}_A, \hat{P}_{B1}); P_{B2}^0)$ is a Nash equilibrium in the independent pricing game (note that firm 1 now has fewer possible deviations).

The equivalence clearly holds if firm 1's equilibrium strategy has $\bar{P}^0 > P_A^0 + P_{B1}^0$, so suppose that $\bar{P}^0 \leq P_A^0 + P_{B1}^0$. There are two cases to consider. First, suppose that $P_A^0 > \gamma$. If this is firm 1's best response, then it must be that all consumers are buying firm 1's bundle since otherwise firm 1 could do better by setting $P_A = \gamma$ while leaving all of its other prices unchanged: this price would make profitable sales of product A to those consumers not buying the bundle, while having no effect on firm 1's sales of either good $B1$ or the bundle (since consumers are indifferent about buying good A at this price).[6] In addition, since all consumers are purchasing the bundle (and therefore none are purchasing either A or $B1$ alone) it cannot be that $\bar{P}^0 < \gamma$ since, if it were, firm 1 could do better by offering only the bundle at a price of γ. But, if so, then setting $(\hat{P}_A = \gamma, \hat{P}_{B1} = \bar{P}^0 - \gamma)$ yields identical sales and profits to both firms given P_{B2}^0 and identical profits to firm 2 for all P_{B2}. Second, suppose instead that $\gamma \geq P_A^0$. Note first that we must have $\bar{P}^0 \geq P_A^0$ in such an equilibrium: otherwise all consumers would be buying firm 1's bundle (all consumers would be willing to buy good A individually and they can get good A cheaper by buying the bundle) and firm 1 would increase its profits by offering only the bundle at a price of γ. But if $\gamma \geq P_A^0$ and $\bar{P}^0 \geq P_A^0$, then each consumer buys either good A alone or the bundle from firm 1. In this case, prices of $(\hat{P}_A = P_A^0, \hat{P}_{B1} = \bar{P}^0 - P_A^0)$ yield identical sales and profits for both firms for all P_{B2}.

A similar argument establishes the equivalence for the subgame where only firm 1 is active. □

The basic idea behind Proposition 1 is fairly straightforward. First, it is always worthwhile for firm 1 to make sure that all consumers purchase product A either alone or in the bundle. Given that all consumers are consuming good A, however, if firm 1 engages in tying, then consumers choose between buying only good A or the bundle from firm 1. They do so by imputing

[6] I assume that all consumers will buy good A when $P_A = \gamma$. This assumption can be avoided through the use of limiting arguments, but it is made in order to ease the exposition.

an effective price of $(\bar{P}_1 - P_A)$ $((\bar{P}_1 - \gamma)$ if $P_A > \gamma)$ to the product $B1$ portion of the bundle, so that tying is effectively equivalent to an independent pricing strategy.

B. *Commitment and Strategic Foreclosure*

The negative result of Proposition 1 changes dramatically if firm 1 is able to precommit to tying through its choice of which goods it will be able to produce. In the three-stage game that I have described above, firm 1 can choose to produce seven different sets of goods: both goods individually, both goods individually and also a bundle, the bundle only, the bundle and product A, the bundle and product $B1$, A only, and $B1$ only. The argument in Proposition 1 implies that the first two options both yield outcomes equivalent to those in the independent pricing game and so they are strictly better for firm 1 than the last two (which yield lower profits to firm 1 in any subgame where it is active and at least as large profits to firm 2 when it is active). In fact, the following two lemmas indicate that firm 1's choice is essentially between producing independent goods and producing only the bundle.

LEMMA *1*: *Any subgame perfect equilibrium outcome in the subgame of the commitment game where firm* 1 *can produce only the bundle and product A is equivalent to a subgame perfect equilibrium outcome of the independent pricing game.*

PROOF:
The argument closely parallels that used to prove Proposition 1 and is omitted here. □

LEMMA 2: *Any subgame perfect equilibrium outcome in the subgame of the commitment game where firm* 1 *can only produce the bundle and product B1 is equivalent to a subgame perfect equilibrium outcome that arises in the subgame of the commitment game where firm* 1 *can only produce a bundle.*

PROOF:
In Appendix A. □

Given these results, firm 1 can restrict its attention to either producing goods A and $B1$ separately, which yields an outcome equivalent to that in the independent pricing game, or to committing to producing only a bundle. I now turn to an investigation of the competitive effects of this tying strategy. As the following result makes clear, such a commitment may make it unattractive for firm 2 to be active in the market.

PROPOSITION 2: *In the subgame of the commitment game where both firms are active and firm* 1 *has committed itself to producing only the bundle, firm* 2 *earns less than it does in the independent pricing game.*

PROOF:
In Appendix A. □

One might at first think that bundling in this context would have no effect at all: if firm 1 were charging independent prices of $P_A = \gamma$ and P_{B1}, a switch to bundling at a total price of $\gamma + P_{B1}$ would not change the demand for good $B1$ at all. The intuition for Proposition 2, however, centers on the way in which firm 1's pricing incentives change when it bundles. In an independent pricing game, firm 1's best response $P_{B1}^*(P_{B2})$ satisfies,

$$(1)\quad [P_{B1}^*(P_{B2}) - c_{B1}]x_1^1(P_{B1}^*(P_{B2}), P_{B2}) + x^1(P_{B1}^*(P_{B2}), P_{B2}) = 0.$$

By contrast, when firm 1 bundles and sets price $\bar{P}$, the demand for its bundle is given by $x^1(\bar{P} - \gamma, P_{B2})$ and its best response to firm 2's price P_{B2} by $\bar{P}^*(P_{B2})$ such that

$$(2)\quad [\bar{P}^*(P_{B2}) - c_A - c_{B1}] \times x_1^1(\bar{P}^*(P_{B2}) - \gamma, P_{B2}) + x^1(\bar{P}^*(P_{B2}) - \gamma, P_{B2}) = 0.$$

Note first that if $\gamma = c_A$, then $\bar{P}^*(P_{B2}) = P_{B1}^*(P_{B2}) + \gamma$. However, if $\gamma > c_A$, then at $\bar{P} = P_{B1}^*(P_{B2}) + \gamma$ the left-hand side of (2) is strictly negative. Thus, it must be that $\bar{P}^*(P_{B2}) < P_{B1}^*(P_{B2}) + \gamma$: firm 1's optimal ef-

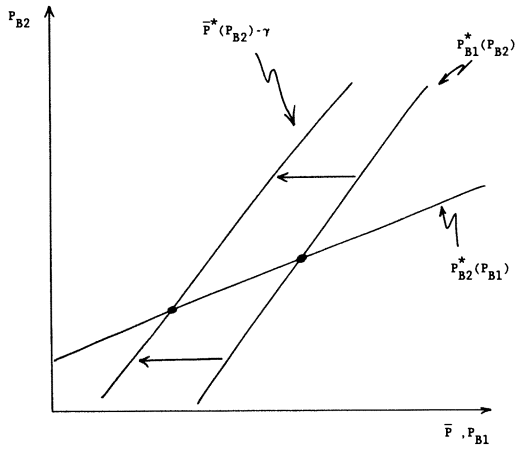

FIGURE 1

fective price for good $B1$ is lower under bundling than under independent good pricing. The reason is straightforward: when firm 1 is bundling, in order to make profitable sales of its monopolized product, good A, it must also make sales of good $B1$. This leads it to cut price in an effort to take sales away from firm 2, an effect I call "strategic foreclosure."[7] The effect on the equilibrium can be seen in Figure 1, where the equilibrium effective price for $B1$ and actual price for $B2$ both fall as a result of firm 1's bundling, thereby lowering firm 2's profits. Thus, by committing to tie by producing only a bundle, firm 1 may make continued operation unprofitable for its tied good rival. This point emerges particularly clearly in the following simple example, which is a limiting case of the above model.

Example 1. Suppose that all consumers view products $B1$ and $B2$ as perfect substitutes with value v, that $(c_{B1} - c_{B2}) > K_2 > 0$ and, to focus attention on firm 2's activity decision, that $K_1 = 0$ (this could be a situation of entry deterrence where only firm 1 has already sunk its market B set-up costs). Then the subgame perfect equilibrium outcome of the independent pricing game has firm 2 being active in market B, making all sales in that market, and earning profits of $(c_{B1} - c_{B2}) - K_2 > 0$.[8] By contrast, if $(c_{B2} - c_{B1}) + (\gamma - c_A) > 0$ and firm 1 commits to bundling, firm 2 earns zero if it is active, and so the unique equilibrium outcome involves firm 2 being inactive and firm 1 extracting all of the consumers' surplus. ■

Note that if both firms are active, firm 1's profits are also lower in the bundling regime than under independent pricing. This is true because bundling not only loses some profitable sales of good A, but also causes firm 2 to lower its price.[9] Thus, in this model, firm 1 would never commit to tying unless this would succeed in driving firm 2 out of the market.[10]

[7]Jean Tirole has pointed out a nice analogy to situations in which firms can invest in cost reduction. Here, by bundling, firm 1 can incur an "investment cost" of $(\gamma - c_A)$ (the lost good A sales) but thereby lowers its effective marginal cost in market B by $(\gamma - c_A)$. This lowering of marginal cost makes firm 2 more agressive in market B. As noted in Drew Fundenberg and Tirole (1984) (see also Tirole, 1988), with price competition (strategic complements) and entry deterrence/exit inducement, firms overinvest in cost reduction relative to what they would do absent this strategic effect (a "top dog" strategy), a comparison analogous to my commitment versus no commitment games.

[8]I am ignoring subgame perfect equilibria in which a firm prices below cost and makes no sales. These equilibria involve weakly dominated strategies and can be formally eliminated here through the use of R. Selten's (1975) notion of trembling-hand perfect equilibria (formally one examines discrete approximations to the game considered in the text where prices must be named in some discrete unit of account).

[9]Note that these lower profits can potentially force firm 1 to exit should it commit to tying and have positive fixed costs in market B (if it believes that firm 2 will be active). If product A is very profitable, however, this effect is unlikely to occur.

[10]One special feature of this model, however, is that firm 2 can "concede" to firm 1 only by fully withdrawing from the market. In other models in which concession can be partial, this need not be true. For example, if market competition is of the form described in David M. Kreps and Jose A. Scheinkman (1983) (product production followed by output constrained price competition), then firm 2 will respond to firm 1's more aggressive behavior by reducing its production level, which can make tying profitable even in the absence of complete exclusion.

When tying would drive firm 2 out of the market, firm 1 may or may not find it profitable to do so. The advantage of tying in such an instance is the gain from converting market B from duopoly into a monopoly. The potential loss, however, comes from the fact that firm 1 will be a monopolist who can only offer a bundle. Thus, the presence of a large number of consumers who strongly dislike product $B1$ may make a commitment to bundling unprofitable, even when it leads to exclusion.

At the same time, the welfare consequences of allowing tying in this circumstance are unclear both for consumers and for aggregate efficiency. First, consumers can lose both because of the price effects stemming from the exclusion and also because there is less variety available in market B. The price effect, however, can potentially go either way. The reason is that the same incentive to lower the effective price of good $B1$ that drives firm 2 from the market is also present when firm 1 becomes a monopolist in market B. In general, though, one should expect that if the gains from monopoly in market B are large, the standard price movement should be upward, making consumers uniformly worse off. The effect on aggregate efficiency is still less certain. This is due to two different common welfare ambiguities. First, the biases associated with the free entry process (Spence, 1976; Salop, 1979; Mankiw and Whinston, 1986) imply that exclusion of firms does not necessarily reduce aggregate welfare. Second, it is known from the monopolistic bundling literature (Adams and Yellen, 1976) that bundling in a monopoly setting has ambiguous welfare consequences.

The following example illustrates these points more concretely and also helps to set up the discussion in Section II.

Example 2. Suppose that a consumer of type d has a valuation for good Bi of $v_{Bi} = w - \alpha_i d$, and that d is uniformly distributed on $[0,1]$. Assuming that we have all consumers purchasing from some firm and both firms making sales (so that our earlier assumptions hold in the relevant range), it is straightforward to show that equilibrium prices and profits (gross of fixed costs) in an independent pricing game are given by

$$P_A^0 = \gamma$$

$$P_{Bi}^0 = c_{Bi} + (1/3) \times \left[3\alpha_j + (\alpha_i - \alpha_j) + (c_{Bj} - c_{Bi})\right]$$

$$\Pi_1^0 = (\gamma - c_A) + \left[1/9(\alpha_1 + \alpha_2)\right] \times \left[3\alpha_2 + (\alpha_1 - \alpha_2) + (c_{B2} - c_{B1})\right]^2$$

$$\Pi_2^0 = \left[1/9(\alpha_1 + \alpha_2)\right] \times \left[3\alpha_1 - (\alpha_1 - \alpha_2) - (c_{B2} - c_{B1})\right]^2.$$

In contrast, profits (gross of fixed costs) for firm 2 when firm 1 bundles are given by

$$\Pi_2^0 = \left[1/9(\alpha_1 + \alpha_2)\right]\left[3\alpha_1 - (\alpha_1 - \alpha_2) - (c_{B2} - c_{B1}) - (\gamma - c_A)\right]^2,$$

which is lower than in the independent pricing case. Note also that firm 2's profits fall as the surplus associated with good A, $(\gamma - c_A)$, rises. In order to illustrate the other points made above, I consider three special cases of this model in turn: $\alpha_1 = 0$, $\alpha_1 = \alpha_2$, and $\alpha_2 = 0$.

Consider first the case where $\alpha_1 = 0$. In this case, firm 1 always increases its profits by excluding firm 2 (that is, monopoly profits with bundling are greater than duopoly profits with independent good pricing). This is because as a monopolist firm 1 suffers no loss from bundling. Furthermore, the monopoly bundle price of $(w + \gamma)$ leaves all consumers with zero surplus. While all consumers are made worse off, aggregate welfare may rise or fall: if $c_{B2} > c_{B1}$ aggregate welfare must rise since all consumers are still served, and production costs fall. When $c_{B2} < c_{B1}$, the change in aggregate efficiency is given by $\Delta W = K_2 - \alpha_2(c_{B1} - c_{B2})^2$.

For simplicity, assume now that $c_{Bi} \equiv c_B$. When $\alpha_1 = \alpha_2 \equiv \alpha$, the independent pricing equilibrium has full coverage of market B whenever $w > c_B + (3/2)\alpha$. For simplicity, I

also assume that $(\alpha/2) < (\gamma - c_A)$, which implies that firm 1 will always sell its bundle to all consumers when it is a monopolist (the qualitative results in the other case are similar). In that case, firm 1's price and profits are given by

$$\bar{P}^0 = w + \gamma - \alpha$$

$$\Pi_1^0 = w + \gamma - \alpha - c_A - c_B.$$

Comparison of these expressions with those for the independent pricing game (setting $\alpha_1 = \alpha_2$) reveals that firm 1 always gains from exclusion. The effective price of good $B1$ $(\bar{P} - \gamma)$, however, falls whenever $(c_B + (3/2)\alpha) \leq w \leq (c_B + 2\alpha)$, so that some consumers (for example, those who were already buying $B1$) are made better off in these cases. Aggregate consumer surplus, however, never rises here: with an independent pricing duopoly, consumer surplus is $w - c_B - (5/4)\alpha$, while it is $(\alpha/2)$ with a bundling monopolist.

Finally, when $\alpha_2 = 0$, firm 1 profits in an independent goods pricing duopoly are given by $\Pi_1^0 = (\gamma - c_A) + (1/3)\alpha_1$ (an interior solution arises whenever $w > c_B + (2/3)\alpha_1$). Then, assuming again that $(\alpha_1/2) < (\gamma - c_A)$, we have that firm 1's profits rise from this exclusion if and only if $w > c_B + (4/3)\alpha_1$. Notice that exclusion is more likely to be profitable as the value of monopolizing market B rises (increases in $(w - c_B)$ and decreases in α_1) and as the competitive constraint that firm 2 imposes when it is in the market becomes more severe (decreases in α_1). ■

II. Heterogeneous Consumer Preferences for Good A

The results of Section I provide two important lessons. First, tying can be profitably used as an exclusionary device. Second, there may be important differences in the likelihood of its use, depending on whether a commitment to tying is possible. A feature of that model, however, was the strong assumption that all consumers have the same valuation of the tying good. In this section, I investigate the effects of relaxing that assumption. Two points emerge from this investigation. First, a commitment to tying need not always result in foreclosure as it did in the model of Section I. Second, when consumer valuations for the tying good differ, tying can be a profitable strategy for firm 1 even in the absence of an ability to commit, and when it is, it may lower firm 2's profitability in a similar manner to that observed earlier. In the following two subsections I consider first the case of commitment and then that of no commitment.

A. *Commitment*

In the model of Section I, firm 1's commitment to offering only a bundle lowered firm 2's sales because it created an incentive for firm 1 to price more aggressively, lowering its bundle price below $P_{B1}^*(P_{B2}) + \gamma$ (strategic foreclosure). More generally, when consumers have heterogeneous preferences for good A, the impact of tying on firm 2's profits can be determined by asking whether, at the bundle price $\bar{P}'$ such that firm 2's sales equal its independent pricing level (i.e., $\bar{P}'$ such that $x^2(\bar{P}' - \gamma, P_{B2}) = x^2(P_{B1}^*(P_{B2}), P_{B2})$), firm 1 has an incentive to lower its price further.[11] This will be true when

$$(3)\quad (\bar{P}' - c_A - c_B)\frac{d\,\text{Bundle Sales}}{d\bar{P}} + x^1(P_{B1}^*(P_{B2}), P_{B2}) < 0.$$

With homogeneous preferences for good A, for example, the inequality in condition (3) is satisfied because $(\bar{P}' - c_A - c_B) > P_{B1}^*(P_{B2}) - c_{B1}$ and $(d\,\text{Bundle Sales}/d\bar{P}) = x_1^1(P_{B1}^*(P_{B2}), P_{B2})$.

[11] Here, unlike in Section I, firm 1 may prefer to commit to producing the bundle plus one of the two goods independently as part of an exclusionary strategy (i.e., Lemmas 1 and 2 do not hold here). I focus on the case of a commitment to pure bundling here to provide a comparison with the result in Section I. These other strategies may also lower firm 2's equilibrium profits. If they do so sufficiently to exclude firm 2 from the market, then they will actually be preferred by firm 1 to pure bundling, since they restrict its pricing to a lesser degree when firm 2 is out of the market.

Condition (3) indicates that, with heterogeneous valuations for good A, a commitment to offering only a bundle may fail to lower firm 2's profits for two distinct reasons. First, enough consumers may find good A unattractive (may have valuations below the cost of production) so that firm 1 may have a lower, rather than a higher, margin at price $\bar{P}'$. In such a case, firm 1's monopoly of good A is too weak for bundling to be an effective exclusionary threat in market B; bundling would help rather than hurt firm 2. This effect, of course, is exactly what one should expect a priori.

The second reason is a bit more subtle. As noted above, with homogeneous valuations, the derivative of bundle demand at price $\bar{P}'$ is identical to that arising in market B with independent goods pricing. With heterogeneous valuations, however, this demand derivative can change when firm 1 bundles, potentially counteracting the price-cost margin effect. The clearest example of this occurs in the limiting case where products $B1$ and $B2$ are nearly homogeneous.[12] Then bundling essentially transforms a nearly homogeneous market B into a setting with vertical differentiation (since all consumers value the bundle more than $B2$, but they differ in how large this valuation difference is—see, for example, Avner Shaked and John Sutton, 1982) and can thereby raise firm 2's profits.

The following example, which is an extension of Example 2, illustrates these points.

Example 3. The model considered here is identical to that in Example 2 except that I now allow there to be different possible levels of consumer valuations for product A. I assume that the distribution of γ in the population is described by $F(\gamma)$ and that for all d, $\text{Prob}(\gamma \le s|d) = F(s)$ (i.e., types are independently distributed across the two markets). In the discussion that follows, I assume that w is large enough so that (in the relevant range) all consumers purchase product B from one of the firms.

[12]Note that this requires that the K_i's are close to zero if independent pricing would result in a duopoly.

Suppose that firm 1 commits to tying by producing only a bundle. A consumer of type (γ, d) will buy the bundle if and only if $d \le (1/\alpha)[(\bar{P} - \gamma) - P_{B1}]$. It is useful to first assume that for any level of γ some consumers of that type are buying from each of the firms ("interior equilibria"). For interior equilibria, equilibrium profits for the two firms are given by

$$\Pi_1^0 = [1/9(\alpha_1 + \alpha_2)][3\alpha_2 + (\alpha_1 - \alpha_2) + (c_{B2} - c_{B1}) + (E\gamma - c_A)]^2$$

$$\Pi_2^0 = [1/9(\alpha_1 + \alpha_2)][3\alpha_1 - (\alpha_1 - \alpha_2) - (c_{B2} - c_{B1}) - (E\gamma - c_A)]^2,$$

where $E\gamma = \int s\,dF(s)$. Comparing firm 2's profits to its level under independent goods pricing (derived in Section I), we see that firm 2's profits are lower in the bundling equilibrium as long as $E\gamma > c_A$. Thus, as one would expect, if there are enough consumers who dislike product A (have γ levels below c_A), tying raises rather than lowers firm 2's profits. Relating this finding to condition (3), we see that bundling has no effect on the demand derivative, but that $\bar{P}'$ is now given by $\bar{P}' = P_{B1}^*(P_{B2}) + E\gamma$ so that the inequality in (3) holds if and only if $E\gamma > c_A$.

It is worth noting, however, that the lack of any effect on the demand derivative term in (3) relies heavily on the linearity of the demand structure assumed here. If bundling were to lower this average derivative (in absolute value), this would work against the incentive for more aggressive pricing that arises in this linear model. In fact, this is why interiority of the equilibrium is important for the characterization above. When bundling causes all consumers with some values of γ strictly to prefer either the bundle or good $B2$, this lowers the derivative of firm 1's demand with respect to its bundle price (since none of these consumers are marginal). Intuitively, this effect seems more likely to occur when the dispersion of valuations for good A increases and the

TABLE 1

	$\beta \geq \alpha$	$\beta < \alpha$
$\gamma \geq 3\lvert\beta - \alpha\rvert$	$\Pi_2^{BUND} < \Pi_2^{IND}$	$\Pi_2^{BUND} < \Pi_2^{IND}$
$\gamma \leq 3\lvert\beta - \alpha\rvert$	$\Pi_2^{BUND} < \Pi_2^{IND}$ if and only if: $\left(\frac{3\beta - \gamma}{3}\right)^2 < \alpha\beta$	$\Pi_2^{BUND} < \Pi_2^{IND}$

differentiation between products $B1$ and $B2$ decreases.

To investigate this effect further, consider the special case where γ is uniformly distributed on the interval $(\gamma - \beta, \gamma + \beta)$, where $\beta \leq \gamma$, $c_{B1} = c_{B2} = 0$, and $\alpha_1 = \alpha_2 \equiv \alpha > 0$.[13] In this example, the issue addressed above, that some consumers may value good A at less than its production cost, does not arise (here $E\gamma > c_A$). Rather, the focus here is on the effects of the level of valuation dispersion for good A and the level of product differentiation in market B. Tedious calculations (an example of which is provided in Appendix B) reveal that the effect of a commitment by firm 1 to offering only a bundle on firm 2's profits can be summarized as in Table 1. Examination of the condition in the lower left-hand box (the only case where firm 2's profits are not necessarily lowered by firm 1's bundling) confirms that high levels of dispersion of valuations for good A and low levels of differentiation in market B are necessary for firm 2's profits to rise when firm 1 bundles. Interestingly, though, even when α is close to zero, we need γ not to be too large for this to occur (so that the incentive to make sales of A does not outweigh the differentiation effect).[14] Note also that firm 1's profits may now rise with bundling even if bundling does not drive firm 2 from the market. In fact, in this example, whenever bundling causes firm 2's profits to rise, firm 1's profits rise as well and, further, firm 1's rise in some cases where firm 2's profits fall (this is shown in Appendix B). ■

B. *No Commitment*

The presence of heterogeneous valuations of product A can also cause tying to be firm 1's optimal strategy even in the absence of an ability to commit to this strategy. To see this more clearly, consider first the no commitment game analyzed in Section I. In that game, when both firms are active in market B, firm 1 selects its prices taking firm 2's price as given and acting as a monopolist on the residual demand structure. Given the literature on bundling by multiproduct monopolists (Adams and Yellen, 1976; McAfee, McMillan, and Whinston, 1989), which has found bundling to be a profitable strategy quite generally, it should not be surprising that firm 1 may now find some form of bundling to be its best response to firm 2's price choice. What is interesting from our perspective, however, is that this tying strategy by firm 1 may have detrimental effects on firm 2's profits since, when firm 1 does decide to bundle, it may have an incentive to foreclose sales in market B in a manner similar to that discussed in Section I.

In Whinston (1987), for example, I considered the structure described in Example 3 with two types of valuations for good A, γ_L and γ_H with $\gamma_H > c_A$ and $\text{Prob}(\gamma_H) = \lambda$. For this case I showed that any equilibrium of the no precommitment game is equivalent to an equilibrium of a game where firm 1 is allowed to either sell A and $B1$ independently or to offer only the bundle and

[13] My investigation of this example is motivated in part by the example analyzed in independent work by J. Carbajo, D. DeMeza, and D. J. Seidmann (1987). They illustrate the differentiation effect in an example with homogeneous goods in market B and valuations for goods A and B that are perfectly correlated and uniformly distributed across consumers. Earlier versions of this paper pointed out the implications of noninteriority for the derivative of demand in the context of a two-type (of γ) example.

[14] The reader may be puzzled by this point since it seems that when $\alpha = 0$ firm 2's profits would always rise with bundling. In fact, when $\alpha = 0$, the upper left box would have $\Pi_2^{BUND} = \Pi_2^{IND}$ and firm 1 making all sales when it bundles.

product A at price $P_A \in (\gamma_L, \gamma_H]$.[15] In addition, the equilibrium may involve firm 1 pursuing the latter (bundling) strategy, though a necessary condition for this is that $\gamma_L > c_A$ (see Whinston, 1987, for details). When the equilibrium does involve bundling and is "interior" in the sense discussed above, firm 2's profits are

$$\Pi_2^0 = [1/9(\alpha_1 + \alpha_2)][3\alpha_1 - (\alpha_1 - \alpha_2) - (c_{B2} - c_{B1}) - (1-\lambda)(\gamma_L - c_A)]^2.$$

Thus, when firm 1 does tie here, it forecloses firm 2's sales in a similar manner to that observed earlier. Note, though, that firm 2's equilibrium profits are larger here than when firm 1 commits to only offering a bundle. The reason is that when firm 1 also offers product A independently, it is assured of making sales of product A to all type H consumers regardless of whether they buy product $B1$; thus, here the incentive for foreclosure arises only from the L types and firm 2's profits fall only if $\gamma_L > c_A$.

Though the effect of firm 1's tying here may be exclusionary (firm 2, anticipating that firm 1 will tie, may choose to be inactive), one might argue that its motives are in some sense "innocent" since its decision to tie is never affected by the possibility that firm 2 might be excluded from the market. Such dynamic considerations, however, may be important even when firm 1 cannot precommit to tying. For example, if firm 2 faces a financial constraint that it must meet in order to remain active in the market (as in the work of J. P. Benoit, 1984; and Drew Fudenberg and Jean Tirole, 1986), firm 1 may be led to use tying in order to lower firm 2's profits and increase the likelihood that firm 2 will be forced to exit the market, even when tying is not profit-maximizing in a static sense.

To formalize this idea, consider a simple extension of the earlier no commitment model in which there are two production periods. If firm 2 decides to be active and incurs the set-up cost K_2 prior to period 1, it may face a financial constraint that it must meet after period 1 in order to be able to remain in the market in period 2. In particular, suppose that with probability $1-\theta$ firm 2 will not face a financial constraint, while with probability $\theta f(\Pi)$ firm 2 will face a constraint that prohibits continued participation if first-period profits were less than Π and assume that $f'(\Pi) \geq 0$ (there is a diminishing marginal return to predation).

In this setting, what is the effect of an increase in θ on the attractiveness of tying for firm 1? It is not difficult to see that for the two type example if $\gamma_L > c_A$ (and outcomes are "interior") then increases in θ make tying a relatively more attractive policy for firm 1 in period 1 for any given level of P_{B2}. The central (and very general) idea is that increases in θ make firm 1 care more about foreclosure relative to current profits.

To see this more formally, let G denote the benefit to firm 1 if firm 2 does not meet its financial constraint and fix some initial level of θ and P_{B2}. Suppose, first, that firm 1 pursues its best independent pricing policy and that this results in a profit level for firm 2 of Π_2^I. Then, firm 1's price choices are equal to the level that it would choose in the simple one production period model if its marginal costs of production for $B1$ were $c_{B1} - \theta G f(\Pi_2^I)(P_{B2} - c_{B2})$ instead of c_{B1}. Likewise, if firm 1 pursues its optimal bundling strategy and thereby gives firm 2 profits of Π_2^B, then its prices are equal to those it would pick in the static game if its marginal cost was

$$c_{B1} - \theta G f(\Pi_2^B)(P_{B2} - c_{B2}).$$

Since we have seen that the optimal bundling strategy in the one period no pre-

[15] That is, we can without loss of generality restrict firm 1's pricing strategy choices to one of these two forms. This equivalence actually holds for any market B structure that satisfies the assumptions made in Section II (a proof of this fact is available from the author upon request). It is worth noting that a bundling strategy of this sort may not appear to be tying at all since firm 1 does offer to sell product A at a price that some consumers are willing to pay. For type L consumers, however, this offer is unattractive, putting them in exactly the same situation as when firm 1 offers only a bundle.

commitment game results in lower profits for firm 2 then does the optimal independent pricing policy for any given level of c_{B1} (since $\gamma_L > c_A$), it must be that $\Pi_2^B < \Pi_2^I$ (that is, that bundling leads to foreclosure). But the envelope theorem then implies that a small increase in θ raises the profits from the optimal bundling best response by more than it raises the profits from the optimal independent pricing best response (since the derivative of firm 1 profits with respect to θ is $GF(\Pi_2)$). Thus, in this example, increases in θ strictly increase the likelihood that firm 1 will find bundling to be its best response (since bundling is never optimal if $\gamma_L < c_A$).[16]

III. Complementary Products

I now turn to the case of complementary products used in fixed proportions. I first consider a model of fixed proportions that is essentially an extension of the simple example quoted above from Posner (1976) to the case where the tied good market involves differentiated products with scale economies in production and an oligopolistic, rather than a competitive, market structure. Despite these differences, I show that Posner's central contention continues to hold: a monopolist of one component never finds it worthwhile to tie in order to reduce the level of competition in the market for the other component. The key point is that with complementary products used in fixed proportions, the monopolist can actually derive *greater* profits when its rival is in the market than when it is not because it can benefit through sales of its monopolized product from the additional surplus that its rival's presence generates (due to product differentiation).

Nevertheless, I then show that in two natural extensions of this model in which the monopolized product is no longer essential for all uses of other components, tying once again emerges as a profitable exclusionary strategy. In one case, the presence of an inferior, competitively supplied alternative to the "monopolized" component leads to results that parallel those of the independent products case. In the other case, the existence of a second use for the nonmonopolized product (such as a replacement part market) can give the monopolist an incentive to tie in order to eliminate competition in this other market.

The discussion in the text focuses on the case of precommitment. In fact, for each of the models considered here, any no precommitment outcome is equivalent to an equilibrium of the independent pricing game.[17] Of course, this is therefore also true when firm 1 produces A and $B1$ independently in the commitment game. In order to simplify the exposition, in Parts B and C below, I will use this fact and simply compare bundling outcomes to the independent pricing game equilibria when investigating whether firm 1 would find a commitment to bundling to be a profitable exclusionary device.

A. *The Basic Model*

Consider the following simple model. There are two components needed to comprise a system, A and B: a system consists of one unit of each. As before, firm 1 is a monopolist of component A, and two different versions of component B could potentially be available, $B1$ and $B2$. The production technology for these products is as before.

[16]The two-type of γ example considered here is special in one sense. With more general distributions of γ, firm 1's best response in the one period no precommitment game will quite generally involve some form of bundling (see McAfee, McMillan, and Whinston, 1989). In such cases, one would have to examine how increases in θ affected the degree of bundling (i.e., the difference between $\bar{P}$ and $P_A + P_{B1}$).

[17]The proofs of this fact for the three models presented in this section are available from the author upon request. For the model of Part C, the result requires the use of Selten's (1975) notion of trembling-hand perfection in order to eliminate the use of weakly dominated strategies. In Parts B and C this equivalence is a consequence of the homogeneity of valuations assumed there (as in Section I).

The set of consumers is the same as in Section I. Each consumer demands at most one unit of the system. A consumer of type d's valuation of a system with product Bi is $v_{A/Bi}(d)$. When goods A, $B1$, and $B2$ are independently priced, consumers' demand for an A/Bi system is given by some function $x^i(P_A + P_{B1}, P_A + P_{B2})$, where $x^i_j(\cdot,\cdot) \geq 0$ if $i \neq j$ and ≤ 0 if $i = j$, with strict inequalities whenever $x^i(\cdot,\cdot) \in (0,1)$, and where $(x^1_i(\cdot,\cdot) + x^2_i(\cdot,\cdot)) \leq 0$.

In the case of independent products we implicitly assumed that purchase of a produced bundled unit allowed the independent use of either of the products (the proof of Lemma 1, for example, uses this fact). Though natural in the case of independent products, this assumption is less so when products must be used together. For example, the bundling of a stereo tuner and a stereo amplifier into a stereo receiver may not allow the buyer to use just the amplifier in conjunction with another manufacturer's tuner. Thus, here I assume that production of a bundled good does not allow the user to use only part of the bundle.

In this model, since component A is essential to any system, firm 1 is trivially able to exclude firm 2 by committing to produce only a bundle. Nevertheless, as the following proposition indicates, firm 1 never finds it worthwhile to tie in order to exclude firm 2.

PROPOSITION 3: *If a commitment to tying causes firm 2 to be inactive, firm 1 can do no worse — and possibly better — by committing to producing only independent components.*

PROOF:

Suppose that firm 1's precommitment to tying (by not producing one or both of the components individually) causes firm 2 to be inactive. In this case, since only firm 1's bundle price is relevant once firm 2 is inactive, firm 1's profits given its optimal bundle price of $\bar{P}^*$ are

$$(\bar{P}^* - c_A - c_{B1})x^1(\bar{P}^*, \infty).$$

Suppose that firm 1 instead commits to only producing components A and $B1$ independently. One pricing policy that it can always follow, regardless of whether firm 2 is active, is to set individual component prices of $\hat{P}_{B1} = c_{B1} - \varepsilon$ (where $\varepsilon > 0$) and $\hat{P}_A = \bar{P}^* - \hat{P}_{B1}$. If firm 2 is inactive, this pricing scheme leads to exactly the same level of profits as did the bundling outcome. If firm 2 is active, however, firm 1's profits will be at least as large as those in the bundling outcome since they are given by

$$(\bar{P}^* - c_A - c_{B1})\left[x^1\left(\bar{P}^*, \hat{P}_A + P_{B2}\right) + x^2\left(\bar{P}^*, \hat{P}_A + P_{B2}\right)\right] + \varepsilon x^2\left(\bar{P}^*, \hat{P}_A + P_{B2}\right),$$

when firm 2 names price P_{B2} (since $x^1(\cdot,\cdot) + x^2(\cdot,\cdot)$ weakly increases when prices fall and $x^2(\cdot,\cdot)$ is nonnegative). □

The basic idea behind this result is fairly simple to see. If firm 2 did not exist, firm 1 could do as well as it does through bundling by setting independent prices that had component $B1$ priced at or below cost and component A's price set at a high level; it would simply earn all of its profits on sales of component A (consumers' purchases depend only on the sum of the prices). But, if pricing in this manner leads firm 2 to be active, this can only raise firm 1's profits since firm 1 would then sell more component A's (on which it makes profits) and fewer component B's (on which it has a negative margin). Intuitively, firm 1 is able to benefit through sales of its product A from the increase in surplus generated by firm 2's presence.

While firm 1 never gains from committing to tying here if this forces firm 2 to be inactive, firm 1 may commit to tying in order to price discriminate. For example, suppose that some set of consumers get positive benefits only out of an $A/B1$ system, while the remainder get positive benefits only out of an $A/B2$ system, and that the latter group's valuation of its desired system is much higher. Then firm 1 will want to set a

very high price for good A in order to extract surplus from this latter group, and a very low price for good $B1$ in order to get an optimal $A/B1$ system price for the former group. If this attempt hits the nonnegativity constraint on P_{B1}, however, then firm 1 will find it worthwhile to tie by offering a bundle with price $\bar{P} < P_A$.[18]

Firm 1's lack of desire to use tying as an exclusionary device can change dramatically, however, when firm 1's monopolized component is not essential for all uses of product $B2$. I now consider two natural extensions of the above model in which tying can prove to be not only an effective exclusionary device but also a profitable one.

B. *An Inferior, Competitively Supplied Component A: Strategic Foreclosure*

Suppose that there exists a uniformly inferior, competitively supplied alternative to firm 1's product A, denoted as product $A2$ (henceforth, firm 1's product A will be denoted by $A1$). The cost of component $A2$ is also c_A, but compared with the valuations described above for $A1/B1$ and $A1/B2$ systems, a consumer's valuation for a system that has product $A2$ in it rather than $A1$ is $(\gamma - c_A)$ lower (i.e., $v_{A2/Bi}(d) = v_{A1/Bi}(d) - (\gamma - c_A)$) where $\gamma > c_A$.

Consider, first, the independent pricing game (which, as noted above, yields an outcome identical to what occurs if firm 1 produces A and $B1$ only independently). In this game, firm 1 always sets $P_{A1} \leq \gamma$ and makes all component A sales. When firm 1 sets $P_{A1} < \gamma$ in this equilibrium, the inferior alternative (product $A2$) is irrelevant for pricing and profits. In the case where $P_{A1} = \gamma$, however, the presence of the inferior product $A2$ constrains firm 1's equilibrium pricing and profits. This could mean that, contrary to Proposition 3, firm 1 would prefer to have firm 2 out of the market (firm 1 can no longer necessarily benefit through its component $A1$ sales from the surplus created by the presence of firm 2).[19] Example 4 illustrates this point and shows how the presence of component $A2$ can make competitive interaction here look very much like the independent products case considered earlier.

Example 4. Suppose that $v_{A1/Bi}(d) = w - \alpha d$, $c_A > 0$ and $c_{B1} = c_{B2} \equiv c_B > 0$, and that $w \geq 2\alpha + c_A + c_B$ (to ensure that all consumers buy a system; note the parallel to Example 2). Ignoring the constraint imposed by the presence of product $A2$, the independent pricing equilibrium level of P_{A1} is increasing in w.[20] When $w > \gamma + c_B + (3/2)\alpha$, the unique equilibrium involves prices of $P_A^0 = \gamma$ and $P_{B1}^0 = P_{B2}^0 = c_B + \alpha$, and all consumers receive positive surplus (see Figure 2). Profits (gross of fixed costs) are given by

$$\Pi_1^0 = (\gamma - c_A) + (\alpha/2)$$

$$\Pi_2^0 = (\alpha/2).$$

Note that this equilibrium essentially replicates the independent goods outcome from Section II (Example 2 with $\alpha_1 = \alpha_2$ and $c_{B1} = c_{B2}$). That is, the presence of a competitive constraint from product $A2$ serves to "uncouple" the two component markets. As in the independent products case, if w is large, firm 1's profits are increased by firm 2 being inactive (firm 1 then acts as a systems

[18]This point is analogous to the observation that an upstream monopolist may wish to integrate vertically forward into one of the industries that uses its product in order to achieve price discrimination across users (see, for example, Tirole, 1988, p. 141). Note that bundled production is essential for this purpose since otherwise the second set of consumers would buy the bundle to get their component A whenever the bundle price was lower than the price of good A alone.

[19]The fact that the presence of an inferior competitively supplied product A can potentially prevent firm A from deriving maximal (two-product monopoly) profits has also been noted in Ordover, Sykes, and Willig (1985).

[20]More precisely, though multiple equilibria exist in the game when component $A2$ does not exist (corresponding to a range of values for P_{B1} and P_{B2} that is independent of w), in any such equilibrium the level of P_A is given by $P_A^* = w - (1/2)[\alpha + c_B - 3P_{B1}^*]$.

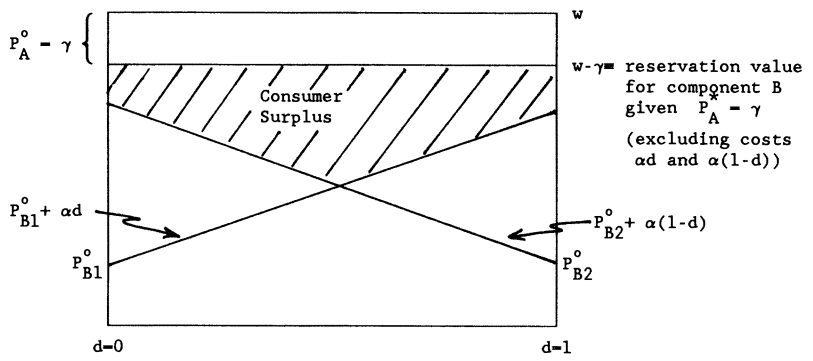

FIGURE 2

monopolist setting an $A1/B1$ system price of w).[21] ■

Now consider the commitment game. When firm 1 would prefer firm 2 to be out of the market, can a commitment to tying by firm 1 force firm 2 out of the market (note that firm 1's component $A1$ is not essential)? The answer is yes, and for the same basic reason as in Section I: when it is only able to sell a bundle, firm 1 can only gain its profits from component $A1$ if it also sells component $B1$; this causes firm 1 to foreclose sales in the component B market. To see this formally, suppose that firm 1 can only produce a bundle. When the presence of product $A2$ constrains firm 1's pricing in an independent pricing game (so that $P_{A1} = \gamma$), firm 1's price for component $B1$ given firm 2's price P_{B2} is given by $P_{B1}^*(P_{B2})$ such that

$$(4)\quad \{[P_{B1}^*(P_{B2}) - c_{B1}]x_1^1(\gamma + P_{B1}^*, \gamma + P_{B2}) + x^1(\gamma + P_{B1}^*, \gamma + P_{B2})\} + (\gamma - c_A)[x_1^1(\gamma + P_{B1}^*, \gamma + P_{B2}) + x_1^2(\gamma + P_{B1}^*, \gamma + P_{B2})] = 0.$$

The first term of this expression represents the effect on sales of component $B1$ of marginally changing P_{B1}, while the second is the effect on sales of component $A1$. Note that this second change is due to the *total* change in system sales. In contrast, when firm 1 commits to bundling, its optimal bundle price given firm 2's price, P_{B2}, is given by $\bar{P}^*(P_{B2})$ such that

$$(5)\quad [\bar{P}^*(P_{B2}) - c_A - c_{B1}]x_1^1(\bar{P}^*, \gamma + P_{B2}) + x^1(\bar{P}^*, \gamma + P_{B2}) = 0.$$

At $\bar{P} = P_{B1}^*(P_{B2}) + \gamma$, this expression becomes

$$(6)\quad \{[P_{B1}^*(P_{B2}) - c_{B1}]x_1^1(\gamma + P_{B1}^*, \gamma + P_{B2}) + x^1(\gamma + P_{B1}^*, \gamma + P_{B2})\} + (\gamma - c_A)x_1^1(\gamma + P_{B1}^*, \gamma + P_{B2}).$$

Note that $x_1^2(\cdot,\cdot)$ does not appear in the second term of (6). This represents the fact that when firm 1 bundles, only by increasing sales of $A1/B1$ systems does it increase the sales of component $A1$. Firm 1 is therefore led to set $\bar{P}^*(P_{B2}) < P_{B1}^*(P_{B2}) + \gamma$, foreclosing sales in market B and lowering firm 2's profits.[22] Thus, by committing firm 1 to

[21] Unlike the independent products case, firm 1 suffers no loss from bing restricted to bundle when it is a monopolist. Rather, here the cost of exclusion of firm 2 is that firm 1 is unable to capture any of the surplus created by firm 2 (through firm 1's sales of component A).

[22] This incentive for foreclosure is similar to the effects studied in Carmen Matutes and Pierre Regibeau (1986). They study product compatibility in a symmetric duopoly and identify a collusive incentive to

"strategic foreclosure," tying can exclude firm 2 from market B and thereby raise firm 1's profits.[23,24]

Example 4 *cont.* If firm 1 commits to only producing a bundle, firm 2's equilibrium profit when both firms are active is given by

$$\Pi_2^0 = \max\left\{0, (1/2\alpha)\left(\alpha - \frac{\gamma - c_A}{3}\right)^2\right\},$$

which is lower than its profit under independent pricing. Note that if firm 1 bundles and forces firm 2 to be inactive, all consumers receive zero surplus here (although, as usual, aggregate welfare may either fall or rise). ■

C. *An Alternative Use for Product B: Direct Foreclosure*

Next, consider an alternative variation in the basic model. Suppose that there exists an alternative use for component B that does not rely on the simultaneous purchase of component A. One example of such a use is a replacement parts market for existing owners of a system who need to replace only component B. Because component A is not essential for the use of product B in that market, firm 1 is not able to benefit from firm 2's presence in this market through sales of good A and the logic of Proposition 3 therefore breaks down. Firm 1 may now find it worthwhile to exclude firm 2, if it can, in order to monopolize this other market for product B. Furthermore, because component A is still essential for certain uses of product B, firm 1 may have the means to accomplish this end: by offering to sell compoent A only in a bundle with component $B1$, firm 1 directly forecloses firm 2's sales in the joint use market (foreclosure of these sales is complete regardless of firm 1's bundle price), which may drive firm 2's profits below the level that justifies its continued operation. The following simple example illustrates these points.

Example 5. Suppose that there are two types of consumers. Type I consumers desire a system. There are a continuum of type I consumers indexed by the uniformly distributed variable $d \in [0,1]$ with total measure 1. Consumer d has valuations for the two possible systems of $v_{A/B1}(d) = w \cdot d$ and $v_{A/B2}(d) = w \cdot d + \gamma_1$. Type II consumers, of which there are a total measure of θ, only desire product B. Each type II consumer has valuations for products $B1$ and $B2$ of $v_{B1} = \varphi$ and $v_{B2} = \varphi + \gamma_2$. The firms are unable to discriminate (in a third degree sense) across these consumers in their pricing. The cost structure has $c_A > 0$, $c_{B1} = c_{B2} \equiv c_B > 0$, $K_2 > 0$, and $K_1 = 0$. Finally, I make two further assumptions:

$$\text{(A1)} \qquad (1+\theta)\gamma_2 > \gamma_1 > \gamma_2$$

and

$$\text{(A2)} \quad w > \max\{4\gamma_2 - \gamma_1 + c_A + c_B, \; \gamma_1 + c_A + c_B\}.$$

---

have compatibility. This corresponds to the "puppy dog" strategy in the Fudenberg and Tirole (1984) taxonomy for the case of accommodation under price competition, in contrast to the "top dog" strategy that I focus on here (see fn. 7).

[23]The discussion in the text has only compared producing A and $B1$ independently with producing only a bundle. One might wonder about other alternatives. In fact, it can be shown that as long as the sort of price discrimination motivation discussed in Part A is not present, any of the other alternatives are either equivalent to independent pricing (Bundle and $A1$; Bundle, $A1$, and $B1$), equivalent to producing only a bundle (Bundle and $B1$), or clearly inferior to these options ($A1$ only, $B1$ only).

[24]A long-standing issue in the legal treatment of tying is when to treat the tying and tied products as distinct products. A common argument is that the tied product must be one that consumers might want to purchase separately, without also purchasing the tying product. In Justice O'Connor's concurrence in *Jefferson Parish Hospital District No. 2 v. Hyde*, 466 U.S. 2 (1984), for example, she argues this position because "When the tied product has no use other than in conjunction with the tying product, a seller of the tying product can acquire no *additional* market power by selling the two products together." The model analyzed here illustrates that this view is incorrect unless one defines "other uses," contrary to Justice O'Connor's meaning, to include use with other producers' component A's.

Consider, first, the outcome of the independent pricing game. The unique equilibrium outcome when both firms are active involves prices of[25]

$$P_{B1}^0 = c_B$$

$$P_{B2}^0 = c_B + \gamma_2$$

$$P_A^0 = [w + (\gamma_1 - \gamma_2) + c_A - c_B]/2.$$

In this equilibrium, all consumers buying a component B buy product $B2$, and profits for the two firms are given by

$$\Pi_1^0 = [w + (\gamma_1 - \gamma_2) - c_A - c_B]^2/4w$$

$$\Pi_2^0 = \gamma_2 \cdot \left[\theta + \frac{w + (\gamma_1 - \gamma_2) - c_A - c_B}{2w}\right] - K_2.$$

Suppose, instead, that firm 1 commits to producing only a bundle and product $B1$ alone. In this case the unique equilibrium prices when firm 2 is active are given by

$$P_{B1}^0 = c_B$$

$$P_{B2}^0 = c_B + \gamma_2$$

$$\bar{P}^0 = (w + c_A + c_B)/2,$$

and profits are

$$\Pi_1^0 = (w - c_A - c_B)^2/4w$$

$$\Pi_2^0 = \gamma_2 \cdot \theta - K_2.$$

Thus, by committing to tie, firm 1 denies firm 2 its profitable sales to type I consumers, lowering firm 2's profits, and possibly forcing firm 2 to be inactive. Furthermore, if tying does force firm 2 to be inactive, firm 1's profit is $((w - c_A - c_B)^2/4w) + \theta(\varphi - c_B)$, which is larger than its independent pricing profits if φ, the gain from monopolizing the type II market, is large.[26] Finally, if firm 1 does exclude firm 2 in this manner, all consumers are made worse off here, although aggregate welfare may either fall or rise. ■

IV. Conclusion

The above results demonstrate, in my view, that the leverage hypothesis can be formally modeled in a coherent and appealing way. Once one allows for scale economies and strategic interaction, tying can make continued operation by a monopolist's tied market rival unprofitable by leading to the foreclosure of tied good sales. As the models above have indicated, such a strategy can be a profitable one for a monopolist, often precisely because of this exclusionary effect on market structure.

While the analysis vindicates the leverage hypothesis on a positive level, its normative implications are less clear. Even in the simple models considered here, which ignore a number of other possible motivations for the practice, the impact of this exclusion on

[25] I am ignoring equilibria here that involve firm 1 pricing its component $B1$ below cost and making no sales. As earlier, these equilibria involve the use of a weakly dominated strategy by firm 1 and can be eliminated through the use of Selten's (1975) notion of trembling-hand perfection.

[26] The reader may be wondering about other alternatives available to firm 1. A commitment to producing A only, $B1$ only, or just a bundle is worse as an exclusionary strategy for firm 1 than committing to produce the bundle and $B1$ since firm 2's profits are higher when it is active under these strategies than when firm 1 commits to produce the bundle and $B1$, and firm 1's profits are lower under these options if firm 2 is inactive. They also are less attractive as an accommodation strategy for firm 1 than independent production of A and $B1$. Producing A, $B1$, and a bundle yields an outcome equivalent to the independent production outcome (restricting attention to trembling-hand perfect equilibria). Finally, producing a bundle and A is less effective as an exclusionary strategy than producing a bundle and $B1$ (it gives firm 2 higher profits if it is active and firm 1 lower profits when firm 2 is not active), and when firm 2 is active, no pure strategy (trembling-hand perfect) equilibrium with this product offering can give firm 1 higher profits than when it produces A and $B1$ independently. However, a pure strategy equilibrium may not exist here. A sufficient condition for a pure strategy equilibrium to exist is that $\gamma_2 < (\varphi - c_B)$. Thus, when this condition holds, firm 1 can effectively limit itself to the two options considered in the text.

welfare is uncertain. This fact, combined with the difficulty of sorting out the leverage-based instances of tying from other cases, makes the specification of a practical legal standard extremely difficult.

Finally, it should be noted that the leverage debate is not limited to the practice of tying, but rather arises in numerous areas of antitrust analysis. With the practice of reciprocity, for example, a monopsonistic buyer of some product refuses to buy from his suppliers unless they also buy a product (in which he may face competition) from him. Alternatively, when a vertically integrated monopolistic input supplier can sell his input to both his own downstream manufacturer and to a rival manufacturer, a refusal to supply this rival manufacturer is similar to the tying of complementary goods. The results here raise the possibililty that the use of leverage as an effective and profitable exclusionary device could arise in these other settings as well.[27]

APPENDIX A

PROOF OF LEMMA 2: Suppose, first, that firm 2 is active and that the equilibrium prices are $((P_{B1}^0, \bar{P}^0); P_{B2}^0)$. There are two cases to consider. If $\bar{P}^0 \leq P_{B1}^0 + \gamma$, then all consumers prefer the bundle to buying only good $B1$ from firm 1 (again, for expositional reasons, I assume here that consumers buy the bundle when they are indifferent). If so, then firm 1 selling only the bundle at price $\bar{P}^0$ generates identical sales and profits for both firms for all P_{B2}. If $\bar{P}^0 \geq P_{B1}^0 + \gamma$, then it must be that firm 1 is making no sales since otherwise it could do better by setting $\bar{P} = P_{B1}^0 + \gamma$ (it would make exactly the same number of sales of the bundle as it did of $B1$, but at a larger margin since $\gamma > c_A$). In this case, firm 1 selling only the bundle at price $P_{B1}^0 + \gamma$ generates identical sales and profits for both firms when $P_{B2} = P_{B2}^0$ and for firm 2 for all P_{B2}.

[27] In fact, the models analyzed above can frequently be reinterpreted to apply to these other settings. Some differences do arise, however, in modeling the various practices. For example, the extent to which commitment is possible is likely to vary by practice. Also, in the case of vertical integration discussed in the text, the upstream monopolist sells his component (input) to the unintegrated final goods producer, who then sets a price for the entire system (finished good) rather than selling directly to consumers who put a system together themselves. Furthermore, in such a setting, more complicated wholesale contracts may be possible than the simple linear pricing considered here.

A similar argument holds if firm 2 is not active. Therefore, any perfect equilibrium outcome (including decisions regarding activity in market B) is equivalent to one that arises after firm 1 has committed to producing only the bundle.

PROOF OF PROPOSITION 2: The argument is a simple comparative statics exercise. Letting $\phi \equiv \bar{P}_1 - \gamma$, firm 1's problem, given P_{B2}, can be written

$$\max_{\phi} [(\phi - c_{B1}) + (\gamma - c_A)] \cdot x^1(\phi, P_{B2}).$$

The bundling equilibrium is then characterized by the following two equations, which have a unique solution (with positive sales by both firms) under our assumptions.

$$[(\phi^{**} - c_{B1}) + (\gamma - c_A)] x_1^1(\phi^{**}, P_{B2}^{**}) + x^1(\phi^{**}, P_{B2}^{**}) = 0$$

$$(P_{B2}^{**} - c_{B2}) x_2^2(\phi^{**}, P_{B2}^{**}) + x^2(\phi^{**}, P_{B2}^{**}) = 0.$$

Note that if $\gamma = c_A$, then $(\phi^{**}, P_{B2}^{**}) = (P_{B1}^*, P_{B2}^*)$, the independent pricing equilibrium. Now define (omitting arguments of functions):

$$A \equiv 2x_1^1 + [(\phi^{**} - c_{B1}) + (\gamma - c_A)] x_{11}^1$$

$$B \equiv 2x_2^2 + (P_{B2}^{**} - c_{B2}) x_{22}^2$$

$$C \equiv x_2^1 + x_{12}^1 [(\phi^{**} - c_{B1}) + (\gamma - c_A)]$$

$$D \equiv x_1^2 + x_{21}^2 (P_{B2}^{**} - c_{B2}).$$

The assumption that $P_{Bi}^{*\prime}(P_{Bj}) \in (0,1)$ implies that $(A, B) \ll (-C, -D) \ll 0$. This then implies that

$$\operatorname{sign} \frac{d\phi^{**}}{d\gamma} = \operatorname{sign}\{-Bx_1^1\} < 0$$

$$\operatorname{sign} \frac{dP_{B2}^{**}}{d\gamma} = \operatorname{sign}\{Dx_1^1\} < 0,$$

so that both firms' profits fall relative to the independent pricing equilibrium. □

APPENDIX B

Here I work out the example for the cases where $\beta \geq \alpha$. In this class of cases, the division of consumers between the two firms can be represented diagrammatically as in Figure 4. Consider first equilibria that are in region (i), that is, that satisfy $\bar{P} \leq (\gamma - \beta) + (P_{B2} + \alpha)$. In this region, the first-order conditions for the two firms are as follows (these conditions are sufficient for a maximum since at any point where these conditions

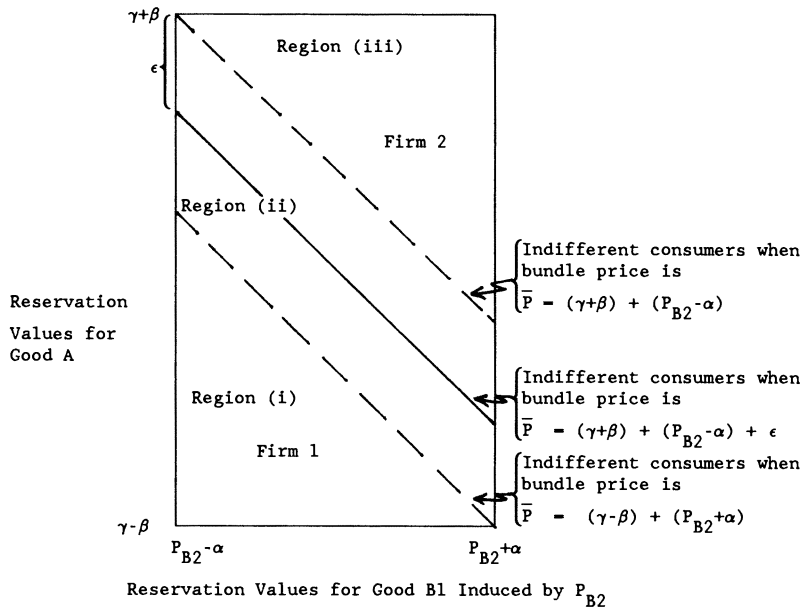

FIGURE 3

hold, the firms' profit functions are concave):

$$\text{Firm 1:}\quad 4\alpha\beta-(1/2)\left[\bar{P}-(\gamma-\beta)-(P_{B2}-\alpha)\right]^2 - \bar{P}\left[\bar{P}-(\gamma-\beta)-(P_{B2}-\alpha)\right]=0$$

$$\text{Firm 2:}\quad \left[\bar{P}-(\gamma-\beta)-(P_{B2}-\alpha)\right]-2P_{B2}=0.$$

From firm 2's first-order condition we see that we are in region (i) if and only if $P_{B2}\le\alpha$. Solving the two first-order conditions for P_{B2} yields the following expression:

$$-8(P_{B2})^2+2[\alpha-(\gamma-\beta)]P_{B2}+4\alpha\beta=0.$$

This expression is strictly concave and is nonnegative at $P_{B2}=0$. Hence, $P_{B2}\le\alpha$ if and only if the value of this expression is nonpositive at $P_{B2}=\alpha$. Substituting yields the requirement that $\gamma\ge 3(\beta-\alpha)$. Firm 2's profits in this region under bundling are $(1/2\alpha\beta)(P_{B2})^3$ compared with its profits of $(\alpha/2)$ under independent goods pricing. Since $P_{B2}\le\alpha$ in this region, firm 2's profits must fall.

Consider now bundling equilibria that fall in region (ii), that is, where $\bar{P}\in((\gamma-\beta)+(P_{B2}+\alpha),(\gamma+\beta)+(P_{B2}-\alpha))$. Straightforward analysis of the firms' first-order conditions reveals that in equilibrium we must have $3P_{B2}=3\beta-\gamma$. In addition, to be in region (ii), P_{B2} must satisfy $2\beta-\alpha\ge P_{B2}\ge\alpha$, or substituting for P_{B2}: $3(\beta-\alpha)\ge\gamma\ge 3(\alpha-\beta)$. The first of these inequalities is just the reverse of our region (i) condition, while the second, which assures that we are not in region (iii), is always satisfied since $\beta\ge\alpha$ (in fact, the bundling equilibrium can never be in region (iii)). Firm 2's profits under bundling in this region are given by $(1/2\beta)(P_{B2})^2$ compared with $(\alpha/2)$ under independent goods pricing. Substituting for P_{B2} yields the condition in the text. Firm 1's profits under bundling in this region are given by

$$\Pi_1=\bar{P}\{1-(1/2\beta)\left[\bar{P}-(\gamma-\beta)-P_{B2}\right]\} =\left(\frac{3\beta+\gamma}{3}\right)\left(\frac{1}{2}+\frac{\gamma}{6\beta}\right),$$

while under the parameter values of this region its independent goods pricing profits are given by

$$(\alpha/2)+\left(\frac{\gamma+\beta}{2}\right)^2(1/2\beta).$$

Bundling then yields firm 1 larger profits than independent pricing (assuming that firm 2 remains active) if and only if

$$\left(\frac{9\beta+5\gamma}{6}\right)\left(\frac{3\beta-\gamma}{6}\right)\ge\alpha\beta.$$

But the expression on the left side of this inequality is strictly larger than $((3\beta-\gamma)/3)^2$, which implies that whenever firm 2's profits are higher under bundling, so are firm 1's. There is also clearly an area of the parameter space where firm 1 is better off and firm 2 is

worse off under bundling compared to independent goods pricing.

The analysis of cases where $\alpha > \beta$ proceeds in a similar manner.

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