

A LOOK AT THE STATE OF KNOWLEDGE ON BUNDLING

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The theory surrounding bundling has evolved significantly; once ascertaining that all bundling is essentially motivated by efficiency but later believing that strategic bundling is an everyday phenomenon and currently considering this practice a potential problem. Cormac O'Dea sifts through the literature on this subject; he considers the absence of a legal test to determine the practice and then looks at the moves toward establishing such a standard.

Introduction

A striking proportion of papers on bundling seem to open with a statement to the effect that the practice is an everyday occurrence. It would be a shame to break with convention; hence, it should be noted that bundling is a ubiquitous phenomenon. Most cases of bundling are rarely noticed, let alone securitised by antitrust authorities. Any attempt to analyse bundling from antitrust perspective must do so along two dimensions. Firstly it must disentangle efficient from strategic motives for bundling. Secondly, in cases where bundling is considered to have a malignant effect, any analysis must attribute that effect to either market failures that competition policy cannot reverse¹ or to a strategic action that can be deterred using a policy instrument. This paper will focus on the potential for strategic bundling and will critically review recent literature suggesting the potential for that practice.

The Second Section presents the once-dominant notion that strategic bundling cannot occur, and looks at recent challenges to that theory. The Third Section reviews potential efficient motives for bundling, again focusing on recent developments in the literature. The Fourth Section notes the absence of an accepted legal test to determine the presence of exclusionary bundling, in the US, the EU or in the domain of economic theory. The section then analyses a number of recent suggestions for such a test. The Fifth Section concludes the paper.

¹ Such as oversupply of a commodity that consumers don't value, and wouldn't purchase were it not part of an attractive bundle.

Leveraging Monopoly Power

Such was the influence of the Chicago-style thinking that by 1978 Bork could state that:

“[The leverage] theory of tying² 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” (Bork, 1993: 372).

The Chicago argument illustrates that the bundling of monopolised product with a competitive one results in profits that are weakly less than those that would be earned by the selling of the two goods individually, or by selling the monopoly good alone (see for example: Schmalensee 1982, Posner 1976, Bork 1993). The literature reviewing the apparent discrediting the leverage theory has been concisely summarised by Whinston: “in short, there is only one monopoly profit to be extracted” (Whinston, 1990: 837).

Evaluated on its own very narrow terms, the logic of the Chicago School argument is unimpeachable. However, if either the scope of the analysis is broadened to include bundles other than the monopolised good/competitive good bundle, or if the concept of leverage is interpreted in dynamic terms rather than in static terms, Bork’s contention that leverage theory has been discredited is unsafe. The effect of these extensions on the Chicago school argument will now be examined.

The case of a bundle of a monopolised and a competitive good is by no means typical of reality. Whinston (1990) shows that the integrity of the ‘one monopoly profit’ argument relies on the assumptions of perfect competition and constant returns to scale in the secondary market. Whinston looks at the case where the production of the tied good is characterised by economies of scale, and shows that, in the resulting oligopolistic setting, bundling can lead to the monopolisation of the tied good market. The mechanism through which that monopolisation occurs is that, by tying, the monopolist can reduce the sales of its competitor in the tied good market, lowering its profits to a level below that which would justify continued production.

Whinston’s analysis of his special case no more proves the case for the ‘leverage theory’ than the Chicago School’s analysis of their special case disproves it. While it would not be appropriate to expect a ‘General Theory

² Though tying and bundling are not equivalent, the economic analyses applied to the respective practices are similar. The structure of this paper, therefore, will not be guided by the differences between the two practices.

of Bundling' from any author, a problem arises when an analysis of a specific case is given the credence of a general theory in academic and policy debate, as happened with the Chicago School's stylised example.

Posner stated that: "A [fatal] weakness of the leverage theory is its inability to explain why a firm with a monopoly in one product would want to monopolize a complementary product as well" (Posner, 1976: 173). Embedded in this is an implicit assumption that market structure is invariant to bundling, or that if strategic manipulation of a market is possible, that firms will not employ bundling to preserve, extend, or attain market power. The application of a similar standard to the analysis of predation would discount that practice as a concern in competition policy.

There has been a recent flurry of research, possible due to the USA v. Microsoft case, that focus on the creation of entry barriers using bundling strategies. These papers, which rise admirably to meet the challenge implied by Posner's statement, rely on fact that entry into more than one market is always more difficult than entry into one. Stating this same intuitive result from the point of view of the firm with market power, Porter (1996: 73) states that: "[dominant] positions built on systems of activities are far more sustainable than those built on individual activities". The thrust of recent literature has been directed towards developing models in which barriers to entry can be erected using bundling strategies. Three recent papers in this vein are analysed here.

Choi & Stefandis (2001) put forward a model that is different to that of the Chicago school along two dimensions. Firstly they consider the bundling firm to be one with some degree of market power in two complements rather than a monopolist in one. The two complements are assumed to have value only when consumed together. Secondly, they consider that an entrant has to undertake a risky investment decision which must succeed if they are to enter. In order to enter the market, the entrant (or two entrants acting independently) requires a technological breakthrough in both markets rather than in one alone to enter the market. The probability of successful entry is reduced. This protects the market power that the firm has in the two complements. As in Whinston (1990), the applicability of this model is limited by the fact that the result relies on a precommitment to bundle if entry occurs in one product. The need for precommitment stems from the fact that though the bundling strategy may be *ex ante* optimal in the hope of deterring entry, should entry into one market occur it might not be optimal *ex post*. Without precommitment, any equilibrium containing an entry barrier is not subgame perfect.

Carlton & Waldman (2002) take a different approach to Choi & Stefandis. They consider the effect not on the latter good in a monopolised good/competitive good bundle but on the effect of the monopolised market

itself. They justify their reversal of the focus of attention by noting that in both the recent Microsoft case, as well as in the celebrated IBM case of 1936, the primary *public* concern was not with the respective companies trying to monopolise the peripheral markets (internet browsers and punch cards respectively) but with their entrenched monopoly position in their primary markets (operating systems and computational machines).

The authors show, in a two-period setting, firstly that a firm that is currently a monopolist in one market can preserve its market power by making the purchase of the monopolised good contingent on the purchase of a complementary product. Secondly, they show that tying can be used to transfer monopoly power from the already monopolised market to a newly emerging market. These results also rely on the ability for a firm to precommit to a bundling strategy and on either entry costs into the complementary market or network externalities among the bundled products.

The Carlton & Waldman paper has significant limitations in its applicability. The two-period setting is required for the result, as the mechanism for exclusion is delaying entry rather than blocking it altogether. As the time horizon under consideration is extended, the negative effect on a firm of exclusion for only one period is reduced. The two-period assumption can be justified with reference to industries where technological progress is swift. In these instances, markets will only exist for a short period of time. Indeed, the authors posit that their model could be used to explain the entrenched dominance of firms such as Microsoft which inhabit rapidly evolving industries. The application of the theoretical model to the computer industry also justifies the 'precommitment' condition as technological process can often be used to facilitate the integration of previously individual products in manner that would make separation either impossible or prohibitively expensive.

Nalebuff (2004) presents a model that is different from the two discussed immediately above and from Whinston (1990) as it shows that bundling can be used as an entry deterrent even in the absence of the ability to precommit. Nalebuff considers the case of a firm with a monopoly in two goods and shows that the monopolist can protect his market power in both markets by bundling. He also finds that if entry does occur, bundling will mitigate the negative effects on the incumbent firm.

Nalebuff decomposes the mechanism through which entry is deterred into two channels: a 'pure bundling' effect and a 'bundle discount' effect. The former refers to the fact that when two monopolised goods are bundled (assuming the bundle price is simply the sum of the optimal individual prices), the market available to any entrant with capacity to

produce only one of the commodities is significantly reduced³. Only those with relatively high valuations of the entrant's product and relatively low valuations of the other product will be interested in buying from the newcomer. Secondly, the bundle discount effect, results from an optimisation of the bundle price. It will be profitable to reduce the price below the sum of the individual optima, further enhancing the incumbent's position viz. the entrant. Further lowering the price below the optimal will impose first-order costs on any one-commodity entrant and only second-order costs on the incumbent. Bundling can thus strengthen the capacity of limit pricing to deter entry.

However, Nalebuff doesn't acknowledge the fact that the gains from this optimisation result from the ability of the bundling firm to price discriminate. Two points must be noted on this: Nalebuff notes that "the price discrimination effect offered by bundling is valuable, but the largest gains come from the entry-mitigation effect and the efficient entry-deterrence" (Nalebuff, 2004: 173). Comparisons such as these aren't valid, as a proportion of the gains that have their proximate source in entry-mitigation or entry-deterrence have their ultimate source in price discrimination.

The second point regarding Nalebuff's omission relates to the potential contribution of this theory to antitrust law. The US Supreme Court has consistently stated that "exclusionary conduct is conduct that makes no economic sense but for its tendency to eliminate or lessen competition" (Abbot, 2005: 9). Exclusion as a result of price discrimination isn't considered an antitrust problem in the US. Given that the entry-mitigation effects and entry-deterrence effects that Nalebuff refers to result ultimately from price discrimination and not from bundling, the extent to which we label entry barriers as 'exclusionary' should be questioned. Furthermore, noting that strategic and efficient motives have been conflated in a theoretical context is much easier than separating their relative effects empirically. This presents a further challenge for the application of the academic literature on bundling to antitrust policy⁴.

³ In Nalebuff's simple model, with consumer valuations uniformly distributed across the unit square, the size of the market available to the one-commodity entrant is reduced by one half. The general result is robust to non-uniform distribution of valuations, as Nalebuff shows in his extensions.

⁴ It should be noted that the issue noted above is not as critical in an EU context as it is in the US context. Article 82 of the Treaty of Rome regards any "abuse of a dominant position" as illegal. Abbot (2005: 10) notes that this "sanctions efficient as well as inefficient" conduct.

THE KNOWLEDGE ON BUNDLING

The three papers that have been discussed rise admirably to meet Posner's challenge of exhibiting why a monopolist would want to bundle its product with a complement. However, what these papers have in common with the series of papers they were written to discredit is that they are effectively 'possibility theorems', arguably as far from reality as the stylised Chicago example.

The recent literature can be seen as a reaction to the entrenchment of the Chicago School's position. Similarly, the Chicago School's conception of bundling can be seen as a reaction to a culture among the judiciary that viewed bundling as something inherently nefarious. It is probably unfair to quote and evaluate the Chicago School argument on bundling without acknowledging this context. There evidently was a need for a re-evaluation of bundling when; for example, Supreme Court Justice Felix Frankfurter stated that "tying arrangements serve hardly any purpose beyond the suppression of competition"⁵. Bork (1993:366-368) makes reference to the case of *International Salt v United States*⁶. In this case the Supreme Court found against a defendant who had leased patented salt-selling machines on condition that those leasing the machines purchase the necessary salt from the lessor. This could be seen as fitting nicely into the Chicago School's stylised monopolised good-competitive good example but for the fact that, according to Supreme Court Justice Hugo Black "the defendant offered to prove that competitive salt machines were readily available, but the Court regarded such proof as irrelevant"⁷. Here we have a court finding that the bundling of two *competitive* goods is somehow problematic on the basis that "it is unreasonable, per se, to foreclose competitors from any substantial market"⁸. While it may be possible to come up with a possibility theorem that supports a leverage hypothesis in this instance, the absolute suspicion of tying among the judiciary at the time is indefensible.

Unfortunately, in response to a situation in which the Judiciary refused to countenance that there could be any *efficiency* related reasons for tying or bundling, the Chicago School retreated to the other extreme and refused to countenance that there could be any *strategic* reasons for bundling. The recent literature occupies a somewhat more moderate position than either of these two positions, acknowledging the various efficiency

⁵ Standard Oil Co. of California and Standard Stations Inc., v. United States 337 US 293, 305 (1949)

⁶ International Salt Co. v. United States 332 U.S. 392, 196 (1947)

⁷ Justice Jackson, writing for the Court Majority in International Salt Co. v United States

⁸ Ibid.

related reasons for bundling, while also recognising that strategic bundling is, at least, a potential problem.

Efficient Bundling

The traditional 'efficient' motive attributed to bundlers, after Stigler (1963), has been price discrimination. Posner (1976: 174) stated 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". There are two channels whereby bundling can facilitate price discrimination. Firstly, the act of bundling reduces the variation in consumer valuation of products. This effect is strongest when consumer valuations are negatively correlated but is still relevant where valuations are positively related. Secondly, with regard to tying, that act can be used to meter consumers' use of a product, thus separating consumers by the intensity of their use of the product, and therefore by their probable valuations.

Although Stigler's argument is internally consistent, Kenny & Klein (1983) argue that his analysis isn't actually applicable to the case he applied it to. It is interesting to note Kobayashi's (2005) suggestion that, if Kenny & Klein are correct, Stigler's mistaken 'answer' to why Loew's Inc. bundled their films precluded an early in depth empirical analysis of the efficient motives for bundling, and could have resulted in an intense study of an area of little empirical evidence.

More recent contributions to this area of the literature come from Nalebuff (2000), and Choi (2003). Nalebuff applies Cournot's comments on the individual pricing of complements. Bundling can be used to internalise the externality that arises when individual firms selling two complements set price without regard to the effect of that price on the demand for the complement. Bundling isn't the only manner in which this can be done; one firm selling both goods could simply price having regard to the externality rather than physically combining the two goods, a point that Nalebuff doesn't acknowledge. However, neither is bundling the only manner in which a firm can price discriminate, so this fact shouldn't preclude the admittance of this rationale for bundling.

Choi (2001) examines bundling as a tool of informational leverage. In his model, in which a monopolist *irrevocably* bundles a good with an established reputation, with a new good and discontinues the individual sale of the established good, the act of bundling can act as a signal of the quality the new good. This bundling strategy means that, in order for the firm to continue making profits from its original good, consumers have to be

satisfied with the new product. This is a more costly strategy for a firm with a low-quality new product than it is for a firm with a high-quality one, thus facilitating the signalling of quality. Choi also notes that a multi-product firm may asynchronise the timing of the introduction of new products when the qualities of all new products are unknown to customers. The positive effect from bundling: the acquisition by consumers of otherwise costly information must be weighed this second, less benign, effect.

There are a number of issues which limit the applicability of both the analysis of both Choi and Nalebuff to antitrust policy. However, it should be noted well in addition to the recent literature that discusses strategic motives for bundling, there have also been developments with regard to more efficient motives for the practice.

Towards a Legal Standard

In a brief to the Supreme Court of the United States regarding a petition for a writ of certiorari in the case of 3M v. LePage, the United States suggested that:

“[A]lthough the business community and consumers would benefit from clear, objective guidance on the application of Section 2 to bundled rebates...The United States submits that, at this juncture, it would be preferable to allow case law and economic analysis to develop further and to await a case with a record better adapted to development of an appropriate standard” (Department of Justice, 2004:1865).

It is noted in the same brief that “there is no pressing need for the Court to address the matter at this time”. Given the fact that the current literature doesn’t display a clear understanding of either the efficient or strategic motives for bundling, this strategy seems sensible. Any legal standard will have to balance the potentially negative effects arising from strategic bundling with the various efficient reasons for the practice.

This ‘wait and see’ approach does, however, deprive firms of a “bright line safe harbour” (Nalebuff, 2005: 8). It is highly desirable that firms have a clearly defined set of rules, which, if they remain within them, they will not be found guilty of an antitrust violation, nor will any of their contracts be deemed void on the grounds it facilitated exclusionary bundling. Greenlee et al. (2004), Nalebuff (2005) have both suggested tests for evaluating potentially exclusionary bundling. Space constraints preclude all but a few general comments on these. The former test relies on a static

analysis of consumer welfare changes and hence does not incorporate the effect of bundling on market structure. It suggests comparing the stand-alone price of a commodity which is also included in a bundle with the price of that good before the good was bundled. Greenlee et al. show that, in situations where the latter price exceeds the former, bundling reduces consumer welfare. Kobayashi (2005) notes that this test would condemn *all* instances of pure bundling⁹. While Kobayashi is correct in his analysis, the immediate concern of Greenlee et al. in presenting their test was an analysis of bundled loyalty discounts, in which case commodities will be sold individually as well as separately. The application by Kobayashi of this test to a pure bundling scenario is not appropriate, though it does indicate the limited scope of the test.

Nalebuff's test is less stringent. He considers two complements A and B which are consumed together in proportions X_A and Y_B . The firm has market power in A while the market for B is assumed to be characterised by some (but not necessarily perfect) competition. He defines the bundle discount δ by the relation $\delta = \varepsilon X_A / Y_B$, where ε is the excess of the stand-alone price of A over the implied bundle price of A (i.e. the price of the bundle minus the stand-alone price of B). Nalebuff's posits that any bundling which implies the stand-alone price of B (P_B), minus the implied discount δ is greater than the monopolist's long-run average variable costs of producing B is not exclusionary. He follows this up by noting, without elaboration, that "this is an overstatement of the required discount and hence a finding that $P_B - \delta$ is below cost does not establish exclusionary bundling" (Nalebuff, 2005: 7). This test seems to be a one-way test for proving that exclusionary bundling did not take place rather than a definitive litmus test for indicating the presence of the practice.

Conclusion

The contention that the motive for bundling is invariably price discrimination was uncritically accepted by most theorists until recently. The theoretical case for disregarding the possibility of strategic bundling has been discredited by a series of recent papers, though these papers have frequently been characterised by settings not indicative of reality. Assumptions that occur readily in literature such as the need for a precommitment to bundle have thus far limited the ability of theory to make

⁹ This is due to the fact that in a case of pure bundling, where the bundled commodities aren't sold individually, the implicit stand-alone price is infinity.

a confident contribution to antitrust policy. It may be the case that the theoretically unsound Chicago hypothesis is valid empirically.

In breaking away from the judicial hyper-suspicion of bundling before the Chicago era, and the unquestioned acceptance of the practice that followed, the conventional wisdom, such that it exists, is healthier than previously. Unfortunately, as far as determining a series of definite legal tests, the economic literature is, as Kobayashi (2005: 1) contended, “not ready for prime time”.

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