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6 Towards a differentiated products theory of copyright

Christopher S. Yoo¹

6.1 Introduction

The economic analysis of copyright is largely founded on the premise that consumption of copyrighted works is nonrivalrous, a premise that distinguishes markets for intellectual property from markets for other types of goods. In the context of copyright, this is generally taken to mean that the marginal cost associated with the consumption of an incremental unit of a copyrighted work is effectively zero. Nonrivalry in turn gives rise to a well-known economic conundrum. If authors are to break even, the prices they charge must defray the fixed cost needed to produce the work in the first place (often called ‘first-copy costs’) as well as cover the marginal cost associated with producing an incremental unit. However, pricing above marginal cost necessarily reduces welfare by excluding some potential users from consuming the work even though the benefits they would derive exceed the costs of permitting them to do so. This has led scholars to frame copyright in terms of the need to balance two opposing considerations. On the one hand are the benefits flowing from the efficient dissemination of copyrighted works (often referred to as the ‘access’ side of the tradeoff). On the other hand is the need to provide authors with sufficient compensation to support the creation of their works (often called the ‘incentives’ side of the tradeoff) (Novos & Waldman, 1984; Johnson, 1985; Liebowitz, 1985; Landes & Posner, 1989). This tradeoff implicitly posits that markets for

copyrighted works are protected by entry barriers and that particular works do not face substantial competition from substitutes.

The traditional economic approach to copyright assumes that copyright turns authors into monopolists over their works (Novos & Waldman, 1984; Liebowitz, 1985). The power over price conveyed by this legal monopoly power gives rise to the familiar efficiency losses that occur whenever prices exceed marginal cost. The concomitant transfer of surplus from consumers to producers has also led some scholars to raise distributional concerns (Netanel, 1996; Boyle, 2000; Cohen, 2000). Together these considerations have led to the emergence of a consensus that copyright protection is a necessary evil and that Congress and the courts should calibrate copyright protection to the lowest level that still provides sufficient return to support creation of the work.

The problem with the traditional approach is that copyrighted works do in fact face competition from other works that serve as imperfect substitutes and that entry is often quite easy. In fact, the doctrine known as the 'idea-expression dichotomy,' which limits copyright protection only to those aspects of a work that display the author's originality and leaves unprotected any facts or ideas contained within the work (17 U.S.C. § 102(b)), has the practical effect of guaranteeing that any competitor willing to undertake the same fixed cost investment as the original author remains free to create alternative works with the same functional characteristics.

The growing recognition that copyrighted works generally face some degree of competition from other works has led some scholars to turn to dominant firm and Cournot market structures to model markets for copyrighted works (Landes & Posner, 1989; Koboldt, 1995; Watt, 2000). Although an improvement over the monopoly

approach, these models still fail to capture the full dynamics of entry. Other scholars have drawn on the approach to imperfect competition best suited to capturing the key characteristics of markets for copyrighted works; the theory of product differentiation. Early analyses focused solely on product differentiation in the limited context of direct copying, in which unauthorized copies serve as imperfect substitutes for the original (Johnson, 1985; Liebowitz, 1985; Besen & Kirby, 1989; Koboldt, 1995).² While helpful, these models still fail to capture the economic impact of free entry by similar works. Some initial work applying differentiated product models to model competition between different works has begun to appear (Lunney, 1996; Abramowicz, 2004). Previous efforts have stopped short of considering the full range of normative and remedial implications.

This chapter offers a more complete exploration of the economic insights provided by a shift to a differentiated products approach to copyright (see also Yoo, 2004). Adoption of a differentiated products approach opens up the policy space by revealing that access to creative works can be increased by facilitating entry by new works and allowing the ensuing competition to reduce the spread between price and marginal cost. At the same time, the possibility of entry largely alleviates any concerns about overstimulation of creative activity or sustainable profits generally associated with the incentives side of the tradeoff. It suggests that over the long run the presence of supracompetitive profits will only serve to stimulate entry which improves access via lower prices and increased product variety.

Perhaps most importantly, the differentiated products approach suggests that the degree of tension between access and incentives implied by the traditional approach may be overstated. By demonstrating how facilitating entry can essentially promote both

considerations simultaneously, the differentiated products approach echoes one of the central insights of classic property theory, which emphasizes how well-defined property rights can promote economic efficiency (Demsetz, 1967; Hardin, 1968). Indeed, it shows how access to copyrighted works can be served by strengthening property rights, which would stimulate entry and drive price closer to marginal cost as well as increase product variety.³

In contrast to the traditional approach, the differentiated products approach also provides a basis for distinguishing among the available policy instruments. Previous models tended to represent the overall level of copyright protection with a single variable (Novos & Waldman, 1984; Landes & Posner, 1989; Koboldt, 1995). Viewing copyright through the lens of product differentiation makes it possible to isolate the impact of multiple ways in which copyright protection can be strengthened or weakened.

What results is a reconceptualization of copyright that moves beyond the relatively static vision of monopoly economics and captures the dynamics of free entry. The differentiated products approach also accords better with the institutional capabilities of governmental actors. By providing a decentralized, market-oriented means for ensuring that authors capture only enough revenue to cover their fixed costs and no more, it responds to the growing doubts that courts and legislatures are institutionally capable of striking the proper balance between access and incentives. The government is better suited to promoting access by strengthening copyright protection than to attempting to strike the proper balance between access and incentives through the careful calibration of the level of copyright protection.

6.2 The normative implications of the differentiated products approach

The normative insights provided by applying the differentiated products approach to copyright can most easily be understood in terms of the theory of monopolistic competition pioneered by Chamberlin (1933). Monopolistic competition retains most of the assumptions underlying perfect competition, including free entry and the presence of a sufficient number of buyers and sellers to justify ignoring strategic reactions to pricing decisions. The key difference is that monopolistic competition relaxes the assumption that competing works are homogeneous. Instead, product differentiation gives authors a sufficient degree of power over price to justify modeling each work as facing a downward-sloping demand curve. Because each author makes his or her own independent price and quantity decisions, this approach models competition at the producer level rather than at the industry level. When the market is analyzed at the producer level rather than the industry level, total surplus depends not only on the amount of surplus generated in any particular work, but also on the total number of works created.

The market power conveyed by product differentiation leads producers of differentiated works to set short-run prices in precisely the same manner as a monopolist, which results in deadweight loss and short-run supracompetitive profits. However, the possibility of entry recognized by monopolistic competition dictates that the short-run equilibrium is unstable. When entry is free, the presence of supracompetitive profits attracts entry by authors offering similar works. The classic Chamberlinian formulation of monopolistic competition also assumes that consumers' preferences are symmetric

with respect to a cluster of other works.⁴ The primary effect of this assumption is to place each work in equal competition with all other works in the group rather than in localized competition with a smaller set of near neighbors. Because all of the works in the market are in equal competition with one another, new entrants take business equally from each of the incumbents, which causes the demand curve confronting each incumbent work to shift inward. In addition, the demand curve confronting each author becomes more elastic as a growing number of new works increases the number of imperfect substitutes available for each consumer.

Entry will continue until no economic profits remain, which, under Chamberlin's original formulation, will occur when the surplus appropriated by each author is just enough to cover fixed costs⁵. The equilibrium number of works is determined by the size of the market relative to the size of fixed costs. Indeed, as the size of the market expands or the size of the fixed costs declines, the number of works asymptotically approaches infinity, and the deadweight loss approaches zero (Hart 1979; Mankiw & Whinston, 1986; Jones, 1987; Eaton & Lipsey, 1989).⁶

A new perspective on access

The shift to a differentiated products approach effects two significant changes to the economic analysis of copyright. First, when products are homogeneous, authors can compete only on a single dimension—price—which also greatly simplifies the welfare analysis by reducing it to total surplus. When the competing works are differentiated, the value of product diversity must also be taken into account, making simple price-cost margins incomplete indicators of economic efficiency. As a result, product differentiation

raises the possibility that any deadweight losses caused by nonmarginal cost pricing might be offset in part by welfare gains resulting from product variety.

Even more importantly, the differentiated products approach highlights the existence of an alternative way to reduce deadweight loss that up until now has largely been overlooked. Specifically, it illustrates how access can be promoted not by lowering the degree of protection provided by copyright, but rather by facilitating entry by similar works. Entry by near substitutes causes the demand curve facing each work to become more elastic, which in turn reduces the spread between price and marginal cost.⁷

In this manner, the differentiated products approach opens up the policy space by identifying how entry can promote access, an insight that the traditional approach is poorly situated to take into account. When nonrivalrous goods are homogeneous, entry is unnecessarily duplicative and simply wastes resources. Moreover, the tendency towards natural monopoly created by declining-cost structures strongly suggests that no such entry would be viable.

This analysis suggests that access may be promoted by strengthening copyright protection, because it is the presence of profits that stimulates entry⁸ (although, per the subsequent discussion, the analysis may require weakening other aspects of copyright protection). This stands in stark contrast to the traditional approach to promoting access, which focuses solely on lowering the level of copyright protection. Indeed, the differentiated products approach suggests that weakening copyright will only serve to deter entry by reducing the revenue generated by each work. Consequently, as will be discussed in greater detail later, it may have the perverse effect of cementing an excessively concentrated market structure into place.

The differentiated products approach also mitigates any distributional concerns raised by increasing the amount of surplus captured by authors. As noted earlier, entry will continue until any supracompetitive profits are largely dissipated. Furthermore, any short-run transfer of surplus from consumers to producers will largely accrue to consumers' benefit over the long run in the form of increased product variety.

The foregoing discussion demonstrates how the differentiated products approach opens up the policy space by revealing how access can be promoted indirectly by stimulating entry rather than directly by lowering the level of copyright protection. In the process, it reveals that under certain circumstances, economic welfare might better be promoted by following precisely the opposite of the policies prescribed under the traditional approach to the economics of copyright.

The formalization of optimal incentives

Appropriability as a determinant of optimal incentives

In addition to suggesting an alternative way to promote access, the differentiated products approach also offers a solution to one of the fundamental limitations of the traditional approach, which is its inability to provide a basis for formalizing the optimal level of incentives. In the absence of such a basis, scholars have employed rough metrics to approximate the proper balance (Fisher, 1998; Brennan, 2002). These scholars concede that such metrics provide only a vague sense of how much creative activity would be optimal.

The present analysis overcomes this shortcoming by offering a basis for determining the optimal level of entry. It suggests that a work should be produced

whenever the surplus it would create exceeds the costs needed to produce it. This condition is met whenever the total surplus generated by the work is larger than the fixed cost (Spence 1976a, 1976b; Dixit & Stiglitz, 1977; Spence & Owen, 1977; Koenker & Perry, 1981).

This criterion for determining efficient levels of entry illustrates the importance of the authors' ability to appropriate the surplus generated from their works. It suggests that a reduction in authors' ability to appropriate the surplus created by their works can cause them to forego creating marginal works even though doing so would cause total welfare to increase. The larger the reduction in the authors' ability appropriate surplus, the fewer welfare-enhancing works will be created.

This represents a fairly sharp departure from the view of appropriability taken by the traditional approach, which takes the position that copyright law should carefully calibrate appropriability so that works capture only enough surplus to support creation of the work. The differentiated products approach reveals that such fine tuning would be counterproductive, since any limitations to authors' ability to appropriate surplus will cause a suboptimal number of works to be created and entry by competitive works will help ensure that no work garners excessive returns.⁹ As a result, increasing appropriability lacks distributional implications over the long run, since free entry will dissipate any profits initially accrued and largely cause them to accrue back to consumers in the form of increased product variety. At the same time, doctrines that restrict appropriability have the inevitable effect of exacerbating the access side of the tradeoff by decreasing the extent to which entry can narrow the spread between price and marginal cost. Indeed, the foregoing analysis demonstrates how lowering the level of

copyright protection, rather than promoting efficiency, may have the perverse effect of entrenching a concentrated market structure into place by making it impossible for new competitors to enter.

Demand diversion as a countervailing consideration

The analysis advanced thus far would appear to suggest that economic welfare would best be promoted by maximizing authors' ability to appropriate surplus. Indeed, were appropriability the only relevant consideration, copyright policy would devolve into a simple matter of allowing authors to capture as much revenue as possible. However, complete appropriation of surplus, which would require perfect price discrimination, is a practical impossibility. One would thus conclude that markets would exhibit a systematic tendency towards underproduction of copyrighted works that could not be rectified no matter how much copyright law is structured to enhance appropriability.

One countervailing consideration, however, is whether the sales captured by a new entrant represent incremental sales to new customers or instead represent sales cannibalized from authors already in the market. Following Borenstein (1985), the former effect will be referred to as 'demand creation' and the latter effect as 'demand diversion.'¹⁰

The possibility of demand diversion allows markets to create the optimal number of works even when authors are unable to appropriate the entirety of the surplus created by their works. As stated earlier, the basic welfare criterion for evaluating the efficiency of entry offered by the differentiated products approach dictates that a work be produced whenever the benefits it creates exceed the costs required to produce it. Although no

author is able to appropriate the entire surplus created by his or her work, demand diversion raises the possibility that the incremental surplus that an author is unable to capture might be replaced by surplus cannibalized from other incumbents. In other words, because of demand diversion, the fact that perfect price discrimination is impossible need not lead to a systematic underproduction of product variety.

In fact, demand diversion creates the possibility of excess entry, in which authors produce new works even when the costs of doing so exceed the benefits. As noted earlier, efficient entry requires that authors produce new works only when the surplus attributable to demand creation exceeds the fixed costs needed to produce the work. The problem is that a profit-maximizing author will enter whenever the total surplus it captures exceeds the fixed costs of entry regardless of whether the surplus captured results from demand creation or demand diversion. Such an author could finance the fixed costs with surplus cannibalized from other producers already in the market rather than incremental surplus generated by new consumers. Under these circumstances, the profitability constraint does not necessarily prevent the waste of resources. In such cases, it may be appropriate to use copyright to restrict entry by increasing the degree of differentiation required before a new work does not infringe on existing works.

6.3 The remedial implications of the differentiated products approach

In contrast to the traditional approach, the differentiated products approach also provides a basis for distinguishing among the available policy instruments. As noted earlier, previous models tended to represent the overall level of copyright protection with a single

variable. Only a handful of copyright scholars have offered some preliminary attempts to analyze the interaction among limited aspects of copyright protection (Fisher, 1998, Liu, 2002; Hughes, 2003).

Product differentiation theory provides a basis for modeling the impact of different aspects of copyright protection, as illustrated by the patent literature using spatial competition to analyze the tradeoff between a patent's 'length,' determined by the duration of the patent term, and its 'breadth,' which is most usefully described for present purposes as how close a competing product may come in the characteristics space to a patented product without constituting infringement (Klemperer, 1990).

The differentiated products approach to copyright suggests a similar analysis, but with some important modifications. Specifically, it suggests that the analysis might be enriched by disaggregating the concept of length into two distinct concepts. On the one hand is what I will call the 'size' of the right, as determined by the number of surplus-generating activities contained within the right. On the other hand is what might be called the 'intensity' of the right, as determined by the author's ability to capture the available surplus. An increase in the size of the right would be represented by an outward shift of the demand curve. An increase in the intensity of the right would be represented by an increase in the proportion of the available surplus captured by authors rather than consumers, created for example by a change in law that facilitates price discrimination.

Expanding the analysis in this manner highlights the complex interactions among these factors. Interestingly, the policy implications do not all point in the same direction. Specifically, the differentiated products approach indicates that the best way to render a market more competitive is by increasing the number of surplus-generating activities

encompassed by the right, facilitating authors' ability to appropriate surplus, and by liberalizing how close competing products can come without constituting infringement. In other words, economic welfare would best be promoted by a copyright that is large and intense, but narrow. The differentiated products approach is therefore not an unqualified endorsement for strengthening copyright protection. Instead, by providing a basis for distinguishing among different aspects of copyright protection, it allows for a more nuanced approach to copyright policy.

Determinants of the differentiated products equilibrium

The size of the right

An important determinant of the overall competitiveness of markets for copyrighted works is the size of the copyright, as determined by the number of surplus-generating activities encompassed within its scope. As noted earlier, the overall competitiveness among differentiated products is determined by the level of entry, which is in turn determined by the magnitude of the relevant market relative to the fixed costs of entry. Increasing the ratio of the size of the overall market to fixed costs brings the resulting equilibrium closer to the competitive outcome.

The primary means for policymakers to increase this ratio is to expand the size of the copyright by increasing the number of surplus-generating activities that fall within the scope of each copyrighted work. One determinant of the size of the right that has received a great deal of attention in recent months is the lengthening of the copyright term effected by the Copyright Term Extension Act. But other examples abound, such as the extent to

which copyright allows authors to retain performance rights. Doing so has the effect of causing the demand curve confronting each copyrighted work to shift outwards.

The differentiated products approach suggests that increasing the size of the right can promote both access and incentives by increasing the equilibrium number of works. The suggestion that access would be promoted best by raising rather than lowering the level of copyright protection may seem counterintuitive. After all, it implies that the proper policy response to markets that are too concentrated is to increase the degree of copyright protection that authors enjoy. This apparent contradiction disappears when viewed in light of the traditional approach's inability to capture the dynamics of entry. So long as entry is free, any strengthening in the level of copyright protection will not ultimately accrue to the benefit of the incumbents. Instead, it will only attract more entry, which will in turn reduce deadweight loss and bring the number of works closer to the optimum. Any short-term profits made possible by the expansion of the size of the right will largely accrue back to consumers in the form of increased variety.

The intensity of the right

Another consideration that determines the market's ability to promote economic welfare is the intensity of the right, which is determined by authors' ability to appropriate surplus. Unlike increases in the size of a copyright, which cause the demand curve confronting a copyrighted work to shift outwards, increases in intensity leave the demand curve intact and simply increase the proportion of the area under the demand curve captured by authors. Intensity is affected by copyright principles such as the first sale doctrine, which

limits authors' ability to engage in price discrimination. Authors' ability to appropriate surplus is also shaped by the breadth of the fair use doctrine.

As noted earlier, any reduction in appropriability tends to reduce the equilibrium number of works. Such a reduction can harm the incentives side of the tradeoff by causing the total number of works produced to drop below optimal levels. It also harms the access side of the tradeoff by limiting the extent to which entry by new works will reduce deadweight loss.

This suggests that increasing authors' ability to capture the surplus created by their works can promote both the access and the incentives side of the copyright tradeoff. Again, this argument may seem counterintuitive from the standpoint of the traditional approach to copyright, which views access and incentives as being in inexorable tension. The solution lies in understanding that access may be promoted as much by increasing the number of works available for consumption as by mandating access to the limited number of works that have already been created.

The breadth of the right

Finally, the extent to which consumers regard competing works as substitutes plays a natural role in determining how many firms will enter at equilibrium and how robust the competition among those firms will be. Copyright's breadth is a legal constraint on substitution because infringing works cannot compete absent permission from the copyright holder. This analysis then initially suggests that copyright should be kept narrow in order to promote lower price-cost margins.

There are, however, considerations that cut in the other direction. For example, substitutability also determines the extent to which the surplus captured by any particular work derives from demand diversion. The higher the degree of substitutability between the works, the greater the proportion of the total surplus captured that demand diversion will represent. In other words, the more closely related works can be without constituting infringement, the greater the amount of surplus will come from demand diversion.

As noted earlier, demand diversion plays a critical role in determining how closely the total number of works produced will approximate the optimum. Up to a point, demand diversion is beneficial, as it can replace the surplus that authors are unable to appropriate because of their imperfect ability to price discriminate. Beyond that point, demand diversion creates the possibility of excess entry. The danger of excess entry is the greatest when goods are the most substitutable.

Policy makers may reduce the impact of demand diversion by using the standard of copyright infringement to reduce the substitutability between competing works. Doing so would require a delicate balance. On the one hand, reducing substitutability limits the impact of demand diversion and thus brings the number of works closer to optimal levels. On the other hand, reducing substitutability also reduces the extent to which price-cost margins are narrowed by entry. Policy makers charged with calibrating the breadth of copyright protection may have to confront the difficult task of balancing the welfare gains on the access side of the tradeoff against the welfare losses on the incentives side of the tradeoff.¹¹

Interactions among the different aspects of copyright protection

The differentiated products approach thus provides a framework that is able to distinguish among three different ways in which copyright protection can be strengthened or weakened. Although this degree of nuance enriches the power of the analysis, it also makes copyright policy considerably more difficult to implement.

One problem is that the available policy instruments are not completely independent. Changes in the legal regime designed to calibrate the size of the right may also have an impact on the right's intensity or breadth. The overlapping nature of these considerations complicates isolating the impact of any particular aspect of copyright policy.

It nevertheless may be possible to simplify the analysis with respect to particular industries or categories of copyrighted works. If one aspect of copyright protection can be taken as fixed with respect to certain types of works, the problem that must be solved becomes much simpler. Empirical studies may provide additional insights into how to balance these countervailing considerations. Some empirical studies suggest that any welfare losses resulting from excessive entry are likely to be relatively small (Yarrow, 1985; Goettler & Shachar, 2001). Another empirical study of entry patterns in the radio industry estimates that the deadweight losses attributable to excess entry may be substantial (Berry & Waldfogel, 1999). The latter study acknowledges, however, that the radio industry is somewhat unusual in that it serves two different groups of customers—advertisers and listeners—only one of which (advertisers) is able to make direct payments for programming. What appears to be excessive entry when measured solely in terms of

benefits to advertisers may in fact be efficient when measured in terms of both advertisers and listeners.¹²

These studies suggest the possibility of isolating the impact of each of the three factors identified by the differentiated products approach. Even if the empirical problem proves intractable, the differentiated products approach should still provide useful intuitions about the way these factors interact. It suggests, for example, that excess entry is least likely to be a problem when a work has few substitutes. Thus, contrary to the conventional wisdom, it is when a work is the most unique that the case for strengthening the level of copyright protection in terms of the size and the intensity of the right is the strongest.

6.4 Conclusion

In the final analysis, product differentiation offers significant promise as a way to reconceptualize the economic analysis of copyright law. What emerges is an approach that demonstrates how stimulating entry can promote both access and incentives simultaneously. This stands in stark contrast to the position that dominates existing copyright scholarship, which views these two considerations as being in inexorable tension.

The differentiated products approach also suggests that the best policy response to a highly concentrated market might well be to strengthen the degree of copyright protection in order to stimulate new entry. There is some irony in the fact that copyright protection might tend to be the strongest when high fixed costs and the low degree of substitutability cause the market to become the most concentrated, but this apparent

paradox is resolved once one understands the complex manner in which access and incentives interact with one another. In this sense, the differentiated products approach to copyright captures the insights of classic property theory, which emphasizes the importance that well-defined property rights can play in ensuring optimal investment and deployment. In so doing, it corrects for the blind spot that results when markets for copyrighted works are treated as monopolies, which prevents serious consideration of the role that short-run profits can play in stimulating entry and in promoting economic efficiency. At the same time, the differentiated products approach incorporates the possibility of excess investment and entry stimulated by demand diversion.

Although the theoretical implications of this analysis are clear, considerable additional work remains to be done before it can be fully operationalized. As noted earlier, further work should incorporate elements of sequential innovation that take into account the extent to which current works serve as inputs to subsequent works, although, for reasons set forth in the margin, such considerations are unlikely to prove problematic.¹³

Future work should also consider the implications of relaxing the symmetry assumption, either by applying models that allow the extent to which particular works serve as substitutes for other works to vary (Kaldor, 1935; Waterson, 1990). This suggests that copyright might profitably be analyzed by using the spatial competition models pioneered by Hotelling (1929), in which works compete by adopting locations across a characteristics space (Yoo, 2004). Relaxing the symmetry assumption allows for the possibility that entry by a new work will impact only some of the works rather than being spread evenly across all of the incumbents. This localization of competition has the

effect of dividing the relevant market into subsegments, with the overall competitiveness of the subsegment determined by the size of the total surplus of the subsegment relative to the fixed cost, rather than the size of the total surplus of the entire market relative to the fixed cost. The lack of robust competition within a subsegment may limit the extent to which entry can push price towards marginal cost. It can also allow the ‘integer problem’ to arise simultaneously with respect to multiple portions of the overall market, as the single ‘large economy’ is chopped into a series of ‘small economies’ that are each capable of supporting sustainable profits. If these effects arise with respect to multiple subsegments, these adverse effects may be quite substantial (Eaton & Lipsey, 1976). Relaxing the assumption that works will distribute themselves evenly across the product space creates the possibility that first movers will employ preemptive strategies to lock in sustainable supracompetitive positions (Baumol, 1967; Hay, 1976; Prescott & Visscher, 1977; Eaton & Lipsey, 1980; Bonanno, 1987; Neven, 1987). The analysis becomes even more complex if one allows for the possibility of production of multiple works by a single author (Schmalensee, 1978; Eaton & Lipsey, 1979; Brander & Eaton, 1984; Judd, 1985).

Finally, the policy instruments that follow from the differentiated products approach are by their nature extremely contextual and do not lend themselves to simple policy inferences. In addition, the interrelationships among the available policy instruments make calibrating them simultaneously an extremely difficult empirical exercise. The fact that the differentiated products approach is contextual and nuanced should not obscure its basic analytical power and does not by itself justify rejecting the theory. Indeed, the intuitions that the theory reveals about the relationship between access

and efficiency and the manner in which the various aspects of copyright protection interrelate are sufficient justify further inquiry.

Notes

¹ This chapter is adapted from material originally published at Yoo (2004). I would like to thank Michael Abramowicz, Mark Brandon, Tim Brennan, Andy Daughety, Paul Edelman, Shubha Ghosh, John Goldberg, Wendy Gordon, Paul Heald, Larry Helfer, Steven Hetcher, Jack Hirshleifer, Doug Lichtman, Stan Liebowitz, Glynn Lunney, David McGowan, Michael Meurer, Tom Nachbar, Mark Nadel, Richard Nagareda, Neil Netanel, Erin O'Hara, Giovanni Ramello, Bob Rasmussen, Jennifer Reinganum, Pam Samuelson, Art Snow, Lisa Takeyama, and participants in workshops conducted at the 2003 Annual Congress of the Society for Economic Research on Copyright Issues, the Thirty-First Annual Meeting of the American Law and Economics Association, the 2003 Works-in-Progress Intellectual Property Colloquium at Tulane University, Columbia Law School, and the Vanderbilt Law School for helpful comments on earlier drafts of this work. Financial support from the Vanderbilt Dean's Fund is gratefully acknowledged. Responsibility for any errors rests with the author.

² Another submission to this volume employs a differentiated products model to evaluate the related issue of competition between originals and derivative works (Ghosh, 2004).

³ The differentiated products approach can thus be understood as striking a middle ground between the traditional analysis of increased copyright protection and the nonprotection of copyrighted works. The possibility of entry suggests that the tradeoff between access and incentives is not as direct as suggested by the traditional approach. Furthermore, the differentiated products approach also redresses the central problem with

nonprotection, which can provide efficient access, but which struggles to provide sufficient incentives to support production of creative works. This conclusion is subject to an important caveat discussed below. When fixed costs are large compared to marginal costs, it is possible that strong property rights may induce levels of entry that are excessive.

⁴ Chamberlin's original formulation also made a number of other simplifying assumptions, none of which turn out to be central to the analysis. For example, Chamberlin posited that each producer faced identical cost and demand curves. This allowed him to employ a single graph portraying the price-quantity response of a representative firm to model the entire market. Allowing the cost and demand curves to vary across products would simply cause equilibrium price and quantity to differ with respect to each firm, which is completely reasonable given the assumption that each product is differentiated. Firm-to-firm variations in price and quantity would not, however, change any essential aspects of the equilibrium (Kaldor, 1935; Archibald, 1961).

⁵ There is, however, a well-known exception to Chamberlin's zero-profit result. It has long been recognized that the lumpiness of fixed costs may create a situation in which \underline{n} works might earn small profits while $\underline{n} + 1$ works would run losses. This so-called 'integer problem' allows for an equilibrium in which \underline{n} works each earn sustainable profits. In large economies (i.e., when \underline{n} is relatively large), such profits will be negligible. This integer problem was first identified by Kaldor (1935).

⁶ This conclusion depends on the convexity of consumer preferences and production sets (Hart 1980; Roberts 1980).

⁷ Because firms must cover their fixed costs, price will not completely converge to marginal cost.

⁸ Acknowledging how short-run profits stimulate entry should not be confused with Schumpeterian competition, in which competitors use innovation to obtain long-run competitive advantage. The ease of entry dictates that any profits should be transient rather than sustainable. This implies that there will be horizontal competition within the market rather than vertical competition for the market. Short-run profits instead stimulate entry in the same manner as occurs in perfectly competitive markets that are temporary disequilibrium.

⁹ Subject to an important consideration discussed in the following section.

¹⁰ Other analyses use different terminology to describe the same effect (Beath & Katsoulacos, 1991, p. 57 ('cannibalisation'); Mankiw & Whinston, 1986 ('business stealing effect')).

¹¹ To give another example, substitutability also affects the proportion of surplus that an author can capture in another way. Monopolistic competition theory indicates that works with relatively steep inverse demand functions capture a lower proportion of the available surplus than do works with relatively flat inverse demand functions. Works with steep inverse demand functions tend to be products with low own-price elasticities of demand, which in turn tend to be those that have the fewest substitutes (Spence,

1976a; Spence & Owen, 1977). For a more complete discussion, see Yoo (2004, pp. 273-74).

¹² In addition, the fact that their study assumed that the radio market is composed of homogeneous products led them to overlook potential welfare benefits resulting from product differentiation. The existing theoretical literature suggests that this simplifying assumption can have a fairly dramatic effect on the welfare implications (Mankiw & Whinston, 1986).

¹³ Just as stimulating entry by close substitutes should promote access to readers by using increased competition to lower price, it should also promote access to follow-on authors who seek to build on prior work. Once the market for the work becomes sufficiently competitive, the problem of cumulative innovation, in which a copyrighted work simultaneously is licensed simultaneously to both consumers and to other authors who seek to use the work as an input in creating other works, becomes analogous to the classic problem of transfer pricing, in which a particular good simultaneously serves as an end product and as an input used in making another product. The transfer pricing literature indicates that welfare is maximized when the price of the good when used as an input is set equal to the price charged of the good when sold as a final product, so long as the final product market is sufficiently competitive (Milgrom & Roberts, 1992, pp. 79-83). Thus, so long as the total surplus in the market is sufficiently large relative to the fixed costs of entry, there is nothing inefficient about charging the market price to follow-on authors who seek access to a copyrighted work as an input in creating other works. Should the market for the works not be sufficiently competitive, the differentiated

products approach suggests that the problem might be redressed by making the market more competitive by stimulating entry rather than by lowering the price paid by follow-on authors. It is true that holdout behavior may prevent particular authors from creating particular works. Competition policy, however, focuses on protecting competition, not particular competitors. Thus, unless such refusals create losses for more than just particular individuals, no intervention is warranted. And even if intervention were justified, it would take the form of a targeted remedy and not a general revision of the scope of copyright protection.

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