

THE ECONOMICS OF TRADEMARKS

*By Nicholas S. Economides**

ABSTRACT

Trademarks facilitate consumers' choice among experience goods and transmit quality signals for infrequently consumed goods. Trademarks are indispensable for the efficient provision of products with the wide range of variety and quality combinations demanded in a modern economy. Nevertheless, they can also sometimes have anticompetitive effects. Trademarks allow firms to tie in desired mental images with the advertised goods and to compete in perception advertising. The resulting possible distortions of competition fall into three categories. First, competition in perception advertising may result in a larger number of brands at equilibrium than is optimal. Second, the tie in produces an allocative distortion. Third, resources are wasted in the effort to link desired mental images with advertised goods.

The effects of trademarks on barriers to entry are ambiguous. The intertemporal effects of perception advertising may create barriers to entry for newcomers. Such barriers will be beneficial to society when they tend to decrease the number of brands toward optimality. With sequential entry, however, perception advertising may tend to increase the number of brands.

Firms may acquire some small market power from first use of the most appropriate symbol and words as trademarks. Such monopoly power is limited by restrictions against use of generic and descriptive terms.

I. INTRODUCTION

Man lives, thinks and dies using symbols. From the cross of the delivery hospital to the cross on the grave, man's life is lived by learning symbols, using them and creating new ones. Symbols are concrete and relatively simple representations of ideas and objects. A symbol is used instead of the detailed mental image it invokes because it is simple and can be quickly grasped. Use of

* Assistant Professor of Economics, Columbia University, New York, N.Y. The author has written extensively on questions of competition in variety and quality features of goods. The author wishes to thank Susan Rose-Ackerman for many helpful suggestions, Douglas Goodfriend and Judy Kim for diligent research assistance, Rosemarie Bowie for helpful comments and Jerre B. Swann, Allan S. Pilon and Robert C. Sorensen from The United States Trademark Association for their extensive suggestions and comments. Financial support from the Center for Law and Economics of Columbia University, under a grant from The United States Trademark Association, is gratefully acknowledged. The opinions expressed herein are solely the responsibility of the author.

symbols speeds up thinking and communicating. In fact, it would be practically impossible to communicate without the symbols which constitute the words of our language.

The same symbols can mean different things to different individuals.¹ But, by and large the convention which identifies symbols and words with some minimally defined mental images at a certain point in time for a certain group of people, allows communication and civilization to continue.

The law allows symbols and words to be attached exclusively to commodities or services of a designated producer.² They can be used to identify his goods and distinguish them from those manufactured and sold by others.³ These symbols upon being "trademarked"⁴ become the property of the producer, under specified rules on use and abuse,⁵ and thereafter can be thought of as part of the assets of the producer. The producer (or distributor) is given a legal monopoly on the use of these trademarked symbols and names in connection with the attached commodity, and is extensively protected against infringement.⁶ Similarly, under certain circumstances⁷ the law allows a word or symbol used to identify a business entity as a trade name to be registered and used exclusively.

1. Typically scientists attempt to narrow down the interpretation of words, while lawyers could be seeking the widest and narrowest interpretation depending on the case and the side they are on.

2. Sections 1-45 Trademark (Lanham) Act of 1946, 15 USC §§1051-1127 (1946) [hereafter referred to as the "Lanham Act"]. As Justice Frankfurter stated in *Mishawaka Rubber & Woolen Mfg. Co. v. S.S. Kresge Co.*, 316 US 203, 205, 53 USPQ 323, 324-25 (1942), "The protection of trade-marks is the law's recognition of the psychological function of symbols. If it is true that we live by symbols, it is no less true that we purchase goods by them."

3. "The term 'trademark' includes any word, name, symbol, or device or any combination thereof adopted and used by a manufacturer or merchant to identify and distinguish his goods, including a unique product, from those manufactured or sold by others. . . ." Section 45 Lanham Act, 15 USC §1127, as amended by Title I of HR 6163, 98th Cong, 2d Sess (1984), as enacted Pub L No 98-620 (November 8, 1984).

4. In this discussion the word "trademark" indicates either a trademark, which is used to identify a good, or a service mark, which is used to identify a service. Section 45 Lanham Act, 15 USC §1127. In order to gain full statutory protection of a trademark, the mark should be registered in conformity with the requirements of §1 of the Lanham Act, 15 USC §1051. These include actual use of the mark on the product. For an extensive recent review of the common law as it relates to the Lanham Act on this issue see Michael H. Davis, *Death of a Salesman's Doctrine: A Critical Look at Trademark Use*, 19 Georgia Law Review 233 (1985).

5. For example, continuous use of the trademark is essential to maintaining protection of the trademark. In *Procter & Gamble Co. v. Johnson & Johnson, Inc.*, 485 F Supp 1185, 205 USPQ 697 (SDNY 1979), the court decided that there was no infringement of the plaintiff's federally registered trademark because the use of the mark was nominal and did not represent a bona fide attempt to establish a trademark in any meaningful way.

6. Sections 32-36 Lanham Act, 15 USC §§1114-1118.

7. Applicant must show that the name has become distinctive of the applicant's goods in commerce, §2(f) Lanham Act, 15 USC §1052(f), and that there has been a "trademark use" of the name. In *re Walker Process Equipment, Inc.*, 223 F2d 329, 110 USPQ 41 (CCPA 1956).

In this article I analyze the economic significance of trademarks. I start by noting the primary economic reasons for protection of trademarks in section II. In section III, I discuss the degree of success of the economic function of trademarks for frequently purchased goods. In section IV, I discuss how trade names apply to infrequently purchased goods. In section V, I analyze the potential distortions created by perception advertising which is made possible by trademark protection. Section VI notes the influence of trademarks in the long run as creators of barriers to entry, and the consequences for social welfare. In section VII, I analyze potential distortions under the assumption that trademarked symbols have value *ex ante*, before they are used on the product. In section VIII, I conclude.

Before proceeding, it is useful to define few relevant economic terms. A good which the average consumer buys often is called an experience good because the consumer can gather experience as to its features from the first few purchases and use this experience to make subsequent choices. An example of an experience good is a bottle of the beverage TAB.

Features of goods are divided between quality features and variety features. By definition, all consumers agree that a larger amount of a quality feature is desirable, although they may have different willingnesses to pay for the same increase in quality. In contrast, all consumers by definition do not prefer more of a variety feature. For example, color is a variety feature because some consumers prefer white over red and some have the opposite preference.⁸ However, the speed with which a computer accomplishes a task is a feature of quality, since all consumers desire higher speeds.

II. REASONS FOR PROTECTION OF TRADEMARKS

Where experience goods have unobservable differences in quality and/or variety, trademarks enable consumers to choose the product with the desired combination of features and encourage firms to maintain consistent quality and variety standards and to compete over a wide quality and variety spectrum.

8. A discussion of this distinction can be found in Kelvin Lancaster, *Variety, Equity and Efficiency* (Columbia University Press 1979) who calls differentiation of products in terms of variety features, horizontal differentiation, and differentiation of products in terms of quality features, vertical differentiation. See also Avner Shaked and John Sutton, *Natural Oligopolies*, *Econometrica* (1983) for a discussion of the similarities and differences between markets for variety and quality differentiated products.

The primary reasons for the existence and protection of trademarks are that (1) they facilitate and enhance consumer decisions and (2) they create incentives for firms to produce products of desirable qualities even when these are not observable before purchase. Both of these effects are a consequence of the fact that trademarks permit consumers to distinguish between goods which look identical in all features that are observable before purchase.⁹

From an economic standpoint, the argument for trademarks is simple. In many markets, sellers have much better information as to the unobservable features of a commodity for sale than the buyers. This is known as information asymmetry. Unobservable features, valued by the consumer, may be crucial determinants of the total value of the good. Observable features can often be imitated to the smallest detail, even though huge differences remain in the unobservable features of the product. In the absence of trademarks, faced with the choice between goods which look identical, the consumer will only by chance pick the one with the desirable unobservable qualities. Further, firms would produce products with the cheapest possible unobservable qualities, because high levels of unobserved qualities would not add to a firm's ability to sell at a higher price and realize higher profits.¹⁰ However, if there is a way to identify the unobservable qualities, the consumer's choice becomes clear, and firms with a long horizon have an incentive to cater to a spectrum of tastes for variety and quality, even though these product features may be unobservable at the time of purchase.

The economic role of the trademark is to help the consumer identify the unobservable features of the trademarked product. This information is not provided to the consumer in an analytic

9. "Used as a means of identifying the trademark owner's products, a trademark 'makes effective competition possible in a complex, impersonal marketplace by providing a means through which the consumer can identify products which please him and reward the producer with continued patronage.'" *Anti-Monopoly, Inc. v. General Mills Fun Group*, 611 F2d 296, 301, 204 USPQ 978, 982 (CA 9 1979), remanded 515 F Supp 448, 212 USPQ 748 (ND Calif 1981), rev'd 684 F2d 1316, 216 USPQ 588 (CA 9 1982), quoting *Smith v. Chanel, Inc.*, 402 F2d 562, 566, 159 USPQ 388, 391 (CA 9 1968). Also, see, *W.T. Rogers Co. v. Keene*, 778 F2d 334, 338, 228 USPQ 145, 146 (CA 7 1985); *Scandia Down Corp. v. Euroquilt, Inc.*, 772 F2d 1423, 1429-30, 227 USPQ 138, 142 (CA 7 1985).

10. George Akerlof, *A Market for Lemons*, *Quarterly Journal of Economics* 448-500 (1970) provides a striking example where asymmetric information results in a market failure, where a desirable market fails to exist. He considers a market for used cars where sellers know the quality of the car they sell while buyers know only the distribution of quality. Expecting a car of average quality, a buyer would offer the price of that car at most. Now, expecting the offer of the price of the average car, all sellers of above-the-average-quality cars drop out of the market. Expecting this, now buyers offer the price of the average of the remaining (low quality) cars. This prompts further withdrawal of cars which fall above the new average. This process continues until no cars are offered in the market except the ones of the lowest possible quality. Markets for all higher qualities have disappeared although there is potentially both demand and supply for them. Hence the market failure.

form, such as an indication of size or a listing of ingredients, but rather in summary form, through a symbol which the consumer identifies with a specific combination of features. Information in analytic form is a complement to, rather than a substitute for, trademarks.

Trademarks were originally used to identify the makers of jewelry in the middle ages, but craftsmen's marks were used in pottery since ancient times. Although their original intent may have been to identify the maker for possible fraud regarding the assigned quality of the alloy, soon trademarks were utilized to identify the quality standard of particular makers. By the beginning of the twentieth century trademarks were understood not to be useful in identifying the source, but rather as identifying a quality standard.¹¹ Presently the trademark typically identifies the product (the full combination of features that constitute the product), and its role of identifying the source is secondary in the minds of consumers. The consumer of NABISCO WHEAT THINS knows and cares little about source (manufacturer). Rather the consumer identifies the trademark with the features of the commodity, including crispness, sweetness or lack thereof, color, and the like. The trademark identifies both quality and variety features of the product, i.e., both features like freshness, more of which is desirable by all, and features like sweetness, over which consumers have varying preferences, some preferring little of it, and some desiring lots of it. Thus, although trademarks and trade names typically identify quality standards, often trademarks identify the full features of the product.

Moreover, the existence of trademarks allows firms to differentiate products in their unobservable features and to efficiently convey these differences to consumers. The tendency of firms to produce products that are not identical is natural in an environment where firms strive to maximize profits. The existence of trademarks allows this tendency to manifest itself with respect to unobservable characteristics of the products. The consumer is thus afforded a wider quality/variety spectrum.

III. THE DEGREE OF SUCCESS—EXPERIENCE GOODS

With respect to experience goods, the degree of a trademark's success is a function of: (a) the consumer's ability to recall

11. For an excellent exposition of the historical development of trademarks see Frank I. Schechter, *The Historical Foundations of the Law Relating to Trade-Marks* (Columbia University Press 1925), Frank I. Schechter, *The Rational Basis of Trademark Protection*, 22 *TM Bull* 139 (1927), reprinted 60 *TMR* 334 (1970) and Sidney A. Diamond, *The Historical Development of Trademarks*, 65 *TMR* 265 (1975), reprinted 73 *TMR* 222 (1983).

the mark and its associated features; (b) the inability of others to use a confusingly similar mark; and (c) the reluctance of firms to change the variety and quality features of the trademarked product.

The degree to which a trademark is successful in conveying to the consumer unobservable features of the product before purchase depends on the underlying market conditions, the product, the frequency of purchase, the ease of information diffusion across consumers, and the ability of recall of consumers.

For products which are frequently purchased by the same consumer, trademarks function directly through the previous experience of the consumer. Consider an experience good (which the average consumer buys often). Assume further that there are certain features of the product which are unobservable at the time of purchase. A typical example of such a product is a bottle of diet COKE, the cola beverage. Information on the bottle and label give little indication of the taste. The trademark identifies the product. A consumer is typically offered a free introductory bottle, or buys the first bottle to sample it. From his experience he is then able to decide rationally as an informed consumer about his future choices between diet COKE and all other goods.

The crucial requirements for this mechanism to work are, first, that the consumer has a sufficiently good memory; second, that the consumer is able to identify the full features of the product with the trademark; and third, that the features of the product do not change between the first and subsequent consumption decisions. In the case of experience goods, the trademark has a reputation with the old customer which identifies its features. In this case, social interactions and information transfer among consumers are not necessary for the trademark to facilitate efficient choice.

For the trademark to fulfill its function all three requirements mentioned above are necessary. It can be fairly assumed that the consumer is endowed with a good memory. The second condition is likely to hold because the law protects the identification of trademarks with particular products by disallowing the use of similar symbols, words or designs on any other product in a manner likely to cause confusion.¹² Preventing confusion is an impor-

12. Section 2(d) of the Lanham Act, 15 USC §1052(d), stipulates that a mark is not registrable if it "so resembles a mark registered in the Patent and Trademark Office or a mark or trade name previously used in the United States by another and not abandoned, as to be likely, when applied to the goods of the applicant, to cause confusion, or to cause mistake, or to deceive." See also *Maternally Yours, Inc. v. Your Maternity Shop, Inc.*, 234 F2d 538, 110 USPQ 462 (CA 2 1956); *Syntex Laboratories, Inc. v. Norwich Pharmacal Co.*, 437 F2d 566, 169 USPQ 1 (CA 2 1971).

tant function of trademarks.¹³ Even in cases of no likelihood of confusion, similar trademarks have been disallowed because of the possible "dilution" of the mental association between a trademark (or trade name) and a particular product (or firm).¹⁴

The last requirement is that the manufacturers do not change the features of the product between purchases. Under conditions of stability in the market, prosperity of the firm is guaranteed by its adherence to a high quality level for goods bearing its trademark or trade name. If, however, the horizon of the firm is short, it may opt to cash-in on its trade name reputation by selling lower quality goods. Events which can shorten the horizon of the firm and force it to emphasize the short run can be severe financial constraints which follow a leveraged buy-out, or a dramatic fall in the demand for the product because of innovation in competing products, or a severe economic shock. The law provides that no deceptive changes of the trademarked product be made. However, "[t]he owner may change the character and quality of his product and as long as he does not deceive the public, his trade-mark rights are not affected."¹⁵ Further, unannounced changes of ingredients are allowed as long as the general quality level remains unimpaired.¹⁶

When preferences with respect to variety features change, the holder of a trademark has three courses of action: (a) he can change the product's unobservable characteristics to conform to

13. In *Scarves by Vera, Inc. v. Todo Imports Ltd. (Inc.)*, 544 F2d 1167, 192 USPQ 289 (CA 2 1976), the court identifies protection from confusion among the three interests protected by trademark laws. The three interests are: (1) The senior user's interest in being able to enter a related field at some future time; (2) his interest in protecting the good reputation associated with his mark from publicly inferior merchandise of the junior user; and (3) the public's interest in not being misled by confusingly similar marks.

14. In *Scarves by Vera, Inc. v. Todo Imports Ltd. (Inc.)*, *ibid*, the plaintiff, a designer of women's wear, successfully enjoined the defendant's use of a trademark on cosmetics and fragrances. This is to be compared with the much narrower holding of the court in *Mushroom Makers, Inc. v. R.G. Barry Corp.*, 580 F2d 44, 199 USPQ 65 (CA 2 1978), where injunctive relief was denied despite a likelihood of confusion because the balance of equities favored the "junior user." Note further that the trademark law under the Lanham Act is unclear regarding protection against a non-competing good. Recent federal cases suggest that "the federal courts seem ready at this point to protect a senior user of a suggestive mark from potentially serious harm caused by dilution, where the alleged infringer's use is in connection with non-competing goods that are related to the senior user's goods." *Dreyfus Fund, Inc. v. Royal Bank of Canada*, 525 F Supp 1108, 1123, 213 USPQ 872, 883 (SDNY 1981). However, until recently protection against non-competing goods has depended on judicial doctrines and on state antidilution statutes.

15. 1 H. Nims, *The Law of Unfair Competition and Trade-Marks* §187 at 517 (4th ed 1947), as quoted in Elmer W. Hanak, III, *The Quality Assurance Function of Trademarks*, 65 TMR 318, 330 (1975).

16. In *Menendez v. Farber, Coe & Gregg, Inc.*, 345 F Supp 527, 174 USPQ 80 (SDNY 1972), modified on other grounds sub nom *Menendez v. Saks & Co.*, 485 F2d 1355, 179 USPQ 513 (CA 2 1973), cert granted sub nom *Alfred Dunhill of London, Inc. v. Republic of Cuba*, 416 US 981 (1974), the Court ruled that there was no loss of protection of the trademark if the trademarked cigars no longer contained Cuban tobacco provided that their quality remained high.

the new tastes; (b) he can introduce a new trademarked product that comes closer to the new tastes, while continuing to produce the old product; or (c) he can introduce a new product and withdraw the old one at the same time.

The course to be followed depends on cost and feasibility factors, such as the ability of a firm to introduce a new good while still producing the old one, and on perception factors. The firm has to ponder the following questions: Is there a loss in a brand's good reputation if a change in its composition is made secretly? How much of the reputation of the old brand carries to the new brand? Finally, if the second strategy is followed, do the two goods appear distinguishable enough? One expects the answers to these questions to vary from market to market.

In 1985, The Coca-Cola Company followed the third strategy, introducing the new COKE with a new secret formula, while it simultaneously withdrew the old COKE. When it became clear that there was still significant demand for the old COKE, Coca-Cola reintroduced it as CLASSIC COKE.

In the case of experience goods where the consumer identifies the trademark with the product before purchase, it appears that there is no other mechanism which would work as efficiently. In the absence of trademarks, it could be argued that quality regulation, say through minimum quality standards, enforced through laws on fraud, could conceivably create a similar level of efficiency in the market place. Although quality minimums might be upheld through regulation, it is practically impossible to regulate variety efficiently. Given the consensus among consumers on the desirability of a quality feature, a regulatory board can set minimum quality standards.¹⁷ Variety features, where unanimity in the direction of preference is lacking, are very difficult and very costly to regulate. To achieve efficient regulation, estimation of the demand for each combination of variety features is needed—a very difficult task. Thus any regulatory system will most likely fail to provide the appropriate combinations of features which constitute the efficient mixture of desired varieties.

IV. THE DEGREE OF SUCCESS—INFREQUENTLY PURCHASED GOODS

With respect to search goods, trade names may indirectly signal a quality standard extending to multiple products within a category.

17. However, efficient regulation requires estimation of the willingness to pay for quality improvements.

For products which are consumed infrequently by the same individual, such as washing machines, refrigerators, television sets, video cassette recorders, and the like, trademarks work in an indirect way. Assume again that there are unobservable features. Lacking previous consumption, a consumer is unable to identify the trademark with the product. To be able to associate the trademark with the features of the product he has to rely on information diffused informally through friends or from evaluations disseminated centrally through magazines, radio or television. It is clear that, because of differences of interpretation as well as differences of opinion and preference across consumers, the information on which the choice will be based is most likely to be much more vague than in the case of experience goods. Most relevant information reaches the consumer in summary form. Information gathered through this process is likely to be incomplete and the consumer has little hope of more complete information on product features.

However, firms may use trade names to help the consumer identify the quality level of products. Even though the consumer is an infrequent buyer of a particular kind of electronic product, he may be a frequent buyer of the overall category of electronic products, and thus he is likely to have previous experience in the consumption of goods with the same trade name. Choosing a high quality standard in the category of electronic products, a manufacturer can use his trade name to transmit information on quality through the direct previous experience of consumers.

In this signaling process a firm will not necessarily use the same quality level for all its electronic products. Suppose that the consumer weighs all quality signals equally. Then the benefit to the firm of the signaling property of the trade name is the same from each of the product lines where the symbol was observed. On the other side, a firm will attach different values to marginal quality improvements in different product lines, because of differing marginal valuations of quality and differing costs of quality improvement. Therefore, the firm, in minimizing costs, will produce the highest quality in the product line where the marginal cost of quality improvement minus the marginal benefit from increased demand is the least. Uniformity of quality level across product lines bearing the same trade name will result only if demand and cost conditions are very similar across product lines. Therefore, in general, the signal received by the consumer will be noisy. However, this is a significant improvement over a situation of no trade names (and no signals).

V. DO TRADEMARKS CREATE "MONOPOLIES"?

By perception advertising, a mental image may be added to the quality and variety features of a trademarked product, permitting competition in yet another dimension. Three distortions may result: (a) the ability of firms to differentiate products in perceived features may result in more than the optimal number of brands, counteracting economies of scale; (b) precommitted advertising may initially create monopoly power and profits, which then result in the entry of more than the optimal number of firms and the underproduction of each brand; and (c) perception advertising may distort purchasing decisions, depending on whether mental images are considered valuable. These potential distortions, however, are more than offset by the efficiencies arising from a trademark's ability to distinguish between goods with unobservable variances in quality and variety features.

Trademarks have been criticized as creators of monopolies which are legally protected indefinitely, and thus limit competition. This thesis was proposed by Chamberlin who finds no useful purpose for trademarks.¹⁸ On the face of it, it is true that a trademarked product *x* is a monopoly, since no other firm is allowed to sell an identical product, where identity includes the trademark. But, a competitor can produce a product *y*, identical in all observable and unobservable respects with *x* except for the symbol, name or design used as its trademark. Whether the consumer derives utility from the symbol, name or design of the trademark by itself, i.e., divorced from its significance in identifying the product, is debatable. But if there is no direct pleasure afforded by the symbol, products *x* and *y* will be of equal value to a consumer, and therefore the producer of good *x*, although a monopolist, will have no market (monopoly) power. Otherwise put, product *x* will have a perfect substitute, *y*, and therefore its producer will have no ability to increase its price over the price of *y* without losing all his customers. Product *x* (and *y*) will be facing a perfectly elastic demand, and will have to be sold at marginal cost and zero profits. Obviously, this very competitive situation is not desirable for either firm, and both firms will take steps to avoid it by differentiating their products in the variety and quality dimensions.

A trademarked product can be varied in many different ways, one of which is through advertising. Advertising can change the

18. See Appendix E and chapter IV in Edward Chamberlin, *The Theory of Monopolistic Competition* (8th ed Harvard University Press 1969).

perceived image of the product; it can add attributes to the product as seen by the consumer. This kind of advertising has sometimes been called persuasive advertising to distinguish it from informative advertising which disseminates information about prices, location of stores, dates of sales, and the like. More appropriately, it should be called perception advertising. In perception advertising a desired mental image is added to the physical commodity. The consumer buys the advertised mental image together with the physical commodity, and in his mind the commodity bought contains both. The perceived features are consumed like all other features of the commodity. The fact that some attributes are only perceived, and are not represented by hard physical evidence, does not diminish their significance in the mind of the consumer. Now, advertising of a brand is useless without a trademark—anyone can imitate the product and profit from the advertising of the first maker. Thus, the existence of a trademark makes advertising of perceived images possible. Instead of limiting competition, trademarks allow firms to compete in one more dimension.

In this mental tie in there is a possibility of a distortion to the incentives of a competitive economy. There are three kinds of possible distortions resulting from perception advertising.

The first distortion is the result of the opening of competition in a new dimension. Contrary to a widespread belief, competition is not always beneficial to society. In a world where there are some resources used up to set-up a new brand and average production cost falls when more units are produced, it is not always the case that more brands are better for the economy. As the number of brands increases the quantity produced of each brand decreases. At a free entry equilibrium each firm produces a relatively small quantity and breaks even. Social welfare,¹⁹ representing the total willingness to pay of consumers minus total production and set-up costs, can usually be increased by a reduction of the number of brands (implying savings in set-up costs) with simultaneous rearrangement of their location in the product spectrum. Thus, social welfare maximization will typically limit the number of brands to a number below the one prevailing at the free market equilibrium. This is true in a world with all product features observable and no trademarks.²⁰ If, now, some features

19. Social welfare or total surplus at production levels $q = (q_1, \dots, q_n)$ of differentiated products $i = 1, \dots, n$ is the sum of the total willingness to pay for products q_1 to q_n minus total costs of their production.

20. See for example, Lancaster, *supra* note 8, Steven Salop, *Monopolistic Competition with Outside Goods*, 10 *Bell Journal of Economics* 141 (1979), and Nicholas S. Economides, *Symmetric Equilibrium Existence and Optimality in Differentiated Product Markets*, *Jour-*

become unobservable and trademarks are introduced, there are two effects. The first is the very significant welfare gain which comes through the identification of the unobserved features, as discussed earlier. The second effect is the new ability of firms to compete in perceptions. Firms now have the ability to produce products identical in all respects except in purely perceived features. It is in the interests of the firms to differentiate their products in perception, and to target each product to a different segment of the population. In this way firms gain market (monopoly) power, i.e., some degree of ability to set prices, and some reduction in the elasticity of the demand they face. This results in higher profits. One expects a larger number of brands at equilibrium than before perception advertising was available. The welfare consequences of this effect are ambiguous, but it is likely that it will create some small reduction in total welfare because of the relatively low production level of each brand.

The magnitude of the effect of advertising on social welfare depends crucially on the ability of firms to pre-commit their advertising expenditures before prices and quantities are determined. When precommitment is available, firms use it to signal their aggressiveness to their competitors. Thus they are able to sustain higher profits per brand, everything else being held constant. This results in entry of more firms in the industry. At equilibrium there is a larger number of brands and thus a larger deviation from the social welfare maximum than when precommitment in advertising levels is not available.²¹

As seen in the discussion of the first distortion, it is probable that through perception advertising the firm will have some monopoly power in the market for the perceived good. The bundling up of the perceived image with the advertised physical commodity

nal of Economics Theory (forthcoming 1988-89) for locationally differentiated goods. The divergence between the optimal number of brands and the free entry equilibrium number can be significant. In Salop, *ibid*, there are twice as many brands at the free entry equilibrium. In Economides, *ibid*, where the intensity of preference of consumers for particular brands is stronger there are eighty-two percent more brands at the free entry equilibrium than in optimality. Michael A. Spence, Product Selection, Fixed Costs and Monopolistic Competition, 43 *Review of Economic Studies* 17 (1976) presents an alternative view.

21. In the model developed in Nicholas S. Economides, Advertising in the Circular Model of Differentiated Products (Discussion Paper No 316, Columbia University 1986) firms choose in stages whether to enter in the industry, their position in the image space, their advertising level and their price behavior. Two models are analyzed. In the first, there are three stages: entry in stage 1, product specification in stage 2, and advertising and price choice in stage 3. In the second model there are four stages: entry in stage 1, product specification in stage 2, advertising in stage 3, and price choice in stage 4. This last game allows for precommitment in advertising, since it is chosen before prices. Thus for any fixed number of firms (in the short run) each firm has higher monopoly power and profits in the four-stage (precommitment) game than in the three-stage (no-precommitment) game. This results in increased entry (in the long run) and in higher deviation in the number of brands at the equilibrium of the four-stage game (compared to in the three stage game) from the total surplus maximizing number of brands. See also Nicholas S. Economides, Advertising and Maximal Product Differentiation (Discussion Paper No 315, Columbia University 1986) and Nicholas S. Economides, Quality Variations in the Circular Model of Differentiated Products (Discussion Paper, Columbia University 1988).

will result in overproduction of each brand.²² Since the consumer typically prefers to consume the physical commodity and the mental image in a ratio different from the one imposed on him by the tie in, the tie in produces an allocative inefficiency.

A third kind of distortion can occur if perception advertising is in reality persuasive, and thus distorts decisions by changing the minds of the consumers regarding the desirability of the product. Under this view, all the effort of perception advertising is wasted and constitutes a welfare loss. I do not share this view. I believe that perception advertising provides consumers with products (mental images) that they value, and which would have been scarce in its absence. It is not a direct waste. Some resources are wasted, however, in the effort to tie in the desired image with the advertised product.

VI. TRADEMARKS AND BARRIERS TO ENTRY

Brand loyalty in a growing market is likely to reduce the number of differentiated products. With sequential entry, however, and where perception advertising is the cheapest entry deterrence technology, the use of such technology may result in an increased number of firms. In either event, the net results are ambiguous and can be expected to vary from market to market.

It can be argued that the existence of perception advertising, made economically meaningful because of the existence of trademarks, allows established firms to create barriers to newcomers, commonly called barriers to entry.²³ Suppose that the entry process is described with the aid of a two-stage model, where in the first stage firms enter and are established, and in the second stage entry is open to newcomers, with a possible advantage to the established firms. First, it should be clear that if advertising lacks intertemporal effects it could not produce barriers to entry. Assuming that there are intertemporal effects, brand loyalty puts a potential entrant at a disadvantage. That does not matter if the original market structure was competitive, and demand is not growing. Since the intertemporal effects of advertising do not force

22. To see this consider the following example. Originally there are three goods, a desired mental image x , a physical commodity y , and a third good z , sold at prices p_x , p_y , and p_z . There is one consumer of income I and utility function $U = xyz$. Under perfect competition the utility maximizing consumer demands $x = I/(3p_x)$, $y = I/(3p_y)$ and $z = I/(3p_z)$. Now let commodities x and y be tied-in and sold as one good at price p_1 . The utility maximizing consumer now demands $x' = I/(3p_1) = y'$, $z' = I/(3p_z)$. In a typical mental image tie-in we have originally $p_x < p_y$ and $x > y$. It follows that $p_x < p_1 < p_y$ and $y < y' = x' < x$. Therefore the tie-in results in overproduction of the physical commodity compared with its production level under perfect competition.

23. We define as a barrier to entry a cost disadvantage faced by a newcomer.

exit of producing firms (they have effect only on potential entrants), the market cannot become less competitive because of them. However, if the market demand is growing exogenously, the barrier to entry created by consumer loyalty can directly limit the natural expansion of the number of firms in the market. This can be beneficial to total welfare since the surplus maximizing number of firms is smaller than the free entry equilibrium one. In fact, the effect of small barriers to entry will be to reduce the number of differentiated products towards the surplus maximizing number, and thus increase social welfare. Large barriers to entry will decrease the number of brands below the surplus maximizing number, and thus may be welfare-reducing in comparison with the free entry equilibrium.²⁴ If the market was originally tightly oligopolistic, it may remain for a longer period of time in that state because of the barriers to entry implied by the intertemporal effects of perception advertising. Therefore, the trademark, which makes perception advertising possible, can serve to reduce competitive pressures on oligopolistic markets, but can also serve to increase welfare through the reduction of an excess number of brands. The net result is ambiguous and can be expected to vary from market to market.

Sequential entry, where firms enter one at a time over many time periods, can lead to different conclusions. First, it should be clear that perception advertising will be used for entry deterrence only if it is the cheapest deterrence strategy among many, including holding excess production capacity, practicing limit pricing and lobbying for legislative barriers to entry. Let us consider the effects of perception advertising as a deterrent to entry under the assumption that it is the cheapest technology available for deterrence.

In a sequential entry framework, the profitability of a potential entrant is determined not only by the deterrence strategies of the incumbents but also by the ease with which further entrants will be deterred. Thus, for example, a monopolist, in determining if it is optimal to spend resources to deter an entrant, must take into account whether, once the first entrant has entered, it would be more profitable to remain in a duopoly (thus deterring further entry), or to allow a second entrant (third firm in the industry) to enter. A cheaper deterrence technology increases potential profits per firm in an oligopoly with a fixed number of firms. The cost of deterring an oligopolist with high expected profits may be higher despite the cheaper deterrence technology. Thus, in the presence

24. For a detailed discussion see Nicholas S. Economides, *Advertising Can Create Barriers to Entry and Increase Welfare* (Mimeo).

of a cheaper deterrence technology, firms may not deter potential entrants who would have been deterred in the absence of such technology.²⁵ Therefore, trademarks, in making perception advertising feasible, may result in an increase in the number of firms in the industry, if perception advertising turns out to be the cheapest deterrence technology.

VII. VALUE OF SYMBOLS BEFORE USE AS TRADEMARKS

Although there can be some advantage to the firm that uses first some symbols as trademarks, such advantage is expected to be small and temporary.

All the preceding discussion was under the assumption that there is no utility derived directly from the symbol. Next we examine the case where there is utility derived directly from the trademarked name or symbol, i.e., the symbol used has intrinsic value. All symbols are not created equal, and each has at least one commonly accepted meaning. Firms may try to use symbols that are associated with happy images, or convey the ability of the product to fulfill its function, or are just easy to remember. In the choice of symbols, there can clearly be an advantage to first-comers. Further, for each product there may be a most appropriate symbol which ex ante, before use on the product, will most effectively remind the consumer of the essential features of the particular product. Efficient first-comers will use and register the symbol. The monopoly rights thus afforded by the trademark can have a direct effect on competition. The holder of the most appropriate symbol will have an advantage. In most cases, this advantage should be very small. Most of the value of any trademark will be created with its identification with the product. Any

25. This is seen in the following example (modified from Bernheim (1984)). Let an industry have three potential firms. Let $\pi(n)$ denote profits per firm in an n -firm symmetric oligopoly. Suppose $\pi(1) = 18$, $\pi(2) = 7$, $\pi(3) = 1$. Let there be two technologies of entry deterrence: capacity manipulation "c" with costs of $D^c(I) = I/15$, and advertising "a" with costs $D^a(I) = I/10$, where "I" is the cost inflicted to the potential entrant. In a world of both technologies, only advertising is used (because it is the cheapest). Duopolists can invest $I = 5$ each to deter an additional entrant, so that he makes $\pi(3) - 1 = 0$. Deterrence yields profits per firm of $\pi(2) - 5 = 2$, while allowing entry yields $\pi(3) = 1$. Thus, duopolists choose to deter a potential entrant. If the monopolist deters a potential entrant, he must invest 20 (so that the potential entrant makes $\pi(2) - 5 - D^a(20) = 0$). This gives the monopolist $\pi(1) - 20 = -2$. If the monopolist allows entry he makes profits $\pi(2) - 5 = 2$. Thus he allows entry and the industry settles as a duopoly.

Now suppose that trademarks were not available, and thus perception advertising was infeasible. Duopolists need to invest 7.5 each in "c" to deter. Deterrence yields a profit $\pi(2) - 7.5 = -0.5$ to each duopolist. Allowing entry yields $\pi(3) = 1$. So duopolists allow entry. A monopolist needs to invest 15 to deter entry (so that the potential entrant makes $\pi(3) - D^c(15) = 0$). This gives the monopolist profits $\pi(1) - 15 = 3$. If the monopolist allows entry, he makes $\pi(3) = 1$. Therefore the monopolist deters entry and the industry is a monopoly. Thus, in the absence of trademarks, the industry has only one active firm, but in the presence of trademarks it has two active firms.

advantage from the monopoly right of the use of the "best" symbol can only be temporary and small. This is true under the assumption that the trademarked name was not generic or descriptive of the item sold. If the name were generic or descriptive, its protected exclusive use could create significant difficulties in the effective functioning of the market. Competitors could be substantially disadvantaged and the monopoly power of the "trademark" holder could be considerable.²⁶ The law has provided insurance against such potential distortions through the exclusions of generic and descriptive names from trademark protection.²⁷ Not only is the protection of merely descriptive names limited under the Lanham Act,²⁸ but also designations that, in the eyes of the relevant public, primarily come to denote a product rather than the product's producer cease to be valid trademarks.²⁹ However, if a descriptive term has acquired a "secondary meaning" (or "distinctiveness") through identification in use with a particular brand, it qualifies for full statutory trademark protection under the Lanham Act.³⁰

VIII. CONCLUSION

I have shown that trademarks play an indispensable role in the efficient provision of experience goods with the variety and quality characteristics consumers desire. A similar role is played

26. In *Anti-Monopoly*, supra note 9, 611 F2d at 301, 204 USPQ at 982, the court explains that "[t]he genericness doctrine . . . is designed to prevent such anti-competitive misuse of trademarks." It affirms the rationale offered in *Bada Co. v. Montgomery Ward & Co.*, 426 F2d 8, 11, 165 USPQ 483, 485 (CA 9 1970), cert denied 400 US 916, 167 USPQ 513 (1970): "one competitor will not be permitted to impoverish the language of commerce by preventing his fellows from fairly describing their own goods."

27. Section 14(c) Lanham Act, 15 USC §1064(c) (providing for cancellation of a trademark which has become the common descriptive name of an article or substance), and §15(4) Lanham Act, 15 USC §1065(4) (no incontestable rights shall inhere in a mark which is a common descriptive name of the good); see also *Kellogg Co. v. National Biscuit Co.*, 305 US 111, 39 USPQ 296 (1938); *Nestle Company v. Chester's Market, Inc.*, 571 F Supp 763, 219 USPQ 298 (D Conn 1983). In the *Nestle* case, the district court ruled that TOLL HOUSE had become a generic term for chocolate chip cookies; however, note that the status of TOLL HOUSE as a generic term is unclear because the parties settled while appeal from the trial court was pending, and the appellate court then vacated the judgment and dismissed the complaint.

28. Section 2(e) Lanham Act, 15 USC §1052(e), states that marks that are merely descriptive are not registrable on the Principal Register unless, as provided in §2(f) Lanham Act, 15 USC §1052(f), the mark has become distinctive of the applicant's goods in commerce. See also *In re Work Wear Corp.*, 169 USPQ 501 (TTAB 1971).

29. However, "[a] registered mark shall not be deemed to be the common descriptive name of goods or services solely because such mark is also used as a name of or to identify a unique product or service. The primary significance of the registered mark to the relevant public rather than purchaser motivation shall be the test for determining whether the registered mark has become the common descriptive name of goods or services in connection with which it has been used." Section 14(c) Lanham Act, 15 USC §1064(c), as amended by Pub L No 98-620, §103, 98 Stat 3335 (1984).

30. Section 2(f) Lanham Act, 15 USC §1052(f); under this section, proof of substantially exclusive and continuous use of a mark for five years prior to the date of filing an application for registration of a mark constitutes prima facie evidence that the mark has become distinctive. A mark acquires "secondary meaning," or "distinctiveness," when "the primary significance of the term in the minds of the consuming public is not the product but the producer." *Kellogg Co. v. National Biscuit Co.*, supra note 27 at 118, 39 USPQ at 299.

by trademarks in upholding the quality level of infrequently consumed goods. Frequently criticized for anticompetitive effects, trademarks make competition in perception advertising possible. However, distortions of perfect competition arising from perception advertising can occur. Competition in perception advertising without intertemporal effects will result in a higher number of brands than is optimal. However, in an exogenously growing market, the existence of small intertemporal effects of perception advertising (i.e., the existence of brand loyalty) can be beneficial because it restricts, through the creation of small barriers to entry, the number of brands towards their optimal number. The opposite result can occur if entry is sequential. The exact magnitude of such distortions is difficult to quantify. However, the benefit to the economy of trademarks, because of the efficient provision of variety and quality features, seems likely to outweigh the welfare loss caused by the distortions they create.
