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PERSUASION OR INFORMATION? THE ECONOMICS OF PRESCRIPTION DRUG ADVERTISING*

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THE economic and welfare effects of advertising have been extensively studied over the last half-century. However, these efforts have not led to a consensus either as to the effects or the value of advertising. Economists continue to reach polar conclusions that appear to be derived mainly from preconceptions of the social desirability of advertising. On the one hand is research that emphasizes promotion's ability to create "artificial" product differentiation and thereby produce informational confusion.[1] This line of research stresses the empirical association of extensive advertising with high concentration and high accounting profits—evidence judged to support increased market power and entry barrier effects.[2] A contrary body of research emphasizes the value of advertising in providing information and, hence, in promoting competition.[3] The empirical findings most consistent with this view are that prices paid by consumers in (selected) markets are lower with advertising than without it.[4]

* Yoram Barzel provided helpful comments.

[1] This "Harvard View" of advertising was developed by Edward Chamberlin, The Theory of Monopolistic Competition (1933). Joe Bain, Barriers to New Competition: Their Character and Consequences in Manufacturing Industries (1956); and William S. Comanor & Thomas A. Wilson, Advertising and Market Power (1974), pursue some of the issues raised by Chamberlin. The Comanor and Wilson book provides the most-cited work supporting the product-differentiation, entry-barrier view of advertising.

[2] James M. Ferguson, Advertising and Competition: Theory, Measurement, and Fact (1974), reviews much of the empirical literature on advertising's effect. Papers in Part IV of Issues in Advertising: The Economics of Persuasion (David G. Tuerck ed.) (Am. Enterprise Inst. 1978), also discuss the relationship between advertising, concentration, and profits.

[3] This "Chicago" view is represented by Lester G. Telser, Advertising and Competition, 72 J. Pol. Econ. 537 (1964); Philip Nelson, Advertising as Information, 82 J. Pol. Econ. 729 (1974); and Yale Brozen, Entry Barriers: Advertising and Product Differentiation, in Industrial Concentration: The New Learning 115 (Harvey J. Goldschmid, H. Michael Mann, & J. Fred Weston eds. 1974).

[4] See, for example, Lee Benham, The Effect of Advertising on the Price of Eyeglasses, 15 J. Law & Econ. 337 (1972); and Robert L. Steiner, Does Advertising Lower Consumer Prices? 37 J. Marketing 19 (1973).

Economic analysis generally treats advertising as a homogeneous activity that is evaluated independently of why it might increase demand.[5] Yet advertising's effects need not be the same in different markets or in different settings within a market. For example, price comparison ads of standardized products (for example, ground beef) may lower both entry costs and average price paid, while "image advertising" of heterogeneous products (for example, perfumes) may increase prices and the cost of new entrants gaining consumer trials. Both positive and normative analysis should therefore be prefaced by the particulars of the products advertised, the message delivered, and the buyers addressed.[6] If advertising is a multifaceted, heterogeneous activity, general statements as to the effects and efficiency of advertising may not be possible, and empirical studies using individual industries as cross-sectional observations may be economically uninterpretable.[7] However, the study of advertising within a single industry can provide a piece in the montage required for economic understanding.

This paper analyses one market characterized by very large promotional expenditures—the market for prescription drugs. This market is especially appropriate for detailed analysis since the polar positions on the desirability of advertising are well represented in policy discussions of the prescription drug market. The continual introduction of new, potentially life-saving products makes the potential gains from the rapid dis-

[5] Comanor & Wilson, *supra* note 1, briefly discuss advertising that is designed to produce "bandwagon" effects and artificial product differentiation. Even though their normative analysis seems predicated on such advertising effects, they fail to operationally define such notions. Indeed, they model only advertising that provides correct information about a product's characteristics. K. Boyer, Informative and Goodwill Advertising, 56 Rev. Econ. & Stat. 541 (1974), does explicitly recognize that advertising is not homogeneous either in its purpose or its effects. However, his definition of goodwill (versus informative) advertising as that "which has the effect of encouraging buyer inertia and loyalty," *id.* at 541, fails to distinguish advertising types.

[6] In a working paper, An Analysis of the Functions of Advertising (March 1980) (unpublished paper at Univ. of Washington), I define and distinguish five reasons for advertising affecting product sales. These are: (1) supply of (correct or incorrect) information on a product's characteristics (price, availability, use, color, odor, and so on), (2) supply of information to nonusers of a product about the tastes, preferences, and self-image of the product's users, (3) reduction in the perception or recall costs required to identify products in product classes, (4) information on price–marginal cost differences and, hence, on the incentive to maintain quality, and (5) persuasion designed to substitute emotional decisions for rational, evaluative decisions. I argue that the competitive effects of advertising depend upon what function advertising plays.

[7] This problem of heterogeneous relationships within the data is confirmed in studies by Boyer, *supra* note 5; M. Porter, Consumer Behavior, Retailer Power, and Market Performance in Consumer Goods Industries, 56 Rev. Econ. & Stat. 419 (1974); and Frank Bass, Phillippe Cattin, & Dick Wittink, Market Structure and Industry Influence on Profitability, in Strategy, Structure and Performance 181 (Harry Thorelli ed. 1977).

semination of product information via advertising substantial. Nonetheless, government investigations of the pharmaceutical industry stress that intensive advertising of drugs results in excessive use of high-priced, heavily promoted brand-name products even though equivalent low-priced products are available. Those viewing pharmaceutical advertising with disfavor insist that these ads are frequently uninformative and seem simply to harp the products' names in order to persuade doctors to select products out of habit rather than by evaluative choice.[8]

The advertising of medicines is closely monitored by government authorities.[9] To understand constraints on pharmaceutical advertising, Section I of this paper briefly considers the history and the regulation of pharmaceutical advertising in the United States. Section II empirically examines drug advertising that focuses on the informative versus the "habit formation" roles of product promotion. Hypotheses concerning the variance in advertising intensities across drug submarkets and among individual drug products are developed and tested for these two alternative advertising theories. Section III explores the welfare effects of pharmaceutical advertising. The empirical analysis concentrates on the relationships between product innovation, product entry, product price, and the promotional strategies of both established and new products.

The empirical results developed here indicate a dual role of pharmaceutical advertising: advertising appears to inform physicians about the existence and characteristics of new products while also producing "brand-name recall" effects that favor established products facing new competition. Pharmaceutical advertising thus serves to speed the entry of

[8] In the Kefauver hearings leading to the 1962 amendments to the FDA act a witness from Premo Pharmaceutical testified that "the only real competition we have in our field is the tremendous competition for the eye and ear of the physician—how many pages of advertising we can put out, how many samples we can distribute, how many detailmen we can put in the field. These . . . alone govern the ultimate acceptance of the product." Cited in Richard Harris, The Real Voice 90 (1964). Senator Kefauver concluded that, "the promotional efforts . . . had essentially one purpose—to plant trade names firmly in the minds of physicians." *Id.* Kefauver repeatedly noted the large price differentials between brand-name and generic drugs even when they were produced in the same plant by the same manufacturer. This was attributed to the continuing barrage of promotional material addressed to physicians. Advertising also was considered the prime cause of alleged excess profits.

[9] This feature of the pharmaceutical market serves to limit the roles of advertising such that the analysis is relatively tractable compared to other markets. The combination of FDA testing and quality-control requirements and FDA and FTC monitoring of advertising content suggests that advertising of prescription drugs will not provide fraudulent or incorrect persuasive messages and also will not be crucial in guaranteeing product quality. In addition, the private nature of drug consumption and the reliance on third-party experts should limit the value of "image" advertising for prescription drugs. This contrasts, in my view, to much of the advertising of "social" drugs (tobacco and alcohol) through which consumers can indicate their tastes and preferences to their associates via the (public) consumption of

superior new products while likely retarding the entry of later, low-priced close substitutes.

I. Drug Advertising and Its Regulation

Medicines are claimed to be the first products advertised in printed form.[10] Regulation of medical advertising was not long in following. The colony of Virginia was first to pass such regulatory legislation in the United States. Setting a precedent followed until 1962, Virginia's 1736 legislation required only that the "label" of medicines specify the ingredients.[11] Claims about the effects of the drugs were not addressed. The first federal legislation relating to the promotional material accompanying medicinals was passed in 1848.[12] This legislation applied only to imported drugs and again required only a correct listing of the ingredients of the drugs.

Until the late 1800s, medicines were mixed by pharmacists from standardized generic ingredients. Pharmacists served both as advisors and the assurers of quality. However, by about 1880, advances in the technology of large-scale mixing, forming, and bottling of tablets led to more centralized production of medicines.[13] Pharmacists were no longer able to directly monitor the ingredient mixes of the centrally produced drugs they dispensed. This provided the manufacturers of pharmaceuticals with the opportunity to compete by providing homogeneous, high-quality products. However, such competition requires the identification and knowledge of individual manufacturers. Thus, manufacturer trademarks and brand-name promotion became important means of internalizing the gains from producing high-quality, unpatented drugs.[14]

[10] Frank Presbrey, The History and Development of Advertising 289 (1929), reports that "The 'first puff', which appeared in a German news book in 1591, announced the discovery of a mysterious and wonderful curative herb. In France and England the quacks, who have a much longer history than advertising, were the quickest to appreciate the printed word as an aid to selling."

[11] Parts of this legislation are reproduced in Edward Kremers, Georg Urdang, & Glenn A. Sonnedecker, Kremers and Urdang's History of Pharmacy 158 (4th ed. 1976).

[12] See Stephen Wilson, History of Pure Food and Drug Legislation 10 (Am. Council of Public Affairs 1942).

[13] See Frank O. Taylor, Forty-five Years of Manufacturing Pharmacy, 4 J. Am. Phar. Ass'n 468 (1915). The centrally manufactured products were nonpatented proprietary products sold by generic name with formulae and dosage published in the Association of Pharmacists Guide, the Pharmacopeia.

[14] See R. George Kedersha, Brand Name Prescription Products and Their Impact: A Historical Survey, Medical Marketing and Media, May 1978, at 32-38. By 1877, Parke, Davis and Company was publishing a "house journal" mailed largely to physicians. The magazine documented the therapeutic uses and quality of Parke, Davis products. Kedersha, *supra* at 33. The centralized drug manufacturers also developed patented "specialties" and prior to

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