with increases in advertising. Indeed, for cigarettes, restrictions on advertising have sometimes been accompanied by increases in consumption, partly because of reductions in anti-smoking advertisements.

Advertising and GNP: latent effects

Finally, a very small number of studies have attempted to assess the influence of advertising on total GNP. One such study found no positive relation; another found a small positive effect on GNP. Neither study, however, sought to take into account the fact that most of the benefits to consumers from advertising come in the form of improved products, lower prices and better informed choices. Because these effects are not captured in GNP as currently measured, existing studies drastically underestimate the benefits of advertising.

Conclusion: advertising improves markets

Thus substantial theoretical and empirical research now supports the view that advertising is a force for improved market performance. Theoretical developments continue to reveal the subtle and pervasive ways in which advertising can improve markets, mainly by providing information. These ideas have been tested in numerous empirical studies, which strongly indicate that markets do in fact function better in the presence of vigorous advertising. The central idea in the new school of thought is that advertising, far from being a costly substitute for competitive forces, is in fact a particularly effective component of competition—so effective that the traditional benefits from competition (lower prices, improved quality, more appropriate choices) tend to arise far more rapidly in markets with advertising than in markets where advertising is prohibited.

INTRODUCTION: HISTORICAL STAGES IN THE ECONOMIC ANALYSIS OF ADVERTISING

Scholarly and popular debate over the economic effects of advertising has continued through most of this century. Two issues have been central: whether advertising promotes or inhibits competition, and whether advertising improves or distorts consumer choices. Several related issues have also arisen: is advertising "excessive," what is the relation between advertising and prices, how does advertising affect the demand for entire markets (as opposed to demand for individual brands), and how long do the effects of advertising last?

Broadly speaking, this complex and often heated debate has passed through two overlapping stages. The first stage began about the time national advertising became common around the turn of the century, and reached its peak around 1970. Most scholarship during these years was characterized by deep suspicion of advertising's goals and effects. The usual analysis was to divide advertising into two categories, "informative" and "competitive." The informative type provided consumers with simple, accurate information—mainly prices and product availability—and these aided consumer decision making. But informative advertising was relatively rare, being confined mainly to local print advertising. Far more common was the second type of advertising, variously referred to as "competitive," "combative," or "persuasive." It sought to persuade rather than inform. It allowed firms to "compete" in a way that increased costs, increased retail prices and often created monopoly profits. Finally, in this older view of advertising, a special and important place was held by deceptive advertising, which included not only outright misstatements but also a rich and inventive collection of "permissable lies" that include legal half-truths, omissions, and so on.[1] This kind of advertising both distorted consumer choices and tended to inhibit useful competition.

Thus in the older view, the dominant effect of advertising was to inhibit competition on price and product quality. This view received considerable scholarly support in the 1950s through the early 1970s, although perceptive analysts usually recognized that the evidence was far from conclusive.

The second wave in the economic analysis of advertising originated in the 1960s, gained force in the 1970s and continues today. It began with detailed criticism of the earlier negative view of advertising and then saw the development of new theoretical and empirical insights. Of special importance was the emergence in the 1970s of an "advertising as information" school of thought in economics. This more positive analysis of advertising emphasizes two factors: the many and extraordinarily subtle ways in which consumers can obtain information from advertising, and the pervasiveness of market forces, which compel sellers to compete through advertising (and other means) in order to provide the information, product quality, and reduced prices desired by consumers. The central idea in this school of thought is that advertising, far from being a costly substitute for beneficial competitive forces, is in fact a particularly effective component of those competitive forces—so effective that the traditional benefits from competition (lower prices, improved quality, more appropriate choices) tend to arise far more rapidly in markets with advertising than in markets where

[1] See Rotenberg, Porrier, and Tremblay (1978)

advertising is prohibited. This view has now rests upon substantial theoretical and empirical research.

Of particular interest is the evolving attitude of government regulators. Advertising was once seen primarily as a somewhat distasteful force that must be controlled or even eliminated (as when most states prohibited advertising for professional services.)[2] But in the past dozen years or so the Federal Trade Commission and other agencies involved in regulating advertising have frequently sought to loosen restraints on advertising precisely because scholarly opinion and research has documented the decline in consumer welfare that seems to be associated with advertising bans.[3] The FTC explicitly views its advertising substantiation doctrine as a means for enhancing the essential value of consumer advertising.[4] Also, the National Cancer Institute recently welcomed the advent of health claims in food advertising as an important adjunct in the effort to prevent cancer, and the FDA has expressed a willingness to loosen its long-standing restrictions on

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[2] The Federal Trade Commission's cases in the 1970s against the cereal industry and against "ReaLemon" brand lemon juice were also founded upon a deeply hostile view of advertising. See Joseph, et al. (1980), Ornstein (1977), and Schmalensee (1978).

[3] Relevant are the Federal Trade Commission's Trade Regulation Rule on selling eyeglasses, which prohibits states from having an outright prohibition on advertising for eyeglass services, and numerous FTC lawsuits against professional associations whose codes of ethics prohibit or unreasonably restrict advertising. See Jacobs, et al. (1984) and references therein.

[4] Federal Trade Commission (1984) "Advertising Substantiation Policy Statement." The legal and institutional background to the advertising substantiation policy statement are recounted in Ford and Calfee (1984) and Guerard and Niemasik (1978).

health claims for foods because of the informational benefits that can arise from such advertising.[5]

This paper is an interpretative review of the literature on the economic effects of advertising. This literature is vast, including thousands of books, articles, and government reports.[6] Scholarly work spans several disciplines, as one finds vigorously argued treatments of advertising in journals in economics, law, marketing, journalism, even medicine, psychology and education, not to mention the popular press. This survey focusses primarily on work in economics and marketing, which is where most original research has been done. Even with this restriction, however, the present review discusses mainly trends, schools of thought, scholarly consensus (where such exist) and recent attempts to synthesize economic analyses. Discussion of individual books and articles will be restricted to a few seminal works.

The rest of this paper has five parts. The first two deal with the two most contentious issues: how advertising affects competition, and how advertising affects information. These are followed by brief reviews of two important subtopics: the effect of advertising on overall consumption, and the duration of advertising's effects. A concluding section describes the main intellectual trend in all these areas: continuing theoretical developments that reveal the subtle and pervasive way in which markets are likely to be improved through advertising (mainly because of the informative nature

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[5] See Calfee and Pappalardo (1988), Hutt (1986) and, for the current FDA view, the draft policy statement published in the *Federal Register*.

[6] "Will the debate between advertising's critics and defenders never cease? Are there absolutely no grounds for agreement between the two camps? Each year brings more conflicting studies . . . ." Greer (1979), as quoted in Norris (1984), p. 79.

of advertising), and empirical results that tend to demonstrate that markets do in fact function better in the presence of vigorous advertising.

ADVERTISING AND COMPETITION

Origins of the Debate

Advertising, particularly national advertising, came under scholarly attack as an anticompetitive force in the early decades of this century in the influential works of Alfred Marshall, E. H. Chamberlain and others.[7] The burden of much of these arguments was a vague proposition that advertising is "excessive."[8] This point of view was given precision by the argument that advertising is a tool for "differentiating" products, that is, persuading consumers that nearly identical products are in fact quite different.[9] Successful advertising of this kind would transform an otherwise competitive seller into a minor monopolist who can then raise prices, reduce output, and increase profits. One would normally expect that the appearance of excess profits in a market would encourage new entrants, who would compete away the profits. Thus the argument that advertising permanently creates monopoly profits really amounted to an assertion that advertising forms a barrier to entry.

By the 1950s the debate over advertising and competition therefore had become focussed on advertising as a barrier to entry. The central argument was that after a firm had established market share through advertising (especially advertising that is "persuasive" and therefore able to differentiate

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[7] Marshall (1920), Chamberlain (1933), Borden (1942), and Presbrey (1927).

[8] Kaldor, 1950, presents an influential argument that advertising tends to be excessive. This point of view eventually gave rise to theoretical debate in the 1970s and 1980s over the relation between advertising and "welfare" in a general sense. This debate is covered later in this section in connection with the debate over whether advertising is excessive.

[9] Chamberlain (1933).

products), potential entrants faced an extra cost in having to overcome brand loyalty and other factors that favored incumbents. This would allow incumbents to behave like partial monopolists, raising prices and realizing abnormally high profits.[10] This view was challenged in 1964 in an early attempt to subject the barrier-to-entry hypothesis to theoretical scrutiny and empirical testing.[11] A vigorous debate ensued, and in the 1960s and 1970s several scholars, most notably Comanor and Wilson, developed the barrier-to-entry idea with an unprecedented degree of analytical and empirical rigor.[12]

The central finding of Comanor and Wilson and others was that high advertising intensity tended to be found in markets with unusually high profits. This correlation apparently arose from several factors, including economies of scale in the effectiveness of advertising, "pecuniary" advantages in the sense that large advertisers could obtain large discounts from advertising media, and brand loyalty (which could be created by either persuasive or informative advertising). All these factors would tend to raise the cost of entry for new firms and therefore would tend to create monopoly power. The problem will be even worse if firms understand how advertising creates monopoly power, so that incumbent firms can engage in

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[10] The barriers-to-entry model was propounded with great influence by Joe Bain (1956, chapter 4.)

[11] Telser (1964). Telser's conclusion was "there is little empirical support for an inverse association between advertising and competition, despite some plausible theorizing to the contrary." (Telser, 1964, p. 558, as quoted in Comanor and Wilson, 1979, p. 453.) Other early dissenters include Weiss (1963), Simon (1965, 1967, and 1970), Nelson (1970 and 1974), Ferguson (1974), some of the articles in the 1974 volume edited by Brozen, and Strickland and Weiss (1976).

[12] Comanor and Wilson, 1967, 1974 and 1979, and references therein.

"strategic" threats to increase advertising and thereby increase the risk to potential entrants.[13]

Dissent from the barrier-to-entry hypothesis arose almost immediately. The ensuing debate centered on several distinct issues, all having to do with the precise reasons why we would observe a positive relationship between advertising intensity and level of profits as recorded on corporate balance sheets. The following discussion deals first with theoretical developments and then with empirical tests.

Theoretical Points

Part of the debate was theoretical. For example, the original definition of the term "barrier to entry" was open to objection. Comanor and Wilson, in their attempt to make the term precise, argued that barriers to entry include economies of scale in advertising effectiveness, economies of scale in purchasing advertising ("pecuniary" advantages), and the requirement that new entrants must engage in extra advertising to overcome product differentiation, to overcome brand loyalty, or even to overcome economies of scale in producing the product itself.[14] A number of critics offered narrower definitions more in accord with the common sense notion that a true barrier is a cost that must be borne by the entrant but is not borne by an incum-

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[13] Salop (1977), Salop and Scheffman (1983), and Kotowitz and Mathewson, 1979.

[14] A recent review of these points is McAuliffe (1987), p. 6 ff.

bent firm.[15] If one adopted these narrower definitions, the apparent reduction in competition due specifically to advertising would be much less.[16]

Other theoretical objections to the advertising-as-barrier view struck more deeply. It was noted that relatively riskier markets will lead to both higher advertising and higher profits, and this would be manifested as a positive correlation between advertising and profits.[17] In an argument that eventually led to much fruitful research (covered in a later section of this report) Telser, Nelson and others noted that advertising may provide information. This in turn could simultaneously enhance the level of competition (reflected in a reduced price elasticity of demand) while also increasing profits. In this scenario, too, advertising would not lead to monopoly profits yet one would observe a positive correlation between advertising and profits.[18]

Other theoretical reasoning either further undermined the advertising-as-barrier hypothesis, or supported it in subtle ways that had no obvious policy implications. One approach was to treat advertising as something that could both inform and persuade (in the sense of changing tastes). This idea permits a more rigorous treatment of such ideas as "excessive" advertising.

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[15] Stigler (1983), p. 67. Also see Demsetz (1982), who argues for a more precise definition of barrier than the ones offered by Bain and by Comanor and Wilson, on the grounds that many so-called barriers such as patents actually encourage efficiency. Van Weizsacker (1980) argues that only barriers that in fact lead to an inefficient allocation of resources should be considered a true barrier.

[16] Demsetz (1982).

[17] Horowitz (1970), Sherman and Tollison (1971).

[18] Telser (1969 and 1978); Nelson (1970 and 1974); Ehrlich and Fisher (1982).

But the consequences for consumer welfare are unclear.[19] In a quite different way at looking at the problem, one could analyze the fact that advertising provides information not only to consumers but also to actual and potential competitors. This situation invites incumbents to engage in "strategic" behavior. The result can be either to impede or encourage entry.[20] Numerous other theoretical contributions have made clear the variety of implications for competition that may be derived from seemingly plausible assumptions.[21] Some recent theoretical work has even arrived at conclusions that are explicitly ambiguous: advertising can have multiple, off-setting effects, and the net effect may be to increase *or* decrease consumer welfare. At least one study has attempted to resolve the conflict by estimating the magnitude of several off-setting effects, and concluded that the net effect is that advertising facilitates rather than discourages entry.[22]

Purely theoretical approaches thus support both sides of the advertising and competition debate. No consensus has emerged among scholars.[23] What

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[19] Leading articles are Kaldor (1950), Steiner (1966), Telser (1966), Dixit and Norman (1978, 1979 and 1980), Fisher and McGowan 1979, Kotowitz and Mathewson 1979, Shapiro (1980), and Nichols (1985).

[20] For example, Fudenberg and Tirole (1984) argue that advertising can encourage rather than deter entry, because of the kind of information it provides to potential entrants. Models in which strategic advertising can be anticompetitive include those by Baldani and Masson (1984), Salop and Scheffman (1983), and Rogerson (1984). All these models contain assumptions that inflict various degrees of violence on one's commonsense notion of how markets work. See the review in McAuliffe (1987), p. 76 ff.

[21] A selective list would include Schmalensee (1974, 1976, 1978 and 1983), Comanor and Wilson (1979 and 1980), Kotowitz and Mathewson (1979), Spence 1980, Kihlstrom and Riordan (1984), and Caves (1986).

[22] Kessides (1986).

[23] Comanor and Wilson concluded in their 1979 survey (p. 454) that ". . . that theoretical studies of advertising and competition are not compelling and that our conclusions must rest on the empirical results."

is clear is that the once standard results on advertising and profits are subject to various interpretations. Certain compelling theories suggest that even a positive relation between advertising and profits (a finding that will be cast in doubt in the next section) does not necessarily imply that advertising reduces competition. A recent survey therefore concluded, "The positive correlation between advertising and profits is no longer sufficient to prove that advertising reduces competition."[24]

Empirical Work

The ambiguity of these theoretical results highlight the importance of empirical studies, which have been produced in great quantities. Work has proceeded on a number of fronts. An early dispute was over how to measure the level of "competition" that advertising supposedly reduced. Telser's original 1964 criticism of the barriers-to-entry view used market concentration to measure the level of competition, and his work seemed to demonstrate that the intensity of advertising was unrelated to concentration. A number of studies reached similar or opposite results, with no clear pattern.[25]

Some analysts have argued, however, that concentration is a poor measure of the level of competition. They have suggested alternative measures. One approach, which is necessarily limited by the difficulty of acquiring the necessary data, would be to relate advertising to the price

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[24] McAuliffe (1987), p. 45. Also see Lynk (1981) at note 1.

[25] Mann (1966), Henning and Mann (1976), Mann, Henning and Meehan (1967), Telser (1969), Mueller and Hamm (1974), Mueller, Hamm and Rogers (1980), Strickland and Weiss (1976), and Pagoulatos and Sorensen (1981). Also see the surveys by Mann (1974) and Ornstein (1976 and 1977).

elasticity of demand, the argument being that if advertising is a barrier to entry, it would be used to decrease the elasticity of demand. But theoretical analysis has made clear that a lower elasticity of demand can also be a *cause* of increased advertising, so any correlations between advertising and elasticity would be ambiguous.[26]

Another approach is to relate advertising and profits, the seminal work being that of Comanor and Wilson (1967 and 1974.) This approach, too, has come under theoretical attack. The first such attack was a demonstration that high profits, like low demand elasticities, can *cause* high levels of advertising.[27] Empirical work soon demonstrated that this reverse causality effect could be significant.[28] Further work attempted to assess the influence of advertising on profits after controlling for the reverse effect, with contradictory results.[29] An unexpected problem was that restricting analysis to specific markets or market segments—consumer versus producer goods, for example, or consumer durables versus consumer nondurables—seemed to indicate that the anticompetitive effects of advertising, if they existed at all, only applied in certain areas, and these areas did not always fit the expected patterns.[30] Thus Comanor and Wilson, the most prominent of

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[26] The standard theoretical analysis is Dorfman and Steiner (1964). An empirical study is Lambin (1976), who attempted to take into account the reasoning of Dorfman and Steiner. A problem in this and other studies is that price elasticities are notoriously difficult to measure.

[27] See the criticism of Butters (1976) and Porter (1976). The analysis by Dorfman and Steiner (1964) is again relevant.

[28] Schmalensee (1972).

[29] Comanor and Wilson (1974), Strickland and Weiss (1976).

[30] See Martin (1979) and Porter (1974), and the discussion in Comanor and Wilson (1979) at 460-461.

recent defenders of the view that advertising inhibits competition, concluded that "These findings suggest that the competitive effects of advertising are likely to be found in a small group of industries with particular characteristics."[31]

Another set of issues concerns data. One problem is obtaining the necessary data on advertising intensity. Most advertising data are at the industry level, and even so is highly imperfect. Worse, some of the most compelling theories can be tested only with data at the firm level.[32]

A much more serious difficulty is data on profits. The seminal studies by Comanor and Wilson and others examined the relation between advertising and profits as recorded on annual balance sheets—that is, accounting profit. The original objection to this approach was that under standard accounting procedures, advertising is recorded as an expense even though advertising may have long lasting effects and thus may work more like an investment. A number of researchers demonstrated on a theoretical level that treating advertising as an investment to be depreciated over time could reduce or even eliminate the positive correlation between advertising and profits. The essential argument was that if advertising results in long-term goodwill, thus increasing business assets without any corresponding entry on the balance sheet, studies of advertising and profits would be biased toward finding a positive correlation. Several studies attempted to recalculate correlations between advertising and profits, treating advertising expense as a depreciable investment. These studies strongly suggested that the positive relationship found by Comanor and Wilson and others could have been at least partly an

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[31] Comanor and Wilson (1979) at 460-461.

[32] Comanor and Wilson (1979), p. 462; McAuliffe (1987), chapter 4.

artifact of the accounting treatment of advertising.[33] These inquiries also led to several studies attempting directly to assess the duration of advertising's effects. These are reviewed in a later section of this report. Here, we note only that both theoretical reasoning and empirical evidence on the duration of advertising effects is decidedly mixed, and tends toward finding the duration to be short (a year or less) in many industries.

A more serious attack on the use of published accounting profit data was made by Fisher and McGowan in 1983. They pointed out that regardless of whether advertising is an investment or an expense, accounting data will never represent what we are really interested in, which is "economic profits," i.e., the expected stream of profits expected in future years to flow from current advertising expenditures.[34] Vigorous discussion of this matter has cast doubt on all empirical relations between advertising and accounting profits, and no resolution of this problem has yet been made.[35]

Finally, much work stimulated by the advertising-as-barrier school has centered on the specific mechanisms by which advertising supposedly inhibits entry. Topics include how firm size or market share affect the returns from advertising, economies in scale in advertising, and related topics. These studies have tended to find that advertising is seldom subject to the kinds

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[33] Backman (1967), Telser (1969), Demsetz (1979), Peles (1971), Bloch (1974 and 1980), Ayanian (1975 and 1983). Much of this work is surveyed in Comanor and Wilson (1979 and 1980) and McAuliffe (1987).

[34] Fisher and McGowan (1983). Their argument was attacked by Long and Ravenscraft, two FTC economists who had used accounting profit data in empirical studies involving firm profits. See Long and Ravenscraft (1984) and Fisher and McGowan (1984.)

[35] McAuliffe (1987) contains a recent survey of these points at pp. 48-50.

of economies originally presumed to lead to barriers to entry.[36] Some work has looked directly at the relation between advertising and rates of new entry, finding that in practice, advertising actually tends to facilitate entry.[37]

An unusually interesting set of studies compare markets with and without advertising, or examine markets in which restrictions on advertising changed dramatically. These are reviewed in the section below on advertising and information, but we note here that these have generally found a heightened level of competition associated with greater freedom to advertise.

Thus on the whole, theory no longer supports the view that advertising is likely to impede competition, and recent empirical studies do not find the factual conditions that had earlier been assumed to contribute to advertising's effect on entry and market power. Recent surveys of the literature on advertising and competition are generally consistent with this conclusion.[38]

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[36] Some studies include: Peterman (1979), Peles (1971), Arndt and Simon (1983), Boyer and Lancaster (1986), Brown (1978), Schmalensee, Silk and Bojanek (1983), and McAuliffe (1987).

[37] Hirschey (1981), Kessides (1986).

[38] Nagel (1981), Hirschey (1981), McAuliffe (1987).

ADVERTISING AND INFORMATION

Earlier Views: Advertising as Persuasion

The protracted debate over advertising and competition just described arose partly from strongly held views on the content of advertising. Most advertising, it was once argued, is uninformative, misleading, or "persuasive" in the sense of changing consumer tastes.[39] For many analysts, this assessment of advertising's true nature was obvious from even the most cursory review of national advertising. Early attempts to measure the informational content of television and magazine advertising seemed consistent with this view.[40] Hence the remarkable conclusion of one journalist: "No reputable economist believes that America's real standard of living would waver in the slightest if the entire advertising industry closed up shop tomorrow."[41] In fact, this was never true of the economics profession, of course. There have always been prominent economists who argued that the overall effect of advertising was largely informative and positive.[42] But what was once isolated objections to a majority view developed into a new way to think about advertising.

In the 1970s, there arose in the economics profession what amounted to an "advertising-as-information" movement. These analysts brought to bear

[39] An influence work is Scitovsky (1950).

[40] Resnick and Stern (1977a and 1977b), Stern, Krugman and Resnick (1981), Pollay (1984).

[41] Mueller (1971), as quoted in Norris, 1984, p. 69.

[42] See earlier cites.

theoretical arguments of unprecedented scope and power, and soon began to produce empirical results revealing that the informative function of advertising is, if anything, even greater than its ardent early defenders had maintained.

The Economics of Information

Some of the theoretical advances in the analysis of advertising came from what had become known as the economics of information.[43] This line of thought treated information as a commodity, albeit a commodity with unusual economic properties. It was shown that markets would function very poorly if consumers were unable to learn about such things as product prices and quality.[44] A "market for information" could arise, but it would be highly incomplete due to such problems as "free-riding" by consumers who receive information but do not pay for it, or by sellers who benefit from information provided by others.[45] Partial information, however, could improve the market notably, an example being markets in which some consumers "search" for low prices and competitors respond by lowering their prices to all consumers.[46] These purely theoretical insights highlighted the crucial role played by information, as opposed to such traditional matters as concentration or barriers to entry, in the efficient functioning of consumer markets.

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[43] Stigler (1961), Spence (1976), Hirshleifer and Riley (1979).

[44] Leading references are Stigler (1961), Akerlof (1970), and Salop (1977).

[45] Beales, Craswell and Salop (1981). Recent summaries of varying degree of technical difficulty include Hirshleifer and Riley (1979), MacKaay (1982), McCall (1982), Caves (1986), and Calfee and Ford (1988).

[46] Many of these ideas are summarized in Schwartz and Wilde (1979).

Advertising as Information

The economics of information strongly indicates that advertising could, at least in principle, substantially improve markets by providing information. The effect would be that information from advertising would enhance the natural competitive forces that two centuries of economic theory have shown to benefit consumers.[47] At least two problems lay in the way, however. These were the potentially dubious credibility of advertising claims (that is, sellers may have an incentive to mislead consumers), and the supposed tendency of advertisers to "persuade" rather than inform.

The advertising-as-information school has resolved many of these theoretical difficulties, and done so primarily in two ways. The first approach was largely theoretical. Beginning with the work of Nelson (1970 and 1974), careful analysis has shown that sellers and buyers can communicate truthful information in ways that are not immediately apparent, even in the absence of (or despite) regulation over the content of advertising claims. For example, the volume and prominence of advertising messages can by itself provide important information about some kinds of products. The mechanism by which this happens is that the advertising serves as a signal of the fact that the seller who advertises a great deal must have reason to think the advertising will pay off in terms of repeat sales to satisfied customers. This provides an important clue to which products are of high quality. Other, more subtle "signalling" devices have also been described, all relying upon the idea that consumers have both a natural skepticism of

[47] Smith (1776).

advertising and an intuitive grasp of when advertisers find it in their own interest to be truthful.[48]

Advertising and Prices

Several analysts have noted that the real "price" of a product to consumers includes the cost of searching for the best and most economical product, as well as the retail price itself. Therefore advertising could reduce total consumer costs even if the cost of advertising were simply added to the retail price. The effect would be to substitute a more efficient form of information-gathering (advertising) for a less efficient form (consumer search.)[49]

What is even more impressive than this theoretical point is the empirical work that has accumulated in the past two decades on how advertising affects retail prices. The usual finding is that in addition to reducing search, advertising actually reduces retail prices. The reason seems to be that advertising intensifies competition, especially at the retail level. Steiner first observed that vigorous brand name advertising, whether it included price quotations or not, could spur competition among retailers. He cited the spectacular results on toy prices that occurred when the arrival of TV advertising to children gave sellers, for the first time, the opportunity to advertise directly to children.[50] Numerous other studies, most relying upon

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[48] On innate consumer skepticism, see Calfee and Ringold (1988) and the references therein. On signalling, see Nelson (1970 and 1974), Schmalensee (1978), Kihlstrom and Riordon (1984), Ehrlich and Fisher (1982), and Ippolito (1986b). Recent summaries are Calfee and Ford (1988) and Ippolito (1986a). The original work on market signals is Spence (1973).

[49] See Stigler (1961), Ehrlich and Fisher (1982).

[50] Steiner (1973, 1978 and 1981).

comparisons between submarkets with and without advertising, have found similar results. Products include eyeglasses, professional services, prescription drugs, gasoline, and many others.[51] The case for prescription drug advertising leading to lower prices was so compelling that it played a major role in the landmark Supreme Court decision granting partial First Amendment protection to advertising.[52]

These theoretical and empirical findings have nearly demolished the once popular view that advertising is simply an added expense that, whatever its other effects, is bound to increase consumer prices. The major federal regulator of advertising, the Federal Trade Commission, now routinely attacks regulations and proposed legislation prohibiting advertising, on the grounds that the effect of prohibitions is inevitably to deprive consumers of lower prices and other benefits of competition.[53]

Advertising and Other Product Information

The effects of advertising on product quality and related matters is perhaps less well known, even among scholars, than the effects on price. The theory (other than the obvious point that sellers of high quality products will normally wish to inform consumers of their comparative advantage) comes mainly from the same literature that dealt with how adver-

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[51] Benham (1972), Benham and Benham (1975), Kwoka (1984), Bond, et al. (1980), Jacobs, et al. (1984), Cady (1976), Marvel (1976), Maurizi (1972), Maurizi and Kelly (1978), Albion and Farris (1981), Farris and Albion (1980 and 1982).

[52] *Virginia Citizens Consumers Council, Inc. v. State Board of Pharmacy* (1976).

[53] See the references in Jacobs, et al. (1984), and citations in an earlier footnote.

tising provides information to consumers through signals. This line of reasoning illustrates why firms may have an incentive to provide product quality information to consumers.[54]

What is perhaps more interesting is the emergence of several impressive case studies. The cigarette market in the 1950s and 1960s provided a spectacular although little known example. Cigarette manufacturers reacted to the original "cancer scare" in the early 1950s by developing and advertising new filter cigarettes. It was widely agreed in the cigarette and advertising trades that this advertising was reminding smokers of the dangers of smoking, despite the fact that doing so was not to the interest of the larger sellers. In the late 1950s a spontaneous "tar derby" arose that quickly led to much improved cigarettes and greater consumer awareness of the advantages of reduced tar and nicotine. When the FTC abruptly arranged a "voluntary" ban on such advertising, the rapid gains almost stopped. Vigorous competition to improve cigarettes did not resume until the 1970s, after the FTC had changed its mind and began requiring tar and nicotine advertising.[55]

Similar patterns in other markets are now emerging as a result of the Food and Drug Administration's recent decision to end its policy of challenging all advertising that contains health claims for foods and related products. We are now observing a far-reaching surge in advertising for high-fiber cereals, low-cholesterol fats, and so on, all advertised as ways to help prevent cancer, heart disease or other illnesses. This appears to be con-

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[54] Examples include Allen (1984), Klein and Leffler (1981), and Shapiro (1983).

[55] Calfee (1985, 1986 and 1987).

tributing to increased consumer awareness of nutrition and improved products. The health claims episode is of special interest because two federal agencies—the National Cancer Institute and the Federal Trade Commission—explicitly encouraged the advertising for Kellogg All-Bran that launched this movement, and did so because of the usefulness of commercial advertising as a means for improving consumer information.[56] The history of the FDA's hostility to such advertising has made clear the losses in consumer information that were bound to occur.[57]

A notable aspect of the developments in advertising for cigarettes and foods was that in the absence of regulatory restraint, competitive pressures not only led advertisers to provide a rich mixture of positive information about competing brands, but often compelled sellers to emphasize negative information such as fat and cholesterol, tar content, and so on. The informational effects of advertising are proving to be far more comprehensive than once expected.

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[56] *Regulation* (1987), Calfee and Pappalardo (1988), Snyder (1984). The latest FDA policy proposal was published in 52 *Federal Register* 28843.

[57] Hutt (1986).

ADVERTISING, CONSUMPTION AND GNP

A point of particular contention in recent years has been the effect of advertising on total demand or total consumption. There are really two issues: the effect of advertising on consumption of specific products such as cigarettes or alcoholic beverages, and the effect on total GNP or, more precisely, total consumer welfare. The assessment of these effects would be relevant to such public policy matters as attempts to limit consumption by limiting advertising. This paper cannot review all the relevant evidence, but we do survey the leading work.

Advertising and consumption of specific products

There have been numerous attempts to assess how changes in the volume of advertising affect total consumption in specific markets. Almost all have focussed on mature products such as cigarettes and alcoholic beverages, where unusually good data are available. Numerous studies of the cigarette market have found no significant effect from advertising on total market sales, as opposed to market shares.[58] Another group of studies has looked at the market for alcohol beverages, mainly beer and wine. The results, while mixed, are similar to those for cigarette advertising: large fluctuations in alcohol advertising have produced at most modest changes in total market consumption.[59]

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[58] Schoenberg (1933), Tennant (1950), Simon (1967), Schmalensee (1972), Hamilton (1972) and Doron (1979) found little or no effect. Nearly the sole exception is Bass (1969).

[59] Peles (1971), Comanor and Wilson (1974), Wilder (1974), Grabowski (1976), Bourgeois and Barnes (1979), Duffy (1982), Kohn and Smart (1984).

Research on other markets also suggests that advertising has relatively little effect by itself on the ultimate size of a markets, although significant effects are found for some products.[60] The 1981 literature review by Albion and Farris concluded that the effect of advertising on total demand in individual markets is severely limited by other economic and social forces.[61]

The effect of advertising bans: A small but insightful literature has developed on the effects of advertising bans. We review here a few of the highlights. Again, most work has been done on cigarettes. The 1971 ban of TV advertising has been found in most studies not to have achieved its goal of substantially reducing consumer demand, partly because the ban also removed counter-advertising that previously had been required on TV.[62] The FTC interventions in cigarette advertising in 1954 and 1960, which severely restricted health information in cigarette advertising, appear to have tended to increase rather than decrease smoking.[63] Studies that consider the effects through time of partial or complete cigarette advertising bans in other countries, or that compare sales in countries with varying advertising

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[60] Comanor and Wilson (1974) found advertising to have a significantly positive impact in ten of twenty-eight industries. Grabowski (1976) worked with mainly the same data and estimated a yet smaller effect for advertising. Wilder (1974) reached a similar conclusion, finding a significant effect in only one of twenty-seven industries. Lambin (1976) used data from European markets and concluded that advertising had little if any effect on total demand for a variety of products.

[61] Albion and Farris (1981, chapter 4.)

[62] Hamilton (1972); Warner (1979); Teel, Teel, and Bearden (1979); Doron (1979); Schneider, Klein, and Murphy (1981); Bishop and Yoo (1985); McAuliffe (1987) and references therein.

[63] Calfee (1985).