Advertising with Subjective Horizontal and Vertical Product Differentiation

VICTOR J. TREMBLAY*
Department of Economics, 303 Ballard Extension Hall, Oregon State University, Corvallis, OR 97331-3612, U.S.A.
E-mail: v.tremblay@orst.edu.

STEPHEN POLASKY
Department of Applied Economics, University of Minnesota, Twin Cities, 1994 Buford Avenue, St. Paul, MN 55108, U.S.A.
E-mail: spolasky@dept.agecon.umn.edu

Abstract.
In this paper, we analyze the impact of advertising on markets where subjective horizontal and vertical product differentiation are important. A simple model shows how advertising can be used to create subjective horizontal and vertical differentiation. The model predicts that firms are likely to be symmetric when advertising creates subjective horizontal differentiation and that name and generic brands are most likely to coexist in markets where advertising creates subjective vertical differentiation. In all cases, the ability to advertise creates distance between products which increases the market power of firms. Finally, several real world examples are used to illustrate the conditions under which the model is most relevant.

Key words: Horizontal differentiation, persuasive advertising, price competition, vertical product differentiation.

JEL Classifications: D21; D43; L15; M37.

I. Introduction
An important issue in economics concerns the impact of advertising on the price-setting process, especially in imperfectly competitive markets. According to Kaldor (1949–1950) and Bain (1956), advertising is socially wasteful because it enhances brand loyalty by creating subjective or perceived product differentiation. Alternatively, Stigler (1961) and Telser (1964) emphasize the informative role of advertising. By providing consumers with useful product information, advertising leads consumers to lower priced commodities that have more preferred character-

* We would like to thank Simon Anderson, Laura Connolly, Art O’Sullivan, William Shepherd, and Carol Tremblay for many helpful comments on an earlier version of the paper and Okmyung Bin for valuable research assistance. The usual caveat applies.
istics. Thus, advertising improves the efficiency of markets and reduces market power.

There has been considerable theoretical research on the role of informative advertising. For example, Grossman and Shapiro (1984) show how informative advertising can lead to greater price competition in an imperfectly competitive setting. In addition, Nelson (1974), Milgrom and Roberts (1986), and Bagwell and Ramey (1988) show how advertising may signal product quality. More recently, Von der Feher and Stevik (1998) and Block and Manceau (1999) analyze the impact of persuasive advertising in duopoly markets with horizontal differentiation, and Tremblay and Martins-Filho (forthcoming) analyze the case with vertical differentiation. Since the work by Kaldor (1949–1950) and Bain (1956), however, there has been no theoretical work on the role of purely persuasive advertising in markets with no real product differentiation.

The purpose of this note is to show how advertising can affect price competition in a duopoly setting when product differentiation is purely subjective and not real.\(^1\)

The model assumes products are perfectly homogeneous but allows advertising to create subjective horizontal and vertical differentiation.\(^2\)

In the first case, we allow advertising to influence consumer perceptions of a product’s location on its characteristic space that is both non-functional and horizontal in nature (Hotelling, 1929). A good example is the market for premium cola, as this market is dominated by two products: Coca-Cola Company’s Coke brand and Pepsico’s Pepsi Brand.\(^3\) There is little real difference between products, but each firm uses advertising to create an image that appeals to different consumers. Coke’s advertising creates an image that appeals to more traditional values with its “Coke, the Real Thing” campaign, while Pepsi’s advertising appeals to a younger and more rebellious consumer with its “generation X” campaign.

Next, we allow advertising to create subjective vertical differentiation by persuading consumers to (incorrectly) believe that heavily advertised brands are of higher quality than unadvertised or sparsely advertised brands. This is consistent with Caves and Greene’s (1996) empirical finding that advertising does not generally serve as a signal of quality and with Caves and Porter’s (1977), Hallagan and Joerding’s (1983), and Sutton’s (1992) explanation for the coexistence of name and generic brand products in many consumer goods markets. For example, in the market for many over-the-counter drugs, advertising is used to establish name

\(^1\) Because this type of advertising creates market power, it reduces social welfare. For a more complete discussion of the welfare effect of advertising, see Dixit and Norman (1978), Becker and Murphy (1993), Tremblay and Tremblay (1995), and Farr et al. (2001). For an analysis of persuasive advertising in monopolistic competition, see Hallagan and Joerding (1983).

\(^2\) This approach to modeling advertising was first suggested by Anderson et al. (1992, footnote 1).

\(^3\) See Gasmi et al. (1992), Muris et al. (1993), and Golan et al. (1996) for a description of this market.