

Consumer heterogeneity evolving from social group dynamics: Latent class analyses of German footwear consumption 1980–1991

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Abstract

Boundedly rational consumers rely on their social environment as a source of information. Drawing upon psychological theories about social comparison processes, the author hypothesizes that social reference groups underlie market segments. New reference groups can emerge from social comparison processes, leading to the development of new submarkets and the evolution of aggregate consumer heterogeneity. The author has used a series of cross-sectional surveys on the footwear consumption of German men between 1980 and 1991 to test these propositions. By using latent class models, this study describes the emergence of a submarket for athletic shoes as a function of the appearance and establishment of a new social consumer group.

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1. Introduction

The correlation between the growth of product variety and the growth of consumption is a stylized fact of aggregate market dynamics (Bils and Klenow, 2001). With the introduction of new products into the market, a consumer population has to have heterogeneous preferences *ex ante* or has to develop such preferences in order to absorb the growing product variety. Several studies exploring the impact of market demand highlight how heterogeneous consumer needs influence the broader evolution of technological trajectories or industries (Abernathy and Clark, 1985; Adner, 2002; Adner and Levinthal, 2001; Christensen, 1997; Frenzel Baudisch, 2006; Malerba, Nelson, Orsenigo and Winter, 1999; Tripsas, *in press*; Windrum, 2005), business strategy (Day, 1990), and product development at the level of technology projects (Von Hippel, 1988). This paper aims at providing an explanation for the evolution of consumer heterogeneity underlying consumption growth when new products enter the market. Subsequently, the paper will empirically test this theoretical account by means of repeated large-scale, cross-sectional surveys, presented to a particular consumer population.

In his seminal conceptualization of product innovations, Lancaster (1991, p. 59) points to satiation effects with respect to product characteristics, *i.e.*, the functional aspects of a product. In their experimental works, Meyer and Johnson (1999) find that, whereas consumers show a minimum threshold for acceptable product performance, no analogous boundary exists that specifies a maximum limit on the functional performance that a consumer would be willing to accept. At the same time, consumers face a decreasing marginal utility resulting from increases in functionality beyond their requirements. Christensen (1997) shows that consumption growth beyond functional satiation relates to performance oversupply: Once consumers' requirement for a specific functional attribute are met, evaluation shifts to placing greater emphasis on attributes that were initially considered secondary or tertiary (*ibid.*, p. 169).

Analytic models of innovation demand indicate that the distribution of satiation effects within a consumer population and the assumption about how consumers subsequently react to performance oversupply are crucial for the resultant growth pattern and the dynamic structure of the aggregate market demand (Adner, 2002; Adner and Levinthal, 2001). While the marginal utility changes or different characteristics are becoming relatively more important, demand is still assumed

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to be insatiable. Therefore, the researchers have scrutinized the assumption of insatiability from a consumer perspective (Witt, 2001): When the functional needs of the consumer have been met, what motivates further consumption? This question leads researchers to analyze how consumers are learning about new products and what motivates them to buy these products. By offering an explanation of how and why aggregate consumer heterogeneity evolves from simple behavioral principles at the individual level, this paper contributes to the stream of research outlined above on innovation demand and its implications for the supply side. In this way, the paper links up with the other articles in the special section of this issue and other modeling approaches to market dynamics (e.g. Janssen and Jager, 2001).

Experimental psychology provides knowledge to theorize about the (economic) behavior of individuals (Witt, 2001). The starting point of this research is Festinger's (1954) social comparison theory: Especially in uncertain situations, people continuously make comparisons with others to evaluate their own opinions and performance. Drawing upon newer developments of Festinger's theory (Buunk and Mussweiler, 2001; Collins, 2000; Mussweiler, 2003), this paper argues that a consumer population evolves to become heterogeneous, because individual behaviors change as a consequence of the social comparison processes.

For the empirical analyses, the researchers used a series of representative cross-sectional surveys on the male footwear consumption in Germany between 1980 and 1991. The study utilizes latent class (LC) analysis to segment the heterogeneous consumer population into social reference groups (Magidson and Vermunt, 2005). The results show that social groups are an appropriate unit of analysis to describe aggregate consumer heterogeneity. This theoretical account indicates that one can measure and explain the increasing heterogeneity in this growing market at the level of such market segments.

Three different terms used in the paper require definition. First, the demand and supply with respect to a specific functional characterization of a broader product category define a product submarket; the footwear market, for example, has several submarkets, one being the athletic footwear market. Second, a number of consumers who show similar consumption patterns define a market segment. Third, a social consumer group is a number of consumers who are similar to one another with respect to some characteristic or socioeconomic status variable. Therefore, they are likely to serve as the reference standards in their mutual social comparison processes.

The paper proceeds as follows: Section 2 lays out the theory. Section 3 introduces the data for analysis. Section 4 proposes a model to be tested with the data introduced. Finally, Section 5 discusses the method, the results and the managerial implications.

2. Theory

This section sheds light on the motivations for the consumption growth beyond satiation with respect to product characteristics (Christensen, 1997, p. 169; Lancaster, 1991, p. 59). The basic argument is that consumers have to learn about new products, and that this learning process motivates more

consumption. Hence, such learning processes structure the consumption growth, which has to be tested.

2.1. Social comparison theory

Due to their limited cognitive resources, humans only possess a limited amount of information about their complex environments, e.g., in their role of consumers about the products supplied to markets. Festinger's (1954) social comparison theory explains why people use others as reference groups, i.e., as models for their behavior and opinions. Especially in uncertain situations, people continuously make comparisons with others to evaluate their own opinions and performance. The so-called similarity hypothesis is the core assumption of this theory, stating: "given a range of possible persons of comparison, someone close to one's own ability and opinion will be chosen for comparison" (ibid, p. 121). This choice can be informative and serve to gain more precise opinions about oneself and the social reality, and may stimulate the improvement of one's performance. People can thus either create informational consensus with the reference group concerning the issue under evaluation and then become more similar in their opinion, or engage in actions that are increasingly similar to that of the reference group. Early works of Bandura (1965) and colleagues (Bandura et al., 1963a,b) provide further evidence for this idea by showing that direct observation of a successful model leads to imitation of this model. Later works of Bandura (1986, ch. 4) describe how such social comparison processes underlie innovation diffusion processes within adopter populations.

2.2. Motivation for more consumption

If people compare their abilities with those of others, a unidirectional drive upward takes place, which is an orientation toward those who are slightly better in performance and, consequently, enjoy higher prestige, status, and success (Festinger, 1954, p. 124). One may think of several reasons why one should choose to compare upward results in improved performance. First, watching another person demonstrate proficiency at a task could provide useful information about how to improve one's own skill (Buunk and Mussweiler, 2001). Second, seeing another person succeed may increase one's motivation to become better (Collins, 2000). Individuals may be inclined to identify with successful targets, leading to imitation of those targets' actions (Bandura, 1986, ch. 2).

Consequently, social comparison processes tend to motivate the assimilation of individual behavior toward (that of the) 'better performing' person (Collins, 2000). For example, if Adam compares his athletic ability to Brian's, who is as old as Adam, Brian seems to be a relevant reference standard. Adam will tend to aspire to the slightly better performance of Brian by imitating his behavior, e.g., wearing the same shoes or using the same tennis racket or golf clubs. Building upon Bandura's (1986, p. 169) discussion of motivational aspects in the innovation diffusion process in consumer markets, this paper argues that social comparison processes underlie the information diffusion about new, better-performing products and at the

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