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Funktional Demand Satiation and Industrial Dynamics
The Emergence of the Global Value Chain for the U.S. Footwear Industry

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Abstract:

Around 1940 Schumpeter draws on an analysis of the U.S. footwear industry as an exemplar case to formulate his famous hypothesis about the positive relation between market concentration and innovative activity. Starting in the 1970s the value chain of U.S. footwear producers disintegrates, eventually separating the process of product innovation from manufacturing in this industry. Studies testing Schumpeter's hypothesis commonly do not account for the modularity and globalization of an industry's value chain. Schumpeter having neglected the demand side in his theorizing, we argue that the separation of product innovation and manufacturing in the U.S. footwear industry is influenced by functional satiation effects on demand. If the functional requirements of consumers are met, their willingness to pay for ever more product varieties decreases. Since the early 1970s the 'oversupply' of new product varieties and the simultaneously decreasing price level drive market growth beyond functional satiation (Frenzel Baudisch, 2006b). In this paper we argue that this simultaneous price and innovation competition separates the product innovation process from manufacturing to gain economies in both of these processes simultaneously. Discussing the consumers' motivations to buy products beyond their functional requirements offers a deeper qualitative understanding of the business practices revealed in the historical case of the U.S. footwear industry.

Key words: Industrial organization, Schumpeter hypothesis, Modular Value Chain, Consumer Behavior, Footwear Industry

JEL Codes: B25, F02, L11, L67, O10

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I. INTRODUCTION

Since the writing of *Capitalism, Socialism, and Democracy* (Schumpeter, 1942), economists have increasingly been willing to associate economic growth through innovation with monopoly power and large firm size. Schumpeter (1939, ch. VI, VII, and XIV) founds his theorizing on historical evidence from the U.S., the English, and the German economy. Schumpeter (1939, pp. 391) explicitly draws on the case of the U.S. footwear industry that his research assistant Hoover (1933; 1937) has developed¹. In this sense, the U.S. footwear industry is more than substantiating the Schumpeter hypothesis, Hoover's case study helps Schumpeter (1942, ch. VII and VIII) develop his arguments that have later been subsumed under the label 'Schumpeter hypothesis'². In the first half of the 20th century, the global footwear production is extremely concentrated in the hand of the United Shoe Machinery Company, which attains and maintains its global monopoly position by being extremely innovative, because it re-invests its monopoly rents into research and development (cf. Kaysen, 1956; Thomson, 1989; Miranda, 2004).

The driving force behind the economic dynamics that Schumpeter describes is the promise of economic profits achieved through innovative activity. According to Schumpeter (1942, pp.101), large firm size is essential to the success of such innovative activity, because larger firms can provide economies of scale in manufacturing and innovation processes which make available sufficient resources necessary for successful completion of this process. Several empirical studies have shed doubt on the generality of Schumpeter's hypothesis (e.g. Kamien & Schwartz, 1982; Cohen & Levin, 1989). These and other studies usually investigate into the relationship between innovative activity and industry concentration or firm sizes, but not into the concrete organization of the production process or the sources of product innovation. Remarkably, since the 1980s, product innovation is effectively separated from manufacturing processes in several U.S. industries, like footwear, apparel, toys and consumer electronics (Gereffi & Korzeniewicz, 1994; Korzeniewicz, 1994; Gereffi, 1999; Sturgeon, 2002; Gereffi, Humphrey, & Sturgeon, 2005). The U.S. footwear industry having been Schumpeter's exemplar case has been among the first industries to show this disintegration of the value chain (Donaghu & Barff, 1990; Korzeniewicz, 1992; Korzeniewicz, 1994; Schmitz & Knorrington, 2000; Frenkel, 2001). A value chain describes the full range of activities that are required to bring a product from its conception to its end use and beyond. This includes activities such as design, production, marketing, distribution and support to the final consumer. The activities that comprise a value chain can be contained within a single firm – like Schumpeter hypothesized – or divided among different firms – as the historical development in the 1970s and 1980s shows in these mentioned industries. The separation of product innovation and manufacturing raises several new questions about genuine argument of the Schumpeter hypothesis: How can the innovation process be separated from manufacturing? How can the developing firm appropriate its product technology against the manufacturing firm? Why do the actual producers not enter the

¹ Cf. footnote 1 on p. 391 in Schumpeter's (1939) "Business Cycles" for his personal expression of gratitude to Hoover as his assistant.

² Cf. Witt (2002) for an historical outline of the perception of Schumpeter in evolutionary economics.

market bypassing the product developers? This empirical caveat to the Schumpeter hypothesis and the resulting questions motivate the present paper.

The aim of this paper is to provide a theoretical framing for the outlined empirical caveat. Schumpeter having neglected the demand side in his arguments, the basis argument of this paper is that satiation effects occur as a market matures and that they affect the organization of the processes of product innovation and manufacturing. The correlation of the increase of product variety and the growth of consumption is a stylized fact of aggregate market dynamics (Bils & Klenow, 2001). This correlation between the growth of product variety and consumption holds regardless of the maturity of the industry or the market. So, at the macro level functional satiation effects do not uphold this correlation, even in mature markets. In contrast, at the micro level, Lancaster (1971, pp.145; 1991, pp.59) in his seminal conceptualization of product innovations points to satiation effect with respect to product characteristics, i.e. the functional aspects of products. In their experiments Meyer and Johnson (1995) find that while consumers have a minimum threshold for acceptable product performance, there is no analogous boundary that specifies a maximum limit to the functional performance, that a consumer would be willing to accept. At the same time, consumers face decreasing marginal utility from increases in functionality beyond their requirements, i.e., when they are functionally satiated. From a series of case studies Christensen (1997, ch.8) develops the notions of “functional satiation” and “performance oversupply” that Adner and Levinthal (2001) formalize: They show that consumption growth beyond functional satiation relies on the oversupply of ever new product varieties and on the decline of relative prices to account for the decreasing marginal utility. In short, the nature of competition can change due to such satiation effects of market demand.

In a time-series analysis Frenzel Baudisch (2006b) shows that aggregate U.S. footwear consumption changes its parameterization in 1970 in accordance with Adner and Levinthal's (2001) model of market growth beyond functional satiation: Since the 1970s the U.S. shoe market expands due to the oversupply of product varieties as relative shoe prices decline in parallel; the market grows well beyond the functional requirements of consumers, as the average U.S. consumer buys 7.4 pairs of shoes in 2004. Focusing at the U.S. footwear market and its industry, the theoretical question that this paper wants to answer is whether the functional satiation of this market affects its industrial organization. In other words, do firms organize differently in order for them to grow as the functional satiation of the market is setting in, as the incumbent firms have to oversupply the market with ever new product varieties that are decreasingly valued by the consumers?

This paper discusses this theoretical research question focusing on the empirical caveat of the U.S. footwear industry's organization. Concretely, we ask whether the change in the demand character due to functional satiation effects in this market influences the observed separation of manufacturing and product innovation, because both phenomena occur in parallel in the U.S. footwear market. Drawing on Christensen's (1997) notion of “performance oversupply” and its formalization of by Adner and Levinthal (2001), we argue that functional satiation effects change the nature of market demand. Thereby, the nature of competition in the market changes which in turn has implications for its industrial and corporate organization. This argument is complemented by a discussion of

the motivations of consumers to buy shoes beyond their functional requirements that draws on Frenzel Baudisch (2006a; 2006b).

In order to empirically substantiating our argument, we conduct a case study analysis into the historical development of the U.S. footwear industry; we review how this industry has developed to be ‘Schumpeter’s exemplar case’ in the first half of the 20th century and then how its value chain disintegrates in the 1970s and 1980s and how it is organized today. The organization of the paper is as follows. In section 2, our theoretical argumentation is outlined. Section 3 delivers the case study of the historical development of the U.S. footwear industry. The discussion of the case study’s findings follows in section 4 and section 5 offers concludes.

II. VARIETY OVERSUPPLY, MARKET COMPETITION, AND INDUSTRIAL ORGANIZATION

This section argues that a market’s functional satiation affects its industrial organization, in particular the separation of manufacturing and product innovation. We take two complementing approaches to make the argument. First, a phenomenological description of satiation effects as a change in the parameterization of demand lies the basis for our argument (cf. Adner & Levinthal, 2001). Nevertheless, this approach does not inquire into the actual changes of consumer behaviors. Second, an inquiry into the motivations of consumers to buy products beyond their functional requirements complements the first approach (cf. Frenzel Baudisch, 2006b). Discussing the consumers’ motivations to buy products beyond their functional requirements offers a deeper qualitative understanding of the business practices to be revealed in the historical case of the U.S. footwear industry.

The first approach to our argument draws on Adner and Levinthal (2001). The main question is how much do the decreasing marginal utility and the resulting higher price sensitivity – that consumers attribute to oversupplied product varieties after their functional satiation – affect the organization of production and innovation. In the growth regime of variety oversupply, firms can less and less avoid price competition by differentiating their products, because the consumers’ marginal utility of more product variety is decreasing. Firms compete more and more in terms of product innovation competition *and* cost competition at the same time. As the marginal utility for the functional improvements decreases beyond functional satiation, firms cannot reap temporary monopoly rents from product innovations anymore. Product innovation becomes a mere necessary condition to consumption growth³. Smaller and fast changing batch sizes must be made possible by flexible production processes, as well as continuous cost reductions in production are necessary in order to compete in such markets, in which consumers buy beyond their functional requirements.

The second approach to our argument about the effect of market satiation on industrial organizations is founded on the analysis of consumer motivations to buy beyond

³ Functional complementarities between new products might postpone satiation effects (Christensen, 1997, pp.179), e.g., between computer soft- and hardware. For the sake of our argument we abstract from such complementarities. In the case of shoe consumption, such functional complementarities can be assumed to be of marginal importance.

functional satiation (Frenzel Baudisch, 2006a; 2006b). Beyond functional satiation, motivations arising from social interactions between consumers become more important for the growth of consumption of oversupplied product varieties. Several motivational processes arise from social comparisons that affect market demand, but abstract from functional advancements of products (Frank, 1985; Vermeir, van Kenhove, & Hendrickx, 2002; Karlsson, Dellgran, Klingander, & Gärling, 2004; Frenzel Baudisch, 2006a; 2006b). It is the increasing importance of social interactions between consumers for the growth of demand like status effects, herd behavior, and fashion cycles that continuously decrease the predictability of demand in terms of product functionality. This increases the uncertainty of demand from the perspective of a supplier who exclusively focuses on product functionalities. Thus, suppliers must increase their ability to react to this uncertain demand by reducing lead times of production and increasing the flexibility of their production's batch size.

In order to develop implications for industrial organization from this section's argumentative sketches about satiation effects and market competition, we sketch out what determines the governance structures of value chains in the next section. Having done so, we relate the outlined arguments to these determinants and, thereby, develop implications for the industrial organization from the occurrence of functional satiation effects.

1. The governance of global value chain

This section briefly reviews recent works of Gereffi, Humphrey, and Sturgeon (2005) on the determinants of the governance structures in global value chains. In its most basic form, a value-added chain is "the process by which technology is combined with material and labor inputs, and then processed inputs are assembled, marketed, and distributed. A single firm may consist of only one link in this process, or it may be extensively vertically integrated ..." (Kogut, 1985, p. 15). The key issues in this literature are which activities and technologies a firm keeps in-house and which should be outsourced to other firms, and where the various activities should be located. The vertical integration or de-integration of production, product design, and marketing is not reported in industry concentration indexes, firm sizes, or reports about market shares. Rather than analyzing the relationship between market concentration or firm size and innovative activity in a market, we want to analyze the degree of vertical integration of processes within the firms of an industry. Value chain analysis is able to analyze such structures; this is why we choose this method for our case study in order to go beyond the usual analyses that have been led by Schumpeter's hypothesis.

Having laid out a taxonomy of governance structure of value chains, Gereffi et al. (2005, pp. 84) developed an operational theory of such structures. They theorize about why different governance structures arise in global value chains under which conditions. They identify and discuss three key determinants of value chain governance patterns: The complexity of transactions; the codifiability of information; and the capability of suppliers. In so doing, they acknowledge the problem of asset specificity as identified by transaction cost economics, but also give emphasis to what they term 'mundane' transaction costs – the costs involved in coordinating activities along the chain. It has been argued that these coordination, or mundane, transaction costs rise when value chains

are producing non-standard products, products with integral product architectures, and products whose output is time sensitive (Baldwin & Clark, 2000).

Gereffi (1999) identifies two different governance forms of value chains on the basis of rents (broadly defined as returns from scarce assets) that the lead firms reap. The distinction relies on main tasks, challenges, and competences of the lead firms, i.e., the most important and profitable nodes in value chain. Producer-driven value chains where producers reap technology rents, i.e., from their ability to introduce technological product or process innovations. Buyer-driven value chains where buyers, i.e., retailers and merchandisers, reap mostly organization rents, i.e., from their ability to organize the disintegrated production process in smooth and efficient ways, without owning production capacities. The separation of product innovation and manufacturing is essentially described by the distinction of value chains into those that are buyer- vs. those that are producer-driven.

In terms of Gereffi et al.'s (2005) analysis of determinants of the governance structure of value chains, a producer-driven value chain is characterized by a high complexity of transaction. This is based in the high complexity of products and production processes that usually stems from the close relation of production technology and product technology. In such producer-driven value chains, this in turn results in high specificity of firms' assets and a low codifiability of such complex transactions. In addition to the difficulties of codifying, the willingness to codify transactions for uses outside the firms is low, because firms want to appropriate their product and production technology that are the basis for their profits. The capabilities of outside suppliers are low as a result of this complexity of transactions and their low codifiability, and because producers have little incentive to develop their suppliers' capabilities in this situation.

A buyer-driven value chain is characterized by the lead firms reaping rents from their capabilities to organize the modular value chain, not by producing themselves (Gereffi et al., 2005). The lead firms are developing and marketing new products and they usually distribute and sell them to the consumers, as well as they organize the value chain as demand is time sensitive. Production is outsourced to firms that are usually located in low-wage countries. The supplier base is well developed, transactions are relatively easy to be codified, but nevertheless complex, i.e., the organization of the transactions within the value chain is complex. In turn, the codifiability of transactions also depends on the capabilities of the supply base, i.e., the extent to which the actual producers can guarantee product quality and timing. The ability to organize transactions with respect to product quality and innovation timing is the basis for the profits of the lead firms. Due to shortening innovation cycles, the actual producers operate small batch size with flexible production processes. In several industries production becomes less mechanized and more 'humanized' to make production processes ever more flexible. The first modular and buyer-driven value chains emerged in industries where labor-intensive production was outsourced to low-wage countries, the apparel and footwear industry.

Looking broadly at the evidence provided by global value chain research across a variety of industries and time periods, Gereffi et al. (2005, pp.96) are 'tempted' to make generalizations about trends in the global economy. In all of the case studies they present, and many others as well, increasing capabilities in the supply base have helped to push the architecture of global value chains away from producer-driven toward more buyer-

driven value chain types. Value chain modularity – the constituting characteristic of a buyer-driven chain – seems to be especially likely when suppliers offer buyers, i.e., the lead firms, greater levels of value chain bundling (e.g., turn-key and full-package services), which has the advantages of internalizing tacit knowledge and pooling capacity utilization for greater economies of scale. However, organizational fragmentation will not lead to value chain modularity if codification is extremely difficult. For example, a strong shift toward fragmentation in the organization of the U.S. motor vehicle industry beginning in the mid-1980s has resulted in value chains with strong relational elements. This can be partly explained by the difficulty of codifying complex mechanical systems, which has inhibited the rise of industry-wide standards and kept the complexity of the transactions between lead firms and suppliers high even as the capabilities of suppliers, driven in part by the consolidation of first tier suppliers, has increased dramatically (cf. Gereffi et al., 2005, pp.96).

2. *Functional demand satiation and industry dynamics*

In this section we argue that functional satiation effects in a market increase the trend towards a lesser degree of explicit coordination and power asymmetry in its industry's value chains that is driven by the increase of supplier capabilities.

The basic argument is that the simultaneous competition based on innovation *and* prices in a market beyond functional satiation privileges modular, buyer-driven value chains over other governance types. In a nutshell, more functionally complex products tend to lead to more vertical integration of production processes, i.e., a high degree of explicit coordination within the value chain. Price-quantity competition among producers of relatively homogeneous goods tends to be fought in a market setting with no or very little explicit coordination between producers and buyers in a value chain. If a market is both driven by innovation and price competition, the degree of explicit coordination has to be higher than for homogenous, hence less innovative products, but the price competition leads to an outsourcing of production processes in order to simultaneously attain production economies: A modular value chain emerges.

The phenomenological analysis of functional demand satiation

Functional satiation decreases the marginal utility attributed to new product varieties. (Christensen, 1997, ch.8; Adner et al., 2001). Adner and Levinthal (2001) show that the oversupply of product varieties can expand the market beyond a market's functional satiation if product prices decline simultaneously to the performance oversupply. The next paragraphs translate the implications of Adner and Levinthal's model into Gereffi et al.'s (2005) framework of industrial organization. The concrete question is how do firms organize the oversupply of product innovations when *simultaneously* reducing costs in manufacturing. Put differently, we ask what is the most important capability suppliers must have to grow in a market beyond functional satiation, as opposed to a market where innovation allows producers to reap temporary monopoly rents.

Beyond functional satiation the decreasing marginal utility for product variety emphasizes cost competition in addition to innovation competition. Thereby, the economies of scale and scope in manufacturing become necessary, while innovation competition decreases batch sizes and, thereby, economies of scale. This increases the

importance of scope economies in product design and production technology. Flexible production technologies become increasingly necessary for cost reductions given small batch sizes. Human labor (re)gains importance in the production processes due to its extreme flexibility opposed to product-specific mass production facilities. The importance of labor costs drives the re-location of such production processes to low-wage countries. The lower the price of the end product, the faster this re-location process, as high investments into flexible production technologies are less of a viable solution to the competitive situation of variety oversupply. The more complex and costly the products, the more investments into flexible production technologies are viable.

If the economies within the processes of product innovation and manufacturing are separable, the competitive situation in a market beyond functional satiation should lead to this separation. The argument is that if these economies are separable they are likely to be better achieved in separate firms. Nevertheless, this implies that cost reductions become so important that the appropriation of product technology becomes negligible, because the product innovators give out the product technology to the actual producer for them to manufacture the product. This separation as such poses the question about how this neglect of the appropriation of product technology becomes possible. Seemingly, the product technology, i.e. performance or quality improvements, is not the most important market driver anymore. This implies that innovative capacity is not founded within the manufacturing capacity.

Gereffi et al.'s (2005) framework indicates that for the separation of product innovation and manufacturing to occur, the ability to codify transactions within the value chain has to go up. However, the decreasing marginal utility attributed to new product varieties beyond functional satiation does *not* imply that the codifiability of these transactions increases. Independent of the degree of the codifiability of transactions, the question remains why product developers can resign from appropriating their product technologies against the manufacturing firms.

Gereffi et al.'s (2005) empirical case studies show that scale effects in product innovation within R&D departments seem to be separate from economies in manufacturing. Nevertheless, Gereffi et al. (2005) do not elaborate why product developers deliberately do not appropriate their technology; or why the actual producers do not directly enter the final consumer market bypassing the product designers. The argument that has been developed on the basis of the works of Adner and Levinthal (2001) is that market competition beyond functional satiation is simultaneously based on prices and varieties; industries organize in ways to reap economies in product innovation and manufacturing at the same time and this means in different organizations, i.e., in separate firms. Nevertheless, the appropriability question relating to the separation of product innovation and manufacturing is not yet answered by this argumentation. Besides the appropriability question there are other issues to be addressed in the context of the separation of product innovation and manufacturing, e.g., the lead firms' foci on distribution channels and branding (cf. Gereffi, 1999). In order to address these issues, we inquire deeper into the consumers' motivations to buy beyond their functional requirements.

Consumer motivations beyond functional satiation

Given the separation of product innovation and manufacturing in several industries, the question remains why there is no entry to the final consumer market by the actual producers, because they control the product technology and the production technology. Seemingly, the actual producers cannot innovate the product technology on their own, as the sources of innovation have shifted from the production process to marketing activities, such as design, branding, and distribution. Nevertheless, the decrease of the marginal utility attributed to advances in product functionalities, can be interpreted in two ways. Either product innovation processes are now 'easier', because the demand for new products is less and less driven by the advancements of the product technologies. Or product innovation becomes 'more difficult', because radical product innovations are needed to drive market growth beyond functional satiation. In either case the product manufacturers should have the opportunity to create new products and enter the end market as they possess the production facility and the ability to functionally innovate. Seemingly, the phenomenological characterization of the demand side as showing a decreasing marginal utility is not sufficient to address these issues.

Motivations of consumers to buy products beyond their functional requirements arise increasingly from social comparisons among consumers (Frenzel Baudisch, 2006b). Frenzel Baudisch (2006b) tests this theoretical account with time-series data on U.S. footwear consumption, so that his paper analyzing the demand side of the U.S. footwear market is perfectly complementing the present paper analyzing its supply side. Frenzel Baudisch (2006b) shows that when social motivations predominantly drive consumption growth, that product functionality is less important to the consumers. Herd behavior, status consumption, and fashion cycles as outcomes of social comparison processes between consumers, therefore, increase the uncertainty of demand with respect to functional characteristics of products. Frenzel Baudisch (2006b) cites several studies that emphasize the importance of fashion and status consumption in the U.S. footwear market since the 1970s (cf. Weisskoff, 1994; Freeman & Kleiner, 1998).

We have argued that demand beyond functional satiation that is generated by consumer herding or status considerations is uncertain with respect to the functionality of products. Functional demand uncertainty leads to market situations where 10 to 25 percent of the new product varieties generate 75 to 90 percent of firms' profits from new products (cf. Redmond, 1995; Poolton & Barclay, 1998). We hold that demand beyond functional satiation is increasingly motivated by social interactions among consumers, and, thus, becomes more uncertain. This is because social motivational processes among consumers must be classified as indeterminate with respect to the product functionality, e.g. herd behavior (cf. Rook, 2006 for a survey on herd behavior). The ability of suppliers to react quickly to such unforeseeable demand shifts is essential for competitive position (cf. Fisher & Raman, 1996; Randall, Morgan, & Morton, 2003; O'Marah, 2005). In order to increase their reactivity in the face of such demand shifts we argue that suppliers have to reduce their *lead times*, i.e., shortening the time interval between the initiation and the completion of a production process.

The generation of ever new product varieties at decreasing prices is the necessary condition to compete in a market beyond functional satiation, but we hold that the commensurate condition is the ability to deal with the increasing demand uncertainty by

reducing lead times. The demand side selects a small number of products to diffuse and become economically successful from the oversupplied, larger variety of new products; while the rest of the oversupplied product variety does not become a successful innovation. The amount of time between the placing of an order and the receipt of the goods ordered becomes essential to supply more quantities of the new successful varieties. Business researchers and practitioners stress that the reduction of lead times implies the control and the optimization of the whole value chain without necessarily owning the involved facilities (e.g. Fisher et al., 1996; Gereffi, 1999; Randall et al., 2003; Gereffi et al., 2005; O'Marah, 2005). The value chain must therefore be managed by the lead firm. Furthermore, lead time reduction should be deeply integrated into the innovation processes of firms (cf. Tomas & Hult, 2003; Sheffi, 2005).

So, the lead firms need the capabilities to produce ever new product varieties and to react to the diffusion of only a more or less arbitrary selection of these new products. Consequently, there is no need to appropriate product technology, because the products' functionality is less and less the basis of their economic success, i.e. this arbitrary selection by consumers. The codification of transaction increases, because the willingness to codify increases. Products can become less functionally complex, as producers learn to create herd behaviors with technologically simple goods. Then, the decreasing functional complexity of new products is a second reason for the increased codifiability of transactions.

The reduction of lead times increases the firms' ability to react to demand uncertainty, moreover, the identification and the creation of a consumer herd are essential capabilities to compete in markets beyond functional satiation. Sales data from distribution channels about the early sales of a new generation of products are the basis for any reaction to a demand shift to a small variety of products, i.e., the consumers' selection of the a successful innovation to be diffused. Distribution channels are therefore at the core of the needed capabilities of the lead firms, because a supplier has to control and optimize the distribution channels to reduce the time-to-market of a new product *and* also because they provide that information to react to the market's selections in the first place, i.e., by providing early sales data about which new product will be successful innovations and which will be a failure. In addition, stable distribution channels also take up the habits of consumers to shop in unchanging places, in an otherwise changing, i.e., innovative market.

The branding of products is an important capability of firms to compete in a market beyond functional satiation. Information economics shows that a brand signals continuously high product quality, i.e., a brand reduces the uncertainty of the consumers. Because herd behavior results from consumer uncertainty (cf. Rook, 2006), it can be initiated by signaling and branding. Branding is also important to signal social status. Branding and marketing in general create the social awareness for a new product that is the basis for the social comparison processes within an consumer population that motivate the diffusion of this innovation. Branding and other marketing communications therefore are essential for the stimulation of social comparison processes that motivate consumption beyond functional satiation.

Theoretical proposition

Here, we will propose that a firm needs certain capabilities in order to compete in a market beyond functional satiation that are different from those needed in a market where products are primarily bought for their functionality. Consumption growth beyond functional satiation relies on the oversupply of product variety at decreasing prices. We have argued that the capability of create ever new product varieties with declining costs is the founded on the separation of the processes of product innovation and manufacturing; because production is outsourced to firms that are usually located in low-wage countries. Demand becomes more uncertainty as functional satiation renders the product technology less and less important for selling the product. We have argued that aggregate demand become more uncertain with respect to product functionalities, because it is social comparison processes among consumers that motivate consumption beyond their functional requirements. Such social interactions can result in herd behavior, fashion cycles, and status consumption. We have argued that a successful firms has to be able to quickly react to such indeterminate demand shifts. Therefore, the organization of the complete value chain is essential to the firm in order to reduce lead times to compete in such uncertain markets. Furthermore, firms have to focus on distribution and branding to identify and stimulate such social comparison processes and thereby generate demand. To sum up, the functional satiation of a market fosters the separation of product innovation and manufacturing. The separation is not hindered by the need to appropriate product technology as firms reap organizational rents from their capability to reduce lead times in their modular value chain and from marketing the products, rather than rents from technological advances of products and production processes.

***Proposition:** In a market that continuously grows beyond functional satiation due to an oversupply of product varieties, its maturing industry decreases its the degree of explicit coordination and power asymmetry within its value chain. Lead firms reap rents from their capabilities to organize the modular value chain, not by producing themselves. The lead firms are developing and marketing new products and they usually distribute and sell them to the consumer.*

The next section explores the historical development of the U.S. footwear industry in order to find qualitative evidence that either substantiates or rejects this proposition.

III. THE DYNAMICS OF THE U.S. FOOTWEAR INDUSTRY

The historical development of the U.S. footwear industry is divided into time periods, during which the value chain was relatively homogeneous and stable. There are however transition phases between these phases of stability. These stable periods are delimited by a particular organizational form that is dominating in the U.S. footwear industry, for example before the invention of machine tools for footwear production shoes were produced by small craftsmen's workshops all over the USA. Using Gereffi et al.'s (2005) analytic framework of production organization, a period of one dominant organizational form is determined by one node being the core of the value chain. The core of a value chain holds the lead firms as it is the most profitable node that is usually characterized by a high degree of monopoly power. The monopoly/market power of the lead firm(s) in the core node stretches up- and downward in the value chain. The criterion that indicates a

change in the industrial and corporate organization is a shift of the core of the value chain from one node to another – for example from the actual production to the provision of production technology in the industrial revolution since the 1850s.

1. The U.S. footwear industry before 1899

The history of footwear goes back many thousands of years. Early footwear undoubtedly grew out of the necessity to provide protection when moving over rough terrain in varying weather conditions. Initially, footwear was probably made of plaited grass or rawhide held to the foot with thongs. Soon the rich and influential began distinguishing themselves by the craftsmanship and decoration, which characterized their shoes.

In the colonial days, if a U.S. family lived in a rural area, as most did, they were visited about once a year by itinerant shoemakers. The shoemaker would stay two or more days making shoes for the family. There were no ready made shoes. Individual cobblers working either alone or with one or two apprentices or journeymen produced practically all shoes. The goal of every apprentice cobbler was to learn how to make an entire shoe as soon as possible. In the shoemaking shops in the cities you haggled about price by the inch (Rossi, 1988, pp. 1).

Nothing much changed until 1750 when the first “assembly line” shoemaking in Lynn, Massachusetts was established. All shoes were still made entirely by hand, but each shoemaker specialized in one task in production process. With the ready-made shoes there was not the vaguest semblance of shoe sizes. The shoes came in two lengths, long and short, and two widths, fat and slim. The U.S. shoe market experienced enormous growth in the late 1850s with the world’s first machine-made shoes. Sewing machines for uppers and soles were the catalysts of this growth. For footwear, this was the industrial revolution. By 1870s, shoe manufacturing was America’s largest industry and largest employer (Hazard, 1913; Mulligan Jr., 1981).

There were other important parts of the industrial revolution during this period. The first left and right shoes were introduced for soldiers, a great – some argue crucial – aid for the Union’s troops their long marches during the civil war. Up to then, almost all footwear was made on “straight” lasts for the economic reason that they could be worn on either foot and thus required only one last instead of a pair to make them (Rossi, 1988, p. 4).

New shoemaking was advancing at a rapid rate. Between 1865 and 1900 hundreds of new shoemaking machines, methods, and components were invented and applied. It was the glory era of American shoemaking: In 1870, there were 7,570 tanneries in the U.S. (compared to 100 in 1988). The combined shoe and leather manufacturing industry was the country’s largest, and by 1910 two of the ten largest corporations were tanners (Rossi, 1988, p. 5)

2. The United Shoe Machinery Company and its global monopoly, 1899-1953

In 1899, the United Shoe Machinery Company (U.S.M.C.) merged the interests of five shoe-machinery manufacturers, of whom three were the dominant companies in the principal shoe-machinery groups at the time. From the beginning on, the U.S.M.C. provided machines for the complete production process from cutting to sewing. At the time of the merge the U.S.M.C. controlled the major share of its market, ca. 70% or

greater depending on the source. Subsequent additions by purchase and its own natural growth raised it to the level of about 85% of the market, at which figure it stabilized (Roe, 1914; Kaysen, 1956; Clark, 1957).

From 1900 onwards, shoe machinery all over the world came to be dominated by the U.S.M.C. This is a tribute to the force of the idea created by the men who in 1899 set up the U.S.M.C merger. The system of control over the shoe industry, which they set up to give them the power to work out their ideas was the so-called “tied lease” system. The U.S.M.C did not sell its streak of machines to the shoe manufacturer, it leased them to him. In the tied-lease system the shoe manufacturer had to use all of the U.S.M.C. machines for his complete production process and no others. The stringency of this system was relaxed in America in 1915, that is to say the tying clauses were removed by a law suit against the U.S.M.C. One of the results of the leasing system was that the shoe industry has been serviced with machines in better order, better maintained than is the case in similar industries where outright purchase is the rule. (Kaysen, 1956)

One use of the U.S.M.C made of its market power was to set up a first-class research organization (Hoover Jr., 1933; 1937). It appears that the use of this research organization to improve the machines, on which the dominance of the U.S.M.C. based, was one of the main factors in the retaining its position through the first part of the 20th century. The application of the efforts of R&D to the shoe industry has naturally been controlled by the commercial policy of the U.S.M.C. There are indications that the smallness of size and the lack of growth in the shoe-manufacturing industry has restrained somewhat the U.S.M.C.’s research organization from working out and applying revolutionary concepts (Miranda, 2004).

Under the various anti-trust laws the United States fought three cases against the U.S.M.C. First, in 1911 on general monopoly grounds; the United States lost this case. Second, in 1915 to break the tied-lease system outlined above; in this case the United States won. Then, third in 1953, United States won allowing shoe manufacturers to buy their shoe machines as an alternatives to leasing, and to release shoe manufacturers from the obligation to employ U.S.M.C. operatives for maintaining their leased machines (Clark, 1957).

The international dominance of the U.S.M.C.

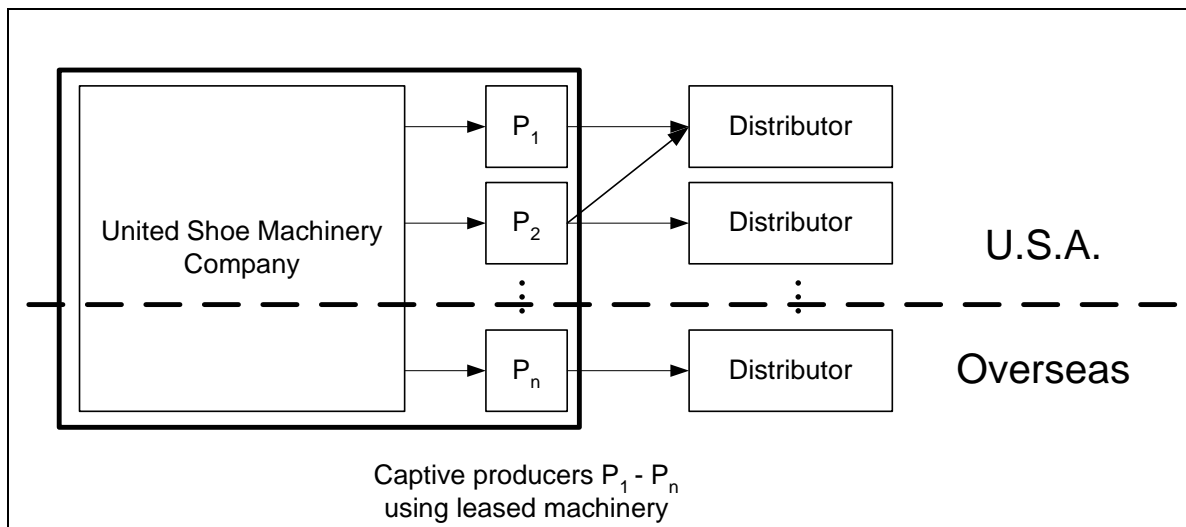
Miranda (2004) analyses the so-called ‘American invasion of Europe’ and its effects on the global footwear industry. Special attention is paid to the technological transfer of the U.S.M.C. to Europe. He shows that the American exporting success story was directly linked to the technological gap that opened up between the American and European industries; the modernization of the European footwear industry, and the subsequent improvement in its competitiveness, was mainly a result of the technology transfer from the U.S.A. The United Shoe Machinery Company becomes a multinational company by its technology transfer to Europe; this is a key factor in speeding up the diffusion of innovations within the European industry; and the adoption of the new technologies and the speed and scope of this adoption have not been due as much to the ‘technological capabilities’ of each country as to the profitability that the companies managed to gain from these innovations (Miranda, 2004).

Roe (1914, pp. 48) lists countries whose shoe industries were dominated by the U.S.M.C. by 1910: In the United States more than 90% of all machinery operated in shoemaking was built and maintained by the United Shoe Machinery Company. In the United Kingdom, 80% of the machinery came from the U.S.M.C., over 75% in France and 90% in Italy. In Scandinavia and Austria-Hungary over 60% of the shoemakers were using American machines. Only in Germany, the national machine tool makers were still dominant, and the U.S.M.C. held only 30% of the market. These German were however mainly imitating U.S. patents that were not protected in Germany.

The U.S.M.C. is a Schumpeterian exemplar case

The U.S.M.C. was the dominant machine tool maker for the U.S. footwear market in the first half of the 20th century. Its dominance of the U.S. market led to scale effects that the U.S.M.C. transformed into technological advances by consequent research and development. It was this technological advantage that allowed the U.S.M.C to dominate the global market. As such, the U.S.M.C. is the Schumpeterian exemplar firm (Schumpeter, 1939, pp. 391): The monopoly in the USA, the biggest national market, allowed it to be more innovative than any other firm in its global market (cf. Hoover Jr., 1933; 1937; Miranda, 2004).

Figure 1: Producer-led value chain of U.S. footwear industry till the 1950s



The leasing arrangements that the U.S.M.C. held with its clients installed a severe competition in the subsequent production processes. The U.S.M.C did not offer any scale promotion, i.e. cheaper prices for bigger clients, which further promoted competition among shoemakers. Labor costs were competitive, as the production technology was easily accessible and were leased with little risk for the producers, which made entry into the market easy. Figure 1 visualizes the value chain of U.S. and global footwear industry dominated by the U.S.M.C. With the breaking of the U.S.M.C.'s leasing system in 1953 this particular organization of the value chain for the U.S. footwear market starts changing dramatically.

3. *Industrial dynamics in the U.S. footwear market*

In order to gain a better understanding of the dynamics of the governance structure in the footwear value chain, we need to take a closer look at the U.S. retail sector. Then, the decline of the U.S. footwear industry is analyzed. Seemingly, changes in America's consumption patterns are one of the main factors that have given rise to flexible specialization in global manufacturing.

Dynamics in the retailing sector

The steadily increasing importance of fashion changes in shoes brought many problems to the shoe industry in the 1910s and 1920s. Hoover (1933) emphasizes the most significant effects for the location of production sites: "speed and easy contact in marketing" (ibid., p.269). With the occurrence of mass fashion in the 1920s shoe retailers become more and more important for this market. Some degree of vertical integration was achieved between the manufacturer and retailer, and these gave rise to the brand-name shoe store. The effects of this three-tiered market structure – monopoly by the machine producer, competition in manufacturing, and high concentration in retailing – was to set the stage for two major antitrust suits which upset the arrangements at both ends, in 1953 for the U.S.M.C. and 1962 for the retailing sector (cf. Kaysen, 1956; Peterman, 1975).

A comprehensive study of U.S. department stores showed that the structure of the industry became more oligopolistic during the 1960s and 1970s as giant department stores swallowed up many once-prominent independent retailers (Bluestone, Hanna, Kuhn, & Moore, 1981). The growth of large firms at the expense of small retail outlets was encouraged by several forces, including economies of scale, the advances in technology, mainly information technology, and mass advertising available to retail giants, government regulation, and the financial backing of large corporate parent firms. Ironically, despite the department store industry's transformation into an oligopoly, the price competition between giant retailers became more intense, not less (Bluestone et al., 1981, p. 2)⁴

In the 1980s, the department store in turn came under siege. In their heyday, department stores were quintessential middle-class American institutions⁵. These retailers offered a broad selection of general merchandise for "family shopping," with "the mother as 'generalist' buying for other family members" (Legomsky, 1986, p. R62)⁶ While this

⁴ Enhanced price competition is compatible with oligopoly because the economies of scale and scope of large-volume discount chains lead to high concentration levels in the retail sector, at the same time as the discounters stimulate considerable price competition because of their low-income consumer base.

⁵ Many department stores carry familiar household names: Macy's, Bloomingdale's, Jordan Marsh, Mervyn's, Nordstrom, Dillard, Filene's, Kaufmann's, Saks Fifth Avenue. Numerous American retail chains today are owned by holding companies, such as the May Department Store Company, Federated Department Stores, and Dayton Hudson. In Europe, where consumers were more inclined to shuttle from store to store for their individual apparel and footwear needs, these department stores never developed into the prominent retailing institution that it has in the mass market of the United States.

⁶ General merchandise retailers provide a broad selection of "soft goods" (including apparel, footwear, and home furniture) and "hard goods" (appliances, hardware, auto, and garden supplies, etc.).

format typically met the needs of the suburban married couple with two children and one income, in 1990 less than 10 percent of American households fitted that description. In the 1990s, the generalist strategy no longer worked. The one shopper per family of the 1970s became many different shoppers, with each member of the family constituting a separate buying unit (Sack, 1989).

The breakup of the American mass market into distinct, if overlapping, retail constituencies created a competitive squeeze on the traditional department stores and mass merchandisers⁷, who were caught between a wide variety of speciality stores, on the one hand, and large-volume discount chains, on the other⁸. The former, who tailored themselves to the upscale shopper, offered costumers an engaging ambience, strong fashion statements, and good service; the latter who aimed for the lower income buyer, emphasized low prices, convenience, and no-frills merchandise.

Analyzing the footwear and apparel value chains, Gereffi (1999), Korzeniewicz (1992; 1994), and Schmitz and Knorringa (2000) provide qualitative and quantitative overviews about the retailing sector in the 1990s. Unlike the earlier “retail revolution” when department stores formed oligopolies in the 1960s/70s, the 1990s saw a surge of speciality and discount formats. Furthermore, the retail stores went either upscale or low-price, leaving the middle segment in terms quality and price.

Department stores and other merchandisers in the U.S. tried to develop effective counterstrategies to these trends. Department stores simulated speciality stores through the creation of “store-within-a-store” boutiques, each accommodating a particular company (like Liz Claiborne, Calvin Klein, Tony Hilfinger, or Hugo Boss) or a distinct set of fashion tastes. Similarly, Woolworth Corporation shed its mass merchandising image by incorporating dozens of speciality formats in its portfolio of 6,500 stores, including Foot Locker, Champs Sports, Afterthoughts accessories, and The San Francisco Music Box Co. In 1993, speciality stores accounted for about half of Woolworth’s annual revenue, up from 29% in 1983 (Miller, 1993).

Some retailers like J.C. Penney sought to upgrade their status from mass merchandisers to department stores by adding higher-priced products, and to increase profitability by emphasizing higher-margin merchandise that had a faster turn-around time (Sack, 1989, p. R80). Other firms began to diversify their appeal by establishing their own speciality retail outlets (like the Foot Locker stores, which are owned by the Woolworth Corporation). On the international front, retailers and manufacturers, alike were acquiring large importers to shore up their position in global sourcing networks, For example,

⁷ The best-known mass merchandising chains are Sears Roebuck & Co., Montgomery Ward, and Woolworth Corporation. These stores are a notch below the department stores in the quality of their merchandise and their prices, but they offer more service and brand-name variety than the large-volume discount retailers. In terms of their overall position in American retailing, though, department stores and mass merchandisers face similar competitive environments.

⁸ The three most prominent discount chains today are Wal-Mart, Kmart, and Target. Discount chains may focus on a specific product, such as shoes, Payless ShoeSource, Pic’n’Pay, and the 550-store Fayva Shoes retail chain owned by Morse Shoe. Historically, discount retail chains differed from department stores because the former carried broader assortments of hard goods (auto accessories, gardening equipment, housewares) and they relied heavily on self-service.

Payless ShoeSource International, the largest U.S. footwear importer, is owned by May Department Stores; and Meldiso, a division of Melville Corporation, handles international purchasing of shoes for Kmart. Pagoda Trading C., the second-biggest U.S. shoe importer in 1990, was acquired by the Brown Shoe Company, the largest U.S. footwear manufacturer. Unique organizational forms such as member-owned buyers or long-term contracts with other foreign traders are being used in overseas procurements since the 1990s (Cheng, 1996; 2001).

The decline of the U.S. footwear industry

Till the monopoly of the U.S.M.C. in 1953 was broken almost all shoes worn in the U.S.A. were domestic products (Weisskoff, 1994). Weisskoff (1994) analyzes the rise of shoe imports since the 1960s and the technological change in U.S. production. Freeman and Kleiner (1998) describe organizational changes of U.S. footwear producers under the competitive pressure of imports. Hufbauer et al. (1986) analyze the effect of quantitative import regulation for the U.S. footwear market between 1977 and 1981, which limited import quantities to protect domestic production. Several other authors focus on the globalization of footwear production, with a special focus on athletic footwear production since the late 1970s (cf. Hadjimichael, 1990; Donaghu et al., 1990; Frenkel, 2001). All studies about the supply side of the U.S. footwear market emphasis the increasing competitive pressure of imported shoes since the 1960s.

Before 1960 the U.S. footwear demand was almost completely satisfied by domestic production. Till the late 1960s, U.S. footwear production was stable and the imported shoes increased the footwear market without driving out U.S. production. These imports till 1970 were mostly high-price shoes from Italy (Cheng, 1996). Beginning in the late 1960s, imports from low-wage countries, especially Taiwan and South Korea, gained importance and by 1977 more than 50% of all imports came from Taiwan and South Korea. Comparing figures 2, 3 and 4, the increased growth of the U.S. footwear market since the mid-1970s coincides with the decline of relative shoe prices. These cheaper imports were driving the U.S. production out of the market, cf. figure 4 (Weisskoff, 1994; Cheng, 1996; Freeman et al., 1998).

In 1967 imports accounted for about 17% of footwear consumption, by 1977, imports gained more than 47% of the U.S. market. U.S. footwear producers called the government for protection. In 1977, a trade barrier was erected that limited import quantities of the main 'cheap' producing countries, Taiwan and South Korea (Hufbauer, Berliner, & Elliott, 1986). The importing countries were now motivated to scale up their product quality and prices to circumvent the quantity restriction. In this sense the trade barrier fostered innovation in footwear imports at a large scale. Increasing imports values and quantities during the trade protection resulted in its cancellation in 1981 (Hufbauer et al., 1986).

Figure 2: Income and expenditure pattern, USA, 1930-2002 (Bureau of Economic Analysis, 2004)

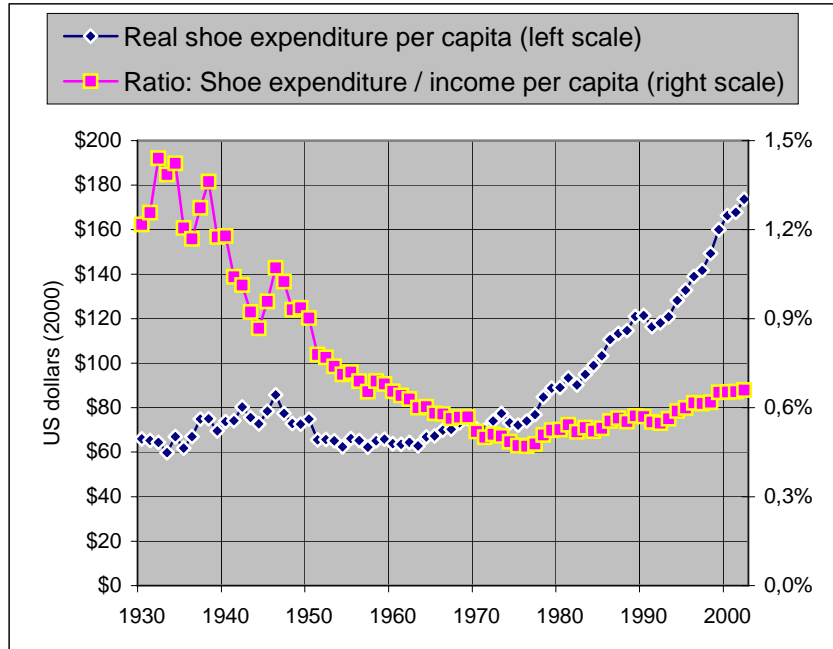


Figure 3: Consumer Price Indexes, USA, 1930-2002 (Bureau of Economic Analysis, 2004)

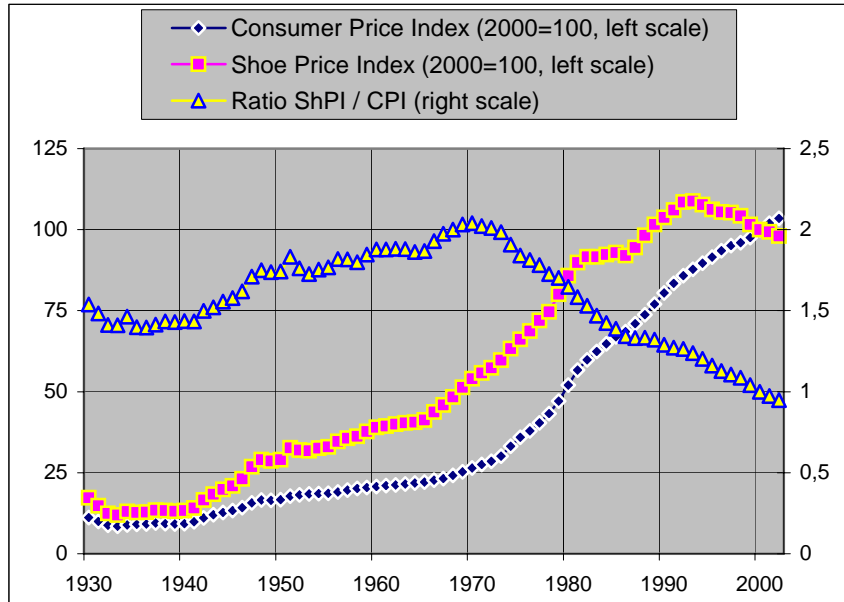
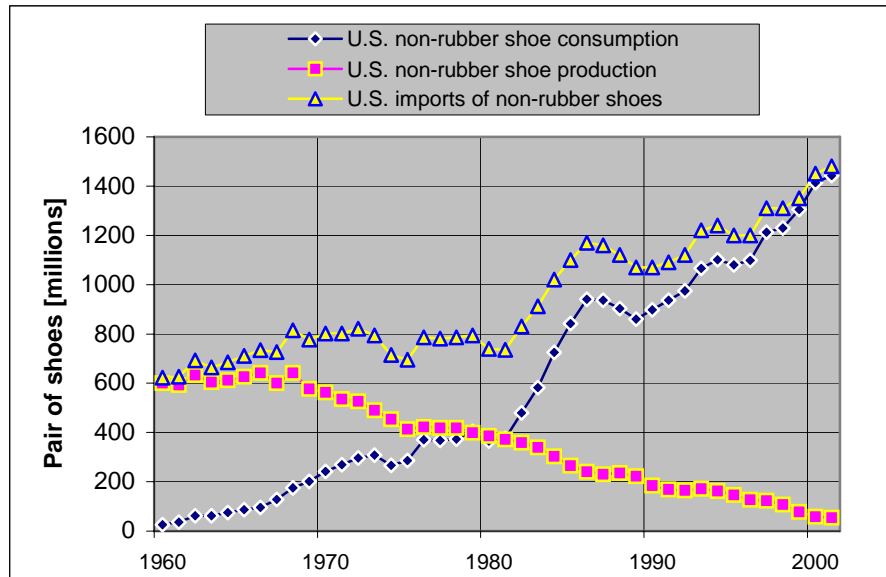


Figure 4: Non-rubber production, consumption, imports, USA, 1960-2002 (American Apparel & Footwear Association, 2005)



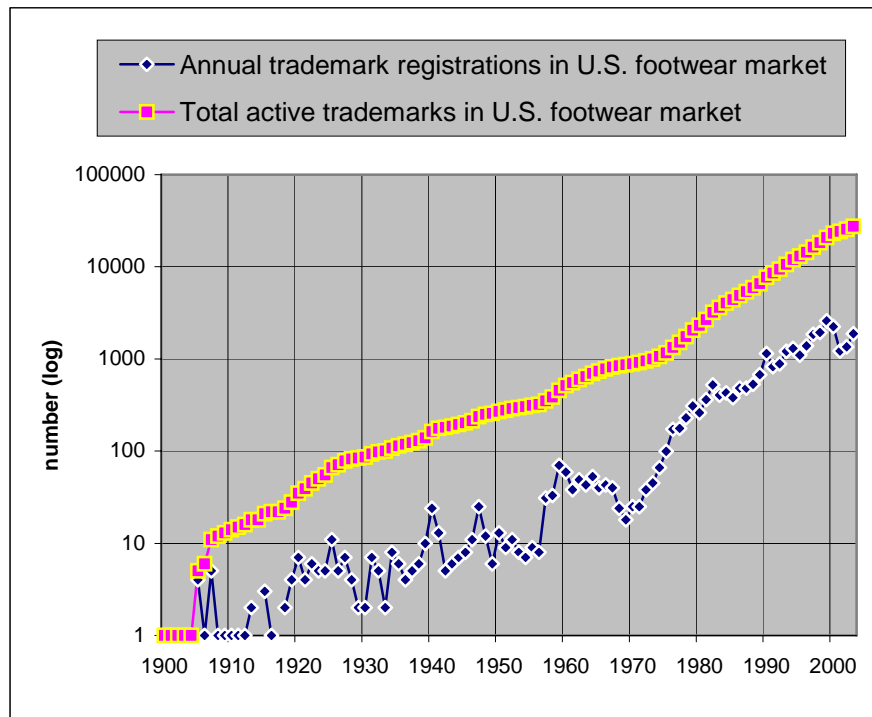
Accelerating product variety driving market growth

The U.S. footwear industry declined while the U.S. footwear consumption was increasing faster than income since the 1970s, cf. figure 2 and 4. The cheaper footwear imports to drive out more expensive domestic production, cf. 3 and 4, but consumer are overcompensating the price decline by buying larger quantities of shoes per year per capita, cf. figures 2 and 3, so that overall shoe consumption grew and has been growing faster than income since the 1970s, cf. figure 2 and 4. The question is why U.S. production declined in this fast growing market since the 1970s?

The income elasticity for footwear expenditure changed in the 1970s (Frenzel Baudisch, 2006b): Before 1970 the growth of U.S. footwear market had been smaller than that of personal income, since 1970 it has been larger, as the increasing share of personal income spent on footwear indicates, cf. figure 2. The share of footwear consumption of total income has a global minimum in the early 1970s. The empirical studies of the U.S. footwear market made before this change in this change in income elasticity by Szeliski and Paradiso (1936) and Mack (1956) naturally classify shoes as normal goods. The time between the world wars was characterized by unstable economic development and fluctuating incomes in the USA. Mack (1956) analyzes shoe consumption in these times and shows that income was the dominant determinant of shoe consumption: The footwear market was not growing, rather oscillating till the end of World War II. After 1945, the U.S. footwear consumption was increasing, but at smaller rate than per capita income. Kim (2003) analyzes aggregate U.S. demand of clothes and shoes between 1929 and 1994 and finds structural change in consumer behavior for clothes and shoes in 1970. Since 1970s consumers have been buying increasing quantities of shoes overcompensating the decline of prices that results from imports; this made the U.S. footwear market an “luxury” category as it has growing faster than overall income. Weiskoff (1994) points out that shoes are 'necessities' before 1970 and are 'luxury' goods afterwards. Nevertheless, the U.S. footwear industry declined in this growing market.

Since the mid-1970s, the growth of U.S. footwear market, that characterizes shoes as luxury product category, is driven by continuous innovation accompanied by a falling relative price level (Frenzel Baudisch, 2006b). Weisskoff (1994, p. 59) emphasizes the appearance of ‘revolutions’ in materials, design, production techniques, and marketing of imported shoes in the 1970s, but domestically produced shoes were not very innovative. Weisskoff (1994: 67) holds that the market for these shoes is increasing because shoes changed from being “necessary” to “luxury” due to changes in the “American life style”, i.e. a change in consumer behaviors. Frenzel Baudisch (2006b) explains this change as he shows that aggregate consumer behavior since the 1970s is less motivated by product functionalities and more by social comparison processes: The ‘oversupply’ of product varieties at decreasing prices is driving demand beyond the functional requirements of consumers. Figure 5 shows the strong and sustained increase in product variety since the 1970s, which is proxied by trademark registrations in the U.S. footwear market. Frenzel Baudisch (2006b) statistically explains the increase in the income elasticity in U.S. footwear consumption (figure 2) by this increase in product innovation (figure 5) and the decrease in relative shoe prices (figure 3).

Figure 5: Trademark registrations in the U.S. footwear market, 1900-2003 (United States Patent and Trademark Office, 2004)



As the market has been driven by simultaneous innovation and price competition, but U.S. production declines in this growing market, we presume that the U.S. footwear production was not able to produce at low prices *and* to be innovative *at the same time*. Freeman and Kleiner (1998, p. 27) show that U.S. footwear manufacturers were only able to survive the competitive pressure from imports by concentrating "on high-quality niche production, producing many new styles" of shoes. They underline that economic success in the U.S. footwear market is immediately linked to a firm's ability to produce

innovative footwear at competitive prices, which in turn they link to its internal organization and payment system. In this sense, the described importance of product innovation for consumption growth in the U.S. footwear market since the 1970s translated into the organizational structure of producers.

So, paradoxically, in order to survive competitive price pressure from imports, U.S. footwear producers had to change to *less* cost-efficient, but more flexible and innovation-friendly production organizations and compensation systems (Freeman et al., 1998). Concretely, all surviving U.S. footwear producers in the year 1994 had changed from piece-rate compensation systems for employees to time-rate compensation systems, which are less cost-efficient per product. Nevertheless, time-rate compensation is better suited for producing small batch sizes as product series change rapidly due to continuous product innovation. Piece-rate compensation actually creates diseconomies of learning when batch sizes are small, because of the unproductive early learning phases of the workers. Continued product innovations make piece-rate compensation less cost-efficient. In other words, production based on piece-rate compensation of workers is more cost efficient with large batch sizes, but less suited for innovating firms. Time-rate compensation implies a more flexible, but less cost-efficient production organization, but allowed producers to introduce innovations at a high rate.

In the year 1986 more than three quarters of the U.S. footwear producers were still compensating their workers based on innovation-unfriendly piece-rate systems (U.S. Bureau of Labor Statistics, 1987). This fact indicates that these 75% of U.S. footwear producers were following the strategy to predominantly reduce their costs to compete in the market. The few surviving U.S. footwear producers in 1994 analyzed by Freeman and Kleiner (1998) had deliberately chosen to have the cost disadvantage of time-rate compensation systems in order to have more flexible production systems that are better suited for innovations. The strategy to lower production costs by using piece-rate compensation systems reduced the ability of U.S. producers to innovate. In addition, it is clear that production of labor-intensive goods based in the USA could not compete with production in low wage countries. Chinese footwear production, accounting for over 85% of the U.S. consumption in 2001, has been organized with innovation-friendly time-rate compensation ever since because in this way plant owners can easily employ unskilled labor (Frenkel, 2001).

Given that foreign production can often provide similar quantity, quality, and service as domestic producers, but at lower prices, footwear manufacturers in developed countries have been caught in a squeeze. They are responding in several different ways. In the United States and Europe, an 'If you can't beat them, join them' attitude has evolved among many smaller and mid-sized shoe firms, who feel they can not compete with the low cost of foreign-made goods and thus they are defecting to the ranks of importers. The decision of many larger manufacturers in developed countries, however, is no longer whether to engage in foreign production, but how to organize and manage it. These firms supply intermediate inputs (cut leather, soles, thread, buttons, etc.) to extensive networks of offshore suppliers, typically located in neighboring countries with reciprocal trade agreements that allow goods assembled offshore to be re-imported with a tariff charged only on the value added by foreign labor. This kind of international subcontracting system exists in every region of the world (Cheng, 1996; 2001).

A significant countertrend is emerging among established footwear manufacturers, however, who are de-emphasizing their production activities in favor of building up the marketing side of their operations by capitalizing on both brand names and retail outlets (Donaghu et al., 1990; Barff & Austen, 1993; Frenkel, 2001). The strengthening of brand names has led to a new focus on ‘concept stores’ that typically feature all the products offered by manufacturers and marketers, such as Nike, Adidas, Puma, Timberland, Geox, but also Levi Strauss, Disney, and Warner Bros. These stores provide a direct link between manufacturers and consumers, bypassing the traditional role of retailers. Thus, a de-verticalization of production co-exists with a re-verticalization of brands and stores.

To sum up, since the 1970s, the competitive pressure in U.S. footwear market has led to important transformations in terms of production processes alongside permanent (and increasingly accelerated) product innovation (Hadjimichael, 1990; Donaghu et al., 1990; Barff et al., 1993; Frenkel, 2001). Moreover, this innovative pressure affected the industrial organization of the footwear sector throughout the entire sectoral chain of production. Several authors have analyzed the complex and globalized value chains of the footwear industry (Donaghu et al., 1990; Barff et al., 1993; Korzeniewicz, 1994; Frenkel, 2001).

4. The global, modular, buyer-driven value chain since the 1980s

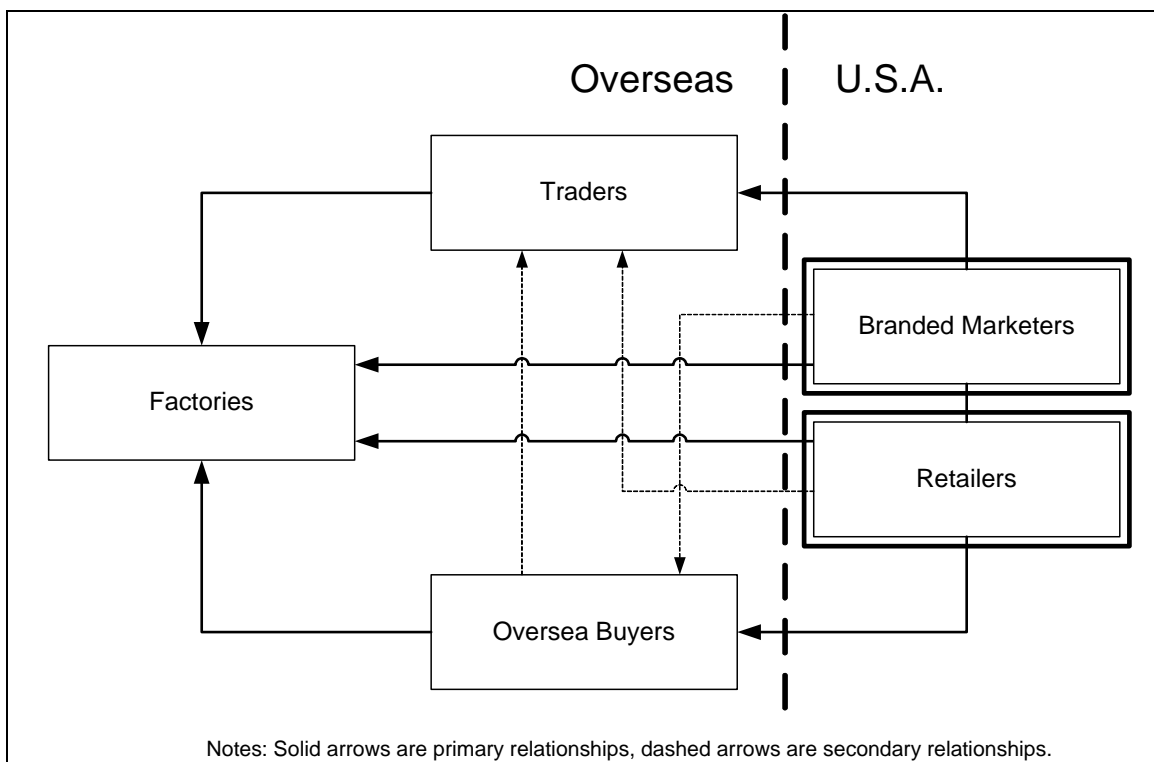
The U.S. footwear market was characterized by a relatively homogeneous product quality at the beginning of the 20th century as the USMC dominated it. Once the machinery monopoly was broken by court rulings in 1953, other nations began to copy the relatively simple production mechanisms. And once the retailing-manufacturing link was opened, retailers began to search the country – and the globe – for cheap manufactures. While many conflicting explanations have been offered for the developments, which occurred in the succeeding decades, the record of facts is strikingly clear. Imported shoes trickled in during the 1950s and by 1961 accounted for only 6% of the number and 2.6% of the value of the U.S. market. But the trend by the late 1960s was so steep that by 1971 imports made up one third of all shoe sales in the USA, and by 1981, imports accounted more than 51% of all sales, in 1991 more than 85%. By 2001, more than 98% of all sold shoes are imported. During these years of decline of the U.S. footwear industry, the market was expanding fast. Retailing margins were increasing, and the big U.S. branded marketers emerged.

Today, economic activity in the footwear industry is not only international in scope, it is also global in organization (Donaghu et al., 1990; Korzeniewicz, 1992; Barff et al., 1993; Weisskoff, 1994; Korzeniewicz, 1994; Rabellotti, 1995; Cheng, 1996; Frenkel, 2001; Cheng, 2001; Schmél, 2002; Vale & Caldeira, 2004). ‘Internationalization’ refers to the geographic spread of economic activities across national boundaries. As such, it is not a new phenomenon; indeed, it has been a prominent feature of the world economy since at least the 17th Century when colonial empires began to carve up the globe in search of raw materials and new markets for their manufactured exports. ‘Globalization’ is much more recent than internationalization because it implies the functional integration and coordination of internationally dispersed activities.

Industrial and commercial capital have promoted globalization by establishing a ‘buyer-driven’ value chain for the U.S. footwear market. The U.S. footwear industry must be

called a buyer-driven commodity chain, because global buyers, i.e., large retailers, branded marketers, and branded manufacturers play the pivotal roles in setting up decentralized production networks in a variety of exporting countries, typically located in the East Asia. This pattern of trade-led industrialization has also become common in other labor-intensive, consumer goods industries such as garments, toys, housewares, consumer electronics, and a variety of handicrafts. Production is generally carried out by tiered networks of Third World contractors that make finished goods to the specifications of foreign buyers. Global footwear value chain is characterized by highly competitive, locally owned, and globally dispersed production systems, sometimes co-organized by local traders and other buyers (Cheng, 1996; 2001). Profitability is greatest in the relatively concentrated in the retailing and branding process that is characterized by high barriers to the entry of new firms.

Figure 6: Modular value chain for the U.S. footwear market since the 1980s



Profits in this buyer-driven chain are derived not from scale, volume, and technological advances as in producer-driven chains, but rather from unique combinations of high-value research, design, sales, marketing and financial services that allow the retailers, branded marketers and branded manufacturers to act as strategic brokers in linking overseas factories with evolving product niches in the main consumer markets. Thus, whereas producer-driven commodity chains are controlled by industrial firms at the point of production, the main leverage in buyer-driven chains is exercised by retailers and marketers through their ability to shape mass consumption via strong brand names and their reliance on global sourcing strategies to meet this demand. These lead firms are frame with thick lines in figure 6.

In the footwear value chain for the U.S. market, entry barriers are low for most tanning factories, although progressively higher as one moves upstream to shoes; brand names and stores are alternative competitive assets firms can use to generate significant economic rents. The lavish advertising budgets and promotional campaigns required to create and sustain global brands, and the sophisticated and costly information technologies employed by today's mega-retailers to develop 'quick response' programs that increase revenues and lower risks by getting suppliers to manage inventory, illustrate recent techniques that have allowed retailers and marketers to displace traditional manufacturers as the leaders in the U.S. footwear industry and later in other consumer goods industries.

The value chain for the athletic footwear submarket in the U.S.A. is particularly well analyzed (e.g. Donaghu et al., 1990; Barff et al., 1993; Korzeniewicz, 1994; Frenkel, 2001), possibly because it has been the submarket that grew most during the emergence of the modular value chain for the U.S. footwear market. Nevertheless, virtually all shoes Americans buy today are procured by a buyer-driven, global, and modular value chain.

IV. DISCUSSION

The U.S. footwear industry has served as the exemplar cases for two different theories of industrial organization. First, Schumpeter (1939) draws on the organization of the U.S. footwear industry of the 1930s to develop his hypothesis about the positive correlation of innovation activities and market concentration. Second, since the 1980s the U.S. footwear industry is organized in modular and global ways that serves as a exemplar case for the concept of a buyer-driven value chain in the analyses of Gereffi and his colleagues (1994; 2005). The aim of this case study has been to describe the industrial dynamics in the U.S. footwear market from being Schumpeter's exemplar case to being the exemplar case for buyer-driven global value chain. This section discusses this transition in terms of the theoretical proposition elaborated above.

1. The U.S.M.C is a Schumpeterian exemplar

The United Shoe Machinery Company of the 1930s served as an exemplar case for Schumpeter to develop his famous hypothesis. The development of the U.S.M.C. since its establishment in 1899 sketches out Schumpeter's theoretical argument that leads to the formulation of his hypothesis. Founded as a dominant firm in the U.S. footwear market, the U.S.M.C. establishes a highly efficient organization for research and development to increase its innovativeness and, thereby, establishes its dominant market position. By reinvesting its oligopoly rents from the U.S. market into R&D processes the U.S.M.C. was able to expand internationally. By the 1930s, the U.S.M.C. dominates the global footwear production. As the machinery is leased to the actual producers, we argue that the U.S.M.C. virtually integrates the global footwear production in the 1930s: the U.S.M.C. is the lead firm in this producer-driven value chain for the global footwear market. At that time, the distribution and retailing of footwear in the U.S.A. are not integrated into the lead firm, i.e., excluded from the core of the value chain. Nevertheless, retailing and distribution concentrate between the 1920s and the 1960s. The international expansion of the U.S.M.C. is by and large a technology transfer to the actual shoe producers who are leasing the machinery (Miranda, 2004). Hence, the U.S.M.C. develops

the capabilities of its international producer base, but sustains competition between the shoemakers as they do not get price reductions due to larger production sizes. The driver of the transformation of the value chain in the 1970s has not been the increase in the capabilities of the actual producers, as the U.S.M.C.'s technology transfer started in the 1910s.

2. *Industrial dynamics and functional satiation*

The case study has described the historical development of the U.S. footwear industry from being a producer-driven to being a buyer-driven value chain. Our theoretical proposition explains this transition as an endogenous process of market development. It has to be pointed out that the law suit breaking the U.S.M.C.'s monopoly is probably essential to the start of this transformation of the industrial structure. As an event cannot drive a transformation process alone, the law suit is not the driving force behind the observed industrial dynamics. Between 1930 and the 1960s the U.S.M.C.'s monopoly is characterized by increasing relative shoe prices, relatively few trademark registrations and relative low market growth with respect to the growth of overall personal income, cf. figures 2, 3, and 5. Market growth accelerates since the 1970s with the falling of prices and the acceleration of trademark registrations and the growth of product variety (Frenzel Baudisch, 2006b), cf. figure 2, 3, and 5. The separation of manufacturing and product innovation is driven by the internationalization of the value chain, cf. figure 4, as production is outsourced to low-wage countries. This development accounts for the overall price declines since the 1970s. Freeman and Kleiner (1998) show that U.S. producers cannot produce ever new product variety, thereby, reduce batch sizes, and *simultaneously* reduce costs in this labor-intensive industry. The increasing importance of innovation and price competition in parallel drives the separation of product innovation and manufacturing, i.e., the industrial dynamics that lead to the establishment of the buyer-driven value chain for the U.S. footwear market. We draw on Adner and Levinthal's (2001) model of market growth beyond functional satiation driven by variety oversupply in order to argue that price and innovation competition become more important at the same time, as the market becomes functionally satiated.

3. *The U.S. footwear industry as a buyer-driven value chain*

The global value chain of the U.S. footwear industry is particularly well researched (Hadjimichael, 1990; Donaghu et al., 1990; Korzeniewicz, 1992; Barff et al., 1993; Korzeniewicz, 1994; Cheng, 1996; Frenkel, 2001). It serves Gereffi and his colleagues as an exemplar case for a buyer-driven value chain (cf. Gereffi et al., 1994; 1999; 2005). The footwear industry is certainly one of the first industries to become truly globalized in its sourcing network and procurement system. This is probably because shoe production is highly labor-intensive and because the product is relatively simple in terms of technology, which makes global outsourcing easy and highly profitable. The outsourcing of production to low-wage countries accounts for the decrease in relative prices since the 1970s.

Since the 1970s the U.S. footwear market grows due to the acceleration of the growth of product variety, cf. figure 5. As demand for innovations is necessarily uncertain, the increasing importance of product innovation for the growth of firms increases the demand

uncertainty. Functional satiation effects cause the decrease of the consumers' marginal utility for innovations and, thereby, increase the uncertainty of demand. Since 1970 the U.S. footwear market becomes increasingly competitive in terms of product innovation *and at the same time* product prices (Frenzel Baudisch, 2006b). Frenzel Baudisch (2006b) has identified this as a market regime of variety oversupply beyond functional satiation. The global and modular organization of the U.S. footwear industry as a buyer-driven value chain copes with this simultaneous increase in innovation and price competition.

More user-orientation in the development of new products and in the organization of firms decreases the innovation-driven uncertainty of demand (von Hippel, 2005, ch.8). Von Hippel's (2005, pp.107) can be used to explain the shifting focus of lead firms on marketing, product development, and distribution, i.e., user-orientation, because the U.S. footwear demand becomes more uncertain and innovation-driven since the 1970s. Secondly, in order to increase their re-agility towards demand uncertainty firms have to reduce the lead times of production. In order to reduce lead times in a value chain firms have to optimize the organization of the sourcing, transport, and communication in the whole procurement network (cf. Fisher et al., 1996; Randall et al., 2003; O'Marah, 2005). The growing demand uncertainty increases the need for fast reagility towards unforeseeable demand shifts. Hence, the rising importance of product innovation for the growth of demand, increases the importance for firms to manage their value chain tightly and thoroughly. Functional satiation effects increase the uncertainty of demand with respect to product functionality and, thereby, foster a firm's need to optimize its value chain.

As the marginal utility for new product functionalities decreases, the ability to introduce ever new product varieties is less and less a function of the firm's ability to innovate within the production processes. The importance of process innovations decreases because of ever smaller batch sizes and the decreasing importance of the actual production processes for the development of new products imply that price reductions of end products are rather achieved by the off-shoring of production processes to low-wage countries.

4. Athletic footwear submarket

While the whole U.S. footwear industry is taken as an exemplar case for a buyer-driven value chain, the athletic footwear industry has attracted the most attention in this stream of research (Donaghu et al., 1990; Barff et al., 1993; Korzeniewicz, 1994; Frenkel, 2001). The U.S. athletic footwear industry grew particularly fast in the 1980s and 1990s. Large firms in this market as Nike, for example, have been "born global" as they have been founded as the lead firm of their buyer-driven value chains, never possessing any production capacities. The U.S. athletic industry pioneered the organizational concept of a buyer-driven value chain in the 1970s, which might be the explanation for the research attention this sub-industry has received. The question why it was the athletic footwear industry be among the first to organized in a modular value chain is not answered. We can only take an educated guess here pointing to the extremely high labor intensity in this sub-market due to complex product designs with complicated sewing patterns, which results in probably the highest profitability of outsourcing in the whole shoe market. The growth of the U.S. athletic market is also driven by a change in consumer behavior, i.e.,

the increase of sport activities of U.S. consumers in the early 1980s, sometimes called the ‘fitness fad’ (e.g. Hadjimichael, 1990 in the executive summary).

5. *History matters*

In the historical development of the U.S. footwear industry and of particular firms historical developments and path dependencies are of importance. For example, the athletic shoe firm Nike has been born ‘global’, i.e. Nike has never possessed any production capacities since its foundation in 1964 (Donaghu et al., 1990; Willigan, 1992; Katz, 1994). From the beginning on Nike has had a global and modular organization developing its products in the U.S. and outsourcing production to low-wage countries in East Asia. Opposed to Nike, Adidas has been producing in Germany since the 1920s and starts setting up factories in East Asia in only in the 1980s, because it suffers severely from the innovation and price competition. Only after Adidas has set up a global and modular value chain analysis it is able to compete with Nike in terms of product innovation and prices (Frankfurter Allgemeine Zeitung, 2005). Comparing the developments of Nike and Adidas hints at organizational inertia and historical patterns with these companies.

The first major off-shoring locations of the U.S. footwear industry in the 1960s and 1970s have been Japan, and later South Korea and Taiwan (e.g. Weisskoff, 1994). As these early producers were gradually upgrading their industries towards more complex production processes, the local wages increased. This made the U.S. lead firms of the value chains for the apparel and footwear market re-allocate production sites to countries with lower wage levels, namely Indonesia, Vietnam, and mainly China (Gereffi, 1999; Frenkel, 2001). The earlier producers in South Korea and Taiwan transformed themselves into intermediaries or traders for the U.S.-based lead firm that were distributing, marketing, and designing the products (Cheng, 1996; 2001). The development of the global value chain for the U.S. footwear market is shaped by the historical development of firms and their locations. In short, history matters for the formation of the modular and global value chain for the U.S. footwear market.

V. CONCLUSIONS

The U.S. footwear industry in the 1930s has served as an exemplar case of industrial evolution for Schumpeter (1939, ch. VI, VII, and XIV) to develop his famous hypothesis about the positive correlation of innovative activity and firm size. At the start of the industry the provision of production technology and production has been the core node of this industry’s value chain in accordance with the Schumpeter hypothesis. On the other hand, the U.S. footwear industry in the 1980s and 1990s serves Gereffi and his coauthors (1994; 2005) to develop their notion of buyer-driven value chains for their industrial analyses. Finally, Frenzel Baudisch (2006b) shows that U.S. footwear consumption since the 1970s is increasingly driven by social comparison processes. According to the theoretical proposition about the influence of consumer motivations on the nature of competition in the U.S. footwear industry, the core node of the global footwear chain shifts to marketing, product design, and distribution, as the market becomes driven by variety oversupply in the 1970s.

Drawing on Adner and Levinthal's (2001) model of functional satiation and variety oversupply and on Frenzel Baudisch's (2006b) theoretical account about consumer motivations to 'over-demand' product varieties beyond their functional requirements we propose an explanation for the transformation of the U.S. footwear industry as an endogenous process. We argue that functional satiation effects U.S. demand for footwear and increases the demand uncertainty for suppliers introducing new functionalities. The basic argument is that this increase in demand uncertainty leads to the transformation of the U.S. footwear industry, from being Schumpeter's exemplar case to being the exemplar case for a buyer-driven value chain in the works of Gereffi and his coauthors.

When the functional requirements of consumers are met, their marginal utility for further product varieties decreases. When a market gets functionally satiated, this lead to the simultaneous competition with respect to innovations and prices, as producer cannot decrease price competition by introducing new product varieties any more. The organizational separation of the processes of product innovation and manufacturing into different firms provide specialization and greater economies than when integrating both processes in firm. The separation of product innovation from manufacturing is made possible as the firm's competitive advantage is built on its capacities to organize its value chain, and not by its capacity to actually produce goods. The organization of the value chain aims at the reduction of lead times in order to increase the lead firm's ability to react to unforeseen demand shifts, which are independent from the product functionalities, like in herding behaviors or fashion cycles.

Functional satiation occurs when the functional requirements of consumers with respect to particular product characteristics are met. This leads to simultaneous price and innovation competition and increases the demand uncertainty for suppliers with respect to product functionalities. In such a competitive market situation the firms' capacities to organizes the provision, sourcing and production of goods becomes more important than their technological or productive capacities. In this sense, we have argued on the basis of the transition of the U.S. footwear market that functional demand satiation leads to the separation of product innovation and manufacturing and the modular organization of an industry's value chain. We theoretically integrate demand effects to explain industry dynamics, i.e., to explain the endogenous process of industry organization from a highly integrated and concentrated industry that is an exemplar case for the Schumpeter hypothesis to being a buyer-driven global value chain.

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