Differentiation in Markets: A Study of Social Structure and Politics

by

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Dedication

For Katie, whose love defines my Path.

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Abstract

In the last half century, the American consuming public has fragmented from relatively concentrated tastes such as a meat and potatoes diet and Walter Cronkite's CBS Evening News into an abundance of varied and often polarized tastes such as vegan vs. caveman diets and Fox News vs. MSNBC. This growth in the diversity and division of consumer tastes over time is significant because tastes influence the formation of social networks and groups, the structure and regulation of markets, and the environmental impacts of consumption. However, our understanding of the trends in market differentiation and their causes is underdeveloped. Usual explanations emphasize technological improvements but producers can use these technologies to fill retail shelves with either diverse or redundant products, and there is much variation among technologically-similar markets. Instead, I theorize how market structures and political pressures combine to persistently extend differentiation. In three sections, I unpack these dynamics by charting trajectories in market diversity, identifying internal market mechanisms, and analyzing how external social groups affect market differentiation. The last section examines the case of the environmental movement and natural products in order to better understand the consequences of entanglement between movements and markets. This dissertation contributes to our understanding of differentiation in consumer society, as well as to broad literatures on market organization, innovation, social movements in markets, and cultural systems.

Chapter 1: Introduction: Understanding Market Differentiation

> Now that the monoculture is, you know, wounded, picking a universal sound of the summer isn't much more than a fool's task: Everyone has a different life to soundtrack. So maybe it takes something of a Frankenstein approach to even try to find unanimity.
> – Jon Caramanica. *NYT*. August 3, 2014: AR18.

The last three decades have been tumultuous in the world of consumer packaged goods. In these markets for everyday products such as breakfast cereal, soft drinks, pet foods, and bathroom cleaners, rapidly evolving tastes have battered household names that are anchored to unfavorable brand "heritages," while niche producers sprout like mushrooms after rain (Athavaley, 2015; Strom, 2014). Mass marketers are left scrambling to reposition their brands, invent new ones, or more often pay hefty sums to acquire promising newcomers. The fallout of consumer fragmentation for social life is equally prominent. A recent lifestyle piece in the *New York Times* entitled, "The Picky Eater Who Came to Dinner," summarizes the current predicament of dinner hosts:

> It's becoming harder for Americans to break bread together. Our appetites are stratified by an ever-widening array of restrictions: gluten-free, vegan, sugar free, low fat, low sodium, no carb, no dairy, soyless, meatless, wheatless, macrobiotic, probiotic, antioxidant, sustainable, local and raw. Though medical conditions like celiac disease and severe allergies have long relegated a small percentage of diners to rigid diets, more and more eaters outside this group appear to be experimenting with self-imposed limits, taking a do-it-yourself, pick-and-choose approach to restricting what they consume.

The multiplication of differentiated tastes threatens the cohesive ritual of communal eating. As the article goes on to note, there is then a further distinction between the various niche eaters and omnivores or often meat-focused eaters who feel stigmatized by the new diets.

As the opening paragraph suggests, the diversity and fragmentation of consumption in societies have much to tell us about social and economic organization. Recent developments point to growth in market differentiation. Marketers draw on consumer differences to build new market niches and in turn provide the cultural materials to consumers to extend and develop these differences. Through these reciprocal influences, markets develop into a differentiated ecology of distinct companies and brands selling to heterogeneous groups of consumers (Cohen, 2003; Rosa, Porac, Runser-Spanjol, & Saxon, 1999; White, 2002).

In turn, these dynamics have significant implications for social integration, group formation and stratification, and the organization and regulation of markets. Individuals and groups construct their identities in part through their use of material objects, and so consumer goods become building blocks in the construction of social boundaries (Bourdieu, 1984; Hebdige, 1979; Jenkins, 1996; Lamont & Fournier, 1992; Miller, 2010). The diversity of consumption thus affects social differentiation, connecting to classic ideas such as Durkheim's organic solidarity, Marx's class structures, and Weber's status groups (Fischer & Mattson, 2009). Social divisions among consumers also affect producers by making it more difficult to appeal to broad swaths of the market, and by instead rewarding specialized producers with commitments to distinct consumer groups (Carroll & Swaminathan, 2000; Hannan, 2010; Phillips, Turco, & Zuckerman, 2013). At a more political level, the ties between marketers and consumers relate to questions about the ability of organized consumer groups to gain expression in markets or to reshape them according to their values (Chasin, 2000; Cohen, 2003; Szasz, 2007).

These issues are especially urgent because of dramatic changes in consumer markets in the last half century. During this time period, the American consuming public has fragmented from relatively concentrated tastes such as a meat and potatoes diet and Walter Cronkite's CBS

Evening News into an abundance of varied and often polarized tastes such as vegan vs. caveman diets and Fox News vs. MSNBC. Given the implications of consumption for key social processes, this transition away from a mass consuming public with a shared material culture towards a set of disparate and divided consumer blocs or lifestyles is of considerable sociological significance.

Despite the dramatic changes and their social implications, we know relatively little about the typical patterns of differentiation in consumer markets and their causes (Fischer & Mattson, 2009). This dissertation addresses several questions in this area: What are the trends in the diversity of products and producers over time — is diversity increasing, remaining steady, or cycling up and down? Does product diversity require diversity in producers or are heterogeneous customers willing to buy from the same producers? Moving to causal processes, to what extent do dynamics internal to markets propel market differentiation? How do pressures by social movements affect these outcomes?

In the next three sections, I present my approach for answering these questions. First, I mine past research in order to develop the theoretical framework that orients this project. Second, I unpack this framework through an illustrative analysis of green marketing. Third, I summarize my arguments and outline the body of my dissertation.

Theoretical Framework

My research questions are grounded in sociological and organizational research on markets, organizations, consumer behavior, and social movements. These literatures identify several trends that affect market differentiation in the postwar era, encouraging it in some directions and restricting it in others. For the purposes of this dissertation, market differentiation

refers to the variety of market positions (proliferation) and the strength of the boundaries between these positions (fragmentation).

Market Subdivision

Marketing practices have evolved towards increasingly narrow targeting of customers (Turow, 1997). Segmentation practices took off in the 1960s, with many marketers beginning to segment their markets beyond differences in purchasing power into large social groups defined by age, gender, and ethnicity (Cohen, 2003). Since the 1980s, marketers have increasingly subdivided these segments into smaller niche markets. In 1991, a survey of Fortune 1000 firms found that "almost all these firms have, in some way, started to serve smaller segments" (Dalgic & Leeuw, 2006). These changes are also evident in the development of a popular U.S. marketing guide that divided the country into 40 clusters or lifestyles in 1989, 62 in 1994, and 67 by 2005 (Fischer & Mattson, 2009; Weiss, 1988, 1994). As a further illustration, Figure 1 charts the percentage of marketing articles in JSTOR that reference market segments.[1] The discussion of market segmentation explodes in the 1960s and remains important thereafter, although declining perhaps as marketers turned to even more focused messaging such as individualized targeting.

[1] For the numerator, I used the search query ("market segment" or "market segments" or "market segmentation" or "market segmenting") in the full text of marketing/advertising journals, articles only. For the denominator, I replaced the search query with "market" or "markets" or "marketing."

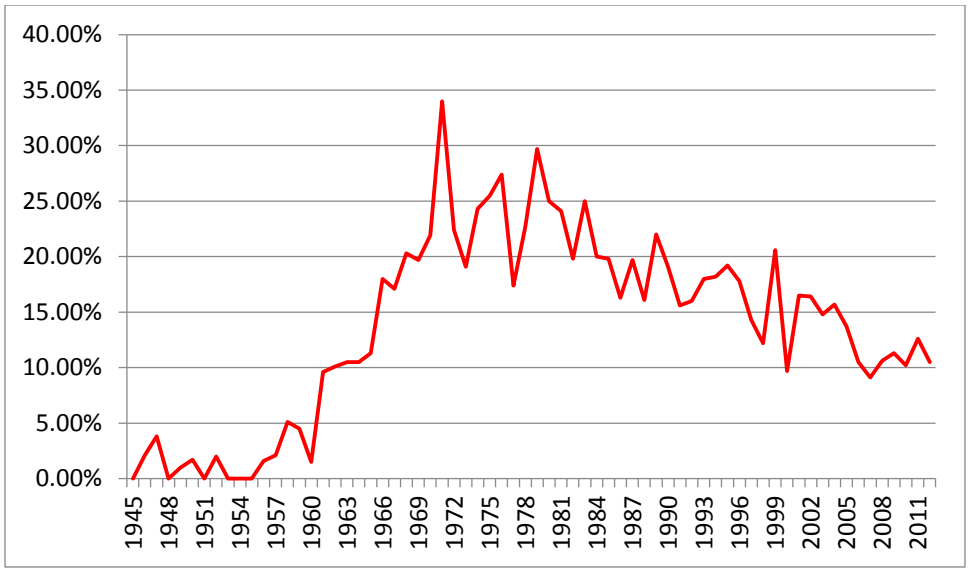


Figure 1 - Percentage of Marketing Articles that Discuss Market Segmentation

Behind this impulse to subdivide markets are a mix of technological capabilities, economic imperatives, and identity politics (Cohen, 2003, p. 309). Technological innovations include the progressive development of new data sources from marketing surveys and focus groups, geographic databases, point-of-purchase data collected through scanners, and internet activity data, as well as the theoretical frameworks to construct and mobilize all of these data to better understand and target smaller groups of customers (Turow, 1997). Manufacturing and distribution capabilities have also improved over time. Economic incentives encourage market subdivision because producers can more readily limit competition in niche markets, which helps organizations to survive and prosper (Carroll, 1985; Dobrev & Kim, 2006; Lancaster, 1990; Porter, 1980; Swaminathan, 1995; Swaminathan & Delacroix, 1991; White, 2002). Identity politics have entered into consumer markets as marketers have sought to profit from the greater recognition and inclusion of disadvantaged social groups in society, such as women, racial minorities, the elderly, and gay people (Branchik, 2006; Cohen, 2003).

However, this tidy account opens up additional questions about the organization and politics of market differentiation. How much actual market diversity is there given the proclivity of powerful companies to control competition and use product proliferation to crowd out rivals? How do producers reorganize to manage market subdivision? How do individuals develop their identities vis-à-vis a wider array of consumer goods? How do social groups react to the partial incorporation of their ideas in markets? Shaped by all these dynamics, does market differentiation steadily increase or is there a more uneven pattern marked by considerable abandonment of market positions? Further, how much of differentiation derives from forces inside of markets such as competition to find new niches and how much is due to social changes outside of markets such as the development of new identities through social movements? These questions involve additional lines of research.

Organizing for Differentiation

In the midst of the destabilization of mass markets, organizations have been busy decentralizing into flexible and open networks of production (DiMaggio, 2001; Peterson & Berger, 1996; Piore & Sabel, 1984; Powell, 1990). These changes enable producers to innovate for rapidly evolving customer demands because decentralization allows organizations to better connect with diverse ideas and tastes (Christensen, 1997; Dowd, 2004; Lopes, 1992). In the other direction, customer distaste for producers that span niches, as in restaurants that offer both Mexican and Chinese food, hinders the ability of companies to diversify their products (Hannan, 2010; Hsu, Koçak, & Hannan, 2009; Zuckerman, 1999).[2] Disaggregating a company into

[2] It is not clear whether these pressures against producer diversification have increased or otherwise changed over time, except in certain empirical areas such as the decline of the conglomerate business form in the 1980s (Davis, Diekmann, & Tinsley, 1994; Zuckerman, 2000).

multiple distinct identities may help reduce this penalty against generalists, but this possibility has yet to be investigated.

Consuming amidst Differentiation

Market differentiation is equally problematic from the perspective of consumers. Following Pierre Bourdieu, social structure patterns consumption, as each social group uses its consumption to express and develop its own identity in distinction to other groups (Bourdieu, 1984). This prominent model elevates the problem of change in consumer markets, which Bourdieu explains through a homology between producers and consumers:

> Thus the tastes actually realized depend on the state of the system of goods offered; every change in the system of goods induces a change in tastes. But conversely, every change in tastes resulting from a transformation of the conditions of existence and of the corresponding dispositions will tend to induce, directly or indirectly, a transformation of the field of production, by favoring the success, within the struggle constituting the field, of the producers best able to produce the needs corresponding to the new dispositions (Bourdieu, 1984, p. 231)

Bourdieu's model posits a tight coupling between producers and consumers. If differentiation in products and producers is expanding, then there should be a corresponding differentiation among consumers. An alternative possibility that has greater currency in cultural sociology is that privileged consumers increasingly pursue status through consuming a wide range of products or cultural omnivorism (Bryson, 1996; Peterson & Kern, 1996). However, scholars have yet to relate the rise of cultural omnivores to changes in market differentiation. There are also questions about whether provincial divisions in consumer identities are still more prevalent than the omnivore-univore divide (Goldberg, 2011). Attention to changes in market diversity could illuminate this debate.

Fraught Movement-Market Relations

Recent research on social movements points to the growing importance of markets as targets and sites of contention (Davis, Morrill, Rao, & Soule, 2008; King & Pearce, 2010; Schneiberg & Lounsbury, 2008; Soule, 2009). Much of this literature theorizes how activists encourage innovation and heterogeneity in organizations and markets (Fligstein & McAdam, 2012; King & Pearce, 2010; McAdam & Scott, 2005; Rao, 2009; Rao, Morrill, & Zald, 2000; Schneiberg, 2002; Swaminathan & Wade, 2001). In this view, social movements provide supportive contexts for new market activities such as favorable regulations and loyal customer demand, and they also weaken the opposition of incumbents tied to the status quo (Lounsbury, Ventresca, & Hirsch, 2003; Schneiberg, King, & Smith, 2008; Vasi, 2011b). In some cases, activists even take on entrepreneurial roles themselves or inadvertently supply entrepreneurial opportunities to others (Hiatt, Sine, & Tolbert; Rao, Monin, & Durand, 2003; Schurman & Munro, 2010; Weber, Heinze, & DeSoucey, 2008). These arguments all suggest that social movements support market differentiation by generating new market niches, consistent with the story of symbiotic relations between identity politics and market segmentation.

However, following a more classic understanding of social movements, activists can also restrict markets. This understanding corresponds to Polanyi's famous theory of a "double movement" in which social forces arise to check market expansions (1944, p. 130). For example, consumer activists have opposed the proliferation of consumer goods since at least the early 20th century (Rao, 1998), while movements against economic globalization have become prominent in recent time periods (Evans & Kay, 2008). Further, movement effects often proceed in an indirect fashion, which allows local decision-makers such as marketers to select and reinterpret activists' ideas (Haveman, Rao, & Paruchuri, 2007; Tilly, 1998). The potential disconnect between marketers and activists sets up conflicts over the development of movement ideas in

markets (Chasin, 2000; Szasz, 2007). There may not be a felicitous alignment of interests around greater inclusion of social groups in markets, and so the relation between social movements and market differentiation requires greater investigation.

Synthesis

Drawing together these varied streams of research, market differentiation in consumer societies reflects a combination of market factors and external developments. Mechanisms that are related to markets include the pursuit of less competitive niches and decentralization. External pressures encompass general developments in consumer tastes, as well as bursts of organized efforts to reshape markets by consumer movements. Both internal and external forces can expand market variety or restrict and destabilize opportunities for some producers and products. For example, the political contest between conservative Christian groups and gay activists over gay marketing illustrates how external pressures can operate in opposite directions simultaneously (Branchik, 2006; Chasin, 2000). In the next section, I analyze the history of green marketing, which is the marketing of products based on their environmental benefits, in order to unpack and illustrate this theoretical framework. This section also serves as an introduction to the more sustained analyses of contemporary green marketing that I develop in the third chapter.

Illustration - Environmentalism Goes to Market

Green marketing is a booming area of consumer markets but the misalignment between the timelines of the environmental movement and green products confounds simple explanations. Following the perspective of external causation, wherein markets closely follow societal developments, we would expect that the expansion of green marketing would be a straightforward response to the rise of environmentalism in the public. However, the story is not

so simple. Using consensus reference points among historians, the modern environmental movement started in the 1960s, launched by the 1962 publication of Rachel Carson's *Silent Spring*, and intensified in the 1970s, beginning with the first Earth Day in 1970 (Gottlieb, 2005; Hays, 1987; R. C. Mitchell, Mertig, & Dunlap, 1992; Sale, 1993). The movement churned along fairly steadily thereafter, often fluctuating inversely with the environmental performance of presidents (R. C. Mitchell et al., 1992). Conversely, green marketing did not substantially develop until the late 1980s and 1990s, and it then grew sharply in the 2000s (Berry & Rondinelli, 1998; Fuller, 1999; Hoffman, 1999; Menon & Menon, 1997; Ottman, 2011; Seireeni, 2008; T. M. Smith, 1998). Figure 2 charts the tail-end of this trajectory in the rise of new consumer packaged goods that carry claims to be better for the environment than conventional products, such as being recyclable or pesticide free. The expansion of green marketing lagged behind the development of environmental concerns by twenty or thirty years, and then expanded quite rapidly during a period that is not otherwise known for its robust environmentalism.

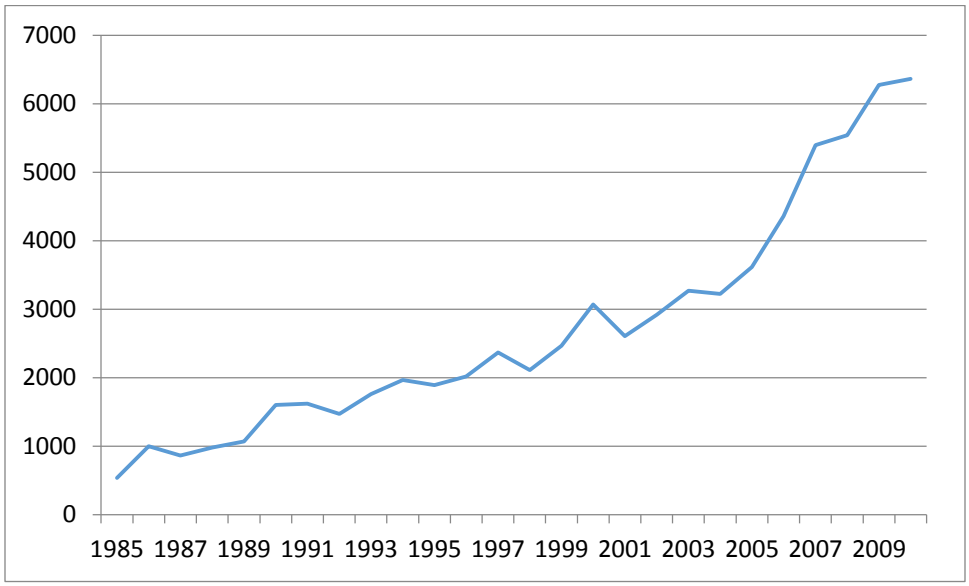


Figure 2 - New Green Products in U.S. Consumer Packaged Goods Markets, 1985-2010

The delayed timing could be due to a cohort effect, where the growth of green marketing coincides with the maturation of environmentalists into wealthy consumers and responsible managers. The problems with this account are that the youth market was quite important in the 1960s and '70s, and marketers were actively incorporating various other youthful and critical messages at that time (Frank, 1997). If the generic associations between environmentalism, youth, and dissent do not provide a strong causal argument, what does explain the curious timing of green marketing — its delayed start and unexpected late acceleration? A technological explanation is that it took time for companies to develop the innovations necessary to convert environmental ideas into products. This narrative is common in discussions of why the economy is not yet more environmentally progressive. However, the environmental movement actually fostered an alternative economy with green products from its beginning but mainstream companies largely chose to ignore these innovations.[3] The early alternative green economy was anchored in three institutions. One was the rural communes and urban experiments in collective living like the Diggers in San Francisco. These groups then inspired Stewart Brand and collaborators to create the Whole Earth Catalog, which provided consumers with a list of resources and products to build more ecological lifestyles (Kirk, 2007). Such catalogues promoted "appropriate technology" that achieved both economic and ecological goals, and formed a second institution in the alternative economy. The third institution, which would ultimately be the most significant, was the rise of natural or health foods stores and a small number of early natural brands such as Erewhon and Celestial Seasonings (Belasco, 2007; Dobrow, 2014; Emerich, 2011; Gusfield, 1992). This trend grew out of the environmental movement's concern for health and quality of life (Hays, 1987). Ultimately, these concerns

[3] Some green products began even earlier, such as Dr. Bronner's Magic Soap, started in 1948 (Seireeni, 2008).

would become an established marketing niche with the moniker LOHAS — Lifestyles of Health and Sustainability — but the questions here are how these early experiments with green products ultimately entered the mainstream of the market and why they took so long to do so.

My argument is that internal market dynamics fueled the eventual adoption of green marketing by conventional producers. As alternative green products and businesses grew in prominence, they increasingly attracted attention to the environmental niche (Seireeni, 2008). Starting in the 1980s and 1990s, several green companies achieved substantial size and demonstrated the viability (and threat) of green marketing, with Whole Foods being the most notable example. In turn, business consultants, researchers, and managers increasingly identified environmental performance as a leading source of market growth, innovation, and differentiation (Banerjee, Iyer, & Kashyap, 2003 ; Nidumolu, Prahalad, & Rangaswami, 2009; Ottman, 2011; Unruh & Ettenson, 2010). In 1999, General Mills acquired the eco-firm Small Planet Foods and its Cascadian Farm and Muir Glen brands in order to provide a "strategic growth opportunity for the company," according to the CEO of General Mills.[4] This acquisition helped launch a larger wave of buyouts as mainstream companies took over and consolidated the market for green products (Howard, 2009). The pull of attractive eco-businesses and the push of strategic economic goals and competition led to an escalating trajectory of growth in green marketing.

Turning to the delay in the adoption of green marketing, this outcome reflects shifting relations between environmentalists and large companies. An initial period of business openness to environmental concerns in the early 1970s quickly evaporated due to conflict between the two sides (Diamond, 1970; Hoffman, 2001). Established companies had tentatively attempted to incorporate environmental concerns but environmentalists quickly lambasted such efforts as

[4] Press release entitled, "General Mills Agrees to Purchase Small Planet Foods, a Leading Producer Of Branded Organic Foods," dated 12/15/99, and retrieved through Factiva on 10/21/13.

empty spin or “ecopornography,” which was a term coined by Jerry Mander, a former advertising executive, in the 1960s (Karliner, 1997). Until a popular backlash reversed President Reagan’s attack on environmental regulation in the 1980s, corporate leaders often viewed environmentalists as unreasonable enemies who were eviscerating managerial autonomy and financial performance (Hoffman, 1999; Silk & Vogel, 1976; Vogel, 1989). By the 1990s though, mainstream companies were increasingly interested in the market opportunities of the green niche, and the environmental movement had also evolved to feature many prominent groups that embraced corporations and markets such as the Nature Conservancy, the World Wildlife Fund, and the Environmental Defense Fund (Hoffman, 2009; Hoffman & Bertels, 2010; MacDonald, 2008). The broad trajectory of business engagement with environmental concerns is shown in the evolution of corporate sponsorship for Earth Day from meager and stigmatized in 1970 to robust and largely embraced by 1990 (Rome, 2013). Thus, the external pressures of the environmental movement restricted green marketing by traditional companies in the early time period but later on shifted to become more hospitable. Even in this later period, however, there is still considerable contention over whether the mainstreaming of green marketing has diluted or disfigured environmental ideas and what it means to take an environmental action, which I explore in greater detail in chapter three (T. M. Smith, 1998; Szasz, 2007; Westley & Vredenburg, 1991).

Rather than a simple story of social change and market response, this case study illustrates the complex intertwining of internal market forces and external societal pressures. Beginning in the 1960s, environmentalists developed critical ideas with the potential to reshape markets. Due to the antagonism between activists and business at that time, these ideas then lingered on the dusty shelves of peripheral businesses for a generation. In the late 1980s and

1990s, internal market pressures initiated an expansive trajectory of green marketing and a more ecumenical environmental movement supported this transition, if still contesting it in some places (see chapter three).

Contributions and Next Steps

In a now dated line of research, economists spent considerable energy debating whether the amount of product variety maximizes consumer welfare (Dixit & Stiglitz, 1977; Lancaster, 1979; Scherer, 1979). From a sociological perspective, the more interesting questions relate to why producers and consumers have jointly expanded product variety over time, with what effects on the organization of markets and social groups. What are the trends in product and producer diversity? How do forces within markets propel differentiation? How are external social groups responding to their partial incorporation in markets, and with what consequences for market differentiation?

By investigating these questions, we can gain insights into several areas of sociological interest. First, market differentiation has implications for social identity, group formation, and stratification. Individuals and groups draw on the array of available consumer goods to construct their lifestyles and identities (Bourdieu, 1984; Hebdige, 1979; Jenkins, 1996; Miller, 2010). As the U.S. consumer society fragments into diverse groups that consume distinct sets of products, there may be less chance for cooperation and integration, and greater likelihood of antagonism and isolation. Cultural omnivore theory argues that social divisions are transitioning from opposition among provincial niches to opposition between those with wide versus narrow patterns of consumption. Our understanding of this dynamic, as well as possible future trends in the relation between consumption and status, can benefit from examining changes in the overall diversity of consumer goods.

Second, market differentiation and the incorporation of new social boundaries into markets have significant effects on producers. Considerable research identifies how niches structure organizational opportunities. For example, specialists develop in market peripheries, and category spanners suffer from categorical penalties. This research can also benefit from an understanding of how the variety of positions in markets is changing over time. Do the splintering audiences hinder mass marketers while providing greater openings to specialized firms, or do evolving corporate strategies of decentralization alter these dynamics?

Third, research on social movements and markets (Davis et al., 2008; King & Pearce, 2010; Schneiberg & Lounsbury, 2008; Soule, 2009) can be enriched by studying the entanglement of social movements with consumer markets. In this setting, there is both the potential for movements to regulate and reshape markets, but also for marketers to reinterpret movement values and redefine the public meaning of movements. Investigating the struggle between activists and marketers to control movement ideas in the marketplace should advance our understanding of movement-market dynamics.

There are also practical concerns with the trajectories of proliferation and fragmentation among consumers that motivate this study. Consumer welfare can gain from more tailored and innovative products, but there are also significant questions about the consequences of this enormous product variety for society. There may be social fragmentation from more narrowly segregated lifestyles, marketing and decision-making costs from greater variety, and environmental degradation from resource use, pollution, and waste. A greater understanding of the expansive dynamics underlying consumer markets and the ability of organized consumers to shape these markets will help illuminate these discussions.

The dissertation proceeds in three cumulative steps. In the first part, I introduce a large dataset on consumer packaged goods (CPG) to establish the growth of market differentiation over time and to set up later analyses. This section will identify the typical trajectories in product and producer diversity across CPG markets. In the second part, I analyze these data to develop causal models of the mechanisms internal to markets that encourage the expansion of diversity in markets. Here I consider how market structures contribute to persistent market differentiation. In the third part, I examine how organized consumer groups affect market differentiation through a case study of the environmental movement and natural products. Social movements seek to both expand and restrict particular market offerings. However, in entering the market space, these movements are refracted through the internal market dynamics identified in the second part. Marketers translate movement values into products and brands that activists often oppose. The resulting conflict between activists and marketers over interpreting movement ideas yields further market distinctions. Together, these three empirical chapters document the growth of market differentiation and identify the market and political pressures that help drive differentiation.

Chapter 2: Charting Market Trajectories: Evidence for Increasing Differentiation

In this chapter, I analyze the empirical terrain of relevant temporal changes in U.S. consumer markets. The goal is to get a picture of how market differentiation is developing over time, which will establish the variation that subsequent chapters will seek to explain. This chapter also presents the main data that I use throughout the dissertation. The main finding is that market differentiation is generally increasing over time. Proliferation of product characteristics is especially central to this trend and much of the variation in characteristics is due to market-specific factors. Subsequent chapters focus on explaining growth in product features as a consequence of both internal market dynamics and external political pressures.

Theories of Market Trajectories

What are the typical trajectories in the diversity of producers and products in consumer markets? There are three likely possibilities that have received support in past research: bounded fluctuation, cycles, and progressive growth. All of these models incorporate changes in market composition over time but with different expectations for trends in the stability of individual market entities and in overall market diversity. A bounded fluctuation model predicts continual change in the particular products and companies, even as the total variety of different products and producers in the market at any one time remains relatively constant. A cyclical model expects alternation between periods of low and high diversity, with stability in individual

products and producers during troughs. A progressive growth model implies steady gains to market diversity over time with either turbulence or accumulation in particular market entities. I do not consider a model in which diversity is generally declining since it seems unlikely in the dynamic economy of the last thirty years. Below I explain each model in greater detail.

Bounded Fluctuation Model

The first model predicts stable diversity over time despite considerable turnover in the constituent elements. Lieberson's (2000) research on naming fashions is an exemplar for this perspective. Lieberson theorizes that each parent has a preference for a name's uniqueness, or a taste for popularity, and that the distribution of these tastes is relatively stable over time. He then shows that stability in the concentration of choices can coexist with great instability in the popularity of particular names. For instance, many parents may select a name because it is moderately popular. Their choices then make the name excessively popular and so it subsequently falls into disuse, as parents with this taste level move on to other names with moderate popularity. The result of this subtle model, which involves both positive and negative thresholds (Granovetter, 1978), is that the popularity of particular names is in constant flux, even as the overall concentration of naming choices remains within a certain range. In Lieberson's summary: "The popularity distribution, in effect, has a certain permanent quality in the short run — even though there is an enormous turnover in the names themselves" (2000, p. 158).[1] Various other theories develop bounded fluctuation models by characterizing cultural systems as having

[1] In later work, Lieberson & Lynn analyze the declining concentration of naming choices over time (2003). I focus on Lieberson's original treatment of naming trends but this later paper is still broadly consistent for two reasons: first, much of the decline in concentration occurs prior to the time period under consideration here, especially in the second half of the 19th century. Second, Lieberson & Lynn still emphasize the relative stability of concentration in the midst of rapid turnover in the popularity of particular names (ibid, pp. 266-7). Also of note is their conclusion that the gradual decline in concentration lacks an explanation but that it could be due to rising individualism or to the unintended consequences of preference aggregation (ibid, p. 272).

constrained carrying capacities and being subject to fluctuation in content due to mechanisms such as preferences for novelty (Abrahamson, 1991; Hilgartner & Bosk, 1988; Strang & Macy, 2001). In these theories, cultural systems proceed through a stream of issues, fads, or products, with limited variation in the total number of items in the system at any one time. Generalizing, the bounded fluctuation model predicts that overall diversity in consumer markets should remain relatively constant over time, even as particular products and producers continually change.

Cyclical Model

The model that is most prominent in longitudinal theories of market development is a cyclical one where diversity alternates between high and low periods. Several theories from sociology, organizational theory, economics, and psychology all suggest this general pattern. Resource partitioning theory argues that markets concentrate over time in the most profitable center of the market but that this concentration opens up space for specialized producers to develop niches in the periphery (Carroll, 1985). Institutional models articulate a similar concept of dominant companies structuring markets around their advantages until disruptions from crises, challengers, or overcrowding initiate a new unsettled period of greater diversity in actors and strategies (Fligstein & McAdam, 2012; Leblebici, Salancik, Copay, & King, 1991). Also consistent with these ideas are Schumpeterian theories of innovation wherein markets concentrate around a dominant product design until some major innovation sets off a new wave of exploration (Anderson & Tushman, 1990; Christensen, 1997; Tushman & Anderson, 1986). Lastly, psychological theories of decision-making suggest that while producers may seek to develop new products, these efforts will collapse when the proliferation of choices overwhelms consumers (Iyengar & Lepper, 2000). If this model accurately describes dynamics in consumer markets, we should expect to see multiple swings between periods of low and high diversity,

with steady market composition during low periods due to the enduring dominance of particular companies and product designs.

Progressive Growth Model

A third model theorizes the progressive growth of diversity in markets over time. Unlike the prior two models, theories of progressive growth lack an equilibrium: expansion is perpetual. This characteristic makes this perspective appear bold and disconnected from history, which many theories emphasize, but in fact a pattern of progressive growth may have continuities with longer historical trends in societal development. Theories of post-Fordist or postmodern production and consumption are prominent versions of the progressive growth model that demarcate our current period as discontinuous from the past in its development of ever-increasing levels of market diversity (Harvey, 1990; Piore & Sabel, 1984). These ideas suggest that producers are decentralizing and becoming more flexible to offer an expanding array of products for a society that is more and more fragmented in its identities and interests. Production is moving towards network or open systems of production to deliver accelerated innovation and goods for a greater variety of tastes (DiMaggio, 2001; Dowd, 2004; Lopes, 1992; Peterson & Berger, 1996; Powell, 1990). Consumer audiences are disaggregating into splintered social worlds, often abetted by niche marketing (Bishop & Cushing, 2008; Penn & Zalesne, 2007; Turow, 1997; Weiss, 2000). There are also theories of progressive growth as intrinsic to capitalism, which place the expansion of novelty and diversity in markets in a longer timeframe (Schnaiberg, 1980; Sewell Jr., 2008, 2010). In either formulation, the progressive growth model suggests that the variety of producers and products in consumer markets should continually expand over time.

In summary, there are three likely models of trends in market diversity — bounded fluctuation, cyclical, and progressive growth — each supported by considerable prior research. To my knowledge, researchers have yet to compare or test these models against each other. Below, I take on this task by analyzing market trends in order to evaluate each model's expectations for turnover and variety in market components. Table 1 summarizes these testable implications. In the next section, I introduce my data and measures.

Table 1 - Testable Implications of Three Models of Market Diversity Trajectories

Theory	Overall Diversity	Individual Components
bounded fluctuation	relatively constant	continual change
cyclical	periodic	alternation between periods of change and stability
progressive growth	continual expansion	either change or cumulation

Methods

Data

The empirical setting for this dissertation is the consumer packaged goods (CPGs) sector, particularity the types of packaged products sold in supermarkets. U.S. consumers spent over one trillion dollars on these goods in 2012 or about a tenth of total consumption.[2] The main data that I analyze come from Datamonitor's Product Launch Analytics, which tracks new CPGs in 58 markets such as canned food, soft drinks, and toilet care. Datamonitor presents these data as a tool to assist managers and business researchers in understanding and developing new products through information on past product introductions. In the data, companies introduced 253,208

[2] Author's calculation based on Bureau of Economic Analysis data on real personal consumption expenditures by type of product and 2009 chained dollars.

new CPG products in the U.S. from 1985-2012. Marketers differentiated these products with a dizzying variety of attributes: 84,814 ingredients, 30,443 flavors and fragrances, 138 generic marketing claims such as low fat and anti-acne, 68 packaging types, and 23 packaging materials. My main analyses examine all attributes together, while supplemental analyses in the Appendix separate out the different attribute types.

The advantages of these data over press release data, which are often used to study products, were that they contain a more comprehensive set of products (not just those that received press releases) and more systematic coverage of product attributes such as ingredients, packaging, and marketing claims. I have also validated the general trends by examining press release data on new products from Factiva. The main disadvantages were relative to complete product-level records, which were unavailable for these markets over such an extended time period, but would include information on shipments and incumbent products (Carroll, Khessina, & McKendrick, 2010). Still, the crucial role of new products in CPG markets where producers introduce tens of thousands of new products each year, the unavailability of more comprehensive data, and the established use of data on new products in organizational research (Dowd, 2004; Hsu et al., 2009; W. Mitchell, 1989; Semadeni, 2006) made these data a valuable lens into market dynamics.

Measures

Analyzing the key constructs — market variety and turnover — requires multiple measures in order to go beyond raw trends to take into account the distance among market entities and their abundance. Table 2 summarizes the variables I analyze. Measures of turnover need to take into account the continuity of distinct market entities as well as the abundance of these market entities. It matters whether companies and product features are entering or

persisting but also whether turnover affects major players or just fringe elements. To this end, I analyze both the percentages of new distinct companies, brands, and product attributes from year-to-year, as well as the index of dissimilarity, which incorporates abundance and was also used by Lieberson and Lynn (2003). The index is the sum of the absolute differences between the percentages for each entity across two time periods, divided by two. It ranges from zero when there is no change to one hundred when there is complete turnover. In effect, the index summarizes the reallocations that would be necessary to equalize the distributions between time periods. I do not analyze turnover for products because each product introduction is by definition new.

Table 2 - Measures for Market Turnover and Variety

	Turnover		Variety			
Market Component	*raw*	*abundance*	*raw*	*abundance*	*distance*	*abundance & distance*
Product characteristics	% new	index of dissimilarity	count	Blau index	Jaccard	Rao's Q
Products	n/a	n/a	count	n/a	Jaccard	n/a
Companies	% new	index of dissimilarity	count	Blau index	Euclidean	Rao's Q
Brands	% new	index of dissimilarity	count	Blau index	Euclidean	Rao's Q

To analyze market variety, I consider the number of distinct entities, their abundance, and their distance. To incorporate abundance, I use the Blau index, which is one minus the sum of squared percentages (the Herfindahl-Hirschman index). This measure captures the probability that two random draws from the population of some market component will not be the same entity. Incorporating distance is also important to establish the real breadth of market variety. For example, a soft drink market with five sweet flavors is less diverse than a market with one sweet flavor and one savory flavor. I measure the average distances between entities with distance

metrics that are based on the level of measurement. For product characteristics and products, I use nominal counts of the overlap of characteristics across products and of the overlap of products across characteristics respectively. These data support the calculation of Jaccard distances, which divide differences by the union for each pair. For companies and brands, I use continuous measures based on the percentage of an entity's products that have each product characteristic (e.g., x% of General Mills' cereals have the marketing claim 'natural'). These data allow Euclidean distances. For both measures, I arrive at my distance-weighted metrics of market variety by averaging the pairwise distances. A final measure I examine is Rao's Q, which incorporates both abundance and difference (Mouchet, Villéger, Mason, & Mouillot, 2010). Rao's Q multiplies pairwise distances by each entity's proportion or market share, and then sums the results across pairs.

Results

Market Turnover

How much turnover is there in producers, brands, and product characteristics from year-to-year? The fluctuation and cyclical theories of market trajectories presented earlier would suggest that turnover is either endemic or periodic, while different versions of the progressive growth model postulate either turbulent expansion with high turnover or cumulative market expansion with low turnover. I examine evidence first at an aggregate yearly level and then consider variation between markets. Figure 3 charts the percentages of new product characteristics, companies, and brands across all markets. From this aggregated perspective, three findings are evident. First, the proportions of market entities that were not in the dataset the prior year are high (generally above 60%), although in additional analyses, on average about

one-third of the newcomers are reappearances rather than first-time entrants. Second, except for some choppiness at either end of the timeline, the entry proportions are relatively steady. Third, the proportion of new product characteristics trends gradually downwards. Next I examine the index of dissimilarity, which tracks changes in the abundance of particular companies, brands, and product attributes (see Figure 4). Similar patterns are evident here in the steadiness of turnover. The big difference is that incorporating abundance shows that turnover is about three times greater for producers than for product attributes. Although many product features are new each year, the most-used features are fairly persistent. On average, the distribution shifts year-to-year about 56% for companies, 65% for brands, and 20% for product characteristics.

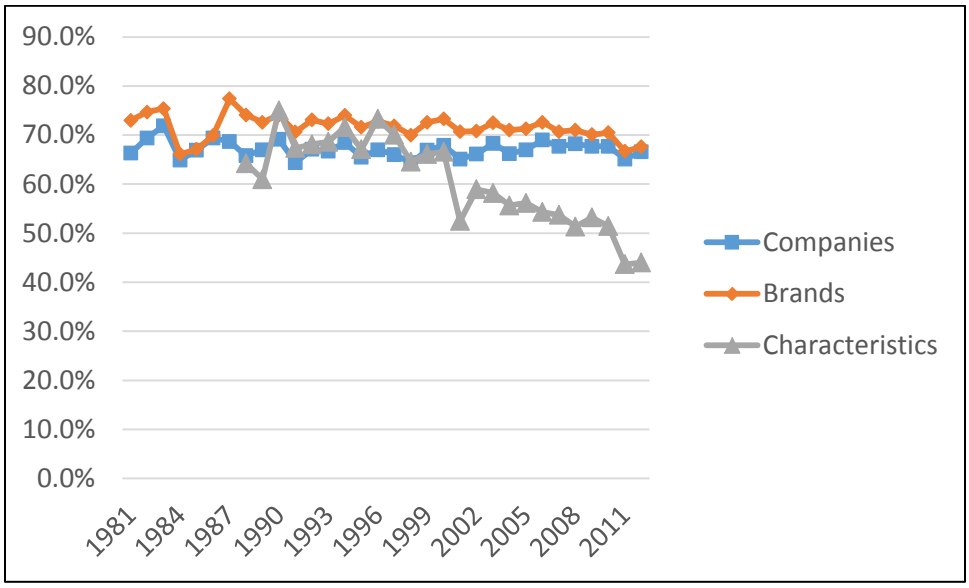


Figure 3 - Entry Percentages for CPG Product Introductions in the U.S., 1981-2012

How consistent are these trends within markets? Subdividing the data by markets introduces additional variability into the data. Focusing on the more comprehensive index of dissimilarity and companies, the average turnover and the dispersion in turnover over time are both higher. The average abundance-weighted turnover in companies is 72% within markets

rather than the 56% observed in aggregate. The standard deviation also expands from 2.1% overall to an average of 8.8% within markets. However, much of this variation is due to low activity, as there is a strong negative correlation between the number of products introduced into a market and the standard deviation for that market's index of dissimilarity (r = -0.58). Importantly, even with greater variation, turnover is still consistently extensive: the minimum score is 21.6% and turnover exceeds half of the distribution in over 90% of market-years. Similar results are evident for brands and product attributes.

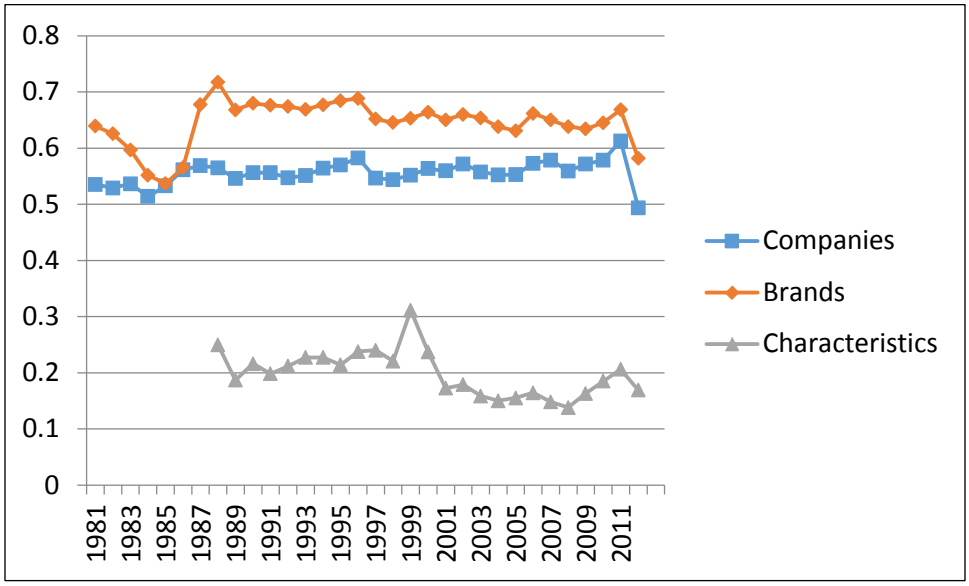


Figure 4 - Dissimilarity Indices for CPG Product Introductions in the U.S., 1981-2012

How much support does the greater variance lend to the cyclical model? To answer this question, I calculate the frequency of cycles in the data. I define a cycle as an ordered triplet of data points, which contain two changes in opposite directions of at least 25%. I also allow cycles to overlap. For example, the set (10, 15, 2, 25) contains two cycles (10-15-2 and 15-2-25), while the set (10, 30, 50, 75) contains zero cycles because although the changes surpass 25%, they only proceed in one direction. Using these definitions, Table 3 reports the average numbers of cycles

for each measure of turnover at both aggregate and market-year levels. As Figures 3 & 4 suggest, there are almost no cycles when aggregating across markets. Looking within markets, there is greater evidence for cyclical behavior. For example, the average market has nearly two-and-a-half cycles in turnover for companies and nearly four cycles in turnover for characteristics, using the index of dissimilarity. However, such fluctuation is itself irregularly dispersed. For companies, about one-sixth of the markets account for half of the cycles found, and greater than half of the markets have zero cycles or one cycle. Further, much of the fluctuation is due to choppiness. Smoothing the data with a three year moving average reduces cycles in the index of dissimilarity to half a cycle per market for companies and one cycle per market for product characteristics.

Table 3 - Number of Cycles in Turnover Measures[3]

Market Component	Measure	Aggregate	Market Average - Raw Data	Market Average - Smoothed Data
characteristics	% new	0	3.9	0.6
characteristics	index of dissimilarity	3	3.8	1
companies	% new	0	3.3	0.7
companies	index of dissimilarity	0	2.4	0.5
brands	% new	0	2.6	0.6
brands	index of dissimilarity	0	1.8	0.5

Overall then, the results show that turnover is endemic to consumer markets, albeit less important for product features which tend to continue more from year-to-year. In addition, there is both greater turnover and more variability in turnover within markets than in the aggregate data. About a third of the markets display signs of cyclicality but such fluctuation is better understood as choppiness than as a periodic trend. These findings are not consistent with the

[3] Time span is 1988-2012 for characteristics and 1981-2012 for companies and brands.

cyclical model and lend more support to the bounded fluctuation model and to turbulent variants of progressive growth. Next I examine how trends in market variety align with the different models.

Market Variety

Beginning again at the aggregate level, there is generally persistent growth in the numbers of distinct products, product attributes, companies, and brands until 2010 (see Figure 5). Simple correlations between these components and year all exceed 0.72 and reach as high as 0.94 for both products and attributes. There are pronounced declines from 2010-2012 that reflect the effects of the Great Recession, which caused business investment in new products to collapse. In order to verify that this late contraction is not an artifact of the data source, I examined press release data on new products in the CPG sector from Factiva and found nearly identical declines. From 2008-2012, the correlation between the two series is 0.91.

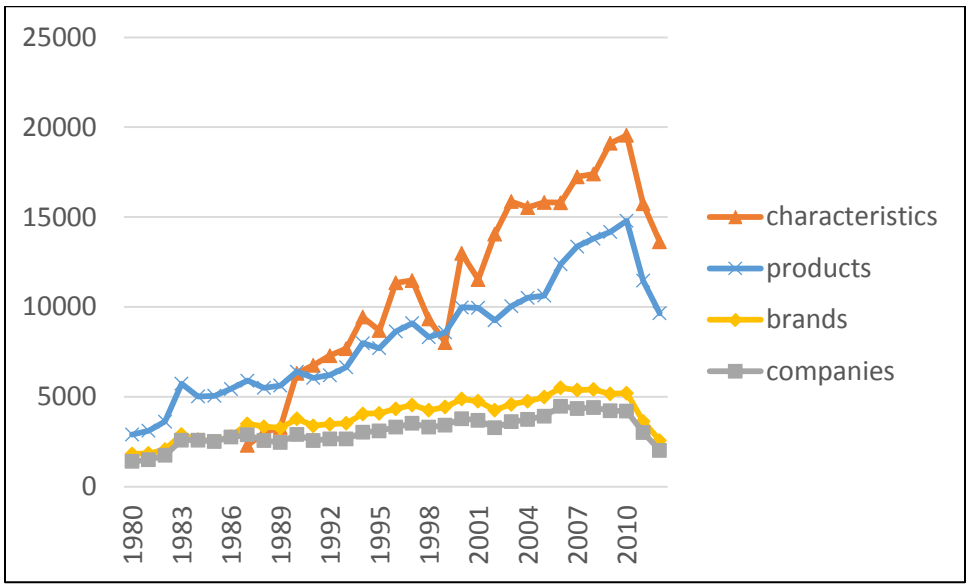


Figure 5 - Distinct Market Components for CPG Product Introductions in the U.S., 1980-2012

Taking into account the abundance of each entity reveals a different pattern. Figure 6 displays the Blau indices for product characteristics and companies. Throughout this section, brands and companies have very similar results and so I focus on companies alone. At the aggregate level, trends in the Blau index are fairly flat but extremely high for both producers and product attributes, with near zero concentration ratios. These results indicate tremendous diversity in aggregate across CPG markets for new products.

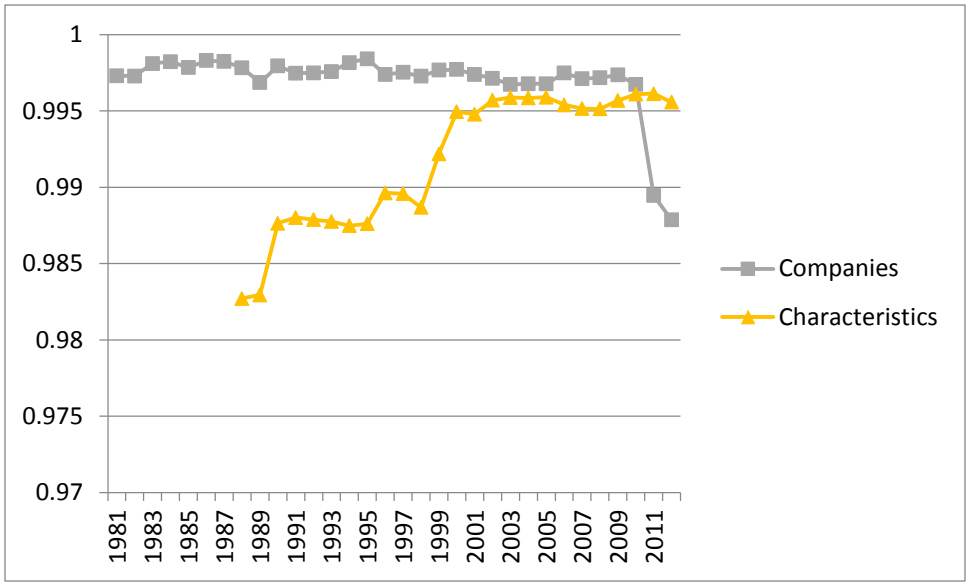


Figure 6 - Blau Indices for CPG Product Introductions in the U.S., 1981-2012

Next I consider measures of variety that incorporate the distance between market entities. The average Euclidean distance among firms generally expands over time (see Figure 7). Its correlation with year is above 0.95. The average Jaccard distances among product and product characteristics also have strong temporal correlations of 0.71 and 0.52 respectively but the Jaccard distance metric has a ceiling of one that constrains their growth at the aggregate level. Rao's Q, which weights distance by proportional abundance, also tends to grow but shows some leveling off towards the end of the time period. Temporal correlations here are about 0.85 for

firms and 0.78 for characteristics. Overall then, the variety of distinct entities and the distances among them are expanding over time.

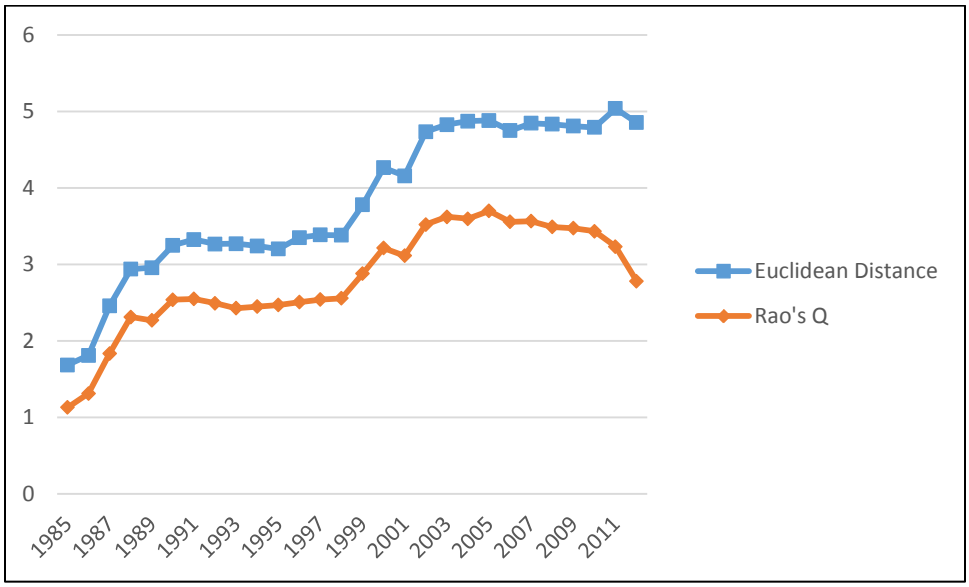


Figure 7 - Average Distance Measures for CPG Firms in the U.S., 1985-2012

The next step is to examine these measures within markets to see if the same growth pattern is evident, or if there are various trajectories hidden within the overall picture. Grouping the data by markets again complicates the picture. The average market's correlation between year and distinct market entities falls to 0.69 for product attributes, 0.51 for products, and 0.37 for companies. Looking at the abundance-weighted measure, the Blau index declines from 99% to 89% for companies and from 99% to 95% for product characteristics, indicating slightly higher concentration within markets. The temporal trends of distance-based measures of variety are weaker within markets than in aggregate but still generally strong: the average market's correlation between year and distance are 0.22 for product features, 0.38 for products, and 0.72 for companies. For Rao's Q, a measure that combines distance and abundance, the average correlations are 0.58 for product features and 0.66 for companies.

While variability is greater in the disaggregated data, progressive growth is still the most common trajectory, especially for raw counts and distance-weighted measures. Table 4 groups average correlations and tallies the number of markets in each group for several variables. The tabulated results expand upon the averages reported in the previous paragraph. Crucially, counts of distinct entities and distance-based measures overwhelmingly grow over time. Looking at average distance, the correlations with year are >= 0.25 in over 60% of markets for product characteristics, 72% of markets for products, and 90% for companies. Contrary to the expectations of the bounded fluctuation model, fewer than 25% of the markets have correlations within +/- 0.25 of zero for average distances among product attributes, products, and companies. Raw counts and Rao's Q, which weights distance by proportional abundance, generally show even more strong positive correlations and fewer near-zero correlations.

Table 4 - Correlations between Year and Measures of Variety within Markets

	Characteristics			Products		Companies		
Correlation	*count*	*distance*	*Rao's Q*	*count*	*distance*	*count*	*distance*	*Rao's Q*
-1--0.75	0	0	0	1	1	1	0	3
-0.75--0.5	1	4	1	3	2	4	3	0
-0.5--0.25	0	5	0	3	1	4	1	0
-0.25-0	1	8	2	2	5	3	1	0
0-0.25	3	6	5	4	7	2	1	2
0.25-0.5	5	18	7	5	17	15	3	6
0.5-0.75	8	15	27	14	19	14	6	11
0.75-1	40	2	16	26	6	15	43	36

In order to evaluate the cyclical model for market variety, Table 5 tabulates markets by the number of cycles in average distances, using both raw and smoothed data. Two patterns are evident. First, distances among product characteristics and companies are more cyclical than between products. Second and more importantly, there is overall little evidence for cyclicality

with a median of zero cycles for all measures. Further, the cyclicality that is evident is largely due to choppiness in the data, as smoothing nearly eliminates cycles, leaving a handful of markets that exhibit cyclical patterns. Figure 8 illustrates the typical upwards trajectories in product and company diversity, using standardized and smoothed average distance metrics.

Table 5 - Frequency of Cycles in Average Distance within Markets

	Characteristics		Products		Companies	
Cycles	*raw*	*smoothed*	*raw*	*smoothed*	*raw*	*smoothed*
0	41	47	45	57	39	52
1	4	7	8	1	6	3
2	4	3	3	0	4	2
3	2	1	0	0	2	1
4	3	0	1	0	3	0
5	3	0	1	0	3	0
6+	1	0	0	0	1	0
sum of cycles	51	16	23	1	55	10
average	0.88	0.28	0.40	0.02	0.95	0.17
median	0	0	0	0	0	0

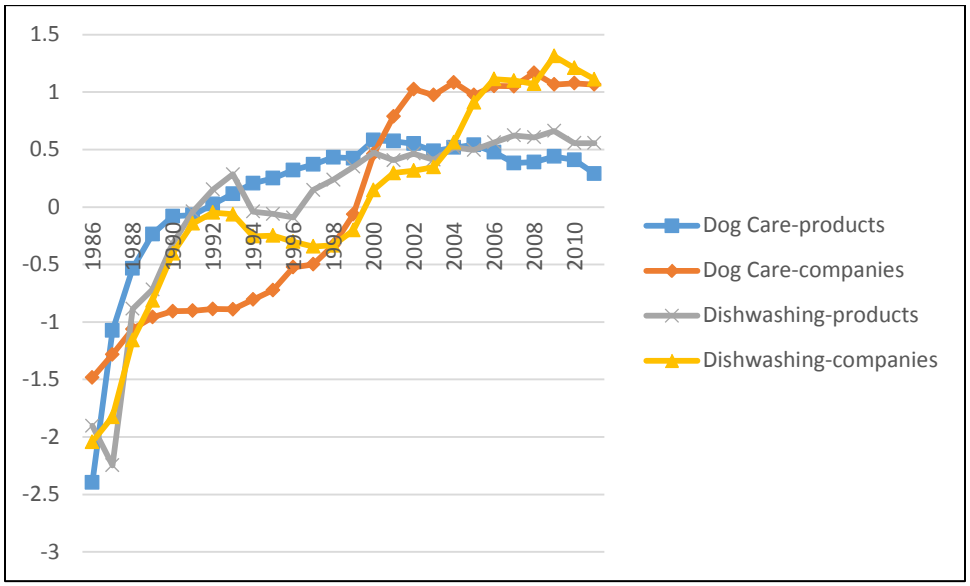


Figure 8 - Example Market Trends in Average Distances among Products and Companies, Standardized and Smoothed Data

Summarizing the results for market turnover and variety, the progressive growth model receives the most support. Turnover is endemic, which is consistent with the bounded fluctuation model, but there are strong growth trends in counts of distinct entities and in distance-weighted measures, contrary to this model's expectations. The cyclical model does not fit either the steady and extensive turnover or the predominant growth patterns. Fluctuation in market variety generally represents choppiness around longer growth trends rather than a periodic pattern. Of course, it is possible that a time frame of thirty years is insufficient to detect cycles but there are reasons to believe that the growth in market variety found here extends back at least to the post WWII-era (Connor, 1980; MacDougall, 1979), and perhaps has a much longer continuity with roots in the expansive dynamics of capitalism and individualism (Lieberson & Lynn, 2003; Sewell Jr., 2008).

Importance of Product Characteristics and Their Decomposition

Out of the four market components examined, product characteristics are especially central to market differentiation. Product attributes define a space in which products and producers are located. As attributes expand, there is exponential growth in the number of possible market positions, understood as combinations of attributes. This dynamic creates important tensions for consumers and producers in terms of where to locate themselves in a market space that is stretching apart.

Consider this dilemma within the booming space of environmental marketing. As the product characteristics pertaining to environmental concerns proliferate, conventional companies who want to participate in this growing area have two choices: they can enter in a centralized fashion by consolidating diverse products within brands such as Clorox Bleach and Clorox

Greenworks, or they can enter in a decentralized fashion by separating products between brands such as General Mills Honey Nut Cheerios and Cascadian Farm Honey Nut O's. General Mills owns both brands but Cascadian Farm is dedicated to green products. The choice to decentralize is a significant one that surrenders economies of scale in marketing, and possibly also in production, in exchange for a more specialized connection to consumer segments, as consumers often perceive distinct brands such as General Mills and Cascadian Farm to be separate companies (Kotler & Armstrong, 2012). For consumers facing the same changes in the market space, there is a parallel choice of whether to associate with products and companies on one side of the issue, whether conventional or natural, or to choose market offerings that cross this line. The choice can be consequential as people often use brands to develop their identities and characterize others (Holt, 2002; Muniz Jr. & O'Guinn, 2001).

Taking the argument a step further, new product characteristics provide resources for the development of social boundaries (Bourdieu, 1984; Lamont & Molnár, 2002). The extent to which producers and consumers do not span product attributes (i.e., natural-only positions and conventional-only positions) indicates the impermeability or strength of these boundaries. When individuals and social groups segregate by product choices, the relevant product attributes serve to mark their differences. When companies make the expensive choice to develop distinct brands for different product characteristics, they are hoping to increase their congruence and appeal with these divided consumer audiences. Thus within-firm brand diversity is likely to reflect customer diversity and fragmentation.

Combining the arguments about proliferation and fragmentation, as product characteristics proliferate and the market space stretches apart, the number of brands within firms and their differentiation should increase as mass marketers attempt to maintain their appeal

across a fragmenting audience. The data provide mixed support for these expectations. Looking at multi-brand firms, the number of product characteristics in a market has strong positive correlations with within-firm brand differentiation, measured as the average Euclidean distance between a firm's brands ($r = 0.42$). However, product characteristics are weakly correlated with the number of brands per multi-brand producer ($r = 0.08$). A possible explanation for this null finding is that on average companies are not attempting to maintain their coverage of a widening market space. Indeed, the number of product characteristics used by a company in a market is much more strongly correlated with the company's number of brands ($r = 0.38$), suggesting that there is a connection between the range of market space a company inhabits and the number of brands it uses to do so.

It is also notable that the count of distinct product characteristics is emblematic of the progressive growth model in that it has the strongest correlation with year, both in aggregate and within markets. In addition, the variety of product attributes has strong positive correlations with most of the distance-based metrics for the other market components, which is not surprising given that average distances among products and producers are based on overlap in product characteristics. Since product attributes are central to dynamics of market differentiation and the progressive growth trajectory, I will focus on understanding the forces that encourage the proliferation of product attributes in the following chapters. As a first step, Table 6 reports the decomposition of this variable between markets and years, using a saturated ANOVA model. Given the prominence of technological explanations of market proliferation as a result of improvements in marketing and manufacturing capabilities, it is remarkable that only 22% of the variation in product characteristics is associated with change in time alone. Instead, a little over half of the variation is between markets, which are technologically quite similar, and the

remaining quarter of the variation is associated with market-years. Why is so much of the growth in product attributes related to market-specific dynamics? The next chapter takes up this question.

Table 6 - Results from Saturated ANOVA Model of Product Characteristics, n = 1407

Source	Percentage of Variance
Years	22%
Markets	53%
Market-Years	25%

Conclusion

In this chapter, I sought to advance my dissertation in two ways. I introduced the data and some of the measures that subsequent chapters will analyze further with multivariate regression. Moreover, I established the empirical phenomena to be explained. Markets for consumer packaged goods in the U.S. largely follow a pattern of progressive growth in the diversity of producers and products over the last thirty-two years. This ceaseless if bumpy growth, ignoring the late recessionary collapse, with considerable variance across markets suggests that internal market dynamics are likely to be an important factor driving differentiation in consumer society. Accordingly, the next chapter investigates these causes.

Appendix for Chapter 2

In the appendix, I examine whether the results of this chapter persist within different types of product characteristics: marketing claims, flavors/fragrances, ingredients, packaging types, and packaging materials. This subdivision of the data affects the distance-based measures. The main finding of progressive growth in market differentiation is replicated within each type of product attribute, except for packaging materials, which is recorded at too coarse a level (e.g., glass, plastic, cardboard) to track much differentiation. I summarize the details in two sets of analyses below for aggregate and within-market trends in average distances for all market components.

Aggregating across markets, growth over time is still the prevailing pattern within attribute types. Figure 9 uses a logarithmic scale to display trends in the raw numbers of distinct characteristics for each attribute type in one graph. Ingredients and claims grow strongly over time, with average yearly correlations of 0.93 and 0.96, while packaging attributes grow more slowly, and flavors follow a more periodic pattern. Using the Jaccard distance metric, average distances between products have mixed temporal patterns within attribute types but are generally quite large, almost always above 0.85 (on a scale of zero-one). Average product distances tend to be lower when calculated based on packaging materials, where they reach a minimum of 0.61. The average distance among firms, using Euclidean distance, generally follows a strong growth trajectory. Average correlations with year are 0.95 for ingredients, 0.88 for claims, 0.87 for flavors, 0.63 for packaging types, and 0.28 for packaging materials. Rao's Q shows similar growth trends.

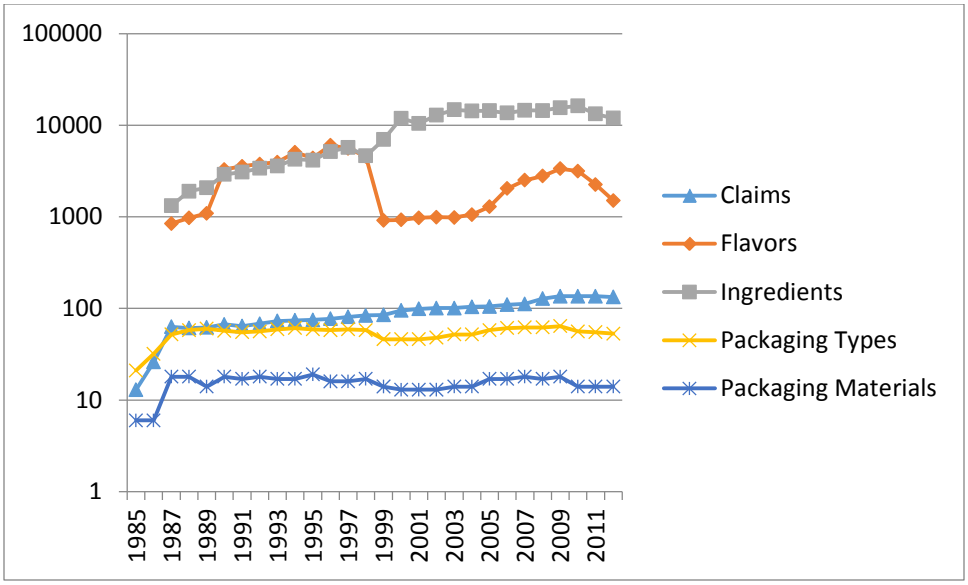


Figure 9 - Distinct Product Characteristics by Attribute Type, 1985-2012

The results within markets are also similar. Tables 7-9 tabulate market correlations between measures of variety and year, broken down by attribute type, for product features, products, and companies. Product features and companies have strong growth trends for all attribute types, except for the minimally differentiated packaging materials, which yields trends that cluster around zero. Products again show a much more mixed pattern of growth within attribute types, which indicates that the growing diversity in products evident in the main analyses is due more to the combination of various types of attributes than to differences within attributes. Since the raw variety of product characteristics is expanding over time within attribute types, this finding also reflects the enduring use of a core set of characteristics.

Table 7 - Correlations between Year and Product Characteristic Variety within Markets by Attribute Type

	Average Distance					Rao's Q				
Correlation	*claims*	*flavors*	*ingredients*	*packaging types*	*packaging materials*	*claims*	*flavors*	*ingredients*	*packaging types*	*packaging materials*
-1--0.75	0	1	0	0	0	0	0	0	0	0
-0.75--0.5	0	0	0	1	2	0	0	0	1	0
-0.5--0.25	0	0	1	9	2	0	4	1	0	2
-0.25-0	2	2	2	5	4	0	0	1	2	5
0-0.25	8	1	2	8	8	7	3	3	5	5
0.25-0.5	26	21	27	21	30	8	11	12	7	12
0.5-0.75	15	23	19	6	6	23	31	25	14	14
0.75-1	2	1	2	3	1	15	0	11	24	15

Table 8 - Correlations between Year and Product Variety within Markets by Attribute Type

	Average Distance				
Correlation	*claims*	*flavors*	*ingredients*	*packaging types*	*packaging materials*
-1--0.75	3	5	4	1	4
-0.75--0.5	1	14	9	0	9
-0.5--0.25	8	5	9	4	9
-0.25-0	10	7	9	5	12
0-0.25	12	5	7	12	13
0.25-0.5	16	10	10	21	8
0.5-0.75	7	3	7	13	3
0.75-1	1	4	0	2	0

Table 9 - Correlations between Year and Firm Variety within Markets by Attribute Type

	Average Distance					Rao's Q				
Correlation	*claims*	*flavors*	*ingredients*	*packaging types*	*packaging materials*	*claims*	*flavors*	*ingredients*	*packaging types*	*packaging materials*
-1--0.75	1	3	2	1	1	3	2	1	2	1
-0.75--0.5	4	1	2	1	9	2	3	2	0	2
-0.5--0.25	2	0	0	4	9	0	0	4	1	9
-0.25-0	2	3	0	1	16	2	1	0	3	13
0-0.25	4	0	2	11	13	1	3	3	14	17
0.25-0.5	3	6	5	12	6	4	7	4	19	9
0.5-0.75	15	24	8	19	3	3	17	8	17	6
0.75-1	26	16	36	9	1	42	20	33	2	1

Chapter 3: Engines of Proliferation: An Internal Model of Niche Generation

"…a car for every purse and purpose" - 1924 Annual Report of the General Motors Corporation

When General Motors outflanked Ford's Model T by differentiating car models by income, in addition to styling and seating options, the company incorporated a range of social divisions that previously had little recognition in the automobile market. This innovation in turn provided consumers with new products that they could use to further develop and position their identities around these social divisions. Taking a step back, this famous marketing breakthrough also illustrates the crucial role of competition in shaping marketing strategies. Pushed by competition, producers strive to interpret and influence demand with the goal of attaching consumers to their products (Callon, Méadel, & Rabeharisoa, 2002). This is a dynamic internal to markets that affects the social divisions, which range from anticipated to already well-developed, that gain representation in market offerings. In this chapter, I investigate how such internal market dynamics encourage proliferation in consumer markets, asking: what affects the vigor with which companies attempt to incorporate and develop social divisions in their products? Why is the variety of product characteristics greater in some markets than in others?

Drawing on theories of markets, organizations, and endogenous cultural dynamics, I build and test a model of market structures that can yield sustained market proliferation. This outcome refers here to growth over time in the number of product characteristics such as ingredients, flavors, and marketing claims. The factors I analyze encompass producers' pursuit

of differentiation from rivals, changes in organizational structures to better connect large and small firms, ties between markets that facilitate diffusion, and the generative potential of the cultural resources within markets. Using negative binomial regression models of counts of product characteristics in market-years and an extensive set of controls, I find support for all four factors, with the pursuit of differentiation being especially important.

The rest of this chapter proceeds through five sections. First, I provide context on the development of marketing practices that subdivide markets. In the next three sections, I develop and test a set of hypotheses to explain the number of product characteristics in market-years. Following that, I expand on the results by applying them to two notable cases of niche development: the proliferation of lifestyle-tailored soft drinks and of gluten free products. I then conclude with a discussion that sets up the subsequent chapter.

Dividing Markets in Practice

Over time marketing practices have evolved towards greater subdivision of markets. A common typology organizes this history into three periods: fragmented local markets until the late 19th century, then a period of consolidation around mass-produced national brands up to 1940s, followed by increasing segmentation (Tedlow, 1990). Of course, attention to customer heterogeneity has precursors prior to the most recent period (Fullerton, 1988; Halter, 2000, Ch. 2), especially for income differences, and brand proliferation is also evident by the turn of the 20th century in consumer packaged goods (Van Den Eeckhout & Scholliers, 2012). Still, there is an evident break in the second half of the 20th century away from relative homogeneity of consumption. In CPG markets, companies responded to the expanding shelf space of

supermarkets and the communication power of television by introducing scores of new products, often with little true innovation. At the tail end of the economically difficult 1970s, a remarkable *Washington Post* article criticized this proliferation as driving up costs and wistfully recalled the time prior to 1950:

> "Until then, nearly every consumer-goods category was dominated by a few standardized national brands. Men smoked Camels, Luckies or (Liggett & Myers') Chesterfields, all uniformly 2 3/4 inches long, unfiltered and soft-packaged. Women washed with Ivory, Lux or Palmolive. Children ate the same breakfast cereals as adults, adding their own sugar. And the entire family drank Coke from 6 1/2-ounce bottles" (MacDougall, 1979).

Despite this article's plea for a "nonproliferation treaty," proliferation and its discontents would only grow in the subsequent decades. Two common explanations for this unchecked growth are technological improvements in manufacturing and marketing and greater diversity in society.

Market analysts often attribute the growth in product variety to lower production costs (W. R. Smith, 1956, p. 6) or more refined marketing analytics (Bessen, 1993). However, although advances in these technologies have enabled greater product variety they are often overemphasized. For nondurable consumer goods, marketing costs for distribution and advertising are important and enduring barriers to competition. Proliferation is a central tool that companies use to attempt to control shelf space and deter entry. Large companies use their leverage to push retailers to accept their new products and squeeze out weaker rivals. Advertising and couponing reinforce these actions with customer demand, and also further raise barriers to entry. In a landmark study on the role of proliferation in controlling markets, Schmalensee (1978) notes that six firms typically held 95% of the breakfast cereal market from 1950-1972, and that there were 80 new brands introduced in that time period but no new firms.

He attributes the lack of new competitors to the information advantages of incumbents concerning market openings and likely competitive retaliation, but a simpler explanation would be the high cost of gaining shelf space for new firms. Further, product proliferation can either focus on a limited variety of attributes, as in the multiplication of diet soda variants, or it can reach out to diverse product categories such as coconut waters and energy drinks. Either strategy serves the goal of occupying shelf space and excluding rivals.

Greater diversity in the tastes and lifestyles within society also contribute to proliferation without offering a full explanation. There is a partial relationship between the diversity of consumers and the diversity of products: only some tastes gain recognition in markets and many new products attempt to anticipate tastes that have yet to become popular. The way that marketers incorporate minority social groups as distinct market segments yields a mix of both greater inclusion of social diversity and also painful exclusion of less lucrative identities within those minority groups. For example, the development of a gay market niche has focused on affluent white males to the exclusion of females and people of color, as well as bisexual and transgender identities (Chasin, 2000; Sender, 2004).

There are also reasons to question whether ongoing product proliferation reflects a commensurate diversification in tastes. First, psychologists point to the limits to choice, as consumers can become overwhelmed by excessive variety (Iyengar & Lepper, 2000; Schwartz, 2004). Second, studies of naming choices, where supply costs and advertising influences are irrelevant, identify persistent limits to the diversity of demand (Lieberson, 2000; Lieberson & Lynn, 2003). Lieberson's research documents a fairly steady concentration of tastes, especially in comparison to turnover in the popularity of particular names. Trends vary across datasets but the concentration of tastes generally appears to change little towards the end of the twentieth

century (Lieberson & Lynn, 2003, pp. 238-250), precisely when proliferation in markets was booming. Third, social diversity gains expression in part through the use of consumer goods, so the supply choices of producers are pivotal in encouraging the formulation and extension of distinctive lifestyles.

These points serve to clarify the important role of internal market dynamics in proliferation. Although economics models that assume unlimited demand for variety (Lancaster, 1990, pp. 191-192) go too far in attributing market variety to supply-side considerations, producers do carry out the interpretation and pursuit of demand that directly generates market variety. For companies, there are enduring costs to distributing and advertising a variety of products, as well as benefits from greater market control. Understanding and anticipating consumer demand is also a challenge. Consider two notable cases of proliferation: first, gluten-free products have mushroomed across the supermarket, well beyond proportion to the one percent of the population with Celiac disorder; second, the variety of lifestyle-tailored beverages has exploded, as for example in the move beyond bottled water to waters with various functional benefits and also now plant-based waters such as coconut water and unreduced maple sap. These examples appear disconnected from either technological innovation or increases in social diversity. To understand how these niches developed, we must look inside of markets for factors that push companies to develop new product characteristics. After building and testing such a model in the next few sections, I will return to see how well the model illuminates the rise of lifestyle beverages and gluten-free products.

Market Structures that Encourage Market Proliferation

To understand the internal wellsprings of market proliferation, I draw on theories of markets, organizations, and cultural systems. These research streams suggest a variety of mechanisms that can encourage the development of new product features: competitive relations among firms, organizational structures, ties between markets, and cultural resources. Together, these mechanisms help to sustain proliferation in markets.

Market Pressures: The Drive for Differentiation

The pursuit of distinctive market positions by producers is likely to increase the introduction of new product features. Companies desire differentiation from other firms because it offers greater market control, stability, and profits (Hannan & Freeman, 1977; Porter, 1980; White, 2002). However, this inter-firm separation is difficult to obtain and to maintain. Distinctive products can perform poorly in the market when they do not match consumer tastes. Where consumers do approve of a novel product, imitation is likely (Lieberman & Asaba, 2006). If differentiation from rivals was either readily available or impossible to obtain, then the development of new product distinctions would be limited. Well-spaced firms do not require innovations to distinguish themselves. Likewise, firms in compacted markets where customers reject novel products have little to gain from innovation. Instead, it is the combination of differentiation being both desired and challenging to obtain that should fuel proliferation. Product characteristics should expand where there is a moderate amount of separation between firms, which is always fragile and in need of further innovation to maintain, rather than where differentiation is either meager or superabundant. This reasoning suggests an inverse-U quadratic specification where product diversity is greatest at a middle level of differentiation between firms.

Hypothesis 1: The variety of product features will initially increase as differentiation between firms increases, and then will decline with further increases to differentiation.

Organizational Structures: The Ecology of Innovation

Considerable research shows that organizational structures affect the development of novel products but there has been much debate over which structures are most conducive to innovation. Rival perspectives contend that product innovations stem from either small nimble firms or large well-resourced companies. The first camp argues for small firms' innovation advantages in flexibility and entrepreneurial motivation (Abernathy & Utterback, 1978). Consistent with this perspective, resource partitioning theory has found that specialist firms develop new niches to avoid competition with larger firms in varied industries such as beer, microprocessors, movies, and newspapers (Carroll, 1985; Carroll & Swaminathan, 2000; Mezias & Mezias, 2000; Wade, 1996). For example, small beer producers have flourished by developing products that are distinct from those offered by larger companies (Carroll & Swaminathan, 2000). The competing view, which is also well established, is that the greater resources of large firms make them more capable of producing innovations (de Figueiredo & Kyle, 2006; Methé, Swaminathan, & Mitchell, 1996; Schumpeter, 1942). In the process of obtaining their greater product breath, generalists have also developed durable routines for new product development that propel innovation, sometimes even beyond optimal rates (Sorenson, McEvily, Ren, & Roy, 2006).

Researchers have advanced this debate in the past two decades by developing models of how organizational decentralization promotes innovation within markets. Large companies have been decentralizing through the greater use of subsidiaries and alliances with other firms (DiMaggio, 2001). Decentralization allows large producers to access diverse product ideas,

connect more closely with consumer demands, and present customers with the impression of a specialized producer. Evidence for the link between decentralization and new product development can be found in research on network forms of organizing, business venturing, and open systems of production (Christensen, 1997; DiMaggio, 2001; Dowd, 2004; Lopes, 1992; Peterson & Berger, 1996; Powell, 1990). For example, Warner Communications led the music industry in the aggressive use of acquisitions and alliances with semi-independent labels to build "a collection of competing record labels" within Warner, which totaled more than 75 labels by the early 1990s (Dowd, 2004, p. 1421). This decentralized structure enabled Warner to offer new products for heterogeneous and rapidly changing musical tastes. The open system of production also allows the ideas of small producers to gain more traction in markets than they likely would have without the marketing power of large companies such as Warner.

Decentralization thus offers a synthesis of the two arguments, integrating the virtues of both nimble small firms and well-resourced large firms. The concept goes beyond the vitality of either small or large companies to focus on the relationships between the two sets of firms. Decentralization is a way for larger firms to more effectively incorporate the innovativeness of smaller organizations (DiMaggio, 2001; Dowd, 2004; Peterson & Berger, 1996). In markets where small and large firms are disconnected, large companies will be less open to the innovations from outside their organizations and many new ideas from small firms will likely wither due to lack of resources. In the case of CPG markets, distribution and shelf space are key restrictions for innovations from small firms, while large firms are often anchored to legacy brands that crowd out investments in new products. Decentralization can bridge these gaps and support the transmission of new products into markets, which leads to the following hypothesis:

Hypothesis 2: Producer decentralization increases the variety of product features.

Ties between Markets: Pathways for Diffusion

Diffusion processes circulate product features between adjacent markets, boosting product variety. Organizational ties can directly spread new product ideas across markets. Larger firms often operate in several markets, which facilitates diffusion. For instance, a diversified company may develop a line of health-oriented breakfast cereals and then try out this same niche in its frozen meals. In this way, firms provide ties between markets that can spread innovations. Diffusion across markets is also possible in the absence of such direct ties. Companies may transpose ideas from disconnected markets when they perceive the markets to be comparable (Strang & Meyer, 1993). Such abstracted channels of diffusion are probably more responsible for the spread of trendy ingredients and flavors across markets such as chipotle or pomegranate. For instance, a marketer of Greek-style frozen burritos explained this flavor innovation as reflecting the popularity of all things Greek in the packaged food world, which ultimately traces back to the success of Greek yogurt.[1] While there are few companies that span these markets by making both yogurt and frozen burritos, diffusion still occurred because marketers attend to trends in markets that they perceive to be related, such as the broader set of packaged foods markets. These ideas suggest a pair of diffusion hypotheses:

> *Hypothesis 3a*: The greater the variety of product features in directly linked markets, the greater the variety of product features there will be in a focal market.
>
> *Hypothesis 3b*: The greater the variety of product features in conceptually related markets, the greater the variety of product features there will be in a focal market.

Cultural Systems: The Progressive Development of Niches

Endogenous cultural dynamics also shape the popularity of particular ideas or products, and hence product variety (Kaufman, 2004). Lieberson's study of naming fashions identifies how

[1] Personal communication, March 7, 2014.

popularity spreads among related phonemes and among names connected to a popular word stem, as in the path from Jane out to Janet, Janice, and Jamie (2000, p. 119). Similarly, the introduction of new types of product characteristics provides an anchor for additional variations. For example, if a new product brings a health claim such as low fat into a market, then this innovation encourages the introduction of other claims targeting health concerns such as low sugar and low salt. Likewise, the development of ready to drink beverages with supplements such as guarana or ginseng opens the door to a host of other pharmacological ingredients. Following these examples, each new product feature is part of a larger cluster of similar features akin to a phoneme or word stem: health claims, pharmacological ingredients, fruit flavors, claims to being free-from various chemicals, etc. Conversely, each attribute cluster is associated with several specific product features. For instance, a free-from cluster might include restrictions against pesticides, BPA, toxins, and parabens. The presence of each cluster increases the chances of the introduction of additional attributes from within that group. The more different groups of attributes that are present within a market, the more variants are available for introduction, increasing the generative potential of that market space. This endogenous cultural dynamic should explicate part of how proliferation operates.

> *Hypothesis 4*: The more clusters of product features that are in a market, the greater the variety of product features.

Methods

Dependent Variable and Model

This analysis builds off of the previous chapter where I unpacked my data on the introduction of new products. For this chapter, there were three key findings. First, the

progressive growth model received the most support as there was generally proliferation in the numbers of product characteristics, products, companies, and brands, as well as in the distances among them. Second, within this overarching pattern, there was considerable variation between markets. Technological arguments, which attribute proliferation to improvements in marketing and manufacturing techniques over time, offered only partial explanations: about one-fifth of the variation was due to time alone, and the remaining four-fifths of the variation was connected to differences across markets, all of which involved similar technologies. Third, product characteristics were a key dimension of market differentiation in part because of their strong growth over time and correlations with other market components.

Consequently, the outcome here is the number of product characteristics in a market-year. This is a count variable that is overdispersed, indicating a negative binomial model. Figure 10 displays the variable's distribution. There are fifty-eight markets and twenty-eight years from 1985-2012, but reductions from data availability and the inclusion of a one-year lag yields an unbalanced panel structure with an average of 20 years per market, and a total of 1,175 observations. I take advantage of the dimensions of the panel structure by estimating fixed effects for both markets and years.[2] This design controls for static attributes of markets that shape their receptivity to product variety, such as stable aspects of how consumers use a market's goods, as public consumption may lend itself to greater variety than private consumption. It also controls for general changes over time, including supermarket expansion as well as technological advancements in marketing and manufacturing that support greater subdivision of markets.

[2] Rather than use the negative binomial fixed effects option in Stata, which does not actually control for unchanging covariates, I enter dummy variables for markets and for years into the negative binomial model (Allison & Waterman, 2002).

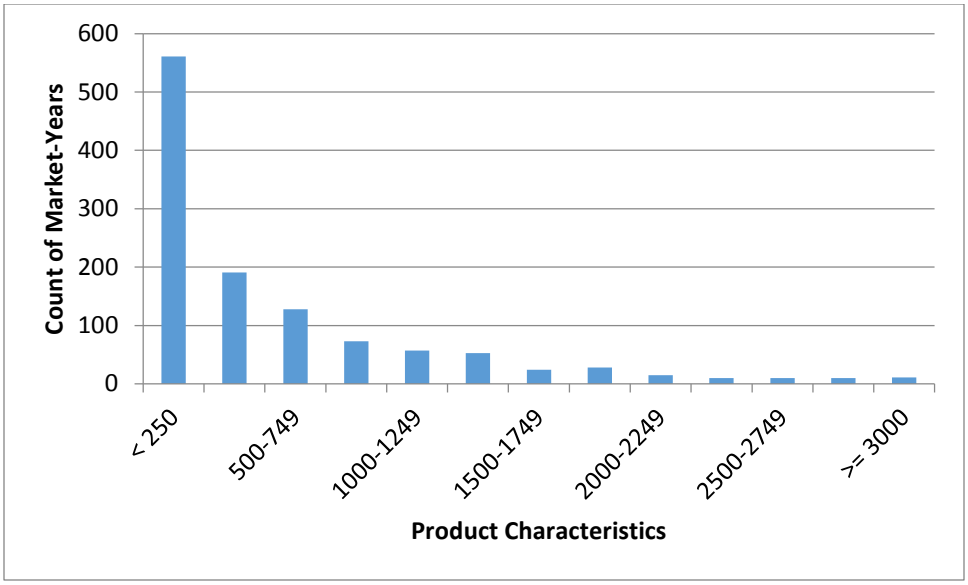


Figure 10 - Frequency of Product Characteristics in Market-Years

Independent Variables

Hypothesis 1 posits a curvilinear relation between producer differentiation and the number of product characteristics. Following the previous chapter, I calculate the average distance between companies as the average of the Euclidean distances between pairs of firms, which is based on the percentage of a firm's products that have each product feature. I then enter both linear and quadratic terms, with the expectation that the linear term will be positive and the quadratic term negative. I lag these and all other independent variables by one year.

Hypothesis 2 specifies that decentralization in producers' organizational structures encourages product innovation. I use two variables for this concept. One is the number of brands from multi-brand firms, which indicates the disaggregation of a companies' identities to better connect with particular consumer niches (Kotler & Armstrong, 2012). The other is the number of production alliances, which Datamonitor reports as products that have manufacturing affiliations.

Hypotheses 3a and 3b concern the diffusion of product characteristics across markets. For direct ties, I first identify the other markets that firms in a focal market occupy. Then I count the characteristics in each connected market and weigh this figure by the percentage of the focal market's firms that occupy both markets, and sum the results across linked markets. For conceptually related markets, I take the average number of characteristics in other markets that share the same industry as the focal market. Datamonitor organizes markets into eight industries: alcoholic beverages, nonalcoholic beverages, food, household products, other consumer products, personal care, pet products, and tobacco. I use the average to adjust for the different numbers of markets in each industry. For both variables, I exclude characteristics that are already in the focal market.

Hypothesis 4 theorizes the generative effects of attribute clusters. Grouping attributes that share a common stem is challenging for the tens of thousands of attributes in the data. I used a three-step process to arrive at workable clusters. First, I selected the three types of product characteristics that are most relevant to this argument — claims, flavors, and ingredients — and calculated a matrix of Jaccard similarity scores for the attributes within each type. For example, there are 120 distinct claims, so the claims matrix is 120 by 120 and each cell contains the Jaccard similarity score for a pair of attributes, which is the intersection divided by the union of their product occurrences. Second, I grouped attributes within each type using hierarchical clustering and a weighted average rule for linking clusters. Third, I examined the results to select the number of clusters that best combined similar features while avoiding the combination of dissimilar features. For example, the ingredients cluster should combine jalapeno, chipotle, and ancho peppers but not also include garbanzo beans. Using this heuristic led me to select large numbers of clusters because the goal is not to interpret the clusters themselves but rather to

analyze how the presence of different types of attributes in a market can lead to the introduction of related features. The results are also robust to selecting a more conventional number of clusters.

All models include seven control variables in addition to the market and year dummies. The numbers of products and firms control for market size and competition, which should increase product attribute variety. To further capture competitive conditions, I also include the average size of firms (average number of products), the average age of firms (average years in the dataset), the percentage of new firms, and the market concentration (Herfindahl-Hirschman index for product shares). As discussed above, there are differing perspectives on the relations between innovation and firm size and age, but market concentration should decrease product attribute variety. Lastly, Datamonitor codes product launches for whether they are especially innovative in any of six areas: formulation, positioning, packaging benefits, new markets, technology, and merchandising. I enter the sum of these breakthrough innovations in a market-year. This index should capture the general innovativeness in markets and have a positive effect. Together these controls make for a stronger test of whether the hypothesized mechanisms drive proliferation in product characteristics.

Table 10 presents descriptive statistics and correlations. All of the hypothesized variables have positive correlations with the outcome, especially attribute clusters. Examining the variance inflation factors (VIFs), multicollinearity affects the product and firms counts, which are controls, and the pair of linear and quadratic terms for average firm distance, which are collinear by statistical design. The attribute cluster variable also has a VIF score above ten but I found the effect of this variable to be quite stable across models. VIF scores for the other variables are not problematic.

Table 10 - Descriptive Statistics and Correlations, n = 1175

	Variable	Mean	Std. Dev.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Product characteristics	552.33	678.78	1														
2	Avg. firm distance (t-1)	3.53	1.30	0.60	1													
3	Avg. firm distance^2 (t-1)	14.12	10.03	0.58	0.98	1												
4	Mass marketer brands (t-1)	61.75	63.49	0.70	0.22	0.18	1											
5	Alliances (t-1)	33.05	44.47	0.68	0.17	0.13	0.76	1										
6	Characteristics in linked markets (t-1)[1]	15.16	19.18	0.11	0.47	0.46	-0.18	-0.09	1									
7	Characteristics in related markets (t-1) [1]	3.12	3.28	0.44	0.65	0.62	0.14	0.22	0.57	1								
8	Attribute clusters (t-1)	93.01	90.57	0.93	0.72	0.69	0.65	0.59	0.19	0.55	1							
9	Products (t-1) [1]	1.98	2.39	0.85	0.32	0.29	0.82	0.88	-0.03	0.30	0.80	1						
10	Firms (t-1) [1]	1.01	1.04	0.83	0.35	0.31	0.91	0.73	-0.11	0.24	0.81	0.91	1					
11	Avg. firm size (t-1)	8.09	7.14	-0.12	0.14	0.15	-0.29	-0.18	0.68	0.24	-0.10	-0.20	-0.30	1				
12	Avg. firm age (t-1)	7.10	3.33	0.26	0.59	0.57	-0.07	-0.01	0.71	0.55	0.34	0.07	-0.01	0.58	1			
13	New firms % (t-1)	0.50	0.14	-0.13	-0.05	-0.05	-0.16	-0.18	-0.06	-0.09	-0.13	-0.16	-0.10	-0.27	-0.40	1		
14	Innovation index (t-1)	15.56	18.17	0.50	0.04	0.03	0.71	0.59	-0.23	0.00	0.40	0.65	0.70	-0.30	-0.20	-0.05	1	
15	Market concentration (t-1)	0.06	0.08	-0.38	-0.23	-0.21	-0.46	-0.34	0.07	-0.22	-0.44	-0.40	-0.48	0.29	0.19	-0.17	-0.36	1

[1]In hundreds

Results

Table 11 presents eight negative binomial regression models to test the effects of internal market dynamics on the variety of product characteristics. All models contain fixed effects for years and markets and one-year lags for all right-side variables. Model one isolates the control variables. Counts of both products and firms strongly increase product attributes but their high correlation leaves only the products term significant. Market-years with larger firms, more breakthrough innovations, and less market concentration also yield more attributes. Firm age and the percentage of new firms are insignificant. Note though that only the effects of products and market concentration are consistently significant across all the models. Also, the unreported fixed effects for years and markets show that variety grows over time, and is greater in several food markets and soft drinks than in the baseline market of air fresheners but lower in a diverse array of non-food markets.

Table 11 - Fixed Effects Negative Binomial Regression Models Estimating Product Characteristics in Market-Years, 1985-2012 (n = 1175)

	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*
Avg. firm distance (t-1)		0.915***						0.786***
		(0.077)						(0.075)
Avg. firm distance^2 (t-1)		-0.077***						-0.069***
		(0.007)						(0.007)
Mass marketer brands (t-1)			0.001***					0.001**
			(0.000)					(0.000)
Alliances (t-1)				0.002***				0.001**
				(0.000)				(0.000)
Characteristics in linked markets (t-1)					0.007***			0.006***
					(0.001)			(0.001)
Characteristics in related markets (t-1)						0.025***		0.002
						(0.006)		(0.006)
Attribute clusters (t-1)							0.002***	0.002***
							(0.000)	(0.000)
Products (t-1)	0.067***	0.06***	0.063***	0.038***	0.073***	0.065***	0.053***	0.023*
	(0.01)	(0.008)	(0.01)	(0.01)	(0.009)	(0.01)	(0.01)	(0.011)
Firms (t-1)	-0.015	0.007	-0.041	0.025	-0.002	0.007	-0.052†	-0.014
	(0.027)	(0.025)	(0.027)	(0.027)	(0.026)	(0.027)	(0.028)	(0.029)
Avg. firm size (t-1)	0.005*	0.006**	0.004†	0.004†	-0.005†	0.004†	0.007**	-0.002
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)
Avg. firm age (t-1)	-0.007	-0.003	-0.006	-0.005	-0.017*	-0.012	-0.006	-0.009
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
New firms % (t-1)	-0.03	-0.095	-0.011	-0.018	-0.201*	-0.072	0.102	-0.043
	(0.102)	(0.101)	(0.096)	(0.099)	(0.1)	(0.104)	(0.1)	(0.103)
Innovation index (t-1)	0.001*	0.001*	0.001†	0.001	0.001	0.001*	0.002**	0.001†
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Market concentration (t-1)	-3.512***	-3.332***	-3.326***	-3.309***	-3.032***	-3.477***	-3.378***	-2.649***
	(0.372)	(0.385)	(0.354)	(0.36)	(0.351)	(0.37)	(0.361)	(0.349)
Constant	0.24	-0.743*	0.332	0.295	0.42	0.214	0.303	-0.35
	(0.309)	(0.321)	(0.308)	(0.308)	(0.309)	(0.307)	(0.309)	(0.318)
Degrees of freedom	90	92	91	91	91	91	91	97
Wald $\chi 2$	10058.44	10984.30	9990.48	9982.11	10349.36	10056.35	10139.18	11393.65

***p≤.001 **p≤.01 *p≤.05 †p≤.1; Note: all models contain fixed effects for markets and years.

Models two through seven introduce each hypothesized variable one at a time. The hypotheses receive strong and nearly universal support. In model two, there is an inverse curvilinear relationship between average firm distance and product characteristics, such that the effect of distance is greatest at an intermediate level of producer differentiation. Calculating across the observed range of average firm distance, the combined effect is consistently positive and strong, with the peak occurring almost two standard deviations above the mean. These findings support hypothesis one but indicate that companies' satiation point for differentiation is very high. In the next two models, both measures of decentralization have strong positive effects on product attributes, supporting hypothesis two's argument that the reorganization of large producers into increasing numbers of distinct brands and networks of production alliances encourages innovation. Likewise, models five and six show support for hypothesis three for both types of diffusion. There are strong positive effects of product attributes in directly linked markets and of attributes in conceptually related markets on the subsequent variety of product characteristics in a focal market. Model seven shows that the number of characteristic clusters strongly increases the number of subsequent product attributes, as hypothesis four expects. Attribute clusters provide roots for related innovations and recombination, so the more clusters the greater the subsequent product variety.

The final model integrates all of the variables. Except for the effect of characteristics in related markets, all hypothesized variables remain significant in combination. Together this model shows how internal market dynamics help propel proliferation in product characteristics. The variety of attributes in a market reflects the competitive search for differentiation, the organizational decentralization of large producers, the links between markets, and the cultural resources available from multiple types of characteristics. Figure 11 charts the interaction effect

of average firm distance across the variable's observed range. Past efforts by firms to differentiate have a very large impact on the development of new product features. The peak effect is a multiplication factor of about nine, which occurs about 1.75 standard deviations above the mean. Figure 12 compares the effect sizes for the other predictors in terms of one standard deviation shifts. In comparison to average firm distance, these effects are generally modest, with the expected effect of attribute clusters having the largest magnitude at 19%. However, considering the extensive controls for market size, competition, and general innovativeness, as well as the stable aspects of markets and years, the effects identify a combination of factors internal to markets that can sustain proliferation.

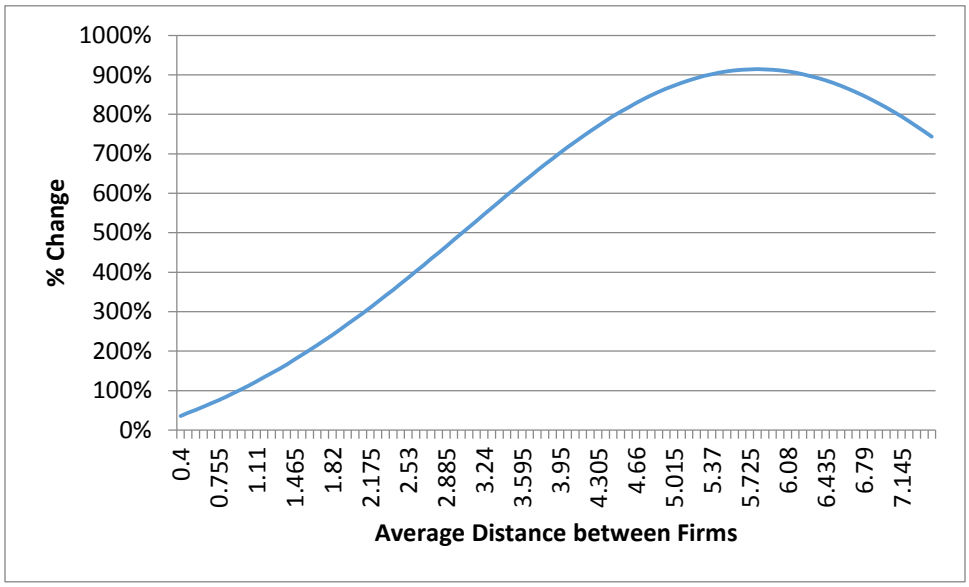


Figure 11 - Quadratic Effect of Average Firm Distance on Product Characteristics

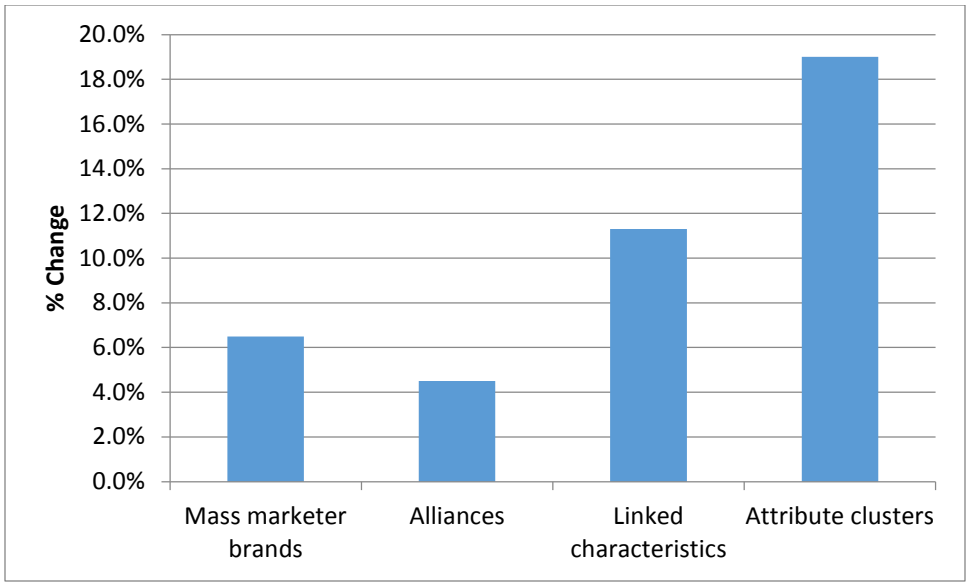


Figure 12 - One Standard Deviation Effects on Product Characteristics

Robustness Checks

To evaluate the robustness of these results, I examined five additional model variants: pooling the observations, using the fixed effects model built into Stata, including the lagged dependent variable, breaking out the data by type of product characteristic (claims, flavors, and ingredients), and substituting a measure of product attribute clusters that aggregated features into much larger and fewer clusters. The results are generally equivalent for all five types of models. Attributes in linked and related markets show some inconsistency. Both variables fall out of significance in the pooled model and in the model that only includes attribute data for marketing claims. There are also interesting variations in these variables for the flavors-only and ingredients-only models. For flavors-only, attributes in related markets becomes significant and linked attributes fall out of significance, while the related markets effect becomes significant and negative for ingredients-only. This pattern suggests that flavors spread more readily within industries as firms search a broader set of comparable markets, while ingredients flow between more tightly connected markets and there may actually be barriers to their wider diffusion. A last

difference is that the effect of producer alliances slips to the p<.10 level of significance in the claims-only and ingredients-only models. Overall, these analyses confirm the robustness of the results to modelling variations, including model types, data subsets, and variable construction.

Applications

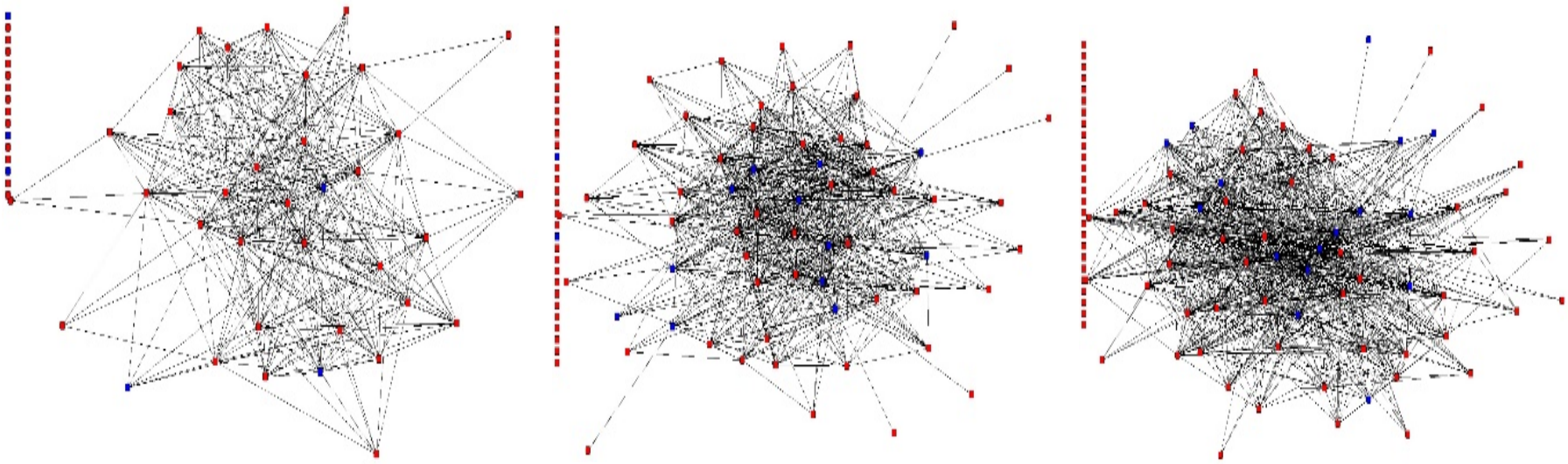
In this section, I utilize the theoretical framework of internal market dynamics to more closely analyze two prominent cases of market proliferation. I apply the first two hypotheses for soft drinks and the last two hypotheses for gluten-free products. These analyses serve to better demonstrate how internal market dynamics encourage the expansion of product attributes.

Soft Drinks: A Proliferation of Lifestyle Choices

The number of niches in the soft drink market has greatly increased overtime, from soda and juice to a panoply of lifestyle-tailored beverages, such as energy drinks, natural juices, coconut water, and numerous variants of bottled water. The amount and pace of change have been staggering in an oligopolistic market that had long been dominated by one or two products. In line with the first two hypotheses, much of this proliferation reflects firms' efforts to differentiate themselves from rivals and also organizational decentralization. The soft drinks manufacturers that have relatively similar products to their rivals have been attracted to novel product features as a way to mitigate intense competition. Figure 13 shows the network of firms tied by common marketing claims at three particularly innovative time points. In order to sharpen the results, each network aggregates three years of new products, and I drop companies with fewer than three products and ties with fewer joint claims than the average firm's claims in a time period. I color nodes blue to indicate that the firm introduced a new marketing claim in

the next time period. In the first time period, the innovative firms are evenly located inside and outside of the main component. In subsequent time periods though, innovations predominantly emerge from firms in dense parts of the network. By introducing new marketing claims, these constrained firms can move into less competitive niches and expand their own market share (Fosfuri & Giarratana, 2009).

In order to deliver the widening product variety, major soft drink producers have reorganized into a disaggregated set of brands. Figures 14 & 15 track these changes through the prominent case of the Coca-Cola company. The figures show networks of marketing claims joined by brands in two five-year time periods. Colors trace the locations of some of Coca-Cola's significant brands. From 1985-1989, the company had two main brands: its namesake (shown in red) and Minute Maid (in orange). In this early time period, the terrain of claims is relatively simple. The two Coca-Cola brands are centrally located and they largely overlap, with Minute Maid reaching out to a few additional claims such as "contains fruit." By 2005-2009, the marketing terrain has become considerably more complex with many new claims. As a mass marketer seeking broad appeal, it could be difficult to satisfy so many different tastes. Coca-Cola mitigates this problem by deploying separate brands in different market regions. Figure 6 shows the market spaces of two of the new brands, Odwalla (in green) and Powerade (in blue), in addition to the flagship brand again. Each brand reaches out into different clusters of claims, with Odwalla appealing to environmental issues and Powerade to fitness concerns. Interestingly, the Coca-Cola brand is also no longer quite as central in the more fragmented soft drinks market. By decentralizing into more brands, large companies like Coca-Cola are better able to innovate and deliver products that appeal to diverse tastes.



1985-87 1997-99 2003-05

Figure 13 - Networks of Firms Joined by Marketing Claims in Soft Drinks Market Showing Locations of Future Innovations in Blue

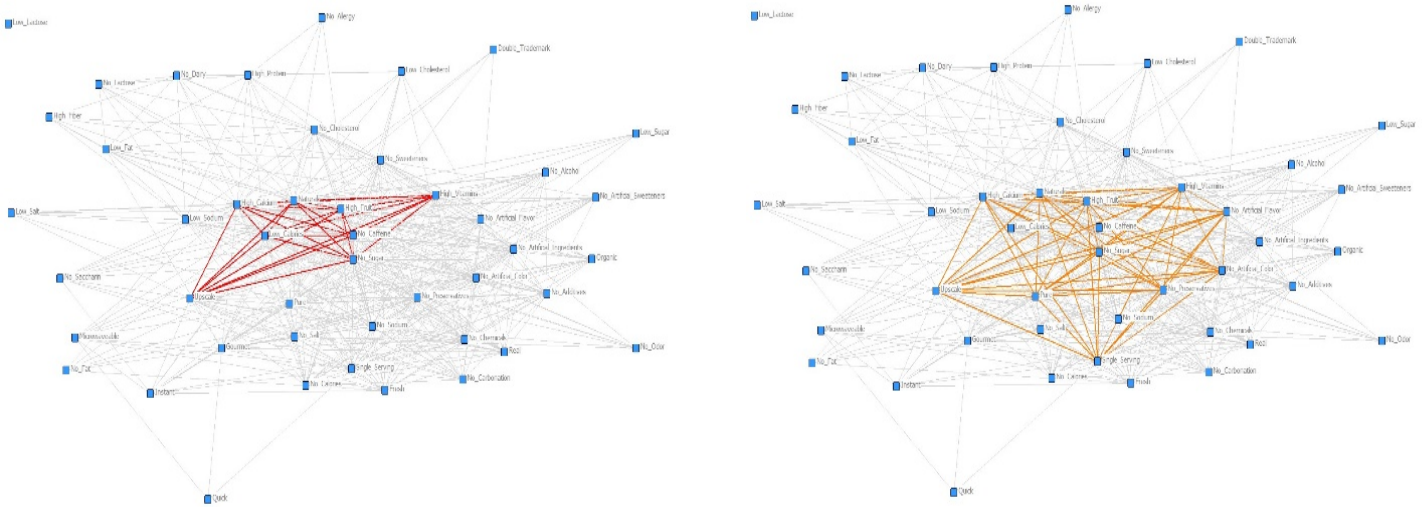


Figure 14 - Positions of Coca-Cola and Minute Maid Brands in Soft Drinks Market, 1985-1989

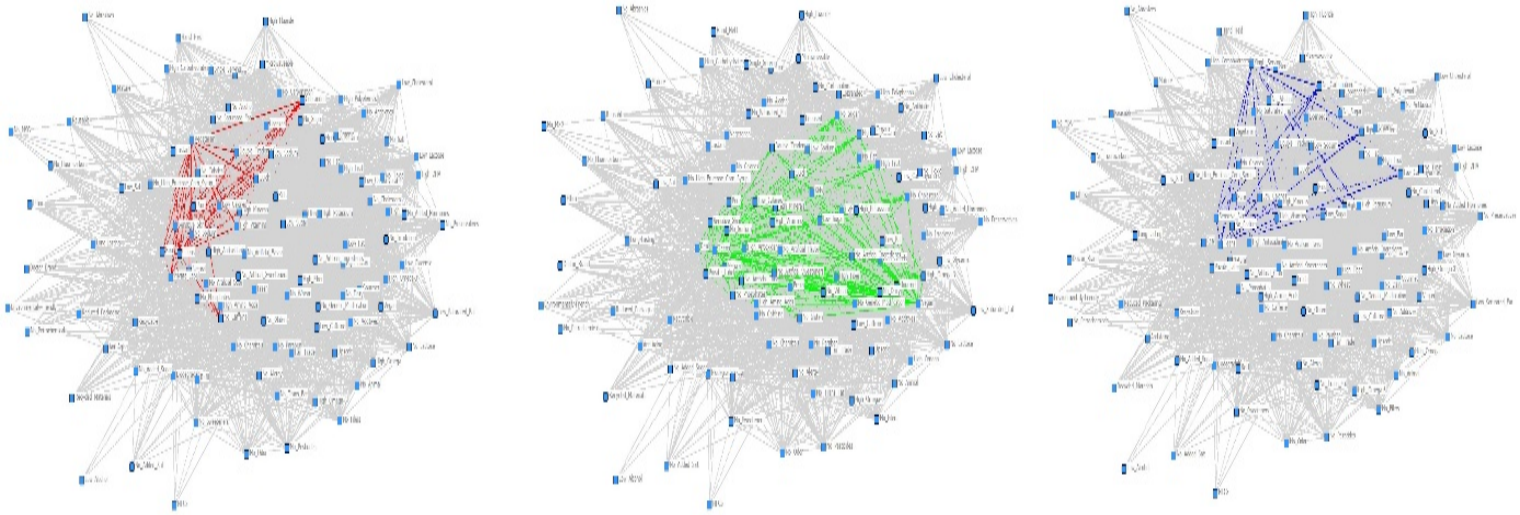


Figure 15 - Positions of Coca-Cola, Odwalla, and Powerade Brands in Soft Drinks Market, 2005-2009

Gluten-Free: A Study of Marketing Metastasis

The meteoric rise of gluten-free products has puzzled many observers because the claim's popularity dwarfs the population with Celiac disease, which means that many consumers forsake gluten without medical necessity (O'Brien, 2011). Although gluten-free appeared to come out of nowhere, much of its popularity can be explained by internal market processes, especially the diffusion and elaboration dynamics of hypotheses three and four. Gluten-free is an extension of a cluster of related concerns about allergens and it spread through connected markets. Starting with the elaboration argument, Figure 16 shows how the different claims emerged in sequence with gluten-free following lactose-free, dairy-free, wheat-free, vegetarian, and vegan. Notably, rather than displacing earlier claims, each new claim built on top of the prior ones, which supports the progressive growth model. The accumulation of related claims shows how attribute clusters encourage the development of additional variants. Figure 17 plots the percentage of gluten-free products in a market-year against the average percentage of products with the related claims. The linear trend line accounts for a substantial 38% of the variation.

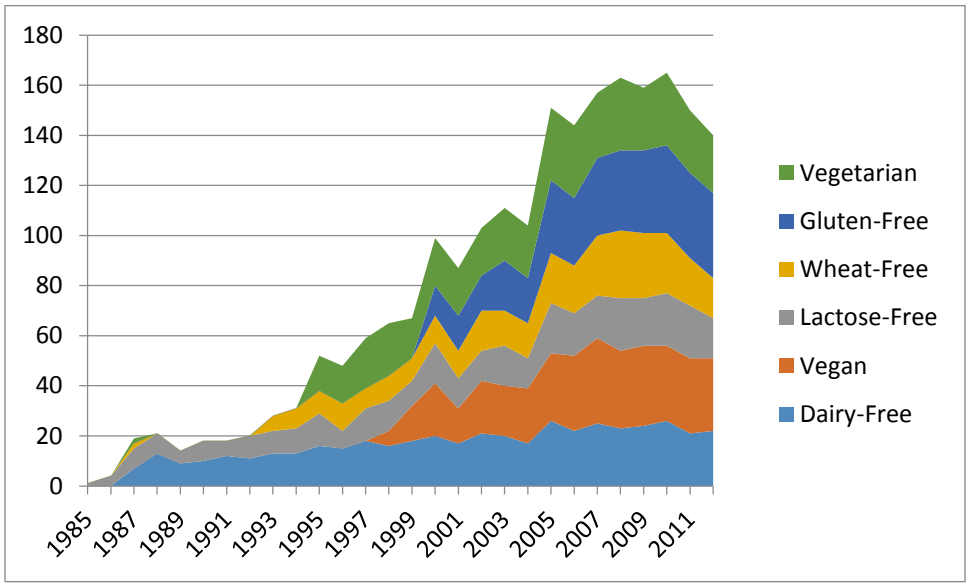


Figure 16 - Markets with Gluten-Free Products and Related Claims

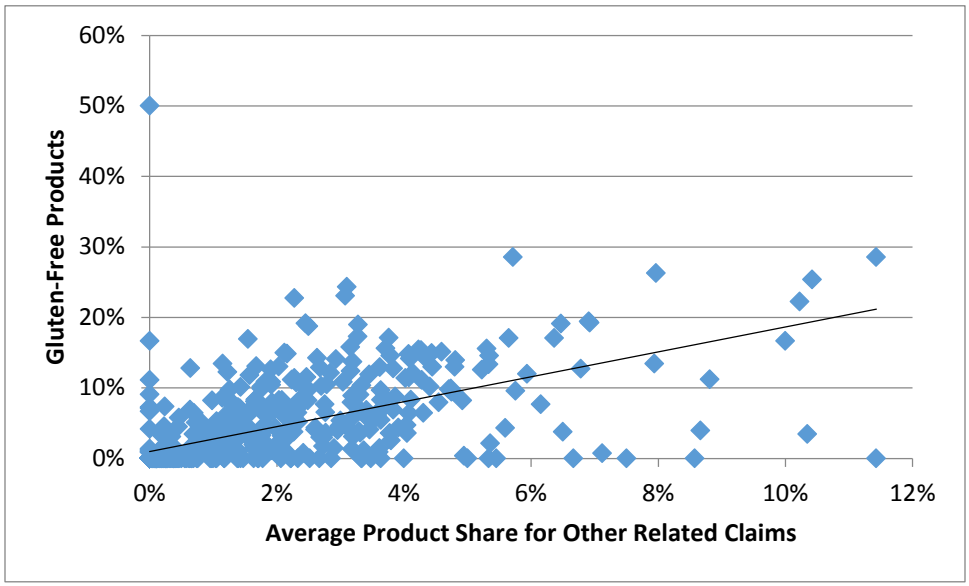


Figure 17 - Association between Gluten-Free and Related Claims

Gluten-free also developed through a web of connections between markets that spreads product attributes. For example, after General Mills entered the niche with its rice-based Chex cereal, the company then planned to introduce gluten-free versions of many of its products in other markets (O'Brien, 2011). Figures 18 and 19 plot the associations between gluten-free products and the strength of this claim in directly tied markets (R-squared = 0.32) and in conceptually related markets (R-squared = 0.38).

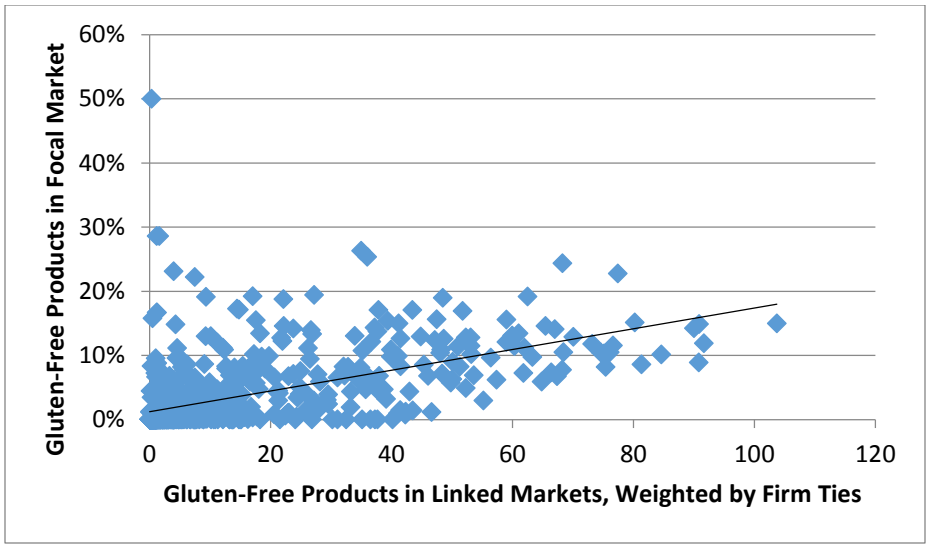


Figure 18 - Association between Gluten-Free Products in Focal Market and Gluten-Free Products in Linked Markets

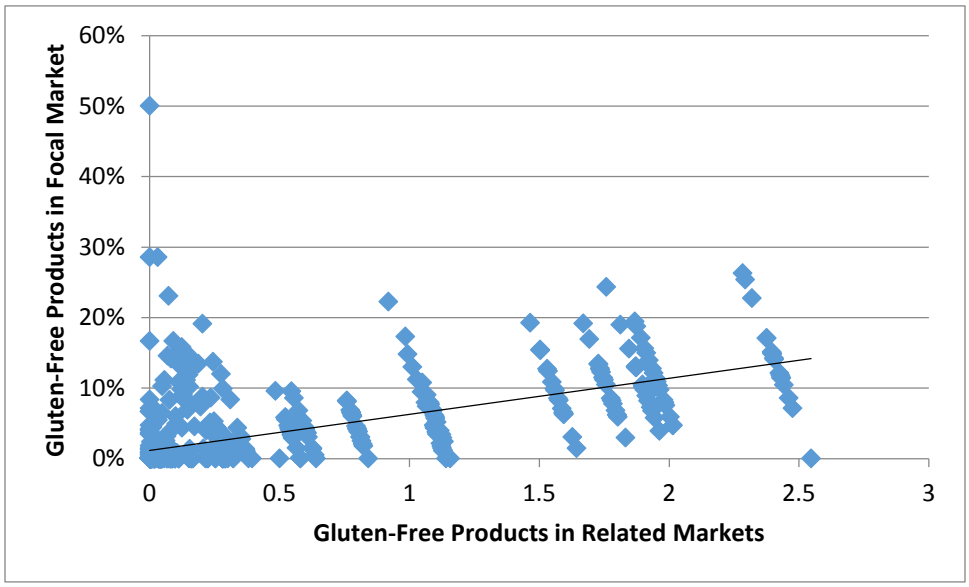
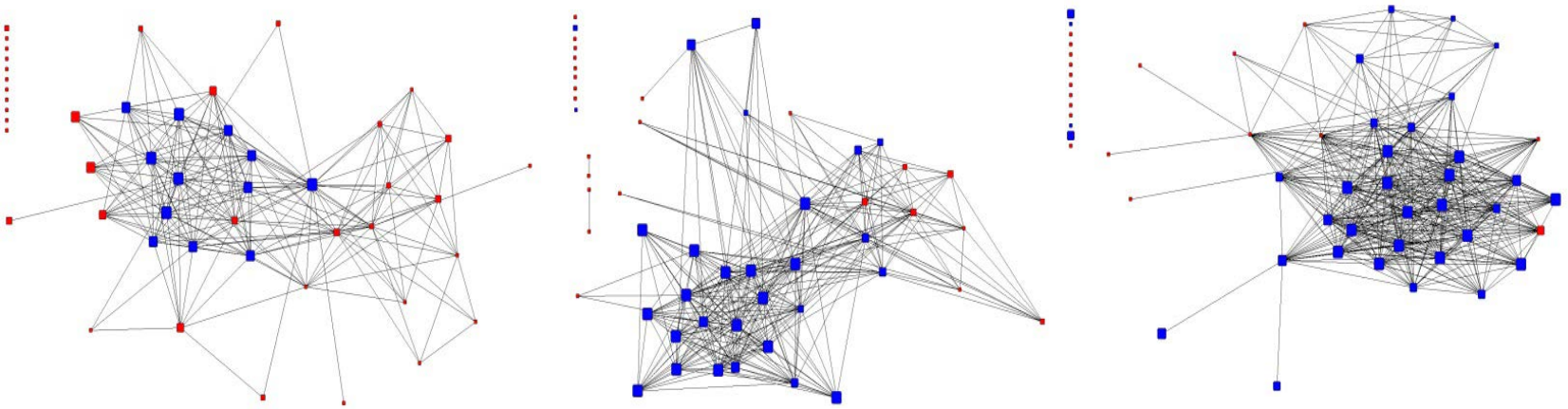


Figure 19 - Association between Gluten-Free Products in Focal Market and Gluten-Free Products in Related Markets

Lastly, Figure 20 uses network diagrams to provide a longitudinal view of the spread of gluten-free claims across markets at three time points: 2000, 2005, and 2010. Each panel in the figure depicts a network of markets, where ties represent a greater than average number of firms operating across a pair of markets, the size of nodes indicates the number of related claims that

are present, and nodes are colored blue if a market contains gluten-free products. Gluten-free entered the data in 2000 in several markets all of which contained related claims. Over time, gluten-free spread widely across connected markets, especially moving from over-the-counter pharmaceuticals into personal care markets, and also from various food markets to saturate this sector. Notably, disconnected markets and markets that lacked related claims showed the least propensity to develop the new claim.



2000 2005 2010

Figure 20 - Networks of Markets Joined by Firms Showing Spread of Gluten-Free Claims in Blue

Note: size of nodes corresponds to presence of related claims.

Discussion

Together these analyses explicate how market structures act as engines of proliferation. The usual explanations for this phenomenon center around technological improvements, distribution capacity, and social diversity, but these factors vary little across the set of markets analyzed here. CPG marketers could respond to these developments by either controlling shelf space with trivially different products or extensively developing new market niches. What I show is how market characteristics affect this decision. The pursuit of separation from competitors, the decentralization that integrates large and small firms, the pathways between markets that spread new product ideas, and the cultural resources that incubate new attribute variants all operate to increase the variety of product characteristics. This is not to argue that the usual factors are irrelevant because technology and distribution capacity must support a given level of product diversity and consumers have to agree to purchase the range of products in a market. Rather, following in the tradition of Harrison White and other economic sociologists, this chapter posits that producers base much of their marketing decisions on relations with their peers and past market positions. Such dynamics lead to durable trajectories of market differentiation, corresponding to the progressive growth model from the prior chapter.

If market structures are responsible for propelling market differentiation, the diversity of consumer goods still matters for social groups and identities. With a greater variety of material objects, individuals have room to more narrowly develop their tastes in alignment with esteemed alters and in distinction from out-groups. Likewise, homophilous group formation processes can play out on a more finely articulated terrain of consumer tastes. Consider again the historic example of General Motors disaggregating car models by income. This innovation allowed a much greater range of social positioning among consumers than was previously available. Now

the division was not just between consumers of the ubiquitous Model T and luxury custom cars but also among various middle income strata. Similarly, the range of expression through soft drink choices has expanded beyond Coke vs. Pepsi or cola vs. uncola to encompass sports drinks, energy drinks, vegetable juices, natural teas, fermented tonics like Kombucha, numerous variants of bottled water, and much more. Once in the market, this greater product variety supports a more extensive network of lifestyle and group affiliations, regardless of the relative agency of producers and consumers in developing the innovations.

Such market-led social differentiation raises issues about the ways that markets incorporate social divisions in addition to questions about stratification and homophily. If groups gain recognition through their inclusion in new market niches, markets also refract group identities and then provide resources to push these identities in directions conducive to producers. The alignment between market and social divisions may also sharpen boundaries in ways that are objectionable to groups that seek broader engagement across society – a problem that parallels the dilemma of mass marketers facing a fragmented audience. These issues are especially poignant when social movements produce the values that companies incorporate as new market niches. The question becomes whether activists are able to regulate the use of their ideas by marketers or not. The answer has implications for social change, and the ability of social movements to regulate markets. The next chapter considers these questions in the case of the environmental movement and green marketing.

Chapter 4: The Struggle for Control over Movements in Markets: Environmentalists, Marketers, and Natural Products

In the closing decades of the 20th century, consumer marketers increasingly emphasized the "natural" quality of their products but often to the chagrin of environmentalists. The extensive but criticized growth in environmental marketing appeals offers puzzling evidence for both movement influence and weakness. On the one hand, natural products invoke environmental goals of greater harmony with nature and their presence has grown tremendously over time. On the other hand, complaints about deception in products that falsely claim to be natural or "greenwashing" have also proliferated. Further, much of the activity around natural products is poorly aligned with the interests of either activists or mass marketers. To combat concerns about greenwashing, producers often attach additional claims, especially claims that attest to products being free-from various harms. These negative claims are thin virtues compared to activist goals of sustainability and holistic wellness but are also more substantial modifications of product sourcing and formulation than mass marketers might prefer. In addition, mass marketers have responded to the greenwashing controversy by using the acquisition of dedicated green companies as a leading strategy for market entry. The acquisitions are both highly controversial for activists and very expensive for mass marketers.

These developments confound existing models of how social movements relate to markets. The two leading perspectives are that movements reform markets or that markets coopt movements. The simultaneous growth of movement ideas and misgivings in the marketplace, as

well as the emergent practices of free-from claims and acquisitions, suggest the need to theorize movement-market interactions that go beyond activists reshaping markets or companies hijacking movements. In the analyses that follow, I integrate several developments in social movements research in order to articulate a novel model of movement-market interactions as a struggle for control over movements' ideas in markets. This model predicts outcomes that are more numerous, inconsistent, and unintended than either the reform or cooptation perspectives would expect.

The remainder of the paper has six parts. In the next section, I explicate my theory of movement-market interactions. Following that, I introduce the texture of the shifting relations between environmentalists and businesses through the history of the natural marketing claim. Then I develop hypotheses to explain the contested development of natural products. In the subsequent two sections, I explain my data and methods and present regression models to test the hypotheses. I conclude by discussing implications for theories of social movements and markets, and suggesting further lines of investigation.

Theorizing Movement-Market Interactions

A leading perspective on how social movements relate to markets is that movements reform markets. The ideas of social movements gain representation in new products that incorporate their concerns, which grow within markets through the work of activists to neutralize opponents, moderate difficult market conditions, improve regulations, and mobilize customers and entrepreneurs (King & Pearce, 2010). Notably, many of the studies in this tradition focus on the environmental movement, reflecting the strengths of this movement (Evans & Kay, 2008;

Hoffman, 2001; Schurman & Munro, 2010; Sine & Lee, 2009; Vasi, 2011b; Weber et al., 2008; Weber, Thomas, & Rao, 2009).

A rival perspective, which is less fully theorized, is that markets coopt social movements. In this view, powerful companies hijack, reinterpret, or more benignly extrapolate activists' ideas to pursue their own market goals (Dobbin, 2009; Haveman et al., 2007; Hiatt et al., 2009). Such pathways connect movements to changes that activists never envisioned. A sizeable group of studies in this camp also focus on the environmental movement, this time highlighting its weaknesses, especially in consumer markets (Jaffee, 2012; Johnston, 2007; Lounsbury et al., 2003; Sikavica & Pozner, 2013; Szasz, 2007).

While greatly expanding our knowledge of movement-market interactions, both research in the market reform and the movement cooptation perspectives neglects the diversity of influential actors and the importance of contentious interactions for shaping movement consequences. On the first point, the boundaries between activist and business camps are increasingly blurry. Environmentalists' attitudes towards markets range from disruptive protests to cooperation in co-branding products (Bertels, Hoffman, & DeJordy, 2014; Hoffman, 2009). Similarly, companies' relationships with movements can range from protest targets to active participants, with ethical companies prominently contributing to activist campaigns (Hoffman & Bertels, 2010; Walker, 2014). On the second point, unless companies are disinterested or activists have demobilized, the consequences of movements typically emerge from contentious interactions among multiple interested groups, rather than from either side's goals. For example, Bartley's comparative research on the impacts of ethical certification campaigns across movements, targeted firms, and countries demonstrates how the characteristics of certification systems represent negotiated settlements between activists, companies, and regulators rather than

the intended outcomes of any party (Bartley, 2007; Bartley & Child, 2011). These two points — growing diversity among activists and business, and movement consequences developing through interactions with non-movement groups — undermine more linear narratives about market reform or movement cooptation.

Drawing on these concepts of diverse contestants and contextualized movement influence, I articulate a model of the ongoing struggle between activists and marketers that pulls markets in multiple directions. When movements become entangled with markets, a contest between varied activists and companies develops to define the meaning of movement ideas within the market context.[1] In this case, environmentalists and marketers compete over the definition of natural products, over what counts as a green product versus greenwashing. Success in this contest yields products that represent a particular group's understanding of natural products, as well as consumers attached to these beliefs (Bourdieu, 1984; Fligstein & McAdam, 2012).

Further, the history of struggle over the defining principles of a field generates new values and symbols that did not originally belong to either side. Without analyzing the contentious interactions that unfold over time, it is not possible to understand why free-from claims and brand acquisitions have become leading market strategies for natural products. Neither of these characteristics aligns well with the goals of activists or marketers but instead they emerge from a history of conflict over the meaning of natural. The controversy over whether natural products are green or greenwashing encourages producers to add free-from

[1] Activists and companies are the two most important actors in this case. Other actors, especially state agencies, are often consequential but government regulations are generally weak for green products in the U.S. Where substantial, as in organic certification, the regulations have become a venue for competition among activists and businesses seeking varying levels of stringency.

claims, which are more verifiable, to their natural products. It also incentivizes mass marketers to cloak their identities through distinct green brands, which they often acquire and keep separate from the parent company because they appear more environmentally trustworthy.

In results developed below that substantiate this theory of movement-market interactions as definitional struggles, I examine how the development of natural products reflects the greenwashing controversy. In response to environmentalists' criticism of greenwashing, companies reinforce the meaning of natural by connecting additional green claims to their natural products. Firms that are dedicated to making green products are especially likely to elaborate their natural products, and both activist criticism and competition from conventional producers increase this tendency. Identity cloaking, which I define as the use of specialized brands to enter movement-aligned niches by mass marketers, also increases in response to movement pressures on a market. However, neither outcome traces back to the intentions of activists or marketers. These results show how movement-market interactions warp the influences of each side and generate emergent consequences. In this view, the entry of a movement into a market sets off a struggle for control over the movements' ideas among heterogeneous activists and marketers. The outcomes of this struggle shape the products, processes, and participants in the market, as well as the entangled social movement. In the next section, I illustrate these dynamics with historical materials, which will help motivate the subsequent hypotheses.

The Contentious Evolution of Natural Products

Natural is the single most important environmental claim in U.S. markets for consumer packaged goods (CPGs), such as soft drinks, frozen foods, and household cleaners, totaling $117 billion in sales in 2010.[2] Figure 21 charts the percentage of new natural CPGs over time, using data that I explain in the methods section below.[3] Growth is fairly steady, reaching a peak of nearly 30% in 2007 before collapsing during the Great Recession, which sapped business investment and redirected marketing towards consumer value. Beneath this simple story however is a complex and evolving set of dynamics. Activist-oriented entrepreneurs originally carried the natural flag into the market but soon found themselves sharing it with conventional companies. Subsequently, the claim became subject to fierce criticism for its vagueness and misuse. These attacks did little to reduce the claim's popularity but have encouraged efforts to fortify the meaning of natural.

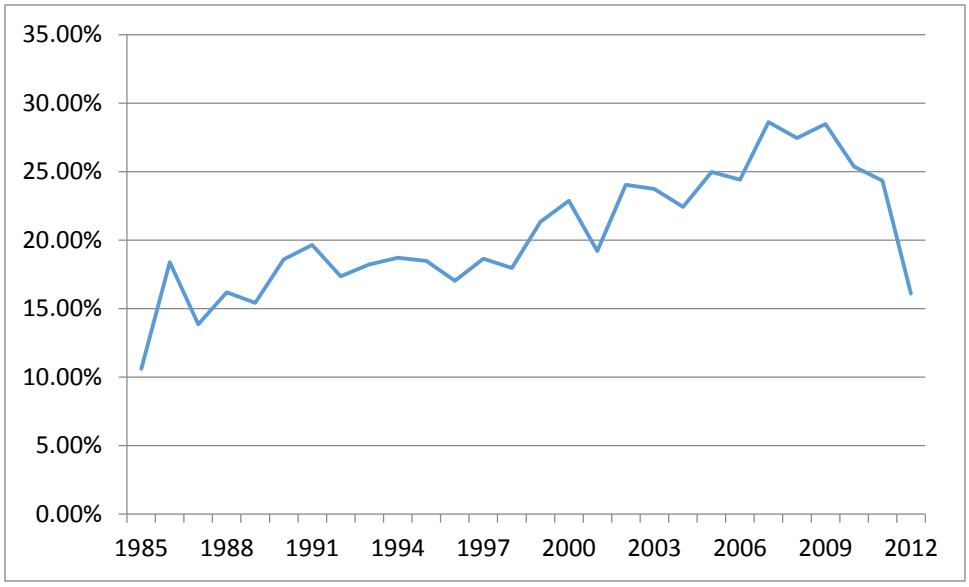


Figure 21 - Percentage of New Products with Natural Claims, 1985-2012

[2] Source: http://www.npainfo.org/NPA/AboutNPA/AbouttheNaturalProductsAssociation.aspx, accessed 3/31/15.
[3] Percentages are preferable to raw numbers, which exhibit a similar pattern, because of the general growth in new products over time.

The roots of natural products are twofold. One path lies in the development of health foods, which traces back to maverick food producers such as John Harvey Kellogg and Sylvester Graham in the 19th century (Gusfield, 1992). The other path is the countercultural scene of the 1960s, which developed natural alternatives to the industrial food complex and its artificial products (Belasco, 2007). Over time, industry participants preferred "natural" over "healthy" for its marketing advantages,[4] a move that would set up later criticisms of the claim's pliability.

The marketing appeal of natural also attracted considerable attention from conventional companies. According to one estimate, by 1980 "7 percent of all supermarket items were in some way labeled 'natural'" (Belasco, 2007, p. 192). My data show that this growth trend continued until the late 2000s. The corporate acquisition of natural producers also began in 1984 with Dart & Kraft's buying Celestial Seasonings. Although this deal would unravel, acquisitions accelerated greatly in subsequent decades (Howard, 2009).

However, concerns about quality haunted these moves to take natural mainstream. Industry and government scientists had long questioned the health claims of alternative foods but now that big companies were involved there were newly urgent questions about sincerity and truthfulness. In July 1980, the cover article of *Consumer Reports* read, "It's Natural! It's Organic! Or Is It?" The article went on to critique products from Nabisco, Pillsbury, Quaker Oats, and Anheuser-Busch for misleading use of the natural claim on products that were highly processed and contained artificial ingredients. Further, without the anchor of "health foods," marketers proceeded to attach natural to a bewildering array of often unhealthful products. The

[4] For instance, the trade group, the American Health Foods Association, founded in 1936, changed its name to the Natural Products Association in 2006. See http://en.wikipedia.org/wiki/Natural_Products_Association.

reprocessing of yogurt and granola from simple health products into complex junk foods provide textbook examples of this process (Belasco, 2007).

The void that allowed these questionable products and many more was the absence of a legal definition of natural. The Federal Trade Commission (FTC) had launched an effort to regulate natural claims in 1974, during the high period of consumer regulation, and proposed a rule in 1980. The political tides had turned by that time though, and Reagan's administration scrapped the rule in 1982 (Burros, 1982). Since then, both the FTC and the Food & Drug Administration (FDA) have repeatedly declined appeals from activists, businesses, and judges to provide a regulation, citing lack of consensus about the meaning of natural. In the context of this regulatory void, activist criticism against natural products has intensified over time. In 2006, the Center for Science in the Public Interest (CSPI) initiated a legal strategy by suing Unilever's Ben & Jerry's, Kraft's Capri-Sun, and Cadbury Schweppes' 7-UP for claiming to be "all natural" despite containing high-fructose syrup (HFCS). Despite fervent opposition, the marketing of natural products persistently grew until the Great Recession (see Figure 1).[5]

Although the growth of natural products did not slow in response to the greenwashing controversy, the market niche did evolve in two ways that altered the meaning of natural. First, companies increasingly combined the natural claim with other green claims that could shore up their products' environmental credentials. Figure 22 documents growth in the share of natural products that included other green claims. Figure 23 depicts the frequency of particular claim combinations, and shows that companies predominantly attached free-from harmful chemical and ingredient claims, such as no additives and no pesticides, to their natural products. Although

[5] Recently lawsuits by plaintiffs' attorneys may disrupt the growth of natural products. This possibility was the theme of the industry panel: "GMOs and 'Natural' Claims Litigation: Five Ways to Protect Your Company." Natural Products Expo West. March 6-9, 2014, Anaheim, California.

these negative claims are somewhat meager steps towards holistic sustainability, they improve upon the natural claim in that they are more verifiable and substantial.

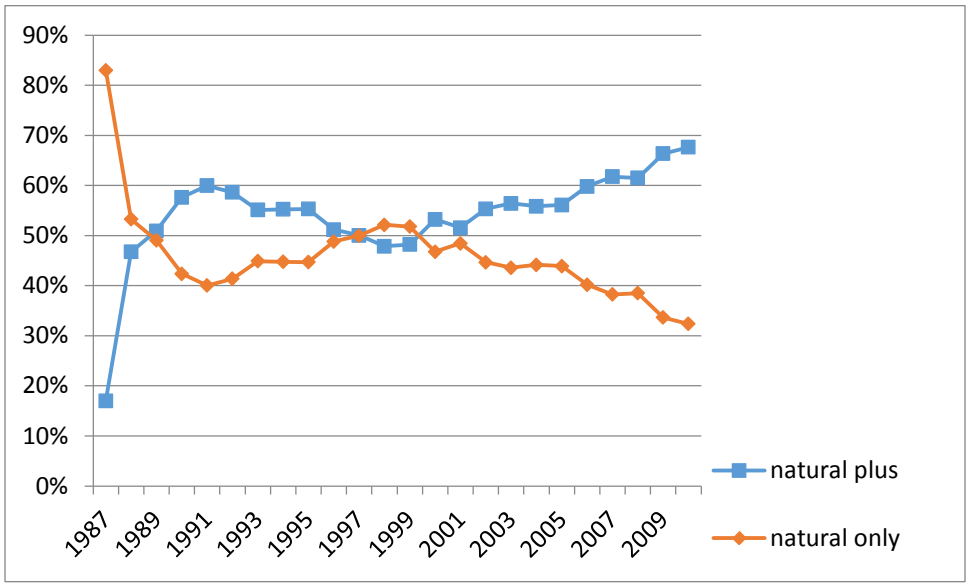


Figure 22 - Percentages of New Natural Products by Additional Green Claims, 1987-2012

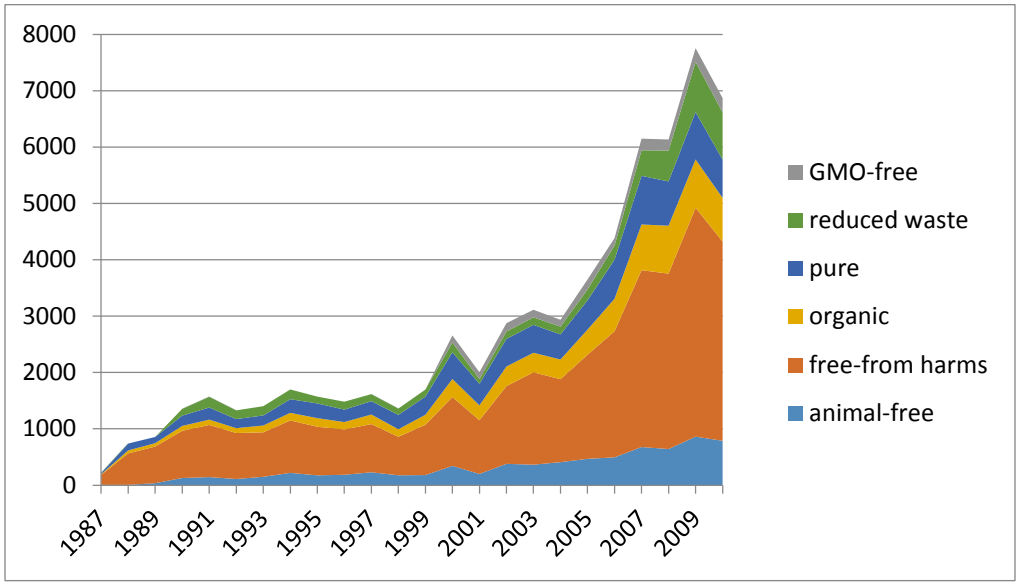


Figure 23 - Counts of Other Types of Green Claims Tied to New Natural Products, 1987-2012

Second, mass marketers increasingly utilized distinct brands that specialized in green marketing to introduce their natural products, as opposed to extending conventional product lines with natural versions (see Figure 24). The use of distinctive brands hovered around 10%, which is typical for all new products (Kadiyali, Vilcassim, & Chintagunta, 1999, p. 340), until it boomed in the late 1990s to two-and-a-half times that rate. For many activists, this practice was a deceptive way to obscure the true manufacturer and its environmental problems. The fact that large companies procured many of their green brands through acquisition made it more controversial and also very expensive for the mass marketers. The acquisitions especially took off in the late 1990s, following the acquisitions of Muir Glen and Cascadian Farm by General Mills, which corresponds with the evident spike in Figure 24. Despite the investments in growing the natural market, some activists denounced the acquisitions for selling out to anti-environmental companies. For example, following a bruising battle over GMO labeling in California, the Organic Consumers Association launched a boycott against "traitor brands," which were natural brands that belonged to conventional companies.

This history suggests a complex interplay between activists and marketers in shaping natural products. When environmental ideas entered into the thinly-regulated consumer markets, a controversy erupted over the faithfulness of natural products to activist ideals. Groups with varying environmental positions struggled over the demarcation between green products and greenwashing. The results of this conflict led to the elaboration of natural, especially as associated with free-from claims, and to the expansion of specialized brands within mass marketers. In the next section, I develop formal hypotheses to explain these practices.

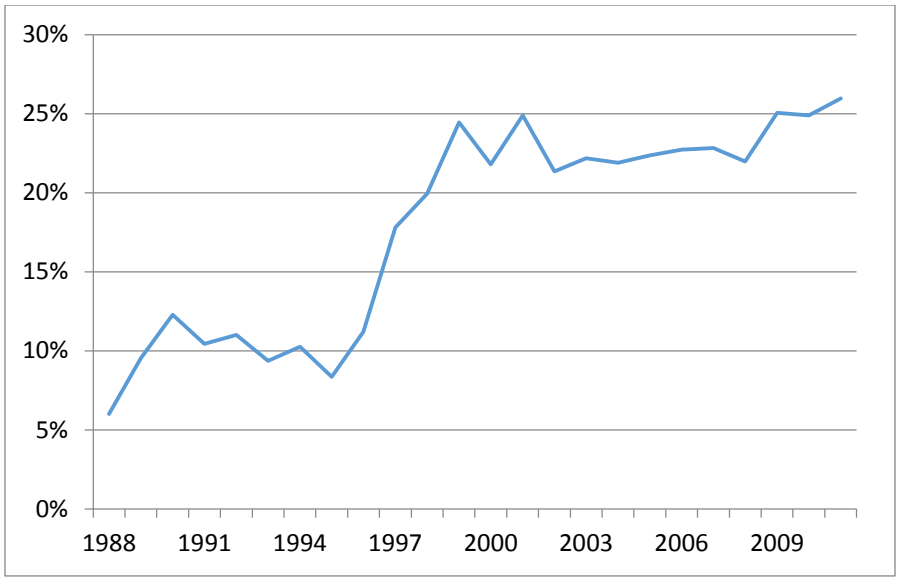


Figure 24 - Prevalence of Specialized Brands for New Natural Products from Mass Marketers, 1987-2012[6]

Explaining the Development of Natural Products

Social movements stir up markets by problematizing old practices and introducing new ideas. Punitively, activists increase the costs of violating movement norms (Bartley & Child, 2011; Eesley & Lenox, 2006; King, 2008). More positively, activists inject problem claims into the public consciousness, which creates opportunities for companies to offer products that address these concerns (Rochon, 1998; Zald, Morrill, & Rao, 2005). Activists also formulate new values that guide entrepreneurs who identify with the movement (Weber et al., 2008), as in the criticism of artificial foods that inspired the early countercultural development of natural products (Belasco, 2007).

Corresponding to the diversity in attitudes towards markets among environmentalists (Hoffman, 2009), particular factions of the movement have also sought to restrict green

[6] Data are for companies with at least five brands and are smoothed with a three-year moving average.

marketing. For some activists, the general idea of improving the environment through producing and consuming goods is suspect (Schnaiberg, 1980; T. M. Smith, 1998). In other cases, environmentalists object to the clumsy or deceitful efforts of firms to convert movement values into products that are not as green as they appear. The marketing claim of natural has been subject to extensive charges of greenwashing. Such controversy threatens to delegitimize the claim, draining it of value to consumers. Prior research has focused on how such pressures can push companies to abandon a challenged product (Hiatt et al., 2009; Weber et al., 2009), but firms can also respond more strategically by attempting to incorporate activist concerns into existing products. In response to criticism against natural products for greenwashing, companies are likely to strengthen the claim by anchoring it to additional green claims, which bolsters the environmental credentials of a product. Such reasoning leads to my first hypothesis:

> *Hypothesis 1*: The more that activists criticize natural products for greenwashing, the more likely it is that natural products will include additional green claims.

Producers that are more attached to movement values are particularly likely to make these changes. Since environmental concerns are central to their identity, they should be more eager to shore up the environmental credentials of their natural products. Also, to the extent that elaborating the meaning of natural represents environmental progress, green specialists should be more likely to follow this strategy. Further, specialists should have closer ties to the environmental movement, which makes them more receptive to activist ideas (Weber et al., 2008). For these reasons, I expect the following two hypotheses:

> *Hypothesis 2*: Specialization in environmental concerns makes companies more likely to attach additional green claims to their natural products.
>
> *Hypothesis 3*: Specialization in environmental concerns increases the effect of greenwashing criticism on adding green claims to natural products.

The entry of conventional companies into activist niches puts further pressure on specialized producers in two ways. First, it threatens to undermine the value of natural claims by creating uncertainty among consumers about the environmental virtues of natural products. For many mass marketers, green claims are a way to develop new market niches, differentiate themselves from competitors, and escape slow to negative growth in conventional product lines (Banerjee et al., 2003; Nidumolu et al., 2009; Unruh & Ettenson, 2010). Here the drive of companies to enter the green niche derives from profit motives, rather than from activist ideals. This dynamic creates suspicion about the credibility of the natural claim. Notable abuses, such as the use of high fructose corn syrup in natural products by Unilever and others, fan these suspicions. Second, the well-resourced conventional firms threaten to outcompete the smaller specialists. Both pressures should encourage dedicated companies to elaborate natural products with additional green claims, which makes the products appear more truly green and also more difficult to imitate. Resource partitioning theory suggests that specialists develop peripheral niches to avoid competition with generalists (Carroll, 1985; Carroll & Swaminathan, 2000). Here, I am theorizing how specialists will elaborate their niches in reaction to entry by generalists, which I formalize in the next hypothesis:

> *Hypothesis 4*: The introduction of natural products by conventional companies increases the effect of firm specialization on including additional green claims in natural products.

The controversy around whether natural products are truly green or greenwashing should also affect the particular green claims that producers add to their natural products. In order to mitigate activist criticism and customer doubts, producers should select additional claims that are verifiable and central to their products' formulation. This reasoning suggests that organic should receive the most attention since it is a legally regulated claim that verifies that the ingredients in

a product meet certain environmental standards. GMO-free should be second because this claim is a significant part of the organic standard, is typically certified, and is significant in the consumer imagination about natural.[7] Free from artificial ingredients, free from toxic chemicals, free from allergenic ingredients, and animal-free claims should follow in approximately that order, as these are also verifiable and concern product formulation. Claims about packaging and vague claims of purity should be least useful in redressing greenwashing concerns.

Hypothesis 5: The effects of hypotheses one through four should be stronger for claims that are more substantial and more central to product formulation.

The greenwashing controversy should have additional impacts on conventional companies because their movement-related products are subject to intense criticism and suspicion. There are at least three possible reasons for these pressures. First, given the complexity of following rapidly changing movement ideas and translating these ideas into products, the movement-aligned products of mainstream companies may be inferior to those from dedicated firms, which may be more competent at understanding and interpreting the relevant social movement (Hannan, 2010). Second, loose regulations create considerable leeway for companies in aligning production practices with marketing claims, and movement-dedicated firms may be more faithful in adhering to movement values in their product decisions because these companies have internalized the values (Ottman, 2011; Reinhardt, 1998). Third, the movement-aligned products of conventional companies may be tainted by other actions of the diversified companies that contradict movement values (Carroll & Swaminathan, 2000; Phillips et al., 2013).

[7] An executive of the United Natural Products Alliance called GMOs the number one problem for the credibility of natural products among consumers. He linked this issue to consumers' "back to Eden" desires in the tradition of naturalist Yule Gibbons (field notes from Natural Products Expo West, 3/18/14).

In response to these pressures against spanning the movement-conventional boundary, firms can manipulate their presentation of self to better align with consumer expectations (Phillips & Kim, 2008). In particular, I use the concept of *identity cloaking* to theorize the marketing by conventional companies of movement-aligned products under distinct brands that are dedicated to movement niches. This strategic practice serves to create the impression among consumers that the movement-aligned products are made by firms dedicated to movement values. Note also that using an alternate brand name is quite consequential for producers because the principal assets of consumer goods companies are their brands, which convey quality and trust (Kotler & Armstrong, 2012). By forgoing an already established brand name, conventional producers sacrifice considerable customer appeal and economies of scale in marketing. This is especially significant in the area of new products and new claims, for which consumers have less understanding and trust (Moor, 2007; Ottman, 2011). Therefore the use of distinct brands for movement-aligned products is likely to be a response to movement pressures on markets that heighten the saliency of producers' commitment to movement values, increasing penalties against spanning across conventional and movement niches.[8] In other words, activist influence on markets increases the salience of movement values among consumers and the incentives for producers to enhance their apparent alignment with these values through identity cloaking. This influence is evident in the intensity of greenwashing criticism, the prevalence of movement-dedicated producers, the elaboration of movement-related claims, and the environmental quality of natural products.

[8] In addition to the preferences of movement-aligned consumers for specialists, these pressures could also operate because companies want to avoid contaminating their conventional products with movement associations. However, the former dynamic is a more straightforward interpretation of the effects reported below. Consider also the counter-example of Clorox using its own brand name for its green cleaners because the company sought to convey their efficacy.

Hypothesis 6: The more that activists criticize natural products for greenwashing, the more likely it is that a conventional firm will cloak its identity for its natural products.

Hypothesis 7: The greater the prevalence of environmentally-specialized producers in a market, the more likely it is that a conventional firm will cloak its identity for its natural products.

Hypothesis 8: The more that natural products include additional green claims in a market, the more likely it is that a conventional firm will cloak its identity for its natural products.

Hypothesis 9: The higher the environmental quality of natural products in a market, in terms of not containing any unnatural ingredients, the more likely it is that a conventional firm will cloak its identity for its natural products.

Drawing together these arguments, I theorize that the introduction of movement ideas into a market sets off a struggle to control the movement's meaning, which yields unanticipated consequences. Activists criticize the partial incorporation and reinterpretation of their values in markets, stimulating controversy about the credibility of movement-aligned products. Companies elaborate these products with additional claims to reduce consumer doubts. Movement-dedicated companies are especially eager to reinforce their position, and particularly in response to the criticism and cooptation of movement ideas by mass marketers. This dynamic leads to a further proliferation of claims as specialists attempt to shore up their movement credentials and maintain their differentiation from conventional competitors. Facing special scrutiny and opposition, generalists also adapt to the conflict by deploying opaque organizational devices in order to overcome concerns about their insufficient commitment to movement values.

Data and Methods

Outcomes and Models

The main empirical materials for this chapter again come from the Product Launch Analytics data from Datamonitor. In particular, I utilize data on 43 marketing claims that are relevant to environmental issues. In addition to natural, these claims cover a range of issues from genetic modification and added hormones to recycling and animal welfare. See the Appendix for the full list of claims and a discussion of their selection.

To study the elaboration of natural products, I use two main dependent variables. The first is whether a natural product has other environmental claims attached to it or not, which I use for hypotheses one through four. There are 52,579 natural products in the data and 29,296 of them have additional green claims. I also use eight variants of this variable for hypothesis five, which examines whether effects vary by the type of additional green claim. Here the outcome is whether a natural product has a particular type of environmental claim attached to it or not. I organize the 42 additional environmental claims into nine groups: organic, GMO-free, free from artificial ingredients, free from toxic chemicals, free from allergenic ingredients, animal-free, purity, waste, and miscellaneous (see Appendix).

The second dependent variable is whether a natural product from a conventional firm has its identity cloaked through the use of a specialized green brand or not, which I use for hypotheses six through nine. I define firms and brands as dedicated to natural products if at least 80% of their products claim to be natural, and conventional otherwise. I exclude private label products from this analysis because of their different branding strategies. There are 34,354 natural products from conventional companies, and 4,893 of them are marketed under separate green brands.

Since both outcomes are binary, I use logistic regression models. The level of analysis is the product, and I control for characteristics of the product, as well as its manufacturer and market. I also estimate robust standard errors clustered around firms to correct for nonindependence of observations.

Independent Variables

Hypothesis one concerns the effects of greenwashing criticism. To develop a measure of this criticism, I collected relevant newspaper articles from LexisNexis. Tracking social movements through newspapers follows a well-established research tradition (Earl, Martin, McCarthy, & Soule, 2004). I searched LexisNexis to identify articles that matched "natural" and at least one term from a set of keywords that identify concerns with false claims: deceptive, misleading, and greenwashing. I restricted the results to newspaper articles and required matching of both natural and a greenwashing term to occur within the same paragraph. The results of this process was a yearly count of the number of articles criticizing greenwashing and natural. I logged the count to control for skewness and lagged it by one year. Greenwashing criticism should increase the likelihood of natural products including additional environmental claims (H1) and also of identity cloaking (H6).

The next three hypotheses concern the effects of producer dedication to environmental concerns. Here, I measure specialization as a continuous variable, using the percentage of a firm's products that are natural in a given year. This variable captures more detail in specialization than a binary measurement, and allows companies to reposition themselves over time. Hypothesis two predicts that specialization increases the likelihood that a firm will elaborate its natural products with additional green claims. Hypotheses three and four add that greenwashing criticism and competition from conventional companies will increase the specialist

tendency towards elaboration. For hypothesis three, I interact specialization with greenwashing criticism and the effect should be positive. For hypothesis four, I use two measures of competition from conventional firms. The first is calculated as one minus the average firm specialization for natural products in the prior market-year, which is the converse of average specialization in natural products. I refer to this variable as generalism. The second is the number of natural products with unnatural ingredients in the prior market-year. I use a list of ingredients that are unacceptable in natural products from Whole Foods Market.[9] I then interact both variables with firm specialization and expect that both interaction terms should be positive.

For hypothesis five, I estimated the effects from the first three hypotheses for eight different types of additional green claims. Coefficients should be ranked in this descending order: organic, GMO-free, free-from artificial ingredients, free-from toxic chemicals, free-from allergens, animal-free, purity, and waste reduction.

The last three independent variables, for hypotheses seven through nine, concern identity cloaking. The average firm specialism in natural products, the average number of additional green claims attached to natural products, and the percentage of natural products without unnatural ingredients should all increase identity cloaking. I measure these variables within market-years, and I correct for skewness in attached claims with a log plus one transformation.

Control Variables

In the models of natural elaboration, I separate natural elaboration from general claim proliferation by including the number of conventional marketing claims that a product uses, the number of claims that a firm uses besides the ones in the focal product, and the number of claims

[9] Source: http://www.wholefoodsmarket.com/about-our-products/quality-standards, accessed on 4/15/15.

in a market. The firm's numbers of products, brands, and markets control for the effects of firm size and scope. The numbers of firms in a market and the market concentration, measured as a Herfindahl-Hirschman index of firms' product shares, capture competitive conditions.

In the identity cloaking models, I include a count of the product's green claims to capture a product's engagement with environmental concerns. I also enter the same controls for firm size and scope, as well as competitive conditions. The firm's number of brands is an especially important control for this model since identity cloaking entails utilizing multiple brands.

To correct for skewness, I adjust all of the foregoing control variables with log plus one transformations where variables include zeros and log transformations otherwise. A year trend controls for linear changes in natural elaboration and identity cloaking. I also include fixed effects for markets to control for stable aspects of markets that shape the value of additional green claims and movement specialization, such as any durable associations between a market and environmental concerns.

Table 12 presents descriptive statistics and correlations. Hypothesized variables have moderate positive correlations for the natural elaboration outcome and weak positive correlations for the identity cloaking outcome. Examining the variance inflation factors (VIFs), multicollinearity is not a concern as all VIF scores are well below ten, except for interaction effects where correlation is by statistical design.

Table 12 - Descriptive Statistics and Correlations

	Variable	*Mean*	*Std. Dev.*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*
	Natural Products (n = 52,579)																
1	Additional green claims (0-1)	0.56	0.50	1													
2	Greenwashing criticism (t-1)[1]	4.62	0.69	0.19	1												
3	Firm specialization in natural	0.74	0.33	0.14	-0.03	1											
4	Market generalism in natural products (t-1)	0.26	0.09	-0.02	0.04	-0.15	1										
5	Poor quality natural products	15.94	21.25	0.07	0.47	-0.03	0.09	1									
6	Product's conventional claims[1]	0.91	0.65	0.20	0.31	0.04	-0.02	0.25	1								
7	Firm's products[1]	1.49	1.41	-0.04	0.19	-0.71	0.19	0.12	0.00	1							
8	Firm's brands[1]	0.39	0.81	-0.08	0.06	-0.57	0.07	0.04	0.01	0.68	1						
9	Firm's markets[1]	0.75	0.88	-0.01	0.18	-0.59	0.15	0.08	0.02	0.87	0.63	1					
10	Firm's other claims[1]	1.16	1.21	0.00	0.25	-0.62	0.13	0.16	0.09	0.86	0.63	0.77	1				
11	Market's firms[1]	5.21	0.77	-0.03	0.13	0.01	-0.01	0.48	0.12	0.00	-0.03	-0.07	0.01	1			
12	Market's claims[1]	3.93	0.55	0.15	0.65	0.00	-0.06	0.58	0.39	0.10	0.06	0.07	0.20	0.60	1		
13	Market concentration	0.02	0.03	0.04	0.01	-0.04	0.12	-0.19	-0.06	0.07	0.04	0.09	0.05	-0.68	-0.39	1	
14	Year	2002	7.25	0.17	0.92	-0.04	0.06	0.53	0.35	0.21	0.07	0.20	0.27	0.14	0.68	0.01	1
	Natural Products from Conventional Firms (n = 34,354)																
1	Identity cloaking (0-1)	0.14	0.35	1													
2	Greenwashing criticism (t-1) [1]	4.55	0.71	0.00	1												
3	Market specialism in natural products	0.73	0.09	0.08	-0.09	1											
4	Average additional green claims[1]	0.79	0.29	0.01	0.66	0.03	1										
5	High quality natural products	0.91	0.09	0.01	-0.50	0.15	-0.39	1									
6	Product's green claims[1]	0.57	0.62	0.02	0.21	0.03	0.35	-0.12	1								
7	Firm's products[1]	1.66	1.35	-0.08	0.16	-0.26	0.16	-0.15	-0.04	1							
8	Firm's brands[1]	0.51	0.91	0.12	0.08	-0.11	0.08	-0.09	-0.07	0.71	1						
9	Firm's markets[1]	0.80	0.83	-0.05	0.14	-0.20	0.17	-0.10	-0.01	0.84	0.69	1					
10	Market's firms[1]	5.21	0.76	0.00	0.15	0.08	0.00	-0.21	-0.04	0.02	-0.02	-0.05	1				
11	Market concentration	0.02	0.03	-0.01	0.00	-0.20	0.06	0.05	0.05	0.05	0.03	0.07	-0.67	1			
12	Year	2001	7.34	-0.01	0.92	-0.13	0.61	-0.60	0.19	0.18	0.09	0.15	0.16	0.00	1		

[1]Variable is transformed by taking the natural log.

Results

Table 13 presents six models to test the elaboration of natural products. The first model isolates the control variables. The elaboration of natural is associated with the general proliferation of marketing claims, as evident in the strong positive coefficients for the numbers of distinct marketing claims at product, firm, and market levels. Also, firms with fewer products and brands but that operate in more markets are more likely to include additional green claims, although only the brands effect is stable throughout the models. Elaboration is greater in markets with fewer firms. Net of all of the controls, the year trend is negative.

The next four models introduce the independent variables. Model two includes all direct effects. Greenwashing criticism strongly increases natural elaboration, supporting hypothesis one. Activist criticism threatens to delegitimize natural products and companies respond strategically by attempting to reinforce the environmental credibility of these productions with additional green claims. Producer dedication to natural products also has a strong effect on elaboration, in line with hypothesis two. Specialists are particularly eager to strengthen their green credentials and make their natural products more substantial. The expected percent change in the likelihood of natural elaboration is about 40% for a one standard deviation shift in both of these variables. Model three tests the interaction between greenwashing criticism and firm specialization, finding a strong positive interaction effect that supports hypothesis three. The more dedicated to natural products a firm is, the more responsive it is to greenwashing criticism, although criticism remains positive throughout the range of specialization. Figure 25 charts the expected effect of specialization across three levels of greenwashing criticism.

Table 13 - Logistic Regression Models Estimating the Attachment of Additional Green Claims to Natural Products, 1985-2012

	1	*2*	*3*	*4*	*5*	*6*
Greenwashing criticism		0.495***	0.34***	0.496***	0.495***	0.443***
		(0.049)	(0.074)	(0.049)	(0.049)	(0.082)
Firm specialization in natural		1.076***	0.121	0.679***	0.945***	0.285
		(0.082)	(0.321)	(0.145)	(0.082)	(0.379)
Firm specialization x Criticism			0.208**			0.071
			(0.071)			(0.082)
Market generalism in natural products		-0.848***	-0.824***	-1.922***	-0.845***	-1.788***
		(0.198)	(0.198)	(0.422)	(0.197)	(0.413)
Firm specialization x Generalism				1.496**		1.327**
				(0.518)		(0.509)
Poor quality natural products		-0.0004	-0.0003	-0.0004	-0.006***	-0.006**
		(0.001)	(0.001)	(0.001)	(0.002)	(0.002)
Firm specialization x Poor quality natural products					0.009***	0.008***
					(0.002)	(0.002)
Product's conventional claims	0.558***	0.564***	0.563***	0.564***	0.564***	0.564***
	(0.026)	(0.026)	(0.026)	(0.026)	(0.025)	(0.025)
Firm's products	-0.203***	-0.023	-0.021	-0.015	-0.018	-0.011
	(0.059)	(0.06)	(0.06)	(0.059)	(0.059)	(0.058)
Firm's brands	-0.198***	-0.136***	-0.139***	-0.137***	-0.138***	-0.14***
	(0.047)	(0.041)	(0.041)	(0.041)	(0.042)	(0.042)
Firm's markets	0.129*	0.077	0.08	0.071	0.078	0.074
	(0.056)	(0.055)	(0.055)	(0.054)	(0.054)	(0.054)
Firm's other claims	0.106**	0.118***	0.121***	0.114***	0.121***	0.119***
	(0.035)	(0.034)	(0.034)	(0.034)	(0.034)	(0.034)
Market's firms	-0.85***	-0.783***	-0.785***	-0.783***	-0.794***	-0.792***
	(0.066)	(0.067)	(0.067)	(0.067)	(0.067)	(0.067)
Market's claims	1.912***	1.583***	1.576***	1.585***	1.588***	1.587***
	(0.075)	(0.086)	(0.085)	(0.086)	(0.085)	(0.085)
Market concentration	-2.065*	-1.175	-1.279	-1.174	-1.353	-1.365
	(1.049)	(1.101)	(1.103)	(1.108)	(1.087)	(1.095)
Year	-0.054***	-0.085***	-0.085***	-0.085***	-0.087***	-0.086***
	(0.004)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Constant	106.71***	166.74***	167.18***	166.96***	169.17***	169.22***
	(8.65)	(12.11)	(12.16)	(12.12)	(12.16)	(12.16)
N	52567	51868	51868	51868	51868	51868
Degrees of freedom	60	63	64	64	64	66
Wald $\chi 2$	2480.54	2639.74	2659.88	2657.69	2652.93	2672.90

***p≤.001 **p≤.01 *p≤.05; Note: robust standard errors clustered around firms in parentheses and all models contain fixed effects for markets.

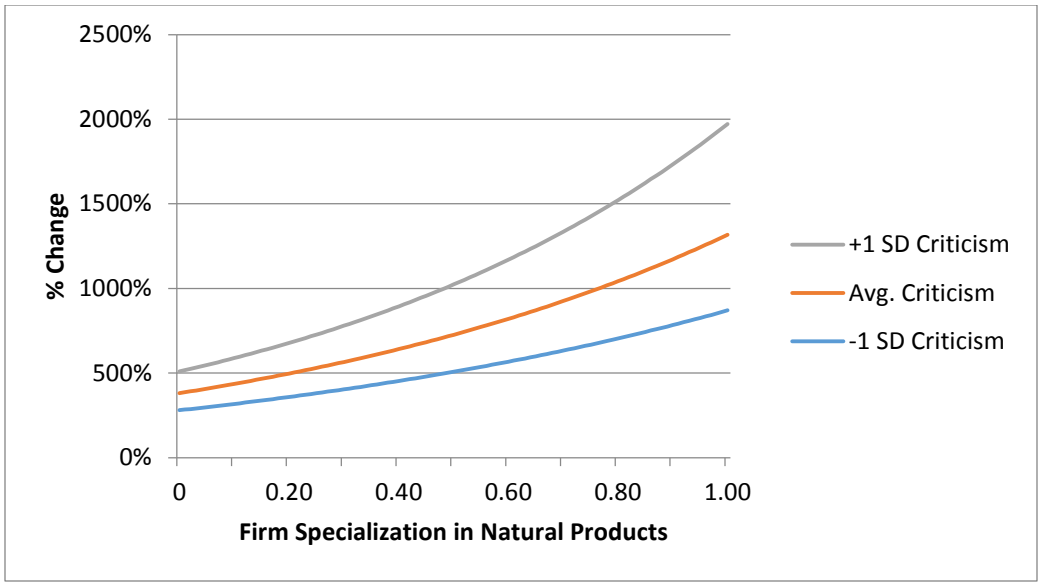


Figure 25 - Effect of Firm Specialization on Natural Elaboration Across Three levels of Greenwashing Criticism

Models four and five interact the focal firm's dedication to natural products with two measures of the cooptation of natural by conventional companies. The main effects of the average amount of firm generalism for natural products and the number of natural products with unnatural ingredients in a market are both negative. These results indicate that the more that conventional firms control natural products and the weaker the environmental quality of these products, the less likely a non-specialized company is to elaborate its natural products. Consistent with hypothesis four, the interaction terms are positive, showing that cooptation by conventional companies increases the tendency of specialized firms to elaborate their natural products. Figure 26 graphs the expected effect of producer specialization for average levels of generalism and poor quality natural products. The cooptation interaction becomes positive at about 50% specialization for generalism and only 10% specialization for poor quality natural products, indicating that most companies are eager to bolster their natural products in response to

questionable natural claims. The sixth model integrates all the variables. In combination, the criticism-specialization interaction falls out of significance but all other effects persist.

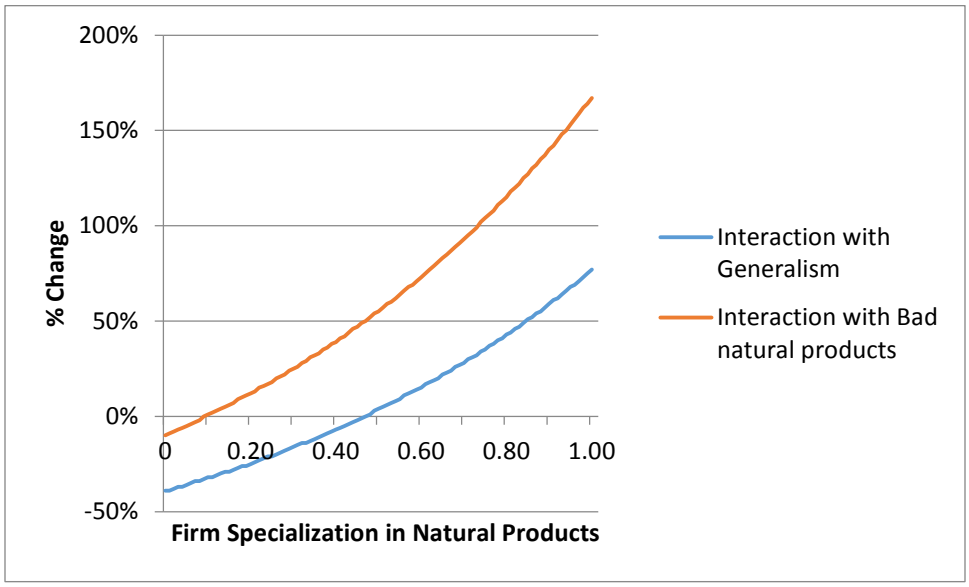


Figure 26 - Effects of Firm Specialization on Natural Elaboration for Average Levels of Generalism and Poor Quality Natural Products

Table 14 compares the foregoing effects for particular types of additional green claims using the full model. The results offer very weak support for hypothesis five and they differ by independent variable. Nevertheless, the pattern is still informative. Greenwashing criticism has the largest significant effects for toxic-free, waste reduction, and artificial-free claims, and also a weak negative effect for allergen-free. Producer dedication has no direct effects. In interaction with greenwashing criticism, it weakly stimulates animal-free claims, while its interaction with poor quality natural products increases purity claims. The interaction between producer dedication and generalist control of natural products has several significant effects. It is greatest for allergen-free, then organic, then purity and artificial-free, and lastly waste reduction. Comparing across variables, the producer dedication-generalist cooptation interaction is closest

to the hypothesized pattern of effects. Surprisingly, none of the hypothesized variables increases the likelihood of elaborating natural with GMO-free claims, perhaps because the claim is not used in many markets.

Table 14 - Comparison of Effects across Types of Additional Green Claims from Logistic Regression Models

	Organic	GMO-free	Artificial-free	Toxic-free	Allergen-free	Animal-free	Purity	Waste
Greenwashing criticism	0.508	0.404	0.291**	0.91***	-0.24†	0.242	-0.048	0.591***
	(0.418)	(1.847)	(0.102)	(0.253)	(0.136)	(0.239)	(0.144)	(0.105)
Firm specialization in natural	1.697	7.129	0.061	-0.91	-0.9	-1.219	-0.258	0.522
	(1.963)	(7.23)	(0.456)	(1.241)	(0.692)	(1.044)	(0.685)	(0.503)
Firm specialization x Criticism	-0.23	-1.635	0.136	0.304	0.164	0.396†	0.149	-0.091
	(0.409)	(1.427)	(0.1)	(0.251)	(0.139)	(0.235)	(0.144)	(0.104)
Generalism in natural products in market	-3.219*	-1.141	-2.465***	-0.947	-3.934***	-0.025	-3.242***	-1.572***
	(1.425)	(4.299)	(0.517)	(1)	(0.981)	(1.045)	(0.661)	(0.456)
Firm specialization x Generalism	3.398*	3.713	2.057***	0.765	4.195***	-1.508	2.482***	1.53**
	(1.534)	(5.718)	(0.599)	(1.188)	(1.144)	(1.293)	(0.757)	(0.542)
Natural products with bad ingredients	-0.005	-0.033	-0.004†	0.017***	-0.006	-0.007	-0.007*	-0.007***
	(0.013)	(0.024)	(0.002)	(0.004)	(0.005)	(0.004)	(0.003)	(0.002)
Firm specialization x Bad natural products	0.014	0.027	0.004	0.004	0.008†	0.003	0.01***	0.004
	(0.014)	(0.019)	(0.003)	(0.004)	(0.005)	(0.005)	(0.003)	(0.002)
N	45824	19072	51867	51450	51749	51814	51652	51867

***p≤.001 **p≤.01 *p≤.05 †p≤.10; Note: robust standard errors clustered around firms in parentheses and all models contain same controls as in Table 2.

Table 15 presents six models to analyze the sources of identity cloaking. In the baseline model with just the controls, products with more green marketing claims, indicating greater investment in environmental issues, are more likely to be marketed under distinct brands. Producers with more brands but fewer products are also more likely to cloak their identities. None of the other controls are significant.

The next four models consider hypothesized variables individually. There are positive significant effects that support hypotheses six through nine. Greenwashing criticism, the average specialization of firms in natural products, the average elaboration of natural products, and the percentage of natural products without questionable ingredients all increase identity cloaking. These effects remain significant in combination. Figure 27 displays the expected effects from the full model in terms of one standard deviation shifts in the predictors, which are all around a 10% increased likelihood of identity cloaking. These combined effect sizes are about one-third weaker than the effect sizes from the models that isolate each hypothesized variable, suggesting that the four variables relate to a common factor. Overall, the results support the argument that movement pressures on a market increase the value of specialization in the movement-related niche, which induces mass marketers to strategically cloak their identity.

Together these models show how the meaning of natural develops through contentious interactions among activists and companies with varying environmental commitments. Debates about whether natural products are greenwashing or truly green lead companies to elaborate these products. Specialized producers are especially eager to solidify their green claims, and even more so in response to activists and under threat of competition from conventional companies. The greenwashing controversy also induces mass marketers to cloak their identities

in more trusted specialized brands. Movement strength unintentionally triggers the acquisition of green specialists, which helps companies obtain congruence with a skeptical consumer audience.

Table 15 - Logistic Regression Models Estimating the Likelihood of Identity Cloaking for Natural Products from Conventional Companies, 1985-2012

	1	*2*	*3*	*4*	*5*	*6*
Greenwashing criticism		0.298***				0.167*
		(0.074)				(0.074)
Market specialism in natural products			1.212***			0.748*
			(0.337)			(0.356)
Average additional green claims				0.512***		0.346*
				(0.138)		(0.147)
High quality natural product share					1.266*	1.07*
					(0.511)	(0.514)
Product's green claims	0.203***	0.191***	0.196***	0.167**	0.203***	0.169**
	(0.052)	(0.052)	(0.051)	(0.054)	(0.052)	(0.055)
Firm's products	-1.145***	-1.148***	-1.141***	-1.15***	-1.146***	-1.148***
	(0.092)	(0.092)	(0.092)	(0.092)	(0.092)	(0.092)
Firm's brands	1.756***	1.754***	1.759***	1.754***	1.758***	1.757***
	(0.119)	(0.119)	(0.119)	(0.119)	(0.119)	(0.119)
Firm's markets	-0.149	-0.141	-0.15	-0.143	-0.147	-0.14
	(0.149)	(0.148)	(0.148)	(0.148)	(0.148)	(0.147)
Market's firms	0.114	0.105	0.09	0.145	0.102	0.106
	(0.113)	(0.113)	(0.112)	(0.113)	(0.113)	(0.111)
Market concentration	-0.169	-0.212	0.176	0.175	-0.108	0.31
	(1.724)	(1.678)	(1.516)	(1.611)	(1.728)	(1.507)
Year	0.003	-0.022*	0.004	-0.008	0.013*	-0.009
	(0.006)	(0.009)	(0.006)	(0.007)	(0.006)	(0.009)
Constant	-7.073	42.169*	-10.808	13.474	-28.97*	13.421
	(12.303)	(18.354)	(12.304)	(13.191)	(12.128)	(18.212)
N	34345	34345	34345	34345	34345	34345
Degrees of freedom	57	58	58	58	58	61
Wald $\chi 2$	554.87	619.19	602.29	616.65	573.29	677.41

***p≤.001 **p≤.01 *p≤.05; Note: robust standard errors clustered around firms in parentheses and all models contain fixed effects for markets

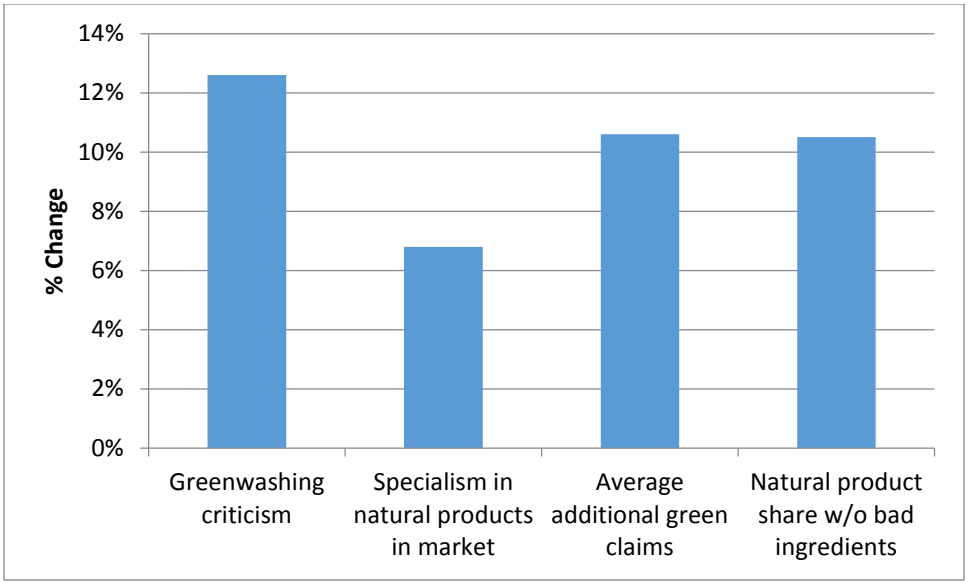


Figure 27 - One Standard Deviation Effects of Movement Pressure on Identity Cloaking

Discussion

> …there are also other actors, mainly business organizations and policy makers, who have started to use the framing devices of modern environmentalism to create their own symbolic constructions of environmental problems. Only before the mid-1980s has packaging the environmental issue been a specialty of protest actors. Their packages have, in the meantime, been taken over by their opponents and assimilated to their interests (Eder, 1996, p. 176).

Starting in the 1960s, environmentalists developed an extensive critique of the prevailing patterns of consumption and production. They argued that these patterns were unraveling natural ecosystems, poisoning human health, and wasting the earth's resources. Half a century later, the power of this social movement is evident in just about every facet of human activity from the sleep function on computers to the Montreal protocol, a global treaty to eliminate chemicals that deplete the ozone layer. However, as a consequence of reaching this tremendous degree of influence, environmentalists have lost a monopoly over their own ideas. Once activists popularize new concepts and values, they become generally available for repurposing, conditional on the ability of activists to control access to them. In transforming or modifying so

many domains of social activity, an influential movement yields power to local implementers over the meaning of its ideas within particular domains. To the extent that these implementers are fused with activists, as in the case of grass-fed beef, movement influence remains strong (Weber et al., 2008). Alternatively, studies from a movement cooptation perspective show how demobilized movements and powerful companies will lead to the complete redirection of movement ideas away from movement principles and towards profit maximization (Lounsbury et al., 2003). The more common situation though is probably a balance of power between activists with varying perspectives on markets and companies with mixed levels of allegiance to the movement, as in the CPG markets studied here.

The model I propose is that the loss of movement ownership over its own ideas sets off a struggle for control over the meaning of the movement within various domains, which yields emergent and unintended consequences. This model is more consistent with recent developments in political and economic sociology that emphasize how social contexts shape the consequences of movements and marketization (McAdam & Boudet, 2012; Zelizer, 2011). In the case of natural products, diverse activists and marketers compete to establish their understandings of what constitutes a green product as opposed to greenwashing. The controversy around green credentials yields a new meaning of natural as connected with additional environmental attributes, especially negative claims to being free-from harmful ingredients, and also as tied to specialized brands that cloak the identity of mass marketers and increase their congruence with a politicized consumer audience.

The results from this study provide insights into how these dynamics unfold. In response to the emergence of green marketing, activists challenge the partial incorporation and reinterpretation of their ideas. This criticism threatens to undermine the value of movement-

associated marketing claims. In response, companies push to bolster the credibility of their claims by reinforcing their products with other movement-related attributes. Producers dedicated to movement values are especially eager to shore up their products and maintain their alignment with activists. The threat of mass marketers entering their niche further increases their efforts because large companies are strong competitors and they also weaken the credibility of movement-related marketing. The particular claims that companies add on are chosen to address these credibility concerns, as in free-from claims, which are more substantial and verifiable than natural. In addition, movement pressure on markets increases the salience of producer identity as a marker of both competence in interpreting movement values and of adherence to these values. As a result, mass marketers invest in distinct brands to enter markets where movement influence is strong, which cloaks their identities. Notably, in additional analyses of the diversity of brands within multi-brand firms, the natural claim makes the largest contribution to this outcome out of all marketing claims: companies use separate brands to market natural products more often than they do for any other claim.

Going forward, I hope that this model of entanglement between social movements and markets inspires additional research on strategic interactions among activists and companies, and the unintended consequences of these interactions. Research designs should better incorporate the diversity of perspectives in both camps and the variety of strategies in use (Bertels et al., 2014). Such research would advance our understanding of how a movement's meaning and impact emerge from contentious interactions among many different protagonists. This research should also consider the implications for movement progress over time, including obtainment of movement goals but also the redirection of these goals.

The increasing politicization of consumer goods also opens additional lines of research focused on producers. Building off of the study by Phillips and Kim (2008) on the use of deception by Victorian-era music companies, there is much more to be learned about how consumer politics affect market entry and corporate identity management. I suggest that identity cloaking is a useful concept because it broadens the theoretical scope to include the range of situations in which companies adjust their presentation of self to fit consumers' politicized expectations. This research should also connect with studies of how companies deploy multiple strategies to evade or surmount political and identity pressures, including public relations campaigns, lobbying, and decentralization via contracting, equity investments, and acquisitions (Dowd, 2004; Phillips & Kim, 2008; Sikavica & Pozner, 2013; Swaminathan, 2001; Walker & Rea, 2014).

In conclusion, when activists and marketers routinely encounter each other in the marketplace, a debate ensues over what the movement means within markets — over which market practices adhere to movement values and which are deceptive. In this view, movement-market interactions take the form of a struggle for control over movements in markets rather than unidirectional market reform or movement cooptation. This novel theoretical perspective helps to account for how definitional contests have shaped the producers and products that occupy the natural niche, promoting a negative elaboration of natural and a rash of green acquisitions, which are not fully consistent with either activist or corporate goals.

Appendix for Chapter 4

Table A1 lists the green marketing claims that I analyzed and their groups. I drew on contextual knowledge of the environmental movement to select the forty-three claims that were connected to environmental issues from the 138 claims that were available and to group them. The main environmental concerns captured by these claims are reduction in pollution or contamination and in resource use or waste. There are many overlaps with other movements, especially the health movement, which is highly connected with the environmental movement through shared ideas and adherents (Hays, 1987; Vasi, 2011a). In fact, marketers refer to this consumer niche as LOHAS or Lifestyles of Health and Sustainability (Emerich, 2011).

Table 16 - Green Marketing Claims

Claim	Group
No Animal	animal-free
No Meat	animal-free
Vegan	animal-free
Vegetarian	animal-free
Low Fragrance	free from allergenic ingredients
No Allergy	free from allergenic ingredients
No Fragrance	free from allergenic ingredients
No Perfumes	free from allergenic ingredients
No Added Hormones	free from artificial ingredients
No Additives	free from artificial ingredients
No Antibiotics	free from artificial ingredients
No Artificial Color	free from artificial ingredients
No Artificial Flavor	free from artificial ingredients
No Artificial Ingredients	free from artificial ingredients
No Artificial Sweeteners	free from artificial ingredients
No High Fructose Corn Syrup (HFCS)	free from artificial ingredients
No Irradiation	free from artificial ingredients
No Preservatives	free from artificial ingredients
No Genetic Modification	GMO-free
No Bisphenol A (BPA)	free from harmful chemicals
No Chemicals	free from harmful chemicals
No Formaldehyde	free from harmful chemicals

No PABA	free from harmful chemicals
No Paraben	free from harmful chemicals
No Pesticides	free from harmful chemicals
No Petrochemicals	free from harmful chemicals
No Toxic	free from harmful chemicals
Environmentally-Friendly	miscellaneous
Fair Trade	miscellaneous
No Fluorocarbons	miscellaneous
No Phosphates	miscellaneous
No Tropical Oils	miscellaneous
Natural	n/a
Organic	organic
Pure	purity
Real	purity
Biodegradable	waste reduction
Long-Lasting	waste reduction
Recyclable	waste reduction
Recycled Materials	waste reduction
Reduced Packaging	waste reduction
Refill	waste reduction
Reusable	waste reduction

Chapter 5: Conclusion

Consumer markets are far more differentiated now than it was in the 1950s. As the first chapter demonstrated, market differentiation has persistently expanded since the 1980s. Other studies extend this growth pattern back at least to the 1950s (Connor, 1980; Schmalensee, 1978). The trajectory of progressive growth contradicts the expectations of cyclical and bounded fluctuation models, which are prominent theories of market development over time. Rather than continual fluctuation around a limited number of options or periodic trends in diversity, differentiation in these markets has been progressively increasing. As a result, the space of consumer goods is steadily stretching apart.

The implications of these changes are widely evident for both producers and consumers. Coke and Pepsi once dominated soft drinks but now share space with a panoply of brands, becoming increasingly just another niche in a splintered market. Food tastes proliferate, often in opposition as diets fragment into niches such as caveman, vegan, gluten-free, and ancient grains. These stories repeat across the consumer landscape. Their significance is evident to the venerable mass marketers that are scrambling to reorganize and reposition themselves to maintain a wide appeal for a fractured audience, as well as to the dinner hosts who are struggling to provide welcoming settings for social interaction. Organizations, individuals, and social groups all develop their identities through their locations in an array of consumer goods. These positions define positive and negative attachments, helping to channel interactions and resources, as for

example in the lifestyle homophily that shapes hiring practices at elite professional services firms (Rivera, 2012). The widening and fragmenting of this market space presents strategic challenges for these actors and has implications for economic organization and social stratification. However, little scholarly attention has been paid to the changes, although they are implicated in prominent theories concerning organizational decentralization and omnivorous patterns of consumption.

Understanding the growth in market differentiation requires a multifaceted account that includes the internal organization of markets and external political dynamics, which I emphasize in this dissertation, in addition to the more frequently highlighted advancements in manufacturing and marketing capabilities. Flexible production processes, marketing informatics, and larger supermarkets enable market differentiation. However, rather than necessarily leading to the intensive differentiation apparent today, mass marketers could just as easily have used these capabilities to control shelf space by proliferating trivially different products, all aimed towards the center of the market. In fact, this strategy of faux differentiation was evident from the 1950s-1970s when powerful marketers filled shelves with numerous brands and products that offered a false promise of diversity, such as P&G's 35 varieties of fabric softener and Campbell's 12 versions of chicken soup (MacDougall, 1979; Narisetti, 1997). This was a time of widespread criticism against proliferation: consumers complained about wasteful proliferation that increased costs and shopper confusion, retailers complained about being inundated with new products that taxed distribution logistics, and even economists questioned the value of product variety (Connor, 1981; MacDougall, 1979). Although these complaints have not disappeared, there is more celebration today for variety, diversity, and choice. If market differentiation has

become more substantial in subsequent decades, I contend that analyses of structural forces within markets and external changes in society are important to understand the changes.

Market structures play a significant part in encouraging differentiation. In the analyses from chapter two, I focused on explaining the variety of product characteristics as a key dimension of market differentiation. There I theorize and find support for four factors that act as engines of proliferation. The competitive search for niches that offer less competition and greater market control is very strongly associated with generating market variety. The reorganization of large producers into decentralized networks of brands and alliances serves to better incorporate and stimulate innovations. Ties between markets, forged by multimarket firms and by patterns of attention to markets within the same industry, operate to spread new product features. Past variety is self-generative, as clusters of attributes provide platforms for additional variants such as the emergence of gluten-free from related allergen-based claims. Together these factors work to propel differentiation.

The development of new interests and values in society also contributes to market differentiation. Several excellent studies point to the historical correspondence between the intensification of market segmentation and the greater social recognition of minority groups (Chasin, 2000; Cohen, 2003; Halter, 2000; Sender, 2004). As these groups gained political representation and rights, marketers simultaneously moved to include them as new market niches. However, such inclusion is always a partial incorporation of the diversity within each group, resulting in the exclusion of less financially desirable consumers. Moving beyond the symbiotic account of marketers including social diversity or the parasitic account of marketers corrupting group identities, chapter three charts a novel theory of ongoing contentious interactions between marketers and social groups.

The peculiar development of natural products results from of a struggle between environmentalists and marketers to interpret movement values and define green products versus greenwashing. Activists criticize the use of their ideas by marketers, creating controversy about whether or not these products really reflect movement values. Producers attempt to defuse these doubts by attaching additional movement claims to their products. Companies that specialize in the movement niche are especially eager to shore up their credentials, and even more so in response to activist criticism and to the cooptation of natural claims by mass marketers. Cooptation is a competitive challenge but it also intensifies customer doubts about the alignment between products and movement values. In addition, the credibility problems of mass marketers lead them to cloak their identities through specialized brands that increase their congruence with politicized audiences. Such dynamics account for the elaboration of natural products with negative claims and the prevalence of brand acquisitions, neither of which follow directly from the goals of activists or marketers.

The model of movement-market interactions as definitional contests, rather than dynamics of reform or cooptation, also shows how these interactions can generate extensive market differentiation. Social movements might seek mass market changes rather than having their ideas channeled into niches, or they might reject market incorporation entirely. These concerns are especially prominent in the case of the environmental movement, which is suspicious of market activities as environmental solutions. However, the analyses in chapter three show how the controversy that emerges from movement entanglement in markets only fuels the extensive development of product features and brands.

The partial ability of activists to regulate the incorporation of their ideas into markets highlights the normative side of market differentiation. In the case of natural products, there are

both environmental gains and limits. One the one hand, the meaning of natural has become more substantial over time and major companies have invested heavily in this niche. On the other hand, a proliferation of negative marketing claims does not add up to positive holistic practices in consumer markets. Also, the acquisitions of independent environmental champions limit their political voices. More generally, social groups gain influence but also suffer a loss of control over their own ideas through their incorporation into markets.

There are also pressing intellectual and normative questions about how market differentiation shapes opportunities for producers and for social interaction. How do producers, individuals, and social groups reposition themselves amid a changing market landscape? Do they extend their production and consumption of goods to a wider range or do they occupy segments that are a declining portion of the whole? What strategies do they use to manage their self-presentation and interactions? Do they narrowly tailor their identities for specific audiences, or do they cultivate an eclectic inclusiveness of varying consumer goods? These are questions concerning how market differentiation affects the boundaries in markets and society. I hope to build off of this dissertation to address these questions in future research that draws on additional data sources.

By investigating the growth of market differentiation in consumer markets, my goals were to contribute to our understanding of consumer society, markets, and social movements. In the first chapter, I tested three leading models of market development and documented that consumer markets follow a trajectory of progressive growth in market differentiation. In the second chapter, I advanced the literature on market structures and innovation by building a more comprehensive model that integrates several factors, ranging from competitive processes and corporate reorganization to cultural systems and diffusion pathways. This research also speaks to

a burgeoning interest in the diversity of cultural systems and choices (Lamont, 2012; Lieberson, 2000; Zuckerman, 2012). In the third chapter, I pushed research on social movements and markets to attend to the ongoing contentious interactions that yield emergent outcomes, rather than movements reforming markets or marketers coopting movements. The concept of identity cloaking also extends research on the organization of corporate identities, building off of Phillips and Kim (2008), to consider the broad set of contexts in which corporations respond to politicized audiences by strategically managing their presentation of self. Altogether, my hope is to have illuminated changes that are powerfully reshaping our social world but have largely evaded direct study, perhaps because they reside in the background of our lives. Although consumer goods are lowly props for our actions, they are central to social dynamics because we use them to construct our sense of self, to appraise others, and to convey meanings. Consequently, it matters that the array of consumer goods is increasingly diverse. The changes have implications for markets, society, and the environment.

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