MARKET PARTITIONING, ORGANIZATIONAL IDENTITY AND GEOGRAPHY: EMPIRICAL AND SIMULATION EVIDENCE IN THE GERMAN ELECTRICITY MARKET AFTER DEREGULATION

by

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Abstract

Market Partitioning, Organizational Identity and Geography:

Empirical and Simulation Evidence in the German Electricity Market after Deregulation

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This dissertation develops and tests theories on identity-based resource partitioning in the context of the German electricity market after deregulation in 1998. I apply insights from the recent theoretical development on organizational identity and pay special attention to the roles of audience heterogeneity which is observed through the lens of geography. Based on both theoretical arguments and field evidence, I detail the process of identity-based partitioning and explore three boundary conditions for sustaining an periphery identity oppositional to that of market leaders: intense cooperation among peripheral organizations, sufficient audience heterogeneity and short delays in enacting as well as in perceiving the periphery identity. I hypothesize that although increasing oppositional identities upon competitive release lead to resource partitioning, this effect varies substantially across audience segments embedded in geographical communities. Organizational founding rates increase with greater match between the peripheral identity and the values endorsed by the local community. I also propose while center organizations may absorb the majority of the released resources, competitive release leads to higher growth rates of peripheral organizations compared with those of the subsidiaries of the center ones. Combining the apparently opposing effects of the match between producer identity and audience tastes on founding rates and growth rates, I suggest that resource partitioning may occur both at the form level through new foundings and at the firm level through organizational growth, depending on the strength of the match. The theories and hypotheses are developed and tested

using simulation experiments (chapter 2) and longitudinal quantitative data (chapter 3 and 4). This dissertation contributes to the theories on resource partitioning and organizational identity as well as to research on industrial evolution and sociology of market in general.

Dedication

To Dirk, for all the love and support

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Chapter 1

Introduction and Research Design

1.1 INTRODUCTION

For its centrality in the modern society, market has long attracted attention from both economists (e.g. Smith, [1776] 1976; Chamberlin, 1933; Keynes, 1936; Arrow, 1968; Williamson, 1975) and sociologists (e.g. Weber, [1922] 1978; Parsons & Smesler, 1956; Polany, [1944] 1957; Granovetter, 1974; White, 1981; Zelizer, 1978; Fligstein, 1990). Whereas economists have largely considered market as pricemaking mechanism (but see the work in industrial organization and new institutional economics), sociologists have treated market as social entities and as aggregate of social actions (Swedberg, 1994). A central concern in the sociology of markets deals with the dynamics of market segmentation (Park & Podolny, 2000). What drives market differentiation? How does market differentiation unfold over time? What are the consequences of market differentiation on organizational fitness? These questions are of great importance and have attracted scholarly attention from as various research areas as industrial organization (e.g. Tirole, 1988), strategic management (e.g. Caves & Porter, 1977) and population ecology (e.g. Carroll, 1985). This dissertation aims at contributing to the latter stream of research, and in particular to its theory fragment known as resource partitioning.

The resource partitioning theory, originally developed by Carroll (1985) in his seminal work on the American newspaper industry, provides an interpretation for the simultaneous existence of the increasing dominance of large generalists and the proliferation of small specialists. To survive, generalist organizations depend on a wide range of environmental resources, whereas specialists on a narrow one. Before the market gets

partitioned, generalists and specialists compete for the same resources. During the competitive process dictated by economies of scale, a few generalists survive, move toward the most abundant portion of the market, and grow larger. Increased market concentration is the byproduct of this process. Due to inertia and diseconomies of scope, valuable resources get released in the periphery of the market and feed the emergence of specialist organizations. The competitive process then reaches an equilibrium: generalists and specialists rely on distinct resources and do not compete with each other. Therefore, as market concentration rises, the mortality rate of generalists should increase whereas that of specialist organizations decrease.

According to its original formulation, a few necessary (but not sufficient) conditions are needed for partitioning (Boone et al., 2002: 413; Hannan et al., 2007): (1) a finite and heterogeneous resource environment unimodally distributed; (2) the existence of economies of scale and scale-based competition among generalists; (3) the presence of inertial forces limiting the adaptability of generalist organizations, meaning that generalists cannot be transformed into specialists (and vice versa) and that the target areas of generalists consist of continuous regions of the resource space. If generalists combine sets of disparate resources, they will lose their scale advantage; (4) and crowding.

In the recent years, the theory has been extended. Carroll and Swaminathan's (2000) study on the U.S. beer brewery movement pointed to the enactment of an identity alternative to that of market leaders as a critical trigger of partitioning. The success of specialist breweries in fact did not rely on superior quality: blind tasting demonstrated that the products of the two producers were undistinguishable. What mattered was the identity of the producers: the generalists' identity as large and modern mass producers turned out to be problematic for consumers that believed that authentic specialty beer should be brewed by a craft-like firm using traditional methods and natural ingredients. Organizational identity, rather than product

characteristics, guided the choice of audience members and sustained the emergence of market partitioning (Carroll & Swaminathan, 2000).

Notwithstanding the developments brought forward by this research, the process through which different producer identities emerge remains largely underexplored. *First*, the conditions that favor the emergence of an identity oppositional to that of market leader as well as what makes such an identity in sustaining partitioning should be explored. Existing research concerning categorization in market contexts appears especially useful to this purpose (Hannan et al., 2007; for a review see also Hannan, 2010). According to this body of research, an identity is likely to become salient in presence of a enough perceived similarity among producers. Similarity facilitates the emergence of a label and of a schema that legitimize the existence of peripheral organizations in the eyes of audience members. Indeed, the conditions for the legitimation of new organizational form are especially favorable in presence of high market concentration: categorical contrast becomes sharper and the high density of specialists organizations makes salient the identity oppositional to that of market leaders (Hannan et al., 2007: 227). When the above conditions are satisfied, the process of competitive release is expected to improve the viability of peripheral organizations (see also Pólos et al., 2010).

Second, the traditional studies of resource partitioning have focused on differences among products or producers (for a review see Carroll et al., 2002), ignoring the differences in relation to the cognition and the preferences of audience members. An identity approach to resource partitioning clearly calls for a shift of the locus from the former to the latter. *Third*, despite the recent theoretical focus on competitive release (Hannan et al., 2007), there exists no empirical test on its effects on partitioning processes. *Fourth*, the majority of the existing partitioning research has concentrated on studying founding and death rates of organizations, largely overlooking the dynamics of organizational growth under partitioning (but see Boone

et al., 2000; Jaffee, 2001). However, as Carroll and colleagues (2002) pointed out, dynamics of growth are both complex and interesting for the theoretical development on resource partitioning and therefore worth greater scholarly attention.

Last, proving the relevance of organizational identity as key triggers of market partitioning requires disentangling its effects from those due to product differentiation. For example, consumers might prefer specialists producers because of the inherent superior quality of their products or because of the identity of such producers. The former mechanism was proposed by Carroll (1985); the latter refers to the a more complex evaluation of producers' offerings and hinges upon organizational identities (Hannan et al. 2007). To better understand the role of identity in market partitioning, empirical contexts in which product differentiation is limited appear especially appealing.

In this dissertation, I build on the theoretical insights from both resource partitioning and organizational identity research and aim at improving our understanding of the identity-based resource partitioning processes. *First*, I detail the process of identity-based resource partitioning and explore three boundary conditions for sustaining an identity oppositional to that of market leaders: intense cooperation among peripheral organizations, sufficient audience heterogeneity and short delays in enacting as well as in perceiving the new identity. *Second*, I hypothesize that although increasing oppositional identities upon competitive release lead to resource partitioning, this effect varies substantially across audience segments embedded in geographical communities. Organizational founding rates increase with greater match between the peripheral identity and the values endorsed by the local community. *Third*, I propose while center organizations may absorb the majority of the released resources, competitive release leads to higher organizational growth rates of peripheral organizations compared with those of the subsidiaries of the center ones. Combining the contradictory effects of the match producer identity and audience tastes on founding rates and growth rates,

I suggest that resource partitioning may occur both at the form level through foundings and at the organizational level through growth, depending on the strength of the match. The theories and hypotheses are developed and tested using simulation experiments (chapter 2) and longitudinal quantitative data (chapter 3 and 4), embedded in the empirical context of the German electricity market after deregulation in 1998. Incidentally, the limited product differentiation traceable within this commodity market makes organizational identities paramount.

1.2 THE EMPIRICAL SETTING

The German electricity market after deregulation offers an excellent context to study the effects of organizational identities on partitioning. Being a commodity market, differentiation based on product characteristics is minimal. The German electricity market was deregulated in 1998, allowing me to study the emergence of identities after the manifestation of a natural-occurring shock.

The empirical counterpart of the local organizations in this setting is the municipal utilities (thereafter MU). Because their collective identity oppositional to that of the market leaders is the driving force of partitioning after the deregulation, I first provide information about its origins. Municipal utilities in Germany have a long history. Since the late 19th century's urbanization of the German cities, prompted by the concerns for their residents' wellbeing, the local authorities started to provide gas, electricity and water supply as well as services in sewage and waste removal, public transport or even local saving banking (Sparkasse in German) through the municipal enterprises. By providing these services, local authorities acted in the interests of "the common good of the local community" (Wollmann, 2002). The "local self-government and self-administration" was then legitimated in Article 28 of the German Federal Constitution in 1949, making the German local government model,

alongside the Scandinavian ones, the politically and functionally strongest type of local government in international comparison (Hesse & Sharp 1991). Therefore, municipal enterprise, i.e. "the share of the municipality in the economy, has been subject to municipal self-administration since time immemorial" (Steckert, 2002; Girouard, 1987: 55, 65, 110, 214, 268). The most important form of municipal enterprises, the so called "municipal utilities" (Stadtwerke in German), typically combine the supply of electricity, gas, water, heating, in many cases also public transport and sport facilities such as swimming pools. The surpluses generated in the "profitable" parts like electricity, gas and water supply, were used to "cross-subside" the deficit parts like public transport and sport facilities (Wollman, 2002; Püttner, 1999: 543). The profit made by the municipal utilities, would be used by the municipality, enabling the local authorities pay for other activities of common interest such as maintaining kindergartens, schools and streets.

Before the deregulation, there were more than 800 firms in electricity industry, all serving both industrial/commercial and household customers in their respective monopoly regions. In 1997, eight utilities (the "Big Eight") operated at the supra-regional level and around 80 companies operated at the regional level. According to VDEW (BDEW since 2007), the German Association of Energy and Water Industries, in 1998 about 700 MUs served end consumers in their municipalities with electricity[1]. Being monopolists in their regions, the MUs became bureaucratic organizations, ultimately deviating from the original purpose of serving the citizens' wellbeing. As the head of a MU customer center (established in 2001, before it was called the billing division of the commerce department) who joined the company in 1995 told us:

"During the first years that I have worked here, the customers approached us… It was only possible to get energy from us… It was very different here. It was more an

[1] Besides the cross-regional, regional utilities and MUs, the population of electricity suppliers includes also a small number of cooperatives and private firms, usually of small size.

administration of customers. Actually, a kind of billing center. Such things like consulting services for the customers… did not exist. They were called energy-takers, not customers."

In 1996, EU introduced the Electricity Directive aiming to build an internal electricity market. Following this directive, the member states started to deregulate their national electricity market swithin the next 2 years. In contrast to all other member states which prefer to open their markets stepwise, Germany decided to open its electricity market to 100% competition at once in 1998, meaning that all end customers, including industries, businesses and households, could purchase electricity from any supplier in the market.

Before the deregulation started, following the economic logic, many experts had expected a high mortality rate among the municipal utilities because electricity is a market of homogeneous good with strong economies of scale. Since 1998, the market concentration increased considerably (German Monopoly Commission, 2007) as a result of the following processes. From 1998 to 2002, the "Big Eight" merged to "Big Four"(E.ON, RWE, EnBW and Vattenfall) and their operations spread nationwide (thereafter NWU). The growth of dominant organizations in the market center (concentration) comes at the expense of the regional utilities. Out of the 80 regional utilities existed in 1998, 34 have totally disappeared into the corporate structures of the "Big Four". The "Big Four" control also several regional utilities through majority shareholding, either directly or indirectly (e.g., through their local subsidiaries). In other words, more than half of regional utilities existed before deregulation became either totally or partially part of the NWU. The perishing of the regional utilities was sealed in 2002 by the merger of the trade association for the regional utilities with that for the NWU into the Association of Supra-regional and Regional Utilities (VRE in German), which subsequently merged into BDEW in 2007. However, at the same time, the expected wide death of the MUs did not take place (Die Welt, 2003). According to the trade association for MUs, the aggregated market share of all MUs in retailing actually increased from about 33% in 1997 to roughly 40% in 2006 (VKU, 2007). This unexpected outcome has puzzled the

experts, regulators and even some MUs. Obviously, economic logic alone cannot explain what happened. I expect that the identity mechanism of resource partitioning theory may shed new light on this puzzle.

1.3 MAIN RESEARCH QUESITONS

Chapter 2: Identity Processes and Resource Partitioning

Several research gaps have motivated the research questions in chapter 2. First, increasing market concentration (e.g. Carroll, 1985) and competitive release (Hannan et al., 2007) sets the ground for the flourishing of peripheral organizations, the emergence of a salient peripheral identity allows manifestation of durable market partitioning (Pólos et al., 2010). Nonetheless, little is known about the conditions that favor the emergence and sustaining of such an identity oppositional to that of the market leaders (but see Carroll & Swaminathan 2000). In other words, is increasing market concentration a necessary but also a sufficient condition for resource partitioning based on identity? Second, as the consolidation of an identity requires reaching consensus (Hannan et al., 2007), both among producers and among audience members, such dynamics should be explored.

In chapter 2, I explore the conditions that sustain market partitioning through the emergence of a collective identity of peripheral organizations which is oppositional to that of the market leaders. A competitive threat enacted by deregulation and increasing market concentration fuels the sense of common fate among peripheral players and sharpens categorical contrast. Specifically, I examine three boundary conditions determining the likelihood of success of an oppositional identity in triggering market partitioning: (i) the roles of heterogeneous preferences across audience segments in influencing the differentiated receptiveness upon producer identity claims; (ii) inter-firm cooperation serves to align the interests of peripheral organizations and to make the new identity salient to audience

members; (iii) market partitioning hinges upon short delays in producer enacting as well as in audience perceiving the oppositional identity. To examine the process of identity-based partitioning, I design a formal model based on both theoretical arguments and qualitative evidence. To explore the boundary conditions, I conduct four simulation experiments. Each experiment generates hypotheses which can be tested empirically. This chapter also sets the stage for further theoretical development of identity-based partitioning in terms of both founding (chapter 3) and growth rates (chapter 4).

Chapter 3: Organizational Founding Rates and Identity-Based Resource Partitioning

Building on chapter 2, in chapter 3 I empirically examine the roles of heterogeneous audience preferences on partitioning through the lens of geography. Existing partitioning studies have largely focused on difference among producers (e.g. size, niche width), ignoring the differences in relation to the cognition and preferences of audience segments. Here, I consider geographical communities as the locus of preference formation and variation, following the suggestions of Hannan and colleagues (2007: 302-303). Moreover, recent theoretical development in organization ecology has identified four important dimensions of organizational identities: focus, contrast, resonance and empirical credibility (Baron, 2004; Hsu & Hannan, 2005; Carroll & Swaminathan, 2000). A deeper understanding of identity-based partitioning would require comprehensive understanding of the various identity dimensions. In this chapter, I focus on the latter three dimensions which are less explored.

In chapter 3, I attempt to develop resource partitioning theory by studying the peripheral founding rates. I predict that the consolidation of an identity oppositional to that of dominant producers increases the founding rates of peripheral organizations. Moreover, I contend that the effects of market partitioning vary across audience segments: founding rates of peripheral organizations do increase in communities where the local audience tastes

exhibit a greater resonance (or match) with the peripheral identity dimensions (localness, reliability and greenness) and may easily detect the empirical credibility of the peripheral identity.

Chapter 4: Organizational Growth Rates and Identity-Based Resource Partitioning

As in chapter 3, in chapter 4 I further explore the roles of heterogeneous audience preferences by focusing on the growth rates of both center and peripheral organizations upon the manifestation of competitive release. The choice to study growth rates is motivated by both a lack of partitioning studies on growth rates (but see Jaffee, 2001; Boone et al., 2002) and by Carroll and colleagues's (2002) suggestion that dynamics of growth are both complex and interesting for theoretical development on resource partitioning. In addition, although competitive release has been recognized as the trigger for resource partitioning, there exists no direct empirical test on it. Furthermore, chapter 4 also applies the concepts of intrinsic appeal and engagement as developed by Hannan and colleagues (2007) to the study of resource partitioning.

I contend that under resource release, although market center firms may absorb the majority of resources by acquiring the failed near-center producers, organizational growth rates of the peripheral firms will be higher than those of the center firms' subsidiaries. Contrary to my prediction, greater match between organizational identity and the local audience tastes (intrinsic appeal) seems to impede organizational growth. Combining these results with the previous study which shows founding rates increase with greater match between identity and local tastes, I claim that identity-based resource partitioning unfolds both at the form level and at the firm level, depending on the strength of intrinsic appeal of the peripheral organizations.

1.4 RESEARCH DESIGN AND DATA

The present dissertation follows a research design combining both qualitative and quantitative evidence, attempting to gain a deeper and novel understanding of identity-based resource partitioning. Utilizing on the advantages of simulation methods in developing theory and generating hypotheses, chapter 2 relies on system dynamics approach to capture the dynamics of feedback process during identity-based partitioning. A formal model is built on both theoretical notions and field evidence. Both simulation experiments and qualitative data are relied on to generate hypotheses which can be tested in the follow-up empirical chapters (chapter 3 and 4). Building on chapter 2 and focusing on organizational founding rates, chapter 3 examines the effects of increasing perceived oppositional identities between the center and peripheral organizations on peripheral founding rates. This chapter also investigate the roles of the heterogeneous audience preferences in forms of geographical communities. Testable hypotheses are advanced using both theoretical narratives and extensive field data. Longitudinal quantitative data of the German electricity market from 1999 to 2009 is then used to test the hypotheses. Following chapter 3, chapter 4 further investigates the roles of the heterogeneous audience preferences in diverse geographical communities on organizational growth rates, applying the theoretical concepts of intrinsic appeal and engagement to study parititoning. This chapter also looks into the differentiated growth rates of both center and peripheral organizations. Similar to chapter 3, both theoretical narratives and extensive field data are used to develop testable hypotheses, which are then tested using longitudinal quantitative data of the German electricity market from 1998 to 2008.

In order to gain a comprehensive understanding of the empirical context, I have carried out extensive field work from 2008 to 2010. I conducted 11 semi-structured in-depth interviews, each lasting 1 to 2 hours. The interviewees include 6 MU managers and department chiefs as well as industry experts holding critical positions at the umbrella trade

association (BDEW) and the MU trade association (VKU). Three informants have been interviewed twice. In addition, I also conducted a considerable number of informal interviews at industrial conferences and via telephone. Close interactions with the industry also enabled me good access to more systematic qualitative data and high quality quantitative data. Qualitative data provided by the two trade associations include the reports of the following surveys: (i) TNS Emnid survey (1999; 2003; 2005; 2009): The telephone surveys have been funded by VKU and carried out by TNS Emnid Market Research. The sample size for the year 1999, 2003 and 2005 is 500, for 2009 is 1000. (ii) ifm study (2006): This study has been funded by the umbrella trade association BDEW and conducted by ifm market research institute. The study consists of 60 in-depth interviews with household customers each lasting 1.5 to 2 hours, carried out by professional psychologists. (iii) BDEW customer surveys (BDEW household customer survey, 1999-2009; BDEW commercial customer survey 2000-2009): funded by BDEW and conducted by PROMIT Institut fuer Prognose, Marktforschung & Informationstechniken. The sample size is 1200 for household customers and 1040 for commercial customers from 13 business areas. In addition to all these, I also studied extensively the German trade press as well as the national and local newspaper articles. My understanding of the empirical context has helped me to better connect to the theories, finding appropriate empirical measures as well as interpreting the obtained simulation and empirical results.

Besides the qualitative data mentioned, I also collected several sets of longitudinal quantitative data in order to test hypotheses in chapter 3 and 4. The four data sets used in chapter 3 are: (i) the number of peripheral organizational foundings in the 40 German districts over the period 1999-2009, based on BDEW data and my own collections; (ii) audience heterogeneity is mapped using the socio-demographic statistics of the 40 German districts from 1998 to 2008, collected from the German Federal Statistical Office Web Site;

(iii) the measurement of the perceived oppositional identities relies on coding a German regional newspaper from 1999 to 2009; (iv) the measurement of the perceived empirical credibility of identity claims of the peripheral organizations follows my coding of a German national newspaper. The data sets used in chapter 4 include: (i) the annual electricity retail sales of both center and peripheral firm to end users in 1998 and from 2001 to 2008, based on BDEW data and my own collection. (ii) to account for audience heterogeneity, I collected data from the German Federal Statistical Office Web Site which contains the socio-demographic statistics of the 439 counties in Germany from 1997 to 2007. (iii) the measurement of engagement relies on information on MU cooperation activities, based on data of BDEW and VKU, as well as my own collection.

Chapter 2

Identity Processes and Resource Partitioning

2.1 INTRODUCTION

A substantial consensus does exist among organizational theorists concerning markets as socially constructed entities supported by beliefs systems that provide meaning and substance to their characterizing features, such as costs, revenues or demand (White, 1981; DiMaggio & Powell, 1991; Hannan et al., 2007). Recent theoretical developments within organization ecology point to the emergence of organizational identities as the mechanism through which the cognitive boundaries of markets are delineated (see Hannan, 2010). Identities, being sets of social codes or features that define a schema, facilitate commensuration (Espeland & Stevens, 1998), and crystallize the expectations of audience members concerning the range of legitimate behaviors (Pólos et al., 2002).

Research concerning resource partitioning has recently endorsed this view in its effort to explain the emergence of market segmentation (Carroll & Swaminathan, 2000). Incepted more than two decades ago (Carroll, 1985), resource partitioning aims at studying the process through which an increasing dominance of large generalist organizations is combined with the proliferation of small specialists. According to the original version of the theory, markets get partitioned as scale based competition among generalists leads to the release of resources in favor of specialists. Empirical supports for such a theory has been obtained from a wide variety of industries such as telephone, cooperative banking, airline, beer brewing, wine making, newspaper, auditing and car manufacturing (see Carroll et al., 2002). Recent developments advanced by Carroll and Swaminathan (2000) indicate that market partitioning may unfold in presence of distinct identities among generalists and specialists.

Notwithstanding the qualitative and quantitative evidence in support of identity as one of the key mechanisms underlying market partitioning, several questions remain unexplored. First, although competitive release sets the ground for the flourishing of peripheral organizations, the emergence of a distinct and coherent identity among such organizations allows the manifestation of durable market partitioning (Pólos et al., 2010). Nonetheless, not much is known about the conditions that favor the emergence and sustain the existence of an identity oppositional to that of market leaders (but see Carroll & Swaminathan, 2000). Second, as the consolidation of an organizational identity requires the creation of consensus, both among producers and among audience members, such dynamics should be explored.

In the present chapter I build on the theoretical insights of both resource partitioning and organizational identity research and aim of improving our understanding of processes of market partitioning based on identity differences among producers. First, it is essential to investigate the conditions that sustain the emergence of an identity oppositional to that of market leaders. In particular, the process through which collective identities are enacted by local organizations in opposition to the further penetration of large players appear essential to this end (Hannan, 1979). Second, as for the likelihood of success of an oppositional identity in triggering market partitioning I will explore three general boundary conditions: (i) the manifestation of cooperation among peripheral players; (ii) the role of heterogeneous preferences across audience segments; and (iii) the relevance of delays for the buffering of peripheral organizations from market leaders. In all such cases I will provide evidence about the conditions under which the identity-based market partitioning may be deterred.

This chapter proceeds as follows. In the next section, I create a formal model of my arguments, based on both theoretical notions and field evidence. In the main part of the chapter, the analysis of the simulation results serves as a steppingstone to develop a set of

propositions. In the final part, I discuss the contributions and limitations of the study, present a generalized model and provide suggestions for future research.

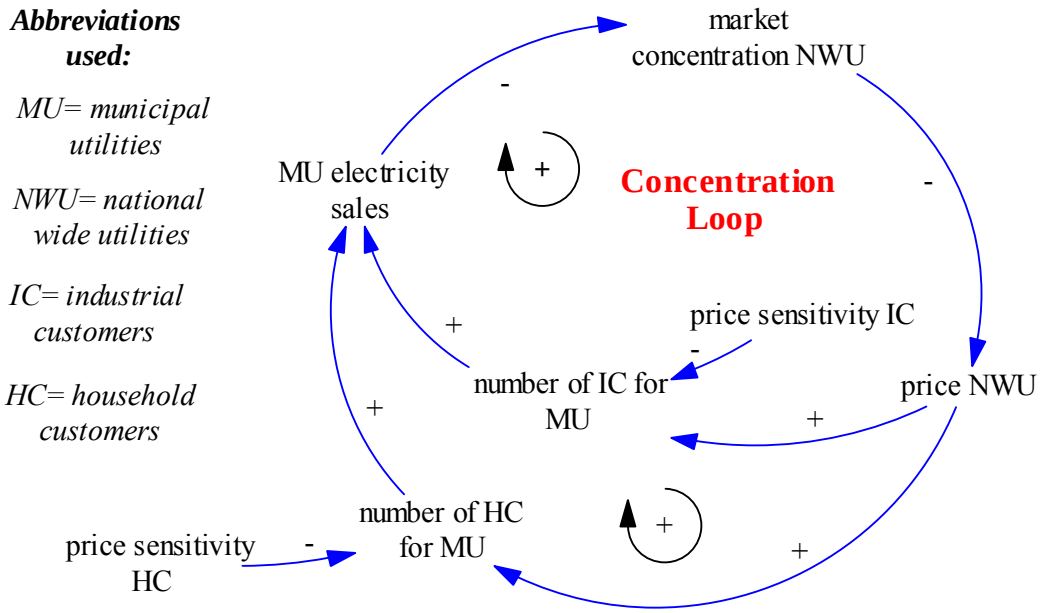
2.2 THE MODEL

In this section, I present my argument in form of a dynamic theory with multiple feedback loops. I proceed in two steps. In the first step, I formalize the model according to an economic reasoning. In the second step, I will proceed by adding a few layers of complexity into the model, drawing from research on organizational identities. This latter specification of the model will be defended link-by-link with reference to theoretical concepts.

Economies of scale cause market concentration. High market concentration increases the size of large firms, enabling them to reap scale economies and supply products at lower costs than their smaller competitors, driving them out of the market. As a result of that, they manage to acquire even more market share and growing even larger in size, further boosting market concentration.

FIGURE 2-1

Model with purely economic mechanism



The feedback loop diagram reported in Figure 2-1 summarizes the causal structure of the reinforcing process outlined before. In the empirical setting, the nationwide utilities (NWU) represent the large firms; and the municipal utilities (MU) represent the smaller firms. The reinforcing effect is true for both industrial/commercial customers (thereafter IC) and household customers (thereafter HC) with the strength of the effect varying depending on price sensitivity of customers. In the figure the arrows indicate the presence of a causal connection between variables. The "+" sign besides the arrows meaning two variables moving in the same direction and the "-" sign for moving in the opposite directions and. For example, the "-" sign between "market concentration NMU" and "price NWU" means that the higher the market concentration of the large NWU, the lower the price they are able to offer for their products[2]. The sign placed in the center of a loop specify the polarity of the whole loop (Sterman, 2000). In this case, both are positive (or reinforcing) loops, and I expect to observe increasing concentration and mass exit of MUs.

For simplicity and consistency, this first-stage model shows only NWUs and MUs. But this economic model can also be applied to explain the demise of the regional utilities. As the smaller generalists occupying near-center positions, their overlap with NWUs turned out to be greater than that between NWUs and MUs. Thus the regional utilities were exposed to more intensive competition from the NWUs, which led to their downfall. Indeed, it is such a process of *competitive release* that removed a powerful constraint on MU organizations and set the ground for the partitioning of the market (Hannan et al., 2007: 209- 228).

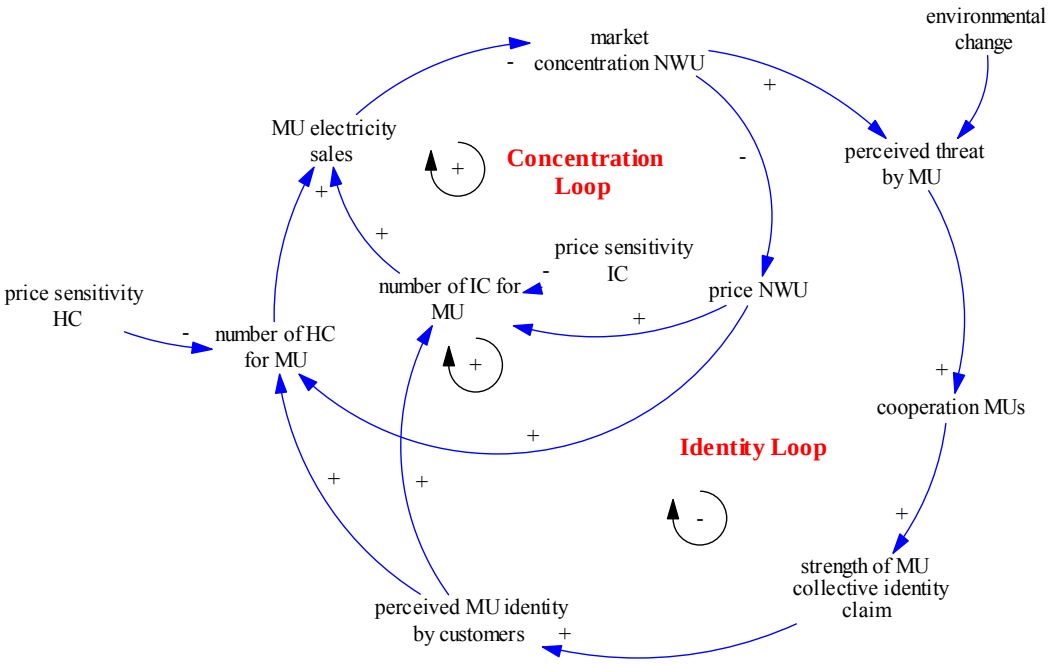
To explain the seemingly counterintuitive outcome - the widely expected but never realized large scale MU mortality, I argue that another process based on organizational

[2] Whether increasing market concentration lead to price increases or to decreases may be debated. Nonetheless, one of the necessary conditions of resource partitioning is the existence of economies of scale and of scale-based competition among generalists – i.e., scale advantages of larger generalists and falling prices. Some evidence demonstrates that this narrative is consistent with what happened in this sector during the years 1999-2000. The price for electricity dropped about 10% from April 1999 to August 2000 (Federal Statistical Office Germany, 2004). In some cases, prices paid by big business have fallen by up to 60 per cent (Atkins and Taylor, 1999).

identities has balanced the effects of market concentration. A balancing loop inspired by research on organizational identities is thus added to the reinforcing economic loop. Figure 2-2 shows the complete model specification. Below, I explain the 'identity loop' link by link.

FIGURE 2-2

Complete model with economic argument and identity



Research demonstrates that a *competitive threat* by powerful market actors can lead organizations to engage in collective actions (Hannan, 1979; Hawley, 1986). According to Hawley, members of a population, when confronted with a common threat, may engage in uniform actions and easily reach consensus on the rules, the procedures and the sanctions that allow them to defend their territory (1986: 37). In a similar vein, Hannan (1979: 255-256) argued that ethnic organizations are likely to activate a collective identity once modern mainstream centers penetrate local communities. Because of the disparity of power among actors, mobilization in opposition to further expansions by the center is carried out by enacting a supra-local identity of a scale comparable to that of the rivals.

Recent research carried out by Negro and his colleagues (2007) in the Barolo/Barbaresco region leads to the same conclusion. As the authors put it "the salience of

collective identity gets amplified by the oppositional contrast of categories. The success of modernism activated traditional identities and fueled countermobilization" (Negro et al., 2007: 4). Similarly, according to Ingram and Yue (2008), alike organizations are likely to cooperate and recognize the existence of a common identity in presence of a salient out-group. The common features of the focal group (in-group) may become more salient in presence of "others" (out-group) with contrasting features are introduced. The same process may be at work to re-establish a dormant collective identity and to strengthen it. Ingram and McEvily (2007), for instance, demonstrate that a salient rival contributes to sharpen and amplify the collective identities of existing organizational forms. I argue the perceived similarity and the alignment of intents among group members increases with level of *cooperation among them*. Indeed, experimental research shows that the interaction among group members has been proven to enhance consensus (Haslam et al., 1998).

In the empirical setting, the perceived threat stems from two related sources: the rise of a salient rival (NWUs) reflected in increasing market concentration which is triggered by the sudden environmental change (i.e., deregulation). Deregulation not only propelled the ex-monopolists into a new business and regulatory environment with considerably higher risks (Larsen & Bunn, 1999), but also set off the process of market consolidation and enabled the rise of the powerful NWUs. Remember also that an important pre-condition for engaging in collective action is the recognition of a set of common interests. Facing the threat from the NWUs, the MUs came to realize the value of broadcasting an oppositional identity. Collective action turned out to be facilitated by extensive cooperation. Information exchange, knowledge sharing, indeed are facilitated upon the recognition of a common identity and at the same time, served to the develop a more contrasting and crisp identity of MUs. Needless to say, it may take some time for the MUs to start engaging with audience members.

A collective MU identity revives however only if the producers' claims are *perceived and accepted by audience members*(i.e., the identity possesses intrinsic appeal in the eyes of audience members). Indeed, audiences cluster producers together and exhibit consensus around the social codes that define their identity (see Hannan et al., 2007). As in the case of producers, it takes time for also audience members to perceive, evaluate and endorse the MUs offering. As stated before, the NWUs are able to deliver electricity at lower prices than the MUs because of economies of scale. Customer segments may be argued to be heterogeneous because of a *different price sensitivity*. For customer segment with lower price sensitivity, they might find MU identity embedded in local community more appealing relative to the price gap. For customer segment with higher price sensitivity, even though they perceive the MU identity, they might still decide to switch to NWU because the price gap is more crucial for them. In other words, it is the trade-off between price gap and perceived identity strength which influence the attachment of customers to the MUs. Qualitative evidence demonstrates that relying both on economic and identity-related considerations allows to develop a realistic representation of this market (see also VDEW, 2005; German Monopoly Commission, 2007).

Simulation Design

During the last decade, simulation has increasingly been used in organizational studies as a method for testing and developing theory (e.g. Lomi & Larsen, 2001; Davis et al., 2007; Harrison et al., 2007). And "a computer simulation can take a complex set of assumptions, simulate a set of organizational processes, and represent the implications of these processes for organizational outcomes" (Lant, 1994: 195). A particular useful way to employ this methodology to develop theory is to set up a series of virtual experiments where the simulation is used as the observation generating mechanism (Larsen & Lomi, 2002).

We chose to use a system dynamics approach because it is particular suitable for capturing the dynamics of feedback process and considering the time aspect (Davis et al.,

2007; Sterman, 2000). The results that I report were obtained by using numerical integration (Euler method with a fixed step) and implemented in Vensim, a software package designed for system dynamics simulation (Ventana Systems, 2007). To simulate the model I translate the models in Figure 2-1 and 2-2 into differentiation equations. The equations are presented in Appendix A and the numerical values in Appendix B. Numerical values are not based directly on empirical values.

I structure the simulation experiments in the following way. I begin by establishing a base case. This is the case against which I judge the following experiments. The role of the base case is to provide evidence that the model captures the behavior that the theory predicts and that the model presentation is credible. I then perform a number of experiments to further explore the implication of the model in order to develop hypotheses (Davis et al., 2007). Table 2-1 provides a brief explanation of the base case and the series of experiments as well as the link between them.

TABLE 2-1

Simulation design

Base case and experiments	**Explanation**
Base case	Compare the behavior of the two models: (1) the model based on economic argument; (2) the complete model based on both economic argument and identity
Experiment 1	Investigate the implication of varying levels of the external threat (environmental shift) on the organizational behavior (cooperation among MUs)
Experiment 2	Investigate the implication of varying levels of price sensitivity on fitness of MUs (market share)
Experiment 3	Investigate the implication of varying lengths of two delays on fitness of MUs (market share): (1) the producer side delay in cooperation; (2) the audience side delay in perceiving identity claim of MUs
Experiment 4	Combine experiment 1 and 2 to investigate the interaction effect between external threat and the two delays

We conducted these experiments based on the following theoretical considerations. My interest lies in processes of partitioning based on organizational identity. Instead of modeling demographic rates (e.g., entries and exits) I prefer to model variations in market shares as more consistent with the empirical context analyzed. Experiment 1 investigates the determinants of the emergence of an oppositional identity with particular reference to environmental disruption (i.e., deregulation) and of the competitive threat (i.e., powerful rivals), namely the two sources of threat to MUs. Experiment 2 taps into issues of audience heterogeneity by looking into the effects of price sensitivity. Experiment 3 scrutinizes the role of delays – both on the side of producers and of audiences -- for market partitioning. Experiment 4 combines Experiment 1 and 3. It explores the interaction between the competitive threat due to deregulation and delays. In every experiment I rely on qualitative evidence to support the experimental choices (Harrison et al., 2007).

2.3 SIMULATION RESULTS AND PROPOSITIONS

Base Run- Partitioning of the Market Segments Based on Identity

In the base line specification, I compare the behavior of the model based on economic reasoning with the complete model after activating the identity loop and demonstrating that the model captures the behavior predicted by resource partitioning.

Observing Figure 2-3a on the HC of MUs, I can see that in case of purely economic logic based on economies of scale and price difference ("without identity"), MU lose more than 70% of their HC within just ten simulation periods. Such loss continues and drives the market share of MU in HC segment close to zero. The MUs' loss of market share in IC segment is even more dramatic. The results reflect the sensitivity of customers to price differences between the MU and NWU where the IC have higher price sensitivity, which is the reason why they "defect" the MU faster than the HC. The results illustrate the market

evolution under conditions of rapid growth of the NWUs with the MUs being driven out of the market, as predicted by many before the deregulation.

FIGURE 2-3a

Base run- MU market in HC segment

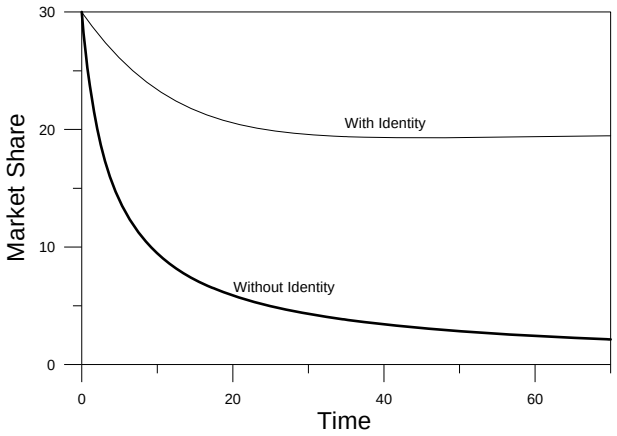
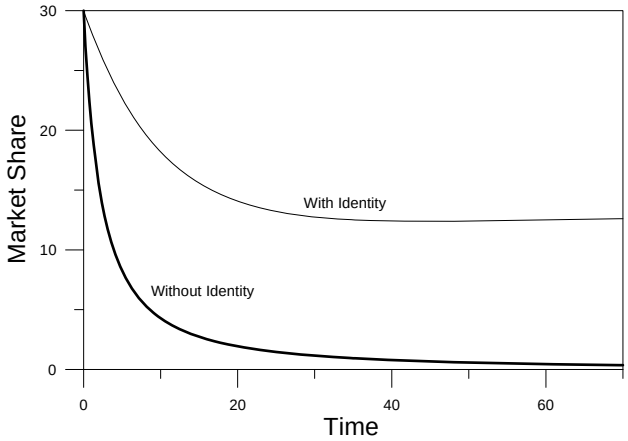


FIGURE 2-3b

Base run- MU market share in IC segment

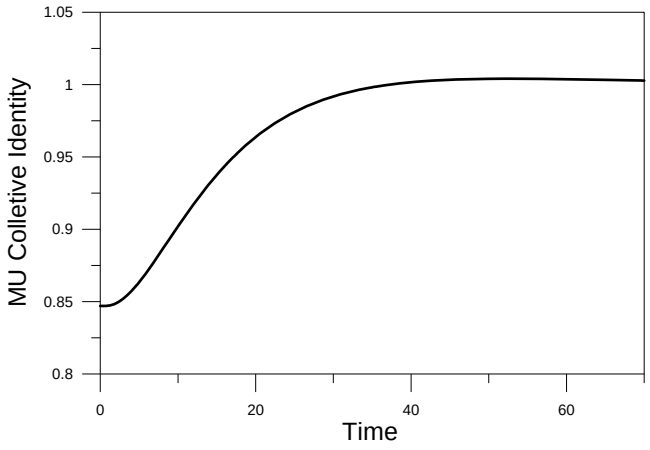


The two lines labeled as "with identity" in Figure 2-3a and 2-3b show the market evolution after activating the identity loop. As I can see, significant changes are observed both in the HC and in the IC segment. In the HC segment (Figure 2-3a), after ten periods, MUs lose only 25% of their HC and their market share stabilizes at about 20% from the 30th period – a results sharply different from the continuous loss observed before. Similarly, in the IC segment (Figure 2-3b), MUs' identity serve to stabilizes the MU market share, reflecting

the prediction of the resource partitioning theory. The results replicate the emergence of a stable equilibrium predicted by resource partitioning (Carroll, 1985).

FIGURE 2-3c

Base run- evolution of MU collective identity



The remarkable differences in the two cases demonstrate the effect of the collective identity of the MUs in counterbalancing the reinforcing loop of the economic logic. Figure 2-3c displays the unfolding of the collective identity strength of the MUs. It continuously increases during the first 40 periods and then stabilizes at a relatively high level. This development is in accordance with and also the reason for the differences shown in Figure 2-3 and 2-4.

Experiment 1- Environmental Disruption and Competitive Threat

In this experiment I test the effects of environmental disruption (deregulation) and competitive threat (market concentration) on the intensity of MU cooperation. As deregulation triggered market concentration, I conduct this experiment by varying the degree of environmental disruption. As the only EU member state to deregulate its electricity market in one step, the external threat that MU's perceived in the German electricity market was substantial. Qualitative evidence confirms my expectation. As the marketing manager of a

MU, a member of the MU cooperation group "Local Energy" which is established in 1999, told me during an interview:

> *"We were totally unprepared… Although we had studied a lot about (deregulations in) telecommunication and (electricity deregulation) in other countries, UK, North Europe…. Uncertainty prevailed. As the first newcomers came to the market, for example, Yello (a subsidiary of a NWU). We were totally flustered … (laugh). Then very quickly, we formed with other municipal utilities, hmm, let me say, our Yello-rival association…*[3]*"*

Another informant told me how they worked in the cooperation to recognize and to revive their distinct collective identity, which has become less sharp during the long monopoly years:

> *"we have thought, in the cooperation Local Energy, for a long time, in the branding board meeting, which features do we as MUs sell, which unique features do we have… we have tried.. you know the master plan method? You write down your thoughts on pieces of paper, and pin them on the board. It is not simple at all to make clear what do we do more than a supplier located very far (from here). You must also make this clear to your own work forces. This search and adjustment process, so that we are aware of our features, and special features. If this is not clear, then we are, I think, we are then moving away from customers. But this we have to communicate (to our work forces). We conduct, since several years, we conduct training for our work* forces (in customer center)."

MUs realized the value of enacting a collective identity oppositional to that of NWUs. MU stand for *"citizen value instead of shareholder value"* (Zeitung für kommunale Wirtschaft, 2008). The mission of the MUs and the municipal cooperation groups should be *"the development of the local economic and living environment for a strong and worth-living region… strengthening the economic independent future of the municipal enterprises in a changing energy market"*, according to the mission statement of KOS- a cooperation group of 14 municipal utilities from Upper Bavaria and Swabia (KOS Web site). Many municipal utilities understood that it was necessary to distance themselves from the "Big Four" because they *"have a fundamentally different organizational philosophy and mission"*, as the chairman of the Land Rheinland-Pfalz group of the municipal utilities trade association

[3] Though the formal deregulation started in 1998, many MUs started to perceive the competitive pressure in 1999 as Yello (a subsidiary of EnBW, one of the Big Four) and some other newcomers entered the market with federal wide marketing campaigns.

(VKU) suggested (Zeitung für kommunale Wirtschaft, 2007a). Thus, in a market dominated by the a few giants, the municipal cooperation groups see themselves as "Robin Hood against the Big Four" (Zeitung für kommunale Wirtschaft, 2006a).

To mimic the disruptive nature of the change, I add a step function (a sudden change) to the base model with step height varying from 0.05 to 0.15. Figure 2-4 illustrates the trajectories of the level of MUs' cooperate as a function of varying level of environmental change (step height). As the environmental disruption increases, market concentration climbs, and cooperation among MUs intensifies as well. And higher cooperation improves the market share for MUs as shown by Figure 2-5. Note that even though cooperation tends to converge after some periods (see Figure 2-4), starting from a higher cooperation level is vital for retaining more customers (see Figure 2-5). Based on this reasoning, I propose the following hypothesis.

FIGURE 2-4

The effect of competitive threat on MU cooperation

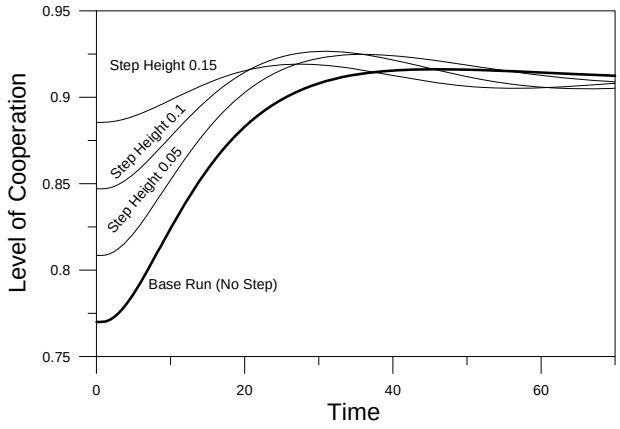
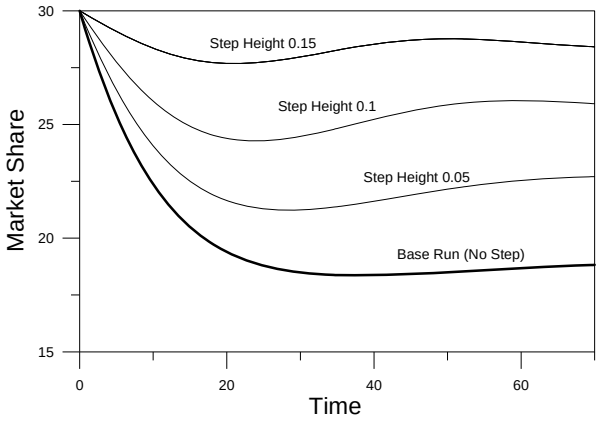


FIGURE 2-5

The effect of competitive threat on MU market share in HC segment



Hypothesis 1. The greater the competitive threat, the more MUs will cooperate.

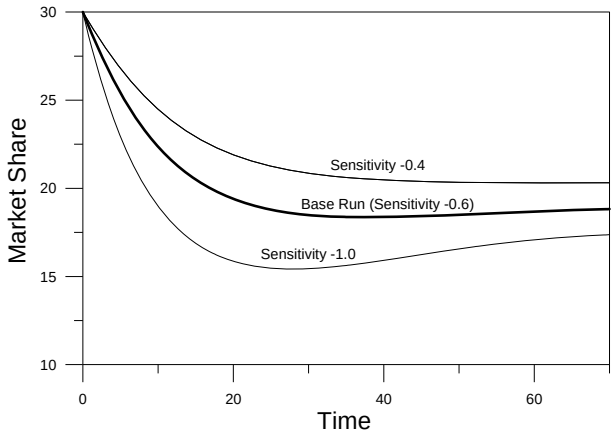
Experiment 2- Price Sensitivity and Identity Salience

Cooperation among MUs contributes to sharpen the identity of such organizations and facilitates collective sense-making and the emergence of consensus. In this experiment, I look into how the effects of price sensitivity and identity salience may induce market segmentation. This leads to diverging growth patterns of the MU and NWU in different audience segments and the partitioning of the market. Figure 2-6 shows the different trajectories of MUs' market share in HC customer segment as a function of price sensitivity of HC (varying from -0.4 to -1) by fixing the price sensitivity of IC at -1 as in the base run. I can observe that as the HC becomes more price sensitive, the MUs manage to retain fewer HC and have lower market share. The experiment concerning the IC customer segment as a function of price sensitivity (not shown here) displays a trend similar to that of Figure 2-6.

FIGURE 2-6

The effect of HC price sensitivity on MU market share in HC segment

(with IC price sensitivity fixed at -1)



Evidences show that a combination of high price sensitivity for IC and low price sensitivity for HC is a realistic assumption (German Monopoly Commission, 2007). Note that the different price sensitivity of IC and HC is closely related to their different appreciation for MU identities. The line labeled "sensitivity= -0.4" (meaning HC price sensitivity= -0.4) in Figure 2-6 shows such a combination with price sensitivity of IC fixed at the level of -1. As the process starts, MUs' market share in both HC and IC segment is 30%. In other words, the customers of MU consists of 50% HC and 50% IC. After about 40 periods, the market share of MU stabilizes at about 20% in HC segment and roughly 10% in IC segment. That is to say, the customers of MU now consists of 2/3 of HC and 1/3 of IC. HCs are less price sensitive and more appreciative to MU's identity. Therefore, as cooperation among MUs intensifies, their collective identity is sharpened and strengthened, resulting in a split of customer segments: HC more attached to MUs and IC more attached to NWUs.

Qualitative evidences provides support the simulation results. A survey conducted by the trade association shows that the household customers clearly distinguish between "Our Municipal Utilities" and "the Big Ones", and are not price sensitive up to a certain range (8 Euros/month) if the price difference can be argued reasonably such as the MUs' engagements

for the common wellbeing of the locals (VDEW, 2005). A more recent survey shows that 56% of the household customers prefer to have their electricity supplied by MUs, whereas only 25% would like to buy electricity from private firms. The same survey indicates also that 60% of the Germans wish that energy and water supply, public transportation and waste management remain in the hand of MUs (Zeitung für kommunale Wirtschaft, 2008). Attempts to privatize the MUs were perceived by the citizens as "selling off family silver", some sparked off citizen referendums or even demonstrations as happened in Erlangen (Erlangen city web site), Steinheim (North Rhine-Westphalia Interior Ministry web site), Düsseldorf (Energie & Management, 2001) and Leipzig (Süddeutsche Zeitung, 2008). The customers clearly recognize the different strategies and identities of the large companies and the MUs. A survey reveals that the citizens associate MUs with "common welfare orientation", "support for the region", "environmental friendly behavior[4]", and "good value for money. In contrast, the big four electricity suppliers are associated with "profit seeking", "flexibility", and "customer orientation" (Zeitung für kommunale Wirtschaft, 2008). Especially at home, MUs enjoy considerable sympathy, as the marketing chief of a MU told us:

> *"We MUs have realized that we have a home bonus by our customers here… There are customers, who would like to drink a coffee with us or just to complain about something, simply to have time for them. Some customers say I only talk to Ms. XXX (in the customer center). Like I said last time to my colleagues, we have the house keys of some of our customers (laugh)... So it is these personal relationships, the personal interactions, and to have time for customers and talk with them. This is, say, very important."*

However, the same attachment and loyalty is unlikely to be expected in the IC segment. Especially the largest industrial and commercial customers operating federal wide

[4] A related issue concerns whether the customer loyalty to MUs is due to their preferences for green energy or their attachment to MUs' local identity. Indeed, the share of green energy in total electricity generation has increased from less than 5% in 1998 to about 15% in 2008 (BDEW, 2009). Nonetheless, green energy remains a niche product. Thus its contribution to MUs' success was limited. Moreover, both the NWU and the newcomers provide green electricity products.

or even internationally with little attachment to the local communities, are the first ones to leave their MUs. The marketing chief of another MU told us:

> *"There was, immediately in 1998, a (demand) bundling tendency. Many (industrial or commercial) customers told us, we cannot buy (electricity) from you anymore, because our parent companies do this for all. We had this (situation) with the (German) Telecom, (German) Railway, and large chain stores. There we could not do anything. Some were (customers with) large amount."*

Building on the simulation results and the qualitative evidence collected, I derive the following hypotheses:

> *Hypothesis 2a: As MU cooperation increases, MUs will exhibit higher growth rate in market share in the HC segment than in the IC one.*

> *Hypothesis 2b: As MU cooperation increases, the NWUs will exhibit higher growth rate in market share in the IC segment than in the HC one.*

Experiment 3- The Role of Delays

In this experiment I examine the implication of varying lengths of delays on market partitioning, reflected in the change of MU's market share. As mentioned before, there are two kinds of delays in the model. The first one concerns the delay with which producers recognize and make claims of their collective identity; the second regards the delay of audience members in perceiving, evaluating and accepting the MUs identity claims.

FIGURE 2-7

The effect of producer side delay in cooperation on MU market share in HC segment

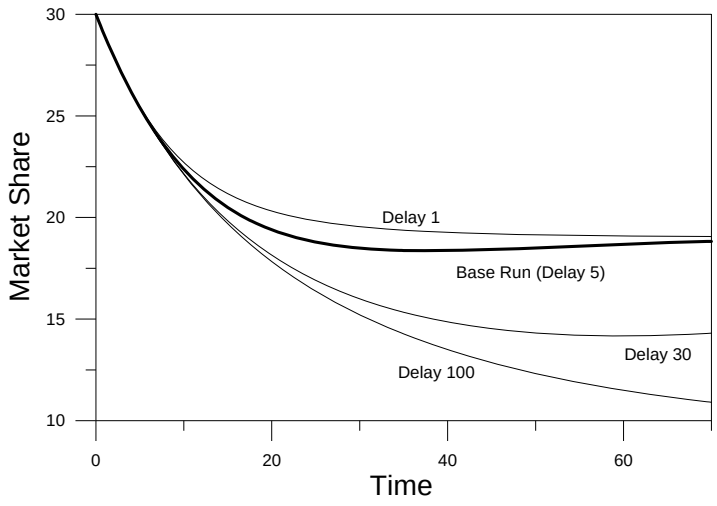


Figure 2-7 illustrates the behavior pattern of the MUs' market share in HC segment as a function of the *producer side delay*. The length of delay ranges from 1 to 100 periods. A short delay time implies that the MUs quickly reach consensus about their common foes, their oppositional collective identity as well as the cooperative strategies. A long delay means that it takes time until consensus is reached and collective actions are organized. This should have impact on the process of market partitioning. As I can see in Figure 2-7, with increasing delay, MUs lose more customers and have lower market share. For the German MUs, I expect that the delays in cooperation tend to be short rather than long. This is so for various reasons. The most important of them is that the MUs identity appeared intrinsically appealing to HC customers and just needed engagement to be re-activated. The pre-existence of a shared identity (albeit latent), facilitated the perception of a common cause and an intensive communication among peers. Indeed, MUs were described as animals of the same species by Trianel, a successful federal wide MU cooperation group founded in 1999 (Trianel, 2007):

> *Metaphor 1: "Flying in swarm, the air resistance is reduced and the ascending force is improved. In this way, a group of migratory birds can master together a distance of thousands of kilometers.*
> *Lessons learned: "Reaching goals in sole attempts can mean unnecessary costs. When*
> *strengths and complementary interests are bundled in groups, the competitiveness of each single party is increased, enabling them to survive in difficult environment."*
> *....*
> *Metaphor 4: "Delphins herd in loose groups, and they live and hunt together. As highly intelligent animals they coordinate their behavior in different situations through intensive communication with each other. "*
> *Lessons learned: "Common goals and intensive communication among members in a cooperation network are crucial for the functioning of the group."*

Preexisting industrial infrastructures and networks such as trade associations can also accelerate the "speed" of cooperation. For example, the previously mentioned cooperation group "Local Energy" with the MUs from the two East German federal states was established in September 1999, only one month after Yello started its federal wide customer acquisition. My informant told me that because the managers of the MUs had already working

relationships with each other before the deregulation, it was natural to collaborate on a marketing campaign under the common brand "Local Energy" in September 1999 in both federal states.

FIGURE 2-8

The effect of audience side delay in perception on MU market share in HC segment

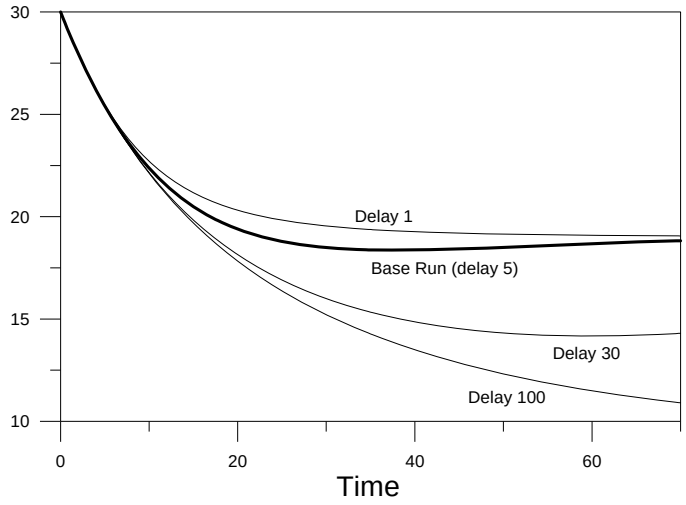


Figure 2-8 shows the paths of the MUs' market share in HC segment as a function of the *audience side delay* in perceiving, evaluating, attaining consensus and reacting to the MU's identity claims. Two main factors can affect the speed at which MU identity becomes salient to audience members: the perceived similarity among producers and the categorical contrast with market leaders. Similarity among the MUs can be enhanced by their interaction and cooperation, and categorical contrast to the NWUs increases with market concentration (i.e., with the demise of regional utilities). Needless to say, greater similarity among MUs and larger contrast to NWUs promotes consensus and generally shortens the audience side delay in endorsing the MUs identity claims. As Figure 2-8 illustrates the effect of the audience side delays appear similar to that concerning producer side delays. The results in Figure 2-7 and 2-8 illustrate the importance of time and speed in the co-evolutionary processes that leads to the emergence of the MUs collective identity and therefore to market partitioning.

Based on the above arguments, I propose the following hypothesis:

Hypothesis 3a. The shorter the MUs delay in cooperating, the higher their market share.

Hypothesis 3b. The shorter the audience side delay in perceiving the MUs identity claim, the higher the market share of the MUs.

Experiment 4- Combine Threats and Delays

The final experiment combines Experiment 1 and Experiment 3, aiming to explore the interaction effect between the environmental disruption, the competitive threat, and the two delays. As stated before, in this setting, the threat due to deregulation is substantial, the competitive threat resulted from concentration as well, and the producer side delay tends to be short. In the following results presented, the level of competitive threat is fixed at a high level (step height = 0.25) and producer side delay is set to be short (=1.5 period), I then vary the length of the audience side delay.

FIGURE 2-9

MUs' market share in HC segment with large external threat (=0.25), a short producer side delay in cooperation (=1.5) and varying audience side delay (1.5 to 15)

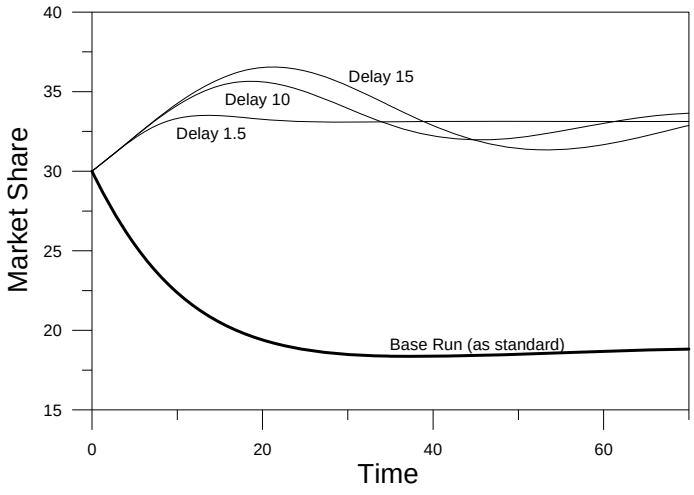


Figure 2-9 shows that, if the environmental disruption (and the competitive threat it engenders) is sufficiently high and *the producer side delay* is short, it is possible for the MUs to gain market share and also stabilize at a large market share. However, *as the audience side*

delay increases, the model behavior exhibits oscillations. The longer the audience side delay, the more violent is the oscillation. Why is this? The combination of short producer side delay and long audience side delay means that while the MUs are quick in reacting to the threat, the audience is slow in perceiving their claims. If audience is slow in perceiving the identity claim, MUs will base their judgment and strategy adjustment on the lagged information. Thus, producers tend to over- or under-react, leading to oscillatory behavior. This evidence points to the co-evolutionary nature of the identity emerging process governed by the interaction and the feedback relations between producer and audience. I believe that significant oscillation will likely make further cooperation unsustainable, damage the collective identity and harm the participant organizations. Therefore, I hold the outcome with gaining market share at a stable level as the most ideal outcome for the MUs.

Notice that this ideal outcome cannot be produced either in the base run or the previous experiments. In the base run, MUs only manage to stabilize after losing some initial market share. In Experiment 1, if the level of environmental disruption increases, while keeping both delays as in the base line specification (= 5), MUs manage to gain market share, but always with some oscillation. In Experiment 3, with no sudden environmental disruption (step hight= 0), even when I cut both delays very short, the MUs never gain market share, only lose less customers. Due to space limitation, I do not report these runs graphically. In summary, MUs can have good and steady performance *only if* (i) the environmental disruption is sufficiently high and (ii) both producer side delay in cooperation and audience side delay in perception are equally short. Therefore, I propose the following hypothesis:

> *Hypothesis 4: MUs will gain market share when confronted with a substantial threat and both the producer and the audience side delay are short.*

2.4 DISCUSSION AND CONCLUSIONS

Inspired by the limitations of existing research on market partitioning (Carroll, 1985; Carroll & Swaminathan, 2000) and drawing on research on organizational identities (Hannan et al., 2007), I designed a formal model and conducted four simulation experiments to improve our understanding of the processes of identity-based partitioning. Each experiment generated hypotheses which can be tested empirically. The results obtained explicate the conditions that sustain an identity oppositional to that of market leaders. The sharpness of the broadcasted identity, as well as the relative receptiveness of audience members to its associated claims, significantly affect the likelihood of market partitioning.

The results obtained from the models extend resource partitioning theory in several ways. First, while the original formulation of partitioning (Carroll, 1985) relied on structural inertia, the results indicate that oppositional identities may lead to market partitioning as well. The process through which an oppositional identity is claimed and becomes crisp in the eyes of audience members is detailed in the simulation model and supported by qualitative evidence. Second, and related, I explore this process with specific reference three boundary conditions: (i) cooperation among peripheral organizations, (ii) audience heterogeneity and (iii) timing. This research suggests that intense cooperation and substantial heterogeneity in preferences is needed to observe market partitioning. Concerning timing, how quickly audience perceives the identity claim and to which extent this delay is coordinated with that on the side of producers, appears important as well. Upon a competitive threat, short delays both on the producer and the audience side will allow MUs to gain steady market share. Conversely, long delays postpone the emergence of the oppositional identity. As the latter serves to buffer peripheral organizations from the competitive strength of market leaders, market partitioning turned out to be deterred (for a similar logic see Pólos et al., 2010). Third, this study extends the applicability of resource partitioning to markets with homogeneous

products. I have shown that the existence of different identities may lead to market partitioning, even in case of commodity products. In doing so, I contribute to shift the focus of resource partitioning theory from economic arguments to sociological and cultural ones.

The results obtained by the models provide novel insights to research on organizational identities as providing structure to markets and meanings to the actions of the organizations operating therein (White, 1981; Hannan et al., 2007). Recent work in organizational ecology, suggests that categorical contrast (i.e., the degree to which the members of a population appear similar one to the other and at the same time different from other organizations belonging to different domains) provides legitimacy to an organizational form (for a review see Hannan, 2010). An increasing number of studies demonstrate that upon the emergence of contrast organizations are rewarded for displaying clear, unambiguous identities (e.g., Hsu, 2006; Hsu et al., 2009; Zuckerman, 1999; Ruef & Patterson, 2009; Negro et al., 2007). But where does contrast come from? Most of the existing research treats categories as exogenous and pre-existing to the action of organizations. In the present case market deregulation is an exogenous trigger of contrast. Two possible exceptions to this general trend are the articles of Carroll and Swaminathan (2000) and that of Rao and his colleagues (2005). Notwithstanding the insights of this research, it is fair to say that the processes through which new identities emerge – so central to improve our comprehension of the dynamics of markets -- remains greatly underexplored. No doubts, I agree that market concentration is likely to increase categorical contrast (Hannan et al., 2007). Nonetheless, the results of the simulation experiments indicate that an exogenous shock is just a necessary but not sufficient condition for the success of an oppositional identity: cooperation is needed to align the efforts of peripheral organizations and, thus, to sharpen their collective identity. Needless to say, more evidence is needed to support the claims advanced here.

Three general scope conditions apply to the present chapter. The existence of a sufficient threat to enact collective actions represents the first scope condition under which the model apply. I backed up my claims by relying on existing research (Hawley, 1986; Hannan, 1979; Negro et al., 2007; Ingram & Yue, 2008). Deregulation was interpreted as the competitive threat that activates the 'identity loop'. Nonetheless, other kind of changes such as transformation of customer tastes, economic recession and amendments of industrial standards may serve to the same purpose as well. The second scope condition is that the market players should fit into different identities or follow opposite logics. It is necessary that market leaders are perceived as a salient common enemy against which peripheral organizations engage in collective actions. The conditions under which this strategy becomes feasible should be further explored. The last scope condition pertains to the different price sensitivity of customer segments. The joint effect of different price sensitivity and receptiveness to the identity claim triggers divergent attachment to organizations. While price differences are informative here about heterogeneous preferences, the same may not be true in other empirical contexts. No doubts, a nuanced knowledge of the context may be needed to nail down the relevant dimension of heterogeneity for the specific audience investigated.

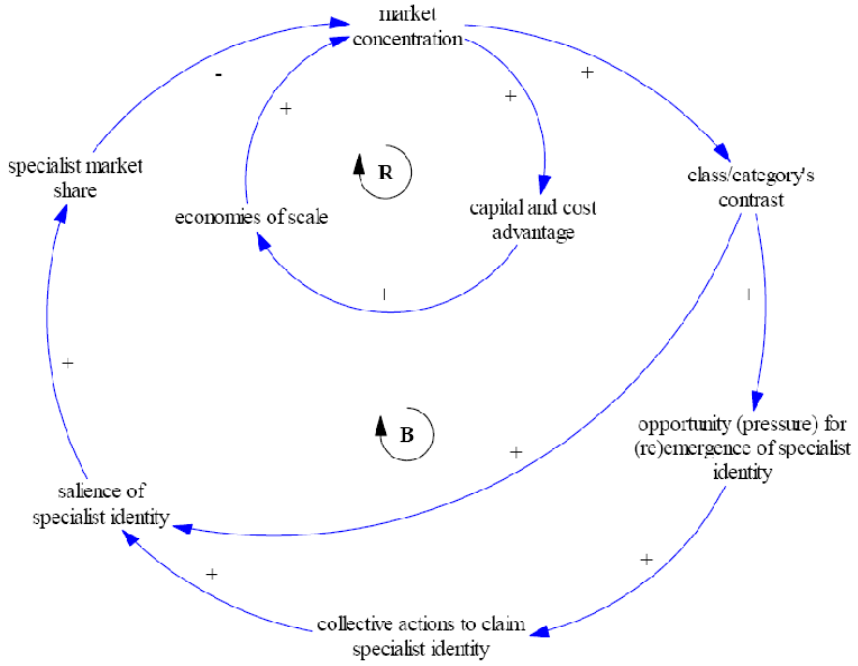
Do these scope conditions imply that this model tailored to the German electricity market is hardly generalizable to other contexts? To the contrary, I believe that it can be generalized to other settings as well, such as beer brewing (Carroll & Swaminathan, 2000) or radio broadcasting (Pozner & Rao, 2006; Greve et al., 2006). The generalized model (Figure 2-10) is developed by preserving the structure of the model presented in Figure 2-2.

The inner reinforcing loop summarizes the reinforcing economic argument in figure 2-2, only at a more abstract level. Increasing market concentration resulted from the decimating of the near center organizations (smaller generalists). With the perishing of the near center organizations, the perceived disunity of the population increases. This "sets the

stage for clustering, labeling, and codifying the set of producers in the periphery" (Hannan et al., 2007: 227). As a result, the contrast between categories increases. In case of newly emerging specialists such as in the beer and microradio industry (Carroll & Swaminathan, 2000; Greve et al., 2006), it represents an opportunity to engage in collective actions to sustain an oppositional identity. Needless to say, the higher the perceived contrasts with the identity of market leaders, the greater the salience of the identity of peripheral organizations. As Hannan and colleagues (2007: 227) put it, "codification and legitimation of the peripheral form relies on a distinct *vis a vis* the center; the resulting collective identity possible will have an oppositional character (as in the case of microbrewery). The rise of such an identity can stabilize the partitioning". Other things being equal, the stronger the perceived identity, the higher the specialist fitness.

FIGURE 2-10

The generalized model



Future research should attempt to test the hypotheses advanced here. In the context of German electricity, for example, the intensity of cooperation can be measured by counting the number of instances of various types of cooperation agreements among MUs (Hypothesis

1). Directly measuring the audience side delay in perceiving the identity claims however may be more demanding (Hypothesis 3 and 4). Nonetheless, following a similar logic to that employed in the study on the Dutch newspaper industry (Boone et al., 2002), the audience receptiveness to producer's identity claim may be operationalized by measuring geographical variations in the degree of localness of different communities along the social, political and economic dimensions. For example, more conservative local communities (i.e., measured with election data) and rather homogeneous on a cultural standpoint (i.e., measured by emigration data) should be more receptive to the MUs identity.

APPENDIX A

Equations used to Formalize the Arguments

$$\frac{dIC_{NWU}}{dt} = allocation\ IC \quad (1)$$

where IC_{NWU} is the market share of NWU in IC segment and *allocation IC* is the flow of IC switch from municipal utilities (MU) to NWU or vice versa

$$IC_{MU} = 100 - IC_{NWU} \quad (2)$$

where IC_{MU} is the market share of MU in IC segment. To keep the model simple I set the total number of IC as a constant of 100

$$\frac{dHC_{NWU}}{dt} = allocation\ HC \quad (3)$$

where HC_{NWU} is the market share of NWU in HC segment and *allocation HC* is the flow of HC switch from MU to NWU or vice versa

$$HC_{MU} = 100 - HC_{NWU} \quad (4)$$

where HC_{MU} is the market share of MU in HC segment. To keep the model simple I set the total number of HC as a constant of 100

$$Sales\ NWU = AC_{IC} * IC_{NWU} + AC_{HC} * HC_{NWU} \quad (5)$$

where *Sales NWU* is the total sales of NWU; AC_{IC} is the average electricity consumption of a IC per period and AC_{HC} is the average electricity consumption of a HC per period

$$MC = \frac{Sales\ NWU}{TC} \quad (6)$$

where *MC* is the market concentration and TC is the total electricity consumption per period (including consumption of both IC and HC), set as a constant

$$P_{NWU} = f_1(MC) \qquad f_1' < 0,\ f_1'' > 0 \quad (7)$$

where P_{NWU} is the average price level of NWUs and f_1 is the effect of market concentration on the average price level of NWUs

$$RP = \frac{P_{NWU}}{P_{MU}} \quad (8)$$

Where *RP* is the relative price and P_{MU} is the average price level of MUs set as a constant

$$AT_{MU} = MC * ET \quad (9)$$

where AT_{MU} is the actual threat for the MUs and ET is the external threat, set as a constant in base line model and a step function in experiment 1 and 3

$$PT^{t}{}_{MU} = \pi * AT_{MU} + (1-\pi)PT^{t-1}{}_{MU} \qquad 0 \leq \pi \leq 1 \tag{10}$$

where PT_{MU} is the threat perceived by MUs and π is the constant which determines how fast the perceived threat is "updated", i.e. the time it takes to close the gap between the actual threat and the perceived threat. If $\pi = 1$, the perceived threat is equal to the actual threat. On the other hand, if $\pi = 0$, the perception will never change from the initial perception.

$$PC_{MU} = f_2(PT_{MU}) \quad f_2^{'} > 0 \tag{11}$$

where PC_{MU} is the planned cooperation among MUs and f_2 is the effect of perceived threat by MUs on cooperation propensity

$$C^{t}{}_{MU} = \tau * PC_{MU} + (1-\tau) * C^{t-1}{}_{MU} \tag{12}$$

where C_{MU} is the realized cooperation among MUs and τ is the constant which determines how fast the cooperation propensity is realized in cooperation action

$$I_{MU} = f_3(C_{MU}) \qquad f_3^{'} > 0 \tag{13}$$

where I_{MU} is the collective identity of MUs and f_3 is the effect of cooperation among MUs on their collective identity

$$PI^{t}{}_{MU} = \omega * I_{MU} + (1-\omega) * PI^{t-1}{}_{MU} \tag{14}$$

where PI_{MU} is the collective identity of MUs perceived by the customers and ω the constant which determines how fast the perceived identity is "updated"

$$RPI = \frac{PI_{MU}}{PI_{NWU}} \tag{15}$$

where RPI is the relative perceived identity and PI_{NWU} is the collective identity of NWU perceived by customers, set as a constant to keep the model simple

$$allocation\ IC = IC_{MU} * (1-RP) * (0-PS_{IC}) * (1-RPI) \tag{16}$$

where *allocation IC* is the flow of IC switch from municipal utilities (MU) to NWU or vice versa and PS_{IC} is the price sensitivity of IC, set as a constant

$$allocation\ HC = HC_{MU} * (1-RP) * (0-PS_{HC}) * (1-RPI) \tag{17}$$

where *allocation HC* is the flow of HC switch from municipal utilities (MU) to NWU or vice versa and PS_{HC} is the price sensitivity of HC, set as a constant

APPENDIX B

Numerical Values Used in the Simulation

Symbol	Description	Numerical Value
IC_{NWU}	Market share of NWU in IC segment	70
HC_{NWU}	Market share of NWU in HC segment	70
AC_{IC}	Average electricity consumption per IC per period	1
AC_{HC}	Average electricity consumption per HC per period	1
TC	Total electricity consumption per period	200
P_{MU}	Average price level of MU	1
ET	External threat (base run)	1
	(Experiment 1 and 3) Step height	[0.05, 0.25]
π	Time taken for updating ET perceived by MUs	1
f_2	Effect of perceived threat by MUs on cooperation propensity	1.1*PT_{MU}
τ	Time taken for "updating" cooperation propensity into cooperation action (base run)	5
	(Experiment 2 and 3)	[1, 100]
f_3	Effect of cooperation on MU collective identity	1.1*C_{MU}
ω	Time taken to update customers' perception of MU identity (base run)	5
	(experiment 2 and 3)	[1, 100]
PI_{NWU}	Perceived collective identity of NWU by customers	1
PS_{IC}	Price sensitivity of IC	-1
PS_{HC}	Price sensitivity of HC (base run)	-0.6 and [-1, -0.4]

Chapter 3

Founding Rates and Identity-Based Resource Partitioning

3.1 INTRODUCTION

A central concern in the sociology of markets deals with the dynamics of market segmentation (Park & Podolny, 2000). What drives market differentiation? How does market differentiation unfold over time? What are the consequences of market differentiation on organizational fitness? These questions are of great importance and have attracted scholarly attention from as various research areas as industrial organization (e.g. Tirole, 1988), strategic management (e.g. Caves & Porter, 1977) and population ecology (e.g. Carroll, 1985). The present chapter aims at contributing to the latter stream of research, and in particular to its theory fragment known as resource partitioning.

Originally developed by Carroll (1985), resource partitioning provides an interpretation for the simultaneous existence of generalist and specialist organizations. To survive, generalist organizations depend on a wide range of environmental resources, whereas specialists on a narrow one. Before the market gets partitioned, generalists and specialists compete for the same resources. During the competitive process dictated by economies of scale, a few generalists survive, move toward the most abundant portion of the market, and grow larger. Increased market concentration is the byproduct of this process. Due to inertia and diseconomies of scope, valuable resources get released in the periphery of the market and feed the emergence of specialist organizations. The competitive process then reaches an equilibrium: generalists and specialists rely on distinct resources and do not compete with each other. Therefore, as market concentration rises, the mortality rates of generalists should increase whereas that of specialist organizations decrease.

In the recent years, the theory has been extended. Carroll and Swaminathan's (2000) study on the U.S. beer brewery movement pointed to the enactment of an identity alternative to that of market leaders as another possible trigger of partitioning. The success of specialist breweries in fact did not rely on the scale of producers or on a different quality of the output. What mattered was the identity of producers: the identity of generalists, perceived as large and modern mass producers, turned out to be problematic for a subset of consumers who believed that authentic specialty beer should be brewed by a craft-like firm using traditional methods and natural ingredients. Organizational identity, rather than product characteristics, guided the choice of such audience members and sustained the emergence of market partitioning (Carroll & Swaminathan, 2000).

Notwithstanding the developments of this more recent developments, the theory can be further improved by addressing the following three gaps. *First*, our understanding of identity-based market partitioning may be improved by the consideration of various dimensions of organizational identities. In particular, recent theoretical advancements in organization ecology (Hannan et al., 2007; for a review see also Hannan, 2010) have pointed out that beyond focus (i.e., the most common dimension employed to split specialists from generalists), contrast[5], resonance and empirical credibility appear as important identity dimensions (Baron, 2004; Hsu & Hannan 2005; Carroll & Swaminathan, 2000). *Second*, an identity approach to partitioning implies a shift from the 'old tradition' concerned with differences among producers (e.g., size, niche width, see Carroll, 1985), to the consideration of such differences in relation to the cognition and the preferences of audience members. In the present study I consider geographical communities as the locus of preference formation

[5] The original term used by Baron (2004) was "sharpness". Later on, "contrast" was increasingly used. The two terms seems different but refer to the same concept. For instance "We… characterize the degree to which a fuzzy set stands out from its background, what we call its contrast (reflecting its sharpness against the background)" (Hannan et al., 2007: 44); "…widespread category spanning lowers categorical contrast- the sharpness of a category's boundaries" (Negro, Hannan and Rao, 2010: 1). To better align with the most recent literature, I refer in the paper to contrast instead of "sharpness".

and variation (see Hannan et al., 2007: 302-303). *Last*, the effect of identity-based partitioning is hard to disentangle from that of product differentiation. For example, consumers might prefer specialists producers because of the inherent quality of their products or because of the identity of their producers. To better understand the role of identity in market partitioning, empirical contexts in which product differentiation is limited are especially needed.

In this chapter, I address each of these limitations by proposing the following. *First*, although the contrast between periphery and center organizations rises as a result of competitive release (Hannan et al., 2007; Pólos, Hannan & Carroll, 2010), the emergence of an oppositional identity among peripheral producers is likely to trigger new foundings of this form and allows the manifestation of market partitioning. *Second*, I contend the effects of the emergence of an oppositional identity vary across audience segments. In particular, I argue that the founding rates of peripheral organizations do increase in geographical communities whose audience exhibits a greater resonance with the peripheral identity and may easily detect the empirical credibility of the peripheral identity. *Last*, to better disentangle the identity effects from those of product differentiation, I study partitioning of what is considered a commodity market, i.e., the German electricity industry after deregulation.

This chapter proceeds as follows. In the next section, I develop the theoretical arguments and advance testable hypotheses. The third section presents the empirical findings and the robustness checks. Finally, I conclude by discussing the implications of this research and by suggesting future improvements of the present study.

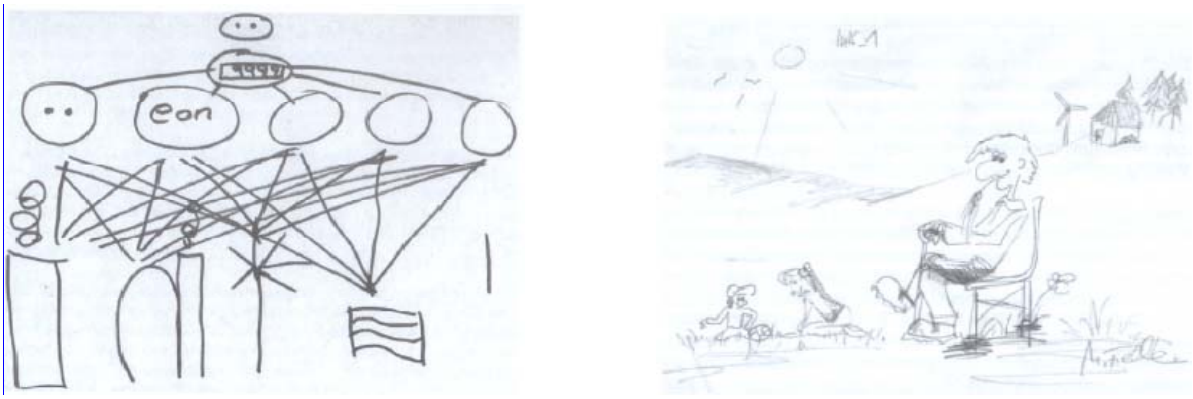
3.2 OPPOSITIONAL IDENTITIES OF NWUs and MUs

Our depiction of the MU identity is based on the extensive qualitative evidence obtained from four main sources. (i) TNS Emnid survey (1999; 2003; 2005; 2009): The

telephone surveys have been funded by VKU (the trade association for MUs) and carried out by TNS Emnid Market Research. The sample size for the year 1999, 2003 and 2005 is 500, for 2009 is 1000. (ii) ifm study (2006): This study has been funded by the umbrella trade association BDEW (German Association of Energy and Water Industries) and conducted by ifm market research institute. The study consists of 60 in-depth interviews with household customers each lasting 1.5 to 2 hours, carried out by professional psychologists. (iii) BDEW customer surveys (BDEW household customer survey, 1999-2009; BDEW commercial customer survey 2000-2009): funded by BDEW and conducted by PROMIT Institut fuer Prognose, Marktforschung & Informationstechniken. The sample size is 1200 for household customers and 1040 for commercial customers from 13 business areas. (iv). 11 semi-structured in-depth interviews conducted between 2008 and 2010, each lasting 1 to 2 hours. The interviewees include 6 MU managers and department chiefs and industry experts holding critical positions at BDEW and VKU. Three informant have been interviewed twice. In addition, I carried out a considerable number of interviews at industrial conferences or via telephone.

FIGURE 3-1:

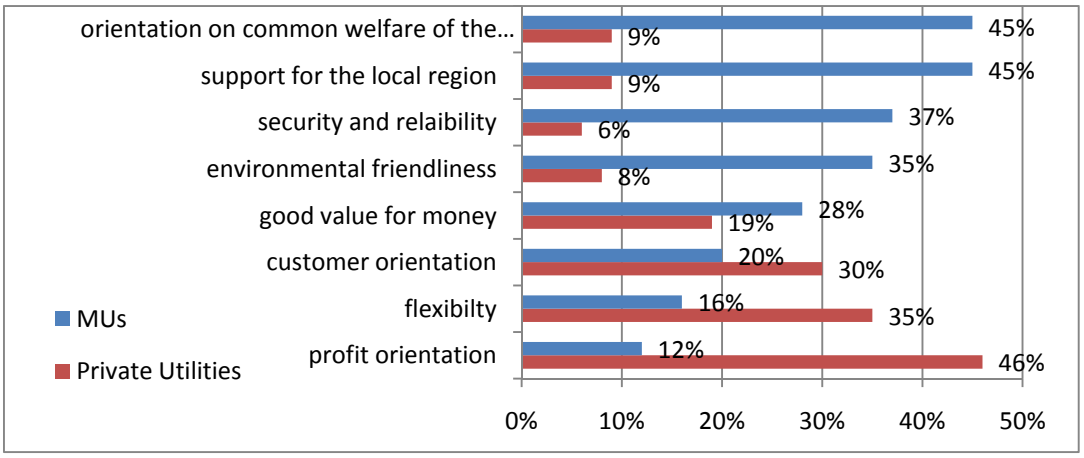
The NWUs representing the confusing market (left side) and the "own municipal utilities" (right side) (Source: ifm 2006)



Collectively, this research reveals two important findings. First, customers nowadays perceive the identities of the NWUs and their "own municipal utilities" as distinct and oppositional. As illustrated in Figure 3-1, while the large corporations embody the omnipotent, uncontrollable and abstract aspects of electricity, the small or medium sized MUs provide to the abstract product of electricity a tangible and familiar face, well represented by the drawings of the interviewees in terms of the cosy and pleasant everyday life that electricity enables (ifm, 2006). The second finding concerns the three distinguishing features of the MU identity: localness, reliability and environmental friendliness. According to a recent survey (TNS Emnid, 2009), customers associated MUs with "orientation on the common welfare of the local region", "support for the local region", "supply security" and "reliability", as well as "environmental friendly behavior". In contrast, the NWUs are described as "profit seeking", "flexibility", and "customer orientation" (Figure 3-2). The prominence of the three identity features is also consistent throughout the TNS Emnid surveys held in 1999, 2003, and 2005. Let's take a closer look on each of the three identity features.

FIGURE 3-2.

The oppositional images of MUs and private utilities (Source: TNS Emnid survey 2009)



Localness appears as the most prominent MU identity feature according to the TNS Emnid surveys (1999; 2003; 2005; 2009). As shown in Figure 3-2, whereas 45% of the interviewees expect "orientation on the common welfare of the local region" and "support for the local region" from the MUs, only 9% think so of private utilities. This is consistent with the results of the ifm psychological survey (ifm, 2006). One of the most important customer type identified by this surveys is "local patriots". This group of customers perceive both themselves and the MUs as deeply rooted in the local community. The local MUs belong to the taken-for-granted part of one's living space like the school and bars. In other words, the MU is seen as a symbol of the community itself, with which citizens strongly identify. Thus they feel being obliged to show solidarity toward their MUs: "I think I in the region should hold together." Alternative offerings from the NWUs are perceived as "assault" from outside attacking one's own living space and should be fended off. It is therefore not surprising that attempts to privatize MUs are compared with "selling off family jewelry" (Tafelsilber in German) and have sparked off citizen referendums or even demonstrations in various communities (e.g. Energie & Management, 2001; Süddeutsche Zeitung, 2008). Local pride also leads the local patriots to attach emotion to the commodity electricity, like a customer of the MU Dresden proudly declared: "this is Dresdener electricity" (ifm, 2006). An energy expert confirmed "the idea of 'we from here' is very powerful" and associated this with the comparably low switching rate of MU customers (Die Welt, 2010). The classic MU structure with broad product spectrum and local engagement helps to strengthen the community feeling: the MU does not simply sells electricity to individual citizens, but supports the local communities in various ways such as entertaining the swimming pool or the public transport, and supporting the youth club etc (ifm, 2006). Compared to MU's well received local engagements, NWU's efforts seem to be unconvincing as indicated by the oppositional market picture. For example, EnBW, the number three of the NWUs, has conducted a

campaign claiming their local and environmental friendly engagements in the local press of Baden-Württemberg. The director of MU Tübingen attacked this as unauthentic: "we pay dividend in Tübingen and not in Paris", pointing to EnBW's shareholder- the French nuclear giant EdF (Stuttgarter Zeitung, 2008). Due to the strong attachment to their MUs, the local patriots tend to unconsciously blend out market information. They do not pay attention to other suppliers, show no interests in knowing alternative offerings and are hardly price sensitive. On the one side, they value the good quality supply and are willing to pay a bit more for the "local" electricity[6]. On the other side, they are tolerant toward the price differences, since the money stays in the region and benefits the citizens (ifm, 2006).

Reliability is another important MU identity feature. Whereas 37% of the customers expected security and reliability from MUs, only 6% associate reliability with private utilities (Figure 3-2). Here, reliability does not only mean technological reliability. The ifm survey (2006) indicates that reliability appears intertwined with the trustworthiness granted to a family member or an old friend. The majority of the interviewees have long and good relations with their MUs. Often the parents and the grandparents were already customers. As a kind of "inherited" family tradition, one knows the MU from childhood, being assured that in case of power failure "the man from the MU" comes. The MUs belongs to the familiar and comforting taken-for-grantedness in life and are considered as a member of one's extended family or an old friend, whom one though does not meet very often (blackouts happens only seldom), but feels that he can be relied on. For citizens, their local MU is "THE electricity supplier". Out of this quasi family relation, customers expect the MUs to "take care of" one and not "leave one in the lurch" in case of trouble. Also like to family members or friends,

[6] On a technical standpoint it is hard to tell whether the electricity one buys is local or not. One interviewee illustrates in the following way: imagine there are 5 rivers flowing into a lake. You take one glass of water from the lake and it is impossible to say that it is from river A. According to the ifm survey (2006), this seems to be well known among the customers being aware that "electricity is electricity" and the NWUs generates a majority of the German electricity. However, the psychological effects of "local electricity" which is actually only distributed by the local MUs persists. This is similar to the phenomenon that people pay premium prices for "green" electricity.

citizens appear tolerant toward occasional failures of their MUs: "a short blackout can happen everywhere," "Everyone makes mistakes". Broadly speaking, trustworthiness, decency and reliability of the MUs are highly appreciated and price differences do not matter much: local customers generally do not even initiate a price comparison, easily available in internet. If they accidently come to know a price difference, they justify it with the good quality supply[7], as long as the price difference is "within reasonable range".

Environmental friendliness is the third pivotal feature of the MU identity. Whereas 35% of the consumers associate environmental friendliness with MUs, merely 8% think so in relation to NWUs and other private utilities. This is the result of MUs' continuous engagements to meet audience's expectations. The early years of the BDEW household and commercial customer surveys pointed out that both NWUs and MUs show image deficit with respect to environment relevant aspects" and urges its members to take measures (e.g. BDEW household customer survey, 1999; BDEW commercial customer survey, 2000). MUs have engaged in actions such as providing energy saving tips in the own customer magazine, image campaigns in the local press, building photovoltaic arrays on the roof of the local kindergarden and constructing environmental friendly combined heat and power (CHP) generation capacity. In contrast, even when actively engaging into portraying themselves as

[7] As illustrated before, both localness as well as family-like trustworthiness and reliability apply to the emotional attachment to the distinct identity of MUs, which overwhelms other alternative explanations. For example, It has been often suggested that what customers value is not the identity, but the customized services of MUs. However, data shows that around 70% of the household customers actually never have had any direct contact with their electricity suppliers (BDEW household customer survey, 1999 to 2006). It suggests that the feeling of good services is mainly a psychological one based on their perception of MU identity. Customer inertia has been often offered as another alternative explanation for the low switching rate and surprisingly great vitality of MUs. The BDEW household customer surveys (1999 to 2006) indicates clearly that it is not the case. The proportion of customers who do not switch suppliers because "I have a close relationship with my current supplier, which I do not want to give up" has jumped from 35% in 1999 to around 80% in 2001 and stayed relatively stable afterwards. In contrast, the proportion of customer fearing "high efforts involved in switching" and "risk of lower supply security" have been much lower and stayed at around 40%. Accidently, 1999 to 2001 is also the period in which the majority of the regional utilities have perished and identities of MUs and NWUs have been increasingly perceived as oppositional as data indicates. Note that here I do not claim that alternative explanations play no role at all. Instead, I propose that they cannot explain away our core argument of MU identity and identity is actually more important than the alternative explanations.

environmental friendly (e.g. Die Welt, 2001), NWUs turned out to be rather unsuccessful. The factual high percentage of electricity generated by their coal plants and especially nuclear power plants have made their claims anything but authentic and the NWUs are duly called “nuclear utilities” (e.g. Der Spiegel, 2002; Financial Times Deutschland, 2010).

3.3 THEORY AND HYPOTHESES

Oppositional Identities at Work

The most recent elaboration of resource partitioning theory underscores the role of competitive release due to the demise of near-center producers (Hannan et al., 2007). The absence of the near-center producers from the market picture potentially increases the contrast between the center (thus C) and the periphery (thus P) organizations (Hannan et al., 2007: 44, 227). According to this narrative, competitive release and increasing category contrast are considered as necessary conditions for identity driven market partitioning – but not sufficient to guarantee durable market partitioning. As Pólos and colleagues (2010) have pointed out, the manifestation of durable market partitioning requires the emergence of a distinct evaluative schema depicting the identity of peripheral organizations as oppositional to that of the center players. According to Pólos and Colleagues (2010), one possibility is that the P schema represents a mild variation of the C schema. Under this scenario and positive returns of scale, as Cs possess large engagement budget they may gain appeal by engaging in the social positions of the Ps rendering market partitioning temporary. For example, in the U.S. wine industry, when generalists are able to assume a robust identity and engage in specialists’ social positions, specialist vitality is decreased (Swaminathan, 2001).

Another possibility is that the P schema is oppositional to the C schema. This is the case when for example a high grade of membership in C impedes that engagement in the social positions of P would generate actual appeal. One example of oppositional schemas has

been presented by Rao and colleagues (Rao, Monin & Durand, 2003) in their study on French cuisine. The classical and the nouvelle French cuisine take opposite values in 5 feature dimensions: culinary rhetoric, rules of cooking, archetypical ingredients, role of the chef and organization of the menu. For instance, whereas the rules of cooking in classical schema centre on conformation and sublimation, those of the nouvelle schema accentuate transgression. As Pólos and colleagues (2010) demonstrate, only when Ps and Cs possess opposite schemas, it becomes hard for Cs to erode the social positions of Ps and market partitioning stabilizes.

The German electricity market is a case in point. The downfall of the regional utilities soon after deregulation disrupted the unity of the market picture and increased the contrast between NWUs and MUs. As the ifm psychological survey (2006) puts it: "…between the cross-regional and the regional suppliers there exists no shades of grey for most of the interviewees" (61). The ifm study concludes that the customers have a "partitioned market picture" (60). The MU and the NWU identity take opposite values of the relevant features as the qualitative evidence has shown. Whereas MUs are perceived as orienting on common welfare of the local citizens, NWUs are seen as profit oriented. Whereas MUs are linked with environmental friendliness, NWUs are denounced as "nuclear utilities". Whereas MUs personify a reliable and trustworthy old friend, NWUs embody the uncontrollable greedy evil. Attempts of NWUs to engage in MU's social positions have been perceived as unauthentic and failed to generate audience appeal. As a consequence, the market position of MUs has not been eroded by NWUs. MUs sustained and even gained market share and strength. In 2009, 70% of the people think that energy and water supply should be handled by MUs. At the same time, the proportion of citizens who "could imagine to have their electricity supplied by the NWUs" decreased from over 40% to less that 30% (TNS Emnid study, 2005; 2009). The oppositional MU identity is so powerful that the MUs declared themselves as

"Robin Hood against the Big Four" (Zeitung für kommunale Wirtschaft, 2006a). More and more municipalities see the advantages of having an own MU, with which they could counter the "nuclear utilities", help the environment by generating renewable energy and by supporting the local community (Gelnhäuser Tageblatt, 2010; Hamburger Abendblatt, 2010a). The result is a clear trend to remunicipalization, as admitted even by the spokesperson of an NWU "…municipal suppliers are experiencing a renaissance" (Stuttgarter Nachrichten, 2009). An increasing number of municipalities and cities founded their own MUs by buying back the electricity or gas grid from the NWUs (e.g. Die Welt, 2008b).

Building on arguments and qualitative evidence, I propose the following hypothesis:

Hypothesis 1. The more the identity of periphery and center organizations is perceived as oppositional, the larger the founding rates of peripheral organizations.

Audience Heterogeneity: Identity Resonance and Empirical Credibility

The previous section proposes that an identity increasingly oppositional to that of the dominant will lead to more foundings of peripheral organizations. This section argues that the effect of market partitioning may vary across audience segments marked by heterogeneous fit with the identity claims of the peripheral form. I focus on audience heterogeneity through the lens of geography by drawing on the organizational identity and social movement literatures.

The relationship between economic activity and geographical communities has interested economists and sociologists (for a review, see Sorenson & Baum, 2003). Macro-organizational scholars have contributed to this literature by investigating the relationship between geography and the evolution of organizational populations. Empirical research have shown that spatial variations matter for ecological processes such as organizational entries and exits (Lomi, 1995; Greve, 2002; Wezel, 2005; Cattani, Pennings & Wezel, 2003). Geography appears to play a vital role for the emergence of new organizational forms as well. McKendrick and colleagues (McKendrick, Jaffee, Carroll & Khessina, 2003) claim that

geographic agglomeration, especially of de novo firms entering the disk array industry, helps the emerging industry to coalesce around a common identity. By the same token, other scholars have investigated how community level factors systematically influence the success or failure of social movements (Greve, Pozner & Rao, 2006; Ingram, Yue & Rao 2010).

Geographical communities are important for comprehending the structure and dynamics of audience preferences. As Hannan and colleagues (2007: 302) suggested, "a potential valuable extension… of audience segment would consider geography. I defined segment as subsets of an audience that are largely closed with respect to interaction and communication. Such closure often takes a spatial form: social networks tend toward spatial closure. Therefore, audience segments likely to form in spatial patches… Perhaps variation over local audience segments in the legitimation of categories also plays a role". I follow this stream of research and argue that geography matters for of the unfolding of identity-based market partitioning. In particular, I claim that the effect postulated by Hypothesis 1 vary across regions. In particular, I claim that the effect of market partitioning vary across communities and focus on two factors that may influence the degree of support exhibited by local audiences to the peripheral form: identity resonance and empirical credibility.

Originated from the study of frame resonance in the social movement literature, identity resonance captures extent to which identities "capture or activate powerful distinctions along social, ethnic, religious, economic, political, and cultural lines" (Baron, 2004: 11). According to Snow and Benford (1998; Benford & Snow 2000), to mobilizes support, recruit members, and legitimate a movement's goal, a movement's ideal must be resonant with the social and cultural values held by its constituents. Likewise, institutional entrepreneurs who are skilful in employing frames as mobilization devices can win the support of the targeted audiences (Rao, 1998). By effectively "framing issues related to the construction and defence of categories" (p.115), activists often point to the shortcomings of

the existing forms and hold out a better set of alternative arrangements with the new forms (Hannan et al., 2007). For example, the microbrew activists have criticised the generalists as unauthentic and low quality manufacturers and portrayed themselves as authentic and high quality producers (Carroll & Swaminathan, 2000). The unimodal resource distribution of the US beer market embodies distinctions between social spaces along the social, economic, political and cultural lines (Carroll, Dobrev & Swaminathan, 2002). The specialist identity apparently resonates with the tastes and values held by the more affluent and knowledgeable consumers occupying the social spaces at the periphery. In short, possessing an identity resonant with the target audience is crucial for the peripheral form to mobilize support.

Identity resonance alone does not guarantee audience support. Empirical research in social movement theory has shown that besides frame resonance, *empirical credibility* is another relevant condition that shapes a movement's mobilization power. A movement frame must exhibit empirical credibility, namely an apparent consistency between the framing and the relevant events observed (Babb, 1996). For example, due to its store- front location and the direct observability of its production equipment, brewpubs appeared to be the most socially visible organizational form in the US micro-brewery movement. Brewpub thus enjoys more empirical credibility than contract brewery and emerged as the most legitimate peripheral form in the process of partitioning of this market (Carroll & Swaminathan, 2000).

The qualitative data on the German electricity industry seems to support the theoretical arguments concerning resonance. Take the case of Energie Hamburg, an MU in northern Germany which has been re-established in 2009. To fill the city budget deficit, Hamburg sold its MU in 2002 to Vattenfall Europe, number four of the NWUs. The mayor, who together with his predecessor backed up the privatization, admitted in 2007 the selling of the family jewellery was "a mistake" and enthusiastically supported the refounding (Frankfurter Rundschau, 2009b) of the "municipal utility 2.0" (Hamburger Abendblatt,

2009a). Like the mayor of Hamburg, local politicians of communities with values resonant to MU identity know that with their support toward MUs they can score points by their voters (Stuttgarter Zeitung, 2009). In case of Hamburg, MU's environmental friendly identity feature is clearly resonant with the pronounced "greenness" of Hamburg- the European Green Capital for the year 2011 (Hamburger Abendblatt, 2009b). By founding, the MU also stressed its distinct localness and called for citizen's support. When asked why a customer should choose the new MU in such a competitive regional market with so many cheaper suppliers, the MU director replied: "because we work in Hamburg for Hamburg…and we invest our profit back in Hamburg" (Hamburger Abendblatt, 2009b). The warm support from the audience side proved the powerfulness of identity resonance. For example, when asked by the local newspaper "Are you considering a switch to the new MU", 61% of the 1075 surveyed readers answered with yes (Hamburger Abendblatt, 2009c). The environment minister of Hamburg was among the first switching to the new MU (Hamburger Abendblatt, 2009d). Barely one year after refounding, the new MU has won 15,000 customers (Hamburger Abendblatt, 2010b). And a group of citizens started a popular initiative "Our Hamburg, our networks" to collect signatures so that a referendum could be held on the topic of buying back energy networks from Vattenfall Europe and E.ON Hanse (Hamburger Abendblatt, 2010c).

Empirical credibility of the MU identity as confirmed by the activities of other MUs was a fundamental trigger of MU foundings as well. Take the example of Regionalwerk Bodensee. As a newly founded MU in rural areas of Baden-Württemberg, influences of the neighbouring MUs seem essential for its founding. For example, over 60 regional MUs declared their areas as "EnBW-free" zone and formed the cooperation group to support each other to remain competitive and independent of NWUs (Stuttgarter Zeitung, 2008). The members of this cooperation group support the local communities, engaged in collective

campaign of their distinct localness, collectively built environmental friendly power generation capacities (SüdWestStrom home page). One member of the cooperation group is the MU in Friedrichshafen, a community about 30 km from the seven founding communities of the new MU. The MU Friedrichshafen played a key role in encouraging the founding of Regionalwerk Bodensee by bringing in gas networks, helping with technical know-how, and holding a 24% share (Energie & Management, 2008a).

Based on these theoretical accounts and on qualitative evidence, I propose:

Hypothesis 2. The founding rates of peripheral organizations increase with the resonance of the values and principles of the peripheral form with those of the local audience members.

Hypothesis 3. The founding rates of peripheral organizations increase with the empirical credibility of the peripheral identity in the local community.

3.4 DATA AND METHODS

Data Sources

By anchoring audience heterogeneity to geographical communities, I chose to conduct the study at the district level (Regierungsbezirk). This is one of the most important administrative unit in Germany as from the beginning of the 19th century (Gunlicks, 1984). District is also a well accepted level for German geographical units across disciplines such as geography (e.g. Dickinson, 1959), agricultural economics (e.g. Vickery & Sant 1946), politics (e.g. Gunlicks, 1984) and history (Hochstadt, 1981).

To test the hypotheses, I collected four sets of quantitative data. The first data set concerns the number of MU foundings and the MU density in the 40 German districts over the period 1999-2009. The data were primarily obtained from BDEW for the period 2001 to 2007. Missing years were filled manually using information from the VKU member register of various years. The resulting data was then verified by comparing with a variety of sources: the verivox's (a popular internet portal for product comparison) lists of the electricity

suppliers from 2000 to 2010; the German firm register (Bundesanzeiger); firm data banks such as Hoppenstedt, BeDirect and D&B; home pages of MUs and MU cooperation groups; and the German national and local press. To account for the audience heterogeneity across districts, I collected from the German Federal Statistical Office Web Site the second data set with the socio-demographic statistics of the 40 German districts. The coverage of the data ranges from 1998 to 2008, depending on the variables.

The third and the fourth data set concern audience perception of the oppositional identities of MUs and NWUs as well as the empirical credibility of MUs identity claims. For this purpose I recurred to newspaper articles. This is a legitimate method to study audience perception and increasingly used in organizational studies (e.g. Deephouse, 1996; Kennedy, 2008). Moreover, according to the BDEW customer surveys (BDEW household customer survey, 1999- 2009; BDEW commercial customer survey, 2000- 2009), daily newspaper is the most important source through which audience members experiences electricity suppliers. After extensive reading and comparisons, I noted that regional newspapers appear more sympathetic towards MUs. This is hardly surprising since localness is one of MUs most important identity features. Therefore, as a first step in the direction of testing my arguments, I coded one regional newspaper *Hamburger Abendblatt* -- that covers northern Germany -- to proxy the perception toward the MU identity. In doing so, I searched for all articles mentioning the word "Stadtwerke" (municipal utilities in German) and the company names of the locally dominating NWUs. After deleting duplicates and unrelated articles (e.g. articles concern NWUs' international activities with foreign MUs), the final data consists of 235 articles for the period of 1999 to 2009.

While the third data set concerns attitude, the last data set deals with behaviors – i.e., MUs activities being confirmed or disconfirmed empirically. After extensive reading and comparison, I have decided for *Die Welt*, the third largest national newspaper in Germany

and the least regionally and politically biased. I searched for all articles mentioning "Stadtwerke" (MUs) in *Die Welt* from 1999 to 2009. After deleting duplicates and unrelated articles, the final data set consists of 1237 articles. At this stage of the research, I opted for collecting the data from a national newspaper for two reasons. First, due to overlapping of coverage areas, reports on some MUs might be inflated. Second, another possible source of bias could arise from the extent to which each regional newspaper decides to cover the news concerning MU activities.

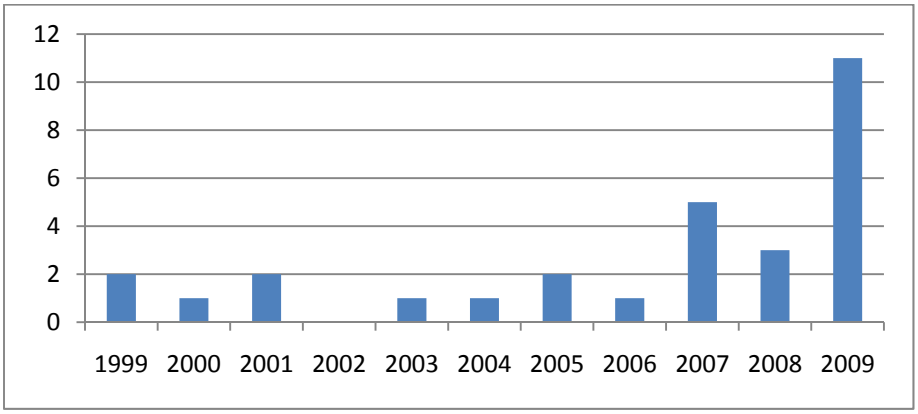
Variables

Dependent Variable

Founding rates have been often modeled as event count (see Carroll & Hannan, 2000). Building on previous studies (e.g. Cattani et al., 2003; Stuart & Sorensen 2003; Marquis & Lounsbury 2007), I focused on the number of yearly entries of MUs at the district level. Figure 3-3 plots the distribution of German MUs foundings from 1999 to 2009.

FIGURE 3-3

Number of MU Foundings



Independent and Control Variables

Oppositional Identities. To test H1, I rated as 1 any article in which NWUs and MUs identities were presented as oppositional and 0 otherwise. Then I added the annual number of the articles reporting the two identities as oppositional and divided it by the annual number of

all articles. The resulting proportion is then used as a proxy for the extent of oppositional identities in the market. Formally:

$$perceived\ oppositional\ identities\ of\ MUs\ and\ NWUs\ in\ year\ t = \frac{annual\ number\ of\ articles\ reporting\ oppositional\ identities}{total\ annual\ number\ of\ articles\ co\_mentioning\ MUs\ and\ NWUs}$$

Resonance. To test H2, I need to measure the extent to which the values incorporated in the MU identity are traceable in the local community. Remember that three MU identity features arise from the qualitative evidence: localness, reliability and environmental friendliness. For localness, I employed the voter turnout in county elections (*Voter Turnout*). Regions where people care more about the development and well-being of the local communities exhibit higher voter turnout. The higher the voter turnout, the greater the resonance with MU's localness. Since county elections are held every 5 years, the missing years have been filled with linear interpolation. For reliability, I counted the proportion of people over the age of 50 (*%Age Over50)*. Older people are more risk averse and thus put more emphasis on reliability of electricity supply, fundamental for the functioning of a normal everyday life. For environmental friendliness, I measured the proportion of people in a district voting for the German Green Party in the Bundestag (the lower house of the parliament at the federal level) election (*%Voter Green*). Measuring this construct by using county elections may distort the picture as the Green Party do not have a candidate in every region. Bundestag elections are held every four years and linear interpolation was used for filling missing years. The three measured were lagged of 1 year to ensure exogeneity.

Empirical Credibility. To test H3, I constructed a variable (*Empirical Credibility*) to measure the MUs activities in accordance with the three identity features. In a first step I assigned the articles to the specific MU mentioned and to the district where such an MU is located. I then coded each article as confirming or not the MU identity claims. As a last step,

the annual empirical credibility of MU identity in each district is calculated by subtracting the number of disconfirming articles from the confirming ones. For example, in district 1 during 2001, I found 33 supportive articles and 18 ones disconfirming local MUs' identity claims. Then the resulting net number of 15 is used as a proxy for empirical credibility of MUs in district 1 in year 1999. This variable has been lagged of one year. I have decided for the net number of articles rather than a proportional measure since the former one takes both proportion and magnitude into consideration across regions. For instance, for district A with 2 confirming and 1 disconfirming article and district B with 100 confirming and 50 disconfirming articles, the latter measure would show equal values of 0.5 for both districts. This clearly does not reflect how the empirical consistency of MU identity would be perceived in district A and B.

Several controls were added to the models. I controlled for MU density at the district level (*MU Density*) since foundings are affected by MU density according to density dependence theory (Carroll & Hannan, 2000). Furthermore, I controlled for population per sqkm (*Population/sqkm*) because population density tend to increase MU foundings. More densely populated areas are considered in the industry as "fillet pieces" which are more profitable (Stuttgarter Nachrichten, 2010). Whereas population density takes household customer density into consideration, I also controlled for the density of industrial customers with the number of industry firms per district-year (*#Industry Firms*). These variables have been lagged of one year. Furthermore, I controlled for districts in formal East Germany (*East*) since MUs were disbanded in the German Democratic Republic. After reunification in 1990, many communities re-founded their MUs. Lastly, I controlled for the first period after deregulation from 1999 to 2000 (*1999-2000*), since the foundings shortly after deregulation might have been caused by reasons other than identity related ones. Table 3-1 and 2-2 present the descriptives and the bivariate correlations of the variables used in the models.

TABLE 3-1

Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Oppositional Identities	440	0.37	0.20	0.00	0.65
Voter Turnout	440	55.95	7.04	34.67	77.89
%Age Over50	429	0.29	0.02	0.25	0.36
%Voter Green	440	5.99	2.35	2.11	12.77
Empirical Credibility	440	0.70	8.94	-25.00	30.00
MU Density	440	17.10	10.75	0.00	43.00
Population/sqkm	429	429.18	688.17	71.78	3849.15
#Industry Firms	429	1214.12	683.64	290.00	3297.00
East	440	0.25	0.43	0.00	1.00
1999-2000	440	0.18	0.39	0.00	1.00

TABLE 3-2

Bivariate Correlations

	Oppositional Identities	Voter Turnout	%Age Over50	%Voter Green	Empirical Credibility	MU Density	Popul. /sqkm	#Industry Firms	East	1999-2000
Oppositional Identities	1.00									
Voter Turnout	-0.26	1.00								
%Age Over50	0.30	-0.63	1.00							
%Voter Green	0.16	0.19	-0.36	1.00						
Empirical Credibility	-0.33	0.26	-0.23	-0.05	1.00					
MU Density	0.01	-0.03	-0.02	-0.02	0.01	1.00				
Population/sqkm	0.02	0.20	-0.05	0.60	0.00	-0.35	1.00			
#Industry Firms	-0.01	-0.11	-0.20	0.24	0.02	0.45	-0.06	1.00		
East	-0.03	-0.46	0.63	-0.50	0.00	-0.17	0.10	-0.26	1.00	
1999-2000	-0.70	0.29	-0.28	-0.16	0.59	0.00	-0.01	0.02	0.01	1.00

Model Specification

Following the lead of various studies of organizational entries, I presumed that the number of MU entries in each state follows a Poisson distribution. The main problem to deal with is overdispersion - i.e., the tendency of the variance of the entry rate to increase faster than its mean. In the presence of overdispersion, although parameter estimates remain unbiased, they are inefficient and their standard errors are biased downward (Long, 1997). In order to correct for overdispersion, I recurred to negative binomial regression. With φ_t as district fixed effects, ω_{it} as a set of control variables and the covariates as described before, the expected number of MU entries in district i in year t, λ_{it}, is specified in the following way:

$$\lambda_{it} = \varphi_t \exp[\beta_0 + \beta_1 Oppositional\ Identities_{it} + \beta_2 Voter\ Turnout_{it} + \beta_3 \%Age\ Over50_{it} + \beta_4 \%Voter\ Green_{it} + \beta_5 Empirical\ Credibility_{it} + \beta\omega_{it} + e_{it}]$$

To obtain the more conservative tests of the hypotheses, I dealt with the unobserved heterogeneity due to the panel structure of the dataset by employing a fixed effects estimation method. However, the conventional conditional fixed effects as proposed by Hausman, Hall and Griliches (1984), is not a true fixed effects method according to Allison and Waterman (2002). Therefore, I implemented the unconditional fixed effects technique as suggested by Allison and Waterman (2002). The analysis was run with Stata version 10.

3.5 RESULTS

Table 3-3 shows the unconditional fixed effect estimates of the negative binomial models for the number of MU foundings in the German electricity market from 1999 to 2009. Model 1 includes only the control variables. Except for *Industry Firms,* the parameter estimates of all the control variables appear in the expected direction – albeit failing to reach statistical significance. Model 2 reports the test of the argument concerning the positive effect of perceived oppositional identities on MU foundings. Consistent with H1, the estimate of *Oppositional Identities* is positive and statistically significant.

In Model 3 I find evidence in support of Hypothesis H2, according to which resonance between MU identity and local audience values enhances MU founding rates. As expected, the effect of *Voter Turnout (localness)* is positive and significant, suggesting that as the resonance of the local community to the MU identity increases, more MU foundings are observed in the focal district. The positive and significant effect of *%Age Over50* (reliability) lends further support for H2. The parameter estimate for *%Voter Green* is positive as expected, but statistically not significant – but see the GEE estimates reported in Table 3-4.

TABLE 3-3

Unconditional Fixed Effects Estimates of the Negative Binomial Models for MU Foundings, 1999- 2009

VARIABLES	Model 1	Model 2 H1	Model 3 H2	Model 4 H3	Model 5 All
Oppositional Identities		4.797**	3.510*	5.152**	3.637†
		(1.615)	(1.652)	(1.911)	(1.884)
Voter Turnout			0.404**		0.408**
			(0.085)		(0.094)
%Age Over50			161.684**		159.237**
			(55.752)		(59.801)
%Voter Green			0.439		0.255
			(0.467)		(0.617)
Empirical Credibility				0.043**	0.019
				(0.016)	(0.023)
MU Density	0.124	-0.034	-0.467	-0.170	-0.489
	(0.285)	(0.253)	(0.408)	(0.202)	(0.388)
Population/sqkm	0.053	0.056	0.147**	0.053	0.150**
	(0.040)	(0.040)	(0.050)	(0.040)	(0.056)
#Industry Firms	-0.010†	-0.006	-0.005	-0.007	-0.007
	(0.006)	(0.006)	(0.006)	(0.007)	(0.006)
East	8.610	6.861	1.406	12.585	3.915
	(15.756)	(15.202)	(5.776)	(14.190)	(7.593)
1999-2000	0.019	1.753†	1.508	1.148	1.123
	(0.730)	(1.053)	(1.100)	(1.052)	(1.208)
District1	20.563	19.354	20.789**	28.360*	22.155**
	(17.437)	(16.134)	(5.516)	(14.141)	(6.743)
…	…	…	…	…	…
District39	-7.937	-7.116	-1.780	-9.650	-4.150
	(10.796)	(10.649)	(9.968)	(10.271)	(9.447)
Constant	-21.868**	-23.390**	-97.336**	-24.827**	-94.383**
	(4.943)	(5.081)	(21.460)	(5.148)	(22.381)
Observations	429	429	429	429	429
LL	-72.21	-67.38	-60.73	-66.01	-60.55

** p<0.01, * p<0.05, † p<0.1 (Robust standard errors in parentheses)

Model 4 tests Hypothesis 3 concerning the positive effects of empirical credibility of the periphery form identity on founding rates. Indeed, the parameter estimate of *Empirical Credibility* appears positive and statistically significant. Although the explanatory power of empirical credibility is diminished by the simultaneous addition of all the variables in the model, the estimates reported in Model 5 appear aligned with those discussed so far.

Robustness Checks

To prove the robustness of the results, I undertook several additional tests. I conducted the analysis with the XTGEE routine using the "exchangeable" correlation structure which fits the data best. Table 3-4 shows the estimates of the GEE models for the number of MU foundings. In Model 2, I can observe that H1 is also supported in GEE model. In Model 3, *%Voter Green* which was not siginificant in the FE model turned significant whereas *Voter Turnout* lost significance. On the whole, H2 is also supported here. In Model 4, H3 finds no support. The results of Model 5 appear consistent with those of Table 3-3. To conclude, a general consistency across the results obtained from the unconditional FE and the GEE models was observed.

TABLE 3-4

GEE Estimates of the Negative Binomial Models for MU Foundings, 1999- 2009

VARIABLES	Model 1	Model 2 H1	Model 3 H2	Model 4 H3	Model 5 All
Oppositional Identities		5.594**	3.569†	5.724**	3.608†
		(1.803)	(1.884)	(1.989)	(1.960)
Voter Turnout			0.063		0.059
			(0.040)		(0.042)
%Age Over50			66.578**		64.042*
			(24.535)		(26.043)
%Voter Green			0.441**		0.422**
			(0.141)		(0.148)
Empirical Credibility				0.036	0.011
				(0.030)	(0.027)
MU Density	0.052**	0.050**	0.027†	0.049**	0.028†
	(0.019)	(0.019)	(0.016)	(0.018)	(0.016)
Population/sqkm	0.000	0.000	-0.001	0.000	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
#Industry Firms	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

East	-1.753†	-1.696†	-2.318*	-1.663	-2.290*
	(1.019)	(1.028)	(1.112)	(1.031)	(1.116)
1999-2000	-0.616	1.696	1.909†	1.127	1.724
	(0.593)	(1.051)	(1.000)	(1.141)	(1.118)
Constant	-3.804**	-6.622**	-31.114**	-6.591**	-30.004**
	(0.687)	(1.216)	(8.790)	(1.284)	(9.409)
Observations	429	429	429	429	429

** p<0.01, * p<0.05, † p<0.1 (Standard errors in parentheses)

The second check concerns the variable *Oppositional Identities*. As a first empirical test of the arguments, I decided to code the information of a regional newspaper to proxy the national sentiment of the MU and NWU identity as oppositional. Although reasonable, this choice relies on a strong assumption that the oppositional identities of MUs and NWUs as perceived in the coverage area of this regional newspaper is representative for other areas of Germany, for which additional investigations are desirable. One way to do it is to run the same analysis solely for the areas directly covered by this regional newspaper. My expectation is that the effect of *Oppositional Identities* should be amplified in the "home territory" of the newspaper. I repeated the analyses by using both unconditional FE and GEE techniques for an extended coverage area of 13 districts. In the results not reported here, I find evidence of such expected stronger effects across all 5 hypotheses. While this trend of results adds to the faith in the results, I remain fully aware of the need of coding more regional newspapers in the near future.

3.6 DISCUSSION AND CONCLUSIONS

Inspired by a few limitations of existing research on market partitioning (Carroll, 1985; Carroll & Swaminathan, 2000) and drawing on studies on organizational identities (Hannan et al., 2007), the present chapter aimed at improving our understanding of the processes of identity-based partitioning. To reach this goal, I followed a research design that combines qualitative and quantitative evidence. Although increasing oppositional identities among the dominant and the peripheral form would lead to market partitioning, this effect

vary substantially across audience segments. Looking closer at audience heterogeneity through the lens of geography, I suggested that founding rates increased with greater resonance between the peripheral identity and the values endorsed by the local community. Market partitioning can be further sustained when consistency between identity claims and producer actions become apparent to local audience members. The testing of this arguments carried out in the German electricity market during 1999-2009 brought support to my narrative.

This chapter contributes to the research on resource partitioning theory and organizational identities in the following ways. First, this study outlines the process through which differences among producers identities may lead to market partitioning. In particular, I claimed that more attention to the multiple dimensions of organizational identities is needed to gather a more comprehensive understanding of identity-based market partitioning. The results of the current study may be read as providing initial support to the theoretical work of Pólos and his colleagues (2010) that underscores although identity contrast between center and periphery forms might result from competitive release, oppositional schemas are essential to the emergence of a durable market partitioning. The results of this chapter are even more appealing when considering the empirical context of my analyses – i.e., a commodity market marked by very limited product differentiation.

Second, but related, this chapter moves the locus of attention of partitioning studies from differences among producers (e.g., size, niche width) to the consideration of such differences in relation to the cognition and the preferences of audience members. Indeed, the majority of research has treated resource partitioning as a uniform process across audience segments. The recent studies hint that this might not be the case (Boone, Carroll & Van Witteloostujin, 2002; Greve, Pozner & Rao, 2006). In the present study I further contribute to this set of findings by mapping the preferences of audience members for the identity claims

of MUs along geographical communities (see Hannan et al., 2007: 302-303). For instance, I found that depending on the resonance between producer identity and audience values, receptiveness toward identity claims varies across regions, critically influencing identity consolidation and partitioning process. By studying audience heterogeneity through the lens of geography, I contribute also to the broader theoretical development on organizational identity concerning the role of audience structure for vitality rates (see Kocak, Hannan & Hsu 2010).

Needless to say, the present chapter is subject to several limitations, which I consider as fruitful directions to further develop the project. First, the alignment between theoretical propositions and empirical measures may be improved. As mentioned before, the measure of oppositional identity (*Oppositional Identities*) is based on one regional newspaper as a proxy for multiple regions. In spite of being a reasonable choice for an early test of my arguments (see also the second robustness check), more regional newspapers data should be gathered in the near future. Another potential concern involves the measurement of reliability (*%Age Over50*). In this respect, the current variable may be questioned on construct validity grounds and the results obtained should be interpreted with care. No doubts, a more appropriate measure should be developed in the future. this chapter focuses on founding rates. Last, a more complete picture of market partitioning can be gained by studying other vital rates like growth or mortality rates. Especially when considering the durability of the market partitioning, a study of organizational growth rates appears essential.

Chapter 4

Growth Rates and Identity-Based Resource Partitioning

4.1 INTRODUCTION

A long standing tradition in organization theory has underscored the role played by the external environment in constraining the behavior and the performance of organizations. In this respect, the role of resources – both material and symbolic – lies at the core of various theoretical efforts (e.g., Pfeffer & Salancik, 1978; DiMaggio & Powell, 1983; Hannan, Polos & Carroll, 2007). Organization ecologists in particular defined populations as set of organizations marked by shared resource dependencies (Hannan & Freeman, 1977). According to this view, the growth of an organizational population is constrained by the inherent limits of the carrying capacity of its environment (Hannan & Freeman, 1989), and the growth and survival of individual organizations by the overlap in terms of resource requirements (McPherson, 1983; Baum & Singh, 1994; Podolny et al., 1996).

The resources available to organizations vary however over the life course of a population. The resource partitioning theory originally developed by Carroll (1985), is the theory fragment of ecology directly concerned with this matter. As the theory argues, the competitive process dictated by economies of scale allows a few generalists to grow larger. The very same process leads to the demise of several relatively large organizations which releases the resources that allow the flourishing of specialist (i.e., peripheral) organizations. Empirical support for resource partitioning has been obtained from a wide variety of industries such as telephone, cooperative banking, airline, beer brewing, wine making, newspaper, auditing and car manufacturing (for a review see Carroll, Dobrev & Swaminathan 2002).

Recent theoretical efforts reframed the mechanism underlying partitioning in terms of competitive release (Hannan et al., 2007; Polos, Hannan & Carroll, 2010). In biology, competitive release refers to the situation in which a competing species is no longer present and its constraint on a surviving population size is removed (Grant, 1972). Albeit central to the theory resource partitioning, direct evidence of the mechanism of competitive release remains scant. More importantly, recent empirical evidence (Carroll & Swaminathan, 2000) indicates that identity differences – rather than inertia or scope diseconomies as originally argued (Carroll, 1985) -- are critical in predicting which type of organizations will appropriate the released resources. Indeed, in the US brewing industry, the success of specialist breweries did not rely on a different quality of the output. What mattered was the identity of producers: the identity of generalists, perceived as large and modern mass producers, turned out to be problematic for a subset of consumers who believed that authentic specialty beer should be brewed by a craft-like firm using traditional methods and natural ingredients. Organizational identity, rather than product characteristics, guided the appropriation of the released resources by specialists organizations and sustained the emergence of market partitioning.

The present chapter builds on the recent development of resource partitioning (Polos et al., 2010) to study the growth rates of both center and peripheral organizations upon the manifestation of competitive release (i.e., due to the failure of relatively large (near center) organizations). I chose to study growth rates because as Carroll and colleagues (2002) pointed out, dynamics of growth are both complex and interesting for the theoretical development on resource partitioning and therefore worth greater scholarly attention. In particular, my goal is twofold. *First,* to provide evidence about the mechanism of competitive release. In this respect I expect competitive release to trigger higher growth rates of peripheral organizations than the local subsidiaries of the center (i.e., generalist)

organizations. *Second*, as the identities of peripheral organizations vary significantly in terms of engagement (e.g., Carroll & Swaminathan, 2000) and audience members exhibit differences in their preferences (i.e., in the degree to which they find the offering of peripheral organizations appealing, see Hannan et al., 2007), heterogeneous growth rates among peripheral organizations should be observed. Geographical communities will be employed to map the differences in the intrinsic appeal of peripheral organizations.

This chapter proceeds as follows. In the next part, I develop the theoretical arguments and advance testable hypotheses. The third section presents the empirical findings and the additional analysis. Finally, I conclude by discussing the implications of this research and by suggesting future improvements of the present study.

4.2 THEORY AND HYPOTHESES[8]

Competitive Release

Recent theoretical developments have emphasized competitive release as the key mechanism of partitioning, referring to the "conditions that deliberate a population of organizations that had effectively precluded the emergence and growth of a focal population" (Hannan et al. 2007: 216; Polos et al., 2010: 4). Resources are released through the demise of the near-center producers (NCs) and absorbed by both center (Cs) and peripheral

[8] In developing our theoretical arguments I will make use of the qualitative data obtained from four main sources. (i) TNS Emnid survey (1999; 2003; 2005; 2009): The telephone surveys have been funded by VKU (the trade association for MUs) and carried out by TNS Emnid Market Research. The sample size for the year 1999, 2003 and 2005 is 500, for 2009 is 1000. (ii) ifm study (2006): This study has been funded by the umbrella trade association BDEW (German Association of Energy and Water Industries) and conducted by ifm market research institute. The study consists of 60 in-depth interviews with household customers each lasting 1.5 to 2 hours, carried out by professional psychologists. (iii) BDEW customer surveys (BDEW household customer survey, 1999-2009; BDEW commercial customer survey 2000-2009): funded by BDEW and conducted by PROMIT Institut fuer Prognose, Marktforschung & Informationstechniken. The sample size is 1200 for household customers and 1040 for commercial customers from 13 business areas. (iv). 11 semi-structured in-depth interviews conducted between 2008 and 2010, each lasting 1 to 2 hours. The interviewees include 6 MU managers and department chiefs, industry experts from BDEW and VKU. Three informant have been interviewed twice. In addition, I carried out a considerable number of interviews at industrial conferences or via telephone as well as extensive research of the German national and local newspaper articles using LexisNexis.

organizations (Ps)[9]. Existing studies have almost exclusively focused on cases in which resource partitioning result from high new founding and low mortality rates of Ps (Carroll, 1985; Lomi, 1995; Carroll & Swaminathan, 2000; Swaminathan, 2001). As a consequence, we know little about the dynamics of organizational growth during partitioning.

An exception to this trend is the study of Boone and colleagues (2002), which investigates the effects of increasing market concentration on the growth rates of regional newspapers. They have noticed that generalists (Cs) are best positioned to absorb the newly freed resources. One way of achieving this is to acquire the failing NCs and integrate them into the Cs. As a result, the few surviving Cs grow larger in size and market concentration increases. As I know from the central prediction of resource partitioning theory, increasing market concentration boosts the expected fitness of Ps (Carroll, 1985; Carroll & Swaminathan, 2000; Hannan et al., 2007; Polos et al., 2010). The combined market share of the Cs should also shrink in the partitioning process because it is impossible for them to cover such a broad range of the market (Carroll, 1985). This implies that in case a small number of Ps start, the expansion of the Ps may come from higher growth rates of the incumbents. At the same time, increasing concentration and rising contrast between Cs and Ps tilts the competitive balance toward organizations built on regional identities (Hannan, 1979; Hannan et al., 2007). As a result, for each C, in spite of the expansion of the aggregated organizational size resulting from acquisitions, the growth rate of each local subsidiary may decline. Therefore, the combined market share of the Cs contracts, in line with the original theory.

It should become apparent from the previous section that the counterparts of Cs, NCs and Ps in the empirical setting are NWUs, regional utilities and MUs. Qualitative evidence in the German electricity industry seems to confirm the theoretical predictions. According to

[9] Following the most recent theoretical formulation, I use the terms center, near-center and peripheral organizations (Hannan et al., 2007; Polos et al., 2010)instead of large generalists, small generalists and specialists.

ifm study (ifm 2006), customers nowadays perceive the identities of the NWUs and their "own municipal utilities" as distinct and oppositional. As illustrated in Figure 3-1, while the large corporations embody the omnipotent, uncontrollable and abstract aspects of electricity, the small and medium sized MUs provide to the abstract product of electricity a tangible and familiar face, well represented by the drawings of an interviewee in terms of the cosy and pleasant everyday life that electricity enables (ifm, 2006).

Evidence shows that the sympathetic identity of the MUs and the increasing contrast between NWUs and MUs indeed helps fuel the MUs' growth. For example, the MU which is owned 100% by the municipality Wedel, started to acquire customers actively in nearby Hamburg from April 2007. In Hamburg, the energy market was dominated by two of the NWUs' local subsidiaries: Vattenfall Europe in Hamburg - the decedent of the former regional utility HEW and E.ON Hanse - a regional branch of E.ON about 20 times as big as the MU Wedel (Zeitung fuer Kommunale Wirtschaft, 2007b). With its expansion into the home territories of the NWUs, the MU Wedel intended to "declare battle" against the energy giants (vwd Energy Daily, 2007). In the marketing campaign, it emphasizes its image as a municipality owned and middle-sized company from the neighborhood, independent from the energy giants. This makes the municipal utilities for the Hamburger "already sympathetic", according to the CEO of the MU (taz, 2007). The MU Wedel matched its image with one of its newly gained customers- FC St. Pauli, a local soccer club. "Just like I as a small local company, the club also has to fight with passion and creativity against the big players with a lot money… a David-against-Goliath-situation", according to the CEO. As a part of the campaign, the MU Wedel humorously declared the Hamburg city district St Pauli as "30.000 Squaremeter Energy free of the Energy Giants" with a symbolic border and a tollkeeper (taz 2008). The marketing campaign was a success. More than double of the expected number of

customers in Hamburg have switched from E.ON Hanse and Vattenfall Europe to the MU Wedel.

Building on the theoretical arguments discussed above and the qualitative evidence, I propose the following hypothesis which juxtaposes the effects of NCs' demise on the growth rates of both Ps and Cs organizations.

> *Hypothesis 1. The larger the competitive release the higher the growth rates of MUs compared to those of the subsidiaries of NWUs.*

Intrinsic Appeal and Engagement

In the former section, I have dealt with the growth prospect of MUs and of local branches of NWUs. In this section, I concentrate on MUs, the primary focus of resource partitioning theory. As the MU segment, as much as other specialist segments (Carroll & Swaminathan, 2000), appears heterogeneous and audience members differ in their consideration of MUs identity as appealing, I refer to the theoretical constructs of intrinsic appeal and engagement proposed by Hannan and colleagues (2007) to explore the differential growth rates of MUs empirically observed.

Intrinsic Appeal

Audience holding crucial resources may be represented in a multidimensional social (or sociodemographic) space (McPherson, 1983). This concept has been used by Hannan and colleagues (2007: 173-180) to develop the notion of intrinsic appeal. Social position refers to an audience member's location in the social space. And social position influences tastes, which represent the aesthetics and preferences of audience members. It has been suggested that each social position possesses a prototypical taste – i.e., the modal taste of the audience members at that position. The intrinsic appeal of an offerings is defined as a match or fit between the characteristics of the offer and the typical local taste. Higher intrinsic appeal leads to higher actual appeal (Hannan et al., 2007; Hannan, 2010). The relative success of the

producers, can be proxied by the fitness an organization exhibits in a focal environment. Fitness refers to "a producer's ability to thrive within its environment - to obtain necessary resources, to persists, and to grow" (Hannan, 2010). Higher intrinsic appeal thus should lead to greater organizational fitness – of which growth rate may be a possible example.

Despite the recent theoretical development on identity and audience, the study of heterogeneity among audience segments remains an important but theoretically and empirically underdeveloped topic (Hannan et al., 2007; Kocak, Hannan & Hsu 2010). I map the heterogeneity of social positions and their corresponding differentiated local tastes using geographical communities. In so doing, I rely on Hannan and colleagues (2007: 302) who suggested that "a potential valuable extension… of audience segment would consider geography. I defined segment as subsets of an audience that are largely closed with respect to interaction and communication. Such closure often takes a spatial form: social networks tend toward spatial closure. Therefore, audience segments likely to form in spatial patches… Perhaps variation over local audience segments in the legitimation of categories also plays a role". These considerations resonate well with those advanced by sociologists, economic geographers and other organizational theorists who have underscored the role of geographical proximity in sustaining the emergence of collective mindsets (e.g., Gould 1995; Zhao, 1998; Hedstrom, 1994; Becattini, 1990; Romanelli & Khessina, 2005).

Considering intrinsic appeal in terms of matching between MU identity features and audience preferences, *localness, reliability* and *environmental friendliness* seem to be the identity features of the MU identity in our empirical context as mentioned in chapter 3. We suggest that the growth rates of MUs should be higher in communities in which the intrinsic

appeal of their identity is strong. In particular, communities in which localness, reliability and greenness are espoused will be a fertile territory for MUs:[10]

> *H2. (Intrinsic Appeal) The greater the MU identity intrinsically appeals to the local audience (i.e., the greater the match between the three MU identity features and the local audience tastes), the higher the growth rates of MU organizations will be.*

Engagement

As Hannan and colleagues (2007) argued, to convert intrinsic appeal into fitness, producer engagements are required. Engagement refers to producer actions like "(1) learning about the idiosyncrasies of the local subaudience and its aesthetics; (2) designing or redesigning features of the offering to make it attractive to that audience; and (3) trying to establish a favourable identity in the relevant subaudience" (p. 179). In often cases, key engagement activities are those developing and displaying credible signals of authenticity and commitments towards the claimed identities (Carroll & Swaminathan, 2000; Baron, 2004; Hsu & Hannan, 2005; Hannan et al., 2007). For instance, in their study on the American microbrewery movement, Carroll and Swaminathan (2000) found that brewpubs send strong signals of authenticity and demonstrate high engagements with audience by displaying their production equipment in the store-front locations. Therefore, brewpubs seem to contribute strongly to the legitimation of the microbreweries. How does engagement influence fitness? According to Hannan and colleagues, as long as the intrinsic appeal is nonzero, the fitness of an offer to the local audience at a social position increases with the producer's engagement at that position (Hannan et al. 2007: 182).

[10] A possible example of the mechanism at work is the following. With the failed regional utilities being acquired by the NWUs, the former customers of the acquired regional utilities seem have low attachment and little loyalty toward the NWUs. The decreasing loyalty may enable the MUs to grow as visible in the expansion of MU Wedel into Hamburg. MU Wedel was careful in managing the differentiated treatment of home customers and new customers. In its "home", the city Wedel, a different marketing strategy was used even the same electricity and the same natural gas is sold. The tariffs are titled as "Wedel electricity", "Wedel natural gas" and "Wedel water" respectively, to highlight the local image (Zeitung fuer Kommunale Wirtschaft 2007b).

Producer engagements may take a variety of forms. In this setting, one important form of engagement with local audience and to show commitments towards the claimed identity is the cooperation with other MUs. As market concentration increased, the Big Four emerges as the prominent enemies and substantial threat to the MUs. In an industry where economics of scale plays a crucial role for organizational survival, it is difficult for the small and medium-sized MUs to survive on their own. Thus many experts have predicted a wide death of the MUs (Die Welt, 1998; 1999). Due to the traditionally prominent positions of the MUs in retail market, the NWUs saw a lucrative partner in the MUs and have attempted to lure the MUs to "cooperate" with them. However, many municipal utilities feared a threat to their identity. Therefore, they hold as necessary to distance themselves from the Big Four as the two types of organizations "have a fundamentally different organizational philosophy and mission", according to the chairman of the VKU (the German MU trade association) group of the Land Rheinland-Pfalz (Zeitung fuer Kommunale Wirtschaft, 2007a).

Therefore, MUs preferred to cooperate with each other. These cooperation activities were rooted in their shared identity as municipal enterprises and their responsibility for their respective local communities. Cooperation is "to achieve critical size among the like-minded ", as the executive chief of Traunstein MU put (Zeitung fuer Kommunale Wirtschaft, 2006b). As the MUs in Krefeld and in Neuss planned their cooperation with each other, their stated goal was "ensuring and extending their market position in the region and the maintenance of a customer-near, municipal oriented energy supply" (Energie & Management, 2006). The mission of the MUs and the municipal cooperation groups is "the development of the local economic and living environment for a strong and worth-living region… strengthening the economic independent future of the municipal companies in a changing energy market", according to the mission statement of KOS- a cooperation group of 14 municipal utilities from Upper Bavaria and Swabia (KOS Web site). The municipal

cooperation groups see in themselves "Robin Hood against the Big Four" (Zeitung fuer Kommunale Wirtschaft, 2006a). Another example is the MU cooperation SüdWestStrom. Over 60 regional MUs declared their areas as "EnBW (one of the Big Four)-free" zone and formed the cooperation group to support each other to remain competitive and independent of NWUs (Stuttgarter Zeitung, 2008). The members of the cooperation group supported the local communities through sponsoring local events, engaging in collective campaigns meant to underscore their care for local citizens, and more importantly, collectively building environmental friendly power generation capacities (SüdWestStrom home page).

Based on the above theoretical arguments together with empirical evidence and focusing on growth rate as the indicator for organizational fitness, I propose:

> *Hypothesis 3 (Engagement in form of cooperation). The more credible a MU's engagement , the higher its growth rate will be.*

4.3 DATA AND METHODS

Data Source

To test the hypotheses, I have collected three sets of quantitative data. The first data set concerns the annual electricity retail sales to end users of 1998 and from 2001 to 2008. The data were primarily obtained from the BDEW annual data publication (BDEW Jahresdaten der Stromversorger, 1998, 2001-2008). As the umbrella trade association for the German electricity and water industry, BDEW's (previously VDEW) members represent over 90% of the electricity retail market share (BDEW home page) and include almost all the NWUS and MUs. Since there existed no data for the year 1999 and 2000, linear interpolation was used to fill the missing years. The data was then verified using information from the data banks Hoppenstedt and the German company register (Bundesanzeiger) as well as information from firm web page whenever possible. The final data set consists of 573 MUs

and 15 subsidiaries of NWUs in the German electricity industry, covering about 80% of the entire population of NWUs and MUs. To account for audience heterogeneity, I collected data from the German Federal Statistical Office Web Site which contains the socio-demographic statistics of the 439 counties in Germany (the city of Hamburg and Berlin are two of the 16 German federal states and considered here as county as well). The coverage of the data ranges from 1997 to 2007, depending on the variables. The information on MU cooperation activities was obtained from the data collected by BDEW and VKU. I have double-checked and complemented the data with the information gathered from the home pages of the MUs and the cooperation groups as well as from German national and local newspaper articles using LexisNexis.

Variables

Dependent Variable

Our dependent variable is organizational growth. I measure *Size* using the retail sales of electricity to end users in MWh (megawatt hour). Other common size measures are annual revenues and number of employees (see, e.g., Khaire, 2010). Annual revenues from electricity retail sales is not feasible here because the electricity prices showed great volatility over time. Number of employees turned out to be not suitable in this context because the MUs usually have other business areas such as gas, water, heating and the allocation of the employees to the different business areas is difficult to observe.

Independent Variables

Competitive Release. The variable *Competitive Release* was calculated as the aggregated size of the failed regional utilities in a given year. Since many regional utilities are missing in the later years of the BDEW data, I used the size of regional utilities in the 1998 data. To test Hypothesis 1 that MUs exhibit higher growth rates than the subsidiaries of

the NWUs, I interacted *Competitive Release* with the dummy variable *MU* which is coded as 1 if the focal firm is an MU and 0 if it is a subsidiary of the NWUs *(CompetitiveReleaseXMU).*

Intrinsic Appeal. To test Hypothesis 2, a variable that measures the extent to which the values incorporated in the MU identity are traceable in the local community was needed. Remember that localness, reliability and environmental friendliness are the three MU identity features emerged from the qualitative evidence. To proxy *Localness*, I employed the voter turnout in county elections. Regions where people care more about the development and well-being of the local communities exhibit higher voter turnout. The higher the voter turnout, the greater the fit with MU's localness. Since county elections are held every 5 years, the missing years have been filled in by using linear interpolation. As for *Reliability*, I employed the proportion of people over the age of 50. Older people are more risk averse and thus put more emphasis on reliability of electricity supply. The qualitative evidence confirms this claim. I measured *Greenness* with the proportion of people in a district voting for the German Green Party in the Bundestag (the lower house of the parliament at the federal level) election. Measuring this construct by using county elections may distort the picture as the Green Party do not have a candidate in every region. Bundestag elections are held every four years and linear interpolation was used for filling in the missing years.

Engagement. Engagement in forms of cooperation activities among MUs took different forms (Zeitung fuer Kommunale Wirtschaft , 2001; Energie & Management, 2005; Energie & Management, 2008b). Shortly after deregulation, most cooperation agreements were inspired by economic reasoning such as collective purchasing electricity in order to increase their collective bargaining power. This form of cooperation is flexible and loose, requiring little commitment and trust. Cooperation activities of collective purchasing and trading were thus labelled *Economic Engagement.* The second category of cooperation

activities took the form of collective marketing and sales. These activities represent commitment to the form identity of MUs because they present MUs as a group sharing a collective identity to the audience. I thus labelled these activities as *Form Identity Engagement*. Before the deregulation, there existed "division of labor" among the electricity firms on the national, regional and municipal levels in the (West) German electricity industry. The nationwide firms with large-scale power plants generated electricity and sold it to the regional utilities; regional utilities then distributed to municipal utilities which then sell to end customers[11] (FES 1991, Brandt 2006, Krisp 2007). The result of this division of labour was that the MUs had very little own generation capacity, which became a liability when they tried to preserve their independence from the NWUs in a deregulated market (Energie & Management, 2005; Energie & Management, 2008b). To preserve their local identity and independence, a few MUs engaged in building collective power plants and started to share the generation capacity among themselves. This form of cooperation represents the most genuine commitment to the MU identity, thus I labelled it *Local Independence Engagement*. Note that the categories *Economic Engagement, Form Identity Engagement* and *Local Independence Engagement* are not mutually exclusive as MUs may at the same time engage in different cooperation activities such as collective purchasing, marketing or power plants. For each cooperation category, a dummy variable is used, coded as 1 if the focal MU engages in the cooperation activities within that category and 0 otherwise. The years in which MUs were not engaged in any type of cooperation were coded as *Zero Engagement*. All independent variables were lagged of 1 year to control for reverse causality.

Control Variables

The following firm-level control variables were included. I control for *Age* because a few studies have found that the proportional growth rate of firms decreases with age

[11] Besides their respective functions as generators and distributors, both NWUs and regional utilities also served end customers in their respective monopoly regions.

(Harrison 2004). The missing values for *Age* have been filled using the mean value. Since firm diversification may influence how aggressively it competes in the focal market (Chen, 1996; Greve, 2008b), I control for the number of *Business Areas* in which the firm is active in [12]. Moreover, geographical proximity of a firm (*Proximity to Released Resources*) to the failed regional utilities (i.e., to the released resources) may influence its growth. Thus I control for the distance an MU or an NWU subsidiary *i* to a failed regional utilities *j* by applying the "Great Circle Distance Formula" :

$$Dist_{ij} = r\cos^{-1}\left[\sin(lat_i / c)\sin(lat_j / c) + \cos(lat_i / c)\cos(lat_j / c)\cos(long_j / c - long_i / c)\right]$$

with r denoting the radius of the earth in kilometres and c being a constant of 180/π which is necessary in order to convert latitude or longitude from decimal degrees to radians. The latitude and longitude of each firm has been obtained from "Google Map" using the function "LatLng Tooltip" in "Maps Labs" (see also Beck et al., 2010). In a second step, I weighted the distance with the size of the failed regional utilities to calculate the *Proximity to Released Resources:*

$$Weighted\ Proxi_i = \sum \frac{Size_j}{Distance_{ij}}$$

Several environmental controls were included in the models as well. I controlled for MU density at the district level (*MU Density District*) as density might be negatively linked to firm growth as found by Barnett and Carroll (1987). Furthermore, I controlled for population per sqkm (*Population Density*) because population density tend to increase electricity retail sales. More densely populated areas are considered in the industry as "fillet pieces" which are more profitable (Stuttgarter Nachrichten, 2010). Whereas population density takes household customer density into consideration, I also controlled for the density

[12] As stated before, most of the MUs have more business areas than electricity. Many MUs also provide products like water, heating, gas and run the local public transport and sport facilities.

of industrial customers with the number of industry firms per district-year (*Industrial Firm Density*). In addition, I also controled for municipal debt level (*Municipal Debt*) and average disposal income per person (*Disposable Income*) in the focal area. All the above control variables have been lagged of one year. The *Municipal Debt* variable was log-transformed as its distribution was highly skewed. Furthermore, I controlled for whether the MU is located in formal East Germany (*East*). After reunification in 1990, many communities re-founded their MUs. Lastly, I controlled for the first period after deregulation from 1998 to 2000 (*1998-2000*) during which the competitive dynamics turned out to be significantly different from the later years. Table 4-1 and 4-2 present the descriptives and the bivariate correlations of the variables used in the models

TABLE 4-1

Descriptive Statistics for the Growth Rates of German Electricity Firms

Variable	Obs	Mean	Std. Dev.	Min	Max
Size	5684.00	453990.70	1989663.00	0.00	80200000.00
Lagged Size	5683.00	453923.60	1989831.00	0.00	80200000.00
Competitive Release	7056.00	8363059.00	11900000.00	1.00	30700000.00
MU	7056.00	0.97	0.16	0.00	1.00
Localness	6351.00	0.57	0.08	0.32	0.81
Reliability	6445.00	0.37	0.03	0.27	0.50
Greeness	6899.00	0.07	0.03	0.02	0.23
Zero Engagement	7056.00	0.61	0.49	0.00	1.00
Economic Engagement	7056.00	0.34	0.47	0.00	1.00
Form Identity Engagement	7056.00	0.38	0.49	0.00	1.00
Local Independence Engagement	7056.00	0.09	0.29	0.00	1.00
Age	7056.00	65.35	42.24	0.00	157.00
Business Areas	6948.00	4.12	1.51	1.00	8.00
Proximity of Released Resources	7055.00	54156.46	405436.10	0.03	21600000.00
MU Density	7056.00	23.30	10.45	0.00	43.00
Population Density	6412.00	436.34	590.06	38.72	4225.43
Industry firm Density	6448.00	131.88	99.85	11.00	985.00
Municipal Debt	6372.00	224073.40	306663.00	0.00	3414334.00
Disposable Income	6226.00	16590.20	2236.41	10819.00	25928.00
East	7056.00	0.22	0.42	0.00	1.00
1998-2000	7056.00	0.42	0.49	0.00	1.00

TABLE 4-2

Bivariate Correlations for the Growth Rates of German Electricity Firms

	Size	Lag. Size	Comp. Release	MU	Localn.	Reliabil.	Greenn.	Zero Engag.	Econ. Engag.	Form Identity Engag.	Local Indep Engag.	Age	Busin. Areas	Proxi. to Releas. Resourc.	MU Density	Pop. Density	Indus. firm Density	Munic. Debt	Dispos. income	East	1998-2000
Size	1.00																				
Lagged Size	0.91	1.00																			
Competitive Release	-0.02	-0.02	1.00																		
MU	-0.63	-0.57	0.01	1.00																	
Localness	-0.18	-0.15	0.10	0.10	1.00																
Reliability	0.04	0.04	-0.20	-0.02	-0.38	1.00															
Greenness	0.22	0.18	-0.10	-0.11	-0.25	-0.26	1.00														
Zero Engagement	0.09	0.08	0.05	-0.12	-0.16	0.11	-0.02	1.00													
Economic Engagement	-0.10	-0.09	-0.04	0.11	0.26	-0.14	0.03	-0.88	1.00												
Form Identity Engagement	-0.10	-0.08	-0.05	0.12	0.18	-0.11	0.02	-0.99	0.86	1.00											
Local Independence Engagement	-0.05	-0.04	-0.04	0.05	0.00	-0.21	0.18	-0.39	0.44	0.39	1.00										
Age	-0.04	-0.04	-0.02	0.03	0.13	-0.18	0.31	-0.17	0.25	0.18	0.09	1.00									
Business Areas	-0.03	-0.03	0.02	0.12	-0.08	-0.09	0.16	-0.16	0.14	0.14	0.06	0.23	1.00								
Proximity to Released Resources	0.06	0.05	0.15	-0.19	-0.02	-0.04	0.03	0.04	-0.03	-0.04	-0.02	0.00	-0.01	1.00							
MU Density	-0.05	-0.03	-0.02	0.01	0.20	0.00	0.13	-0.19	0.21	0.21	0.06	0.07	-0.09	-0.03	1.00						
Population Density	0.47	0.39	0.01	-0.24	-0.40	0.07	0.47	0.06	-0.07	-0.08	-0.06	0.15	0.13	0.05	0.01	1.00					
Industrial firm Density	0.09	0.07	0.01	-0.06	-0.15	-0.21	0.30	0.10	-0.09	-0.10	0.08	0.10	-0.04	0.04	-0.12	0.18	1.00				
Municipal Debt	0.35	0.28	0.00	-0.20	-0.20	-0.03	0.33	0.11	-0.11	-0.12	-0.06	0.07	-0.02	0.05	-0.10	0.60	0.48	1.00			
Disposable Income	0.08	0.06	-0.20	-0.04	0.00	-0.10	0.57	-0.08	0.12	0.08	0.18	0.38	0.05	-0.02	0.17	0.23	0.41	0.19	1.00		
East	-0.05	-0.04	0.01	0.03	-0.29	0.42	-0.47	0.24	-0.31	-0.25	-0.18	-0.56	-0.14	-0.02	-0.15	-0.11	-0.26	-0.12	-0.56	1.00	
1998-2000	-0.04	-0.03	0.44	0.01	0.20	-0.30	-0.13	0.09	-0.06	-0.09	-0.04	-0.01	0.04	0.05	-0.02	0.02	0.01	0.00	-0.30	-0.01	1.00

Model Specification

One of the most commonly used models for growth is the Gibrat's model, which assumes size-independent growth (but see Barnett & Carroll, 1987; Barron, West & Hannan, 1995). Following previous studies (e.g. Sorensen, 1999; Greve, 2008), I model the firm growth rates as a function of a firm's size and a number of covariates characterising organizational and environmental features:

$$\frac{S_{i,t+1}}{S_{it}} = S_{it}^{\alpha-1} exp\left(\beta x_{it} + \varepsilon_{i,t+1}\right)$$

where S is firm size, α is an adjustment parameter indicating the dependence of growth rates on size, and β is a vector of parameter characterizing how the organizational and environmental covariates influence growth.

By transforming the equation to its natural logarithm, I obtain the following log-linear model which can be estimated using linear regression:

$$ln\left(S_{i,t+1}\right) = \alpha \ln(S_{it}) + \beta x_{it} + \varepsilon_{i,t+1}$$

We use GEE models to estimate the growth rates for two reasons. First, the hypotheses point to between firm comparison rather than within firm comparison. Second, some variables are hardly time variant over the short period under study. By using GEE models, I are able to take both between and within effects into consideration. An exchangeable correlation matrix was employed. Robust standard errors are reported.

4.4 RESULTS

Table 4-3 shows the estimates of the GEE models for the growth rates of the German electricity firms from 1998 to 2008. Model 1 shows the base line model, which contains the

control variables. The estimates obtained for the control variables are as expected: the previous year's size (*Lagged Size*) has a strong positive effect on the current year's size and the proximity weighted by the size of the failed regional utilities (*Proximity to Released Resources*) also increases organizational growth. *Population Density* exhibits a positive and significant effect on organizational growth, whereas *Industrial Firm Density* shows the expected positive effect but fails to reach significance. As expected, the first period after deregulation (*1999-2000*) has a positive and significant effect on growth rates.

Model 2 shows the main effect of Hypothesis 1. As I can see, the size of released resource exhibits on average a positive and significant effect on the growth rates of all the organizations included in the sample – i.e., on both subsidiaries of NWUs and MUs. In model 3 I find evidence in support of H1, which suggests that under resource release, MUs will grow faster than the subsidiaries of NWUs. As expected, the estimate of the interaction term *CompetitiveReleaseXMU* is positive and significant, suggesting that for every 10^7 MWh released resources (sales of electricity to end customers by failed regional utilities), MUs enjoy 6% higher growth rate than the NWUs.

Whereas the data for testing H1 includes both the NWUs and MUs, the data set for testing H2 and H3 contains only MUs as I are interested in knowing which of them is better positioned to tap into the released resources. Model 4 tests Hypothesis 2 that intrinsic appeal of the MU category identity will increase the growth rates of MUs. Contrary to my expectations, the two dimensions of MU identity *Reliability* and *Greenness* exhibit a negative and significant effect on the organizational growth of MUs. *Localness* also exhibits a negative effect on MU growth rates. Although the negative effect of *Localness* is not significant in this Model 4, it becomes significant in the full model (Model 9). H2 therefore is not supported. In the next section, I conduct additional analysis to further explore this issue.

TABLE 4-3

GEE Models of Growth Rates of the German Electricity Firms, 1998-2008

VARIABLES	(1) Base Model	(2)	(3) H1	(4) H2	(5) H3	(6) H3	(7) H3	(8) H3	(9) Full Model
Lagged Size	0.98654**	0.98775**	0.98773**	0.98121**	0.98121**	0.98142**	0.98121**	0.98097**	0.98220**
	(0.005)	(0.005)	(0.005)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
Competitive Release $x10^{-7}$		0.0149*	-0.0433						
		(0.000)	(0.000)						
MU		0.03453	-0.02014						
		(0.036)	(0.022)						
Competitive ReleaseXMU $x10^{-7}$			0.0589*						
			(0.000)						
Localness (Intrinsic Appeal)				-0.07564	-0.07512	-0.08571	-0.07436	-0.06389	-0.09984†
				(0.063)	(0.063)	(0.060)	(0.063)	(0.064)	(0.052)
Reliability (Intrinsic Appeal)				-0.37357**	-0.37849**	-0.36522**	-0.37996**	-0.33552**	-0.38323**
				(0.096)	(0.098)	(0.097)	(0.098)	(0.096)	(0.104)
Greenness (Intrinsic Appeal)				-0.33535*	-0.34215*	-0.31281*	-0.34459*	-0.35267*	-0.34851*
				(0.140)	(0.146)	(0.137)	(0.146)	(0.142)	(0.144)
Zero Engagement					0.00336				
					(0.006)				
Economic Engagement						0.01294*			0.06120†
						(0.006)			(0.032)
Form Identity Engagement							-0.00500		-0.05880†
							(0.006)		(0.032)
Local Independence Engagement								0.01805*	0.01221†
								(0.007)	(0.007)
Age	-0.00004	-0.00005	-0.00005	0.00015	0.00015	0.00013	0.00015	0.00015	0.00010
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Business Areas	0.00180	0.00121	0.00119	0.00207	0.00221	0.00161	0.00225	0.00207	0.00197
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)
Proximity to Released Resources	0.00215**	-0.00106	-0.00099	0.00225*	0.00223*	0.00229*	0.00222*	0.00227*	0.00213*
	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
MU Density	-0.00019	-0.00019	-0.00018	0.00012	0.00015	0.00003	0.00016	0.00010	0.00016
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

Population Density	0.00002†	0.00002*	0.00002*	0.00004**	0.00004**	0.00004**	0.00004**	0.00004**	0.00004**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Industrial Firm Density	0.00005	0.00005	0.00005	0.00010	0.00010	0.00011	0.00010	0.00010	0.00010
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Municipal Debt	0.00300	0.00302	0.00302	0.00240	0.00230	0.00292	0.00219	0.00339	0.00307
	(0.004)	(0.004)	(0.004)	(0.008)	(0.008)	(0.007)	(0.008)	(0.007)	(0.007)
Disposable Income	-0.00000	-0.00000	-0.00000	0.00000	0.00000	0.00000	-0.00000	-0.00000	-0.00000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
East	0.00555	0.00478	0.00487	0.02590†	0.02483†	0.03001*	0.02426†	0.02671†	0.02659†
	(0.008)	(0.008)	(0.008)	(0.014)	(0.013)	(0.015)	(0.013)	(0.014)	(0.014)
1998-2000	0.01807*	0.00973	0.01004	0.01901**	0.01818*	0.02142**	0.01778*	0.01961**	0.01633*
	(0.007)	(0.009)	(0.009)	(0.007)	(0.008)	(0.007)	(0.008)	(0.007)	(0.008)
Constant	0.08515	0.04798	0.10069	0.30944**	0.31138**	0.29649**	0.31743**	0.28281**	0.32347**
	(0.066)	(0.085)	(0.079)	(0.109)	(0.110)	(0.109)	(0.110)	(0.108)	(0.110)
Observations	4,702	4,702	4,702	4,305	4,305	4,305	4,305	4,305	4,305
Number of firm	554	554	554	533	533	533	533	533	533

Standard errors in parentheses
** p<0.01, * p<0.05, † p<0.1

Model 5 to 8 are meant to test Hypothesis 3 by adding the four categories of cooperation agreements one by one. As expected, *Zero Engagement* has no effect on the growth rates as indicated by Model 5. Cooperation activities of collective purchasing and trading (*Economic Engagement*) exhibit a positive and significant effect on MU growth rates as reported in model 6. Whereas I do not find any significant effect of cooperation activities such as marketing and sales (*Form identity Engagement*) in Model 7, a positive and significant effect of *Local independence engagement* is illustrated by Model 8. Whereas *Form Identity Engagement* stresses the collective identity of MUs, *Local Independence Engagement* accentuates the responsibility towards local communities. *Local Independence Engagement* therefore might be perceived as a more credible commitment to local audiences. Note that the effect of *Local independence engagement* (Model 8) is stronger than that of *Economic Engagement* (Model 6) – but see the full model as well. By and large, I interpret this trend of findings as providing support to Hypothesis 3[13].

Additional Analysis

The surprising results concerning H2 seems to indicate that communities in which the match between the characteristics of the MU identity and the local audience tastes is high, intrinsic appeal constrains organizational growth. Empirical evidence seems to indicate that size correlates with organizational identity. For example, in both the studies on the U.S. brewery (Carroll & Swaminathan, 2000) and wine (Swaminathan 2001), size was used to categorize center (mass producers), near-center (regional producers) and peripheral (specialists) organizations. "There is a certain mystique to smallness" and a legitimated craft beer not only should use traditional methods and natural ingredients, but also should be

[13] One might raise the point that the *Local Independence Engagement* represents investment in new capacity. Thus it is not surprising that this should boost growth. I do not think this alternative explanation holds here. As distribution firms, in order to grow, it is much easier for the MUs to buy electricity from the wholesale market than to undertake such high risk in building their own generation capacity. Also for this reason, only a minority of the MUs engage in this type of cooperation. As mentioned before, their goal is to become genuinely independent from the Big Four controlling the most generation capacity and preserve their local identity.

brewed in a craft-like small firm (Carroll & Swaminathan 2001). Growth may challenge the authenticity of peripheral organizations. In a case study on a U.S. microbrewery- the Mendocino Brewing Company (Harrington, Barnett & Carroll, 1995) - the growth strategy employed was thought to be risky for the preservation of the image of "small" producer. Similarly, in a study on the U.S. wine industry, Swaminathan (2001) warns that excessive growth may make it hard for a farm winery to capitalize on its identity of local firm.

It seems that the mystique of smallness holds true also in this empirical setting and that local audiences who are sympathetic to the MU identity features demonstrate strong resistance against the expansion of their local MUs. Indeed, the ifm psychological study (2006) shows that the MUs following an aggressive growth strategy by acquiring customers outside of the local community are perceived as "cold expansionists". The local customers "cannot identify themselves with the new size of their MUs". The potential changes necessary for growth might be perceived by local citizens as "too cold" or "too businesslike". In this way, the expansion of MUs in the direction of the "Big Ones" may be at risk of losing its cosy and familial identity – see also Figure 3-1. The abovementioned study identifies this as the "uprooting" problem and warns that expansion will be paid with considerable loss in the home territory due to "decreasing identification" of the local customers.

Combining the results of this growth study with the previous study of founding rates, an interesting picture emerges. The results of the current study indicate that the MUs embedded in communities exhibiting a greater match between the MU identity features and the local audience tastes tend to grow less. Conversely, the previous study shows that MU founding rates increase in regions where audience preferences exhibit a greater match with the MU identity features. This picture appears aligned with the considerations of Carroll and his colleagues (Carroll et al., 2002) that the strong boundaries which protect the peripheral organizations from the competition of market center producers also "imposes strong

constraints on growth, even when founding rates are high". In other words, resource partitioning seems to take place either through new foundings or through the growth of incumbent MUs, depending on the strength of the MUs' intrinsic appeal. In regions where the intrinsic appeal of the MUs is strong, resource partitioning and the growth of the peripheral organizations occurs at the form level through new foundings. In regions where the MU intrinsic appeal is low, resource partitioning and the growth of the peripheral organizations takes place at the firm level through the growth of incumbent MUs.

As intrinsic appeal seems to constrain organizational growth, the next question concerns whether engagement interacts with intrinsic appeal to improve organizational fitness, reflected in growth rates. According to Polos and colleagues (2010), sustained high engagement may help partly overcome the limits of intrinsic appeal. I thus speculate that engagements closely related to the MU identity may help reducing the negative effect of intrinsic appeal on organizational growth. Here I conduct an exploratory analysis by splitting the data set according to the four engagement categories and test how the three dimensions of intrinsic appeal behave across the different types of engagement.

Table 4-4 reports the results of this exploratory analysis. Notice that the negative effects of *Localness* and *Reliability* remain significant when considering *Zero Engagement* and *Economic Engagement*. Nonetheless, such negative effects weaken when considering *Form Identity Engagement* and *Local Independence Engagement*. In other words, credible engagement and commitment to local audiences does help to reduce the constraints which intrinsic appeal impose on organizational growth.

TABLE 4-4

Additional Analysis

GEE Models of Growth Rates of the German Electricity Firms, 1998-2008

VARIABLES	(1) Zero Engagement	(2) Economic Engagement	(3) Form Identity Engagement	(4) Local Independence Engagement
Lagged Size	0.98703**	0.98286**	0.98578**	0.98076**
	(0.008)	(0.006)	(0.008)	(0.010)
Localness	-0.10669†	-0.10494†	0.09064	-0.20103
	(0.056)	(0.059)	(0.116)	(0.130)
Reliability	-0.27642*	-0.28633*	-0.21013	-0.33665
	(0.117)	(0.126)	(0.133)	(0.319)
Greenness	-0.24448	-0.07600	-0.21410	-0.30962
	(0.159)	(0.159)	(0.192)	(0.227)
Age	-0.00000	-0.00003	0.00029	-0.00015
	(0.000)	(0.000)	(0.000)	(0.000)
Business Areas	0.00106	0.00330	0.00308	0.00758†
	(0.003)	(0.002)	(0.003)	(0.004)
Proximity to Released Resources	0.00089	0.00202**	0.00356**	0.00086
	(0.002)	(0.001)	(0.001)	(0.001)
MU Density	-0.00016	-0.00007	0.00053	0.00079
	(0.000)	(0.000)	(0.001)	(0.001)
Population Density	0.00003	0.00002†	0.00005**	0.00005
	(0.000)	(0.000)	(0.000)	(0.000)
Industrial Firm Density	-0.00001	0.00006	0.00033*	0.00007
	(0.000)	(0.000)	(0.000)	(0.000)
Municipal Debt	0.00866	0.01070†	-0.01101	0.00906
	(0.007)	(0.006)	(0.013)	(0.013)
Disposable Income	0.00000	-0.00000	-0.00000	-0.00000
	(0.000)	(0.000)	(0.000)	(0.000)
East	0.00072	0.03977*	0.06736*	-0.07361
	(0.010)	(0.018)	(0.029)	(0.051)
1998-2000	0.00888	0.02541*	0.03359**	0.00737
	(0.011)	(0.011)	(0.011)	(0.016)
Constant	0.18749	0.20134*	0.21705†	0.39058*
	(0.123)	(0.101)	(0.112)	(0.181)
Observations	2,196	1,817	2,074	531
Number of firm	322	240	283	79

Standard errors in parentheses
** p<0.01, * p<0.05, † p<0.1

4.5 DISCUSSION AND CONCLUSIONS

Drawing inspiration from a few limitations of the existing research on market partitioning (Carroll, 1985; Carroll & Swaminathan, 2000) and relying on recent development in organization ecology (Hannan et al., 2007), the present chapter aimed at improving our understanding of the processes of identity-based partitioning by focusing on

organizational growth rates. To reach this goal, I followed a research design that combines qualitative and quantitative evidence. The empirical tests were carried out by using data during the period of 1998 to 2008 from the German electricity industry.

Although firms in market center may absorb the majority of the released resources through acquiring the failed near-center producers, resource release leads to higher organizational growth rates of peripheral organizations compared with those of the subsidiaries of the center firms. Contrary to my prediction, greater match between organizational identity and the local audience tastes (intrinsic appeal) limited organizational growth. Combining with the findings in the previous study on founding rates, an interesting picture of resource partitioning arises. Whereas resource partitioning occurs mainly at the form level through new foundings in regions in which peripheral organizations exhibit substantial intrinsic appeal, organizational growth rates drive partitioning in locations in which the intrinsic appeal of peripheral organizations is limited. In addition, I also found that engagement improves organizational growth rates both in a direct and in an indirect way – i.e., both by boosting growth rates and by reducing the negative effects of intrinsic appeal on organizational growth.

This chapter contributes to research on resource partitioning theory and to the organizational identity literature as follows. First, to the best my knowledge, this study represents the first empirical test of the mechanism of resource release – and partly responds to the call of Hannan and colleagues' (2007: 227) for innovative empirical tests of partitioning that depart from concentration. Moreover, the present study shows that identity driven resource partitioning unfolds in complex ways. In particular, I claim that identity-based resource partitioning may occur both at the form level and at the organizational level, depending on the strength of intrinsic appeal of the organizational form of peripheral organizations. The same factors stimulating new entries may turn out to impede

organizational growth. Of course, the specificity of the context under study and of the identity of MUs may be responsible for the findings obtained here. Needless to say, the generalizability of these consideration should be proved in other empirical settings. Nonetheless, the findings indicate that more attention to the distinct dynamics of organizational growth driving resource partitioning is needed, in order to gather a more comprehensive understanding of resource partitioning processes (see Carroll et al., 2002).

Second, and related, this chapter moves the locus of attention of partitioning studies from differences among producers (e.g., size, niche width) to the consideration of such differences in relation to the cognition and the preferences of audience members. Indeed, the majority of research has treated resource partitioning as a rather uniform process across audience segments. Recent empirical efforts suggest that this might not be the case (Boone, Carroll & Van Witteloostujin, 2002; Greve, Pozner & Rao, 2006). In the present study I further contribute to this on-going discussion by mapping the heterogeneity of audience preferences along geographical communities (see also Hannan et al., 2007: 302-303). By studying audience heterogeneity through the lens of geography, I contribute also to the broader theoretical development on organizational identity concerning the role of audience structure for organizational vital rates (see Kocak, Hannan & Hsu 2010).

The present chapter is subject to several limitations, which I consider as fruitful directions for further development of this research. First, the current coding of engagement categories in form of cooperation is rough. Thus the effects of *Economic Engagement* may mainly come from *Local Independence Engagement* as mentioned. To better disentangle the effects of the different degrees of engagement I should improve the current coding. Second, the robustness of the results should be further checked. For example, by acquiring the failed regional utilities, NWUs have carried out substantial reorganization activities, which might have adverse effects on organizational growth rates. I intend to continue working on

robustness checks and ruling out alternative explanations. Third, to further check the validity of the results, more controls should be added to the models. For example, the NWUs held minority shares in some MUs which might change the audience's perception of the identity of these MUs and subsequently affect their growth rates. In summary, the current chapter reports the first findings of my analyses which need to be improved in the near future.

Chapter 5

Conclusion

This dissertation has examined identity-based resource partitioning with quantitative, simulation and qualitative evidence in the context of the German electricity market after deregulation in 1998. I studied partitioning by applying insights from the recent theoretical development on organizational identity, paying special attention to the roles of audience heterogeneity which is observed through the lens of geography. I have investigated the process of identity-based partitioning and explored the boundary conditions for sustainable partitioning (chapter 2), how opposite producer identities and the match between peripheral identity with audience tastes affect partitioning in terms of founding rates (chapter 3), and how resource release and the match between identity and tastes influences partitioning in terms of organizational growth rates (chapter 4). This dissertation contributes to resource partitioning theory and research on organizational identity as well as to research on industry evolution and sociology of the market in general. In the following sections, I summarize the main findings and propose future research.

5.1 MAIN FINDINGS

Chapter 2: Identity Processes and Resource Partitioning

Chapter 2 sets the stage for the dissertation by detailing the process of identity-based partitioning through a formal model and generating testable hypotheses from simulation experiments. The results revealed the conditions that sustain an identity oppositional to that of market leaders. The sharpness of the broadcasted identity, as well as the relative receptiveness of audience members to its associated claims, significantly affect the likelihood of market partitioning.

The results obtained extend resource partitioning theory and organizational identity research in several ways. *First*, departing from the original formulation of partitioning (Carroll 1985) which relies on structural inertia and product differentiation, the results indicated that oppositional identities may lead to market partitioning as well. *Second*, I explored the process through which an oppositional identity is claimed and becomes crisp in the eyes of audience members with specific reference to the three boundary conditions: (i) intense cooperation among peripheral organizations, (ii) substantial audience heterogeneity and (iii) timing, i.e. how quickly audience perceives the producer identity claim and to which extent this delay is coordinated with that on the side of producers. Following a competitive threat, short delays both on the producer and the audience side enable peripheral organizations to gain steady market share. On the contrary, long delays impedes the emergence of the oppositional identity, which is critical to buffer peripheral organizations from the competition from market leaders. As a result, market partitioning may be prevented (for a similar logic see Pólos et al., 2010). *Third*, this chapter also contributes to research on organizational identities. An increasing number of studies on categorical contrast demonstrate that upon the emergence of contrast identities organizations are rewarded for displaying clear, unambiguous identities (e.g., Hsu, 2006; Hsu et al., 2009; Zuckerman, 1999, Ruef & Patterson 2009; Negro et al., 2007). However, categories are considered as exogenous in most existing studies (But see Carroll & Swaminathan 2000; Rao et al., 2005). Thus we know little about where does contrast come from? Here I treated market deregulation which leads to increasing market concentration as an exogenous trigger of contrast. However, the results of the simulation experiments hinted that an exogenous shock is a necessary but not sufficient condition for the success of an oppositional identity: cooperation is needed to align the efforts of peripheral organizations and, thus, to sharpen their collective identity. *Last*, and not specific to this chapter, this dissertation extends the applicability of resource partitioning to

markets with homogeneous products. I have shown that the existence of different identities may lead to market partitioning, even in case of commodity products. In doing so, this dissertaion contributes to shifting the focus of resource partitioning theory from economic arguments to sociological and cultural ones.

Chapter 3: Founding Rates and Identity-Based Resource Partitioning

Building on chapter 2, chapter 3 empirically tested the claim that increasing oppositional identities upon competitive release lead to resource partitioning and investigated the effect of heterogeneous audience preferences on partitioning. I found that the more the identities of peripheral and center organizations are perceived as oppositional, the larger the founding rates of the peripheral organizations. However, this effect varies substantially across audience segments. Looking closer at audience heterogeneity through the lens of geography, I suggested that with greater resonance (or match) between the peripheral identity features and the values endorsed by the local community, founding rates of peripheral organizations also increase. I also found that consistency between identity claims and producer actions as perceived by the local audience further sustains partitioning.

This chapter contributes to the research on resource partitioning theory and organizational identities in the following ways. *First*, the results of chapter 3 may be read as providing initial support to the theoretical work of Pólos and his colleagues (2010) that underscores although identity contrast between center and periphery forms might result from competitive release, oppositional schemas are essential to the emergence of a durable market partitioning. This study outlined the process through which differences among producers identities may lead to market partitioning. In particular, I proposed that in order to gain a more comprehensive understanding of identity-based market partitioning, more attention to the multiple dimensions of organizational identity such as contrast, resonance and empirical

credibility is needed. *Second*, but related, this study moves the focus of partitioning studies away from differences among producers (e.g., size, niche width) toward the consideration of such differences in relation to the cognition and the preferences of audience members. The traditional research has treated resource partitioning as a uniform process across audience segments. The recent studies hint that this might not be the case (Boone, Carroll & Van Witteloostujin, 2002; Greve, Pozner & Rao, 2006). This chapter further contributes to this stream of research by mapping the preferences of audience members for the identity claims of peripheral organizations along geographical communities (see Hannan et al., 2007: 302-303). For instance, I found that depending on the resonance (or match) between producer identity and audience values, audience receptiveness toward identity claims varies across regions, critically influencing identity consolidation and partitioning process. By studying audience heterogeneity in terms of geographical regions, this chapter also contributes to the broader research on organizational identity concerning the role of audience structure on organizational vitality (see Kocak, Hannan & Hsu 2010).

Chapter 4: Growth Rates and Identity-Based Resource Partitioning

Building on chapter 2 and 3, chapter 4 empirically examined the direct effects of competitive release on partitioning. By applying the concepts of intrinsic appeal and engagement (Hannan et al., 2007), this chapter not only further investigated the effects of audience heterogeneity in terms of geography on partitioning, but also looked into the influence of producer cooperation - another boundary condition as determined in chapter 2. I found that although center organizations may absorb the majority of the released resources, resource release leads to higher organizational growth rates of peripheral organizations compared with those of the subsidiaries of the center ones. Contrary to my prediction, greater match between organizational identity and the local audience tastes (intrinsic appeal) limited organizational growth. Combining with the findings in chapter 3 on founding rates, an

interesting picture of resource partitioning emerges. Whereas resource partitioning occurs mainly at the form level through new foundings in regions where the match between peripheral identity form and local audience tastes is high, organizational growth rates drive partitioning in locations where the match is limited. In addition, I also found that engagement (in form of cooperation among peripheral organizations) enhances organizational growth rates both in a direct and in an indirect way – i.e., both by boosting growth rates and by reducing the negative effects of intrinsic appeal on organizational growth.

This chapter contributes to the resource partitioning research and to the organizational identity literature as follows. *First*, to the best of my knowledge, this chapter represents the first empirical test of resource release. In doing so, I also followed the suggestion of Hannan and colleagues' (2007: 227) for innovative empirical tests of partitioning that depart from concentration. Moreover, this chapter showed that resource partitioning based on organizational identity may develop in complex ways. More specifically, I claimed that identity-based resource partitioning may occur both at the form level and at the organizational level, depending on the strength of intrinsic appeal of the organizational form of peripheral organizations. The same factors stimulating new entries may turn out to impede organizational growth. Of course, the generalizability of these claims needs to be tested in other empirical settings. Nonetheless, these findings suggested that to gather a more complete and deeper understanding of partitioning processes, more attention to the distinct dynamics of organizational growth during partitioning is needed (see Carroll et al., 2002). *Second*, and following chapter 3, chapter 4 further contributes to the on-going discussion by mapping the heterogeneity of audience preferences along geographical communities (see also Hannan et al., 2007: 302-303) and to the set of identity research concerning the role of audience structure for organizational vital rates (see Kocak, Hannan & Hsu 2010).

5.2 FUTURE RESEARCH

Needless to say, the present chapter is subject to several limitations, which I consider as fruitful directions for further development. *First,* chapter 1 presented a dynamic model embedded in the empirical context under study, but also attached a more general model in the conclusion section. In order to enhance the generalizability of the presented identity-based partitioning process, more work is needed to improve the general model. *Second*, the alignment between theoretical propositions and empirical measures may be improved. As mentioned in chapter 3, the measure of oppositional identity (*Oppositional Identities*) is based on one regional newspaper as a proxy for multiple regions. In spite of being a reasonable choice for an early test of my arguments (see also the second robustness check), more regional newspapers data should be gathered in the near future. Another potential concern involves the measurement of reliability (*%Age Over50*). In this respect, the current variable may be questioned on construct validity grounds and the results obtained should be interpreted with care. No doubts, a more appropriate measure should be developed in the future. In chapter 4, the current coding of engagement categories in form of cooperation is coarse. Thus the effects of *Economic Engagement* may mainly come from *Local Independence Engagement* as mentioned. To better disentangle the effects of the different degrees of engagement, the current coding needs to be improved. *Third*, the robustness of the results should be further checked. For example, in chapter 4 NWUs have carried out substantial reorganization activities by acquiring the failed regional utilities, which might have adverse effects on their organizational growth rates. I intend to continue working on robustness checks and ruling out alternative explanations. *Fourth*, to further check the validity of our results, more controls should be added to the models. For example, the NWUs held minority shares in some MUs which might change the audience's perception of the identity of these MUs and subsequently affect their growth rates. *Last,* the specificity of the context under study and of the MU identity may be responsible for the findings obtained in

this dissertation. Thus future research should test the generalizability of these findings in other empirical settings.

References

Atkins, R. & Taylor A. 1999. Germany shows the way for Europe. ***Financial Times*** 21 October 1999.

Allison, P. D. & Richard P. W. 2002. Fixed-effects negative binomial regression models. ***Sociological Methodology,*** 32:247–265.

Arrow, Kenneth. 1968. Economic Equilibrium. Pp. 376-89 in ***International Encyclopedia of the Social Science***, vol. 4, edited by David L. Sills. New York: The Free Press.

Babb, S. 1996. *"A True American System of Finance*": *Frame Resonance in the US Labor Movement,* 1866 to 1886. ***American Sociological Review***, 61: 1033–52.

Barnett, William P. and Glenn R. Carroll 1987 *Competition and Mutualism Among Early Telephone Companies.* ***Administrative Science Quarterly***, 32: 400-421.

Baron, J. 2004. *Employing identities in organizational* ecology. ***Industrial and Corporate Change***, 13: 3 – 32.

Barron, D.N., West, E. and M.T. Hannan. 1994. A time to grow and a time to die: Growth and mortality of credit unions in New York, 1914-1990. *American Journal of Sociology* 100: 381-421.

Baum, J. R. and B. J. Bird 2010. The Successful Intelligence of High-Growth Entrepreneurs: Links to New Venture Growth. ***Organization Science*** 21(2): 397-412.

Baum, Joel A.C., and Jitendra V. Singh. 1994. Organizational Niche Overlap and the Dynamics of Organizational Mortality. ***American Sociological Review*** 100:346-80.

BDEW household customer surveys. 1999 to 2009. BDEW- Kundenfokus Haushaltskunden, Ergebnisbericht. BDEW, Berlin.

BDEW commercial customer surveys. 2000 to 2009. BDEW- Kundenfokus Gewerbekunden, Ergebnisbericht. BDEW, Berlin.

BDEW home page. http://www.bdew.de/internet.nsf/id/mitglieder-de, accessed on 04 April 2011.

BDEW Jahresdaten der Stromversorger 1998, 2001-2008. VWEW Energieverlag GmbH. Frankfurt am Main.

Becattini, Giacomo 1990 The Marshallian industrial district as a socio-economic notion." In Frank Pyke, Giacomo Becattini, and Werner Sengenberger (eds.), ***Industrial Districts and Inter-Firm Cooperation***: 37-51. Geneva: International Labor Organization.

Beck, N. Swaminathan, A; Wade, J. B. and Wezel, F. C. 2010. The Impact of Organizational Prototypes and Industry Clusters on the Fates of Northern Bavarian (Franconian) Breweries. Working paper. University of Lugano

Benford, R. D. & Snow, D. A. *2000. Framing Processes and Social Movements: An Overview and Assessment.*. ***Annual Review of Sociology***, 26: 611-639.

Boone, C., Glenn R. Carroll, Arjen van Witteloostuijn. 2002. Resource distributions and market partitioning: Dutch daily newspapers, 1968 to 1994. ***American Sociological Review***. 67: 408-431.

Brandt, Torsten 2006. Liberalisation, privatisation and regulation in the German electricity sector. Paper in the project „Privatisation of Public Services and the Impact on Quality, Employment and Productivity“ (CIT5-2006-0287478) funded by the European Commission’s 6th Framework programs. http://www.boeckler.de/pdf/wsi_pj_piq_sekstrom.pdf. accessed 03.10.2008

Carman, J. M. and E. Langeard 1980. Growth Strategies for Service Firms. ***Strategic Management Journal*** 1(1): 7-22.

Carroll, G. R. 1985. Concentration and specialization: Dynamics of niche width in populations of organizations. ***American Journal of Sociology.*** 90: 1262–1283.

Carroll, G. R., & Hannan, M. T. (2000). ***The Demography of Corporations and Industries.*** Princeton, N.J.: Princeton University Press.

Carroll, G. R., Anand Swaminathan. 2000. Why the microbrewery movement? Organizational dynamics of resource partitioning in the American brewing industry after Prohibition. ***American Journal of Sociology,*** 106: 715–762.

Carroll, G. R., Dobrev, S., & Swaminathan, A. 2002. Organizational Processes of Resource Partitioning. ***Research in Organizational Behavior***. 24: 1–40.

Cattani G., Pennings J. & Wezel F. 2003. **Spatial and Temporal of Heterogeneity in Entrepreneurial Activity.** . ***Organization Science***, 14(6): 670-685..

Caves R. E. & Porter M. 1977. From Entry Barriers to Mobility Barriers: Conjectural Decisions and Contrived Deterrence to New Competitors, ***Quarterly Journal of Economics***, 91: 241–262.

Chamberlin, Edward. 1933. ***The Theory of Monopolistic Competition.*** Cambridge, MA: Harvard University Press

Chandler, G. N., & Jansen, E. 1992. The founder's selfassessed competence and venture performance. ***Journal of Business Venturing***, 7: 223-236.

Chen, M-J. 1996. Competitive analysis and interfirm rivalry: Toward a theoretical integration. ***Academy of Management Review***, 21: 100-134.

Chrisman, J. J., Bauerschmidt, A., & Hofer, C. W. 1998. The determinants of new venture performance: An extended model. ***Entrepreneurship Theory and Practice***, 23: 5-29.

Davis, J. P., Eisenhardt, K. M. & Bingham, C. B. 2007. Developing Theory Through Simulation Methods. ***Academy of Management Review***. 32: 580-599

Deephouse, D. L. 1996. Does isomorphism legitimate? ***Academy of Management Journal***, 39: 1024-1039.

Der Spiegel. 2002. Der Schatz der Atomkonzerne. December 21.

Dickinson, R. E. 1959. The geography of commuting in West Germany. ***Annals of the Association of American Geographers****, 49:443–456.*

Die Tageszeitung. 2010. Sie sind wieder da: Stadtwerke; Rekommunalisierung: Immer mehr Städte und Gemeinden gründen ihre eigenen Energieversorger. November 20.

Die Welt. 1998. Stromwettbewerb: Zahl der Versorger wird von 900 auf 200 schrumpfen. 25. January 1998.

Die Welt. 1999. Die deutschen Stromerzeuger müssen sich neu positionieren. 25 March 1999

Die Welt. 2001. Eon Energie plant Expansion in Europa; May 11.

Die Welt. 2003. Das Stadtwerke-Sterben ist ausgeblieben; Viele kommunale Energieversorger haben ihre Unabhängigkeit gestärkt. 28. April 2003.

Die Welt. 2008a. Großen Stromkonzernen laufen die Kunden davon. February 23.

Die Welt. 2008b. Hamburg Energie - welche Folgen hat der Plan der Behörde?; Wie der neue stadteigene Versorger arbeiten wird. October 02.

Die Welt. 2009. Haushalte schätzen ihre Stadtwerke. September 27.

Die Welt. 2010. Renaissance der Stadtwerke; Die Idee des „Wir von hier" gewinnt an Kraft. December 03.

Der Spiegel. 2002. Der Schatz der Atomkonzerne. December 21.

Dess, G. G., & Davis, P. S. 1984. Porter's (1980) generic strategies as determinants of strategic group membership and organizational performance. ***Academy of Management Journal***, 27: 467-488.

DiMaggio P. J.& Powell, W. 1991. The iron cage revisited" institutional isomorphism and collective rationality in organizational fields. ***American Sociological Review***. 48: 147-60.

Eisenmann, T. R. 2006. Internet companies' growth strategies: Determinants of investment intensity and long-term performance. ***Strategic Management Journal*** 27(12): 1183-1204.

Energie & Management. 2001. Buerger gegen Stadtwerke-Verkauf. July 23.

Energie & Management. 2005. Gemeinsam stark. 30. Dezember 2005

Energie & Management. 2006. Stadtwerke Kooperation am Niederrhein. 05. September 2006

Energie & Management. 2008a. Aus kommunal wird regional. July 1.

Energie & Management. 2008b. Gemeinsam stärker. 11. Januar 2008

Evans, D. S. 1987. The relationship between firm growth, size and age: Estimates for 100 manufacturing industries, ***Journal of Industrial Economics*** XXXV(4), 567-581.

Erlangen city web site. http://www.erlangen.de/desktopdefault.aspx/tabid-56/1463_read-9506/, accessed on 13. April 2009.

Espeland, W. N. & Stevens, M. 1998. Commensuration as a Social Process. ***Annual Review of Sociology,*** 22: 313–344.

Federal Statistical Office of Germany 2004. Wirtschaft und Statistik 1210.

FES 1991. Dezentrale Energieversorgung in Ostdeutschland : Entwicklungsstand und Perspektiven; eine Tagung der Friedrich-Ebert-Stiftung am 25. Oktober 1991 in Brandenburg/Havel /. Bonn: FES Library, 2002. http://library.fes.de/fulltext/fo-wirtschaft/00292toc.htm, accessed April 2008.

Financial Times Deutschland. 2008. Ruhe bei Fusionen und Uebernahmen. November 05.

Financial Times Deutschland. 2010. Atomkonzerne erpressen Regierung. August 16.

Fligstein, N. 1990. ***The Transformation of Corporate Control.*** Cambridge: Harvard University Press.

Frankfurter Rundschau. 2009a. Poker um Stromnetz; Gelnhausen SPD will Rekommunalisierung prüfen lassen. December 15.

Frankfurter Rundschau. 2009b. Öffentliche Unternehmen Immer mehr Städte machen eine Kehrtwende bei Privatisierungen. Sie streben wieder eine dezentrale Strom- und Wasserversorgung an. May 19

Galaskiewicz, J., W. Bielefeld, et al. 2006. Networks and organizational growth: A study of community based nonprofits. ***Administrative Science Quarterly*** 51(3): 337-380.

Gelnhäuser Tageblatt. 2010. Kommunale Energieversorgung neu ausrichten; Bürgerinitiative Energieverbraucher im Main-Kinzig-Kreis für Rekommunalisierung - Gelnhausen soll Vorreiterrolle übernehmen. October 08.

German Monopoly Commission. 2007. Strom und Gas 2007: Wettbewerbsdefizite und zögerliche Regulierung. http://www.monopolkommission.de/sg_49/text_s49.pdf, accessed on 05.Dec 2007.

Geroski P.A. 2000. The Growth of Firms in Theory and Practice, in Foss, N., Mahnke, V., (eds.), ***Competences, Governance and Entrepreneurship***, Oxford University Press, Oxford.

Gould, R. V. 1995. ***Insurgent Identities: Class, Commune, and Protest in Paris from 1848 to the Commune.*** University of Chicago Press, Chicago, IL.

Granovetter, M.. 1974. ***Getting a Job: A study of Contacts and Careers***. Cambridge, MA: Harvard University Press.

Grant, P. R. 1972. Convergent and divergent character displacement. ***Biological Journal of the Linnaean Society*** 4:39-68.

Greve, H. R. 2002. An ecological theory of spatial evolution: Local density dependence in Tokyo banking, 1894–1936***, Social Forces***, 80: 847 - 879.

Greve H. R., Pozner, J. & Rao, H. 2006. Vox populi: Resource partitioning, organizational proliferation, and the cultural impact of the insurgent microradio movement. ***American Journal of Sociology***, 112: 802-827.

Greve, H. R. 2008a. Multimarket contact and sales growth: Evidence from insurance. ***Strategic Management Journal*** 29(3): 229-249.

Greve, H. R. 2008b. A behavioral theory of firm growth: Sequential attention to size and performance goals. ***Academy of Management Journal*** 51(3): 476-494.

Gunlicks, A. B. 1984. Administrative Centralization and Decentralization in the Making and Remaking of Modern Germany. ***The Review of Politics***, 46(3): 323-345.

Hall, B.H. 1987. The relationship between firm size and firm growth in the U.S. manufacturing sector, ***Journal of Industrial Economics*** XXXV(4):583-606.

Hamburger Abendblatt. 2009a. Opposition: Stadtwerke „unglaubwürdig". October 08.

Hamburger Abendblatt. 2009b. Hamburg Energie: Interview mit Unternehmenschef Michael Beckereit; October 15.

Hamburger Abendblatt. 2009c. Abendblatt.de; Hamburgs neues Tor zur Welt. September 09.

Hamburger Abendblatt. 2009d. Umweltsenatorin Anja Hajduk kündigt eigene Windkrafträder an, stellt Preismodelle vor; Hamburg Energie geht mit Manifest ans Netz. September 08.

Hamburger Abendblatt. 2010a. Vattenfall: Seit dem Verkauf der HEW nach Schweden gibt es Ärger und Kritik. March 03.

Hamburger Abendblatt. 2010b. Hamburg Energie baut 30 Blockheizkraftwerke, October 07.

Hamburger Abendblatt. 2010c. Bündnis für Energie; Die Volksinitiative „Unser Hamburg - unser Netz" strebt für 2012 einen Volksentscheid an. August 07.

Hannan, M. T. and J. Freeman.1977. The population ecology of organizations, ***American Journal of Sociology***, 82, pp. 929-964.

Hannan M. T. 1979. The dynamics of ethnic boundaries in modern states. ***National development and the world system***. J. W. Meyer and M. T. Hannan, eds. University of Chicago Press, Chicago, IL, 253-75.

Hannan, M.T. and J. Freeman 1989 ***Organizational Ecology***. Cambridge, MA: Harvard University Press.

Hannan, M. T., Pólos, P. & Carroll G. R. 2007. ***Logics of Organization Theory: Audience, Codes, and Ecologies***. Princeton University Press, Princeton, NJ.

Hannan, M. T. 2010. Partiality of memberships in categories and audiences. ***Annual Review of Sociology***. 36: 159-181.

Harrington, W., Barnett, W. and Carroll, G. 1995. Mendocino Brewing Company. California: Stanford University Graduate School of Business.

Harrison, J. R., Zhiang L., Carroll, G. R. & Carley, K. M. 2007. Simulation modeling in organizational and management research. ***Academy of Management Review,*** 32: 1229-45.

Harrison, J.R. 2004. Models of growth in organizational ecology: A simulation assessment. ***Industrial and Corporate Change*** 13(1), pp.243-261.

Haslam, S. A., Turner, J. C., Oakes, P. J., McGarty, C. & Reynolds, K. J. 1998. The group as a basis for emergent stereotype consensus. ***European Review of Social Psychology,*** 28: 755–776.

Hausman, J., Hall, B. H.& Griliches, Z. 1984. "Econometric Models for Count Data with an Application to the Patents-R&D Relationship." ***Econometrica,*** 52: 909-938.

Hawley, A. H. 1986. ***Human Ecology: A Theoretical Essay***. University of Chicago Press, Chicago, IL.

Hedström, P. 1994. Contagious collectives: On the spatial diffusion of Swedish trade unions, 1890–1940. ***American Journal of Sociology*** 99 1157–1179.

Hochstadt, S. 1981. Migration and Industrialization in Germany, 1815-1977. ***Social Science History***, 5 (4): 445-468.

Hsu, G. and Hannan, M. T. 2005. Identities, genres and organizational forms. ***Organization science***. 16 (5): 474-490.

Hsu, G.. 2006. Jacks of all trades and masters of none: Audiences' reactions to spanning genres in feature film production. ***Administrative Science Quarterly,*** 51: 420-450.

Hsu, G., Hannan, M. T. & Kocak, O. 2009. Multiple Category Membership in Markets: An Integrative Theory and Two Empirical Tests. ***American Sociological Review,*** 74: 150-169.

Hunt, S., R. Benford and D. Snow. 1994. "Identity Fields: Framing Processes and the Social Construction of Movement Identities." Pp. 185-208 in ***New Social Movements: From Ideology to Identity***. E. Larana, H. Johnston and J. Gusfield, eds. Philadelphia: Temple Press.

ifm psychological study. 2006. Haushalte im Wettbewerb- Die Gespaltene Marktsicht, psychologische Marktforschungsstudie zur Loyalitaet der Stromkunde. VDEW Energieverlag. Frankfurt, Berlin, Heideberg.

Ingram, P. & McEvily, B. 2007. Sharper in Relief: Opposition, Identity and the Maintenance of Social Movement Organizations. Working paper. Columbia Business School, New York, NY.

Ingram, P. & Yue, L. Q. 2008. Structure, Affect and Identity as Bases of Organizational Competition and Cooperation. ***The Academy of Management Annals***. 2: 275-303.

Ingram, P., Yue, L. Q. & Rao, H. 2010. Trouble in Store: Probes, Protests and Store Openings by Wal-Mart: 1998-2005. ***American Journal of Sociology***, 116: 53-92.

Jaffee, J. W. 2001. The Resource Partitioning of Corporate Legal Markets: The Competitive Dynamics of Generalists and Specialists Law Firm Strategies in Austin and Silicon Valley. Unpublished Dissertation Manuscript. UC Berkeley, California.

Keynes, John Maynard. 1936. ***The General Theory of Employment, Interest and Money***. London: Macmillan & Co.

Khaire, Mukti 2010. Young and No Money? Never Mind: The Material Impact of Social Resources on New Venture Growth. ***Organization Science*** 21(1): 168 - 185.

Koçak, Ö., Hannan, M. T.& Hsu, G. 2010. Audience structure and category systems in Markets. Working paper.

KOS web page. http://www.kos-energy.de/kosGips/Gips?SessionMandant=KOS&Anwendung=CMSWebpage&Methode=ShowHTMLAusgabe&RessourceID=19&WebPublisher.NavId=19&SessionMandant=KOS, accessed 10.12.2008

Krisp, Annika 2007, ***Der Deutsche Strommarkt in Europa- zwischen Wettbewerb und Klimaschutz.*** Unpublished Dissertation Manuscript. Justus-Liebig-Universität Gießen

Kennedy, M. T. 2008. Getting Counted: Markets, Media, and Reality. ***American Sociological Review,*** 73:270-295.

KOS web page. http://www.kos-energy.de, accessed on 10.12.2008.

Lant, T. K. 1994. Computer simulations of organizations as experiential learning systems: Implications for organizational theory. ***Computational Organizational Theory***. M.C. Carley, M.J. Prietula eds. Lawrence Erlbaum Associates, Hillsdale, NJ, 195-216.

Larsen E. R.& Derek W. B. 1999. Deregulation in the Electricity Sector: Understanding Strategic and Regulatory Risk. ***Journal of Operation Research Society,*** 50: 337-344.

Larsen E. R. & Lomi, A. 2002. Representing change: a system model of organizational inertia and capabilities as dynamic accumulation processes. ***Simulation Model. Practice and Theory,*** 10: 271-296.

Liang, K & Zeger, S. L 1986 Longitudinal Analysis for Generalized Linear Models. ***Biometrika***, 73: 13- 22.

Lomi, A. 1995. The population ecology of organizational founding: location dependence and unobserved heterogeneity. ***Administrative Science Quarterly***, 40: 111–145.

Lomi, A. & Larsen, E. R. 2001. ***Dynamics of Organizations: Computational Modeling and Organizational Theories***. AAAI/MIT-Press, Menlo Park, CA / Cambridge, MA.

Long, J. S. 1997. ***Regression Models for Categorical and Limited Dependent Variables.*** Thousand Oaks, CA: Sage.

Mansfield, E. 1962. Entry, Gibrat's law, innovation, and the growth of organizations. ***American Economic Review*** 52: 1023-51.

MacMillan, I. C., Siegel, R., & SubbaNarisimha, P. N. 1985. Criteria used by venture capitalists to evaluate new venture proposals. ***Journal of Business Venturing***, 1: 119-128.

Marquis, C. & Lounsbury, M. 2007. Vive La Résistance: Competing Logics and the Consolidation of U.S. Community Banking. ***Academy of Management Journal,*** 50: 799-820.

McKendrick, D. G., Jaffee, J., Carroll, G. R. & Khessina, O. 2003. In the bud? Disk array producers as a (possibly) emergent organizational form. ***Administrative Science Quarterly,*** 48: 60-93.

McPherson, J. Miller. 1983. An Ecology of Affiliation. ***American Sociological Review*** 48: 519-535.

Negro, G., Hannan, M. T., Rao, H. & Leung, M. D. 2007. No Barrique, No Berlusconi: Collective Identity, Contention, and Authenticity in the Making of Barolo and Barbaresco Wines. Working Paper, Standford Graduate School of Business, Stanford, CA.

Negro, G., Hannan, M.T. & Rao, H. 2010. Categorical contrast and audience appeal: Niche width and critical success in winemaking. ***Industrial and Corporate Change,*** 19: 1397–1425.

North Rhine-Westphalia Interior Ministry web site. http://www.im.nrw.de/bue/doks/ detmold_0607.pdf, accessed on 25. August 2009

Park D. Y.& Podolny J.M. 2000. The competitive dynamics of status and niche width: U.S. investment banking, 1920-1949. ***Industrial and Corporate Change***, 9: 377- 414.

Parsons, Talcott, and Neil Smesler. 1956. ***Economy and Society: A study in the Integration of Economic and Social Theory***. London: Routledge and Kegan Paul.

Penrose 1959. ***The theory of the growth of the firm***. Basil Blackwell, Oxford.

Pfeffer, J. and G. R. Salancik 1978. ***The External Control of Organizations: A Resource Dependence Perspective***. New York, NY, Harper and Row.

Podolny, J., Stuart T., and Hannan M., 1996 Networks, Knowledge, and Niches: Competition in the Worldwide Semiconductor Industry, 1984-1991. ***American Journal of Sociology***, 102(3): 659-689.

Polany, Karl. [1944] 1957. ***The Great Transformation***. Boston: Beacon Press.

Pólos, L., Hannan, M. T. & Carroll, G. R. 2002. Foundations of a theory of social forms. ***Industrial and Corporate Change,*** 11: 85-115.

Pólos, L., Hannan, M. Y. & Carroll, G. R. 2010. On the durability of resource partitioning. Working paper, Durham Business School, Durham.

Pólos, L., Hannan, M. Y. & Carroll, G. R. 2010. On the durability of resource partitioning. Working paper, Durham Business School, Durham.

Pozner, J. & Rao, H. 2006. Fighting a Common Foe: Enmity, Identity and Cooperative Strategy. *Ecology and Strategy*. J. Baum, S. Dobrev, A. van Witteloostuijn Eds. ***Advances in Strategic Management***, 23: 445-479.

Püttner, Günter. 2000. Daseinsvorsorge und service public im Vergleich. ***Daseinsvorsorge und öffentliche Dienstleistungen in der Europäischen Union***. H. Cox, ed. Nomos, Baden-Baden 45- 87.

Ranger-Moore J., R.S. Breckenridge, D.L. Jones. 1995. Patterns of growth and size-localized competition in the New York State Life Insurance Industry, 1860-1985. ***Social Forces*** 73(3): 1027-1049.

Rao, H. 1998. Caveat Emptor: The Construction of Nonprofit Consumer Watchdog Organizations. ***American Journal of Sociology,*** 103:912-961.

Rao H., Monin P. & Durand R. 2003. Institutional change in toque ville: nouvelle cuisine as an identity movement in French gastronomy. ***American Journal of Sociology***. 108:795-843.

Rao, H., Durand, R. & Monin, P. 2005. Border Crossing: Bricolage and the Erosion of Categorical Boundaries in French Gastronomy. ***American Sociological Review,*** 70: 968 – 991.

Ruef, M. & Patterson, K.. 2009. Credit and classification: The impact of industry boundaries in 19th century America*,* ***Administrative Science Quarterly***. 54*:* 486-520.

Romanelli E, Khessina OM. 2005. Regional industrial identity: cluster configurations and economic development. ***Organization Science*** 16(4): 344–358.

Smith, A. [1776] 1976. ***An Inquiry into the Nature and Causes of The Wealth of Nations***. 2 vol. Oxford: Clarendon Press.

Snow, D. A., and R. D. Benford 1988 "Ideology, frame resonance, and participant mobilization." ***International Social Movement Research***, 1: 197–217.

Sorensen, J. B. 1999. The ecology of organizational demography: managerial tenure distributions and organizational competition. ***Industrial and Corporate Change*** 8(4): 713-744.

Sterman, John D. 2000. ***Business Dynamics.*** Irwing, McGraw-Hill, Boston, MA.

Stuart, T., & Sorensen, O. 2003. Liquidity events and the geographic distribution of entrepreneurial activity. ***Administrative Science Quarterly,*** 43: 175–201.

Stuttgarter Nachrichten. 2009. Städte wehren sich gegen Energieriesen; Eigene Energieversorgung wird für viele Kommunen immer attraktiver - Kleine Ortschaften schließen sich zusammen. September 07.

Stuttgarter Nachrichten. 2010. Kampf um die Stromnetze; Immer mehr Städte wollen über ihre Energieversorgung selbst bestimmen - Im Südwesten fürchtet die EnBW um ihre Vorherrschaft. January 26.

Stuttgarter Zeitung. 2008. Die EnBW wird fremd wie Feuerland; Immer mehr Großkunden wenden sich von dem Karlsruher Energieriesen ab - OEW-Chef Widmaier warnt das eigene Unternehmen. August 02.

Stuttgarter Zeitung. 2009. Aktien kaufen und Reisen veranstalten. October 23.

Süddetusche Zeitung. 2008. Leipziger behalten ihre Stadtwerke. 28.January.2008.

SüdWestStrom home page. http://www.suedweststrom.de/, accessed on 08 September 2009.

Swaminathan, A. 2001. Resource partitioning and the evolution of specialist organizations: The role of location and identity in the U.S. wine industry. ***Academy of Management Journal***, *44*, 1169–1185.

Swedberg, R. 1994. Market as Social Structures. In ***The Handbook of Economic Sociology.*** Edited by Smesler, N. & Swedberg, R. Princeton, NJ: Princeton University Press.

taz 2007. Kauf dir'ne Tuete Strom; Mit guenstigen Tarifen draengen die Stadtwerke Wedel auf den Hamburger Strom- und Gasmarkt. Als Vertriebsstellen fuer seine „Energie

aus Tueten“ hat das kommunale Unternehmen sich Baeckereien auserkoren. 07.April 2007. Rubrik: Nord Aktuell; S.25

taz 2008. Die Huelle des Immateriellen. 21.06.2008

TNS Emnid survey. 1999, 2003, 2005, 2009. VKU. Berlin.

Trianel 2007. Jahresbericht Trianel European Energy Trading GmbH.

Tirole, J. 1988. ***The theory of industrial organization***. Cambridge, MA: MIT Press.

VDEW 1998. Jahresdaten

VDEW. 2005. Das Image der Strombranche aus Sicht ihrer Kunden . Ergebnis einer aktuellen tiefenpsychologischen Studie VDEW 3-Länder-PR-Treffen. Presentation on 13. October 2005

Ventana Systems. 2007. Vensim Version 4.2a. Ventana Systems. Harvard: MA.

Vickery, R. E. & Sant, P. T. 1946. Agricultural Statistics in Germany. ***Journal of Farm Economics***, 28 (4): 1061-1069.

VKU. 2007. Geschaeftsbericht 2006/2007. http://www.vku.de, accessed on 14. April 2008.

Weber, Marx. [1922] 1978. ***Economy and Society: An Outlines of Interpretive Sociology***. Translated by Ephraim Fischoff et al. Edited by Guenther Roth and Claus Wittich. 2 vol. Berkeley: University of California Press.

Wezel, F. 2005. Location-dependence and industry evolution: Founding rates in the United Kingdom motorcycle industry, 1895—1993. ***Organization Studies***, 26: 729-754.

White, H. C. 1981. Where do Markets Come From ? ***American Journal of Sociology,*** 87: 517-547.

Williamson, Oliver. 1975. ***Market and Hierarchies: Analysis and Antitrust Implications***. New York: The Free Press.

Wollmann, H. 2002. Is Germany´s Traditional Type of Local Self-Government Being Phased out? ***German Journal of Urban Studies,*** 41 (1).

Vwd Energy Daily 2007. Stadtwerke Wedel bieten Strom und Gas in Hamburg an. 4. April 2007

Zeger, S. L. & Liang, K. 1986. Longitudinal Data Analysis for Discrete and Continuous Outcomes. ***Biometrics***, 42 (1): 121-130.

Zeitung für Kommunale Wirtschaft 2001. Am Anfang war der Einkauf, Unternehmen im Gespräch mit der ZfK. 01 (12): 6

Zeitung für kommunale Wirtschaft. 2006a. Neue Chancen für Stadtwerke. 3 **(**1).

Zeitung für Kommunale Wirtschaft 2006b. Die Politik ist das Problem. 06 (02): 5

Zeitung für kommunale Wirtschaft. 2007a. Anwalt für Bürger und Wirtschaft. 4 (5).

Zeitung für Kommunale Wirtschaft 2007b. Punkten mit der Stadtwerke-Marke. 07 (12): 5

Zeitung für kommunale Wirtschaft. 2008. Guter Ruf bei allen Bürgern. 11 (1).

Zelizer, V. 1978. Human Values and the Market: The Case of Life Insurance and Death in 19th Century America. ***American Journal of Sociology***. 84: 591-610.

Zuckerman, E.. W. 1999. The categorical imperative: Securities analysts and the illegitimacy account. ***American Journal of Sociology****,* 47: 1398-1438.