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The Organization-Environment Nexus Revisited – Shopping Center Legitimacy, Mall Diffusion, and Mall Survival in the United States, 1923-2009

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Abstract of the Dissertation

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The role that resource levels and resource access plays in industry-level emergence and change processes remains highly disputed among organizational scholars. In the present study, I examine the role of industry-level and market-level factors in diffusion and survival processes for the shopping center sector. Data for the dissertation was obtained from shopping center directories, articles published in business periodicals, and a diverse array of government datasets. The resulting aggregated database contains detailed information on the total population of shopping centers in the United States from 1923 to the present. First, I use qualitative data from a content analysis of business press coverage of shopping centers from 1945-1976 to evaluate the role of density in legitimacy building among emergent organizational forms. The results suggest that legitimacy building is process-like rather than event-like, that density serves as a catalyst for legitimacy decisions (rather than a determinant of them), and that the effectiveness of institutional interventions is itself density-dependent. Second, I use constrained non-linear regressions to test three specifications of the density-legitimacy link. Counter to the predictions of organizational theorists, density and legitimacy are weakly rather than intrinsically related. Furthermore, the results suggest that legitimacy is the causal factor in the density-legitimacy relationship rather than vice versa. Third, I examine the factors explaining the spread of enclosed malls in the United States from 1956 to 2009 using Cox regressions. The results suggest that development decisions became decoupled from the size of the consumer spending base during the 1970s mall building boom. The results also show the importance of measuring population and income factors at the market-area level, with biases caused by over-aggregation arising if a broader geographic level-of-analysis is chosen.

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List of Abbreviations

HR: Hazard ratio

OR: Odds ratio

CI: Confidence interval

OE: Organizational Ecology

NIS: New Institutional Sociology

RD: Resource Dependency Theory

TCE: Transaction Cost Economics

ECT: Environmental Control Theory

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Chapter 1: Introduction

Today's retailing landscape is an odd combination, including both mega-malls and dead malls; the premier retailing innovation of the 1950s is simultaneously flourishing and foundering. The most recent prominent example of the latter type is perhaps General Growth Properties, a large developer of shopping centers based in the Midwestern region of the U.S. that filed for bankruptcy on April 17, 2009. This event and the recent failures or near-failures of large, powerful, and well-connected investment banks, mortgage institutions, commercial banks, and auto manufacturers has generated much debate over the causes of industry change and the economic consequences when organizations falter. The bankruptcy filing of General Growth Properties in particular has caused a resurgence of predictions about the direction of the shopping center industry, the enclosed mall format, and the causes of retail failure (Hazlett 2009). Implicated in this debate is the original mall development decision, with much blame for organizational failure being placed on those actors who chose the format and location of failed malls.

The transition from street shops to department stores to the shopping center paradigm has been analyzed by many as a cultural trend towards the privatization of public space. But while this cultural shift is part of the formation of an environment favorable to shopping centers, it fails as an explanation for either their emergence (or their failure when the culture once again began to shift in favor of less controlled retail spaces). Explaining shopping center industry processes by recourse to general cultural trends fails to explain specifically when and where individual

centers emerge or fail. Shopping centers did not emerge simultaneously in every region of the U.S. and many have failed, all in spite of the unidirectional cultural shift towards privatization.

An important subset of the organizational literature suggests that organizational and environmental characteristics, when taken together, provide more powerful explanations for shopping center emergence and failure. Empirical findings from the various organization-environment paradigms – New Institutional Sociology (NIS), Resource Dependency Theory (RD), Organizational Ecology (OE), and Transaction Cost Economics (TCE) in particular – show that organizational phenomena are strongly patterned within and across industries. This suggests that the theories and methods from each can provide analytical leverage for the study of over-arching shopping center emergence and failure patterns.

THE STATE OF ORGANIZATION-ENVIRONMENT STUDIES

Existing organization-environment paradigms

The basic TCE argument (e.g. Williamson 1975; Williamson 1981) is that organizations seek institutional arrangements that minimize the "friction" costs of transactions with their suppliers and customers. The concepts of "asset-specificity" and "uncertainty" play especially important roles in this process. An organization will be more likely to seek contractual guarantees (an alliance or merger being the strongest forms) or decline to transact altogether if (1) the organization must first make large investments in highly-specialized equipment or if (2) the organization believes transaction partners will act opportunistically. The classic example is a firm that chooses to buy out a supplier rather than face the uncertainty that the supplier will fulfill their end of a purely market contract. The high costs associated with uncertain

performance of an external entity are replaced with the (presumably) lower costs of internal administration.

Different processes are highlighted in the basic arguments of NIS scholars (e.g. DiMaggio and Powell 1983; Meyer and Rowan 1977; Zucker 1977), who use the concepts of "isomorphism", "legitimacy", "institutionalization", and "loose-coupling" to explain common organizational behaviors. Scholars working in this paradigm argue that organizations often closely resemble one another in important ways because they (1) copy the features of other organizations if they are uncertain about what to do (mimetic isomorphism), (2) are pressured to conform by powerful institutional actors (coercive isomorphism), or (3) are run by people who have been socialized to think in very similar ways (normative isomorphism). Being isomorphic confers legitimacy, which in turn helps to ensure access to key resources, but may also constrain the organization in undesirable ways. Thus, an organization may also try to maintain "loose-coupling", externally appearing to be isomorphic while internally deviating from prescriptions in significant ways as conditions dictate. The classic example is a firm that assumes a hierarchical organizational structure to instill confidence in potential investors while allowing significant internal deviations from that structure when it seems to interfere with the efficient completion of a particular task. The firm manages to appear hierarchical (i.e. legitimate) to external entities while maintaining the flexibility that comes with less hierarchically-structured decision-making processes.

The basic premise of the RD approach (e.g. Pfeffer and Salancik 1978) is that organizations are highly-attuned to the structure of resource flows between themselves and other organizations and will make adjustments to optimize the benefits and costs associated with these resources. When one firm becomes overly-dependent on another for some key resource it can be

externally-controlled. Organizations try to avoid this situation in most cases, only willingly staying dependent on another organization if the resource access the relationship provides outweighs the risks entailed by the control the other organization might have over them. The classic example is a Wal-Mart supplier. The supplier enters into a close relationship with Wal-Mart because of the consumer markets that will be opened to them but is wary of the price-pressure they will surely face. The supplier-customer relationship will be ended only if the costs of finding alternative customers and losing market access are less than the costs of dealing with Wal-Mart's price demands.

The basic arguments of OE (e.g. Aldrich 1979; Hannan and Freeman 1977) are that organizational densities, resource partitioning processes, interactions between organizational age and size, and resource levels are the key factors explaining both organizational emergence and failure. Organizations experience growing legitimacy and intensifying competition as the number of organizations (density) increases. Because the beneficial effects of legitimation diminish and the deleterious effects of competition increase as density rises, organizations within the industry at first experience low initial growth and high failure rates, then high growth rates and low failure rates, and finally low growth rates and high failure rates once again. Once an industry has reached what is called the environmental "carrying capacity", organizations begin to consolidate into "generalist" forms at the expense of "specialist" forms. However, intense competition between generalists, coupled with generalists' inability to satisfy every type of consumer, eventually leads to the reemergence of small, specialist organizations in environmental "niches". Throughout this process, organizations that are small in size and, size being held constant, old in years are the ones that are more likely to fail. Also constant throughout this process is the effect of external political, cultural, and economic resources. Local environments that are rich in these

various types of resources are more likely to see organizations emerge and less likely to see them fail.

Finally, a more diffuse line of theory that I will label "Environmental Control Theory" (ECT) posits that organizations are remarkably free from resource constraints. Perrow (2002) argues that large organizations are adept at manipulating their political and economic environments, bringing about the conditions that are substantially more favorable to themselves than to competing organizational forms. Storper and Walker (1989) argue that the formation of a new industry provides a window of opportunity during which organizations can actually ignore whether certain necessary resources exist in places in which the organization would like to locate. Storper and Walker argue that the necessary resources will follow the new industry wherever it chooses to go. For Perrow, the classic example is a large firm that influences regulatory reform in ways that are utterly unfavorable to competitors, even if they are not necessarily ideal for it. For Storper and Walker, the classic example is a new labor-intensive industry that locates itself far away from existing pools of skilled labor and finds that skilled laborers move to it.

There are a number of key points on which the five paradigms sketched above diverge substantially (see **Table 1.1**). OE scholars disagree with all the other paradigms' advocates over whether selection or adaptation processes are the more powerful explanation for population-level organizational change. ECT diverges from the other paradigms over whether it is organizations or their environments that are the more powerful force. NIS and OE scholars have clashed sharply over the relationship between the process by which an organizational form becomes legitimated and the spread of the organizational form. Each of the paradigms has a slightly different explanation for the relationship (or lack of relationship) between organizational

efficiency and survival or failure. Finally, each paradigm has a unique explanation for organizational isomorphism.

INSERT TABLE 1.1 HERE

Paradigm conflict and the relative lack of theoretical synthesis

Despite the common applicability of diverse organizational paradigms to the question of emergence and failure processes, recent research has tended to be somewhat Balkanized. A review of the timing and content of 23 published critiques and critical exchanges written by various organization scholars with respect to NIS, RD, OE, and TCE showed the existence of three distinct periods in the development of contemporary organization-environment theory. In the early years there existed a relatively peaceful period of *emergence* (1975-1984), during which each theory group's foundational statements were published and awareness of them spread. Following this, there erupted a period of *conflict* (1985-1994), during which the number of critiques and exchanges grew in number and became more confrontational. Finally, the period of conflict gave way to a *post-conflict* period (1995-2008), where confrontational exchanges substantially decreased but a debate over the possibility of eventual synthesis strengthened.

In order to assess the impact of the conflict period on efforts towards theory group synthesis, I examined over 25,000 bibliographic citations from 656 articles authored or co-authored (and published between 1967 and 2008) by any one of the foundational figures of NIS (i.e., John W. Meyer, Brian Rowan, W. Richard Scott, Paul J. DiMaggio, and Walter W. Powell), OE (i.e., Michael T. Hannan, John H. Freeman, Glenn R. Carroll, and Howard E. Aldrich), RD (i.e., Jeffrey Pfeffer and Gerald R. Salancik), and TCE (i.e., Oliver E. Williamson). Of the 656 articles, 195 were authored by scholars from NIS, 257 from OE, 121 from RD, and 78 from

TCE. In the five cases where an article had two or more authors from different theory groups, the article was classified as multiple-group. Each bibliographic citation was classified into a theory-group based on the affiliation of the lead author, as evidenced in their publication history and prior classifications of the author's work published in reviews of the field.

Poisson and negative binomial models show that, between the emergence (1975-1984) and conflict (1985-1994) periods, the number of intra-theory-group and inter-theory-group citations rose or remained constant. Between the conflict (1985-1994) and post-conflict (1995-2008) periods however, the number of intra-theory-group citations increased by 69% while the number of inter-theory-group citations dropped by 16.1%. Linear regression models show that the average age of the publications cited by a given article had risen more with respect to alternative theory groups than for the article's own theory group (a 4.6 year increase in the average age vs. a 1.6 year increase, respectively). The citation evidence suggests that "non-consumption" (see Hassard and Kelemen 2002) was the outcome of the conflict between organization-environment theory groups, rather than synthesis or competitive adjudication (see Roelfs 2011 for a more detailed description of the data and results).

Renewing the effort towards synthesis

I argue that the current state of affairs is unfortunate. The various paradigms each offer powerful and empirically-supported ideas that are worth synthesizing. But they also often provide competing predictions that must be adjudicated before any synthesis can progress very far. Shopping centers (including the most important sub-type: enclosed malls) provide a strategic research site for this endeavor. Unlike previous studies, detailed data is available on a very large number of non-trivial organizations and their environments for the entire history of the

organizational form. These data thus permit the direct empirical examination of organization-environment fit, organizational legitimation, processes of population-level organizational change, and the outcomes of organization-level change.

OUTLINE OF THE DISSERTATION AND ITS CONTRIBUTIONS

This dissertation is divided into six chapters: the present introductory chapter, four chapters presenting empirical results, and a concluding chapter. Each of the four empirical chapters is intended to be "self-contained", meaning each contains a targeted literature review and discussion of the chapter-specific findings. As a result, references made in a given chapter to another chapter have been kept to a minimum, the major exception being instances where variable and/or data descriptions would be cumbersome to repeat. The concluding chapter is focused on the integration of the findings from each of the four empirical chapters so that more general reflections can be made. In the remaining sections of this introductory chapter, I outline the empirical and methodological contributions of the dissertation as a whole.

Empirical contributions

Unresolved debate #1: the impact of legitimacy on organizational emergence and its relationship with density

As I outline in detail in Chapters 2 and 3, there is an unresolved debate between OE and NIS scholars over the role of organizational legitimacy in the spread of an organizational form. Briefly summarized, the competing arguments are as follows. For NIS scholars, external legitimacy is the product of historical, institutional processes. Actors in positions of institutional power determine if a new organizational form is viable/legitimate and, if so determined, create

isomorphic pressure favoring the proliferation of that form (see DiMaggio and Powell 1983; Zucker 1977). For OE scholars (see Carroll and Hannan 2004; Hannan and Freeman 1989), legitimacy is both a product of organizational visibility (i.e., density) and a cause of organizational success (due to the resulting improved access to key resources needed for survival). As described in Chapter 2, the crux of the disagreement between the two perspectives involves the question of the proper causal ordering of the two variables. For NIS, legitimacy is the cause of industry growth whereas for OE it is the product.

Prior exchanges on the topic of legitimacy and its relationship to industry-level change between OE and NIS scholars have tended to be rhetorical rather than empirical. Though both positions have, individually, received much empirical support (see Brinton and Nee 1998; Carroll and Hannan 2004; Powell and Dimaggio 1991 for examples), to date I am not aware of any attempt to directly adjudicate between these competing views.

The first empirical contribution of this dissertation is to qualitatively and quantitatively evaluate the relationship between legitimacy and density and to evaluate the effects of both factors on rates of emergence for enclosed, air-conditioned shopping malls in the United States from 1956 to 2009. In Chapter 2 I report findings from a qualitative analysis of what I refer to as the "density-legitimacy link". The aim of the analysis in Chapter 2 is to examine qualitative evidence from articles published in business periodicals, relative to quantitative data on the growth in numbers of shopping centers, to assess whether growth in shopping center legitimacy preceded or followed the growth in density. In Chapter 3 I report findings from a quantitative extension of the investigation performed in Chapter 2. Namely, using three specific functions proposed by Hannan (1991), I model a quantitative measure of legitimacy as a function of shopping center density. The quantitative measure of legitimacy developed for this analysis and

the standard OE measures of density are both applied in the examination of enclosed mall emergence processes reported in Chapter 4.

Unresolved debate #2: the relationship between resource levels and organizational founding/failure processes

Published retail industry guidelines for shopping center development stress the importance of assessing the adequacy of the existing customer base in a given market area prior to initiating a project (Beyard, O'Mara and others 1999). That retail development proceeds more or less according to these development recommendations is an assumption underlying industry analyses of failed retail ventures (Congress for the New Urbanism 2001). In the case of enclosed malls, which are very costly to develop, mall developers are presumed to have carefully evaluated whether their mall could tap into a large, previously unrecognized, and already-existing pool of consumer desire. The unbridled success of enclosed malls following their introduction, from this viewpoint, was seen as evidence of careful and rational site selection. Correspondingly, accounts of mall failures stressed the role of adverse changes to economic conditions. However, one does not find in the retail trade literature assessments of the degree to which retail developers choose to ignore the center development recommendations and what the consequences of doing so might be.

The importance of resource levels for both organizational emergence and failure processes is also stressed in the organizational literature, though direct assessments of key resources are also infrequently utilized. In macro-level analyses, differences in resource levels over time are measured by proxy, using GDP and time-period effects. In OE analyses, however, GDP is almost always a non-significant predictor, though few scholars have attempted to explain

why this might be the case. In NIS analyses, time-period effects are frequently statistically significant predictors of organizational foundings and failures, though the degree to which time-period variables capture resource level changes remains an open question.

The second empirical contribution of this dissertation is to directly evaluate the role that levels and rates of change in population size, average income, retail spending, and inter-retailer competition played in determining rates of enclosed mall emergence and failure. In Chapter 4, I present results from an analysis of the diffusion of enclosed malls in the United States from 1956 to 2009, with the key components of the consumer spending base directly assessed as of the year each given mall opened. In Chapter 5, I present results from an analysis of enclosed mall failure, with the same key resource variables assessed as of the year of closure.

Assembling population-level data on a contemporary retail sector

Finally, the assembly of population-level data on the shopping center industry (including the enclosed mall sector) is an important empirical contribution. While there are some exceptions (e.g., studies of Silicon Valley firms), the majority of both NIS and OE studies focus on organizational innovations that originated more than a century ago. Because data on the micro-economic environment during the late 1800s and early 1900s is very sparse and/or unreliable, there are few independent variables consistently available to use in a longitudinal organizational analysis. Because detailed economic data and reliable business press coverage for population-level organizational analyses became systematically available only after the onset of the Great Depression, malls are one of the few organizational forms that can be studied with high empirical resolution. As the first modern shopping center (Country Club Plaza in Kansas City, MO; opened in 1923) and the first enclosed shopping mall (Southdale Center in Edina, MN; opened in 1956)

emerged relatively recently, detailed data are available about both internal organizational features and the external economic environment of the time. The focus on an organizational innovation (shopping centers and shopping malls) for which detailed data is systematically available from both government and industry sources is therefore an important departure from the data constraints inherent in many existing studies.

The selection of the shopping center industry as a research site is also a significant departure from existing organizational analyses as previous studies focus almost exclusively on manufacturing-based sectors with relatively few organizations. Unlike manufacturing organizations, the retail focus of shopping centers enables a more concrete specification of market-areas and hence an improved ability to measure market-level economic conditions. Also unlike manufacturing sectors, the size of the shopping center industry is very large. The larger number of organizations within the shopping center industry and its retail focus thus enable a critical test of whether manufacturing-industry-based organizational findings generalize to other sectors.

As the first population-level organizational study of the shopping center industry, the collection of data is also an important element of the dissertation's empirical contributions. The primary data source, used in some manner for each of the four empirical chapters of the dissertation, was a series of shopping center directories published from 1958 through the present (CoStar Group 2009; National Research Bureau 1957-1976; National Research Bureau 1977-1992; National Research Bureau 1993-2006). While detailed and already compiled by a retail service organization, prior to my dissertation work these data existed only in book form with the various volumes dispersed among multiple libraries. Altogether, the data collection effort

involved the collection and digitization of more than 13,000 pages of directory information into a single database.

Methodological contributions

Direct measurement of legitimacy

Despite its central importance in both NIS and OE analyses, the present dissertation is one of only a few studies to utilize a direct measurement of population-level organizational legitimacy. As detailed in Chapters 2 and 3, the vast majority of OE analyses make inferences regarding the effects of legitimacy on founding and failure rates by observing the effects of changes in organizational densities. While focused on better measures of legitimacy, NIS scholars tend to focus their studies on individual organizations and actors and therefore also do not frequently assess legitimacy directly at the population-level. The primary exception to these general trends is the work of Baum and colleagues (see Baum and Oliver 1992; Baum and Oliver 1996; Baum and Powell 1995). Even in this work, however, legitimacy is measured somewhat indirectly as it is counts of publications or counts of ties to regulatory bodies that are used in the analyses.

As described in more detail in Chapters 2 and 3, the present dissertation utilizes a direct measurement of legitimacy developed by examining the rhetorical positions of business leaders as published in business periodicals. By examining the nature of business periodical content, rather than simply its volume, I am able to clearly assay the legitimacy level of the shopping center concept in a longitudinal manner. This measure of shopping center legitimacy was developed through the examination of over 1,000 articles published in business periodicals from 1945 to 1976. The measure developed through this approach represents an important

methodological contribution to the body of literature on population-level organizational legitimacy.

Assessment of diffusion and survival covariates at the market-level

Existing population-level analyses of rates of organizational founding or failure are uniformly structured such that the dependent variable is the time elapsed between founding or failure events within a predefined geographic space. Examples of this analytic approach include the Carroll, Preisendoerfer, Swaminathan, and Wiedenmayer (1993) analysis of regional brewers using national-level economic and organizational covariates and the Freeman and Hannan (1983) analysis of neighborhood restaurants using city-level covariates. The strategy of examining inter-event durations at a relatively macro-level lies in not assuming knowledge of the specific locations where organizations will emerge (i.e., in not applying post-facto knowledge of the phenomena of interest).

However, the approach suffers from the limitations imposed by using aggregate geographic regions as the unit-of-analysis. Specifically, one relies on an implicit assumption that aggregate measures accurately reflect local conditions (e.g., that market area income levels can be measured by national GDP). Employing this research design involves ignoring the effect of intra-unit variations (e.g., within-nation local and regional variations in household income). So long as the market area of the organizations under examination is as broad as the unit-of-analysis (e.g., when automakers selling primarily within the nation of manufacturing are examined using national-level covariates) there is little problem. However, the greater the disjuncture between the size of an organization's market area and the scope of the geographic unit-of-analysis, the

more likely the economic and organizational covariates will not capture the effects of the environmental conditions that matter most for the determination of founding and failure rates.

In the examinations of founding and failures rates in the present dissertation, I focus on an organizational form (enclosed malls) with a well-defined market reach. According to Koppelman (2008), the primary market area for an enclosed mall has a radius of approximately 10 miles (corresponding to an area of about 300 square miles) and the secondary market area has a radius of approximately 20 miles (corresponding to an area of about 1300 square miles). Economic and organizational covariates are assessed at the county-level, which provides a reasonable approximation to an enclosed mall's market area. In terms of surface area, counties are of approximately the right size: there are 3141 counties in the United States, the average area of a county is 1,126 square miles, and 75% of all counties have areas that fall between 300 and 1300 square miles (Ezilon Search 2009). Using counties as the unit-of-analysis retains the advantages of existing population-level analyses without constraining the accuracy with which economic and organizational conditions are assessed. As such, the alternative analytic approach used in the present study represents another important methodological contribution.

Table 1.1. Examples of domains on which the various organization-environment paradigms hold antithetical positions.					
	Transaction Cost Economics	**New Institutional Sociology**	**Resource Dependency Theory**	**Organizational Ecology**	**Environmental Control Theory**
What is the primary driver of change at the population level?	Adaptation of individual organizations under threat of Selection (Invisible Hand Approach)	Adaptation of individual organizations	Adaptation of individual organizations	Selective entry and exit of individual organizations	Adaptation of environment by powerful individual organizations
Which is more dominant, organizations or their environments?	Environments	Environments	Environments	Environments	Organizations
How is legitimacy produced?		Legitimacy is institutionally determined		Legitimacy comes as a byproduct of increasing visibility (density)	Legitimacy is institutionally determined under the strong influence of organizations
Are the organizational forms that survive the ones that are more efficient?	The organizational forms that best economize on transaction costs are more likely to survive	The form chosen has little to do with efficiency; any efficiency that exists is maintained through loose coupling	Resource dependencies can bolster survival while also compromising efficiency	Less efficient forms are selected against if a more efficient form has emerged	Efficiency is a chimera: surviving organizational forms manipulate the environment in ways that create the appearance of efficiency

Table 1.1 (continued).					
	Transaction Cost Economics	**New Institutional Sociology**	**Resource Dependency Theory**	**Organizational Ecology**	**Environmental Control Theory**
Why would an organization tolerate inefficiency?	The benefits conferred by the more efficient solution are more than offset by higher transaction costs	The inefficient action happens to be highly legitimized or externally enforced	Minimizing dependency vulnerabilities is more important	Inefficiency is a side-effect of a generalist strategy to buffer against environmental instability	Power over workers and other firms is more important than efficiency
How is Isomorphism Achieved?	Similarities in cost structures independently lead organizations to take similar actions	Mimicry of already legitimated forms, coercion by external powers, and normative pressures	Similarities in resource constraints independently lead organizations to take similar actions	New organizations mimic a successful model while old/inefficient models die out	Organizations distort their environment in ways that make life difficult for alternate forms

Chapter 2: Density and legitimacy building in the U.S. shopping center industry, 1945-1976

In 1923, the first modern shopping center opened for business in Kansas City, MO. While the organizational form pioneered there later proved revolutionary, the grand opening was not noted beyond the local area. Delayed by the Great Depression and WWII, the great shopping center boom began in the early post-war years. Dozens, then hundreds, then thousands of shopping centers opened. Large regional shopping centers swept onto the scene, generating levels of excitement and frenzy that seem unimaginable today. One shopping center – Cherry Hill Mall in New Jersey – so excited local residents that in 1961 they voted to change the name of their township from Delaware to Cherry Hill (Breckenfield 1972). In little over 30 years, shopping centers had become enough of a force to challenge downtowns. In fewer than 20 more, they would be the only real force.

Unlike previous macro-level studies of legitimacy building, the shopping center case allows for the testing of both New Institutional Sociology (NIS) and Organizational Ecology (OE) theory. There exists a rich archive of business press coverage of the legitimacy-building process, a key tool for NIS analyses of the role of powerful actors in the legitimacy-building process. There also exist detailed records on the shopping center industry itself, key for OE models of the effect of organizational density – considered a measure of legitimacy – on founding and failure rates.

The present study empirically examines legitimacy building and the density-legitimacy relationship. There is a growing recognition that legitimacy should be examined as a social process rather than an event (Colyvas and Powell 2006; Johnson, Dowd and Ridgeway 2006).

However, few studies have successfully applied direct, empirical measurements of legitimacy (a long-recognized need among NIS scholars) to the question of legitimacy stages. Furthermore, no studies to date have directly examined the density-legitimacy relationship using a combination of qualitative evidence (of legitimacy) and data on organizational density. While a reformulation of ecological theory has been proposed that deemphasizes the role of density (see Hannan, Polos and Carroll 2007), this too has not been adequately assessed.

I begin this paper by reviewing two distinct approaches to the concept of legitimacy building, that of OE and of NIS. Qualitative evidence from an examination of 376 business press articles from the period 1945-1975 are presented, with the results suggesting 1) that effective institutional action may be dependent on organizational density and 2) that density may serve as a catalyst for legitimacy building rather than as a direct determinant of legitimacy itself.

LEGITIMACY BUILDING IN THE ORGANIZATIONS LITERATURE

OE and NIS scholars have long disagreed over the relationship between legitimacy and organizational emergence. For NIS scholars, legitimacy is the product of historical, institutional processes (Barreto and Baden-Fuller 2006; DiMaggio and Powell 1983; Hopper and Major 2007; Lippmann 2007; Meyer and Rowan 1977; Zucker 1977). Actors in positions of power determine which organizational forms they consider to be legitimate and thereby create isomorphic pressure, often with little regard to the form's comparative advantage. These legitimacy decisions play a prominent role in the subsequent diffusion (or non-diffusion) of organizational forms and practices. NIS conceptualizes legitimacy building as an instituted phenomenon - a short burst of important *events* that are the *cause* of changes in organizational density.

For classical OE, legitimacy is both a product of organizational visibility and a cause of organizational success (Baum 1996; Baum and Shipilov 2006; Carroll and Hannan 2004; Dobrev, Ozdemir and Teo 2006; Hannan and Freeman 1977; Hannan and Freeman 1989; Hannan, Polos and Carroll 2007). The more organizations of a particular type that exist, the more legitimate that organizational form becomes and the more likely it is to survive. For classical OE, legitimacy building is conceptualized as an emergent phenomenon - a *process* spread over a considerable period of time that is the *consequence* of changes in organizational density. OE advocates a path model, whereby density operates indirectly on founding and failure rates through the mediating effects of legitimacy and competition. OE scholars maintain that legitimacy is difficult to measure directly (Nickel and Fuentes 2004; Petersen and Koput 1991a; Petersen and Koput 1991b), however, and therefore focus on observed relationships between density and founding/failure rates without directly examining legitimacy itself.

Several OE studies that draw inferences about legitimacy using density-based measures have drawn particularly intense criticism (see Baum and Powell 1995; Carroll and Hannan 1989a; Carroll and Hannan 1989b; Delacroix and Rao 1994; Hannan and Carroll 1995; Hannan et al. 1995; Zucker 1989). While OE nominally states that legitimacy is externally derived, its strong focus on the density-legitimacy link implies that any industry that has grown to a certain threshold size will become legitimate. This conception shifts the impetus of legitimacy building away from powerful external institutions.

Recently, Hannan, Polos, and Carroll (2007) have proposed a reformulation of the legitimacy-building process in which the role of density is substantially reduced. In the new formulation, each organization is thought of as a set of features. The greater the distinctiveness of the set of features (i.e. contrast) and the greater the number of organizations with these

features (i.e. density), the more likely it is that some audience will identify similar organizations as a form (i.e. extensional labeling). Extensional labeling can occur when there are relatively few organizations if the set of features is highly distinct. When the set of features is not distinct, extensional labeling can still be triggered once density has risen sufficiently. Once extensional labeling has happened, the audience will seek consensus on which subset of features (i.e. schema) must necessarily coincide with the label (i.e. intensional labeling). Legitimacy increases as the label and its associated schema become more taken-for-granted. These latter stages – intensional labeling and legitimacy building – are dependent on the degree of contrast exhibited by a set of organizations, rather than on density.

NIS scholars have, instead, begun to focus more on the role of density and on the process aspects of legitimacy building. For example, Scott's (1995) decomposition of legitimacy includes a density component (cognitive legitimacy) in addition to the more standard NIS components of governmental endorsement (regulatory legitimacy) and organizational peer group approval (normative legitimacy). Other recent NIS work has called for greater attention to legitimacy as a process (Colyvas and Powell 2006; Johnson, Dowd and Ridgeway 2006; Tolbert and Zucker 1996). The majority of NIS work on the legitimacy , however, remains focused on the actions of powerful actors (Johnson, Dowd and Ridgeway 2006), an approach which has been criticized for its lack of empirical precision (Colyvas and Powell 2006; Haveman 2000).

Studies using direct measurements of legitimacy from historical records, as advocated by Baum and Powell (1995), are few in number. One exception is Colyvas and Powell's (2006) recent study of Stanford University's Office of Technology Licensing, which details how the institutionalization process can be observed using archival sources. Another exception is the recent study by Aerts and Cormier (2009), who found interesting relationships between the

content of environmental press releases, annual environmental statements, and the content of media reports on corporate environmental responsibility. A third possible exception is the analysis of U.S. environmentalism by McLaughlin and Khawaja (2000), which measured environmentalism legitimacy using the number of environmental books published in a given year. Lastly, Baum and Oliver (1996) measured legitimacy by counting the number of ties that Toronto day care centers had with governing bodies and community groups. However, it must be noted that these latter two studies used proxy measures of legitimacy because content and meaning were left unexamined.

There thus remain two gaps to close between OE and NIS with respect to legitimacy building. First, legitimacy must be examined from both an event and process view. Second, both density and the actions of powerful entities must be considered. Johnson et al.'s (2006) recent review is one important step in that direction. The authors argue that legitimacy is built in four stages: innovation (the creation of the social object), local validation, diffusion, and general validation. The local validation stage encompasses the NIS focus on powerful actors' actions. In this stage, a relatively small group of insiders evaluates whether a new social object is compatible with the existing/desired social order. The diffusion stage, which can only occur if local validation is successful, incorporates the growth of organizational density that is central to OE. It is the density that is built in the diffusion stage that creates the taken-for-grantedness in the minds of the general public (i.e. general validation) that is the hallmark of full legitimacy.

DATA AND METHODS

Data sources

Qualitative accounts relevant to legitimacy building were obtained from articles published in the business press – as identified in the *Reader's Guide to Periodical Literature* (H.

W. Wilson Co. 1945-1959) and the *Business Periodicals Index* (H. W. Wilson Co. 1958-1976). According to Mintz and Schwartz (1987), the business periodicals represent a particularly accurate picture of business community sentiments on a given issue because business leaders serve as both source and audience for these periodicals. Emerging organizational forms have a vested interest in using media coverage to increase awareness (Kennedy 2008) and to foster a positive public image (Rao 2004; Rindova, Pollock and Hayward 2006). Research has also shown that established organizational forms use media coverage to "preserve the existing structure of categories" (Lounsbury and Rao 2004, p. 969). Because of the strong presence of both shopping center and downtown advocates and the self-correcting nature of the business press, the business periodicals have a high probability of serving as an unbiased record of the process by which shopping center legitimacy was built.

Articles were sought under the following headings: "Business, districts", "Downtown", "Mall", "Mall, pedestrian", "Mall, enclosed", and "Shopping center". For the period 1945-1975, there were a total of 1059 articles listed. Of these, 376 were contained information on shopping center legitimacy, 240 of which provided unambiguous information on shopping center legitimacy levels.

Quantitative data on the number of shopping centers in the United States was obtained from annual directories (National Research Bureau 1957-1976; 1977-1992; 1993-2006). Shopping center counts for 1923-1956 were derived from the directories using information on the year in which each particular shopping center opened for business. Raw shopping center counts were adjusted for population and per capita income changes as ecological analyses rely on an assumption of a stable resource space (defined as the set of all resources necessary for an industry's existence). Decennial census data and annual population estimates were obtained from

the U.S. Census Bureau for 1923-2006. Per capita disposable income data was obtained from the U.S. Bureau of Economic Analysis for 1929-2006. Once adjusted for changes in population, per capital disposable income, and inflation, the growth in shopping center density approximately conforms to the expected s-shaped (i.e. logistic growth) pattern (see **Figure 2.1** and Section 1 of Appendix).

INSERT FIGURE 2.1 HERE

Identifying the legitimacy-building period

In a typical s-shaped diffusion process, the point at which the rate of growth is itself growing most rapidly is particularly important and occurs relatively early in the process (see Section 2 of Appendix). According to Diffusion Theory (Rogers 2003), this point is where "opinion leaders" adopt the innovation, giving it a taken-for-granted quality that makes its subsequent spread almost certain. In the present organizational context, this take-off point is where we should expect the legitimacy-building process to be more or less complete. Applying these ideas to the growth curves shown in Figure 2.1, Diffusion Theory predicts the *closure* of the key legitimizing period to occur around 1958 (see Section 2 of Appendix).

Other evidence, however, suggests that a broader range of years be examined for evidence of legitimacy building. First, the journal dedicated to chain stores – Chain Store Age – published an annual shopping center issue from 1953 to 1973. Second, the International Council of Shopping Centers (ICSC) published annual statements on the state of the industry from 1959 to 1975, including much that is relevant to the issue of legitimacy building. Third, OE and NIS both suggest that the important acts of legitimacy building occur very early in the life of a new organizational form.

For the present study, qualitative evidence of legitimacy building was sought for the years 1945-1975 and compared to quantitative data for the same period. While the first modern shopping center opened in 1923, the Great Depression and WWII effectively delayed the beginning of the diffusion process. 1975 was chosen as the end date to incorporate the full range of qualitative data from industry sources.

Identifying the key legitimizing institutions

Because NIS holds that legitimacy is conferred by powerful institutional actors, rather than being endogenously built, it is important to identify which institutional actors are likely to play an important role. The frequent need for money to build shopping centers gave investment banks a great deal of power over the fate of the shopping center industry during its early years, especially when one considers the hegemonic economic role played by banks at the time (Davis and Mizruchi 1999; Mintz and Schwartz 1987). As is characteristic of hegemonic power, however, the exercise of it was not necessarily overt and direct.

Because banks were relatively unfamiliar with shopping centers, the question of how to finance a center was of upmost importance. What emerged was a tiered strategy, where the mode of finance depended on the size of the shopping center in question. For the largest types of shopping centers – the Regional Centers[1] and the Super Regional Centers[2] –"the key to solving the [finance] problem has in most instances been the credit of the major department store or department stores" (Shinehouse 1962, p. 118). Regardless of the size of the center, however, it was the prospective tenants that mattered most to the banks: "…the lease in one form or another

[1] one to two large department stores; typically 400,000 sq. feet

[2] three or more large department stores; typically 750,000 sq. feet

is the most important tool for adequate financing. The tenant's lease provides an acceptable form of collateral with which the shopping center developer can improve his borrowing capacity" (Shinehouse 1962, p. 120). What emerged was an unofficial banking standard with respect to tenant leases: if 70% of a proposed shopping center's space was committed to by AAA-rated tenants, a bank would make the loan. Since virtually the only retailers to attain an AAA rating were chain stores, this unofficial rule effectively concentrated the overt legitimizing power in the hands of the chain store industry. The fact that 250 of the 376 articles examined for the present study were published in chain store trade journals further suggests that the chain store industry is the central actor in the shopping center story.

Analytical method

The present study is a content analysis of 376 business press articles. Some have suggested that the volume of media coverage lends insight into legitimacy issues (McLaughlin and Khawaja 2000; Pollock and Rindova 2003). However, counts alone may be deceptive; a high volume of bad press is not necessarily good for the legitimacy of an emergent form. Instead, following Green, Li, and Nohria (2009), Lambert and Baum (1998), and Suddaby and Greenwood (2005), I examined the content of the business press coverage of both shopping centers and downtown central business districts for rhetorical shifts.

I examined each article for evidence of awareness building (a signal of low legitimacy levels), viability predictions, the rhetoric of certainty/uncertainty, and the status of shopping centers relative to the alternative retail forms of the day – the downtown and the suburban "lone wolf". Special attention was paid to verb tense, the presence of qualifiers, and the strength of tone used in these accounts. For example, "shopping centers will become a permanent part of the

retail picture" was classified as a statement of incomplete legitimacy while "shopping centers have become a part of the retail picture" was classified as a statement of full legitimacy. 240 of the 376 articles provided a clear indication of this status.

RESULTS

Initial reactions to the shopping center form

Much of the early writing about shopping centers indicates a general unfamiliarity with the new retail form. As one architect noted, "the concept of shopping centers requires a whole new set of values, ideas and approaches. To go about judging shopping centers with the same terminology used for downtown locations is like trying to install an automatic shift in a surrey" (Gruen 1950, p. 23). Gruen proceeded to provide a dictionary of the shopping center form. Others sought to describe, in detail, shopping center design characteristics (Martin and King 1947) and provide guidelines for developing additional centers "when [in the early 1950s] the industry was taking its first unsteady steps" (Newman 1966, p. 40). Consumers were also intensely interested in knowing more about the new form of suburban retailing, so much so that one writer booked "a trip from New York to Detroit only to visit [Northland Center] about which I had heard and was curious" (Thompson 1954, p. 11). From a consumer point of view during the late 1940s and early 1950s, a new local shopping center was a newsworthy event. Opening day celebrations regularly drew thousands of people, even in one case where the center in question was only a small strip center with nine stores (Chain Store Age Staff Writer 1952a). Suburban consumers, particularly those with young families, were quick to patronize these novel retail facilities (Appel 1970).

In general, however, awareness of the national importance of shopping centers was slow to build. As one staff writer noted, "a shopping center is so essentially a local proposition that

even those who are interested in the retail picture on a broader scale may be excused if they miss the fact that even such a local phenomenon as a shopping center, if repeated often enough, can assume national importance and significance" (Lebhar 1953, p. 21). It wasn't until 1934 – eleven years after the first modern shopping center – which the *Reader's Guide to Periodical Literature* created a subject heading for shopping centers. It took an additional fifteen years before the national consciousness was raised.

Once retailers, nationally, became aware of shopping centers they began to assess the risk of leasing space in them. Despite the rhetoric of certainty that shopping center proponents employed in later years, in the late 1940s, "…centers were developed…using not just venture capital but truly *adventure* capital" (Van Leuven 1969, p. 7, emphasis in original). Chain store executives' first reactions to the new retail form was pessimistic (Lebhar 1953; Stellwagen 1950). This lack of fervor was mirrored by the major department stores, who were initially quite reluctant to commit any resources to branches in shopping centers (Jacobs 1984). According to one observer, "the planned shopping center is still so new and its development is still so fluid that it would be presumptuous to set forth broad, sweeping conclusions that would serve as a guide for all time to those who are attempting to decide whether to commit their companies to programs involving expansion into planned shopping centers" (Kaylin 1953c, p. 41). Such cautious statements about shopping center viability, while relatively frequent in the 1940s and early 1950s, dissipated quickly.

The recognition of suburban population trends, coupled with the desire to grow their own organizations, led chain store executives to take a second look at shopping centers. Starting in the early 1950s, statements began to appear about the positive potential of shopping centers (Chain Store Age Staff Writer 1952b; Flint 1950; Stellwagen 1950). By 1959, chain stores were

willing to consider a partial presence in shopping centers, but that level of commitment was predicated on the maintenance of their downtown location (Fisk 1959). Even when shopping centers had clearly become a growth industry, foot traffic remained quite heavy in the downtowns, justifying why many continued to feel that "it still pays to keep an eye on [downtown] areas into which stores can be squeezed" (Chain Store Age Staff Writer 1957a, p. 19).

A fuller acceptance of shopping centers would require the belief that the new form would succeed in the long run.

Early effects on downtown viability

In the early 1950s, when the shopping centers of the nation were awakening on the consciousness of retailers, few saw the threat they would later prove to be to the established central business districts. In the 1953, for example, the assistant to the president of Sears acknowledged the impact shopping centers had begun to have, but also flatly stated, "What their continued effect will be I have no idea" (Condon 1953, p. 17; see also New Yorker Staff Writer 1954).

Underlying the uncertainty surrounding shopping centers' future retail role was the question of whether they were a fad or a more permanent fact of life. "Where it all is headed is a matter of some concern to the leaders in the field. That there is some misguided enthusiasm and some unwise speculation is generally agreed. A statement frequently heard is: 'This could get as wild as the miniature golf course thing years ago; everybody went into it and most people went broke'" (New York Times Magazine Staff Writer 1953). The downtowns were strong, and shopping centers were very new. For every retailer who saw shopping centers as the way of the future there was another who thought that "The scene in the suburbs is not bright…We are

witnessing the construction of future shopping center slums" (Chain Store Age Staff Writer 1955, p. 25). Even if shopping centers were to become embedded, it was thought that their "…impact on Main Street will not be heavy enough for many years to come to cause department stores and other established retailers to abandon their present locations" (Lebhar 1953, p. 21).

The uncertainly regarding the permanence of shopping centers in the early 1950s was coupled with the strong belief in the strength and preeminence of the historic downtown retail centers.

> Does the shopping center spell the doom of the established downtown shopping area? To listen to the fervent espousers of the shopping-center idea, one would conclude that nobody is doing any business at all on the Main Streets of the nation. With all the traffic jams, poorly planned streets, hodge-podge arrangements of stores, unaesthetic welter of bigger and flashier signs and all the rest of the evils of the downtown areas, it's still difficult to find space to rent on Main Street. Store traffic is where people are, and it's the people that make for the congestion - and the sales. (Kaylin 1953a, p. 40)

Yet, the rhetoric surrounding the relative status of shopping centers and central business districts shifted subtly in the mid 1950s. Industry insiders began to recognize that shopping center trends were something to be reckoned with and that, if they continued, it was only a matter of time before the traditional retail centers were adversely affected. Discussions of shopping centers started to grant them a lasting place in the retail structure of the nation. To be sure, this place was thought to be secondary to the traditional downtowns.

> From the unusual amount of space devoted to planned shopping centers in this issue, the conclusion might be reached that we are unduly excited about this headline-making retail development. But such a conclusion would be erroneous. We are…convinced that the chains will continue to operate the great majority of their stores in the kinds of locations which have heretofore commanded their paramount interest - the locations found on the main streets of the nation... (Lebhar 1955, p. 122)

If shopping center trends continued, it was thought that the brunt of the effect would be felt by the existing suburban retailers and the smaller downtowns of surrounding communities rather

than the city center. While some business might be lost in the city centers, "…to assume that peaceful coexistence is not possible is to sell the established business districts short…" (Kaylin 1955a, p. 3).

In 1957, the International Council of Shopping Centers (ICSC) was formed and, for the first time, the self-perceptions of the industry enter the record. From the start, it was clear that shopping center owners and developers did not see themselves taking a backseat to anyone, downtown or otherwise. In statements of confidence in the future, one ICSC representative flatly stated that "…it is inevitable that every 'Main Street' across the country will eventually be replaced by nearby shopping centers" (Farber 1959) and that "downtown stores…are no longer the mecca attracting hordes of shoppers to the bleak cavern of the big city. The movement is on, instead, to the outskirts of the city and the outlying suburbs…" (Farber 1960).

The shift in rhetoric from the early 1950s to the late 1950s is informative. In 1950 one could plausibly state that shopping centers might be of little consequence. By the middle of the decade, the transformative potential of shopping centers, as a totality, had begun to be realized. According to one scholar writing in 1960, "…modern shopping centers, because of their potential effect on the reshaping and conditioning of consumer behavior, rank as the most significant development in retailing since the appearance of the supermarket" (Hindersman 1960b, p. 185).

From fad to fact

In 1950, there were only approximately 100 shopping centers in operation in the United States. However, there were plans for nearly 1000 more and for each of these developers' representatives were busy recruiting chain store tenants. While many questioned how long the shopping center phenomenon would last, it is in the early 1950s that some were ready to declare

shopping centers "…an accepted part of the overall pattern of mass distribution" (Chain Store Age Staff Writer 1951, p. 26). Pronouncements of permanent shopping center acceptance were relatively infrequent in the early 1950s however. More prevalent were articles documenting the growth rate of the shopping center industry, which by 1955 consisted of approximately 500 centers.

By the mid-1950s, shopping centers appeared to be "excellent, so far as [experts] can determine" with any exceptions being "…caused by poor planning…and not by the unsoundeness of the shopping center concept itself" (Kaylin 1955b, p. 30). During the 1950s however, retailers were looking for the onset of competition effects, expecting that shopping centers were reaching saturation and that there was little need to reconsider the entire retail structure. While there were some indications of increased competitive pressure, there were far more reports, in astonishment, of how the "expressed fear that severe competition among centers will develop has not yet been realized" (Kaylin 1956, p. 27).

If competitive pressure was felt anywhere during the late 1950s, it was in the downtowns. By about 1960, several studies of retail trade patterns had generally found that shopping centers had "drawn… patronage from older, well-established business communities" (Ellsworth, Benjamin and Radolf 1959, p. 179). Similarly, studies found that shopping centers were far outpacing their downtown counterparts in terms of sales growth, if not yet in terms of absolute sales (Hindersman 1960a; Pratt and Pratt 1960).

When the shopping center trade association was founded in 1957, "it was by no means certain that this trade association would be viable" (Kaylin 1960, p. 27). One year later, the National Research Bureau published its first volume of *Directory of Shopping Centers in the United States and Canada*. In 1959, a partnership was begun between the two fledgling

enterprises whereby an ICSC representative wrote the preface to each volume (an arrangement that continued through 1975).

From their inception through the mid-1960s, the ICSC prefaces to the NRB directories argued forcefully that shopping centers would dominate suburban retail. These statements noted how severe competitive pressure on shopping centers had yet to materialize (Pearlstone 1961) and how finance capital remained abundantly available for new construction (Pearlstone 1962). They also claimed with certainty that "no one today questions whether shopping centers will survive or whether they will be able to maintain their attractiveness" (Drachman 1963).

By the mid-1960s, the retail industry seemed ready to accept these pronouncements as truth. Retail trade had shifted significantly, with shopping centers capturing about 25% of the total retail volume. "Never before in the history of modern retailing did a new retailing concept make such fantastic progress in such an amazingly short period of time" (Weiss 1964, p. 72). For retailers, shopping centers were "no longer a trend…but a well-established fact of life" (Stores Staff Writer 1968c, p. 19). By the beginning of the 1970s, suburban developers almost automatically incorporated shopping centers into their master plans. Even among urban developers, "there was unanimity in believing that a shopping center was essential" (Rudelius, Hoel and Kerin 1972, pp. 99-100).

During the 1960s, it became accepted that shopping centers were the proper mode for suburban areas. Yet retail trade studies indicated that shopping centers were having an impact on the established central business districts in city centers as well. Shopping centers had become established facts of suburban life, but the question of downtown's fate remained.

Getting serious about centers

In the mid-1950s, articles began to appear about retailers committing to a shopping-center-based business strategy. Among these were chain stores, although the rhetoric of caution was still very much present. Shopping centers remained a somewhat uncertain proposition, but for the first time so did the established downtowns. According to one industry observer: “if the decision is to follow the trend and locate in a shopping center, a thorough understanding of what that involves is, of course, essential. If, on the other hand, a traditional location is chosen, the impact of existing or potential shopping centers must… be appraised..." (Lebhar 1956, p. 122). In fact, according to one *Chain Store Age* staff writer (1961c, p. 19), "downtown retailers' problems [were] intensifying. Long-range plans to revive Main Street are all very well, chain-store executives feel, but they ask what can be done immediately to make it worthwhile to carry on."

With stagnant or falling sales at their downtown locations, chain store executives seemed more confident in shopping centers. For some, the level of commitment was full. “Gray Drug has cast its lot with shopping centers. The future of our company depends on the success of these centers. It isn't just a sideline or experiment - we're married to them, for better or worse” (Kahn 1958, p. 15). Once a bastion of downtown Chicago, even Montgomery Ward declared, in 1971, that “shopping centers are a keystone of [our] expansion program…” (Chain Store Age Staff Writer 1971, p. 23). For some smaller retail organizations, a shopping-center-based strategy was becoming a necessity for survival (Stores Staff Writer 1968b). In fact, the ratio of shopping center to downtown stores nearly reversed itself in only ten years. In 1960, 37% of the large chain stores were in shopping centers. In 1970, 68% were there (Chain Store Age Staff Writer

1973f). Chain stores had decided that downtown was not worth waiting for, and they moved to suburban shopping centers in droves.

By the mid-1970s more than 50% of all retail sales and approximately 90% of all the new chain and department stores were in shopping centers (Sussman and Paul 1975). The fact, it was the established chain stores, "…once operating entirely in central business districts, [which] are now heavily invested and entrenched in shopping centers" (Sussman 1973).

The downtown interests take action

The established downtowns had a problem, but their plan of action further testifies to the growth of shopping center legitimacy. More often than not, the downtown response was to imitate the essential features of suburban centers. In an early example, "canopied walks [were] recommended… to give the [Sycamore, Ill] business district a definitive shopping-center appearance" (Chain Store Age Staff Writer 1957b, p. 41).

The addition of pedestrian malls, however, was by far the most dramatic downtown revitalization strategy. Numerous cities – including Poughkeepsie, NY, Rochester, NY, Louisville, KY, Minneapolis, MN, Fresno, CA, Seattle, WA, Toledo, OH, and Chicago, IL – temporarily or permanently closed off vehicular traffic in multi-block areas, and installed landscaping and new lighting. In most cases, this renewed excitement about downtown. "The pedestrian mall downtown…will become a new type of shopping center. And it will bring to a sputtering end the 20-year fast growth of the outlying shopping center" (Weiss 1970, p. 50).

In many other cities during the 1960s the cooptation of the shopping center form was more complete, with new urban shopping centers replacing major portions of the old downtowns. Some, including cities as large as Yonkers, NY, entirely replaced (or seriously considered replacing) their downtown with modern shopping centers (Chain Store Age Staff Writer 1961a;

Chain Store Age Staff Writer 1973g). Numerous large regional urban shopping centers were also created to rebuild downtowns, including Boston's Faneuil Hall and Manhattan's South Street Seaport.

The immediate effect of downtowns' cooptation of the shopping center form was quite positive. "In 1965…there began to emerge a feeling among…the leading department stores that their downtown units were now ready to begin a climb back" (Weiss 1965, p. 80). Proponents began to think that their downtowns provided a superior shopping environment once again (Fortune Staff Writer 1966). Some, in fact, thought the shopping center trend would be completely reversed.

> The total number of shopping centers...will continue to increase. But the percentage of total retail in general merchandise…done by all suburban shopping centers - real and sham - will now tend to level off. Then - and the first signs may emerge in a few years - that percentage will begin to decline. Moreover, shopping center volume will tend increasingly to concentrate. In time, 20% of all shopping centers will account for 80% of total shopping center volume. The remaining 80% will then go into a cycle of accelerated decay. (Weiss 1967, p. 71)

Weiss went on to say, "…behind its doomed mall, its sculptured fountains, even behind its swan-festooned lagoons, the suburban shopping centers arteries are hardening…Its original advantages over downtown…are dwindling...The downtown shopping area has clearly begun its renaissance" (Weiss 1968, p. 60). In the early 1960s, the pertinent issue was the equilibrium apportionment of business between shopping centers and downtowns, with both retail forms playing a significant role. But the continuation of the shopping center boom, coupled with the increasingly large downtown revitalization programs, raised the stakes. By the close of the 1960s both downtowns and shopping centers remained strong, but the stage was set where only one could remain so.

The enclosed mall

Among all the others, it was the regional and super-regional shopping centers that would prove the greatest threat to downtowns. Like shopping centers themselves, in the early 1950s the number of regional centers was expected to be limited. According to Kaylin (1953b, p. 19), "…many observers believe the choice locations have had a good deal of the cream skimmed off the top and that choice locations for mammoth developments will in future be few and far between."

When the first enclosed mall was opened in Edina, MN in the late 1950s, the retail press paid it no heed. This suggests that, as far as chain retailers were concerned, Southdale Center was just like any other of the regional centers already in existence. The popular business press, however, reacted very differently. Articles about Southdale Center were written by staff writers at Business Week (1957a), Fortune (1957), Life (1956), and Time (1956) magazines. From the beginning, the popular business press predicted that these, and the other regional centers, "can vie on their own terms with city retail districts" (Time Staff Writer 1956, p. 96).

The chain store industry journals did not discuss enclosed malls until the early 1960s, when they began to chronicle the debate over malls' legitimacy. There was widespread disagreement among chain store executives about whether enclosed malls were going to succeed (Kaylin 1961; 1963). J. J. Egan (1963), vice-president of Macy's, flatly stated that malls were doomed to failure. At best, the enclosed mall was greeted tepidly by the retail industry (Chain Store Age Staff Writer 1961b, p. 34).

Public enthusiasm prevailed, prompting the conversion of a significant number of open-air pedestrian malls to enclosed malls, particularly in the mid-1960s (Chain Store Age Staff Writer 1964a; 1965b; 1965c). This trend continued into the mid-1970s, particularly for older

regional shopping centers.[3] Strip centers were also enclosed, using air-conditioned sidewalks to attract shoppers (Chain Store Age Staff Writer 1964a; 1964b). When remodeling was impractical, expansion plans were frequently devised to include the desired enclosed mall (Chain Store Age Staff Writer 1966a).

The acceptance of enclosed malls was rapid, likely because of the achieved legitimacy of open-air centers. OE scholars call such a phenomenon "legitimacy transfer", where a new organizational form obtains legitimacy by being similar to some already-legitimated form (Dobrev, Ozdemir and Teo 2006). By the mid-1960s, business press coverage of shopping centers was focused heavily on enclosed malls. Even in cities with populations of under 30,000 – too small to support a regional center – new community shopping centers are "most often an enclosed mall" during this period (Chain Store Age Staff Writer 1968b, p. 26; see also 1973c). As one real estate developer put it, "we no longer build malls that are not enclosed… Hundreds of existing shopping centers are being weatherproofed, and more mini-centers are being closed in than ever before" (Business Week Staff Writer 1972, p. 18). It was during the early 1970s that many major department stores, such as J C Penney, signaled their approval of malls by concentrating their expansion programs on them. The new environmental regulations of the 1970s raised questions about future malls, but did little to slow the spread of the format.

The spread of enclosed malls is more impressive when one examines the locations in which they were built in light of the original justification for enclosure – the protection of shoppers from unpleasant weather. The status of having an enclosed mall, rather than climate control, was more of a driving factor. Malls were built last in the South, which has summer

[3] Examples include Eatontown Center (Eatontown, NJ), Roosevelt Field (Garden City, LI, NY), Coronado Plaza (Albuquerque, NM), South Shore Mall (Bay Shore, LI, NY), Camelback Place (Phoenix, AZ), Lenox Square (Atlanta, GA), West Covina Fashion Plaza (Covina, CA), Monmouth Center (Monmouth, NJ), and Shoppingtown (DeWitt, NY).

conditions every bit as harsh as the winter conditions in the North. Furthermore, locations where the weather is mild – such as Hawaii – obtained multiple enclosed malls (Sloan 1969). “At first it seemed paradoxical that enclosed malls, which originated in the East and Midwest where summer heat and winter snows are major deterrents to…shopping, have met with success in balmy California. But perfect climate control has made a big hit nevertheless...” (Stores Staff Writer 1968a, p. 14). Climate control was offered as a reason for building any enclosed mall, even in good-weather areas, but the strength of the weather justification is weaker for it.

While there remained some who viewed malls as “a radical and dangerous concept" (Van Leuven 1969, p. 7), it became much more common to read about retailers who were relocating to malls. Regional shopping centers, enclosed or not, had become “the downtown of suburbia” (Chain Store Age Staff Writer 1969b, p. 23). The importance of enclosed malls in particular cannot be understated. “Rouse Co.'s Cherry Hill Mall…brought a new sense of identity to the formless suburban sprawl of Delaware Township in southern New Jersey, and so captivated local citizens that they officially changed the township's name to Cherry Hill" (Breckenfield 1972, p. 83). By 1972, enclosed malls had their own magazine and mall ubiquity, rather than mall viability, was the top concern. As one observer put it, "It's no longer enough just to be enclosed and air-conditioned" (Chain Store Age Staff Writer 1973d).

With their growing popularity among retailers, consumers, and developers alike, the retail power of malls expanded. Retailers grew confident enough in malls’ inherent drawing power that they no longer purchased advertising (Editor & Publisher Staff Writer 1971). Shoppers were willing to travel to malls, including those who “come to North Glen mall [in Denver, CO] from as far away as Cheyenne, Wyo., 100 mi. to the north…" (Business Week Staff Writer 1974, p. 53). Similar to Storper and Walker’s (1989) observations on industrial growth,

> …[regional shopping centers] reversed the traditional sequence of housing, followed by creation of shopping and personal service needs. The Regional Shopping Center concentrated shopping and personal service needs at the Arterial Interchange and, along with the itinerant traveler and people living five to twenty miles away, it attracted the developer who was anxious to build housing close by. (McKelvey 1973, p. 16)

Malls had gained some ability to create their own consumer environments, even before the subject heading "mall" appeared in the *Readers Guide to Periodical Literature* or the *Business Periodicals Index* (1977 and 1978 respectively). The new enclosed malls were fateful for both the older shopping centers and the beleaguered downtowns.

The Federal Housing Act and the fall of downtown

In the late 1950s and the early 1960s, when shopping centers had made their presence felt, downtown interests began to respond. This response began with piecemeal efforts to incorporate the most attractive features of the new shopping centers into the downtown milieu. However, it soon became clear that bolder action was necessary.

> After an initial success based largely on its novelty, the urban [open-air, pedestrian] mall runs into trouble…[Downtown pedestrian malls] are the direct outcome of the desire, which most downtown interests share, to do quickly and cheaply something spectacular and to rely on patent medicines rather than a thorough treatment. (Victor Gruen, architect, as quoted in Engineering News-Record Staff Writer 1959, pp. 43-44)

The pace of construction for new shopping centers, by the mid-1960s, remained rapid, "driven by a nuclear-fueled engine whose output has to be measured in mega-horsepower" (Chain Store Age Staff Writer 1966c, p. 30).

By the mid-1960s, the large shopping centers sought to become the focal point of suburban life. In the retailing arena, however, the regional center owners and managers were feeling, for the first time, that they could dominate both the suburbs and the central city. The

shopping center industry was no longer content with being "…mere appendages to downtown business districts" (Aronov 1967).

But downtown interests were concurrently expanding their efforts to stave off the dual threat of shopping centers and urban population loss. The tools of choice were urban shopping centers and Title I of the Housing Act of 1949. While regional shopping centers had begun to directly challenge the large city centers for retail dominance by the mid-1960s, these types of centers were too few in number to gain the upper hand. The combined pressure of small and large shopping centers on downtown sales, however, set in motion plans to revitalize urban areas. Ten years earlier, in 1954, the major tool for doing so had been created. The Federal Housing Act of 1949 was originally intended to facilitate new housing in city centers, but provided funds for other purposes in 1954 through the "non-residential exemption" (Alexander 1967).

The non-residential exemption permitted federal funding for the condemnation of residential and non-residential property and their replacement with strictly non-residential structures. By the mid-1960s, demolition had begun in earnest in downtown retail districts. Downtown investors envisioned multi-story office buildings with retail space at the street level (Stores Staff Writer 1974).

Yet, due to budget cutbacks in the non-residential aspect of the Housing Act, the primary focus was on demolition rather than replacement (Alexander 1967; Rosenthal 1969).

> [...committees of bankers, builders, real-estate men, elected officials, architects, and midtown merchants] have changed the American look downtown from a 1920-ish eclecticism to a glowering monotony…[T]here is almost nowhere for the ordinary employee to go to eat a tolerable lunch except the company cafeteria because so many modest restaurants have been rooted out by the real-estate progress. (McQuade 1970)

This created an opportunity. “Urban renewal agencies were hard put to replace what their bulldozers have so easily demolished. Into this vacuum came the completely enclosed, air-conditioned, decorated shopping area called a mall...” (Oakleaf 1970, p. 41). In grand irony, the Federal Act that was meant to strengthen the downtowns had left them more vulnerable.

The subsequent explosive growth in regional and super-regional malls swept away any remaining hopes of a return to downtown dominance. E. B. Weiss (1969), a vociferous advocate of downtown superiority, even challenged the idea that downtown stores should be kept. Others also commented that the shopping center-downtown struggle was over. “ To an amazing degree, [giant regional shopping centers] are seizing the role once held by the central business district, not only in retailing but as the social, cultural, and recreational focal point of the entire community” (Breckenfield 1972, pp. 81-82). “Despite all the competitive infighting, and their problems with pot, antiwar agitators, and litigation, shopping-center developers have clearly bested downtown interests...” (Breckenfield 1972, p. 156). Weiss (1972) noted the irony that there were more people downtown in 1972 than in 1962, but that they were doing less shopping. Downtown had become something else for them. In one of the final ICSC prefaces to the NRB shopping center directories, Sussman (1973) flatly states that, “in little more than two decades, shopping centers have become the most dominant factor in retailing.” The final ICSC preface to a shopping center directory was published in 1975, apparently deemed unnecessary for the further promotion of the industry.

DISCUSSION AND CONCLUSION

Four stages of legitimacy building emerged from the qualitative evidence: 1) initial awareness of shopping centers as a retail form, 2) acceptance of shopping centers as a legitimate retail option, 3) shopping center domination of downtowns, and 4) shopping center hegemony,

where shopping centers are viewed as a requirement of retail development rather than an option. Articles focused on awareness issues are concentrated between 1950 and 1961.[4] Articles discussing legitimacy and industry acceptance appear primarily between 1954 and 1966[5]. It is from about 1958 (when there were approximately 4 shopping centers per $10 billion disposable income) to about 1969[6] (when there were approximately 35 shopping centers per $10 Billion disposable income) that the bulk of the discussion about shopping centers' growing dominance occurred. The final stage, that of hegemony building, occurs primarily over the 1965-1972[7] period, during which retail developers began to no longer seriously consider any other retail form.

The second stage in the shopping center story is the most important for the topic of legitimacy building, for it is when shopping centers achieved a taken-for-granted place on the retail scene. As detailed earlier, the retail industry vigorously debated whether shopping centers were a temporary phenomenon or a long-term fact of life. At the beginning of the period, there were many who questioned shopping centers' viability. Towards the end, observers felt secure declaring the permanence of shopping centers. In later years, one finds almost no statements on the issue of viability. Subsequent articles discuss the transformation of legitimacy into dominance and hegemony rather than the continued building of legitimacy itself.

The period of legitimacy building coincides closely with the first region of disjuncture between observed shopping center density levels[8] and the fitted logistic growth curve (i.e. 1950-

[4] Based on 25 articles: mean year of publication, 1955.64; standard deviation, 5.63

[5] Based on 106 articles: mean year of publication, 1959.61; standard deviation, 5.89

[6] Based on 61 articles: mean year of publication, 1963.49; standard deviation, 5.88

[7] Based on 48 articles: mean year of publication, 1968.79; standard deviation, 3.66

[8] i.e. the graph of the number of shopping centers per $10 Billion is disposable consumer income.

1960; see again Figure 2.1). The legitimacy building period also centers well on the date predicted by Diffusion Theory to be the point where opinion leaders act. If the stages of dominance and hegemony are combined into a post-legitimacy stage, the pattern supports Colyvas and Powell's (2006) three-stage model of legitimacy building particularly well. While the qualitative evidence supports viewing legitimacy building as a multi-stage process, the particular stages identified by Johnson et al. (2006) do not correspond to the shopping center case in any objective way. Acceptance by both the business community (i.e. local validation) and consumers (i.e. general validation) appears to have occurred simultaneously, rather than at different times as Johnson et al. proposed.

The role of institutions and rational myths in legitimacy building

One of the key NIS tenets is that myth is intricately tied to organizations' everyday activities. This proposition is well supported by the qualitative evidence. The fundamental assumption guiding the expansion of the shopping center industry was that consumers found them more efficient. "The theory back of [shopping centers] is…that the housewife, instead of having to go all the way in to town for a day's shopping or, if she shops locally, having to waste precious time looking for a place to park on a certain-to-be-overcrowded suburban street, simply drives to the center, parks without difficulty, and makes her purchases..." (New Yorker Staff Writer 1954, p. 20). The rhetoric of efficiency pervaded the descriptions of the early shopping centers, particularly the more influential ones, such as Detroit's Northland Center (Life Staff Writer 1954) and Minneapolis' Southdale Center (Business Week Staff Writer 1957a; Fortune Staff Writer 1957; Life Staff Writer 1956; Time Staff Writer 1956). Efficiency rhetoric was employed by ICSC representatives, who claimed that "the shopping center…is an advanced

phenomenon of modern life – natural, inevitable and constantly advancing" (Farber 1959). Ideas of modernity, progress, and efficiency were key aspects of shopping centers' appeal.

Yet it is hard to argue that shopping centers were objectively more efficient than the downtowns. In was known early that serious flaws pervaded the concept (Nystrom 1958) and that center managers did not necessarily know how to do their job well (Advertising Age Staff Writer 1960). Another indication of rational myths can be seen through discussions of shopping center lifespan. When compared to downtown stores, shopping centers are fleetingly ephemeral. Investments made in downtown buildings lasted for decades (on average about 50 years), which allowed for relatively high rates of return on investment (ROI). Shopping centers, it turned out, lasted as little as 10 years (Chain Store Age Staff Writer 1965a; 1966b) and, on the average, only about 25 (Schwartz 1968). ROI appeared higher for shopping centers primarily because a developer's initial investment could be reduced to $0. In fact, many early developers borrowed more than it cost to build the center, making ROI appear infinite! But calling this efficiency requires that one abandon a long-term outlook.

The timing of the publication of these rational myths is important; myths appear only during the early years of the industry. Furthermore, articles focused on shopping center flaws appear late. The timing of rational myths coincides almost exactly with the period when shopping center legitimacy was built. This suggests that rational myths are tools of legitimacy building much more than they are tools of legitimacy maintenance. Once diffusion has taken place, there are far too many examples of shopping center failures and mistakes for stories of super-efficiency to be believed.

The proposition that institutions play an important role in the life-story of an organizational form is also well-supported. I have already presented information on how the

shopping center trade association and the chain store industry affected shopping centers. I have also shown how the Federal government, through the Housing Act of 1949, made its presence known. Yet there are many more examples of how governing bodies played a role.

During 1945-1975, shopping centers both benefitted from institutionalized advantages and were challenged by institutional bodies. The 1972 Lloyd Decision of the Supreme Court granted shopping centers the right to ban any unaffiliated person or group from their premises. Downtown streets, however, remained a public venue in the eyes of the Court. In light of the social unrest of the time, this institutionally-sanctioned difference was important. More consequential, however, was the IRS ruling that shopping centers construction and purchase costs could be written off over a 25-year period rather over 50 years (Schwartz 1968). Given their frequent ownership turnover, this rule had the effect of making shopping center profits largely income-tax-free. In fact, many owners chose to sell their center when depreciation ran out (Kaylin 1962). Shopping centers also benefitted by institutionalized differences in property tax rates, which stemmed from both the inherently greater cost of property in the city centers and the fact that real estate is taxed according to its previous, rather than present, value.

Not all institutional actions favored shopping centers however. First and foremost was the Federal Housing Act of 1949, which provided economic development funds for downtowns alone. Zoning rules, which earlier favored shopping centers (Sweet 1959), were increasingly used to prevent center construction and expansion (Chain Store Age Staff Writer 1969c; Fulweiller 1973). Finally, the FTC launched restraint-of-trade probes against a major shopping center (Tysons Corner) and department store (Gimbels). Restrictive covenants governing intra-center competition were an important feature of shopping centers, reducing some of the cutthroat competition that occasionally plagued downtowns (Chain Store Age Staff Writer 1954; Weiss

1963). Earlier court rulings had already reduced their use (Chain Store Age Staff Writer 1967), but the FTC probe went further by eliminating anchors' veto power over which other retailers could lease space.

Yet contrary to NIS expectations, most institutional actions appear to be benign. The IRS depreciation rulings in favor of shopping centers, the Supreme Court decision that banned public protest in shopping centers, the FTC restraint of trade probe, and the bulk of the urban renewal projects funded through the Federal Housing Act occurred after 1965, post legitimacy building. The growth in shopping center density (see Figure 2.1) does not appear to have been positively or negatively affected by any of these institutional actions.

The role of density in legitimacy building

Hannan, Polos, and Carroll's (2007) reformulation of OE uses the concept of contrast dependence rather than density dependence. Legitimacy building is conceptualized as a process of reaching consensus on which organizations get labeled as a group and what that labeling indicates about the organizations under it. However, OE theory still posits that legitimacy affects founding and failure rates through its effect on the availability of key resources. Agreement on a label and its meaning is necessary but not sufficient for this to occur. A full model of legitimacy building must explain how one high-contrast, intensionally-labeled form comes to be prescribed while another does not. As such, aspects of the density-dependence model require continued investigation.

As noted earlier, there is strong evidence in favor of the OE concept of legitimacy transfer (Dobrev, Ozdemir and Teo 2006). Enclosed malls seemed to benefit greatly from being a shopping center variant rather than an altogether new retail organizational form. I have argued that shopping center legitimacy was built over the 1954-1966 period. It seems that that enclosed

malls gained their acceptance as a fact of retail life between 1961 and 1965, approximately three times as quickly as their open-air shopping center cousins.

The reformulated OE model of legitimacy building, however, receives only partial support. The creation of a category label (i.e. extensive labeling) and the emergence of consensus on its meaning both occur very early in the industry's history, just as OE now predicts. The label "shopping center" appears in periodical indexes in 1934, just 11 years after the first shopping center opened and when there were only approximately 5 shopping centers in operation. The intensive labeling process, evident in the early 1950s when systematic shopping center definitions were being published, occurred when there were still less than 500 shopping centers. However, the high degree of contrast (in the OE sense) exhibited by shopping centers throughout their history calls into question the claim that legitimacy is contrast-dependent rather than density-dependent. Their suburban locations, extensive parking facilities, and centralized management structures were recognized as distinctive features from outset. Contrast did not vary during the period when legitimacy levels were rapidly changing, counter to the contrast-dependence hypothesis. Furthermore, as discussed below, density appears to play a role beyond the extensive-labeling stage. This calls into question the degree to which density has been marginalized in the new formulation of OE theory.

The link between density and legitimacy proposed by classical OE is, however, also not fully supported. Shopping center industry growth was the primary topic of the early articles. The bulk of the legitimacy debate *precedes* the great density leaps of the 1960s by several years. The comments made during this period also call into question a direct density-legitimacy link. Retailers' comments suggested they were very uncertain about whether the growth trends would continue. They waited for additional information on the economic performance of shopping

centers, rather than additional density gains, before they granted shopping centers a taken-for-granted status. The retail community, which held the primary role in the legitimacy decision process because of the structure imposed by the financial sector, did not equate growth in numbers with proof of viability.

Density as a catalyst and windows of institutional influence

Both density and institutional actions play a role in shopping center legitimacy building, yet those roles are not exactly as NIS and OE predict. I have noted how institutional actions are clearly visible throughout the 1945-1975 period, but argue that 1) the great majority of governmental action occurred after legitimacy had been achieved and 2) that there was no visible positive or negative effect on industry growth associated with these governmental actions. I have also noted how shopping center density was discussed by the retail community during the early years and that the idea of legitimacy transfer is supported. However, I argued that there is a questionable link between density and legitimacy building.

With respect to institutions, the evidence instead points to what I will call "windows of institutional influence". The actions of chain stores, rather than of governmental bodies, was the most influential factor leading to shopping center legitimacy. This is most likely the case because of the *timing* of the institutional intervention rather than differences between the institutions. Governmental bodies were silent during the critical legitimacy building stage (1954-1966). Had the favorable IRS depreciation rules and Supreme Court decision occurred during these early years, both legitimacy building and the growth rate of shopping centers might have been accelerated. Had the FTC investigations occurred earlier, department stores may have avoided

shopping centers altogether. This may have effectively killed the concept because, without the endorsement of anchor tenants, developers would have been hard-pressed to obtain financing.

As shown in **Figure 2.2**, the windows of institutional influence concept models a relationship between organizational density and the likelihood of effective institutional action. Institutional action is likely to be ineffective when there are both very few and very many organizations of a particular form. The probability is very low at low densities for three reasons. First, the organizational form is relatively invisible to institutions and therefore unlikely to be subject to interventions. Second, even if institutional actions were attempted, organizational inertia is relatively low so organizations have the ability to adapt. Third, the fluidity of the form itself in the earliest years renders difficult the design of well-targeting institutional actions.

INSERT FIGURE 2.2 HERE

The probability of effective institutional intervention again becomes low at higher densities. Industry size, coupled with local validation that has already taken place, grants these organizations a greater degree of influence over their own fates. Stated simply, an organizational form may gain enough strength in numbers to deter most detrimental institutional actions. Ecological factors, rather than institutional ones, dominate the middle and later stages (assuming the density threshold is surpassed in the first place).

The core observation underlying the windows of institutional influence concept is that institutional actions are most effective at precisely the time when the new form is *seeking* to build legitimacy. This seems to be corroborated by Sine and colleagues (2007), who showed how the timing of institutional certification was critical for the emerging independent power generation industry. Certifications that occurred when this sector was building legitimacy had a much stronger effect than did certifications occurring after the sector had already become

legitimate. Colyvas and Powell (2006) also showed how *early* governmental approval of Stanford University's technology transfer program was particularly effective in promoting its legitimacy.

With respect to the density-legitimacy link, I argued that density lags behind legitimacy levels rather than leads. Classical OE theory, however, posits a diminishing return to legitimacy at high density levels and stresses how the density-legitimacy link is dependent on industry age (Hannan 1997; Hannan and Freeman 1977). These two mechanisms can account for how the large density gains in later years did not increase legitimacy[9]. However, still unaccounted for is the reason why density lags behind legitimacy. Furthermore, density was not mentioned once as a reason for viewing shopping centers as legitimate or illegitimate.

Yet, density does clearly play a role such that density may be thought of as a catalyst for legitimacy decisions rather than the determinant of their outcome. Put somewhat differently, density is related to the probability that a legitimacy decision will be made rather than being related to legitimacy itself. This alternative interpretation is consistent with the reformulated OE theory (Hannan, Polos and Carroll 2007), although density appears to serve as a catalyst well beyond the initial labeling stage. Such an interpretation is also consistent with studies of illegitimate organizational forms – those that obtain relatively high levels of density in spite of their low levels of societal approval. Studies of "core stigma" show that organizations can take actions to ameliorate illegitimacy's negative effects without removing the illegitimacy itself (Hudson 2008; Hudson and Okhuysen 2009). Kraatz and Zajac (1996) have also suggested that legitimacy levels are only weakly related to an organization's odds of survival. Finally, in the

[9] The establishment of industry dominance did coincide with this later period of density growth, but the taken-for-grantedness of shopping centers was by then a long-established fact. It is because the pertinent issue is legitimacy, rather than hegemony, that these later density increases can be said to not have much of an effect.

context of transnational governance bodies, Koppell (2008) notes that in some cases organizational effectiveness and legitimacy levels might actually be negatively related.

If density serves as a catalyst for legitimacy, rather than a determinant of it, then density-dependence in rates of organizational founding and failure need to be reconsidered. The curvilinear relationship between density and rates of founding and failure does suggest that there exist two underlying, opposing forces. However these might be competition and *inter-organizational learning* (rather than legitimacy). A hypothesized link between inter-organizational learning and density can clearly be made. As an organizational population gains more members the opportunities for inter-organizational learning multiply. Yet, as density continues to grow, the knowledge provided becomes increasingly redundant. As inter-organizational learning benefits dwindle, adverse competition effects increasingly emerge. Organizational failure rates should fall initially as the effect of inter-organizational learning takes hold, only to rise again as inter-organizational learning becomes less beneficial and competition becomes more intense. Parallel hypotheses can be made in the context of founding rates.

Conclusion

Evidence from the case of shopping centers in the United States strongly suggests that further integration of the NIS focus on institutional actions and the OE focus on density will prove fruitful. The results of the present study indicate that the effectiveness of institutional action is density dependent. Future research on the timing and effectiveness of institutional actions relative to industry population dynamics is needed. In addition, the results indicate that density acts as a catalyst for legitimacy building rather than as a direct determinant of legitimacy

itself. Future research is needed, however, to determine if the concept of density-as-catalyst generalizes beyond the shopping center case.

APPENDIX

Section 1: Finding the best-fitting logistic growth curve

Fitting a logistic growth curve to the data requires three parameters: μ, σ, and carrying capacity (see equation below).

$$F(x) = \frac{Carrying\ Capacity}{1+e^{-\left(\frac{x-\mu}{\sigma}\right)}},$$

where *F(x)* denotes the number of shopping centers per $10 Billion disposable income and *x* denotes the year. A two stage procedure was used to fit a logistic growth curve. First, μ and σ were chosen such that the Pearson correlation was maximized across all means (range examined: 1923-2006) and standard deviations (range examined: 0-100). As shown in **Figure 2.A1** below, the maximum correlation (r = .9814) was obtained at μ = 1963.4 and σ = 3.9. In the second stage, the carrying capacity multiplier was obtained by regressing the observed data on the resulting standardized logistic growth curve. The slope from this regression (43.5) indicated the carrying capacity.

INSERT FIGURE 2.A1 HERE

The Kolmogorov-Smirnov (K-S) test indicates that the observed data does not significantly differ from the fitted logistic distribution (p=.119). However, the p-value (.119) is marginal and the K-S test assumes the data are not already ordered (the data is automatically reordered to make it monotonically increasing). The latter feature has important implications, taking the "dips" in the data and moving them to an earlier time point and, correspondingly, taking the "humps" in the data and moving them to a later time point. This effectively smoothes the observed curve, but it also obscures deviations from the fitted curve. After taking into account the existing ordering, the K-S test statistic is still non-significant (p is very close to .05), but it is even less convincing a rejection of the null hypothesis than before. At the national level,

the growth of shopping centers (after adjustment for population size and disposable income) is weakly logistic and there exist regions of departure from the expected logistic pattern.

Section 2: Determining the legitimacy-building period

The "take-off" point discussed in Rogers (2003) occurs, distributionally, where the second derivative of the cumulative logistic growth curve reaches its maximum. By setting the second derivative of the logistic CDF,

$$F''(x) = f'(x) = \frac{[e^{-z}]^2 - e^{-z}}{\sigma^2[1+e^{-z}]^3},$$

equal to zero we find that the critical values occur at 1.32 standard deviations above (the minimum) and below (the maximum) the mean. The maximum is the most interesting from a theoretical viewpoint, as this denotes the point where Diffusion Theory predicts "opinion leaders" will adopt the innovation (in this case the shopping center organizational form) and thereby give it the taken-for-grantedness referred to in organizational theory as "legitimacy".

The mean and standard deviation from the fitted logistic curve, respectively, are 1963.4 and 3.9 (see Section 1 above). The closure of the legitimacy-building period is thus predicted to occur around 1958.

Figure 2.1. Total number of shopping centers per $10 billion disposable income (inflation adjusted) in the United States, 1929-2006

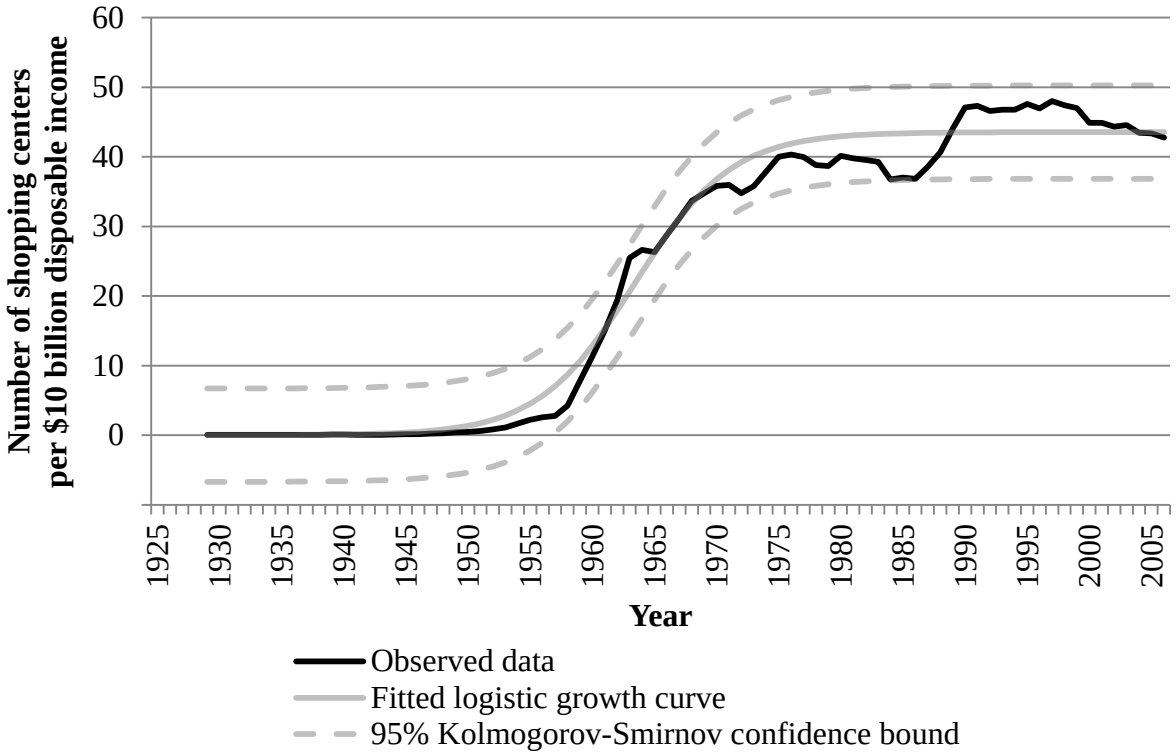


Figure 2.2. The relationship between density and the probability of effective institutional action

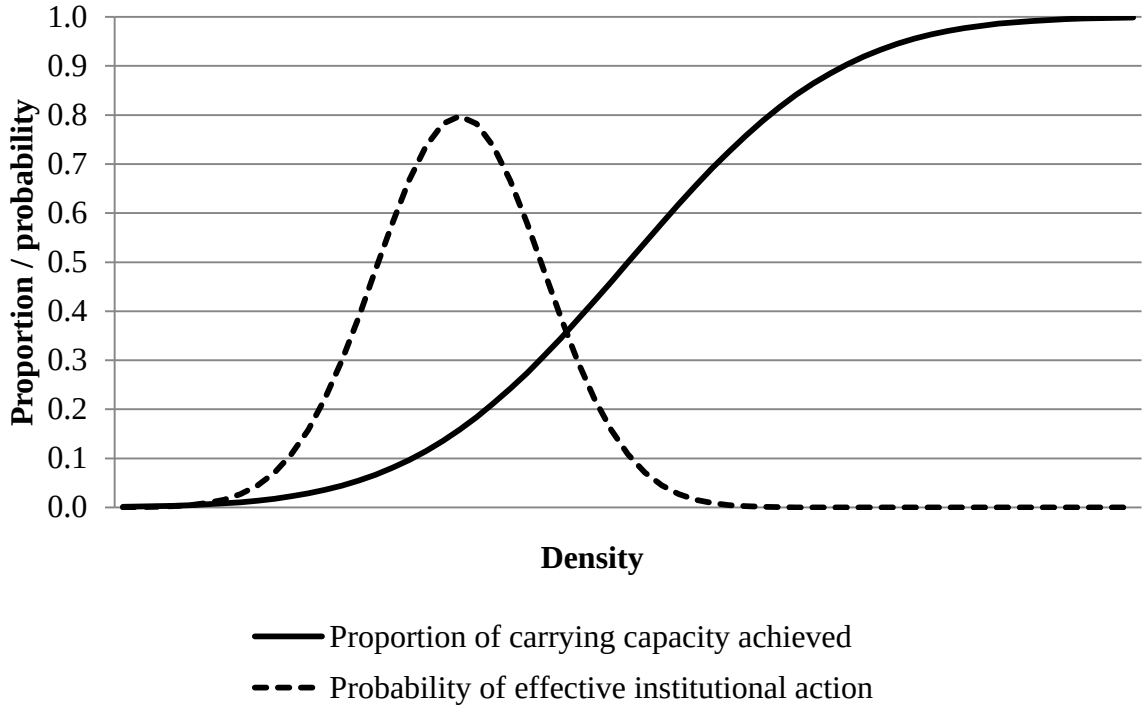
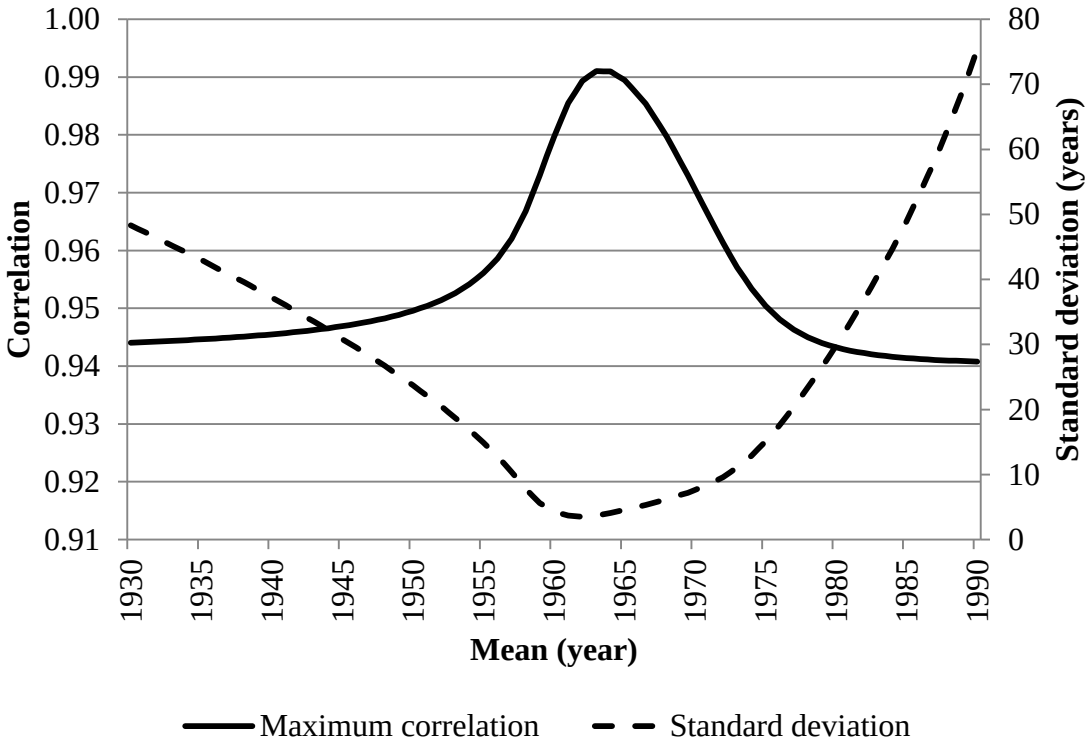


Figure 2.A1. Finding the parameters (mean and standard deviation) for the best-fitting logistic growth curve



Chapter 3: A quantitative test of the density-legitimacy link in organizational ecology models of density dependence

The original model of density-dependence posited that organizational founding and failure rates are driven by legitimacy and competition processes (Carroll and Hannan 1989a). Each additional unit of legitimacy is assumed to increase the founding rate and decrease the failure rate. Correspondingly, each additional unit of competition decreases the founding rate and increases the failure rate. Both legitimacy and competition levels are assumed to derive directly from the size of the organizational population (i.e. density), such that each additional unit of density increases both legitimacy (at a decreasing rate) and competition (at an increasing rate). By placing legitimacy and competition in the model as mediating variables in this way, it was possible to derive a testable, non-linear density model from which inferences on the (unmeasured) effects of legitimacy and competition might be made.

The parsimonious nature of density dependence theory, as well as its intuitive feel, facilitated its rapid rise to prominence among organizational scholars. Yet, the theory drew immediate criticism from scholars who were not convinced that inferences about legitimacy and competition could be made by observing density alone. In an early critique of the theory, Zucker (1989) argued that scholars could not be certain about how to interpret the effects of density on founding and failure rates until the relationship between density and legitimacy/competition had itself been investigated. Zucker was not challenging the idea that legitimacy and competition matter, only whether density might actually represent other factors instead.

Despite the large body of work that has been assembled on the density-dependence model, and despite the numerous modifications of the model made in light of the evidence that

has emerged (see Baum and Shipilov 2006; Nickel and Fuentes 2004), the fundamental question offered by Zucker remains unanswered. In the 20 years since its introduction, density-dependence theory has been greatly revised, including a recent proposal to replace the notion of density-dependent legitimation with one that focuses instead on audience perceptions of the uniqueness of an organizational form (i.e., contrast dependence; see Hannan, Polos and Carroll 2007). Yet, it is unclear if this proposed modification of the theory is based on sound empirical evidence. Thus, elements of Zucker's critique have gained a renewed importance for the further development of institutional-ecological theory. Does density represent a combined measure of legitimacy and competition?

The present study is a quantitative examination of the assumed functional relationship between density and legitimacy proposed by Carroll and Hannan (1989a) and elaborated by Hannan (1991). This paper does not address the relationship between density and competition (see Hannan, Polos and Carroll 2007 for the most recent thinking on this aspect) nor does it attempt to relate legitimacy to founding and failure rates. It is instead directed at the more fundamental question of how to interpret density measures in models of organizational vital rates. Four alternative specifications of the density-legitimacy link are tested: the density-only power law, the multivariate power law, the logistic, and the Gompertz functions. The organizational form under consideration is the planned shopping center in the United States, a type of organization for which both detailed directory data and a large body of media coverage exists. The former is critical for precisely specifying organizational density, particularly for the early years of the form. The latter provides the preferred type of data from which to develop a measure of constitutive legitimacy that adheres closely to both ecological and institutional theory (see Baum and Powell 1995; Baum and Shipilov 2006).

The results of the present study, counter to the predictions of both New Institutional Sociology and Organizational Ecology, suggest that density and legitimacy are weakly rather than intrinsically related. Furthermore, the results suggest that legitimacy is the causal factor in the density-legitimacy relationship rather than vice versa.

MODELING THE DENSITY-LEGITIMACY LINK

One of the hallmarks of Organizational Ecology has been its theoretical adaptability when presented with robust findings that challenge one or more of its accepted tenets. The evolving methods for modeling and interpreting density dependence and legitimacy are a prime example of this (see Baum and Shipilov 2006: 82-90; Nickel and Fuentes 2004). As I detail below, much thought has been given to how to disaggregate legitimacy and competition effects, how to account for the multidimensionality of the legitimacy concept itself, and how to account for possible confounders of legitimacy. An examination of these model adaptations, however, shows that the fundamental assumption that legitimacy is functionally dependent on density remains unexamined.

Disaggregating legitimacy effects

In voicing their concern over the proper interpretation of a density variable in a growth/survival rate model, Petersen and Koput (1991a) argued that early ecological models might have underestimated population heterogeneity. They argued that unmeasured differences in an organizational population, such as "organizational frailty", might cause density-dependence to spuriously appear. Lomi (1993; 1995) also argues that population heterogeneity might be problematic. Lomi tested whether a random-effects model, developed specifically to control for

unobserved population heterogeneity, produced results that differed substantially from the standard fixed-effects density-dependence model. The findings first showed that the expected density effects were important predictors in the fixed-effects model. Lomi then showed with the random-effects model that, although their direction and magnitude were unchanged, the density variables were no longer significant.

Delacroix and Rao (1994) also argue that heterogeneity might be a problem, though they suggested it could be the density variable itself that has heterogeneous effects. They suggested that increasing density produces multiple externalities, including the building of an organizational form's collective reputation from which later entrants might benefit, the provision of an entrepreneurial training ground, and the construction of form-specific infrastructure. They argue that some of these density-derived externalities are not well-captured by the umbrella term "legitimacy".

The heterogeneity critiques gave impetus to a stream of research aimed at disaggregating the effects of legitimacy from other potentially confounding factors. The first branch of this stream focused on disaggregating legitimacy from competition by measuring density at multiple geographic levels of analysis. The second branch differentiated between constitutive and sociopolitical legitimacy (see Carroll and Hannan 2000; Dobrev 2001), and sought to distinguish between their effects by introducing additional institutional variables to the model. A third branch sought to identify confounding factors and introduce the corresponding control variables.

Disaggregating legitimacy from competition

While legitimacy and competition are both thought to affect vital rates, scholars have argued that the two forces are not likely to operate at the same geographic level (Budros 1994;

Hannan et al. 1995). The competition effect, in particular, emerges strongest in relatively localized spaces where resource crowding can occur. Population-level legitimacy tends to operate more broadly, spanning local geographic boundaries.

To isolate the competition effect, and by implication also isolate the legitimacy effect, scholars proposed measuring density at two or more geographic levels. The more localized density measure would presumably capture mostly competitive effects, leaving the broader density measure to capture legitimacy effects. Budros (1994) adopted this strategy using data on life insurance companies in New York State. The results showed that regional density (i.e. legitimation) positively affected foundings while in-state density (i.e. competition) negatively affected foundings. Others have also adopted this strategy and found that proper specification of the geographic scope was critical to get a clear picture of density dependence (Carroll and Wade 1991; Lomi and Larsen 1996; Swaminathan and Wiedenmayer 1991).

Using the same logic but relying on niche theory, Baum and Singh (1994), disaggregated density according to market space rather than physical space. Specifically, they created two measures: overlap density (i.e. density of firms in the same niche; competition) and non-overlap density (i.e. firms in the same line of business in the same geographic area but serving a somewhat different customer base; legitimacy). Baum and Singh found that overlap density negatively affected Toronto day care center foundings while non-overlap density positively affected them. Similar strategies have been pursued among studies of competition and mutualism (see Barnett and Carroll 1987; Hannan et al. 1995; Hannan and Freeman 1989; Minkoff 1994).

Disaggregating constitutive legitimacy from sociopolitical legitimacy

Other scholars, arguing primarily from an institutionalist perspective, criticized the one-dimensional conceptualization (and measurement) of legitimacy itself (Baum and Powell 1995; Zucker 1989). They argued that legitimacy is inherently complex and therefore might not be fully captured by density alone. The criticism spawned both a conceptual and methodological adaptation in future ecological analyses. Conceptually, an effort was begun to create a typology of legitimacy. While multiple typologies were created, ecological analyses focused on the distinction between legitimacy stemming from the endorsements of powerful institutions and actors (i.e. sociopolitical legitimacy) and the more diffuse kind of legitimacy that is present when an audience views an organizational form as natural or taken-for-granted (i.e. constitutive legitimacy) (see Carroll and Hannan 2000; Dobrev 2001). Carroll and Hannan (2000: 223) argued for a focus on constitutive legitimacy because of its "clear-cut link with density". By adding non-density-based measures of sociopolitical legitimacy, it was argued that the density term would more clearly capture constitutive legitimacy alone (Carroll and Swaminathan 1991; Hannan and Carroll 1995).

Baum and Oliver (1991; 1992) measured sociopolitical legitimacy by examining the number of ties a given day care center had with relevant institutions. The results showed that the number of linkages lowered mortality, particularly for new or small organizations, thereby giving some proof of the value of including additional legitimacy measures in an analysis. Using the density of large/influential Tokyo banks as a measure of mimetic isomorphism, a sub-type reflective of sociopolitical legitimacy, Greve (2000) found evidence consistent with both mimetic isomorphism and density-dependence theory.

The more common strategy for accounting for the effects of sociopolitical legitimacy, however, is to include a case-specific set of period variables as controls (see Hannan and Carroll 1995). Carroll and Swaminathan (1991) adopted this strategy in their analysis of the brewing industry and found that period variables reflective of the changes wrought by prohibition (i.e. socio-political legitimation) and density measures were both significant. Parallel findings from an analysis of the credit union industry (Barron 1998), the newspaper industry (Dobrev 2001), and the self-help/mutual aid sector (Archibald 2008) further support the idea that both period and density effects are important predictors of organizational vital rates. One important deviation is the study by Studerellis (1995), who found that the introduction of a set of period variables nullified the effect of density. While Studerellis argued that this evidence showed how density did not actually measure legitimacy, the preponderance of the evidence suggests that both period variables and density should both be significant predictors of organizational vital rates.

Disaggregating legitimacy from additional confounders

Finally, a diverse group of scholars has proposed an equally diverse set of alternative explanations for density dependence. In response to each, additional control variables have been added to future ecological models. Petersen and Koput (1991a) argued that an unobserved variable, namely organizational frailty, provides one plausible alternative to legitimacy in explaining why failure rates drop initially. They argued that inherently strong and inherently weak organizations tend to enter the population in a fixed proportion. Since weaker organizations leave the population at a higher rate, they argued, strong organizations would accumulate and thereby decrease the mortality rate. Hannan, Barron, and Carroll (1991) argued that this alternative was less plausible than density dependence theory since it could not also account for

density dependence in founding rates. They further argued that controlling for organizational age would capture the frailty dimension, since only strong organizations would get the chance to become old (an argument which partially satisfied Petersen and Koput 1991b).

Budros (1992) proposed that entrepreneurial spin-off processes provide another alternative explanation of density dependence. The spin-off thesis, originally proposed by Singh and Lumsden (1990), states that early-entry firms serve as a training ground for future entrepreneurs. These potential entrepreneurs later found their own organizations, which causes density to surge upward. Budros (1992) found that the density of large insurance carriers (a proxy measure for the size of the entrepreneurial pool) was a significant predictor of the founding rate. Since total density was also significant (but density squared was not), Budros concluded that legitimacy remained a factor, but in a linear rather that non-linear way. However, the spin-off thesis also suffers from the parsimony critique offered by Hannan, Barron, and Carroll (1991) with respect to the frailty thesis as spin-off processes account for density dependence in founding rates but not in failure rates.

Finally, Zucker (1989) argued that founding rates would naturally tend to rapidly rise among organizational forms predicated on a technological breakthrough. According to Zucker's logic, new organizational forms often follow in the wake of technological innovations. One would expect to see a spike in the founding rate as entrepreneurs rush to meet the newly-created demand. This type of gold-rush effect would tend to naturally subside as the demand was filled and one would expect the founding rate to return to its long-run, natural level. Recent ecological analyses have controlled for this type of effect by including the age of the organizational form itself as a control variable. This effectively controls for the time elapsed since the introduction of any innovation on which the form was predicated. While industry age was a significant predictor

in a recent study of the automobile industry, density remains significant as well (Hannan et al. 1998b).

An unresolved question

There is little question that the additional variables included in more recent ecological models substantially improve their rigor, yet the fundamental validity of interpreting density in terms of legitimacy remains unexamined. To see that this is the case, consider the line of argument used to justify the modeling advances detailed above. Implicit in the effort to disaggregate the legitimacy and competition effects is the following argument: *since* density measures both legitimacy and competition, *if* legitimacy and competition operate at differing geographic/niche levels *then* measuring density at multiple geographic/niche levels will disaggregate the effects of legitimacy and competition. A similar argument underlies the effort to disaggregate the multidimensionality of legitimacy itself, namely: *since* density measures legitimacy, *if* legitimacy exists in both constitutive and sociopolitical forms *then* introducing direct measures of sociopolitical legitimacy will make density a more clear measure of constitutive legitimacy alone. Again, with respect to addressing possible legitimacy confounders, the same logic appears: *since* density measures legitimacy, *if* density is also related to some additional factor *then* introducing additional variable(s) that measure this factor will make density a more clear measure of legitimacy. In each of these three lines of argument, however, the term *since* should actually be replaced by *if* because it is assumed rather than known that legitimacy derives from density (in fact, this is an assumption being made directly by Carroll and Hannan 1989a).

Subsequent research on the density-dependence model has provided necessary but not sufficient evidence for the assumed density-legitimacy link. Let us accept that organizational legitimacy is positively correlated with the founding rate and negatively correlated with the failure rate, which the preponderance of the evidence suggests is the case. Let us further accept that inter-organizational competition is negatively correlated with the founding rate and positively correlated with the failure rate, which evidence also strongly supports. Under these two conditions, as argued in the original model, if legitimacy increases (at a decreasing rate) and competition increases (at an increasing rate) with density then density must be nonlinearly related to the founding and failure rates. Inferences on legitimacy and competition can only be made from observations of density and vital rates, however, if the observed quadratic relationship between density and vital rates occurs *if and only if* the assumed density-legitimacy and density-competition relationships are true. By observing only the relationship between density and vital rates we cannot empirically distinguish between density having a mediated effect on vital rates (i.e. operating via its effect on constitutive legitimacy and diffuse competition) and density having an independent effect on vital rates (i.e. separate and in addition to the effect of constitutive legitimacy.

One of the long-standing challenges has been to find and incorporate direct measures of sociopolitical legitimacy (Baum and Powell 1995; Singh and Lumsden 1990; Zucker 1989). Organizational ecologists, while recognizing the potential value of such measures, have argued that they are impractical because they would necessarily be ad hoc and therefore lack cross-organizational-form generalizability (Carroll and Hannan 1989a; Carroll and Hannan 1989b; Carroll and Hannan 2000; Hannan and Carroll 1992). Even if we assume that a generalizable measure of constitutive legitimacy is impractical (an assumption with which Baum and Powell

1995 would strongly disagree), an ad hoc measure from even a single robust test case can yield valuable information on the plausibility of the assumed density-legitimacy link.

METHODS

The functional relationship between density and constitutive legitimacy is evaluated by using data on shopping centers in the United States. Shopping centers are defined by the commercial real estate industry as "a group of retail and other commercial establishments that is planned, developed, owned and managed as a single property" (International Council of Shopping Centers 2009).

There was a high degree of newness surrounding shopping centers as an organizational form in the early and middle 20th century United States. The central planning aspect was critical to this end, as it sharply distinguished shopping centers from other retail arrangements such as the central downtown business district and "miracle miles" lined with "lone-wolf" stores (Longstreth 1997). Shopping center owners and developers sought a level of retail integration and environmental control that simply had not been attempted before. The U.S. context is also an important contributor to the uniqueness of the form. Since shopping centers were first developed in the U.S. in the early 1920s, no other nation or region served as a precedent.

The lack of precedent is an important feature of shopping centers as it provides a simpler picture of the legitimacy building process. Organizational ecologists recognize that an organizational form's legitimacy can derive both from internal industry attributes and from the legitimacy levels of other similar industries (Dobrev, Ozdemir and Teo 2006). In situations where a new organizational form exhibits a high degree of continuity with another already-existing form, its legitimacy levels are likely to be highly dependent on this prior form. In

situations where such continuity is lacking, such as for shopping centers, we get a much clearer picture of the endogenous component of the legitimacy building process.

As with any organizational form, it is crucial to identify the period in the form's history where legitimacy building can be most clearly observed. The first modern shopping center (Country Club Plaza, Kansas City, MO) appeared in 1923. However, the onset of the Great Depression in 1929 and the subsequent U.S. entry into World War II effectively delayed the beginning of the diffusion process until the end of that war in 1945. Determining the close of the legitimacy building period is more difficult but no less important, as legitimacy is thought to be increasingly influenced by factors other than density once an organizational population becomes mature (Baum and Shipilov 2006; Carroll and Hannan 2000; Hannan 1997; Hannan et al. 1998b). Thus, it might be counterproductive to seek data on legitimacy levels past some maturation time point as the analysis of the density-legitimacy link might become overly confounded by unobserved heterogeneity. In the case of shopping centers, industry maturation appears to have occured in the middle 1970s, as evidenced by previous qualitative analyses of the industry (Author, Unpublished). For the present study, data were therefore sought for the years 1945-1975.

Density-legitimacy link hypotheses

Three specifications of the assumed density-legitimacy link, obtained directly from Carroll and Hannan (1989a), are tested in the present paper. The evaluation of each of the resulting hypotheses is accomplished by examining overall model fit statistics from non-linear regressions (see section on statistical methods below).

Power law hypothesis

The functional relationship assumed in Carroll and Hannan's (1989a) original statement of the density-dependence model is as follows:

$$L = N^{\alpha}, \tag{1}$$

where $0 < \alpha < 1$, L denotes an organizational form's legitimacy, N denotes the density of the organizational form, and α represents an elasticity-like parameter. Under the power law function (see **Figure 3.1**), there is no ceiling on legitimacy level. In subsequent work, the possibility that legitimacy might be determined by other variables in addition to density was accounted for (Hannan 1991).

INSERT FIGURE 3.1 HERE

Logistic cumulative density function hypothesis

The power law function places the greatest impact of density at very small population levels, which (Hannan 1991) argues is not necessarily the most sociologically plausible scenario. Functions were thus sought where legitimacy growth would occur primarily after some threshold density level had been achieved. One function that meets this specification is the logistic cumulative density function:

$$L = \frac{L^*}{1+\left(\frac{L^*}{L_0}-1\right)e^{-\alpha N}}, \tag{2}$$

where L^* represents the ceiling value for legitimacy, L_0 represents legitimacy at time 0, and L^*, L_0, and α are all hypothesized to be strictly greater than 0. Unlike the power law function, the logistic growth function has a ceiling (See again Figure 3.1).

Gompertz function hypothesis

Because the logistic function is, by definition, symmetric about the mean, Hannan (1991) also introduced the Gompertz function, which maintains the threshold effect but does not have a symmetry constraint. The function is as follows:

$$L = L^* e^{\left(\left[-\frac{\rho_0}{\alpha} e^{-\alpha N}\right]\right)}, \qquad (3)$$

where ρ_0 represents the legitimacy growth rate at time 0. The Gompertz growth function also has a legitimacy ceiling (See again Figure 3.1).

Dependent variable

The dependent variable used in the analyses was the z-score corresponding to the percentage of articles with a rating of "legitimate" published in a given periodical in a given year. The calculation of this dependent variable was based on an examination of 1,152 magazine articles relevant to the growth of the shopping center industry (see **Figure 3.2**). As described briefly in Chapter 2, articles were sought under both the "shopping centers" and "business districts" subject headings from 1945 to 1959 in the *Reader's Guide to Periodical Literature* (H. W. Wilson Co. 1945-1959) and from 1958 to 1976 in the *Business Periodicals Index* (H. W. Wilson Co. 1958-1976). As shown in **Figure 3.3**, the 1,152 articles were distributed across

multiple periodicals, though not in a uniform manner. Of the 1,152 articles, 337 contained content relevant to the present study. Articles solely containing accounts of new center construction (n=171) or of other topics not easily related to the concept of legitimacy (n=644; e.g., accounts of center renovations, engineering features such as truck delivery tunnels or heating and cooling systems, etc.) were excluded from the analysis.

INSERT FIGURE 3.2 HERE

INSERT FIGURE 3.3 HERE

Articles were initially rated on a three-level ordinal scale. Accounts of shopping centers where the article stressed the likely failure of the organizational form were scored as a rating of "illegitimate" (coded value = -1). Accounts where the future of shopping centers was presented in a more neutral or uncertain manner (e.g., debate articles where one side advocated the form while the other side denigrated it; articles explicitly stating that the future of the form was uncertain; articles discussing the uncertain outcome of retail competition between new shopping centers and established central business districts) were scored as a rating of "indeterminate legitimacy" (code value = 0). All remaining accounts, where shopping centers were presented as a viable and appealing retail organizational form, were scored as a rating of "legitimate" (coded value = 1).

The resulting three-level measure was then dichotomized as examinations of the timing and content of the subset of articles rating shopping centers as illegitimate were more accurately characterized as the hopeful reactions of central business district advocates during the era of downtown urban renewal rather than a more objective evaluation of the viability of the shopping center form (see again Chapter 2). All 337 articles rated on the original three-level scale were used in the construction of the dependent variable, with a value of 1 assigned to all articles rating

shopping centers as legitimate and a value of 0 assigned to the balance of articles (those that did not rate shopping centers as legitimate, regardless of how negative or neutral was the rhetorical position of the article).

The dependent variable used was based on the percentage of articles with a rating of "legitimate" that were published in a given year. Doing so adjusted for differences in the article publication frequencies between periodicals. As non-linear regression analysis is a basic extension of the Ordinary Least Squares regression procedure (see statistical methods section below), the resulting percentage was transformed into a z-score (using the standard normal distribution). This z-score was used as the dependent variable in each of the three analyses.

Independent variable

The sole independent variable used in the present analyses was the number of shopping centers per $10 billion in disposable consumer income. Raw counts of the number of shopping centers in the United States for 1923 to 2006 were obtained from annually published shopping center directories (National Research Bureau 1957-1976; 1977-1992; 1993-2006). Produced ostensibly as a market research tool for commercial realtors, these annual directories provided highly accurate data on the size of the shopping center industry in a given year. Each edition of the directory also contained information on the year in which each particular shopping center opened for business, allowing for an assessment of shopping center density in the years prior to the publication of the first directory volume (i.e., 1923 to 1957). The raw density count for 1923 to 2006 is shown in **Figure 3.4**.

INSERT FIGURE 3.4 HERE

The dependent variable was constructed by adjusting these raw counts for changes in the size of the consumer spending base and purchasing power using national-level data on population size (U.S. Department of Commerce [Bureau of the Census] 2010a), per capita disposable income (U.S. Department of Commerce [Bureau of the Census] 2010b), and the Consumer Price Index (U.S. Department of Labor [Bureau of Labor Statistics] 2011). Specifically, the dependent variable was calculated according to the following equation:

$$D_i^{adjusted} = D_i^{raw} / \frac{Pop_i * Inc_i * (CPI_{2010}/CPI_i)}{\$10{,}000{,}000{,}000}$$

where $D_i^{adjusted}$ denotes the adjusted density, D_i^{raw} denotes the raw shopping center count, Pop_i denotes the total population of the United States, Inc_i denotes per capita disposable income, CPI_i denotes the Consumer Price Index, and i denotes the year. As implied in the equation, the size of the consumer spending base is expressed in 2010 dollars. The graph for the number of shopping centers per $10 billion of disposable income is shown in **Figure 3.5** for 1929 to 2006 (adjusted density could not be calculated for 1923 to 1928 as data on disposable income and inflation were not available).

INSERT FIGURE 3.5 HERE

In order to explore the causal ordering of the density-legitimacy relationship, lagged values of the independent variable were also calculated. Examinations of the shopping center development literature suggested that a maximum lag of ten years was appropriate. However, due to uncertainty regarding the causal ordering between the dependent and independent variables, both positive and negative lags were required. Accordingly, the series of lagged

independent variables ranged from density ten years prior to the year of interest (lag = 10) to ten years subsequent to the year of interest (lag = -10).

Statistical methods

The power law, logistic, and Gompertz functions presented above were each tested using the non-linear regression module in SPSS 18.0, using transformations of the independent variable (adjusted density) according to the corresponding hypothesized function. For each of the regressions, as specified in the functional hypotheses of Hannan (1991), no intercept was included in the model. For the power law hypothesis, the following model was fit:

$$z_{p,0,1} = D^{\alpha},$$

where $z_{p,0,1}$ denotes the z-transformation of the proportion (p) of articles with a rating of "legitimate" in a given periodical in a given year (with the 0 and 1 denoting that the standard normal distribution was used for this transformation), D denotes the number of shopping centers per $10 billion of disposable income, and α denotes the slope parameter of the power law function. For the power law, α was constrained to be between 0 and 1, with the final value for α being determined iteratively such that the maximum level of model fit was obtained.

For the logistic hypothesis, the following model was fit:

$$z_{p,0,1} = \frac{L^*}{(1+(\frac{L^*}{L_0}-1)e^{-\alpha D})},$$

where L^* denotes the maximum attainable legitimacy level, L_0 denotes the legitimacy level at time zero, α denotes the logistic function spread parameter, with the remaining equation elements having the same interpretation as before. According to the logistic hypothesis, for L^* and L_0 are both constrained to be greater than zero. The values for L^* and L_0 were determined by the limits of the legitimacy measure utilized (i.e., $L^* = 1$, $L_0 = .01$). As with the power law function, the spread parameter α was determined iteratively such that the maximum level of model fit was obtained, but only constrained to be greater than 0.

For the Gompertz hypothesis, the following model was fit:

$$z_{p,0,1} = L^* * e^{\left(\left[-\frac{\rho_0}{\alpha}e^{-\alpha D}\right]\right)},$$

where ρ_0 denotes the legitimacy growth rate at time zero and α denotes the spread parameter for the Gompertz function, with the remaining equation elements having the same meaning as before. L^*, ρ_0, and α were each constrained to be greater than 0. As before, L^* was set to a value of 1. While ideally both ρ_0 and α would be determined iteratively in the regression calculations, the regression estimates of ρ_0 failed to converge. The value of ρ_0 was therefore fixed at 3 for the final model (the value being determined through manual iterations of the regression procedure such that the level of model fit was maximized).

RESULTS

As shown in Figure 3.2, the number of articles pertaining to shopping centers has risen more or less linearly over the study period of 1945 to 1976. Only two articles were published in 1945. By 1952 however, publications on shopping centers began to consistently exceed one

article per month. By 1976, 75 articles were being published per year. In terms of article content, Figure 3.2 shows that after about 1950 ratings of shopping center legitimacy were regularly available. The number of articles with legitimacy-relevant content remained relatively stable from 1950 to 1976, with an average of about 12.3 such articles per year over the period. The highest number of legitimacy related articles appeared in 1968 and 1972 (20 each). Figure 3.2 also shows that the number of articles focusing on descriptions of new centers also remained fairly stable, with an average of almost six such articles per year over the 1950 -1976 period. The steady growth of articles with other types of content, however, shows that the relative attention given to new centers and to the shopping center legitimacy question steadily declined as the industry matured.

As shown in Figure 3.3 and briefly noted above, the 337 articles with legitimacy-relevant content were well-distributed across periodicals. This type of content distribution is important, as it helps to limit the influence of any single periodical and hence any potential biases that may be introduced due to editorial policies. For example, *Stores* magazine more frequently examined shopping centers from the viewpoint of established downtown businesses and hence less frequently acknowledged the legitimacy of shopping centers. In contrast, *Chain Store Age* magazine focused more narrowly on the chain merchant sector (who were more focused on rapid expansion than on stability during this period) and were consistently more favorable in their views regarding shopping centers. As shown in Figure 3.3, with the exception of 1945 (when only one periodical addresses the shopping center legitimacy question) legitimacy ratings were obtained from between 3 (in 1948) and 18 (in 1972) separate periodicals. Between 1950 and 1976, the number of periodicals addressing the topic of shopping center legitimacy averaged

nearly 12 per year (and remaining stably above 10 per year from the entire 1958-1976 portion of the study period).

As shown in Figure 3.4, the raw count of the number of shopping centers in the United States rose dramatically over the 1923-2006 period. Most relevant to the present study, however, is the growth in the number of shopping centers between 1945 (when n=23) and 1976 (when n=18,540). Growth in the raw number of shopping centers remained quite low until the end of the 1950s, after which it grew in a more or less linear fashion up to 1976 and on through 2006. The growth in the number of shopping centers per $10 billion in disposable income, however, was much less linear (see Figure 3.5). In fact, as already shown in Chapter 2, the growth curve for the adjusted density measure was approximately logistic in shape. In 1945, there were only about 0.13 shopping centers for every $10 billion of disposable income. By 1976 this relative density had grown to about 40.32. Over the entire 1923-2006 period, the maximum number of shopping centers per $10 billion in disposable income was 48.0 (occurring in 1997).

Figure 3.6, based on the original three-level measure of legitimacy described earlier, provides the first glimpse of legitimacy growth between 1945 and 1976. As noted before, there were remarkably few articles where shopping centers were rated as fully illegitimate. The step function shown as part of Figure 3.6 (included for illustrative purposes only) shows that the percentage of articles indicating full shopping center legitimacy grew primarily over the 1950-1960 period. The very conservative estimate represented by this step function indicates that shopping centers had achieved a 75% legitimacy level by the end of the study period (1976). This figure provides an early quantitative indication that shopping center legitimacy growth preceded density growth (the hypothesis presented in Chapter 2) rather than the reverse (the hypothesis presented by Hannan 1991).

INSERT FIGURE 3.6 HERE

The empirical pattern shown in Figure 3.6 is mirrored closely in **Figure 3.7**, the graph of the mean percentage of articles with a rating of "legitimate" in a given periodical in a given year (i.e. the mean of the values used as the dependent variable prior to their conversion to z-scores). As in Figure 3.6, a step function is included for illustrative purposes. Figure 3.7 continues to show that first substantial growth in shopping center legitimacy occurred in the 1950-1960 period.

INSERT FIGURE 3.7 HERE

In order to more thoroughly examine the causal ordering of legitimacy and density, the series of lagged independent variables was examined using non-linear regression, as described in the methods section. The levels of model fit (assessed using the *R-squared* statistic) by degree of lag for the power law, logistic, and Gompertz hypotheses are reported in **Figure 3.8**. In interpreting this figure, it is important to keep in mind that for all three functions the corresponding line is only a select subset of a two-parameter (power law and logistic) or three-parameter (Gompertz) surface as the degree of lag, α parameter, and ρ_0 parameter (Gompertz only) were all allowed to vary while seeking the maximum level of model fit.

INSERT FIGURE 3.8 HERE

The maximum model fit (R^2=0.073) was achieved for the power law specification with α = 0.043 (95% CI: 0.32, 0.54) and a lag of -1 (i.e., predicting legitimacy in year *i* using density in year *i*+1). The maximum model fit was slightly lower for the logistic specification (R^2=0.065), which was achieved with α = 0.94 (CI: -0.28, 2.16) and a lag of 2 (i.e., predicting legitimacy in year *i* using density in year *i*-2). As mentioned above, the regression had difficulty converging when the Gompertz transformation of density was used as the independent variable. For this

model, the maximum level of fit (R^2=0.060), achieved with α = 0.486 (CI: 0.96, 0.877), a lag of 2, and ρ_0 = 3.0. The maximum level of model fit was obtained under the power law specification, though the level of model fit was low under all three models.

DISCUSSION AND CONCLUSION

Two main conclusions can be drawn from the regressions of shopping center legitimacy on shopping center density. First, the highest level of model fit was achieved with the power law function when legitimacy in year *i* was modeled as a function of density in year *i*+1, indicating that changes in legitimacy lead to changes in density rather than vice versa. This finding is consistent with the qualitative examinations of the density-legitimacy link reported in Chapter 2. With respect to organizational theory, this pattern is supportive of the New Institutional Sociology conceptualization of legitimacy and is not supportive of the Organizational Ecology viewpoint. In particular, the arguments made by Hannan (1991) with respect to causal ordering and the most likely functional form of the density-legitimacy relationship were not supported. The findings of the present study suggest that the simplest conceptualization of the functional relationship (i.e., the power law model) fits the data better than the logistic or Gompertz models.

The second major conclusion that can be drawn from the regression results is that density growth processes are surprisingly independent of population-level legitimacy. The level of model fit peaked at R^2=0.073, a level of model fit that is extremely poor. This low level of fit was not due to a high degree of randomness in the density variable, which was instead quite non-random in its shape (see again Figure 3.5 and Chapter 2). The approximately logistic shape of the graph for the number of shopping centers per $10 billion disposable income suggests that one could successfully build a multivariate model for density growth, but the major factors comprising this

model would not likely include legitimacy. This finding runs counter to the predictions of both New Institutional Sociology and Organizational Ecology, which predict that resource availability is tied to population-level legitimation processes. While further tests of this hypothesis will be performed in the next chapter (an analysis of the spread of enclosed malls), the results from the present chapter suggest that legitimacy may not be a significant factor.

The use of alternative measures of legitimacy, such as simple counts of the number of articles on shopping centers in a given year (see Baum and Oliver 1996; Baum and Powell 1995), would not likely change these results. As Figure 3.2 shows, the volume of business press coverage of shopping centers grew quite linearly while Figure 3.5 shows that adjusted density grew logistically. The lack of a relationship between press coverage volume and legitimacy is further in evidence when one considers that the number of articles from which a legitimacy rating could be gleaned remained relatively constant, especially post 1965. The degree to which shopping center legitimacy was a topic of interest to the business community did not follow the level of interest in shopping centers more generally. It is much more likely that the volume of business press coverage simply reflects the trend in raw density as greater numbers of this type of organizational form would warrant greater amounts of coverage.

There are important limitations to the conclusions drawn in the present study. The first of these concerns the effects of site selection bias. As both Rogers (2003) and Denrell and Kovacs (2008) argue, it is primarily "successful" innovations that are the focus of analyses. Specifically, Denrell and Kovacs argue that large organizational populations are rare and therefore perhaps not representative of general organizational phenomena. Given this, it may be more appropriate to examine the relationship between levels of illegitimacy and population-level organizational failure than to examine legitimacy levels in a large population that almost by definition will have

achieved a high level of legitimacy. In other words, any measure of legitimacy is likely to lack variability (even on a year to year basis) if the focus of one's study is an organizational form that has already proven to be viable.

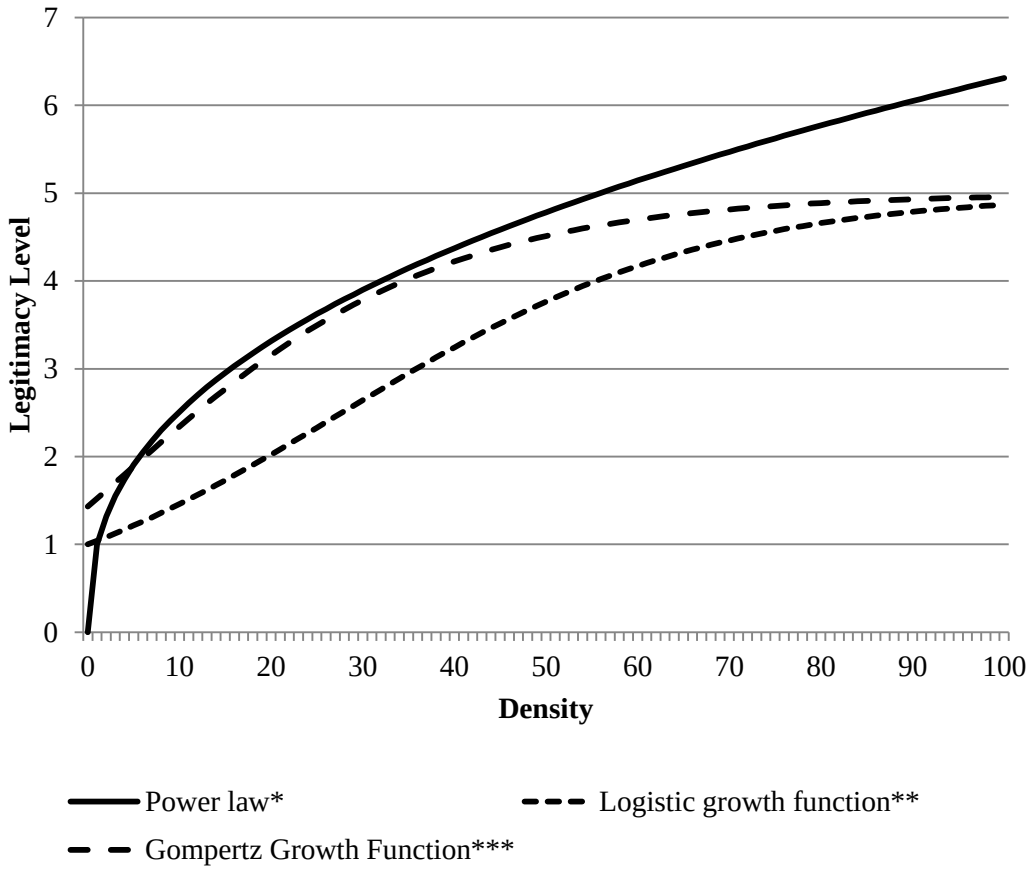
The second limitation concerns the inability to test the most current density hypotheses from the Organizational Ecology literature. Unlike previous formulations of the constitutive legitimacy concept, the most recent version (Hannan, Polos and Carroll 2007) lacks a prescriptive component and the role of density is substantially reduced. It details the process by which actors determine what *could* be done but does not detail how actors prescribe what *should* be done. In the new formulation of OE theory, each organization is thought of as a set of features. The greater the distinctiveness of the set of overlapped features among a group of organizations (i.e. contrast), and the greater the number of organizations within a group (i.e. density), the more likely it is that an audience will create a tentative label for the group of organizations (i.e. extensional labeling). Extensional labeling can occur even when there are relatively few organizations in the group if the set of organizational features is highly distinct. When the set of features is not so highly distinct, extensional labeling can still be triggered once density has risen sufficiently.

Once extensional labeling has happened, the audience will seek consensus on the meaning of the label (i.e. intensional labeling). In other words, the audience will determine what features must necessarily coincide with the label (i.e. its schema). Constitutive legitimacy increases as the label and its associated schema become more taken-for-granted (i.e. the mere use of a label increasingly induces audience members to make conclusions about what the organization's features are with little or no further investigation). These latter stages –

intensional labeling and constitutive legitimacy – are dependent solely on the degree of contrast exhibited by a set of organizations, rather than on density.

According to this revised model, density will predict the acceptance of the shopping center label but nothing further. While this model is not tested in the present study, the data suggest that the density-labeling relationship is likely to be weak. Recall that in 1945, there were only 23 shopping centers in the United States. This level of density should have rendered shopping centers nearly invisible to the business community. However, the *Reader's Guide to Periodical Literature* included a heading for shopping centers in every volume published after 1934. It is therefore relatively clear that a generally-accepted label for an organizational form can be instituted long before density has risen. While labeling certainly cannot take place before the first member of an organizational population has emerged, labeling processes would appear to depend upon factors other than density.

Figure 3.1. Legitimacy as a function of density according to the power law, logistic growth, and Gompertz growth functions



* $L = N^{\alpha}$, with α = 0.40 for illustrative purposes

** $L = \frac{L^*}{1+\left[\left(\frac{L^*}{L_0}-1\right)e^{(-\alpha N)}\right]}$, with L_0 = 1, L^* = 5, and α = 0.05 for illustrative purposes

*** $L = L^* e^{\left[-\frac{\rho_0}{\alpha}e^{(-\alpha N)}\right]}$, with L^* = 5, ρ_0 = 0.0625, and α = 0.05 for illustrative purposes

Figure 3.2. Business press coverage of shopping centers by year (n=1,152 articles)

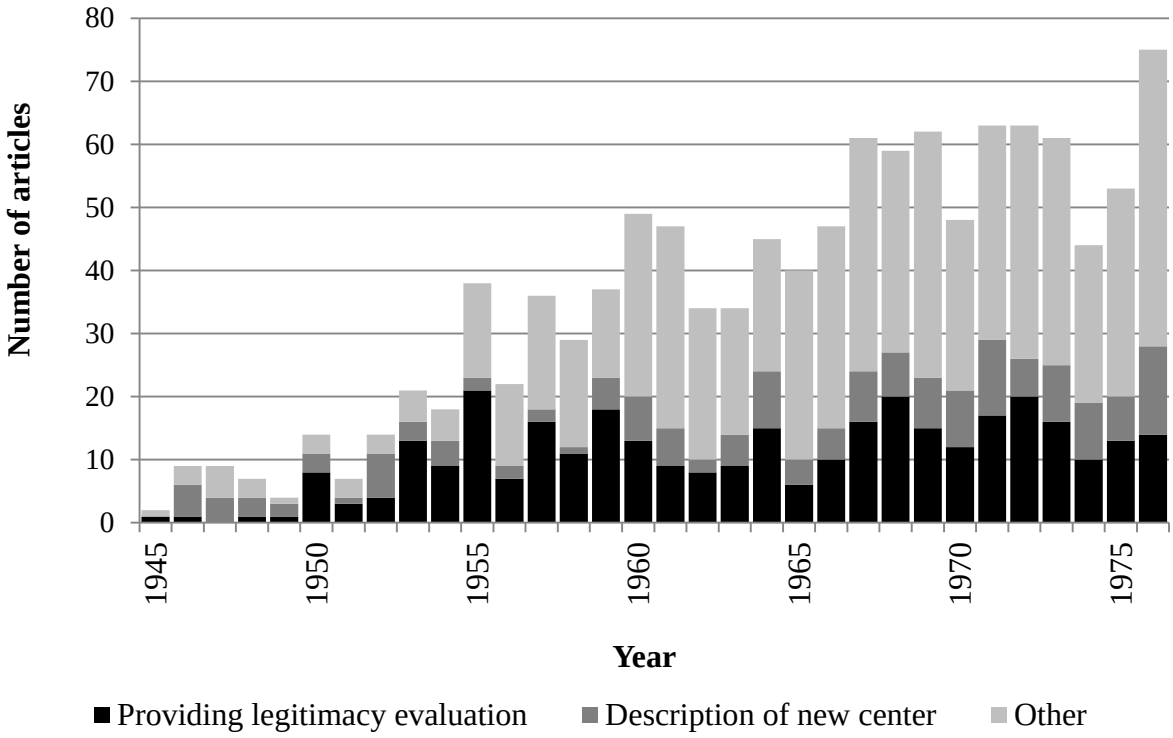


Figure 3.3. Number of periodicals with any coverage of shopping centers, by year (n=340 periodical-years)

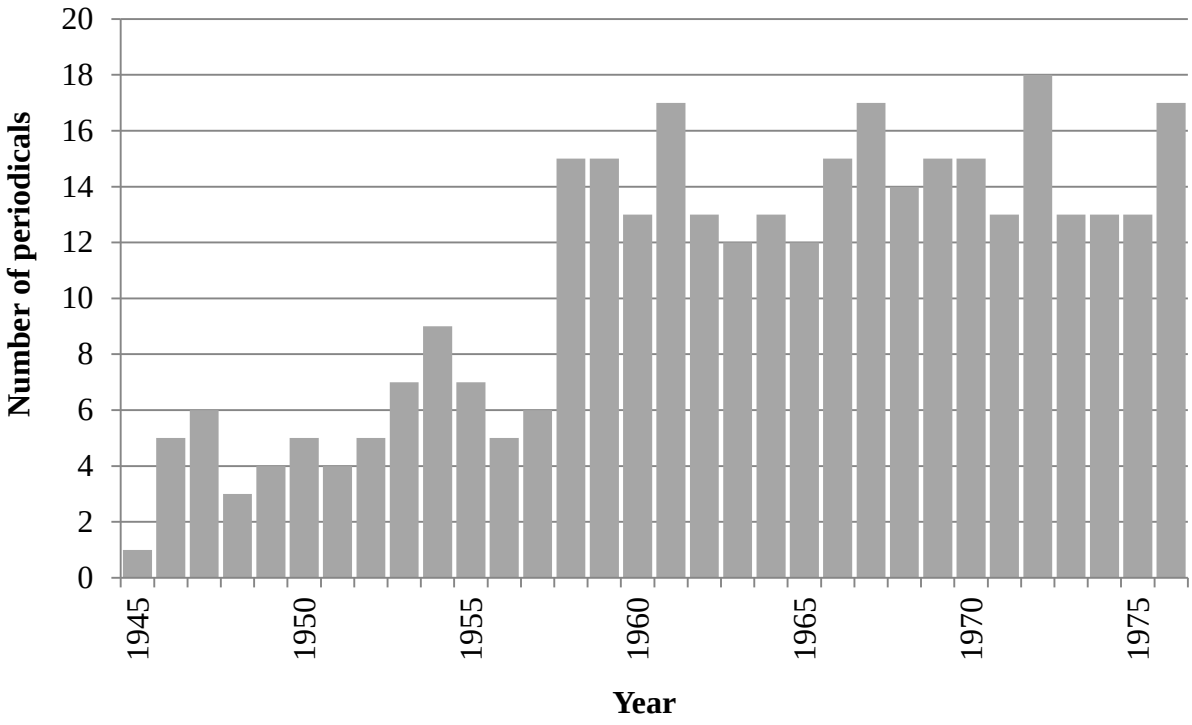


Figure 3.4. Raw count of the number of shopping centers in the United States, 1923-2006

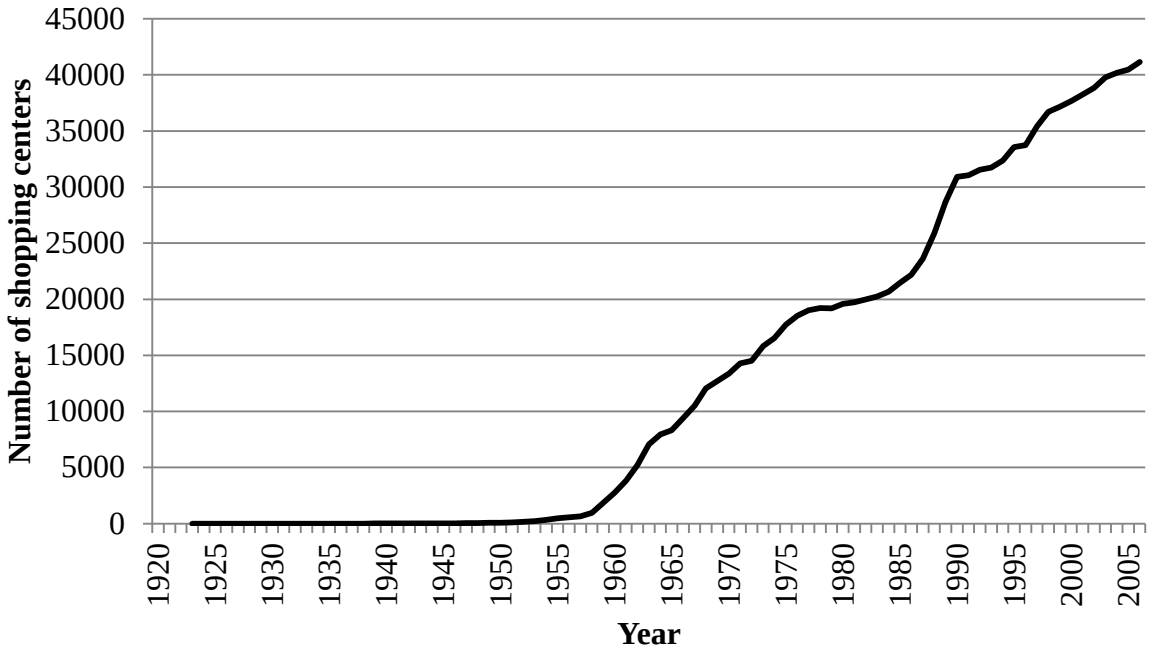


Figure 3.5. Number of shopping centers per $10 billion disposable income in the U.S. (inflation-adjusted), 1929-2006

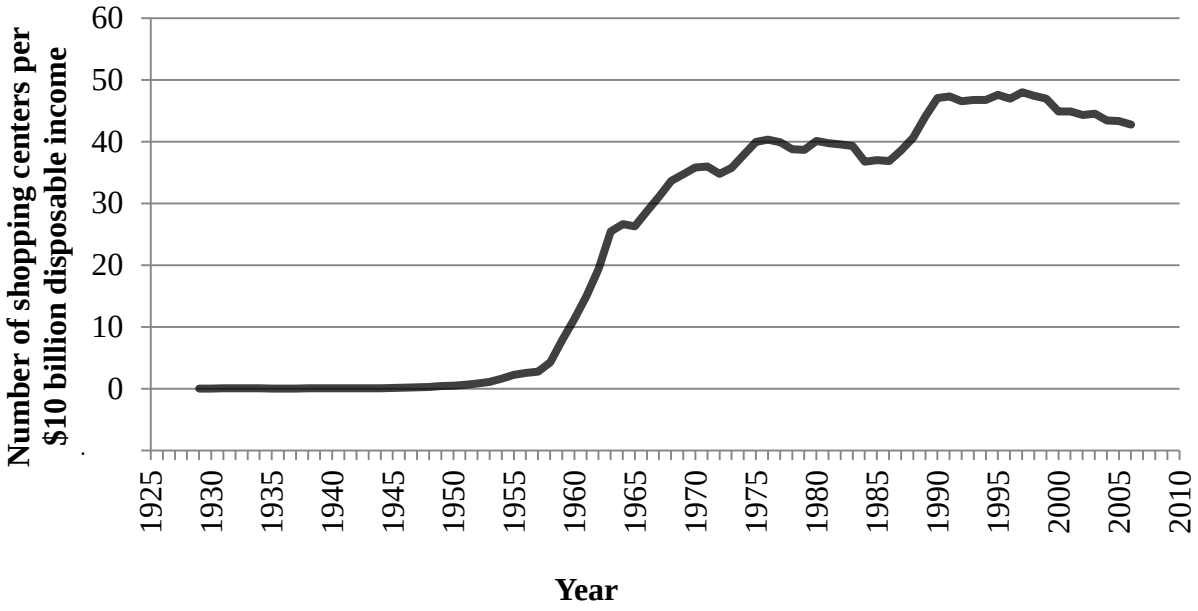


Figure 3.6. Article-level legitimacy rating (n=337 articles with rating) by year

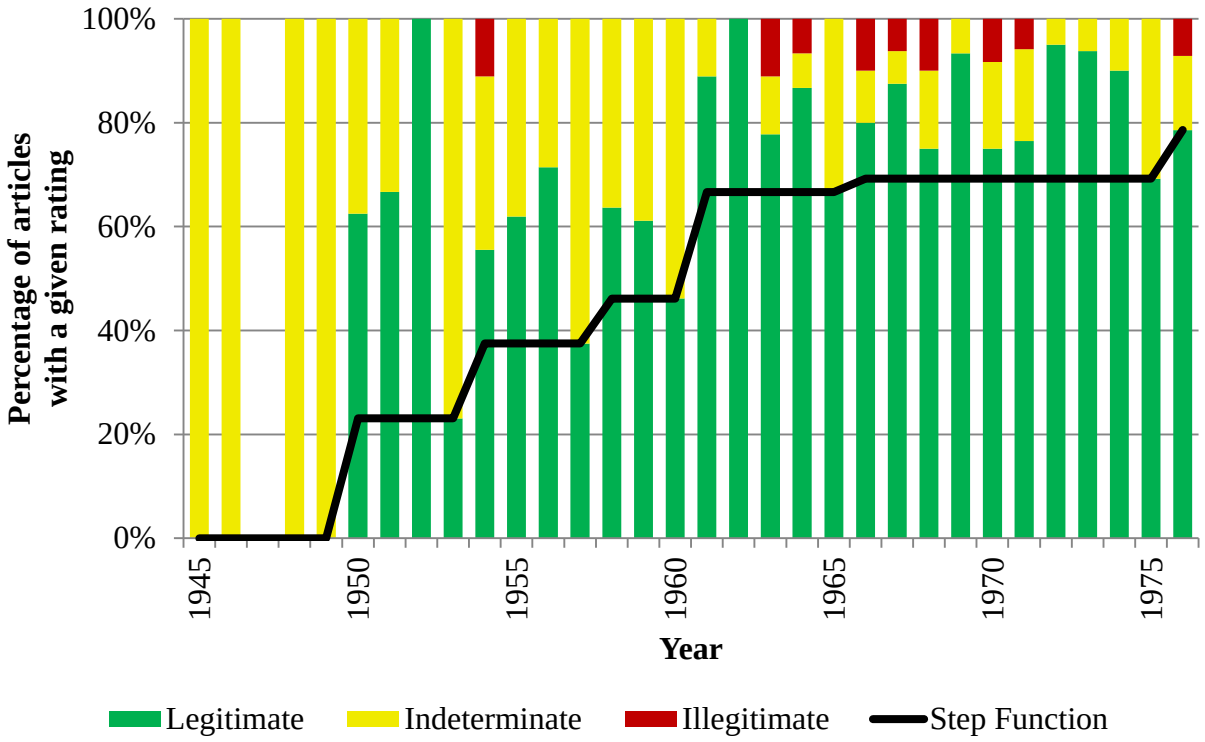


Figure 3.7. Mean periodical-level legitimacy score by year (n=160 periodical-years)

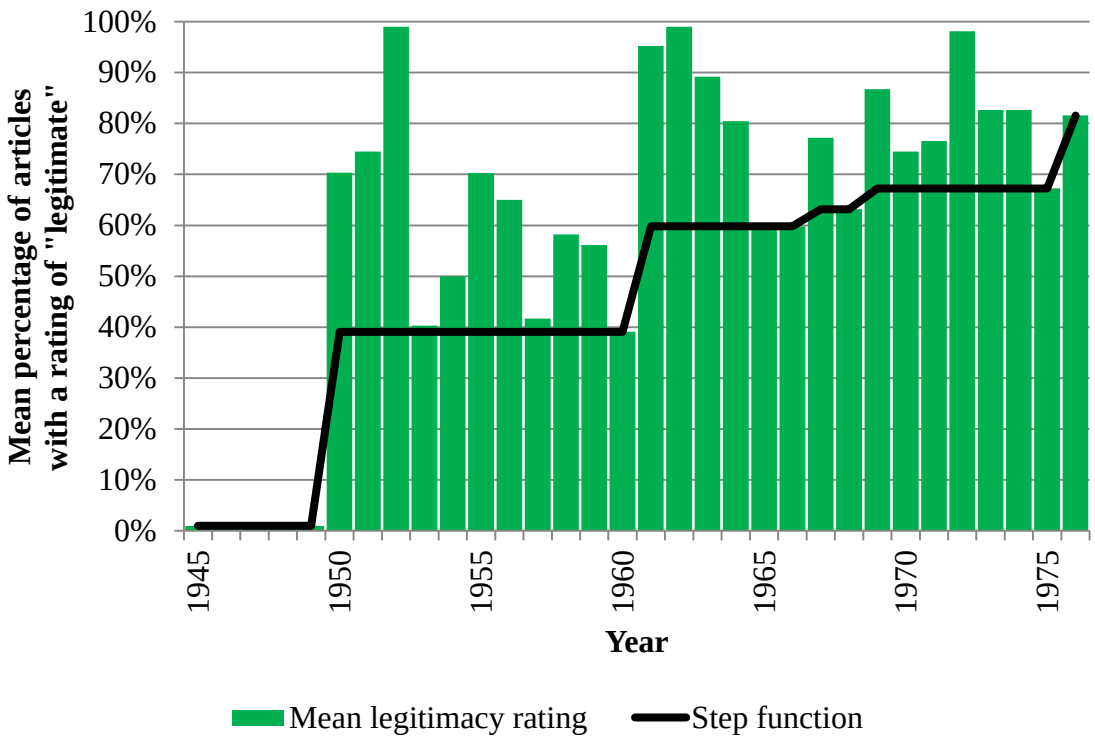
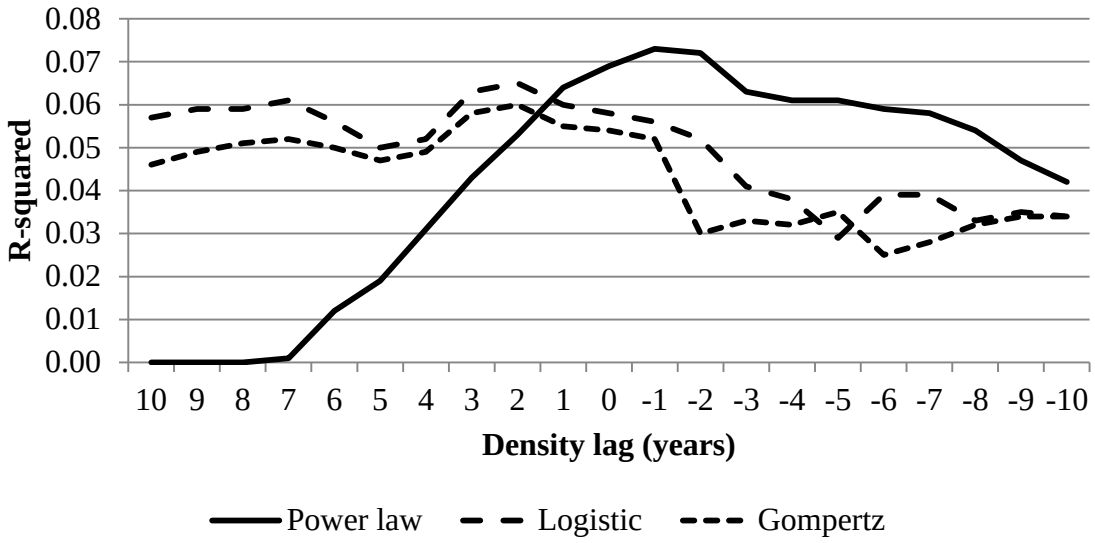


Figure 3.8. Model fit by degree of lag, periodical-level non-linear regression analyses



Chapter 4: Unlikely locations - enclosed malls, small markets, and civic prestige

Southpark Mall, located in the county seat of Clay County in Iowa, has been in continuous operation since 1980. With 222,307 square feet of retail space, Southpark Mall is slightly larger than the typical community shopping center, and in theory requires a supporting population of approximately 80,000 (i.e., between 2.5 and 3.0 square feet per capita; see Beyard, O'Mara and others 1999). The population of Clay County, however, is less than 20,000 people.

The published industry guidelines for the development of shopping centers, which include enclosed malls, are straightforward: one determines project feasibility by determining the size of the proposed center's trade area and examine population size, purchasing power, the magnitude of retail competition, and site availability within that area (Beyard, O'Mara and others 1999). Conspicuously absent from these guidelines is any acknowledgement of the social processes underlying the selection of potential sites or any discussion of the intangible factors that might convince a mall developer to discount or entirely ignore one or more of the core feasibility criteria. Given what is known about the frequent disjunction between prose and practice in the business sector (Meyer and Rowan 1977), there are likely substantial deviations from the above shopping center development guidelines.

In the present study, I examine the role of market-area demand measures and measures of national-level shopping center trends in the diffusion of enclosed shopping malls in the United States from 1945 to 2009. The variables assessed include both the objective factors focused upon by mall developers when evaluating project feasibility (see above) and the industry-level factors that are the focus of Organizational Ecology and New Institutional Sociology.

LITERATURE REVIEW

Existing studies of shopping center and enclosed mall diffusion

Despite the importance of the retailing sector to the U.S. economy, little is known about the longitudinal process by which the enclosed mall spread throughout the United States. Exceptions exist of course, and one line of research has focused on the diffusion of enclosed malls from a rational-decision-making perspective. Cohen's (1972) study of the diffusion of planned regional shopping centers, for example, showed that the size of a city's population was the factor that best predicted how soon a large shopping center was built. Counter to conventional wisdom however, Cohen also found that rapidly growing cities did not receive large shopping centers sooner than more slowly growing cities and that the highest shopping center size to population ratios were observed in the smaller cities. Longstreth's (1997) historical study of the evolution of the retail sector in Los Angeles focused on path dependency factors, and concluded that enclosed malls were a natural outgrowth of suburban population trends and decades-long retail experimentation. In this view, the arrival of the enclosed mall was viewed as an almost entirely endogenous process (to the point where Longstreth does not acknowledge that the enclosed mall was pioneered in MN rather than in CA) that unfolded as retailers sought to retain locations in close proximity to the migrating middle-class residential neighborhoods.

A second line of research has approached the diffusion of enclosed malls from a contagion perspective. Steinnes' (1982) work challenges the idea that mall developers simply followed suburban population trends, finding support instead for the idea that it was the development of enclosed malls and other businesses at the rural fringes of major cities that drove the population shift. This finding suggests the possibility that local economic conditions became

a secondary factor to national contagion effects at some point in the mall diffusion process. The idea that mall diffusion transitioned into a contagion process is echoed in the work of Kowinski (1985) and Pahl (2003). Pahl suggests that the pursuit of civic prestige (i.e., the idea that a city would not be considered a "real city" if it did not have an enclosed mall) was a major factor driving the diffusion of enclosed malls to small towns and cities.

Both Organizational Ecology and New Institutional Sociology theories can also be fruitfully applied to the study of the diffusion of the enclosed shopping mall, as both are concerned with the growth and spread of new organizational forms. In fact, one of the most robust of all Organizational Ecology findings is that the number of organizations of a given form in existence at a particular point in time exerts a non-linear effect on the entry rate of additional organizations of the same type (see Baum and Shipilov 2006; Carroll and Hannan 1989a; Carroll and Hannan 2000; Hannan and Carroll 1992; Hannan and Freeman 1989). Specifically, analyses have shown that the organizational entry rate tends to rise when density remains low but falls as density becomes high. Ecological analyses have also explored the effect of the densities of alternative forms, such as Barnett and Carroll's (1987) analysis of two competing forms of telephone exchanges; Dobrev, Ozdemir, and Teo's (2006) study of financial cooperatives and commercial banks in Singapore; and Barron, West, and Hannan's (1994) analysis of the effect of the size of the banking sector on the dynamics of the credit union sector in New York City. These latter studies have found that the densities of two or more closely-related competing innovation are *positively* correlated when each type has a low density, before assuming the more typical competitive relationship at higher density levels. Accordingly, the present study seeks to include measures of organizational density (both for enclosed malls and for competing shopping center types) in the analysis.

As already discussed in detail in Chapters 2 and 3, New Institutional Sociologists argue that an industry's legitimacy level is a key predictor of resource access and therefore founding rates. Similar to the "Malling of America" perspective of Kowinski (1985) and Steinnes (1982) reviewed above, New Institutional Sociology can be used to understand the non-rational, isomorphic elements of the enclosed mall diffusion process. The legitimacy level of enclosed malls, in this view, would be tightly coupled to the rate with which they would spread through the United States. Potentially, all three types of isomorphism described by DiMaggio and Powell (1983) may have operated in the case of enclosed malls. There was a high degree of uncertainty regarding the shopping center and enclosed mall in the years immediately following their introduction (see Chain Store Age Staff Writer 1961b; Van Leuven 1969), suggesting that mimetic isomorphism would have operated most strongly during the early years. Once established however, the popularity of enclosed malls among retail developers would have signaled the potential presence of normative isomorphism. The heightened popularity of enclosed malls in the mid-1970s may have even resulted in coercive isomorphism, with lenders and other development gatekeepers refusing to provide key resources unless the retail development was a shopping center of some type (e.g., refusing to lend money for a traditional downtown store).

The present study

In the brief review of the literature above, a substantial number of hypotheses have been laid out, which I now state more formally:

Hypothesis 1A (proposed by Beyard, O'Mara and others 1999; Cohen 1972): population size will be positively associated with the relative mall hazard.

Hypothesis 1B (proposed by Pahl 2003): population size will not be a significant predictor of the relative mall hazard due to the large numbers of small markets that will have pursued enclosed mall development as a matter of civic prestige.

Hypothesis 1C (proposed by Cohen 1972): the population growth rate will not be associated with the relative mall hazard.

Hypothesis 2 (proposed by Beyard, O'Mara and others 1999): income and wealth levels will be positively associated with the relative mall hazard

Hypothesis 3A (proposed by Beyard, O'Mara and others 1999): the magnitude of retail competition will be negatively associated with the relative mall hazard.

Hypothesis 3B (proposed by Carroll and Hannan 1989a): enclosed mall density will be non-linearly associated with the relative mall hazard, with the coefficient of the main effect being positive and the coefficient for squared density being negative.

Hypothesis 3C (proposed by Barnett and Carroll 1987): non-enclosed shopping center density will be non-linearly associated with the relative mall hazard, with the coefficient of the main effect being positive and the coefficient for squared density being negative.

Hypothesis 4 (proposed by Beyard, O'Mara and others 1999): locations that are over-crowded, and therefore likely lack suitable building sites, will have a lower relative mall hazard.

Hypothesis 5A (proposed by DiMaggio and Powell 1983): enclosed mall legitimacy will be positively associated with the relative mall hazard.

Hypothesis 5B (proposed by Longstreth 1997): national shopping center trends will not impact local mall development.

Hypothesis 5C (proposed by Steinnes 1982): there exists some point in the mall diffusion process where national-level factors become more powerful predictors of the relative mall hazard than do local market-area factors.

The present study examines the diffusion of enclosed shopping malls in the United States from 1945 to 2009. The hypotheses listed above are each evaluated using Cox Regression, along with other county-level, state-level, and national-level covariates common to Organizational Ecology analyses. The large number of malls built in small markets like Clay County, IA (and the timing of their emergence) suggests that the size of the consumer spending base became decoupled from development decisions during the mall building boom of the 1970s. The findings also suggest that shopping center industry legitimacy had an impact on state-level resource availability, but did not affect local mall development decision. The results also show the importance of measuring population and income factors at the market-area level, with biases caused by over-aggregation arising if a more conventional geographic level of analysis would have been chosen.

METHODS

Unit of analysis

Event history techniques require that one be able to define a population that is at-risk for an event. Organization Ecologists normally analyze the amount of time elapsed between organizational entries (i.e. inter-arrival times) into some geographic space, usually a nation-state (Hannan and Freeman 1977). They do so based on the premise that it is not possible to define an at-risk population without posterior knowledge of where events will take place. One of the major advantages of the study of enclosed malls, however, is that it is possible to define an at-risk population. Unlike most organizational forms, the physical location and market area of a mall are tightly coupled and the sizes of market areas are quite homogeneous. According to Koppelman (2008), the primary market area for an enclosed mall has a radius of approximately 10 miles (corresponding to an area of about 300 square miles) and the secondary market area has a radius of approximately 20 miles (corresponding to an area of about 1300 square miles). In terms of surface area, counties are approximately the same size: among the 3,142 counties in the United States, the average area is 1,184 square miles and 75% of all counties have areas that fall between 300 and 1300 square miles. It is therefore reasonable to divide the U.S. into 3,142 mutually exclusive and exhaustive market areas in which one or more enclosed malls could be built. Thus, counties serve as the primary unit-of-analysis for the present study, although states are also used as a unit-of-analysis as will be described later in this section.

Dependent variable

The dependent variable used in the analyses is the time elapsed since the previous opening of an enclosed mall in the geographic unit (i.e., county or state). Listings of enclosed

malls, and the year in which each opened, were extracted from shopping center directories compiled by the National Research Bureau (1957-1976; 1977-1992; 1993-2006) and by CoStar Group (2009). Each volume of these shopping center directories contains detailed information on each center's location, date of opening, layout, tenants, and key personnel (e.g., owner, manager, leasing agent). With the exception of the 2009 volume however, the data that could be extracted was limited due to the absence of electronic versions of the directories. The identification of enclosed malls was based on indexes which were provided only for the years 1961, 1962, 1973, 1974, 1975, 1978, 1980, 1981, 1983, and 2009. Every effort was made to track mall name changes in order to avoid duplication.

The initial listing included 4,622 malls, 1,345 of which underwent one or more name changes during their history. Information on the name of each enclosed mall in operation as of January 2009, its location, and the date of opening were obtained from the 2009 CoStar Group directory. The corresponding information for each mall no longer in operation was manually extracted from the 1957-2006 National Research Bureau directories. The year in which each of the 4,622 malls was first and last listed in the shopping center directories was also tracked.

Data on the date of opening was adjusted in cases where it was deemed likely that an existing structure had been converted to a shopping center at a later date. The date of opening listed in the directories was replaced by the year of first listing if a) the date of opening was prior to 1923 (the year in which the first shopping center opened) or b) the date of opening was between 1923 and 1956 (the beginning of data collection for the directories) but the shopping center failed to enter the directories until after 1965 (the situation that characterizes the conversion of historic properties such as Boston's *Faneuil Hall* and New York City's *South Street Seaport*). The date of opening (note that this is not the same as the date a shopping center

opened as an enclosed mall; see below) was missing altogether for 647 malls, in which case the date of opening was assumed to be the same as the year in which the mall was first listed (the Pearson correlation between date of opening and year of first listing was 0.784 for the subset of malls where both variables were obtained directly from the directories).

Following the appearance of the first enclosed shopping mall in 1956, the format quickly grew in popularity. As a result, many existing, non-enclosed shopping centers choose to incorporate the enclosed mall feature during a later remodeling (Chain Store Age Staff Writer 1964b; 1965c; 1974; 1976a; 1976b). As a result, an effort was made to identify the year in which the enclosed mall feature of each shopping center was constructed. For listings where the date of opening occurred after 1956 (the year in which the first enclosed mall opened), the shopping center was assumed to have included an enclosed mall from the date of opening. Likewise, cases where a historic property was converted to a shopping center at a later date were assumed to have included an enclosed mall from the time of this conversion. Listings where the date of opening occurred prior to 1956 were assumed to have been enclosed during remodeling. Where possible, the date at which this remodeling occurred was obtained from industry accounts of the phenomenon (n=15). For all remaining cases where remodeling was assumed (n=73), the date of enclosure was estimated by adding 13 years to the date of opening (the mean time to enclosure remodeling from the 15 cases where both the date of opening and the date of remodeling was known).

Because the shopping center directories were produced and sold as a commercial real estate sales and leasing tool, and because leasing agreements often had to be secured before construction financing could be obtained, the directories contain listings for proposed or planned centers in addition to those already in operation. In order to exclude from the analysis enclosed

malls that were never opened for operation, the total number of years a mall was listed was examined. Any enclosed mall that was listed for fewer than 10 years was assumed to have never advanced past the planning stage (645 of the 4,622 malls identified). Data corresponding to 3,977 enclosed malls was used in the analysis.

The time elapsed since the previous opening of an enclosed mall was calculated at the county, state, region, and national levels. For the first mall in each respective geographic unit, the time elapsed was computed as the number of years between 1945 and the year of enclosure. In cases where more than one enclosed mall was constructed in a given year in the same geographic unit, mall enclosure times were assumed to be uniformly distributed throughout the year. For example, if three malls were built in the same county in 1975 (with the previous mall in the county having been built in 1972), one of the three malls was assigned a survival duration of 2.33 years and the remaining two were assigned a survival duration of 0.33 years each.

Independent variables

Each mall was assigned to one of four regions based on its reported geographic location, using the region classifications employed by the National Research Bureau in its 2006 directory. The East region consists of Connecticut, Delaware, the District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia, and West Virginia. The Midwest region consists of Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. The South region consists of Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, and Texas. The West region

consists of Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

County-level and state-level data on land area, population size, racial composition, urban/rural distribution, median age, graduation rates, total assets, median household income, and number of business establishments (farms, manufacturers, wholesalers, service businesses, and retailers) was obtained from the U.S. Census Bureau's City and County Data Books, which were produced in 1947, 1949, 1952, 1956, 1962, 1967, 1972, 1977, 1983, 1988, 1994, 2000, and 2007 (1947-2000 editions provided by Haines and Inter-university Consortium for Political and Social Research 2010; 2007 edition provided by U.S. Department of Commerce [Bureau of the Census]), from population estimates provided by the U.S. Census Bureau (2010a), and from the U.S. Census Bureau's small area income and poverty estimates (2010b). Each data book is itself a compilation of data gathered through the Economic Census, Decennial Census of Population, inter-census population estimates, the Census of Agriculture, and other public and private sources. Supplemental data on population size, population composition, and household income were obtained directly from the Census Bureau website. Unless otherwise indicated, data on the variables described below were available at the county, state, and national levels.

Data on the size and composition of county, state, and national populations were available at regular time intervals. Population size data were available for 1930, 1940, 1943, 1950, 1960, and 1970 through 2009. Population size data were available for 2010 at the state and nation levels only. Data on land area were reported for 1940, 1950, 1960, 1970, 1980, 1990, and 2000. Population density was calculated by dividing population size by land area. The percentage of the population that was white was calculated using data on total population size and data on the size of the white population (reported in 1940, 1970 through 1980, 1984, and

1990), the size of the non-white population (reported in 1950), the percentage of the population that was non-white (reported in 1960), or directly reported as the percentage of the population that was white (reported in 2000 and 2005). The percentage of the population living in urban areas was calculated using data on total population size and data on the size of the urban population (reported in 1940, 1950, 1960, 1970, and 1980).

Socioeconomic variables were also available at regular intervals. Data on median age were available for 1950, 1960, 1970, 1980, and 2000. Data on the high school graduation rate were available for 1940, 1950, 1960, 1970, 1980, 1990, and 2000. Bank deposits per capita was calculated using data on total population size and data on the total value of bank deposits (reported for 1944, 1949, 1950, 1956, 1960, 1964, 1970, 1976, 1981, 1986, 1992, 1999, and 2005). Data on median household income were available for 1949, 1950, 1959, 1969, 1979, 1989, 1993, 1995, and for 1997 through 2008.

Data on the size of the agricultural, manufacturing, wholesaling, service business, and retailing sectors were available from the Economic Census and the Census of Agriculture via the County Data Books. The number of farms, manufacturers, wholesalers, services, retailers, and retail sales per capita were computed using data on the total population size and data on the number of farms (reported in 1940, 1945, 1950, 1954, 1959, 1964, 1969, 1974, 1978, 1982, 1987, 1997, and 2002), the number of manufacturing businesses (reported in 1939, 1947, 1954, 1958, 1963, 1967, 1972, 1977, 1984, 1987, 1997, and 2002), the number of wholesalers (reported in 1939, 1948, 1954, 1958, 1963, 1967, 1972, 1977, 1982, 1987, and 1997), the number of service businesses (reported in 1939, 1948, 1954, 1958, 1963, 1967, 1972, 1977, 1982, and 1987), the number of retailers (reported in 1939, 1948, 1954, 1958, 1963, 1967, 1972, 1977,

1982, 1987, 1997, and 2002), and total retail sales (reported for the same years as listed for the number of retailers).

Data on the size of the shopping center industry and on the size of two key types of shopping centers (enclosed malls and non-mall shopping centers) were derived from the same shopping center directories used to construct the dependent variable. Data on the total number of shopping centers (at the state, region, and nation levels only) were obtained directly from the directories for 1923 through 2006. Data on the number of malls in operation in a given year were constructed directly from the list of enclosed malls (using the information on year of enclosure to compute the yearly counts) for 1956 through 2010. Data on the number of non-mall shopping centers was calculated (at the state, region, and nation levels only) by subtracting the number of enclosed malls from the total number of shopping centers. Data on the legitimacy level of the shopping center form was obtained from business press accounts of the industry, as described in Chapters 2 and 3.

Data on national economic conditions were also sought for 1929 through 2010. Data were obtained directly from the government agencies (all at the national level only) for Gross Domestic Product (U.S. Department of Commerce [Bureau of Economic Analysis] 2011), the Consumer Price Index (U.S. Department of Labor [Bureau of Labor Statistics] 2011), and the Prime Interest Rate (U.S. Federal Reserve 2011). The data on bank deposits per capita, median household income, retail sales per capita, and Gross Domestic Product described above were converted into 2010 dollars using the Consumer Price Index information.

While data for each independent variable were available at regular intervals, the data analysis requires that there be no missing values for the entire period under consideration (1945 through 2010). Missing values in a given variable time series occurring between two known

values were replaced by linear interpolation. Missing values occurring either before the first known value or after the last known value in a series were replaced by linear extrapolation, using the nearest two known values for the extrapolation. Extrapolated values outside of the valid range for a given variable were replaced by the corresponding limit of the valid range (e.g., values greater than 100% for variables on a percentage scale replaced by the value "100"; values less than 0 for count variables replaced by the value "0").

Measures of the degree of change were calculated for each variable in the analysis by comparing a variable value in a given year with the corresponding value 10 years prior. The length of the comparison period (10 years) reflects the approximate amount of time needed for a real estate developer to assess local economic conditions, obtain suitable land and zoning approvals, and complete the construction of the structure. For most variables, the degree of change was measured as a percentage. For four variables (percentage of the population that is white, percentage of the population that lives in an urban area, median age, and the high school graduation rate), the degree of change was measured as a difference.

Statistical methods

Data were analyzed using repeated event history analysis via Cox regression (Allison 2005; Allison 2006) using SPSS 18. Analyses were conducted at both the county and the state levels for the period 1945 through 2009, 1945 being selected as the starting date due to the cessation of the Second World War and the resulting resumption of domestic construction activities (see Chapter 2 for additional discussion on the choice of starting date). For each geographic unit (county or state, depending on the level of the analysis), one or more mutually exclusive periods were defined to cover the entirety of the 1945-2009 period, with the end of

each period corresponding to the occurrence of the event of interest (i.e., the opening of an enclosed mall) and the time to event (i.e., survival duration) being calculated as described above. For example, the 1945-2009 observation period for a county in which three enclosed malls were built (e.g., in 1967, 1975, and 1979) would contribute four separate cases for the county-level analysis as follows: 1) 1945 to 1967 period, survival duration of 12 years, county-level covariates assessed in 1967; 2) 1967 to 1975, survival duration of 8 years, county-level covariates assessed in 1975; 3)1975 to 1979, survival duration of 4 years, county-level covariates assessed in 1979; and 4) 1979 to 2009, survival duration of 30 years (case treated as right-censored), county-level covariates assessed in 2009. For the state-level analysis, the 1945-2009 period was divided into mutually exclusive cases in an analogous manner (e.g., a state with 346 malls would contribute 347 cases).

County-level analyses were conducted both with fixed effects (for both the county and state levels) and without (county level only). All state-level analyses were conducted with fixed effects. In the context of repeated event history analysis, fixed effects refer to the specification of a stratifying variable in an analysis. Analyses where fixed effects are not specified proceed on the assumption that each case is independent. The advantage of not including fixed effects (used only for the county-level analysis) is that regression coefficients are based on both within and between county variations in the covariates. The disadvantage, however, is that unmeasured factors that are shared at the county (or state) level (e.g., the influence of county zoning commissions, county economic development authorities, or state legislative actions) are not taken into account in the analysis. The inclusion of fixed effects in an analysis allows one to take into account unmeasured factors at the county or state level, which is a major advantage of the approach. However, the inclusion of fixed effects has disadvantages as well. First, specifying

fixed effects constrains the model such that regression coefficients are based only on within-county (or within-state) variation in the covariates. If most of the variability in a given covariate occurs between counties (or states) rather than between years within a county (or state), the corresponding regression coefficient may be biased and there is an increased risk of making a Type-II error. Second, specifying fixed effects can result in a substantial loss of cases for the analysis. Because comparisons are conducted only within the county (or state), any geographic unit experiencing fewer than two events is excluded from the analysis. At the state level, this is not problematic as the number of enclosed malls is no lower than nine (Wyoming) for any state. At the county level, however, the inclusion of fixed effects removes 2313 cases (i.e., those cases contributed by counties with fewer than two enclosed malls) from the analysis.

The exclusion of between-county (or between-state) variation for models with fixed effects causes the interpretation of the county-level and state-level fixed effects models to differ slightly from the interpretation of the county-level models without fixed effects. Coefficients from the non-fixed-effects county-level analysis provide information on which factors explain the likelihood of an enclosed mall being built in the nation as a whole. Coefficients from the fixed-effects county-level analysis provide information on which factors explain within-county mall saturation for counties with two or more enclosed malls. Coefficients from the fixed-effects state-level analysis provide information on which factors explain within-state mall saturation.

Non-fixed effects models were produced at the county level only due to the inherent link between *local* economic conditions and the construction of an enclosed mall. Fixed effects analyses were not produced at the regional or national level due to the relative lack of variation in survival durations. At the national level, survival durations were uniformly less than one year (as was expected given that 3977 enclosed malls were built in the 64-year study period), and

national-level covariates lacked sufficient variability to produce meaningful results (by definition there was a maximum of 64 distinct values for any given national-level covariate in the analysis).

RESULTS

Descriptive statistics

In total, 3,977 enclosed malls have been in operation at some time in the United States during the 1945 to 2009 period. Of the 3,142 counties recognized by the U.S. Census Bureau during the study period, one or more enclosed malls were built in 1,034 counties. While 2,108 counties did not serve as the location for any enclosed mall, the number of enclosed malls ever built in a given county ranged as high as 80 (Los Angeles County, CA). As noted earlier, Wyoming was the state with the fewest enclosed malls ever built (9), while the greatest number ever built was in California (330). These numbers, however, reflect the total number of malls built in a particular region rather than the number in operation in any given year. As shown in **Table 4.1**, the number of enclosed malls in operation in a given year at the county level ranged from 0 to 64, with a median of 1, mean of 3.4, and standard deviation of 6.5. At the state level, the number of enclosed malls ranged from 1 to 276, with a median of 37, a mean of 55.1, and a standard deviation of 57.0. In comparison, at the state level the number of non-enclosed shopping centers in operation ranged from 0 to 5,488, with a median of 260. For the full distribution of shopping centers at the national level (enclosed and non-enclosed combined), see Figure 2.1 of Chapter 2. As shown in **Figure 4.1** below, 932 of the 3,977 enclosed malls ever built were in the Eastern region, 1,108 in the Midwestern region, 1,116 in the Southern region, and 821 in the Western region.

INSERT TABLE 4.1 HERE

INSERT FIGURE 4.1 HERE

As expected for a mature organizational form, the distribution of enclosed malls by year displayed both a period of increasing growth and a period of decreasing growth (see **Figure 4.2**), with the peak in mall growth occurring in 1975 (when 247 enclosed malls opened). Figure 4.2 also shows, in stark contrast to 1975, that at present fewer than ten enclosed malls are built in a given year. As shown in Table 4.1, the year in which an enclosed mall was built ranged from 1956 to 2009, with a median of 1974, a mean of 1975.2, and a standard deviation of 10.3. Table 4.1 also shows that, at the county level, inter-arrival times (i.e., the time elapsed between the opening of enclosed malls) ranged from 0.14 years to 64 years, with a median of 4, a mean of 9.7, and a standard deviation of 11.5. The distribution of the county-level inter-arrival times **(Figure 4.3**) shows that many of the intervals were quite short, with 769 of the 7112 cases having an inter-arrival time of less than one year and a total of 2106 cases having an inter-arrival time of less than five years. As already noted above, 2108 counties had no enclosed mall during the 1945-2009 period and thus had the maximum inter-arrival time of 64 years. Table 4.1 also shows the state-level inter-arrival times ranged from 0.01 to 28.5 years, with a median of 0.25, a mean of 0.71, and a standard deviation of 1.80. The distribution of the state-level inter-arrival times **(Figure 4.4**) was considerably more compact than the distribution at the county level, with 3,250 of the 4,029 cases having an inter-arrival time of less than one year and a total of 3,874 cases having an inter-arrival time of less than five years. As noted in the methods section, the inter-arrival times at the regional and national levels lacked variation and could not be subjected to analysis. Regional-level inter-arrival times ranged from 0 to 10.25 years, with a median of 0.03, a mean of 0.06, and a standard deviation of 0.33 (see Table 4.1). National-level inter-arrival

times ranged from 0 to 10.02[10], with a median of 0.01, a mean of 0.02, and a standard deviation of 0.16.

INSERT FIGURE 4.2 HERE

INSERT FIGURE 4.3 HERE

INSERT FIGURE 4.4 HERE

Table 4.1 also contains summary statistics for land area, population size, population density, the percentage of the population that was white, and the percentage of the population that lived in an urban area. County land area ranged from 1 to 135,801 square miles, with a median of 648, a mean of 1,184.1, and a standard deviation of 2,856.2. As noted above in the methods section, the mean county land area closely corresponds with the market area of a typical enclosed mall, though the distribution indicates that some counties are less reasonable approximations in this respect. State land area ranged from 61 to 586,400 square miles, with a median of 54,212. Counties ranged in population from 45 to 9,848,001 persons, with a median population of 76,846. States ranged in population from approximately 225,000 to 36,828,939 persons, with a median of 4,090,306. As a result, county-level population density ranged from 0.04 to 83,541 persons per square mile, with a median population density of 110. State-level population density ranged from 0.38 to 12,548 persons per square mile with a median of 88. The percentage of a county's population that was white ranged from 5% to 100%, with a median of 94%. At the state level, the corresponding range was 24% to 99% with a median of 88%. The percentage of a county's population living in an urban area ranged from 0% to 100%, with a median of 63%. The percentage of a state's population living in an urban area ranged from 33% to 100% (Washington, D.C.), with a median of 68%.

[10] 10.02 years elapsed between 1945 (beginning of study period) and the appearance of the first mall (1956)

Table 4.1 continues with summary statistics for measures of age, education, wealth, and income. At the county level, the median age ranged from 19 to 59 years, with a mean of 34.7 and standard deviation of 6.8. At the state level, median age ranged from 23 to 43 years, with a mean of 30.3 and standard deviation of 3.4. The percentage of a county's population with at least a high school education varied widely from county to county and from year to year, with a minimum of 20% and a maximum of 99%. The median high school graduation rate at the county level was 75%. At the state level, the high school graduation rate ranged between 26% and 93%, with a median of 62%. Wealth was measured using total bank deposits per capita (inflation adjusted), which ranged from $0 to $6,469 at the county level (median: $127). At the state level, bank deposits per capita ranged from $29 to $2,249, with a median of $125. Median household income varied more widely at the county level than at the state level. County-level median household income (inflation adjusted) varied from $9,495 to $117,910, with a mean of $50,926.6 and a standard deviation of $13,182.3. At the state level the range of median household income was smaller, from $23,797 to $85,200, but the mean remained approximately the same at $51,375.5 with a standard deviation of $9,150.2.

Finally, Table 4.1 summarizes variables related to the size of the business community in a given locale. The number of farm businesses ranged from 0 to 7,924 at the county level and from 0 to 277,401 at the state level. The number of manufacturers at the county level varied from a low of 0 to a high of 21,119 and from 70 to 49,930 at the state level. The number of wholesalers ranged from 0 to 23,617 at the county level and from 101 to 62,723 at the state level. The number of service businesses at the county level ranged from 0 to 140,003 and at the state level ranged from 875 to 452,606. Most relevant, however, to the present analysis of enclosed malls is the number of retailers and per capita retail sales. The number of retail businesses in a given

county ranged from 0 to 79,297, with a median of 525, a mean of 2,213.2, and a standard deviation of 5,588.6. At the state level, the number of retailers ranged from 1,600 to 268,873, with a median of 32,120, a mean of 45,348.0, and a standard deviation of 41,781.5. County-level per capita retail sales (inflation-adjusted) ranged from $0 to $128,208, with a mean of $10,971.3 and standard deviation of $5,116.2. State-level retail sales ranged from $5,698 to $21,236, with a mean of $11,179.3 and standard deviation of $1,866.8.

Regression results

County-level analysis without fixed effects

Table 4.2 presents regression results from repeated event history analyses of the time elapsed between mall enclosure events at the county level. The models reported in Table 4.2 were calculated without fixed effects, and the coefficients were accordingly calculated based on both within and between county variance. The analysis is based on 7,109 cases, 3,976 of which culminated in a mall enclosure event and 3,133 of which were right-censored. Two models are presented, the first consisting of the full model with all available covariates and the second comprising a parsimonious model including only those variables significant at the 0.10 level (determined using backwards elimination). While both models are presented, the discussion below will focus on the parsimonious model unless otherwise indicated. The rightmost column under this model reports the relative hazard (i.e., the exponentiated β) of having an enclosed mall built, which from this point forward will be referred to as the *relative mall hazard*.

INSERT TABLE 4.2 HERE

There was no significant difference in the relative mall hazard associated with the region (East, Midwest, South, or West) in which a county was located (p=0.367). This finding indicates,

quite simply, that the mall phenomenon was truly of a national scope. The sharp differences in social and business culture between these four regions did not have an effect on the growth of the mall industry. Likewise, climactic differences (which were thought to drive mall enclosure: see Business Week Staff Writer 1957b; Chain Store Age Staff Writer 1968a; Redeker 1964) can be seen to have had little real impact on when and where an enclosed mall was built.

There was also no significant difference in the relative mall hazard accounted for by differences in county land area (p=0.916). While county land area is somewhat related to land availability for mall development, the correlation is not high enough for this factor to have an effect. Land area is also somewhat related to the size of a given market, but as reported below population size, population density, and income levels are much better indicators of the economic size of a given county.

As expected, there was a significant association between the size of a county's population and the relative mall hazard (p=0.003), though the effect was substantively small. Each additional 100,000 persons in a given county increases this hazard by 1% (Hazard Ratio [HR]: 1.01; 95% Confidence Interval [CI]: 1.00- 1.01). The rate of change in the population size was also a significant predictor of the relative mall hazard (p=0.009), with each additional 10% increase in a county's population over the preceding ten year period being associated with a 3% increase in the hazard (HR: 1.03; CI: 1.01-1.04). Each additional 1,000 persons per square mile in population density was associated with a 1% increase in the relative mall hazard (HR: 1.01; CI: 1.00-1.02; p=0.009). Counties with larger populations, growing populations, and populations that are more geographically concentrated are all more likely to receive an enclosed mall. While these factors are statistically significant, the low magnitudes of the coefficients for population size, change in population size, and population density suggest that these characteristics of the

population base are not the dominant factors. The uniformly low magnitudes indicate that small counties are only marginally less likely to receive an enclosed mall than a large county.

The percentage of a county's population that is white was not a significant predictor of the relative mall hazard (p=0.602). In addition, the ten-year difference in this percentage was also not a significant predictor (p=0.575). The historical literature on "red-lining" (see Agelasto and Listokin 1975; Monmonier 2010) indicate that race and ethnicity were important factors explaining local development patterns. However, red-lining tended to occur at the neighborhood level rather than at the county level. Thus, the non-significance of the measure of county racial composition is likely a result of the lack of sufficiently detailed empirical resolution rather than an indication of the non-importance of racial factors.

The percentage of a county's population residing in an urban area was a significant predictor (p<0.001), with each additional 10% living in an urban area being associated with a 7% increase in the relative mall hazard (HR: 1.07; CI: 1.04-1.09). Similar to the finding reported above concerning the positive association between population density and the relative mall hazard, the finding that the urbanization rate is positively associated with the mall hazard further suggests that malls are more likely to be built in places where the population is more concentrated. In fact, when one compares the magnitudes of the effect of the urbanization rate with that for population size, it appears that population concentration mattered more than population size.

Each additional year in a county's median age was associated with a 1% decrease in the relative mall hazard (HR: 0.99; CI: 0.98-1.00; p=0.025). Change in the median age over the preceding ten year period, however, was not a significant predictor (p=0.493). This finding meshes well with the existing literature on the characteristics of mall customers, who are more

likely to be young (Feinberg et al. ; Matthews et al. 2000). The negative association between median age and the relative mall hazard suggests that mall developers specifically sought out market areas that more closely resembled the age profile of their most frequent customers.

While the high school graduation rate itself was not a significant predictor of the relative mall hazard (p=0.915), the change in this graduation rate over the preceding ten year period was significant (p=0.003). Each additional 10% increase in the high school graduation rate was associated with an 18% decrease in the relative mall hazard. Both of these findings are somewhat unexpected due to the strong economic link between education and income and the link between income and spending. However, the negative association between the rate of change in the high school graduation rate and the relative mall hazard may be explained as an artifact of a simple linear time effect. The rise in graduate rates occurs during the same period that the mall industry was approaching national saturation. Thus, high school graduation rates grew at a time when there was little room left for additional enclosed malls.

Per capita bank deposits (inflation-adjusted) were not a significant predictor of the relative mall hazard (p=0.918), nor was the rate of change in bank deposits (p=0.714). Each additional $1,000 in median household income (county-level, inflation-adjusted) was associated with a 1% increase in the relative mall hazard (HR: 1.01; CI: 1.00-1.01). However, the rate of change in median household income over the preceding ten years was not a significant predictor (p=0.528). The lack of a significant effect for these indicators of wealth levels reflects the dual nature of this variable. On the one hand, wealth coincides with income (which, again, coincides with spending power) and therefore should be positively associated with the relative mall hazard. On the other hand, wealth accumulation depends on a restrained spending propensity, which

should be negatively associated with the relative mall hazard. The lack of significance for the wealth variables may reflect these two offsetting underlying effects.

The size of a county's business sector was consistently an important predictor of having an enclosed mall built. Each additional farm per 1,000 persons was associated with a 1% decrease in the relative mall hazard (HR: 0.99; CI: 0.98-0.99; $p<0.001$), but the rate of change in the number of farms was not a significant factor ($p=0.359$). Each additional manufacturing business per 1,000 persons was associated with an 8% decrease in the relative mall hazard (HR: 0.92; CI: 0.87-0.98; $p=0.007$), and each additional 10% increase in the size of the manufacturing sector in the preceding ten years was associated with a 2% reduction in the relative mall hazard (HR: 0.98; CI: 0.97-1.00; $p=0.020$). The number of wholesalers and the rate of change in the size of the wholesaling sector, however, were not significant factors ($p=0.904$ and $p=0.247$ respectively). Each additional service business per 1,000 persons was associated with a 3% increase in the relative mall hazard (HR: 1.03; CI: 1.01-1.05; $p=0.001$), and each additional 10% increase in the ten-year rate of change for this sector was associated with a 3% increase in the relative mall hazard (HR: 1.03; CI: 1.02-1.05; $p<0.001$). The negative association between the relative mall hazard and both the number of farms and the number of manufacturers, the lack of association with the number of wholesalers, and the positive association with the size of the service sector is patterned in a way that suggests that mall development was related to the shift away from blue-collar employment to white-collar employment. Counties with economies that remain centered on resource extraction and manufacturing were less likely to receive a new mall than counties where the post-industrial sectors were ascendant.

The number of retailers per 1,000 persons was not a significant predictor of the relative mall hazard ($p=0.071$), though this factor was retained in the parsimonious model because the *p*-

value did not exceed 0.10. The ten-year rate of change in the retailing sector, however, was significant, with each additional 10% in growth being associated with a 5% reduction in the relative mall hazard (HR: 0.95; CI: 0.93-0.97; $p<0.001$). Per capita retail sales and the rate of change in retail sales were not significant predictors of the relative mall hazard ($p=0.368$ and $p=0.770$ respectively). The negative association between the rate of growth of the retail sector and the relative mall hazard likely reflects market crowding effects. Counties with very well developed retail sectors may have been less likely to receive an enclosed mall (or an additional mall) because mall developers would recognize the higher level of intra-retailer competition they may encounter. Instead, the finding suggests that mall developers would preferentially seek out underserved markets. The lack of significance of the retail sales variables is likely because retail sales levels are a consequence of increases in retail availability (including malls) rather than a cause.

County-level mall density, national-level mall density, and national-level non-enclosed shopping center density (and their corresponding quadratic terms) were all significant predictors of the relative mall hazard. At low county-level mall densities each additional mall in operation in a county was associated with an increase in the relative hazard of having an additional mall built (as evidenced by the positive log hazard for the number of malls; $p<0.001$). As **Figure 4.5** shows however, the estimated relative mall hazard grew at a decelerating rate as the number of existing malls increased (as evidenced by the negative log hazard for the number of malls, squared; $p<0.001$), to the point where the estimated relative mall hazard began to decrease once county-level mall density exceeded 36. At the minimum of the range of observed mall density, the estimated relative mall hazard was elevated by only 25% (calculated HR: 1.25). At a county-level mall density of 36, the estimated relative mall hazard was elevated by 4960% (calculated

HR: 50.60). At the maximum of the range of observed mall density (i.e., 64 existing malls within county) however, the estimated relative mall hazard was only elevated by 395% (calculated HR: 4.95). The findings for county-level mall density suggest a strong contagion effect at the local level. In fact, the strongest predictor of the construction of a new mall may very well be whether there is already a mall in operation elsewhere in the county. The exceptionally large estimated relative mall hazard occurring at a density of around 36 indicates that mall development was intense and occurred at an explosive pace in the large retail markets as developers explored the retail capacity of these markets. The subsequent decline in the estimated relative mall hazard indicates that retail competition effects eventually set in, though the strength of the competition effect is less than might be expected as the estimated magnitude of the relative mall hazard remains quite high.

INSERT FIGURE 4.5 HERE

The effect of national-level mall density, however, took on a pattern different from that of county-level mall density. At low national-level mall densities the estimated relative mall hazard was less than 1.00 (a result of the log hazard being negative for the number of malls at the national level; $p<0.001$), with the estimated relative mall hazard reaching a minimum at a density of around 1,000 (see **Figure 4.6**), which occurred in approximately 1968. At this minimum, the estimated relative mall hazard was 0.75. However, the estimated relative mall hazard began to rise at densities greater than 1,000 (a result of the log hazard being positive for the number of malls at the national level, squared; $p<0.001$), and the estimated relative mall hazard began to exceed 1.00 once national mall density exceeded 1,965, which occurred in approximately 1974. At the maximum national mall density of just over 3,300 malls (occurring around 1990), the estimated county-level relative mall hazard was elevated by 274% (calculated HR: 3.74). The

lengthy period over which the estimated relative mall hazard was less than 1.00 (from 1956 to 1974) suggests that local mall development decisions did not respond strongly to national trends, despite the positive press surrounding enclosed malls during this period (see Chapter 2). However, the findings show that a national contagion effect did emerge in the mid-1970s, with county-level mall development decisions being strongly and positively linked to national mall density thereafter.

INSERT FIGURE 4.6 HERE

The effect of national-level non-enclosed shopping center density followed a pattern similar to that for county-level mall density (see **Figure 4.7**), as a result of a positive log hazard for the number of non-enclosed shopping centers ($p<0.001$) and a negative log hazard for the corresponding squared term ($p<0.001$). As shown in Figure 4.7, at low national-level non-enclosed shopping center densities the estimated county-level relative mall hazard was elevated by about 18% (calculated HR: 1.18). The estimated relative mall hazard reached a maximum at approximately 21,000 non-enclosed shopping centers, where the estimated relative mall hazard was elevated by 522% (calculated HR: 6.22). At the maximum non-enclosed shopping center density of nearly 40,000, the estimated county-level relative mall hazard was only elevated by 55% (calculated HR: 1.55). The results show that the growing preeminence of the shopping center industry (which, again, includes both malls and non-enclosed centers) helped the mall sector to grow to a point where retail saturation set in and the relationship between non-enclosed and enclosed shopping centers became competitive.

INSERT FIGURE 4.7 HERE

The shopping center legitimacy level was not a significant predictor of the county-level relative mall hazard ($p=0.883$). This finding regarding legitimacy again shows that local level

mall development decisions did not respond strongly to national level mall industry processes. The national mall contagion effect discussed above emerged in the mid-1970s. Notably, the emergence of contagion coincided with the final establishment of 100% legitimacy for the shopping center industry (see Chapter 2) and the peak in the construction of new enclosed malls (see Figure 4.2). The relationship between the legitimacy level of shopping centers and the relative mall hazard becomes more nuanced once the state-level findings (presented below) are taken into consideration (see discussion section).

Finally, the results shown in Table 4.2 indicate that each $1 trillion of Gross Domestic Product (inflation adjusted) was associated with a 39% reduction in the relative mall hazard (HR: 0.61; CI: 0.53-0.71; $p<0.001$). However, each 10% of growth in GDP over the preceding ten years was associated with a 26% increase in the relative mall hazard (HR: 1.26; CI: 1.17-1.35; $p<0.001$). General interest rate levels were not a significant predictor ($p=0.524$). The negative association between GDP and the relative mall hazard is somewhat unexpected, but may simply reflect the fact that GDP was at its highest in the later years of the study period, when the mall industry had already reached saturation. The effect of GDP growth, however, reflects that national economic growth was positively tied to the relative mall hazard, with mall development being more likely to have occurred during sustained periods of economic growth. The non-significance of the interest rate reflects the relative lack of variance in this factor. With the exception of a ten-year period from the late-1970s to the mid-1980s, interest rates have not been sufficiently elevated such that retail development was adversely affected.

County-level analysis with fixed effects

Table 4.3 presents additional analyses of the time elapsed between mall enclosure events at the county level. The models reported in Table 4.3 were calculated with fixed effects, and the coefficients were accordingly calculated based only using within-county variance. The analysis is based on 4,798 cases, 3,976 of which culminated in a mall enclosure event and 822 of which were right-censored. As with Table 4.22, two models are presented in Table 4.3, the first consisting of the full model with all available covariates and the second comprising a parsimonious model including only those variables significant at the 0.10 level (again, determined using backwards elimination). As before, the discussion will focus on the parsimonious model unless otherwise indicated.

INSERT TABLE 4.3 HERE

Because counties with fewer than two enclosed malls are excluded from the analysis, the findings reported below have a different interpretation than those from Table 4.2. The Table 4.2 models allow one to draw conclusions about which factors differentiate those counties that received an enclosed mall from those that did not. In contrast, the models reported in Table 4.3 allow one to draw conclusions about which factors explain how counties became highly saturated with enclosed malls. In other words, the results presented below allow one to draw conclusions about how year-to-year changes within a county affected the relative mall hazard, but not conclusions about how counties with malls differed from counties without malls. Within-county yearly differences in land area (which occur only rarely, through annexations or other similar actions) were not a significant predictor of the relative mall hazard (p=0.812). Within-county yearly differences in population size were also not a significant factor (p=0.329), nor were within-county yearly differences in the rate of population growth (p=0.198). Within-

county yearly differences in population density was a significant factor, with years where population density was higher being associated with an 11% reduction in the relative mall hazard (HR: 0.89; CI: 0.81-0.98; p=0.022). Within-county yearly differences in the percentage of the population that was white (p=0.265), the ten-year change in racial composition (p=0.511), the percentage of the population living in an urban area (p=0.931), the ten-year change in urban concentration (p=0.690), the median age (p=0.132), and the ten-year change in median age (p=0.288) were all non-significant. The general lack of significance for the population size and population composition variables reflects the fact that only within-county variance (i.e., only year-to-year variations) has been used in the fixed effects model. The continued significance of population density further indicated that population concentration levels are more important in local mall development decisions, with the results from the present model suggesting that high levels of population density have the ability to reduce the availability of land for future mall construction (a finding that provides support for Hypothesis 4).

The within-county yearly difference in the high school graduation rate was marginally significant, with each additional 10% of the population with a high school diploma being associated with a 19% reduction in the relative mall hazard (HR: 0.81; CI: 0.66-1.00; p=0.047). The ten-year change in the graduation rate was also significant, with each additional 10% growth being associated with a 26% reduction in the relative mall hazard (HR: 0.74; CI: 0.58-0.95; p=0.018). As before, the concomitance of improvements in the graduation rate and retail market saturation is the likely explanation for both of these negative associations.

Within-county yearly differences in per capita bank deposits and the change rate in bank deposits were not important predictors of the relative mall hazard (p=0.226 and p=0.383 respectively). Within-county yearly differences in median household income, however, were

important, with each additional $1,000 in household income being associated with a 2% increase in the relative mall hazard. The ten-year rate of change in median household income was not significant (p=0.856). The finding for median household income further indicates the importance of consumer spending power in the local mall development decision. Together with those of the non-fixed-effects analysis reported above, these findings provide partial support for Hypothesis 2 (income and wealth levels will be positively associated with the relative mall hazard).

As with the county-level analysis without fixed effects, the results shown in Table 4.3 for within-county year-to-year differences in the number of farms, manufacturers, wholesalers, and service businesses indicate that the relative mall hazard is increased by the transition to a post-industrial economy. Each additional farm per 1,000 persons was associated with a 5% decrease in the relative mall hazard (HR: 0.95; CI: 0.94-0.97; p<.001). The ten-year rate of change in the number of farms was not significant (p=0.121). Each additional manufacturing business per 1,000 persons was associated with a 53% reduction in the relative mall hazard (HR: 0.47; CI: 0.37-0.60). The ten-year rate of change in the number of manufacturers (p=0.104), the number of wholesalers (p=0.258), the ten-year change in the number of wholesalers (p=0.233), and the number of service businesses (p=0.618) were all non-significant. Each 10% increase in the rate of change in the services sector was associated with a 3% increase in the relative mall hazard.

The within-county year-to-year differences in the number of retailers was also a significant factor, with each additional retailer per 1,000 persons being associated with a 10% reduction in the relative mall hazard (HR: 0.90; CI: 0.85-0.95; p<0.001). The ten-year rate of change in the number of retailers was not significant (p=0.591), nor were within-county yearly differences in per capita retail sales (p=0.362) and the rate of change in retail sales (p=0.400). As

with the non-fixed-effects analysis, the negative association between the number of retailers and the relative mall hazard indicates the effect of retail crowding.

Within-county year-to-year differences in mall density, national-level mall density, and national-level non-enclosed shopping center density (and their corresponding quadratic terms) were again significant predictors of the relative mall hazard. As shown in Figure 4.5, the non-linear pattern obtained from the fixed-effects model was quite similar to the one obtained from the non-fixed-effects model (the result of the positive log hazard for the number of malls and the negative log hazard for the number of malls, squared; both $p<0.001$). At the minimum of the range of observed mall density, the estimated relative mall hazard was elevated by 16% (calculated HR: 1.16). The estimated relative mall hazard reached its maximum at a county-level mall density of 38, where the estimated relative mall hazard was elevated by 1629% (calculated HR: 17.29). At the maximum of the range, the estimated relative mall hazard was elevated by 336% (calculated HR: 4.36). The findings from the fixed-effects model confirm that county-level mall density induces a contagion effect at the local level, with competition effects exerting themselves only at the highest density levels, with the strength of the competition effect once again being less than might be expected.

Unlike in the non-fixed-effects analysis, national-level mall density was not a significant factor. Though retained in the model due to their marginal significance levels, both the number of malls in the nation ($p=0.164$) and the number of malls in the nation, squared ($p=0.088$) were not significant at the 0.05 level (see Figure 4.6). The effect of national-level non-enclosed shopping center density was significant, following a pattern similar to that for the non-fixed-effects analysis (again, the result of the positive log hazard for the number of malls [$p=0.001$] and the negative log hazard for the number of malls, squared [$p<0.001$]). As shown in Figure 4.7,

at low national-level non-enclosed shopping center densities the estimated relative mall hazard was elevated by about 12% (calculated HR: 1.12). The estimated relative mall hazard reached a maximum at approximately 19,000 non-enclosed shopping centers, where the estimated relative mall hazard was elevated by 184% (calculated HR: 2.84). The estimated relative mall hazard equaled the null value (i.e., HR: 1.00) at a density of approximately 37,000. At the maximum non-enclosed shopping center density of 40,000, the estimated relative mall hazard was 27% below the null value (calculated HR: 0.73). The results from the fixed-effects analysis reinforce those from the previous models, showing that the growing preeminence of the shopping center industry helped the mall sector to grow until the point where retail saturation set in and the relationship between non-enclosed and enclosed shopping centers became competitive.

Finally, the shopping center legitimacy level was not a significant predictor in the fixed-effects analysis (p=0.731), showing again that local level mall development decisions did not respond strongly to national level mall industry processes. GDP was a significant factor, and each $1 trillion of Gross Domestic Product (inflation adjusted) was associated with a 39% reduction in the relative mall hazard (HR: 0.61; CI: 0.51-0.74; p<0.001). Each 10% of growth in GDP over the preceding ten years was associated with an 18% increase in the relative mall hazard (HR: 1.18; CI: 1.07-1.30; p=0.001). General interest rate levels were once again not a significant predictor (p=0.549). The negative association between GDP and the relative mall hazard again reflects the fact that GDP was at its highest in the later years of the study period, when the mall industry had already reached saturation. The effect of GDP growth, once again, indicates that mall development was more likely to occur during sustained periods of economic growth. The non-significance of the interest rate again reflects the relative lack of variance in this factor.

State-level analysis with fixed effects

Table 4.4 presents analyses of the time elapsed between mall enclosure events at the state level. The models reported in Table 4.4 were also calculated with fixed effects, and the coefficients were accordingly calculated based only using within-state variance. The analysis is based on 4,027 cases, 3,976 of which culminated in a mall enclosure event and 51 of which were right-censored. As before, both a full model and a parsimonious model are reported and the discussion will focus on the parsimonious model unless otherwise indicated. The models reported in Table 4.4 allow one to draw conclusions about how year-to-year changes within a state affected the relative mall hazard.

INSERT TABLE 4.4 HERE

Within-state yearly differences in land area (which occurred only for the Washington, D.C. area) were not a significant predictor of the relative mall hazard (p=0.374). As with the county-level non-fixed-effects analysis, there was a significant association between the size of a state's population and the relative mall hazard (p<0.001). Each additional 1,000,000 persons within a given state increased the relative mall hazard by 17% (HR: 1.17; CI: 1.08- 1.27). The rate of change in the population size was also a significant predictor of the relative mall hazard (p=0.019), with each additional 10% increase in a state's population over the preceding ten years being associated with a 197% increase in the mall hazard (HR: 2.97; CI: 1.20-7.37). However, each additional 1,000 persons per square mile in population density was associated with an 11% decrease in the relative mall hazard (HR: 0.89; CI: 0.85-0.94; p<0.001). The size of the mall sector in a given state is shown here to have been strongly tied to year-to-year fluctuations in population. Additional population within a state increased the relative mall hazard, particularly if

the population growth rate was rapid. The finding of a negative association between population density and the relative mall hazard is likely the effect of outlier effects, and should not be viewed as opposed to the results for population size and the population growth rate.

Each additional 10% of the population that was white was associated with a 46% reduction in the relative mall hazard (HR: 0.54; CI: 0.44-0.65; $p<0.001$). The change in racial composition ($p=0.136$), the percentage of a state's population living in an urban area ($p=0.895$), and the change in the urbanization rate ($p=0.209$) were all non-significant. The finding on the racial composition of a state is noteworthy however, and it is with this finding that we first see an association of racial in and out migration with the size of the retail sector. The state-to-state migration of racial minorities was pronounced during the civil rights era (Lemann 1992; Wilkerson 2010), particularly because of the flight of Southern Blacks from Jim Crow states to cities in the North. Both discrimination patterns and economic opportunity differentials drove this migration, and Southern states with less-developed economies tended to become whiter while Northern states with more-developed economies tended to become more racially diverse. Thus, state-level economic conditions, which explain retail development rates and racial migration alike, can explain the observed negative association.

The median age itself was not significantly related to the state-level relative mall hazard ($p=0.628$), but the degree of change in the median age was marginally significant ($p=0.049$). Though the finding is not strong, each one year increase in the median age over the preceding ten years was associated with a 7% decrease in the relative mall hazard (HR: 0.93; CI: 0.86-1.00). As with the county-level findings, the state-level results show that areas with aging populations were slightly less appealing for mall development.

Each 10% increase in a state's high school graduation rate was associated with a 63% reduction in the relative mall hazard (HR: 0.37; CI: 0.29-0.49; $p<0.001$). The degree of change in the graduation rate was not significant ($p=0.484$). As with the non-fixed-effects county-level analysis, this result is surprising. The corresponding timing of education improvements and the saturation of market areas remains the best explanation.

Year-to-year differences in bank deposits were significant, with each additional $10,000 in deposits per capita being associated with a 259% increase in the relative mall hazard (HR: 3.59; CI: 1.68-7.70). The rate of change in bank deposits was not significant ($p=0.294$). Unlike at the county-level, where I argued bank deposits were not significant due to the conflicting underlying effects reflected in the variable (spending power vs. low propensity to spend), bank deposits likely reflect real estate investment capacity at the state level. Higher levels of wealth in a given state would tend to increase the number of business ventures undertaken. This business investment, which tends to be undertaken near the investor's place of residence, is highly likely to remain in the same state. This dynamic can explain the positive association between bank deposit levels and the relative mall hazard observed here.

Within-state yearly differences in median household income were not a significant predictor of the relative mall hazard ($p=0.344$), though the rate of change in income levels was ($p=0.001$). Each additional 10% growth in median household income in a state was associated with an 8% increase in the relative mall hazard (HR: 1.08; CI: 1.03-1.14). As with the county-level analysis, the finding that areas with high levels of income growth were attractive for mall development requires little explanation.

The shift from blue-collar employment to white-collar jobs that was in evidence in both county-level analyses is also shown in the state-level findings. Year-to-year variations in the

number of farms within a state were significantly related to the relative mall hazard (p=0.024), with each additional farm per 1,000 persons being associated with a 2% reduction in the relative hazard (HR: 0.98; CI: 0.97-1.00). The rate of change in the size of the farms sector (p=0.307), the number of manufacturers (p=0.238), the rate of change in the manufacturing sector (p=0.309), and the number of wholesalers (p=0.702) were not significant. The rate of change in the wholesaling section was significant however, with each 10% of growth being associated with a 16% reduction in the relative mall hazard (HR: 0.84; CI: 0.79-0.90; p<0.001). The number of service businesses per 1,000 persons was not significant (p=0.351), but each additional 10% growth in the size of the services sector was associated with a 4% increase in the relative mall hazard (HR: 1.04; CI: 1.02-1.06). The gradient from resource extraction to white-collar service employment is consistently patterned with a corresponding shift from negative to neutral to positive log hazards. The composition of the business sector, independent of wage effects, clearly affects the mall development decision, with blue-collar towns being uniformly less likely to receive an enclosed mall.

Year-to-year within-state differences in retail sales predicted the relative mall hazard, (p<0.001), though the rate of change in retail sales did not (p=0.098). Each additional $1,000 in per capita retail sales was associated with a 16% increase in the relative mall hazard (HR: 1.16; CI: 1.08-1.25). Though longitudinal in structure, the data cannot differentiate the causal direction of this association. However, as I argued for the county-level findings, it is most likely that retail sales are a lagging indicator of retail development levels, rather than a leading one.

As shown in **Figure 4.8**, the number of malls in a state was non-linearly related to the relative mall hazard. As with both county-level analyses, the log hazard was positive for the main term (i.e., number of malls; p<0.001) and negative for the squared term (p<0.001). At low

state-level mall densities, the estimated relative mall hazard was elevated by 37% (calculated HR: 1.37). The estimated relative mall hazard reached its maximum at a density of approximately 140 malls, at which point the estimated relative mall hazard was elevated by 866% (calculated HR: 9.66). At the upper end of the range for state-level mall density (280 malls in a state), the estimated relative mall hazard was 15% below the null value (calculated HR: 0.85). This pattern, as explained before, exhibits the combined effects of developers' searches for the (unknown) mall saturation point and the effects of inter-mall competition as the industry matured.

INSERT FIGURE 4.8 HERE

Year-to-year fluctuations in the number of non-enclosed shopping centers in a state (which could not be examined at the county level), were also significantly related to the relative mall hazard, though in a simple linear fashion ($p<0.001$ for the main effect) rather than a non-linear one ($p=0.339$ for the corresponding squared density variable). Each additional 1,000 non-enclosed shopping centers in operation in a state were associated with a 48% reduction in the relative mall hazard (HR: 0.52; CI: 0.38-0.71). These findings indicate that, at the state level, the relationship between enclosed malls and their non-enclosed shopping center brethren was strictly competitive. The findings from the state-level analysis give no indication of symbiosis between the two forms at low density levels.

There was a significant nonlinear relationship between national-level mall density and the relative mall hazard, as evidenced by the mutual significance of the main effect and the corresponding squared term (both with $p<0.001$). As reflected in **Figure 4.9**, there was a positive log hazard associated with the main effect and a negative log hazard with the corresponding squared term. At low national-level mall densities, the estimated state-level relative mall hazard

was elevated by 27% (calculated HR: 1.27). The estimated relative mall hazard reached its maximum just short of the upper limit of the range of enclosed mall density (i.e., at approximately 3,000 malls), where the estimated relative mall hazard was elevated by 3671% (calculated HR: 37.71). The estimated relative mall hazard was reduced from this maximum only slightly at the highest density level, where the hazard remained elevated by 3549% (calculated HR: 36.49). As shown in Figure 4.7, the number of non-enclosed shopping centers in the nation was not associated with the state-level relative mall hazard (p=0.427).

INSERT FIGURE 4.9 HERE

DISCUSSION AND CONCLUSION

Several observations can be made by contrasting the results from the regression analyses reported in Tables 2, 3, and 4. First, there seems to be subtle but consistent evidence that a mall contagion effect existed at the county level and that this effect was not confined to only those counties with the largest population. Second, the findings suggest that the constitutive/cognitive legitimacy of the shopping center industry had an impact on state-level resource availability rather than at the local level. Third and finally, contrasting patterns at the county and state levels for the income and national mall density variables illustrate the dangers of over-aggregation for organizational ecology models and raise questions about the interpretation of density results in existing studies.

Mall building in small markets

Recall that the size of the population in a given county was positively related to the relative mall hazard, with each 100,000 in population being associated with a 1% increase in the

hazard. The magnitude of this association was notably small, and population size was non-significant in the fixed-effects county-level analysis. The small effect of population size is likely the result of the relatively high frequency with which enclosed malls were built in low-population counties. To see this, one needs to consider the typology of shopping centers, the population levels required to support each center type, and the population sizes of those counties with one or more enclosed malls.

The industry recognizes five major types of centers: convenience centers (no anchor; typically under 50,000 sq. feet), neighborhood centers (supermarket anchor; typically about 50,000 sq. feet), community centers (small department store anchor; typically 150,000 sq. feet), regional centers (one to two large department stores; typically 400,000 sq. feet), and super-regional centers with three or more large department stores and a typical retail area of 750,000 square feet (National Research Bureau 2006). The Urban Land Institute advises that the necessary market-area population is 3,000 to 40,000 persons for neighborhood centers, 40,000 to 150,000 persons for community centers, 150,000 or more persons for regional centers, and 300,000 or more persons for super-regional centers (Beyard, O'Mara and others 1999: p. 8). While an enclosed mall can be a feature of any of the five types of centers, the vast majority of enclosed malls are regional or super-regional in size.

Of the 3,977 enclosed malls in the database however, 9.3% were built in counties with populations of 40,000 or less at the time of their construction (i.e. had populations only sufficient to support the convenience or neighborhood center types. 12.4% of malls were located in counties with populations of 50,000 or less and 28.1% in counties with 100,000 or fewer persons. Most revealingly, 37.5% of the 3,977 enclosed malls were built in counties with populations of 150,000 or less. In other words, an unexpectedly high proportion of enclosed

malls were built in counties that, in theory, were not capable of supporting them. The presence of a mall contagion effect has already been shown in Figure 4.6. The large percentage of malls that were built in small markets suggests that the mall contagion effect was sufficiently strong to render market-area population size nearly mute. Though the direction of the coefficients for population size and the population growth rate were generally significant and in the direction predicted in Hypothesis 1A (population size will be positively associated with the relative mall hazard), it is Hypothesis 1B (population size will be weakly associated with the relative mall hazard due to the high frequency of mall development in small markets) that receives the most support in the present study. Hypothesis 1C (the population growth rate will not be associated with the relative mall hazard) was not supported. The pattern shown in Figure 4.6, which I argue is the result of a contagion effect, is the first of several findings that supports Hypothesis 5C (national-level factors become more important than market-area factors at some point in the diffusion process) rather than Hypothesis 5B (national-level factors will not be associated with the relative mall hazard).

Legitimacy and resource availability

As discussed in detail in Chapters 2 and 3, both the New Institutional Sociology and Organizational Ecology perspectives focus on the concept of constitutive/cognitive legitimacy and its relationship to resource availability. First however, one observation about the interpretation of the density variables can be made. Recall that the organizational ecology theory of density dependence posits that density is a valid indirect measure of legitimacy. It is noteworthy that the non-linear density effects predicted by organizational ecology (i.e., increasing relative hazard at low densities and decreasing relative hazard at high densities) were

still observed in the present study even after directly controlling for legitimacy levels. While the results presented in Chapters 2 and 3 had already cast doubt on this particular density-dependence proposition, the event-history models conclusively show that non-linear density effects cannot be used to draw conclusions about organizational legitimacy effects.

With respect to the relationship between legitimacy levels and resource availability, the results are illustrative as well. The level of legitimacy for the shopping center industry was not a significant factor explaining the relative mall hazard in either of the county-level analyses (see again Tables 2 and 3). As already discussed earlier in this chapter, the pattern of the relationship between national-level mall density and the county-level relative mall hazard (see Figure 4.6) also suggested that national-level factors did not consistently affect mall development patterns at the local county level in the first half of the mall building period (i.e., up to 1975). While the number of enclosed malls in the nation exerted an effect on county-level mall building after 1975 and while the number of non-enclosed shopping centers in the nation exerted upward pressure on the county-level relative mall hazard throughout the study period (see Figure 4.7), the overall results suggest that local conditions governed local development decisions to a much greater degree than did national trends.

However, the same pattern did not emerge at the state level, where the effects of national trends were almost opposite those at the county level. In the state-level analysis, shopping center legitimacy was a significant predictor, as was the number of enclosed malls in the nation, while the number of non-enclosed shopping centers was no longer associated with the relative mall hazard (see Table 4.4 and Figures 4.7 and 4.9). At the state level, national trends mattered more than at the county level, with the state-level relative mall hazard being affected to a much greater degree by these types of factors.

This results structure suggests the simple proposition that diffuse factors such as industry legitimacy operate strictly at the more diffuse geographic levels of analysis. At the county level, mall building considerations are grounded in concrete questions of the availability of suitable land, the size of the market-area consumer spending base, and constraints that may be imposed by local zoning authorities (Beyard, O'Mara and others 1999). In the midst of these factors, national level trends are relatively unimportant. At the state level however, what is under consideration are broad conceptions of economic development goals and strategies rather than specific development proposals. While industry legitimacy levels and national trends do not sway the decisions of a local lender or zoning commission, they may affect a regional bank's loan portfolio goals or a state economic development commission's portfolio of development strategies. In other words, industry legitimacy levels have an impact in terms of the degree to which mall development projects are generally suggested or encouraged but does not have an effect on whether a specific mall development project is implemented. These findings provide support for Hypothesis 5A (legitimacy levels will be positively associated with the relative mall hazard), though the findings refine our knowledge of legitimacy effects by showing that this effect operated at the state level rather than at the county level. These findings also provide the second piece of evidence against Hypothesis 5B (national-level factors will not be associated with the relative mall hazard).

The problem of over-aggregation for the interpretation of density measures

The findings, particularly for those from the state-level analysis, conform to Hypothesis 3B (enclosed mall density will be nonlinearly associated with the relative mall hazard) and Hypothesis 3C (non-enclosed shopping center density will be nonlinearly associated with the

relative mall hazard) as opposed to the simpler conception of competition effects embodied in Hypothesis 3A (the magnitude of retail competition will be negatively associated with the relative mall hazard). Thus, the Organization Ecology model of density effects appears to have greater analytical traction than the commercial real estate industry's own model of competition.

However, the Organizational Ecology model of density effects can be greatly improved. As noted in the beginning of the methods section, organizational ecology analyses have not systematically accounted for the potential impact of the geographic level of analysis. The focus on inter-arrival times in ecological analyses potentially introduces the problem of over-aggregation, particularly for business enterprises that are highly localized but examined within an inappropriately broad geographic space (e.g. Baum and Singh 1994, who examined neighborhood daycare centers in a large metropolitan context; Carroll et al. 1993, who examined local and regional brewers from a national perspective; Carroll and Hannan 1989a, who examined municipal newspapers from a national perspective; Freeman and Hannan 1983, who examined neighborhood restaurants in a large metropolitan context). The problem of over-aggregation is less problematic for those industries where the market-area is more closely matched to the unit of analysis (e.g., Barnett and Carroll 1987, who examined telephone companies from a market-area perspective; Dobrev, Kim and Carroll 2002, who examined the national automobile industry from a national perspective).

An inherent danger of over-aggregation lies with making an implicit assumption that factors operate homogeneously at the regional/national and the local level. Two findings from the present study illustrate this danger. First, both local and national levels of income (i.e., county-level median household income and national-level GDP) were included in the county-level analyses. The findings showed a positive association between median household income

and the relative mall hazard, while also showing a negative association between GDP and the mall hazard. Had the analysis been conducted in the usual ecological fashion, only the GDP measure would have been included in the models and the conclusions drawn regarding the effect of income would have been severely limited or biased.

Second, and perhaps more importantly, the structure of the relationship between national mall density and the relative mall hazard was strongly influenced by the geographic unit of analysis. In the state-level analysis, as already noted above, the non-linear relationship between national-level mall density and the state-level relative mall hazard conformed to the findings of previous ecological analyses of density dependence. Had the present study been conducted at only the broadest geographic level-of-analysis, density-dependence theory would have received confirmation. However, the non-linear relationship between national-level mall density and the county-level relative mall hazard does not conform to the expected pattern. The finding of a delayed contagion effect at the county level would have been entirely missed were the analysis conducted in the usual manner. It is the only the findings from the market-area-level analysis that show that the local development decision is not tied to national trends, a finding which raises additional questions about the interpretation of density results in existing studies.

Figure 4.1. Number of mall enclosures, by region (n=3977)

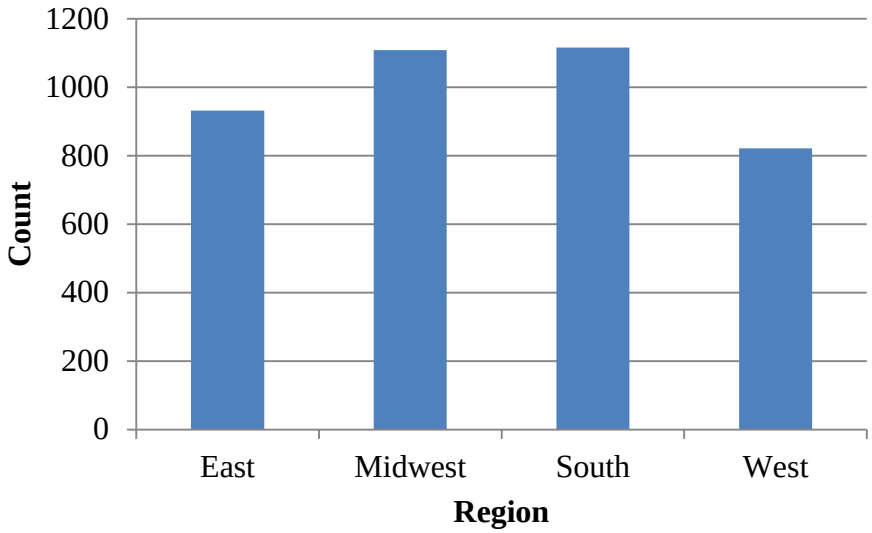


Figure 4.2. Number of enclosed malls constructed, by year
(n=3977; includes new construction and remodeling of existing centers)

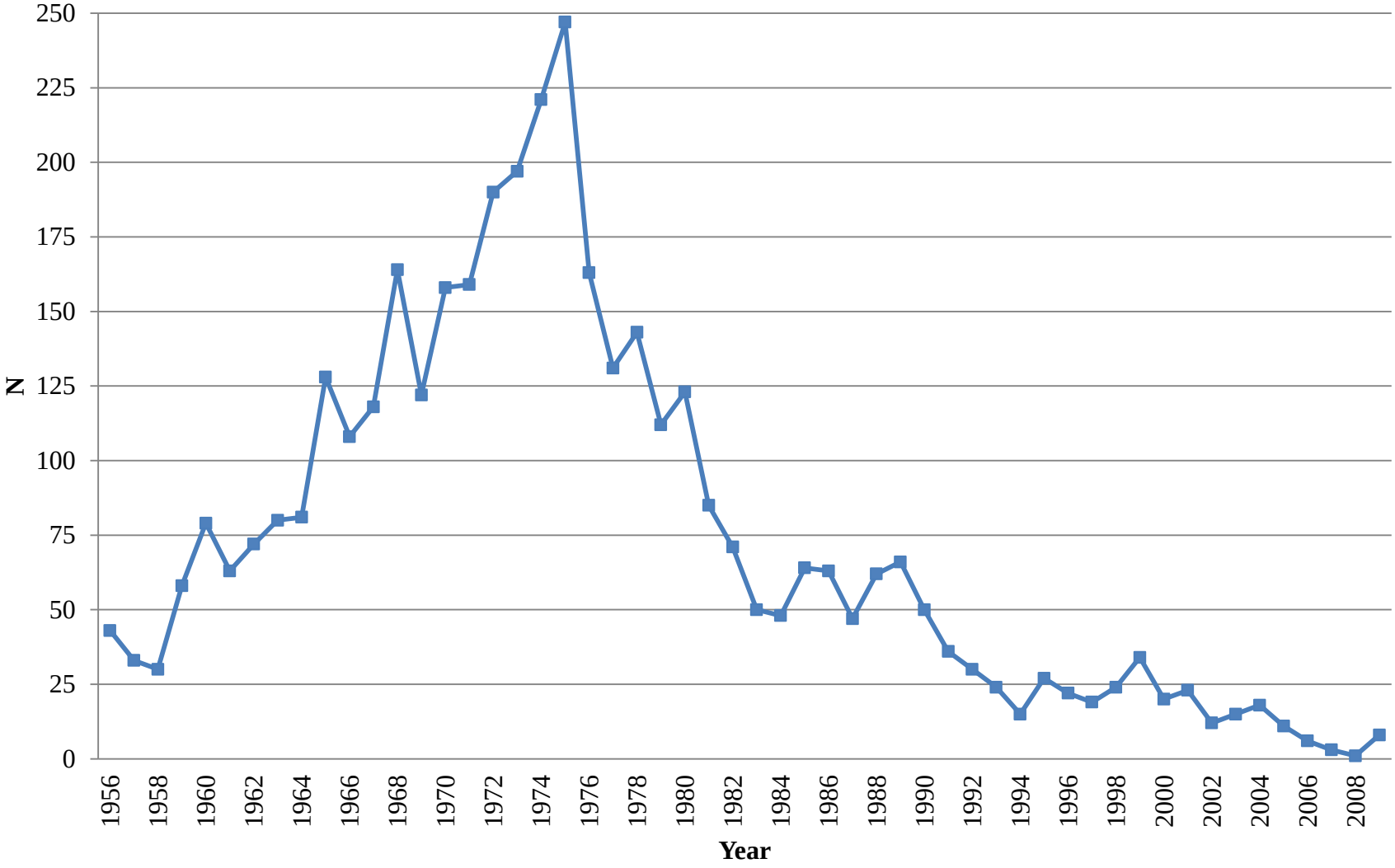
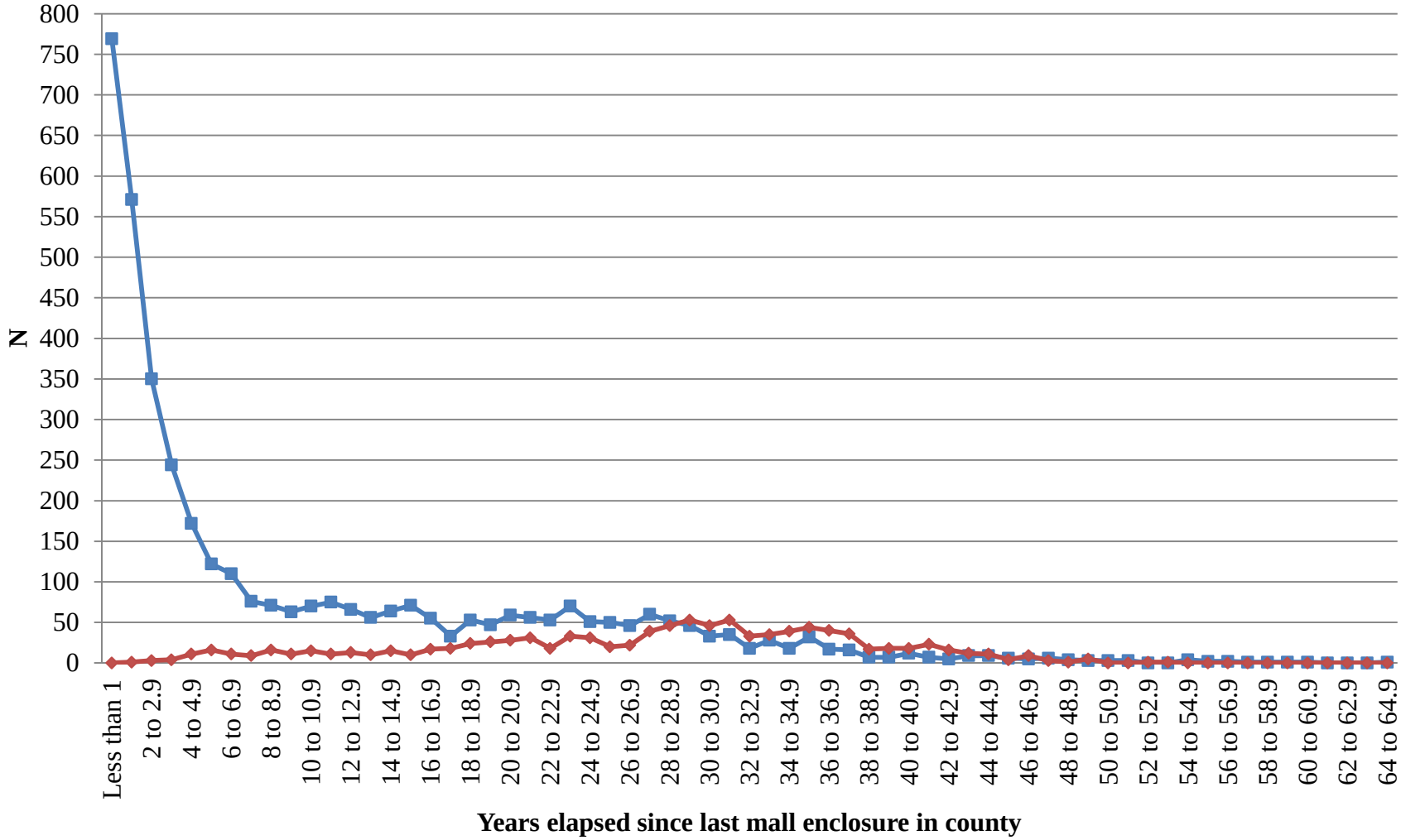


Table 4.1. Descriptive statistics, by geographic level						
	Geographic level	**Min**	**Max**	**Median**	**Mean**	**SE**
Number of enclosed malls in operation	County	0	64	1	3.4	6.5
	State	1	276	37	55.1	57.0
Number of non-enclosed shopping centers	State	0	5488	260	469.0	688.3
Year enclosed	Nation	1956	2009	1974	1975.2	10.3
Inter-arrival time (years)	County	.14	64	4	9.7	11.5
	State	.01	28.50	.25	.71	1.80
	Region	.00	10.25	.03	.06	.33
	Nation	.00	10.02	.01	.02	.16
Land Area (square miles)	County	1	135,801	648	1184.1	2856.2
	State	61	586,400	54,212	69,876.7	74,970.9
Population	County	45	9,848,011	76,846	318,451.9	797,191.4
	State	225,000	36,828,939	4,090,306	5,894,688.6	5,810,231.2
Population Density (persons per square mile)	County	.04	83,541	110	699.6	3,115.7
	State	.38	12,548	88	249.7	935.9
White population proportion	County	5%	100%	94%	88.0%	14.9%
	State	24%	99%	88%	85.1%	12.1%
Urban population proportion	County	0%	100%	63%	57.8%	32.9%
	State	33%	100%	68%	68.3%	13.3%
Median Age (years)	County	19	59	34	34.7	6.8
	State	23	43	30	30.3	3.4
High school graduation rate	County	20%	99%	75%	72.3%	16.4%
	State	26%	93%	62%	61.9%	15.1%

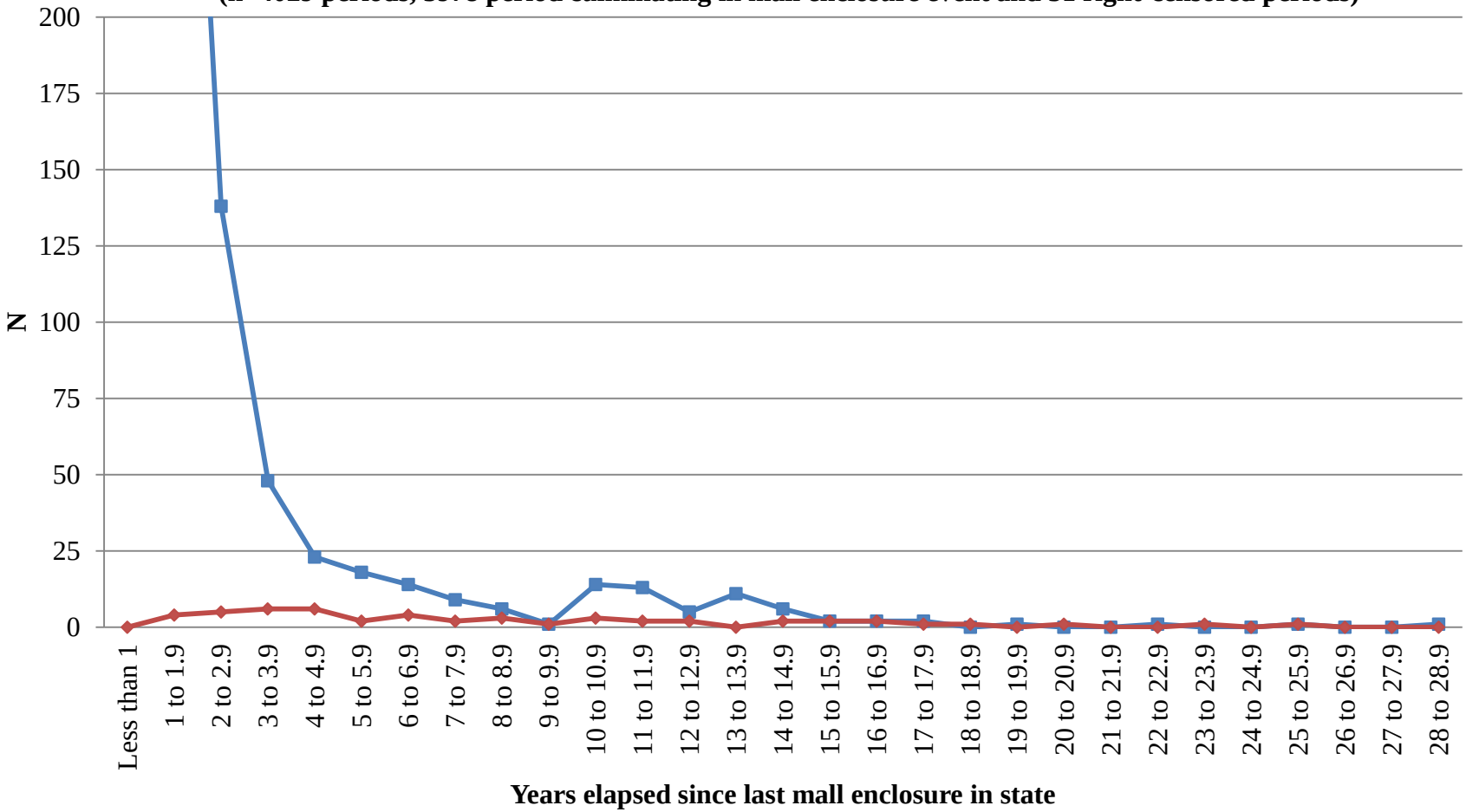
Table 4.1 (continued)						
	Geographic level	**Min**	**Max**	**Median**	**Mean**	**SE**
Bank deposits per capita, inflation adj. ($)	County	0	6,469	127	159.7	81.2
	State	29	2,249	125	137.9	86.3
Median household income, inflation adj. ($)	County	9,495	117,910	49,333	50,926.6	13,182.3
	State	23,797	85,220	50,704	51,375.5	9,150.2
Number of farms	County	0	7,924	725	903.8	790.4
	State	0	277,401	50,385	59,791.3	48,596.4
Number of manufacturers	County	0	21,119	88	516.2	1711.6
	State	70	49,930	5,548	8,940.6	9,842.6
Number of wholesalers	County	0	23,617	90	605.8	1769.0
	State	101	62,723	6,611	10,28.8	10,879.6
Number of service businesses	County	0	140,003	523	2,699.2	7,743.8
	State	875	452,606	25,775	43,908.2	53,007.0
Number of retailers	County	0	79,297	525	2,213.2	5,588.6
	State	1600	268,873	32,120	45,348.0	41,781.5
Retail sales, per capita, inflation adj. ($)	County	0	128,208	11,009	10,971.3	5,116.2
	State	5,698	21,236	11,195	11,179.3	1,866.8

Figure 4.3. Distribution of inter-arrival times, county level
(n=7112 periods, 3978 period culminating in mall enclosure event and 3134 right-censored periods)*



*2108 censored periods with survival time of 64 to 64.9 years (i.e., counties with 0 enclosed malls) not shown

Figure 4.4. Distribution of inter-arrival times, state level
(n=4029 periods, 3978 period culminating in mall enclosure event and 51 right-censored periods)*



*y-axis trucated to show graph detail (n=3250 periods culminating in mall enclosure event for survival durations of less than 1 year and n=415 for survival durations of 1 to 1.9 years

Table 4.2. Multiple event history analyses [+] (via Cox regression) of the time elapsed between mall enclosure events, county level						
	Full model			**Parsimonious model**		
	ln (HR)	***p***		**ln (HR)**	***p***	**HR (95% CI)**
Region		.161			.367	
East	.034					
Midwest	.004					
South	-.085					
West [reference category]						
County level factors						
Land area (unit: 10,000 sq. miles)	-.069	.455			.916	
Population size (unit: 100,000 persons)	.006	.016		.006	.003	1.01 (1.00, 1.01)
Change in population size (in 10% increments) [1]	.011	.081		.025	.009	1.03 (1.01, 1.04)
Population density (unit: 1,000 persons per sq. mile)	.029	.016		.013	.009	1.01 (1.00, 1.02)
Percent population that is white (in 10% increments)	-.014	.436			.602	
Change in white population (in 10% increments) [2]	-.007	.884			.575	
Urban population proportion (in 10% increments)	.067	.000		.064	.000	1.07 (1.04, 1.09)
Change in urban proportion (in 10% increments) [2]	-.044	.136			.120	
Median age (years)	-.010	.084		-.011	.025	0.99 (0.98, 1.00)
Change in median age (years) [2]	-.004	.790			.493	
High school graduation rate (in 10% increments)	-.014	.647			.915	
Change in graduation rate (in 10% increments) [2]	-.166	.019		-.193	.003	0.82 (0.73, 0.94)
Bank deposits (in $1,000,000s per capita) [3]	-.174	.876			.918	
Change in bank deposits (in 10% increments) [1]	-.002	.784			.714	
Median household income (in $1,000s) [3]	.005	.039		.007	.000	1.01 (1.00, 1.01)
Change in median household income (in 10% increments) [1]	.019	.301			.528	
Number of farms (per 1,000 persons)	-.012	.000		-.012	.000	0.99 (0.98, 0.99)
Change in number of farms (in 10% increments) [1]	-.005	.476			.359	
Number of manufacturers (per 1,000 persons)	-.085	.009		-.079	.007	0.92 (0.87, 0.98)
Change in number of manufacturers (in 10% increments) [1]	-.011	.136		-.016	.020	0.98 (0.97, 1.00)
Number of wholesalers (per 1,000 persons)	.014	.663			.904	
Change in number of wholesalers (in 10% increments) [1]	-.005	.353			.247	

Table 4.2 (continued).

	Full model			Parsimonious model		
	ln (HR)	***p***		**ln (HR)**	***p***	**HR (95% CI)**
Number of service businesses (per 1,000 persons)	.029	.014		.033	.001	1.03 (1.01, 1.05)
Change in number of service businesses (in 10% increments) [1]	.033	.000		.033	.000	1.03 (1.02, 1.05)
Number of retailers (per 1,000 persons)	-.034	.030		-.026	.071	0.97 (0.95, 1.00)
Change in number of retailers (in 10% increments) [1]	-.041	.001		-.051	.000	0.95 (0.93, 0.97)
Retail sales (in $1,000s per capita) [3]	.007	.393			.368	
Change in retail sales (in 10% increments) [1]	-.002	.761			.770	
Number of malls	.218	.000		.217	.000	1.24 (1.23, 1.26)
Number of malls, squared	-.003	.000		-.003	.000	1.00 (1.00, 1.00)
Number of shopping centers (in increments of 1,000) [4]	…			…		
Number of shopping centers, squared	…			…		
National level factors						
Number of malls (in increments of 100)	-.059	.079		-.080	.000	0.92 (0.89, 0.96)
Number of malls, squared	.003	.000		.003	.000	1.00 (1.00, 1.00)
Number of shopping centers (in increments of 1,000) [4]	.171	.000		.178	.000	1.20 (1.14, 1.25)
Number of shopping centers, squared	-.004	.000		-.004	.000	1.00 (0.99, 1.00)
Shopping center legitimacy level (range: 0-1)	-.184	.688			.883	
GDP (in $1 Trillions) [3]	-.485	.000		-.489	.000	0.61 (0.53, 0.71)
GDP growth rate (in 10% increments) [1]	.221	.000		.231	.000	1.26 (1.17, 1.35)
Federal Reserve Prime Rate (in 1% increments)	-.004	.673			.524	

[+] Model calculated without fixed effects (i.e. stratification variable). Coefficients are calculated based on both within and between county variance. N=7109 cases (3976 periods culminating in a mall enclosure event, with an additional 3133 right-censored periods).
[1] growth rate over previous 10 years
[2] difference versus 10 years prior
[3] inflation adjusted
[4] excluding enclosed malls, variable information not available at county level

Figure 4.5. Relative mall hazard by county-level mall density

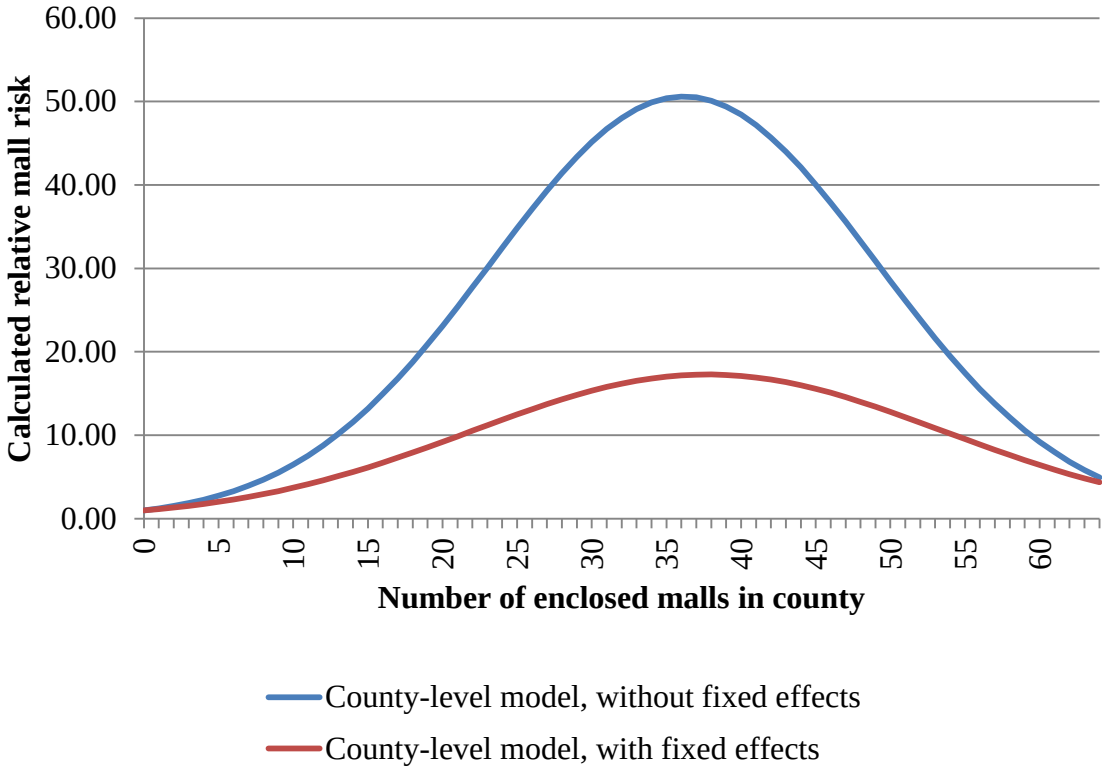


Figure 4.6. County-level relative mall hazard by national-level mall density

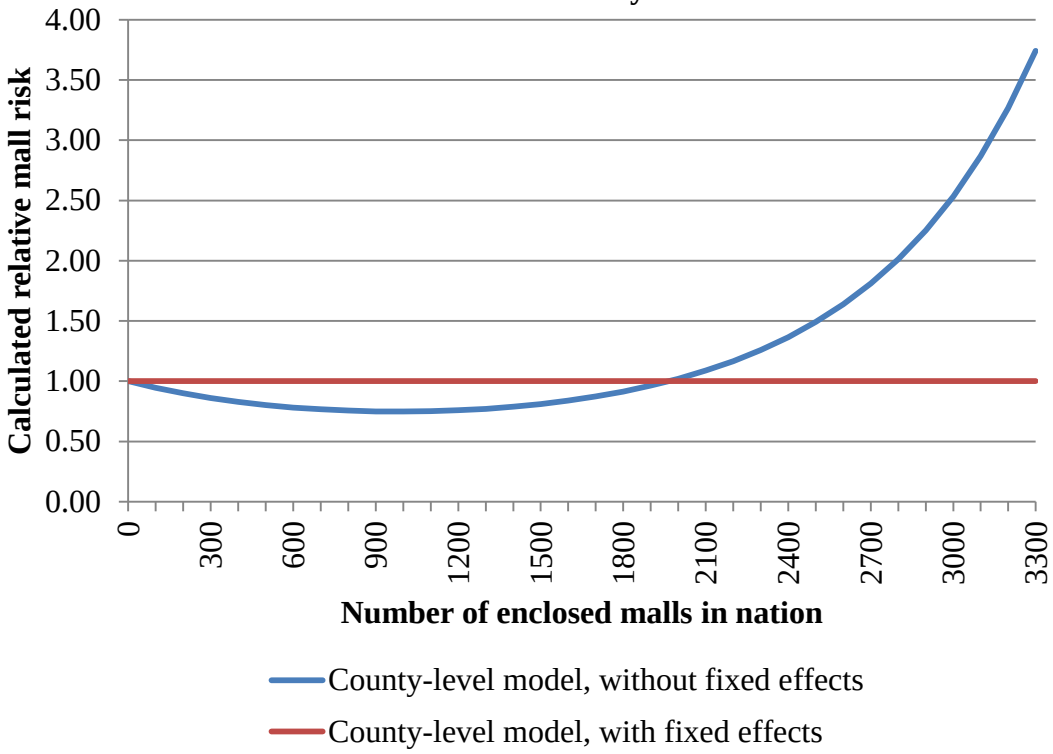


Figure 4.7. County-level and state-level relative mall hazard by national-level non-enclosed shopping center density

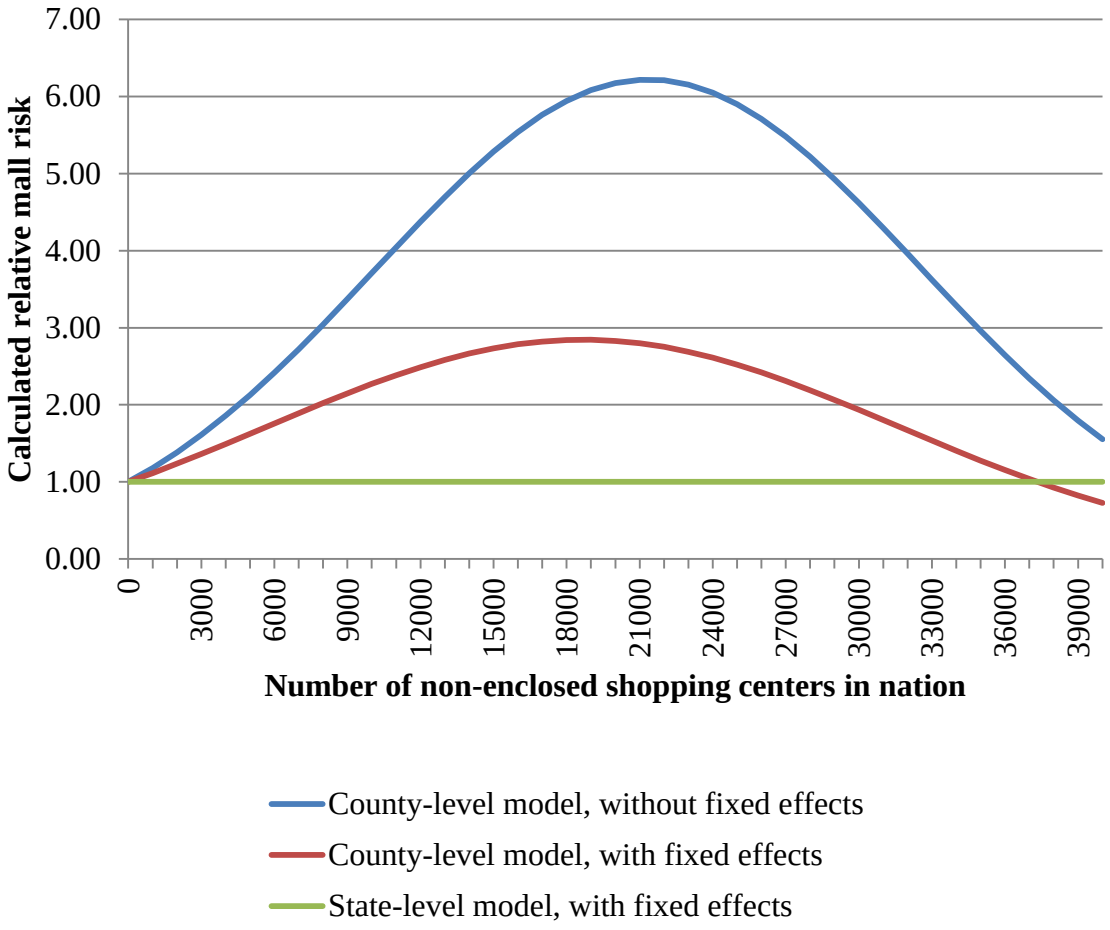


Table 4.3. Multiple event history analyses with fixed effects [+] (via Cox regression) of the time elapsed between mall enclosure events, county level						
	Full model			**Parsimonious model**		
	ln (HR)	***p***		**ln (HR)**	***p***	**HR (95% CI)**
County level factors						
Land area (unit: 10,000 sq. miles)	-2.780	.532			.812	
Population size (unit: 100,000 persons)	-.016	.290			.329	
Change in population size (in 10% increments) [1]	.014	.565			.198	
Population density (unit: 1,000 persons per sq. mile)	-.113	.018		-.113	.022	0.89 (0.81, 0.98)
Percent population that is white (in 10% increments)	-.089	.323			.265	
Change in white population (in 10% increments) [2]	-.026	.767			.511	
Urban population proportion (in 10% increments)	.008	.874			.931	
Change in urban proportion (in 10% increments) [2]	.030	.614			.690	
Median age (years)	-.027	.337			.132	
Change in median age (years) [2]	-.027	.320			.288	
High school graduation rate (in 10% increments)	-.226	.071		-.206	.047	0.81 (0.66, 1.00)
Change in graduation rate (in 10% increments) [2]	-.398	.005		-.301	.018	0.74 (0.58, 0.95)
Bank deposits (in $1000s per capita) [3]	2.721	.577			.226	
Change in bank deposits (in 10% increments) [1]	.005	.654			.383	
Median household income (in $1,000s) [3]	.022	.008		.019	.007	1.02 (1.01, 1.03)
Change in median household income (in 10% increments) [1]	-.030	.330			.856	
Number of farms (per 1,000 persons)	-.040	.000		-.047	.000	0.95 (0.94, 0.97)
Change in number of farms (in 10% increments) [1]	-.021	.086			.121	
Number of manufacturers (per 1,000 persons)	-.715	.000		-.749	.000	0.47 (0.37, 0.60)
Change in number of manufacturers (in 10% increments) [1]	.011	.453			.104	
Number of wholesalers (per 1,000 persons)	-.115	.278			.258	
Change in number of wholesalers (in 10% increments) [1]	.013	.296			.233	
Number of service businesses (per 1,000 persons)	-.004	.878			.618	
Change in number of service businesses (in 10% increments) [1]	.012	.307		.026	.001	1.03 (1.01, 1.04)
Number of retailers (per 1,000 persons)	-.093	.044		-.102	.000	0.90 (0.85, 0.95)
Change in number of retailers (in 10% increments) [1]	.001	.974			.591	

Table 4.3 (continued).						
	Full model			**Parsimonious model**		
	ln (HR)	***p***		**ln (HR)**	***p***	**HR (95% CI)**
Retail sales (in $1000s per capita) [3]	.029	.127			.362	
Change in retail sales (in 10% increments) [1]	-.003	.782			.400	
Number of malls	.159	.000		.151	.000	1.16 (1.13, 1.20)
Number of malls, squared	-.002	.000		-.002	.000	1.00 (1.00, 1.00)
Number of shopping centers (in increments of 1,000) [4]	…			…		
Number of shopping centers, squared	…			…		
National Level Factors						
Number of malls (in increments of 100)	.018	.729		.039	.164	1.04 (0.98, 1.10)
Number of malls, squared	.001	.148		.001	.088	1.00 (1.00, 1.00)
Number of shopping centers (in increments of 1,000) [4]	.102	.013		.112	.001	1.12 (1.05, 1.19)
Number of shopping centers, squared	-.002	.012		-.003	.000	1.00 (1.00, 1.00)
Shopping center legitimacy level (range: 0-1)	.455	.488			.731	
GDP (in $1 Trillions) [3]	-.491	.000		-.486	.000	0.61 (0.51, 0.74)
GDP growth rate (in 10% increments) [1]	.155	.004		.164	.001	1.18 (1.07, 1.30)
Federal Reserve Prime Rate (in 1% increments)	.007	.541			.549	

[+] Fixed effects (i.e. stratification) were applied at the county level. Coefficients were calculated based on within-county variance alone, with counties with fewer than two mall enclosure events (2313 cases) being excluded from the analysis. N=4798 cases (3976 periods culminating in a mall enclosure event, with an additional 822 right-censored periods).

[1] growth rate over previous 10 years

[2] difference versus 10 years prior

[3] inflation adjusted

[4] excluding enclosed malls, variable information not available at county level

Table 4.4. Multiple event history analyses with fixed effects [+] (via Cox regression) of the time elapsed between mall enclosure events, state level						
	Full model			**Parsimonious model**		
	ln (HR)	***p***		**ln (HR)**	***p***	**HR (95% CI)**
State level factors						
Land area (unit: 10,000 sq. miles)	-.446	.336			.374	
Population size (unit: 1,000,000 persons)	.192	.000		.158	.000	1.17 (1.08, 1.27)
Change in population size (in 10% increments) [1]	1.694	.006		1.089	.019	2.97 (1.20, 7.37)
Population density (unit: 1,000 persons per sq. mile)	-.106	.000		-.112	.000	0.89 (0.85, 0.94)
Percent population that is white (in 10% increments)	-.579	.000		-.619	.000	0.54 (0.44, 0.65)
Change in white population (in 10% increments) [2]	.104	.315			.136	
Urban population proportion (in 10% increments)	-.003	.981			.895	
Change in urban proportion (in 10% increments) [2]	.067	.591			.209	
Median age (years)	-.020	.647			.628	
Change in median age (years) [2]	-.071	.138		-.077	.049	0.93 (0.86, 1.00)
High school graduation rate (in 10% increments)	-1.020	.000		-.985	.000	0.37 (0.29, 0.49)
Change in graduation rate (in 10% increments) [2]	-.218	.318			.484	
Bank deposits (in $10,000s per capita) [3]	.896	.068		1.279	.001	3.59 (1.68, 7.70)
Change in bank deposits (in 10% increments) [1]	.025	.123			.294	
Median household income (in $1,000s) [3]	.013	.343			.344	
Change in median household income (in 10% increments) [1]	.051	.110		.080	.001	1.08 (1.03, 1.14)
Number of farms (per 1,000 persons)	-.016	.123		-.018	.024	0.98 (0.97, 1.00)
Change in number of farms (in 10% increments) [1]	-.025	.279			.307	
Number of manufacturers (per 1,000 persons)	-.186	.378			.238	
Change in number of manufacturers (in 10% increments) [1]	.036	.348			.309	
Number of wholesalers (per 1,000 persons)	-.154	.561			.702	
Change in number of wholesalers (in 10% increments) [1]	-.190	.000		-.169	.000	0.84 (0.79, 0.09)
Number of service businesses (per 1,000 persons)	.057	.272			.351	
Change in number of service businesses (in 10% increments) [1]	.029	.120		.043	.000	1.04 (1.02, 1.06)
Number of retailers (per 1,000 persons)	-.028	.707			.526	
Change in number of retailers (in 10% increments) [1]	.071	.088		.056	.003	1.06 (1.02, 1.10)

Table 4.4 (continued).						
	Full model			**Parsimonious model**		
	ln (HR)	***p***		**ln (HR)**	***p***	**HR (95% CI)**
Retail sales (in $1000s per capita) [3]	.180	.002		.148	.000	1.16 (1.08, 1.25)
Change in retail sales (in 10% increments) [1]	-.044	.031		-.025	.098	0.98 (0.95, 1.00)
Number of malls (in increments of 10)	.350	.000		.330	.000	1.39 (1.31, 1.47)
Number of malls, squared	-.013	.000		-.012	.000	0.99 (0.99, 0.99)
Number of shopping centers (in increments of 1,000) [4]	-.831	.002		-.657	.000	0.52 (0.38, 0.71)
Number of shopping centers, squared	.009	.815			.339	
National level factors						
Number of malls (in increments of 100)	.194	.002		.241	.000	1.27 (1.20, 1.35)
Number of malls, squared	-.003	.013		-.004	.000	1.00 (0.99, 1.00)
Number of shopping centers (in increments of 1,000) [4]	.019	.675			.509	
Number of shopping centers, squared	.000	.740			.427	
Shopping center legitimacy level (range: 0-1)	1.351	.015		1.216	.011	3.37 (1.32, 8.64)
GDP (in $1 Trillions) [3]	-.334	.004		-.265	.000	0.77 (0.70, 0.84)
GDP growth rate (in 10% increments) [1]	-.041	.422			.201	
Federal Reserve Prime Rate (in 1% increments)	.019	.082			.188	

[+] Fixed effects (i.e. stratification) were applied at the state level. Coefficients were calculated based on within-state variance alone. N N=4027 cases (3976 periods culminating in a mall enclosure event, with an additional 51 right-censored periods).
[1] growth rate over previous 10 years
[2] difference versus 10 years prior
[3] inflation adjusted
[4] excluding enclosed malls

Figure 4.8. State-level relative mall hazard by state-level mall density

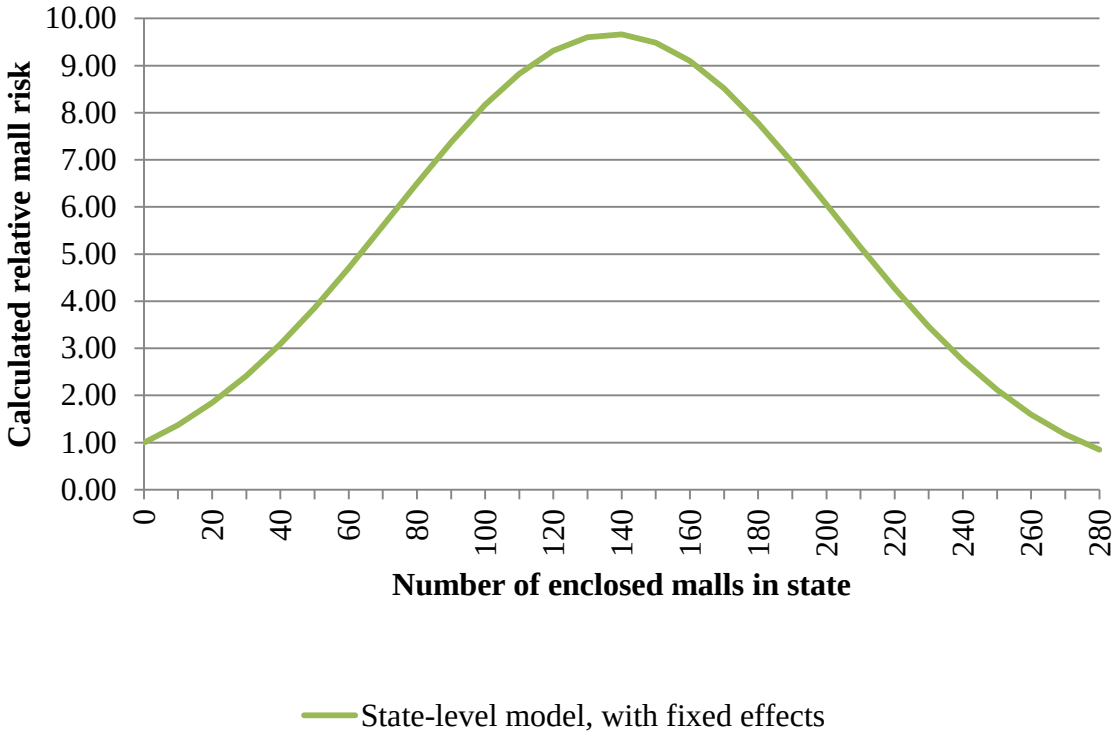
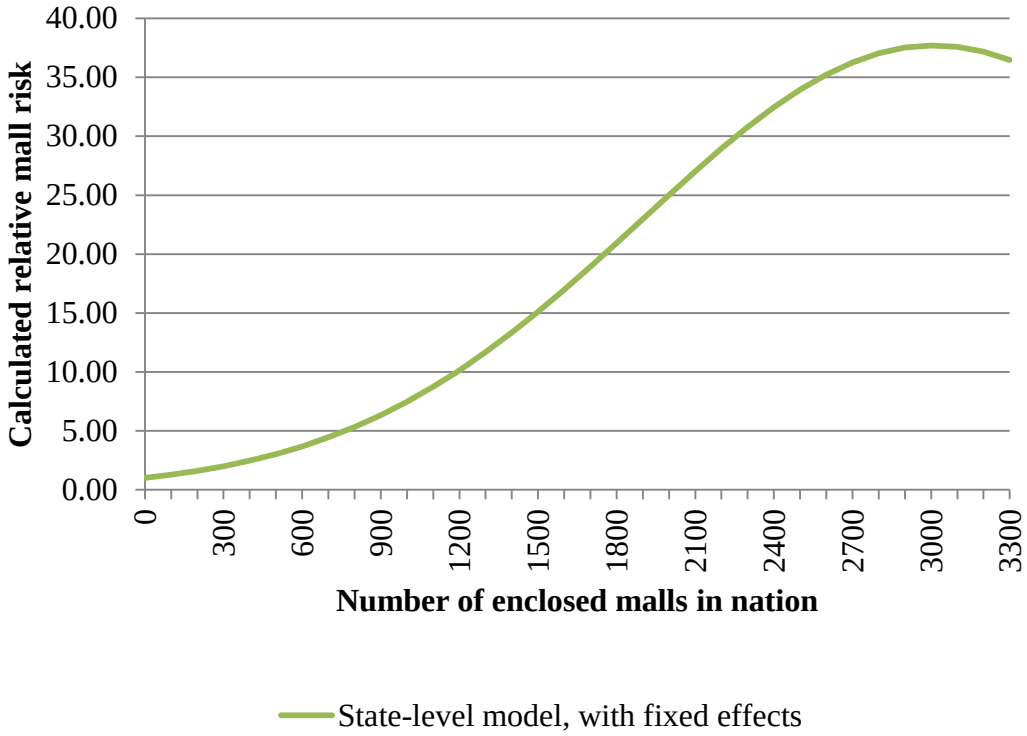


Figure 4.9. State-level relative mall hazard by national-level mall density



Chapter 5: Predictors of survival for enclosed shopping malls in the United States, 1956-2009

In a recent article in *Shopping Centers Today*, the present and future prospects for the enclosed mall sector were reported to be very positive (Hazlett 2009). While it was acknowledged that there have been some failed malls, the rhetoric of the article clearly painted these failures as the exception rather than the rule, the result of "tertiary" locations. A 1999 industry study of vacancy rates in regional and super-regional enclosed malls came to a similar conclusion: poor site selection and adverse demographic shifts in marginal mall locations were claimed to account for nearly all of the 140 observed mall failures (Congress for the New Urbanism 2001). The shopping center industry is clearly advocating the hypothesis that the enclosed mall sector is healthy and that few enclosed malls are at serious risk for failure. These accounts stand in sharp contrast to online accounts of mall failures (Florence et al. 2011) and to contemporaneous popular press accounts which claim that the enclosed mall sector is suffering a slow decline (Krantz et al. 1998; Max 2003).

Since the emergence of the first enclosed shopping mall in 1956 (Southdale Center, Inc; Edina MN), nearly 4,000 examples of this organizational form have been built. Today, only about 2,700 of these survive as retail structures (only about 2,000 of these in operation as enclosed malls). These numbers alone cast doubt on the industry's claims that mall failure is rare. Yet, it remains unclear whether failed malls are the result of mall-specific circumstances or are endemic to the industry as a whole. Studies of mall failure have lent valuable insight to this debate (see below). Yet mall failure – a longitudinal process – has seldom been studied longitudinally.

In the present study, I analyze three types of mall failure – complete closure, high vacancy, and enclosed mall demolition during remodeling – using data collected from commercial real estate industry and government sources. Mall characteristics, market demographics, and national economic conditions are examined as potential predictors of mall failure using multivariate survival models. These models seek to answer three basic questions. Is the phenomenon of mall failure idiosyncratic or systemic? To what degree does initial site selection affect survival when compared to the effect of subsequent changes in the demographic and economic environment? Has the relatively recent rise of e-commerce, big-box stores, power centers, and discount department stores adversely affected the mall industry in the ways predicted by the popular press?

LITERATURE REVIEW

The importance of inter-retailer competition in real estate industry models of shopping center failure

In the *Greyfield Regional Mall Study* (Congress for the New Urbanism 2001), both adverse changes in the demographic characteristics of a mall's market area and adverse changes in competitive pressure from other retail centers are seen as the dominant factors explaining mall failure. With respect to the former, the most important factors noted were household income and wealth, the average age of the population, and population size. With respect to the latter, the most important characteristics of the enclosed mall were its age, size, the number of other retailers with which it must compete, and the degree to which the center's competition includes the newly emerged power centers and large discount stores. The analyses and recommendations

made were based on the premise that mall failure indicates the inadequacy of the location as a retail site rather than indicating an inappropriate choice of retail form.

The majority of the retail trade literature, however, focuses strictly on competition dynamics. Two views of competition emerge in this literature, the first stressing which features of a shopping center produce a competitive advantage and the second seeking explanations for why inter-retailer competition seldom appears to become deleterious.

One prominent factor in the literature used to explain the level of competition between shopping centers involves differences in the size and market positioning of anchor stores. Scholars have found that highly competitive anchor tenants can induce changes in shopping center preferences, whether due to product offerings (Timmermans, Borgers and Vanderwaerden 1992) or store image (Mejia and Eppli 2003). Other scholars have come to similar conclusions regarding the importance of the anchor tenant, including those who have found that the content of the center had a much larger impact on performance than did its actual location (Eppli and Shilling 1996; Gautschi 1981).

Others, however, place greater emphasis on the size of the shopping center (size implies product diversity) rather than on the features of the major tenants alone. The retail literature is nearly unanimous in the view that larger centers have the ability to draw traffic away from smaller ones. Studies have found that shopping centers located in less-populated areas can often draw customers away from existing centers if they are sufficiently large (Hardin and Carr 2006) and not too inconveniently located (Geisel, Narasimhan and Sen 1993). In fact, merchants within a given shopping center often benefited from increased customer traffic when another store in the center expanded, even if that other store was a competing merchant (Brueckner 1993). While location factors were the primary focus of the *Greyfield Regional Mall Study* (Congress for the

New Urbanism 2001), center size was also acknowledged as a leading factor explaining the competitiveness of a given enclosed mall.

However, smaller centers do have an advantage related to their size in a certain way. Research has found strong differences in product search behaviors and durations of the shopping trip between shopping centers of differing sizes (Baker 1994). Consumers tend to spend more time and engage in less structured product searching when in a large regional or super-regional center. In contrast, shopping trips to small centers tend to be short, with consumers focusing on obtaining only those items for which they had planned in advance. As a consequence, trips to smaller centers tend to be conducted at more frequent and regular intervals. The adverse impacts of a larger, but somewhat distant shopping center can therefore be mitigated by being located centrally in a well-populated area. Such a location can render even a small center more convenient for quick, utilitarian-oriented shopping trips and thus help to ensure its survival.

The age of a shopping center, however, has received much less attention in the real estate literature, though one of the earliest studies of shopping centers noted that newness alone was often enough to cause consumers to change their shopping patterns (Schapker 1956). Age was also noted as a significant predictor of mall failure in the *Greyfield* study, where it was noted that failing malls tended to be eight to ten years older than healthier malls. Age, however, has been a difficult factor to take into consideration due to the effects of frequent shopping center renovations. Thus, data on a center's age tends to reflect the age of the retail location to a somewhat greater extent than it reflects on the level of obsolescence of the retail structure itself. Nevertheless, it is widely acknowledged that centers that fail to "keep themselves young" are at a heightened risk of failure.

Given this view of continuous competition between shopping centers, one would expect very high levels of turnover in the shopping center industry. This tendency, if true, would be compounded by the actions of shopping center developers. Researchers have noted that shopping center developers have an strong propensity to develop new retail space, with minimal regard to objective economic conditions, and will only refrain from doing so if constrained by a lack of capital access, zoning restrictions, or other similar external constraints (Benjamin, Jud and Winkler 1995).

While the factors seen as governing shopping center development and inter-center competitiveness suggest that deleterious levels of retail saturation are an ever-present danger, much research has shown that shopping center failures are seldom the result. In fact, when competition does lead to firm failure it is often only the final triggering mechanism rather than the underlying cause (Howard and Davies 1993). The role of development gatekeepers has been found to be one factor explaining why inter-center competition has normally been kept to a manageable level. Those who finance shopping center development (such as real estate investment trusts) keep a careful eye on retail saturation levels, and research has shown that financing bodies do restrict further development (Lord 2000). This type of countervailing action is also taken by governing bodies and major chain tenants in existing shopping centers, who are less likely to grant zoning approval or sign leases for space in proposed centers when saturation levels are high enough to place their existing stores at risk (Hallsworth 1994; Jacobs 1984; Lord 2000).

However, the implementation of such restrictions is relatively rare. Very high saturation levels are seldom reached due to rising income levels and the accompanying increase in retail development opportunities (Eppli and Shilling 1995), including those for large centers. Research

has found that higher levels of retail concentration for regional and super-regional centers did push maximum obtainable profits down for both center types, but the magnitude of the effect was small due to the effect of rising incomes (Des Rosiers, Theriault and Lavoie 2009). Falling incomes, however, are another matter as reductions in the size of the consumer spending base can bring about acute levels of inter-center competition and cause center failures (Hardin and Carr 2006) or impel some centers to seek new market niches (Lord 2000).

In addition to the reduction of competitive pressures due to external gatekeepers or rising consumer purchasing power, residential stability tends to create a corresponding stability in shopping preferences and habits. For most types of shopping centers, distance from residential areas to the shopping center remains the most important determinant of shopping patterns. Thus, a new shopping center will not impact a shopper's choices unless it is more conveniently located along their established travel routes (Lee and Pace 2005; Yilmaz 2004). This fact alone would tend to reduce the level of inter-center competition, as open land for the development of a new, more conveniently-located center would likely be expensive or impossible to obtain. It may also help explain why new shopping centers tend to choose locations close to existing ones rather than seeking altogether new retail locations. Whether a new center located further away from a consumer's established travel routes is large or novel enough to cause a shift in consumption patterns is somewhat questionable, as research has also shown that consumer perceptions of the appeal of new centers has a large random component (Severin, Louviere and Finn 2001) and therefore perceptions might not be not strongly influenced by advertising campaigns or other similar promotion techniques.

Environmental models of organizational failure

While the present study is the first that I am aware of to examine the determinants of shopping center and enclosed mall survival and failure from an organization-studies perspective, organizations scholars have long been interested in failure processes. This is particularly true for the literature on the effects of external environments on organizations that is the focus of this dissertation.

While most have stressed the importance of organizational adaptation for survival, some have found that change can actually be an important cause of organizational failure (Dobrev, Kim and Carroll 2003; Hannan and Freeman 1977). Baum and Oliver (1991) also found evidence that attempts at organizational change could hasten a firm's demise, though they stressed that this phenomenon largely operated among organizations with few ties to external institutions. Later research in this vein stressed that a threshold effect actually may be at work, with changes to the "core" of the organization negatively affecting survival while "periphery" changes were not detrimental (Singh, House and Tucker 1986). This finding was echoed by Barnett and Freeman as well, who found that organizational adaptation was only harmful to the organization if undertaken in too great a quantity (Barnett and Freeman 2001). Little work, however, has been done to explore how one determines the change-tolerance threshold and thus definitions of what constitutes "too much change" or a "core change" remain ad hoc.

Just as organizational density has been seen as an important predictor of organizational foundings, Organizational Ecologists have extended density dependence theory to the analysis of organizational mortality. The most common findings in such analyses is that the association between density and mortality is non-linear, with high failure rates at low densities, low failure rates at moderate densities, with high failure rates returning at high densities (Carroll et al. 1993;

Carroll and Hannan 1989a; Hannan and Freeman 1988). Subsequent research has sought to more clearly delineate the conditions under which this pattern holds. Baum and Oliver (1991), found that density dependence predictions held for Toronto's daycare industry, except in those cases where individual organizations had a high level of linkages with external institutions (which buffered the adverse effect of competition at high densities). While also noting that density dependence was present, Dobrev, Kim, and Hannan (2001) found that the competitive pressure found at high densities also prompted organization-preserving transitions to alternative market niches and thus did not lead to failure as strongly as in previous analyses. Delacroix, Swaminathan, and Solt (1989) came to a similar conclusion regarding the effectiveness of migrating to an alternative market niche in the pursuit of survival, though they did not find support for the density dependence model in any form. Others have also found limitations in the density dependence model stemming from issues related to the level of analysis. Swaminathan and Wiedenmayer (1991) noted that the expected density dependence patterns were observed at the national and state levels in their analysis of brewery failures, but noted that the model did not hold at the city level. As with the analysis of enclosed mall diffusion reported in Chapter 4, this suggests the possibility that density dependence models fail to adequately capture the effects of competition and resource constraints by failing to match the level of analysis to the scope of the market area of the firms under examination. There remains, however, some evidence that density dependence predictions may hold at the local level as well (Barron, West and Hannan 1994).

The age of the organization has also been found to be related to survival probabilities, though substantial disagreement exists as to whether there is a liability associated with organizational youth (Carroll et al. 1993; Carroll and Delacroix 1982; Dobrev, Kim and Hannan 2001), adolescence (Bruderl and Schussler 1990), or senescence (Barron, West and Hannan

1994). The preponderance of the studies, however, suggests that the relative lack of resources in the early years of an organization contributes to the especially elevated failure rates among young firms. Subsequent research has, however, noted certain exceptions to the "liability of newness", with the failure rates being elevated in the early years for large organizations alone (Hannan et al. 1998a). Small organizations, especially those with low operating costs, experience elevated failure risks in later years.

As suggested by Hannan and colleagues' (1998a) finding of an interaction between organizational age and size, size alone is also an important predictor of survival rates. Nearly all the research on this factor has shown that smaller firms are more likely to fail than larger ones (Barron, West and Hannan 1994; Carroll et al. 1993; Dobrev, Kim and Hannan 2001). While this at first seems to suggest that it is large firms that drive smaller ones out of business, research has shown that competitive pressure is created most intensely by firms with similar sizes (Dobrev and Carroll 2003; Ranger-Moore, Breckenridge and Jones 1995). The reasons for why size is almost always negatively associated with failure vary. Ecological and managerial approaches to organization studies argue that the greater availability of slack resources in a large organization provides an important buffer against short-lasting economic downturns. Environmental Control Theorists, however, take a different view. This latter body of work argues that large organizations have a greater ability to survive because they have a non-trivial degree of control over their operating and institutional environments (Barley 2007; Barley 2010; Greenwood 2008; Perrow 2002; Smangs 2008). Large firms, according to this view, tend to survive because they can prevent many adverse changes in their organizational environments.

Other factors have also been studied in relation to organizational mortality, including industry age, macro-economic conditions, and shifts in market-area demographics. With respect

to industry age, research has both found that morality declines as an industry matures (Carroll and Delacroix 1982) and that organizations grouped into an industry tend to fail as a group rather than on a more individual basis (Hannan et al. 1998b), a process which can operate quite rapidly after an industry reaches maturity (Lomi, Larsen and Freeman 2005). With respect to macro-economic conditions, GDP is the most commonly-assessed indicator. Findings with respect to GDP usually note that failure rates are lowest during periods of economic growth (Carroll et al. 1993; Carroll and Delacroix 1982) or at peaks in the business cycle (Dobrev, Kim and Carroll 2003), though GDP has at times been found to be a non-significant predictor (Dobrev, Kim and Hannan 2001). Finally, while market area demographics are focused upon by real estate scholars (see previous section), surprisingly little attention is given these factors in organizational analyses. Studies that do assess one or more market-area demographics tend to report indeterminate findings (e.g., Carroll et al. 1993 with respect to population size).

The present study

In the present study, I examine the effect of market-level factors, macro-economic and industry factors, and the characteristics of an enclosed mall on mall survival using Cox and logistic regressions. The effects of organizational adaptations on survival are examined by examining differences in survival rates for those enclosed malls that made core-level changes in their structures to those that did not. The effects of organizational size and age are also examined. The particular focus of the present study is, however, the effect of various market-level characteristics on enclosed mall survival. The market-level factors examined include population size, racial distribution, urban density, median age, education levels, asset levels, median household income, the size of selected business sectors (agricultural, manufacturing,

wholesaling, service, and retailing), and the number of competing enclosed malls in the same market area (this lattermost factor being especially important for examining the effects of competition and for assessing density-dependence theory). Regional differences in failure rates are also examined. Macro-level factors that are assessed in the present study include enclosed mall density, non-enclosed shopping center density, mall industry age, GDP, and interest rate levels. The findings highlight the importance of market-level factors, as is emphasized by real estate industry scholars. However, the results often contradict the predictions of both real estate scholars and organizational scholars, particularly with respect to the effects of inter-mall competition and the effects of major organizational adaptations.

METHODS

Unit of analysis

The unit for all analyses was the enclosed mall organization, which consisted of any shopping center that presently or formerly contained an enclosed mall structure, whether the enclosed mall comprised the entirety or only a portion of the total shopping center structure. As described in Chapter 4, any enclosed mall that was listed for fewer than 10 years was assumed to have never advanced past the planning stage and these 645 cases were accordingly excluded from the analysis.

Statistical methods

Data were analyzed using both Cox regression and logistic regression (Allison 2005; Allison 2006) using SPSS 18. As noted in Chapter 2, the first enclosed mall opened in Edina, MN in 1956. Accordingly, analyses were conducted for the period 1956 through 2009. For both

the Cox and logistic regression, each enclosed mall contributed only one case to the analysis. The Cox regression analysis was based on the 3,857 malls which were opened between 1956 and 1999, with the 106 malls opened between 2000 and 2009 being excluded from the analysis due to their corresponding survival times being less than the shortest survival time among the 1,184 malls defined as having failed (see below). Unlike Cox regression, logistic regression does not incorporate the capability to use data from censored cases (i.e. those where the exposure duration was not long enough to ensure that the case was susceptible to the event of interest). Accordingly, a cross-tabulation of the year in which a mall was opened by survival status was used to subjectively determine the minimum exposure time (20 years) used to select cases for the analysis. The logistic regression analysis was accordingly based on the 3,593 malls that were opened between 1956 and 1989, with the 370 malls opened between 1990 and 2009 being excluded from the analysis. Mall failure events were assumed to be independent and all analyses were accordingly calculated without fixed effects. Coefficients from both the Cox and logistic regressions provide information on which factors explain the likelihood of the failure of an enclosed mall, with the results from the Cox regressions being in the form of hazard ratios and the results from the logistic regressions being in the form of odds ratios.

Dependent variables

Data on the survival status of each current and former enclosed mall were extracted from shopping center directories compiled by the National Research Bureau (1957-1976; 1977-1992; 1993-2006) and by CoStar Group (2009), with supplementary survival data being obtained from an online community dedicated to tracking the "dead mall" (i.e., ultra-high vacancy rate) phenomenon (Florence et al. 2011).

Three types of mall failure were considered in the analysis: complete mall closure, removal of the enclosed mall structure during renovation (with the resulting non-enclosed shopping center remaining open), and high vacancy rate (i.e., "Greyfield Malls"; see Congress for the New Urbanism 2001). Each current/former mall that was not listed in the 2009 directory of shopping centers was classified as having undergone complete mall closure. Direct reports of the date of closure were available in only 101 cases, with the remaining closure dates were approximated using the year in which the center was last listed (Pearson correlation between externally verified date of closure and year of last listing = 0.633). Cases where a current/former mall was listed in the 2009 directories, but not listed in the corresponding list of enclosed malls from 2009 were classified as having the enclosed mall structure removed during a renovation. Finally, cases where a current mall was listed in the 2009 directories and identified as a "dead mall" on deadmalls.com were classified as having an unusually high vacancy rate.

Cox regression, which requires time to failure, was run with failure defined as complete shopping center closure only. Survival time was defined as the time elapsed between the original construction of the shopping center structure and its closure, regardless of whether the shopping center included an enclosed mall structure from the beginning or acquired an enclosed mall during a subsequent remodeling (which was observed among shopping centers originally built prior to 1956). Due to the absence of survival time data, enclosed malls that remained in operation though nearly vacant and shopping centers where the enclosed mall structure was removed during a subsequent remodeling (but otherwise remained in operation) were treated the same as malls that were open and viable. Thus, for the Cox regression the comparison group consists of any current or former mall remaining in operation in any capacity as of January 2009.

Logistic regression, which requires a dichotomous outcome variable but does not require data on survival durations, was run with a current/former mall being classified as failed if any of the above three events occurred. For the logistic regression, the comparison group consists only of those shopping centers that retained an enclosed mall structure and remained in operation with a low vacancy rate as of January 2009.

Independent variables

Predictor variables were assessed at the organizational level, the county level (which, as described in Chapter 4, is approximately equivalent to a mall's market area), and the national level. All predictors were assessed as of the year in which a current/former mall ceased operations (2009 in the case of centers remaining in operation). All three levels (organizational, county and national) of predictors were used for the Cox regressions. Only the organizational and county-level predictors were used in the logistic regressions, due to the lack of variation inherent in the national-level predictors among malls surviving to 2009.

Organizational level predictors

Data on remodeling activities, square feet of gross leasable area, mall type, the year in which the shopping center was built, and the year in which an enclosed mall was built were obtained directly from the shopping center directories discussed above and in Chapter 4.

Three type of remodeling activities were considered: the conversion of a historic non-shopping structure to a shopping facility that included an enclosed mall, the conversion of a non-enclosed shopping center to a mall through the construction of a new enclosed mall structure, and the conversion of a mall to a non-enclosed shopping center through the demolition of the

enclosed mall structure. First, conversions of historic structures to enclosed malls were identified using directory data on the year in which a structure was built. Enclosed malls with structures constructed prior to 1923 (i.e., the year in which the first shopping center was built) were assumed to have been such conversions. Enclosed malls with structures built between 1923 and 2009 were assumed to have been constructed as shopping facilities from the onset. Second, conversions of non-enclosed shopping centers to the enclosed mall form were identified using both the data on the year in which a structure was built and the listings of enclosed malls produced in the 1961 and 1962 shopping center directories. All cases where the shopping center structure was built after 1923 but prior to 1956 (i.e., the year in which the first enclosed mall was built) were assumed to be conversions of non-enclosed shopping centers. Shopping centers built between 1956 and 1961, but not included in the lists of enclosed malls from 1961 or 1962 were also assumed to have been conversion of non-enclosed shopping centers. For all the remaining cases (i.e., those built from 1962-2009), the shopping center was assumed to have included an enclosed mall structure from the onset. Finally, conversions of enclosed malls to non-enclosed shopping centers were identified as described in the preceding section (i.e., cases where a current/former mall was listed in the 2009 directories but not listed in the corresponding list of enclosed malls from 2009).

Data on the gross leasable area (GLA) of each current and former enclosed mall was obtained from the directories. This data was used both in its raw form (GLA at last listing) and following conversion to an ordinal level measure. Prior to 1985, GLA was reported as a range rather than as an exact number, and the midpoint of the range was accordingly used to estimate the exact GLA. As discussed in Chapter 4, the shopping center industry currently recognizes five categories for centers (convenience, neighborhood, community, regional, and super regional),

defined based on GLA and anchor characteristics. Historically, however, only four categories were recognized, with each category being defined based on GLA alone. To ensure longitudinal consistency in the data, four-category ordinal measure was used. A mall was classified as a neighborhood center is the GLA was between 0 and 99,999 square feet. Malls with 100,000 to 299,999 square feet, 300,000 to 749,999 square feet, and 750,000 or more square feet were classified as community, regional, and super regional centers, respectively (see Beyard, O'Mara and others 1999; National Research Bureau 2006). In the cases where the size category was reported but no data was reported for GLA, the size of the center was assumed to equal the typical GLA (see Beyard, O'Mara and others 1999) for the corresponding category (50,000 square feet if a convenience or neighborhood center; 150,000 square feet if a community center; 400,000 square feet if a regional center; and 750,000 square feet if a super regional center. If neither GLA or center type was reported, the shopping center was assumed to be a small neighborhood center, as is standard industry practice (see National Research Bureau 2006).

The year in which an enclosed mall structure was built (both for new enclosed malls and remodels of existing shopping centers) was used to define five adopter categories. According to Diffusion Theory (see Rogers 2003), the distribution of adoption times is approximately normal, and adopter categories can be defined using z-scores. The first 2.5% of adoptions are classified as "innovators" ($z < -2.00$), the next 13.5% are classified as "early adopters" ($-2.00 \leq z < -1.00$), the next 32.0% are classified as "early majority" ($-1.00 \leq z < 0.00$), the next 32% are classified as "late majority" ($0.00 \leq z < 1.00$), and the final 16% are classified as "laggards" ($z \geq 1.00$). In the current study, enclosed malls built between 1956 and 1962 were the innovators, with the early adopters being built from 1963-1966, the early majority from 1967-1973, the late majority from 1974-1985, and the laggards from 1986-2009.

County level predictors

Variable information for the region in which a mall was located, population size, percentage of the population that was white, percentage of the population residing in an urban area, median age, high school graduation rate, per capita bank deposits, median household income, number of business establishments per capita (farms, manufacturers, wholesalers, service businesses, and retailers), per capita retail sales, and number of enclosed malls in operation was obtained as described in Chapter 4. As before, the ten-year rate of change was also computed for most demographic variables (population size through per capita retail sales) in order to track longitudinal changes in market area conditions.

National level predictors

Nation-level data on the number of enclosed malls, number of non-enclosed shopping centers, GDP, and prime interest rate were also obtained as described in Chapter 4. In addition, the mall industry age at the time of mall closure (or right-censoring) was computed (industry age = 0 in 1956). This was done in order to test the "coupled clocks" hypothesis put forth by some organizational ecologists (Hannan et al. 1998b), who argue that organizations within industries tend to rise and fall together.

RESULTS

Descriptive statistics

A total of 3,963 current and former enclosed malls with known survival status as of January 2009 were included in the dataset. As shown in **Table 5.1**, 43 of these were classified as

conversions of historic non-shopping properties, 407 as conversions of existing non-enclosed shopping centers, and 3,513 as all new construction. The historic property conversions took place between 1962 and 2009, with a median year of conversion of 1989 (mean, 1986.4; standard deviation, 12.1 years). The conversions of non-enclosed shopping centers took place between 1961 and 2009, with a median of 1974 (mean, 1975.6; standard deviation, 9.8). Enclosed malls created through all-new construction occurred between 1956 and 2009, with a median of 1974 (mean, 1976.0; standard deviation, 9.6).

INSERT TABLE 5.1 HERE

A total of 2,044 enclosed malls failed during the study period, including 1,184 complete closures, 694 mall demolitions during remodeling, and 166 cases of high vacancy rates (see Table 5.1). The 1,184 complete closures occurred between 1973 and 2008, with a median of 1998, a mean of 1996.0, and a standard deviation of 8.8 years. Data on the year of mall demolition for the 694 cases where an enclosed mall was converted to a non-enclosed shopping center were not systematically available, but the subset with known demolition dates occurred between 1979 and 2009. No data was available to determine the date when high vacancy occurred for the 166 failures of this type. The distribution of failure type by region is reported in **Figure 5.1**. Of the 1,184 complete mall closures, 323 occurred in the Midwest region, 323 in the East region, and 322 in the South region. The West region experienced substantially fewer complete enclosed mall closures, with a total of 223. Of the 694 mall demolition events, the highest number occurred in the Southern region (242) and the Midwest region (214), with substantially fewer occurring in the Western region (130) and the Eastern region (108). Of the 166 high-vacancy-type failures, 63 were located in the East region, 47 in the Midwest, 38 in the South, and 18 in the West.

INSERT FIGURE 5.1 HERE

There was substantial variation in survival times (i.e. years elapsed since enclosed mall construction) for the 3,963 current and former enclosed malls in the dataset, as shown in **Figure 5.2**. Among the 1,184 malls that completely closed, failure occurred primarily within 30 years following the construction of the enclosed mall structure. More precisely, survival durations for this group ranged from 10 to 68 years, with a median of 26, a mean of 25.9, and a standard deviation of 10.2 years (see Table 5.1). For the 2,779 current or former enclosed malls remaining in operation as of January 2009 (which includes the 694 mall-demolition and 166 high-vacancy cases), survival durations ranged from 0 to 86 years, with a median of 34, a mean of 33.3, and a standard deviation of 12.3 years.

INSERT FIGURE 5.2 HERE

The distribution of failure years for the 1,184 cases of complete mall closure is reported in **Figure 5.3**. While there are substantial fluctuations from year to year, the figure shows that the number of complete closures has been rising linearly since the first observed failure of this type in 1973. It is important to note that the data has been smoothed for presentation purposes for 1982-1983 and for 2009-2009 due to gaps in the shopping center directories. For 1982-1983, 34 mall closures were observed, with 17 being assigned to each year when producing the graph. For 2006-2009, 269 failures were observed for which the exact year of failure was not known. As for the 1982-1983 period, these failures were uniformly distributed in order to produce a more meaningful graph. In the quantitative analyses, however, failures occurring from 1982-1983 were assumed to have all occurred in 1982 and failures from 2006-2009 were assumed to have occurred in 2006. In addition, care must be taken when interpreting the spikes in mall failures shown for 1988 as well as for the cyclic variations observed in the later years. As reported in the

methods section, year of mall failure was estimated using the year in which a given center was last listed in the shopping center directories. Directories were updated on an as-needed basis based primarily on data collected from mall managers. It is unlikely that a directory entry would have been removed if no response was received to the NRB's annual request to each center's management for updated information in any one particular year. Accordingly, substantial spikes in mall failures are more likely the result of periodic efforts to eliminate redundant or outdated entries for cases where no response had been received for multiple years.

INSERT FIGURE 5.3 HERE

There were large numbers of enclosed malls for each size category examined. As shown in Table 5.1, 1,048 of the 3,963 enclosed mall examined were convenience or neighborhood centers (0-99,999 square feet) The smallest among these 1,048 neighborhood malls was a mere 2,331 square feet, but the typical size was nearer to 50,000 square feet (median, 49,999; mean, 51,462.9; standard deviation, 21,967.6). With the exception of the neighborhood-type enclosed malls, the typical gross leasable area (GLA) was somewhat higher for enclosed malls than for shopping centers more generally. According to the Urban Land Institute (Beyard, O'Mara and others 1999), the typical GLA was 150,000 square feet for a community center, 400,000 square feet for a regional center, and 750,000 square feet for a super regional center. There were 1,207 community-type enclosed malls in the dataset, with from 100,000 to 299,000 square feet of GLA. The typical GLA for the community-type enclosed malls was close to 200,000 square feet (median, 199,999; mean, 189,634.0; standard deviation, 45,904.9) and for regional malls was slightly over 500,000 square feet (median, 525,001; mean, 513,364.0; standard deviation, 134,170.4). Finally, the largest super regional mall had a GLA of 5,600,000 square feet, while

the typical super regional had a GLA of about 1,100,000 square feet (median, 1,039,204; mean, 1,112,406.5; standard deviation, 354,200.5).

The values of the county and national demographic variables used in the present analysis of mall failure differ slightly from those used in the analysis of mall adoption reported in Chapter 4, the former being measured in the year in which a mall failed and assessed only in counties with malls, and the latter being measured in the last year of each mall building period (year in which a mall was built or 2009 for right-censored cases). At the time of mall failure (or right-censoring), the typical (i.e., median) county had a population size of 396,371, was 86% white, 80% urban, had a median age of 37, and had a high school graduation rate of 86%. Per capita bank deposits were typically $17,407, and the median household income was $52,658. The typical county contained 744 farms, 404 manufacturers, 548 wholesalers, 4,088 service businesses, and 1,641 retailers. Median per capita retail sales were $13,584. See Table 5.1 for additional information on the minimum, maximum, mean, and standard deviation for each of the above county-level demographic variables.

Regression results

Cox regressions of complete mall closure

Results from two Cox regression models, the first consisting of a model that includes all possible covariates and the second consisting of a parsimonious model that includes only those covariates significant at the 0.10 level, are reported in **Table 5.2**. As in Chapter 4, the results presentation will focus on the parsimonious model unless otherwise indicated. In interpreting these results, it is important to keep in mind that the event of interest for these analyses was complete mall/shopping center closure, and that the comparison group is all malls/former malls

that remained in operation as of January 2009, regardless of the vacancy rate or whether the enclosed mall structure had been removed during a previous remodeling. As a result, the analyses are based on 1,184 complete closures and 2,673 right-censored cases. The regressions indicate which factors explain the failure of a particular location as a retail site among the subset of retail sites that contained an enclosed mall at some point in its history (which I will refer to as the "relative closure hazard").

INSERT TABLE 5.2 HERE

The results in Table 5.2 show that there were significant regional variations in the relative closure hazard (p<0.001). Compared to the Western region, the relative hazard was 20% higher in the East region (Hazard Ratio [HR], 1.20; 95% Confidence Interval [CI], 1.07-1.34) and 13% higher in the Midwest region (HR, 1.13; CI, 1.01-1.26). The relative closure hazard was lowest in the South region, where the relative hazard was 15% lower than that of the West region (HR, 0.85; CI, 0.76-0.94). These regional differences are not likely the result of climate differences, as one would have expected the relative closure hazard to be lowest in regions where the weather was least favorable. The more likely explanation for these regional variations is that they reflect underlying differences in the magnitude of retail competition. The business climate in the East and Midwest may be particularly competitive because of the relative affluence of the residents of these regions, while competition for Southern markets may be decidedly lower due to the relative lack of affluence.

There was no significant difference in the relative closure hazard between retail sites where an enclosed mall was constructed during the conversion of a historic non-shopping structure (i.e. New York's Grand Central Terminal shopping concourse) and retail sites where the structure was originally designed as a shopping center of some type (p=0.954). There was a

significant effect, however, for both the addition and the demolition of an enclosed mall structure during remodeling. Shopping centers which added an enclosed mall structure during remodeling were 89% less likely to fail as retail sites than those sites where an enclosed mall was included from the outset (HR, 0.11; CI, 0.09-0.14; $p<0.001$). Shopping centers which demolished their enclosed mall had a 69% reduction in the relative closure hazard (HR, 0.31; CI, 0.16-0.61; $p=0.001$). Taken together, these results suggest that an organization's ability to adapt to local market conditions is a key factor in their survival. Remodeling efforts that either added or removed an enclosed mall were undertaken primarily with an eye to keeping an existing center competitive. The results from the present analysis suggest that these efforts succeeded in bringing about this desired end. This conclusion greatly favors classic management theory (see Zuniga-Vicente and Vicente-Lorente 2006) over Organizational Ecology (which argues that adaptive efforts are likely to be ineffective or even detrimental due to the strong effect of organizational inertia; see Hannan and Freeman 1977; Hannan and Freeman 1984).

There was no significant relationship between the last reported size of the enclosed mall and the hazard of closure ($p=0.816$). As noted earlier, Environmental Control Theory has long held that large organizations have a special ability to affect their own environments, thereby securing a longer survival (Perrow 2002). Similarly, Organizational ecologists have found a "liability of smallness", whereby new organizations experience an elevated risk of failure due to their small size in their youth (Barron, West and Hannan 1994; Freeman, Carroll and Hannan 1983). The finding with respect to enclosed mall size does not support either theory. However, additional ecological analyses have suggested that the effect of size on failure rates is nonlinear due to an interaction with organizational age or type (Dobrev and Carroll 2003; Hannan 1998; Hannan et al. 1998a; Wholey, Christianson and Sanchez 1992). Both the age interaction and the

organizational-type interaction could not be tested in the Cox model, due to the utilization of data on mall age as the measure of survival duration and the use of the organizational size data to define enclosed mall types. Caution is also needed when drawing conclusions about the validity of Environmental Control Theory's predictions with respect to size, as even the largest enclosed malls may still be seen as small organizations from this theoretical perspective.

There was no significant effect of county population size on the relative closure hazard (p=0.756). There was also no significant effect for the rate of change in the population size, though the significance level was marginal (p=0.051). These findings are interesting when contrasted with the *Greyfield Regional Mall Study* (Congress for the New Urbanism 2001), which hypothesized (but, notably, did not test) that high vacancy rates in regional malls were cross-sectionally correlated with declines in population size. The findings from the present study, in particular the longitudinal measure of population change (i.e., ten-year rate of population change), suggest that demographic changes in a mall's market area may be only weakly related to survival outcomes. This finding mirrors that of Carroll et al. (1993), who also found that population size was an inconsistent predictor of organizational survival.

The racial composition of a county's population was also not a significant predictor of the relative closure hazard, whether assessed as the percentage of the population that was white (p=0.212) or as the degree of change in that percentage in the preceding ten years (p=0.644). This too runs counter to the hypotheses proposed by the Congress for the New Urbanism (2001), which argued that mall vacancy rates could be explained by changes in the racial composition of a mall's market area. The data simply do not support the hypothesis that malls in counties that experienced "white flight" fared worse than those that did not. The lack of significance for the measure of race likely reflects the broad importance of status consumption for all racial and

ethnic groups. While changing racial and ethnic demographics may lead to changes in a mall's tenant and product mix, race alone (net of income effects) does not predict mall patronage.

The percentage of a county's population living in an urban area was significantly associated with the relative closure hazard, with each additional 10% living in an urban area being associate with an 8% decreased relative closure hazard (HR, 0.92; CI, 0.88-0.95; $p<0.001$). However, enclosed malls located in counties that were becoming more urbanized faced an increased relative closure hazard. For each additional 10% of a county's population that became urbanized during the preceding ten years, the relative closure hazard was increased by 21% (HR, 1.21; CI, 1.08-1.35; $p=0.001$). The negative association between population density, as measured by the urbanization rate, and the closure hazard is perhaps best explained in terms of the robustness of the consumer spending base. Malls located in more consumer-rich locales, all else being equal, have a greater margin of error in terms of attracting a sufficiently large body of customers. As hypothesized by the Congress for the New Urbanism (2001), crowding of the market area, as measured by growth in the urbanization rate, leads to increased traffic congestion and a decreased ability to expand to meet consumer demand. Both congestion and limitations on mall expansion may in turn lead to an increased failure risk as both factors render the existing mall more vulnerable to competition from newer, larger malls in more-open surrounding market areas.

The median age of the county in which an enclosed mall was located did not have an effect on the relative closure hazard ($p=0.208$) nor did the change in the median age in the preceding ten years ($p=0.083$). As with the findings for racial composition, this suggests that changes in demographic composition force changes in existing malls' tenant and product mixtures rather than changes in what does or does not constitute a viable mall location. As with

population size and racial composition, the finding with respect to median age runs counter to the untested hypotheses put forth in the *Greyfield Regional Mall Study* (Congress for the New Urbanism 2001). Malls are patronized by old and young consumers alike, albeit for differing reasons (Feinberg et al.). It appears that mall survival depends on the ability to adapt the tenant and product mixture to such demographic changes rather than the chance of having chosen a more demographically stable location.

The high school graduation rate (p=0.683) and the degree of change in the graduation rate (p=0.466) in the county in which an enclosed mall was located were not significantly associated with the relative closure hazard. The amount of bank deposits per capita was not associated with the relative closure hazard (p=0.810), though the rate of change in bank deposits in the preceding ten years was marginally associated (p=0.029). Each 10% increase in per capita bank deposits was associated with a 1% increase in the relative closure hazard (HR, 1.01; CI, 1.00-1.02). This latter finding suggests that growth in savings propensities (i.e., the absence of spending propensities) is mildly detrimental for enclosed malls. County-level median household income was not a significant predictor (p=0.324), but the rate of change in median household income was negatively associated with the relative closure hazard (p<0.001). For each 10% decrease in the median household income in the preceding ten years, the relative closure hazard was increased by 17% (HR, 0.83; CI, 0.75-0.91). Among the demographic factors speculated upon or examined in the *Greyfield Regional Mall Study* (Congress for the New Urbanism 2001), it is income-related measures alone that strongly predict enclosed mall failure. One possible reason for the negative correlation between rising incomes and mall failure may be that such income increases prevent deleterious levels of retail saturation through the accompanying increase in retail development opportunities (Des Rosiers, Theriault and Lavoie 2009; Eppli and Shilling

1995). Absolute income level was not a significant predictor of enclosed mall survival, indicating that malls can succeed in low and high income areas alike provided the cost structure and tenant mixture is appropriately matched. Adverse changes in income, however, were more difficult to withstand. While the Congress for the New Urbanism (2001) concluded that low and moderate income market areas were more likely to see a mall failure, the results of the present study suggest that it is only those markets that become low or moderate income areas following a mall's construction that are at risk. Markets where income levels remained stable were capable of supporting their enclosed mall, regardless of whether the market was rich or not.

For the most part, the size of the various business sectors in a given county (all in terms of number of businesses per 1,000 persons) and the rates of change in the sizes of those sectors (all in terms of percentage change over the preceding ten years) were not associated with the relative closure hazard for a given enclosed mall. Non-significant associations were found for the number of farms (p=0.060), change in the number of farms (p=0.241), number of manufacturers (p=0.891), change in the number of manufacturers (p=0.806), number of wholesalers (p=0.146), change in the number of wholesalers (p=0.760), number of service businesses (p=0.886), and change in the number of service businesses (p=0.753). Once constructed, the survival of an enclosed mall was largely independent of processes governing other non-competing sectors.

While there was no significant effect for the number of retailers (p=0.637), there was a significant association between the change in the number of retailers and the relative closure hazard (p<0.001). Each additional 10% decrease in the number of retailers in a county was associated with an 11% increase in the relative closure hazard (HR, 0.89; CI; 0.86-0.92). Per capita retail sales did not have a significant effect (p=0.932), but each additional 10% in retail sales growth in a county was associated with a 3% increase in the relative closure hazard (HR,

1.03; CI, 1.00-1.06; p=0.035). While not able to be examined using the present data, anecdotal evidence suggests that these findings may be reflective of the emergence of diversified discount centers (e.g., Walmart) and other "category killers" (e.g., Best Buy and other "big box" stores). The observation that increasing levels of retail sales concentration (i.e., growing sales coupled with decreasing numbers of retailers) is predictive of enclosed mall failure suggests that the emergence of market-segment-dominating organizations (i.e., ones that tend to increase sales by putting smaller competitors out of business) are detrimental for organizations that aim to dominant multiple market segments. In other words, the enclosed mall (a generalist organization) and the small specialist retailer are both prone to competition from large specialist retailers.

Surprisingly, the number of competing enclosed malls in a given county was not associated with the relative closure hazard for a given enclosed mall (p=0.441 for the main effect; p=0.660 for the quadratic effect). This finding again runs counter to the claims made in the *Greyfield Regional Mall Study*, which concluded that the emergence of a newer mall frequently resulted in the demise of older malls. Given the highly planned nature of mall ventures, however, the likelihood that a community would deliberately allow for mall over-saturation is quite low. The negative externalities of vacant property (e.g., increased crime, decreased property values) are well-recognized by local planning boards, and one would expect that every effort would be made to prevent such circumstances. While a free-market perspective would suggest that a community would be best served in the long-run by letting new mall enterprises compete with existing centers, the economic disruption that can occur when a large enclosed mall fails within a community may be sufficiently prohibitive. As shown in Chapter 2 with respect to the historical central business districts, large-scale redevelopment is a costly, disruptive, and lengthy process with a highly uncertain outcome. The possibility that the number

of enclosed malls in a county was seldom permitted to exceed a particular county's carrying capacity for malls is a simple explanation for why mall density would fail to be associated with mall failure.

As with county-level mall density, the number of enclosed malls in the nation was not a significant predictor of the relative closure hazard (p=0.297 for the main effect; p=0.300 for the quadratic effect). However, the number of non-enclosed shopping centers in the nation was significantly associated with the relative closure hazard for a given enclosed mall, as evidenced by the positive log hazard for the main effect (log HR, 0.634; p<0.001) and the negative log hazard for the quadratic effect (log HR, -0.017; p<0.001). As shown in **Figure 5.4**, at low national-level non-enclosed shopping center densities the estimated relative closure hazard was increased by 85% (calculated HR, 1.85). The estimated relative closure hazard peaked when non-enclosed shopping center density was approximately 19,000, at which point the estimated relative closure hazard was elevated by 36,734% (calculated HR, 368.34). At densities above 38,000 however, the estimated relative closure hazard was less than the null value. At 40,000 in density, the estimated relative closure hazard was decreased by 84% (calculated HR, 0.016).

INSERT FIGURE 5.4 HERE

The effects of non-enclosed shopping center density are not likely due to competition processes. It is important to note that survival was measured at the local level while non-enclosed shopping center density was measured at the national level. Since it is not reasonable to assume that local shopping center densities uniformly mirror national trends, other explanations must be sought to explain the non-linear relationship between the relative closure hazard and non-enclosed shopping center density. One possible alternative explanation would be that non-enclosed shopping center density, the growth of which follows the logistic pattern (see Chapter

2), may be an indirect measure of "speculative intensity" rather than a measure of local competitive pressure. Middle levels of shopping center density occurred in the late 1970s and early 1980s, which falls about ten years after the onset of the period where mall development followed a fad-like pattern more closely than a rational-planning one (see Chapter 4). As mall development was more speculative during this earlier period, it follows that one would expect a correspondingly increased failure rate in the next 20 years. The greatly heightened relative closure hazard estimated for the late 1970s and early 1980s is one possible result of the reduced rigor with which mall development decisions were made in the late 1960s and early 1970s.

The results from the Cox regression indicate that the relative closure hazard decreased linearly as the mall industry matured. Each year that passed following 1956 was associated with a 15% reduction in the relative hazard (HR, 0.85; CI, 0.78-0.94; p=0.001). This suggests that later enclosed malls learned valuable survival strategies by observing the mistakes of other malls built during earlier years (supporting the findings of Carroll and Delacroix 1982; Hannan et al. 1998b). However, this finding may be the result of the study design, which only excluded those centers in existence for fewer than ten years. The later years of the study period are therefore over-populated with enclosed malls that have not had a full exposure to the hazards of the market. While the effects of organizational learning are likely still at work, this study design feature must be kept in mind.

Finally, national economic conditions affected the relative closure hazard. Each additional $1 Trillion in GDP was associated with a 150% increase in the relative closure hazard (HR, 2.50; CI, 1.86-3.35; p<0.001). Likewise, each additional 10% in GDP growth over the preceding ten years was associated with a 198% increase in the relative closure hazard (HR, 2.98; CI, 2.47-3.59; p<0.001), a finding that mirrors those of previous organizational analyses

(see Carroll et al. 1993; Carroll and Delacroix 1982). In addition, each 1% increase in the Federal Reserve Prime Rate was associated with a 4% increase in the relative closure hazard (HR, 1.04; CI, 1.01-1.08; p=0.014). The interpretation of the lattermost of these findings is the most straightforward. Since commercial real estate is normally financed through a variable rate mortgage, one would expect a greater number of mall failures when interest rates and, consequently, mortgage payments rise. The reason why the relative closure hazard would be elevated when GDP is high and growing is less clear. If the GDP and Prime Rate findings are taken together however, they suggest that the hazard of closure was particularly heightened when the economy was "over-heated". One of the stated missions of the Federal Reserve is to use its interest-rate-setting powers to influence the growth rate of the national economy. When the economy is growing in a way that threatens to trigger unacceptably high levels of inflation, the Fed responds by raising interest rates to slow down economic growth. The combination of increasing interest rates and continued growth thus characterizes the peak of the business cycle, where competitive pressures are elevated and an increase in business failures looms as the downturn in the cycle approaches. With their high levels of fixed expenses, enclosed malls may be particularly vulnerable during such economic transitions.

Logistic regressions of malls that closed, were demolished during renovation, or became nearly vacant

Results from two logistic regression models, the first consisting of a model that includes all possible covariates and the second consisting of a parsimonious model that includes only those covariates significant at the 0.10 level, are reported in **Table 5.3**. As usual, the results presentation will focus on the parsimonious model unless otherwise indicated. In interpreting

these results, it is important to keep in mind that for these analyses failure was defined as 1) complete mall/shopping center closure, 2) high vacancy rate, or 3) removal of enclosed mall structure during renovation. The comparison group consisted only of those malls that remained enclosed and in operation as of January 2009. Recall that in order to apply logistic regression techniques to the data each enclosed mall must have been sufficiently exposed to the failure hazard. The analyses are accordingly based on the 3,593 cases exposed to competitive processes for 20 years or more. The regression results take the form of odds ratios and indicate which factors explain the failure of the enclosed mall organizational form (which I will refer to as "the odds of mall failure), independent of whether or not the location chosen was or was not a viable retail site. While the level of model fit was adequate for the parsimonious model (Cox & Snell R-squared, 0.416; Nagelkerke R-squared, 0.558), the results of the Hosmer-Lemeshow Chi-square test indicate that a significant degree of unexplained variance remains (p<0.001).

INSERT TABLE 5.3 HERE

As with the Cox regressions of Table 5.2, there were significant differences in the odds of mall failure from the logistic regressions (p<0.001). When compared to the Western region, the odds of mall failure were elevated in the Eastern region (Odds Ratio [OR], 1.60; 95% Confidence Interval [CI], 1.15-2.223) and in the Southern region (OR, 1.41; CI, 1.04-1.93). The odds of mall failure were approximately in the same in the Western region and the Midwest (OR, 0.88; CI, 0.64-1.23). Recall that in the Cox regressions the closure hazard, relative to the West region, was elevated in the East and Midwest regions but lower in the Southern region. The difference in results is likely caused by the differences between how failure was defined for each type of analysis. Taking the differences in the dependent variable into account, the comparison of the results from the Cox and logistic regression indicates that all types of enclosed malls fared

poorly in the East region, as both the relative closure hazard from the Cox regression and the odds of mall failure from the logistic regression were elevated. Enclosed malls from the Southern region, however, were more likely to fail as enclosed malls but not as retail sites, as suggested by the increased odds of mall failure from the logistic regression but the decreased closure hazard from the Cox regression. For the Midwest region, the lack of significant difference in the odds of mall failure from the logistic regression (relative to the West region), in light of the elevated closure hazard for the Midwest in the Cox regression, indicates that the frequency of mall demolition during renovation and/or of high vacancy was lower in the Midwest region than in the West region (enough to offset the higher frequency of complete mall closure).

As before, enclosed malls created through the conversion of a historic non-shopping property had the same odds of mall failure as those that were constructed as shopping centers from the outset (p=0.104). Unlike in the Cox regressions however, those enclosed malls created through the renovation of an existing non-enclosed center were associated with a 146% increase in the odds of mall failure (OR, 2.46; CI, 1.84-3.29). Comparing the results for this factor between Table 5.2 and Table 5.3, one can conclude that the type of mall failure experienced depended strongly on the circumstances under which the enclosed mall was constructed. Centers where an enclosed mall was added during a renovation were less likely to succeed as enclosed malls, but more likely to survive as shopping sites as the enclosed mall structure could be more easily jettisoned when conditions no longer favored enclosure. Centers that were enclosed from the outset had an advantage over their remodeled cousins in some respects, with competition between the two types of enclosed malls favoring those that were originally designed to be enclosed (e.g., where the enclosed structure design was not constrained by existing structures). The higher fixed and operating expenses inherent in the enclosed mall design, however, could

not be alleviated during unfavorable economic periods. Complete closure was the most likely form of failure, as converting to a non-enclosed format would have been cost prohibitive.

The results shown in Table 5.3 with respect to shopping center size (measured at the ordinal level) indicate that the odds of mall failure were especially elevated among smaller enclosed malls ($p<0.001$). Compared to enclosed super-regional centers, the odds of mall failure was 815% higher for enclosed convenience or neighborhood centers (OR, 9.15; CI; 6.86-12.21), 498% higher for enclosed community centers (OR, 5.98; CI, 4.52-7.90), and 187% higher for enclosed regional centers (OR, 2.87; CI, 2.14-3.85). Recall that mall size was not a significant predictor of the relative closure hazard in the Cox regressions. The results from the logistic analyses therefore suggest that mall demolition during remodeling and/or high vacancy rates were a more typical type of failure among small centers when compared to larger ones. Conversely, the results indicate that larger malls faced more of an all-or-nothing proposition, with complete closure being the only real possibility if the retail enterprise failed.

The results from Table 5.3 suggest that the year in which an enclosed mall was built, measured ordinally in terms of adopter categories, was a significant predictor of the odds of mall failure ($p<0.001$). Compared to "early majority" malls (i.e., those built between 1967 and 1973), the odds of malls failure was elevated by 116% for "innovator" malls (built 1956-1962; OR, 2.16; CI, 1.28-3.64) and elevated by 41% for "early adopter" malls (built 1963-1966; OR, 1.41; CI, 1.03-1.95). Following this trend, in comparison to the "early majority" malls the odds of mall failure was 50% lower for "late majority" malls (built 1974-1985; OR, 0.50; CI; 0.41-0.61) and 94% lower for "laggard" malls (built 1986-1989; OR, 0.06; CI; 0.04-0.10). As the year in which an enclosed mall was built was highly correlated with the age of the mall (utilized as the measure of survival duration in the Cox regressions), interpretations of the effect of this factor can only be

based on the present results from the logistic analysis. The results support the "liability of obsolescence" hypothesis discussed in both the retail trade and the Organizational Ecology literature (see Barron, West and Hannan 1994; Congress for the New Urbanism 2001; Hannan et al. 1998a; Schapker 1956). Correspondingly, the findings do not support either the "liability of newness" (Carroll et al. 1993; Carroll and Delacroix 1982; Dobrev, Kim and Hannan 2001) or the "liability of adolescence" (Bruderl and Schussler 1990) hypotheses. While some caution is warranted in the interpretation of this result, due to the inherent differences in exposure time between older and newer malls that cannot be accounted for in a basic logistic model, the results suggest that structural and/or locational obsolescence is a factor that strongly affects mall survival.

The population size of a mall's market was not a significant predictor of the odds of mall failure (p=0.543), nor was the rate of change in population size (p=0.623). The racial composition of the population was also not significant (p=0.075), though each additional 10% in growth of the white population was associated with a 27% reduction in the odds of mall failure (OR, 0.73; CI, 0.62-0.86; p<0.001). As with the Cox regressions, the size of the population and the growth rate of the population do not predict mall failure, evidence that further casts doubt on the assertion that adverse demographic shifts are to blame for poor mall competitiveness. Unlike the previous models, however, the degree to which the racial composition of the market area changed over the preceding ten-year period was important. This suggests that, while race does not predict complete mall closure (see Table 5.2), it is predictive of other types of mall failure.

The percentage of a mall's market area population living in an urban area was associated with the odds of mall failure (p<0.001), with each additional 10% in urban population increasing the odds of mall failure by 14% (OR, 1.14; CI, 1.08-1.21). The degree to which the urban

population percentage changed was also a significant predictor (p=0.001), with each 10% increase in the urban population over the preceding ten years being associated with a 29% reduction in the odds of mall failure (OR, 0.71; CI, 0.58-0.86). It is interesting to note that this pattern of results is exactly opposite those from the Cox regressions, where the first of these variables was negatively associated and the second was positively associated with the odds of mall failure. Again, given the differences in the dependent variable between the Cox and logistic models, this suggests that the type of failure observed depends on the urban composition of the market area. Areas that were more urban were less likely to experience a complete mall closure but more likely to experience high vacancy and/or mall demolition during remodeling. Areas that were the rate of urbanization was growing were more likely to experience a complete mall closure but less likely to experience either of the other two types of failure.

Market area population with higher median ages were slightly less likely to experience a mall failure (p=0.003), with the odds of mall failure decreasing by 4% for each additional year of median age (OR, 0.96; CI, 0.93-0.98). The degree of change in the median age over the preceding ten years was not a significant predictor (p=0.491). This finding of a negative cross-sectional association between median age and the odds of mall failure supplements the finding of a negative longitudinal association from the Cox regressions. Market areas that were older, contrary to the hypotheses put forth by the Congress for the New Urbanism (2001), exerted a protective effect over enclosed malls. The magnitude of the association is relatively small, however, likely due to the previously noted popularity of enclosed malls across a broad age spectrum.

Malls located in market areas with higher levels of education were less likely to fail (p=0.026), with 23% reduction in the odds of mall failure for each additional 10% of the

population with a high school diploma (OR, 0.77; CI, 0.62-0.97). The degree of longitudinal change in the high school graduation rate was not a significant predictor (p=0.828). Given the lack of significance for both education measures in the Cox regression analysis (suggesting that education levels were not protective against complete mall closure), the logistic regression results suggest that higher levels of education are protective against high vacancy and/or mall demolition during remodeling. The negative association between education levels and mall failure also makes sense from a socio-economic viewpoint. Areas with higher levels of education are likely to have higher levels of economic opportunity. Given the strong positive correlation between education and levels of spending, we would anticipate that malls in areas with a higher high school graduation rate would be less likely to fail.

Neither bank deposits (p=0.643) or the rate of change in bank deposits (p=0.706) were predictive of the odds of mall failure. The income measures were both significant however, with each additional $1,000 in median household income being associated with a 2% increase in the odds of mall failure (OR, 1.02; CI, 1.01-1.03; p=0.004) and each 10% increase in median household income over the preceding ten years being associated with a 27% reduction in the failure odds (OR, 0.73; CI, 0.64-0.83; p<0.001). While significant, the magnitude of the first income measure is quite small (the same variable was non-significant in the Cox models), and therefore does not refute the earlier assertion that income levels are not a strong determinant of mall failure. As noted earlier, tenant and product mixtures can be tailored equally effectively to both moderate and higher income markets. The magnitude of the effect of changes in income levels, however, remains substantively large (as was the case in the Cox regressions). Malls located in markets where income rose fared much better than those where income stagnated or fell. Once again, it appears that adverse changes in income create a dangerous disjuncture

between what a mall requires in terms of consumer spending and what the local market can supply.

Unlike in the Cox regressions, the sizes of the various business sectors in a given county (all in terms of number of businesses per 1,000 persons) and the rates of change in the sizes of those sectors (all in terms of percentage change over the preceding ten years) were often associated with the odds of mall failure. The number of farms (p=0.853) and the rate of change in the number of farms (p=0.534) were not significant predictors. The size of the manufacturing sector was significant (p=0.010), with each additional manufacturer per 1,000 persons being associated with a 31% increase in the odds of mall failure (OR, 1.31; CI, 1.07-1.61). The rate of change in the size of the manufacturing sector however, was not (p=0.816). The number of wholesalers was not significant (p=0.864), but each 10% of growth in the number of wholesalers was associated with an 11% increase in the odds of mall failure (OR, 1.11; CI, 1.05-1.17; p<0.001). Each additional service business per 1,000 persons was associated with a 13% reduction in the odds of mall failure (OR, 0.87; CI, 0.84-0.91; p<0.001), and each additional 10% of growth in the services sector was associated with a 44% increase in the failure odds. The pattern within these results, however, is not entirely clear.

Each additional retailer per 1,000 persons was associated with an 86% increase in the odds of mall failure (OR, 1.86; CI, 1.64-2.11; p<0.001), and each 10% of growth in the number of retailers was associated with a 49% decrease in the failure odds (OR, 0.51; CI, 0.47-0.56; p<0.001). Each additional $1,000 in per capita retail sales was associated with a 10% reduction in the failure odds (OR, 0.90; CI, 0.86-0.94; p<0.001), while each additional 10% of growth in retail sales was associated with a 26% increase in the odds of mall failure (OR, 1.26; CI, 1.19-1.34; p<0.001). The two measures for the size of the retail sector produced the expected effect on

the odds of mall failure. Malls in markets with large numbers of retailers were more likely to fail than malls in markets with fewer retail businesses, an association that likely reflects the higher level of competition present in more highly-saturated markets. Malls in markets with higher retail sales per capita were less likely to fail than malls in markets with lower per capita retail sales, an association that likely reflects the greater abundance of profitable retail customers upon which an enclosed mall might rely. The two measures for the rate of change in the retail sector mirror those from the Cox regression, and further support the argument that mall failures are more likely when retail sales growth was coupled with the shrinkage of the size of the retail sector (an empirical signature consistent with the arrival of big-box and national discount chains).

Unlike in the Cox regressions, the number of enclosed malls in a given county was significantly associated with the odds of mall failure, as evidenced by the positive log hazard for the main effect (log HR, 0.094; $p<0.001$) and the negative log hazard for the quadratic effect (log HR, -0.001; $p<0.001$). As shown in **Figure 5.5**, at low county-level mall densities the estimated odds of mall failure was elevated by 10% (calculated OR, 1.10). The estimated odds ratio peaked when mall density was at approximately 47, at which point the estimated odds was elevated by 811% (calculated OR, 9.11). At the maximum mall density of 64, the estimated odds of mall failure was elevated by 582% (calculated OR, 6.82). Despite the non-linearity of the association between county-level mall density and the odds of mall failure, the effect clearly reflects the effects of competitive pressure. Regardless of mall density level, each additional mall that enters a market increases the likelihood of failure for all malls in the same market. Given the non-significance of the county-level mall density measures in the Cox regression however, the findings from the logistic regression suggest that inter-mall competition is more likely to cause

high vacancy and/or impel an enclosed mall to demolish its enclosed mall structure during renovation than it is to cause complete mall closure. In other words, high levels of saturation in a given retail market do not necessarily force any particular enclosed mall to close but does force some of them to adapt away from the enclosed mall format in order to survive.

INSERT FIGURE 5.5 HERE

DISCUSSION AND CONCLUSION

The findings of the present study do not support many of the hypotheses and findings from the *Greyfield Regional Mall Study* (Congress for the New Urbanism 2001) of mall survival (see results section for a discussion of specific discrepancies). The two most likely reasons for this divergence are methodological. First, in the present study care was taken to include both cross-sectional and longitudinal measures of market conditions. In contrast, the previous study used strictly cross-sectional results to attempt to address longitudinal questions. As is discussed below, current market conditions are less important than the trends in market conditions. In other words, mall failure doesn't really result from what the current market is like; what matters is how it got there. The second, but no less important, methodological difference consists of differences in the statistical methods. In the present study, multivariate regressions were used to assess the various covariates. The authors of the *Greyfield Regional Mall Study* relied solely on bivariate analyses (t-tests). As a result, the findings of this previous study were much more subject to confounding.

In both the retail trade literature and the organizations literature, inter-retailer competition is stressed as the primary cause of retailer failure. The results of the present study show that competition was indeed very important, though not all types of competition had the expected

effect. Changes to the number of retailers and the amount of retail sales however, did have an effect (with retail sector growth and concentration being associated with increased rates of failure). While the size of the enclosed mall was related to certain types of failure (see below), this finding supports those retail scholars who emphasize that market positioning is the most important determinant of a shopping center's competitiveness (Eppli and Shilling 1996; Gautschi 1981; Mejia and Eppli 2003; Timmermans, Borgers and Vanderwaerden 1992). Enclosed malls, which are almost always the largest form of shopping center in a given market, did not seem to suffer from competition with each other (as shown by the non-significance of the county-level mall density variables in the Cox regressions). This finding runs counter to the size-based competition hypotheses of organizational scholars, who claim that competition tends to be exerted by organizations of similar size (Dobrev and Carroll 2003; Ranger-Moore, Breckenridge and Jones 1995).

The lack of significance of county-level mall density in the Cox regressions and the signs of the density coefficients in the logistic regression cast much doubt on the validity of density dependence theory. Recall that Organizational Ecologists predict that the association between density and mortality will be non-linear, with high failure rates at low densities, low failure rates at moderate densities, with high failure rates returning at high densities (Carroll et al. 1993; Carroll and Hannan 1989a; Hannan and Freeman 1988). In the logistic analyses, the exact opposite of this pattern emerged (see again Table 5.3 and Figure 5.5). The findings of the present study support the conclusions of Swaminathan and Wiedenmayer (1991), who argued that the expected density dependence patterns do not hold when inter-organization competition is measured at the local, market level (but not those of Barron, West and Hannan 1994, who argued the exact opposite).

A minor aspect of density dependence theory was supported by the findings however. As argued in the results section, the lack of significance for county-level mall density in the Cox regression (when the dependent variable is complete mall closure) but the significance of the same variables in the logistic analyses (when the dependent variable included mall removal during renovation) suggests that inter-mall competition leads to organizational adaptation more strongly than to complete failure. This finding mirrors those of Dobrev, Kim, and Hannan (2001), who found that competitive pressures at high densities prompted transitions to alternative market niches rather than total firm failure (see also Delacroix, Swaminathan and Solt 1989).

The findings related to the impact of organizational adaptations are also important for the further development of organizational theory. Recall that many organizational scholars emphasize that change can cause organizational failure (Dobrev, Kim and Carroll 2003; Hannan and Freeman 1977). In the present study, enclosed malls created by the conversion of historic properties or existing non-enclosed shopping centers displayed a survival advantage over centers constructed as enclosed malls from the outset. In addition, enclosed malls that were converted to non-enclosed shopping centers also had a survival advantage over those that remained enclosed. While limited in scope with respect to all the possible adaptations an enclosed mall owner might initiate, the findings provide preliminary evidence against the generalizability of the Ecological approach to organization studies. The premise that organizational inertia is sufficiently high to preclude survival-enhancing adaptations is simply not supported in the enclosed mall context. Though it is possible that changing from a non-enclosed to an enclosed format (and vice versa) does not meet the definition of a "core" change (see Barnett and Freeman 2001; Singh, House and Tucker 1986), it seems more easily argued that the investment required to construct and

deconstruct an enclosed mall would make this type of adaptation more substantive than other "periphery" adaptations.

The findings of the present study partially support both retail and organizational scholars' contention that larger shopping centers will have a survival advantage over smaller ones (Barley 2007; Barley 2010; Barron, West and Hannan 1994; Carroll et al. 1993; Congress for the New Urbanism 2001; Dobrev, Kim and Hannan 2001; Geisel, Narasimhan and Sen 1993; Greenwood 2008; Hardin and Carr 2006; Perrow 2002; Smangs 2008). As noted in the results section, the significance of organizational size in the logistic regressions suggests that smaller firms were forced from the enclosed mall niche more frequently than were larger malls. However, as noted in the results from the Cox regressions, mall size was not a significant predictor of complete mall closure.

Though the size of an enclosed mall is an imperfect measure of organizational power, the lack of significance for this factor in the Cox regressions suggests that there are severe limits to the ability of large organizations to prevent adverse changes in their economic environments (counter to the Environmental Control argument utilized by Barley 2007; Barley 2010; Greenwood 2008; Perrow 2002; Smangs 2008). However, environmental control processes do appear to operate at some level given the relative lack of inter-mall competition evidenced by the effect of county-level mall density (see above). However, given developer's propensity to seek high levels of market saturation (see Benjamin, Jud and Winkler 1995) power was more likely exerted in the shopping center context by capital providers and other retail development gatekeepers (see Hallsworth 1994; Jacobs 1984; Lord 2000; Mintz and Schwartz 1987) rather than the retail organizations themselves.

Table 5.1. Descriptive statistics						
	n	**Min**	**Max**	**Median**	**Mean**	**SE**
Year of mall opening						
Conversion of historic property	43	1962	2009	1989	1986.4	12.1
Conversion of existing non-enclosed shopping center	407	1961	2009	1974	1975.6	9.8
All new construction	3513	1956	2009	1974	1976.0	9.6
Year of mall closure						
High vacancy rate	166					
Mall structure removed during remodeling	694	1979	2009	…	…	…
Complete shopping center closure	1184	1973	2008	1998	1996.0	8.8
Age of mall/shopping center structure						
Centers remaining in operation, with or without mall	2779	0	86	34	33.3	12.3
Closed centers (age at closure)	1184	10	68	26	25.9	10.2
Type and size of enclosed mall						
Neighborhood (0-99,999 sq. feet)	1,048	2,331	99,999	49,999	51,462.9	21,967.6
Community (100,000-299,999 sq. feet)	1,207	100,000	299,000	199,999	189,634.0	45,904.9
Regional (300,000-749,999 sq. feet)	942	300,000	749,999	525,001	513,364.0	134,170.4
Super Regional (750,000+ sq. feet)	766	750,000	5,600,000	1,039,204	1,112,406.5	354,200.5
Population	…	3,129	9,948,081	396,371	886,203.3	1,563,776.3
White population proportion	…	24%	100%	86%	82.6%	15.2%
Urban population proportion	…	0%	100%	80%	75.3%	22.1%
Median Age (years)	…	22	53	37	36.6	4.1
High school graduation rate	…	25%	99%	86%	84.2%	8.0%
Bank deposits, per capita, inflation adj. ($)	…	3,027	358,496	17,407	23,437.8	28,059.5
Median household income, inflation adj. ($)	…	21,715	117,910	52,658	55,847.9	14,098.5
Number of farms	…	0	6,530	744	1,011.3	926.7
Number of manufacturers	…	1	20,935	404	1,115.7	2,504.8
Number of wholesalers	…	2	23,617	548	1,763.6	3,614.9
Number of service businesses	…	4	140,004	4,088	10,774.6	20,494.9
Number of retailers	…	17	74,125	1,641	3,378.6	5,767.7
Retail sales, per capita, inflation adjusted ($)	…	2,614	128,208	13,584	13,913.1	4,656.3
* All variables measured at the county level at time of mall closure or censoring period (2009 for all centers remaining in operation)						

Figure 5.1. Number of mall failures by region

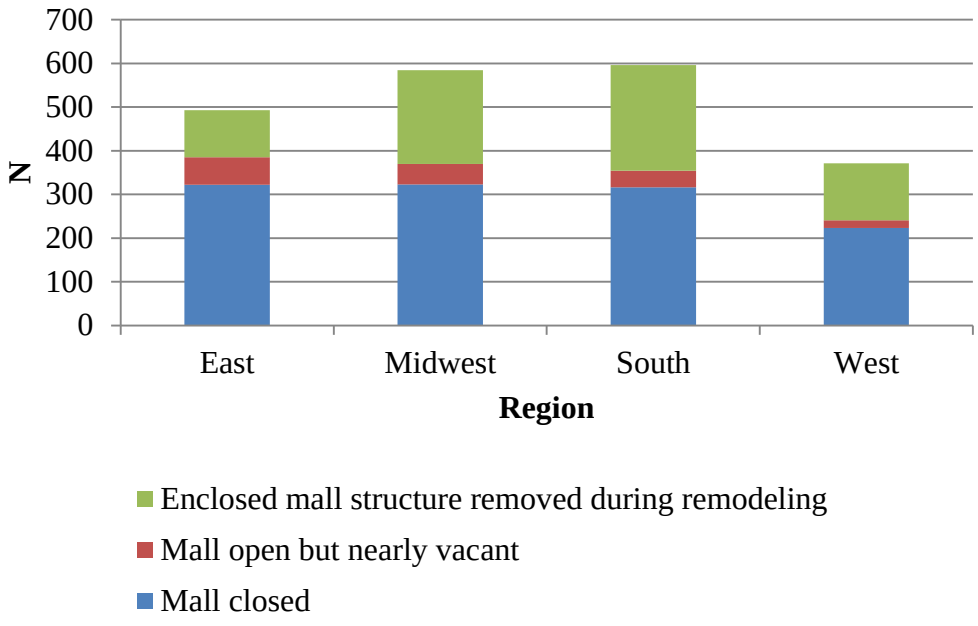


Figure 5.2. Age of shopping centers with enclosed malls, by survival status

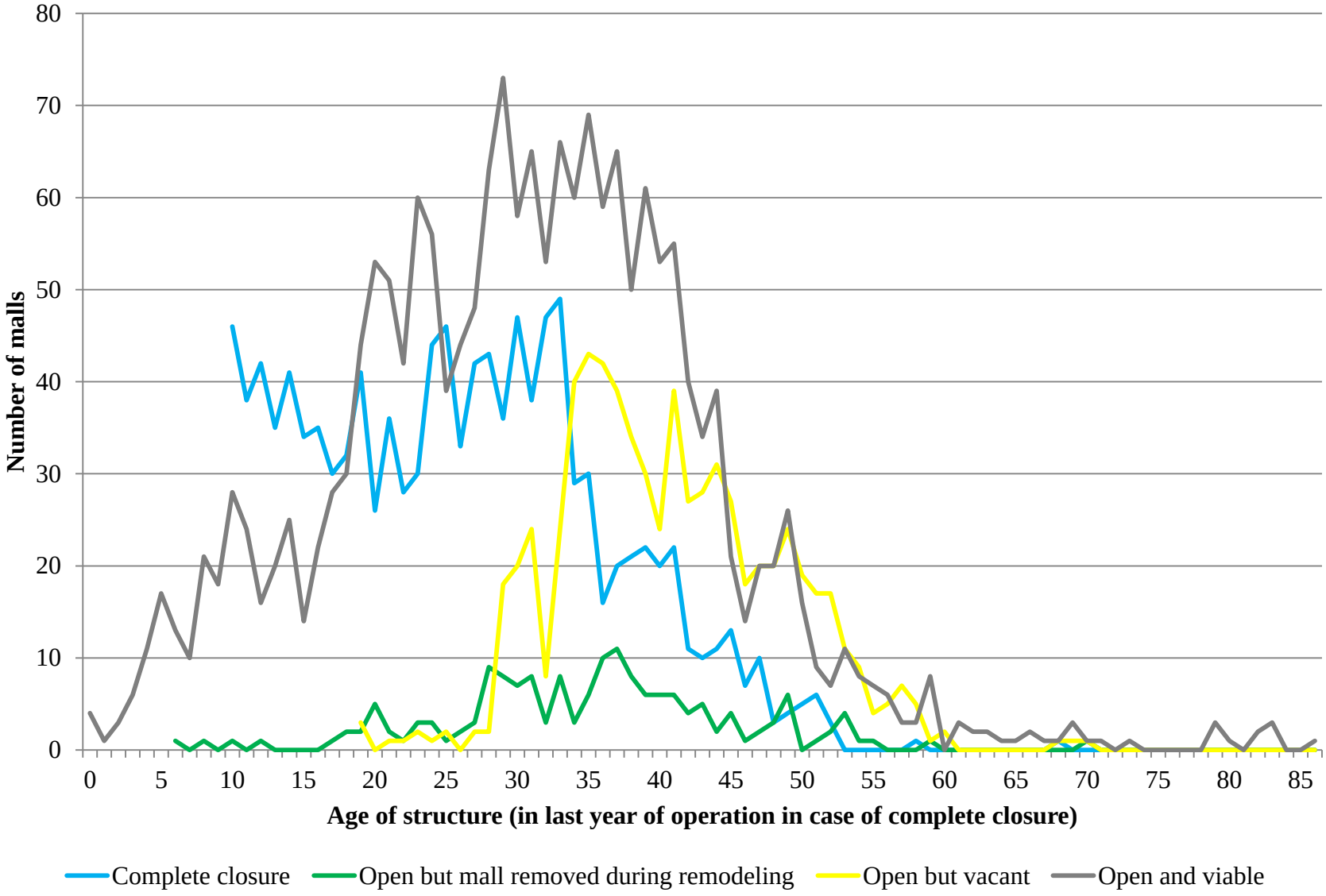
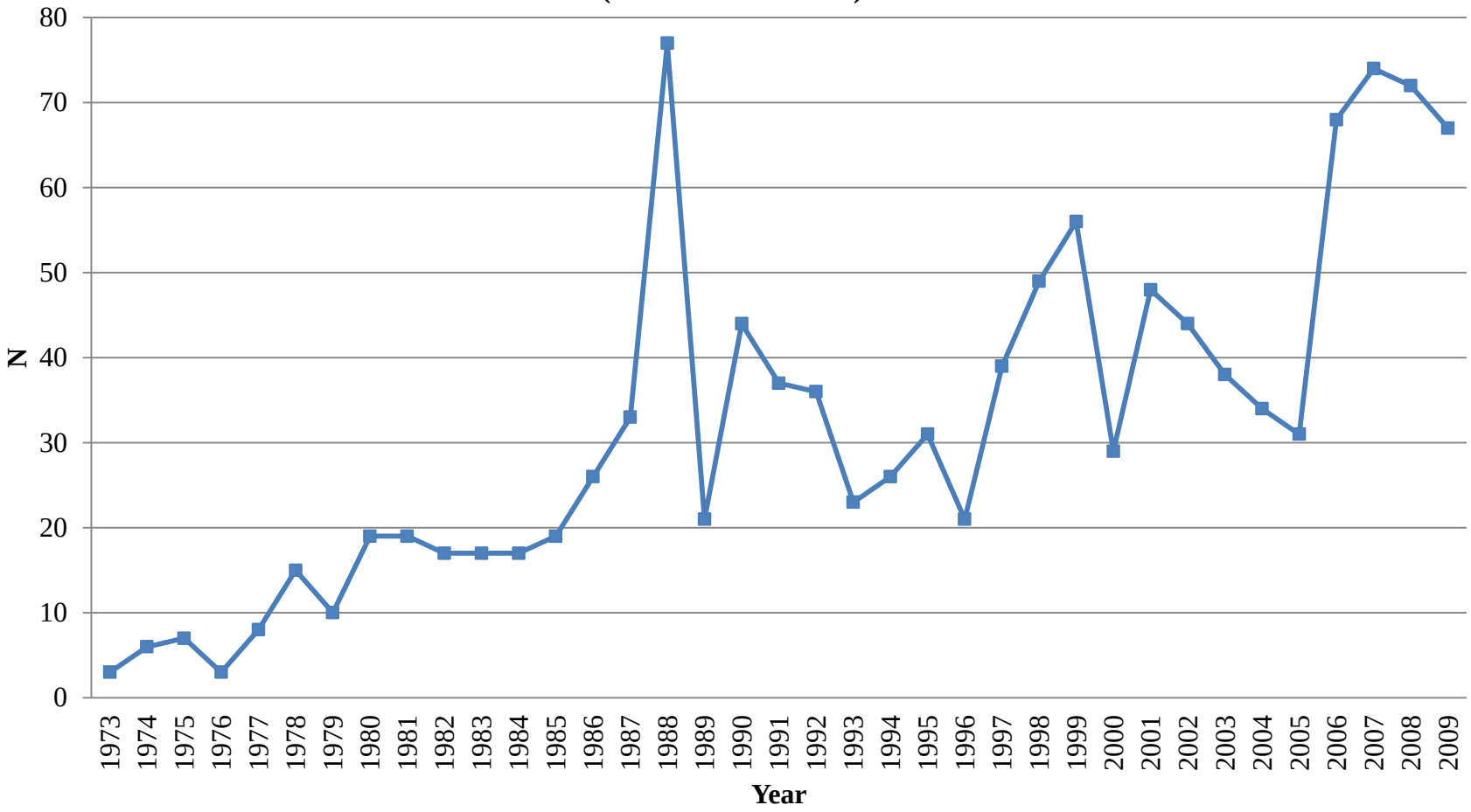


Figure 5.3. Number of mall closings, by year*
(n= 1184 closed malls)



* 34 mall failures occurred from 1982-1983, and 269 mall failures occured from 2006-2009 for which the exact year of failure was unknown due to gaps in mall directory information. In both instances, the number of failures was uniformly distributed across the corresponding range of years.

Table 5.2. Event history analyses (via Cox regression) of factors predicting complete closure for shopping centers with enclosed malls in the United States, 1956-2009 [+]						
	Full model			**Parsimonious model**		
	ln (HR)	***p***		**ln (HR)**	***p***	**HR (95% CI)**
Region		.004			.000	
East	.203			.181		1.20 (1.07-1.34)
Midwest	.145			.122		1.13 (1.01-1.26)
South	-.167			-.166		0.85 (0.76-0.94)
West [reference category]						
Mall characteristics						
Conversion from historic property	.067	.947			.954	
Conversion from existing non-enclosed shopping center	-2.254	.000		-2.227	.000	0.11 (0.09-0.14)
Mall removed during subsequent remodeling	-1.136	.001		-1.173	.001	0.31 (0.16-0.61)
Gross leasable area (unit: 1,000 square feet)	.006	.643			.816	
County level factors						
Population size (unit: 100,000 persons)	.004	.613			.756	
Change in population size (in 10% increments) [1]	.069	.111		.068	.051	1.07 (1.00-1.15)
Percent population that is white (in 10% increments)	-.036	.279			.212	
Change in white population (in 10% increments) [2]	.009	.896			.644	
Urban population proportion (in 10% increments)	-.084	.001		-.087	.000	0.92 (0.88-0.95)
Change in urban proportion (in 10% increments) [2]	.190	.002		.187	.001	1.21 (1.08-1.35)
Median age (years)	-.015	.239			.208	
Change in median age (years) [2]	-.066	.086		-.059	.083	0.94 (0.88-1.01)
High school graduation rate (in 10% increments)	.082	.230			.683	
Change in graduation rate (in 10% increments) [2]	.026	.877			.466	
Bank deposits (in $1,000,000s per capita) [3]	.214	.923			.810	
Change in bank deposits (in 10% increments) [1]	.014	.057		.013	.029	1.01 (1.00-1.02)
Median household income (in $1,000s) [3]	-.005	.284			.324	
Change in median household income (in 10% increments) [1]	-.154	.009		-.190	.000	0.83 (0.75-0.91)
Number of farms (per 1,000 persons)	-.005	.355		-.008	.060	0.99 (0.98-1.00)
Change in number of farms (in 10% increments) [1]	.019	.215			.241	

Table 5.2 (continued).

	Full model			Parsimonious model		
	ln (HR)	***p***		**ln (HR)**	***p***	**HR (95% CI)**
Number of manufacturers (per 1,000 persons)	.067	.354			.891	
Change in number of manufacturers (in 10% increments) [1]	-.013	.561			.806	
Number of wholesalers (per 1,000 persons)	-.085	.189			.146	
Change in number of wholesalers (in 10% increments) [1]	.013	.615			.760	
Number of service businesses (per 1,000 persons)	.011	.546			.886	
Change in number of service businesses (in 10% increments) [1]	.004	.873			.753	
Number of retailers (per 1,000 persons)	-.025	.559			.637	
Change in number of retailers (in 10% increments) [1]	-.114	.000		-.117	.000	0.89 (0.86-0.92)
Retail sales (in $1,000s per capita) [3]	.008	.566			.932	
Change in retail sales (in 10% increments) [1]	.024	.160		.030	.035	1.03 (1.00-1.06)
Number of malls	-.007	.509			.441	
Number of malls, squared	.000	.953			.660	
National level factors						
Number of malls (in increments of 100)	-.022	.941			.297	
Number of malls, squared	.002	.758			.300	
Number of shopping centers (in increments of 1,000) [4]	.485	.012		.634	.000	1.88 (1.67-2.12)
Number of shopping centers, squared	-.014	.001		-.017	.000	0.98 (0.98-0.99)
Mall industry age (years)	-.225	.002		-.160	.001	0.85 (0.78-0.94)
GDP (in $1 Trillions) [3]	.953	.000		.915	.000	2.50 (1.86-3.35)
GDP growth rate (in 10% increments) [1]	1.057	.000		1.090	.000	2.98 (2.47-3.59)
Federal Reserve Prime Rate (in 1% increments)	.035	.081		.043	.014	1.04 (1.01-1.08)

[+] The event of interest was defined as "total shopping center closure". N=3,857 cases (1,184 closures and 2,673 right-censored cases; 106 censored cases with survival durations under 10 years [the minimum duration among the 1,184 closures] excluded from the analysis). All covariates assessed at time of mall closure or right-censoring.

[1] growth rate over previous 10 years

[2] difference versus 10 years prior

[3] inflation adjusted

[4] excludes enclosed malls

Figure 5.4. Relative hazard of mall failure by national-level non-enclosed shopping center density

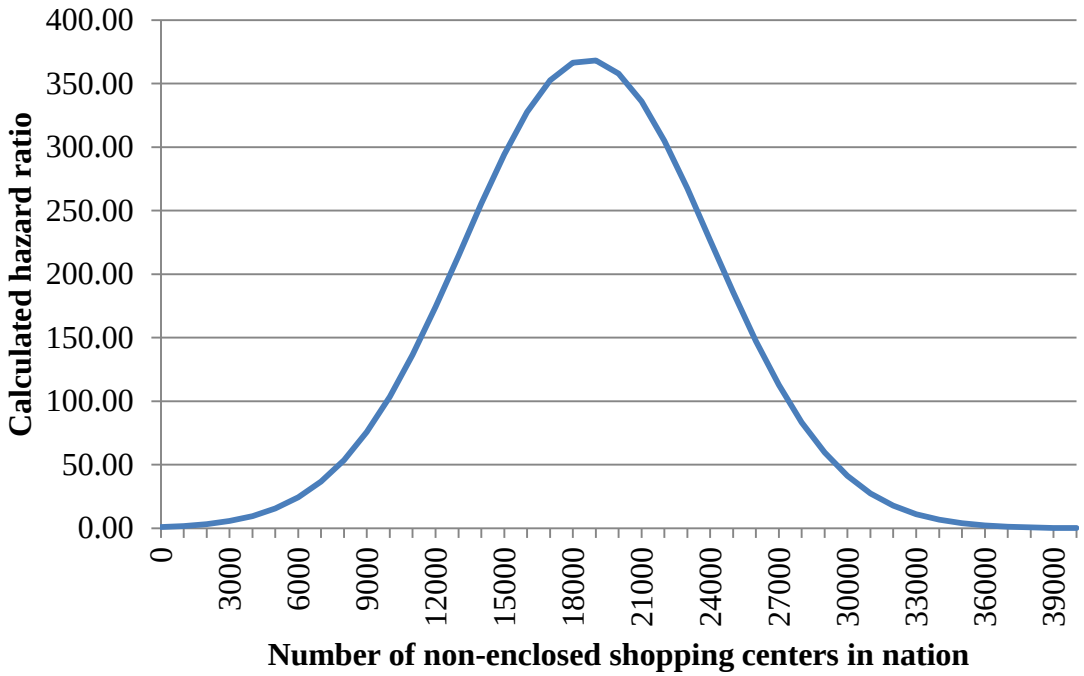


Table 5.3. Logistic regression analyses of factors predicting complete closure, mall removal, and high vacancy for shopping centers with enclosed malls in the United States, 1956-2009 [+]						
	Full model			**Parsimonious model**		
	ln (OR)	***p***		**ln (OR)**	***p***	**OR (95% CI)**
Region		.003			.000	
East	.466			.470		1.60 (1.15-2.23)
Midwest	-.098			-.123		0.88 (0.64-1.23)
South	.303			.347		1.41 (1.04-1.93)
West [reference category]	…	…		…	…	…
Mall characteristics						
Conversion from historic property	-.900	.097		-.879	.104	0.41 (0.14-1.20)
Conversion from existing non-enclosed shopping center	.901	.000		.900	.000	2.46 (1.84-3.29)
Shopping center type		.000			.000	
Convenience or neighborhood (0-99,999 square feet)	2.214			2.214		9.15 (6.86-12.21)
Community (100,000-299,999 square feet)	1.782			1.788		5.98 (4.52-7.90)
Regional (300,000-749,999 square feet)	1.048			1.056		2.87 (2.14-3.85)
Super regional (750,000+ sq. ft.) [reference category]	…	…		…	…	…
Adopter category		.000			.000	
Innovator (1956-1962)	.773	.004		.770		2.16 (1.28-3.64)
Early adopter (1963-1966)	.341	.037		.345		1.41 (1.03-1.95)
Early majority (1967-1973) [reference category]	…	…		…	…	…
Late majority (1974-1985)	-.706	.000		-.701		0.50 (0.41-0.61)
Laggard (1986-1989)	-2.751	.000		-2.742		0.06 (0.04-0.10)
County level factors						
Population size (unit: 100,000 persons)	-.009	.464			.543	
Change in population size (in 10% increments) [1]	.026	.712			.623	
Percent population that is white (in 10% increments)	.061	.187		.074	.075	1.08 (0.99-1.17)
Change in white population (in 10% increments) [2]	-.288	.001		-.311	.000	0.73 (0.62-0.86)
Urban population proportion (in 10% increments)	.135	.000		.132	.000	1.14 (1.08-1.21)
Change in urban proportion (in 10% increments) [2]	-.306	.013		-.343	.001	0.71 (0.58-0.86)
Median age (years)	-.037	.039		-.045	.003	0.96 (0.93-0.98)
Change in median age (years) [2]	-.053	.424			.491	

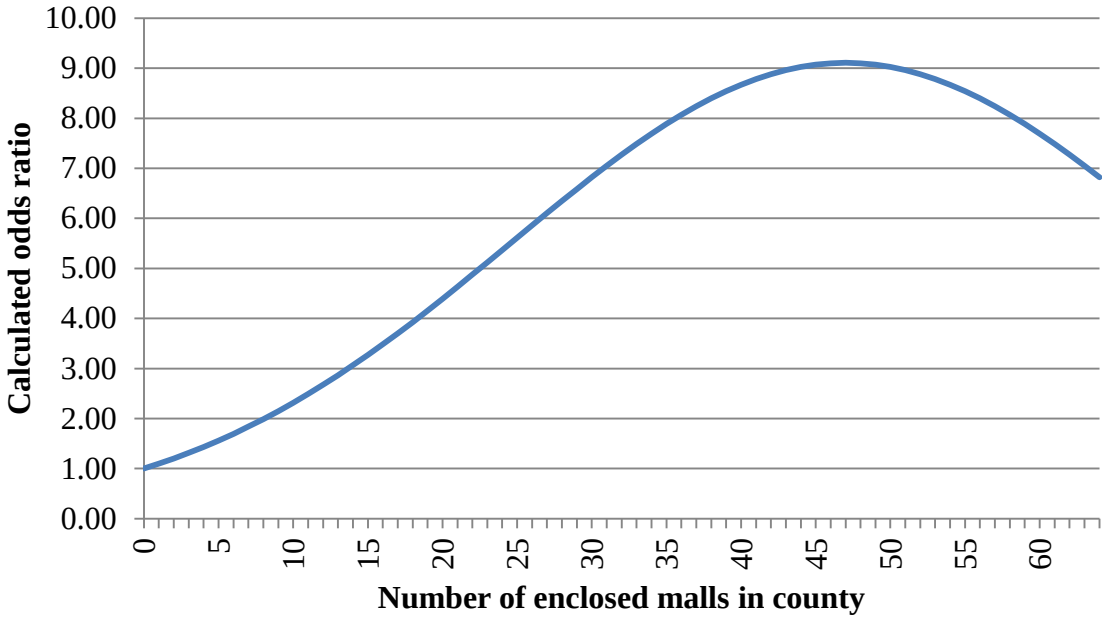
Table 5.3 (continued).

	Full model			Parsimonious model		
	ln (OR)	***p***		**ln (OR)**	***p***	**OR (95% CI)**
High school graduation rate (in 10% increments)	-.275	.026		-.256	.026	0.77 (0.62-0.97)
Change in graduation rate (in 10% increments) [2]	.046	.863			.828	
Bank deposits (in $1,000,000s per capita) [3]	.577	.849			.643	
Change in bank deposits (in 10% increments) [1]	.001	.938			.706	
Median household income (in $1,000s) [3]	.018	.005		.016	.004	1.02 (1.01-1.03)
Change in median household income (in 10% increments) [1]	-.325	.000		-.321	.000	0.73 (0.64-0.83)
Number of farms (per 1,000 persons)	-.001	.788			.853	
Change in number of farms (in 10% increments) [1]	.011	.497			.534	
Number of manufacturers (per 1,000 persons)	.287	.020		.272	.010	1.31 (1.07-1.61)
Change in number of manufacturers (in 10% increments) [1]	.005	.868			.816	
Number of wholesalers (per 1,000 persons)	-.017	.880			.864	
Change in number of wholesalers (in 10% increments) [1]	.103	.007		.105	.000	1.11 (1.05-1.17)
Number of service businesses (per 1,000 persons)	-.136	.000		-.136	.000	0.87 (0.84-0.91)
Change in number of service businesses (in 10% increments) [1]	.361	.000		.367	.000	1.44 (1.26-1.65)
Number of retailers (per 1,000 persons)	.628	.000		.621	.000	1.86 (1.64-2.11)
Change in number of retailers (in 10% increments) [1]	-.670	.000		-.665	.000	0.51 (0.47-0.56)
Retail sales (in $1,000s per capita) [3]	-.103	.000		-.103	.000	0.90 (0.86-0.94)
Change in retail sales (in 10% increments) [1]	.228	.000		.232	.000	1.26 (1.19-1.34)
Number of malls	.097	.000		.094	.000	1.10 (1.06-1.14)
Number of malls, squared	-.001	.002		-.001	.000	1.00 (1.00-1.00)
Constant	-1.451	.211		-1.460	.180	0.23
Cox & Snell R-squared	0.417			0.416		
Nagelkerke R-squared	0.559			0.558		
Hosmer-Lemeshow Chi-square (8 degrees of freedom)	29.731	.001		29.999	.001	

[+] The events of interest were total shopping center closure, demolition of enclosed mall structure during renovation, or high vacancy rate. Analysis based only on the 3,593 cases with exposure times greater than or equal to 20 years (370 cases excluded). All covariates assessed at time of closure or right-censoring.

[1] growth rate over previous 10 years [2] difference versus 10 years prior [3] inflation adjusted

Figure 5.5. Relative odds of mall failure by county-level mall density



Chapter 6: Conclusion

CHAPTER SPECIFIC FINDINGS

The role that resource levels and resource access plays in industry-level emergence and change processes remains highly disputed among organizational scholars. In the present study, I examined the role of industry-level and market-level factors in diffusion and survival processes for the shopping center sector. Data for the dissertation was obtained from shopping center directories, articles published in business periodicals, and a diverse array of government datasets. The resulting aggregated database contains detailed information on the total population of shopping centers in the United States from 1923 to the present. Before proceeding to additional topics of discussion, a brief review of the chapter-specific findings may be useful.

In Chapter 2, I used qualitative data from a content analysis of business press coverage of shopping centers from 1945-1976 to evaluate the role of density in legitimacy building among emergent organizational forms. The results suggest that legitimacy building is process-like rather than event-like, that density serves as a catalyst for legitimacy decisions (rather than a determinant of them), and that the effectiveness of institutional interventions is itself density-dependent. In Chapter 3, I used constrained non-linear regressions to test three specifications of the density-legitimacy link. Counter to the predictions of organizational theorists, density and legitimacy are weakly rather than intrinsically related. Furthermore, the results suggest that legitimacy is the causal factor in the density-legitimacy relationship rather than vice versa. In Chapter 4, I examined the factors explaining the spread of enclosed malls in the United States from 1956 to 2009 using Cox regressions. The results suggest that development decisions

became decoupled from the size of the consumer spending base during the 1970s mall building boom. The results also show the importance of measuring population and income factors at the market-area level, with biases caused by over-aggregation arising if a broader geographic level-of-analysis is chosen. Finally, in Chapter 5 I examined the factors related to shopping mall failure using both Cox and logistic regressions. The findings highlight the importance of market-level factors, as is emphasized by real estate industry scholars. However, the results often contradict the predictions of both real estate scholars and organizational scholars, particularly with respect to the weak effects of inter-mall competition and the highly beneficial effects of major organizational adaptations.

GENERAL FINDINGS

The importance of the level-of-measurement

As mentioned above, a few additional remarks bear making when the results from these four chapters are considered as a whole. First, both the income-related and the density-related findings indicate the importance of selecting the correct level-of-measurement in terms of assessing resource levels in organizations' environments. With respect to income, recall from the Chapter 4 results that mall development was more likely to take place in counties with high and/or growing median household incomes. Correspondingly, the results from Chapter 5 showed that high mall failure rates were associated with low and/or shrinking county-level median household income. These income findings, corresponding to when incomes were measured at the market level, are not mirrored in the findings corresponding to when income was measured at the national level (i.e., using GDP). As reported in Chapter 4, mall development was more likely to occur when GDP was relatively low and, as reported in Chapter 5, mall failure rates were

elevated when GDP was high and growing. If a study were to rely solely on aggregate measures, the conclusions drawn with respect to income (*the* key indicator of resource levels) would be seriously flawed.

The danger of over-aggregation can also be seen with respect to one of the key measures of competitive pressure, namely, mall density. As shown in Table 4.2 from Chapter 4, both county-level and national-level mall densities were significantly associated with the mall founding rate. When assessed at the county level, the association between mall density and mall development was structured in the usual nonlinear ecological manner (low density, low founding rate; medium density, high founding rate; high density, low founding rate). The precise opposite of this pattern was found in the Chapter 4 analyses when mall density was assessed at the national level. Once again, had only the aggregate, national-level density measure been used the conclusions drawn from the present study would have been seriously flawed.

Density-delimited legitimation, isomorphism, and resource partitioning

The second additional point of discussion, and perhaps the more important one, involves my proposition that the effects of legitimation, isomorphism, and resource partitioning are each confined to relatively narrow regions along the cumulative density function. The results of the present study and previous analyses suggest that these three key organizational processes, counter to existing thinking, do not operate uniformly at all stages of an industry's evolution.

The association between legitimacy and density has already been described in detail in Chapters 2 and 3, where I argued that the effectiveness of institutional legitimation actions was contingent upon the relative density level. While the results of the present study provide no support for the OE concept of density-driven legitimation, the results also do not support the NIS

assumption that legitimacy matters throughout an industry's history. The weak correlation shown between legitimacy and density in Chapter 3 and the non-significant association between legitimacy levels and county-level mall development decisions both show that the effects of legitimacy were limited. Given how concerned industry analysts were regarding shopping center legitimacy levels in the early years (see Chapter 2), one must assume that legitimacy levels were important to decision makers when shopping center density was low. However, the lack of significance associated with legitimacy levels in the Chapter 3 and 4 analyses (which span much longer periods of time) suggests that subsequent changes in the legitimacy level had no bearing on individual development decisions. The effects of institutional legitimation appear to be confined to only a small region of the cumulative density function.

The proposition that the effects of isomorphism and resource partitioning are each similarly confined to a small region of the cumulative density function requires a lengthier explanation. Let us begin by recalling that county-level mall density was associated with the hazard of mall development in the nonlinear fashion predicted by ecological theory (low density, low founding rate; medium density, high founding rate; high density, low founding rate). At the most basic level, the findings related to county-level mall density simply indicate that mall diffusion conformed to the s-shaped cumulative density pattern predicted by both OE and Diffusion Theory. In order to make more clear the discussion that follows, I will divide the s-shaped cumulative density function into three parts: the *latency* (low density, low growth), *proliferation* (moderate density, high growth), and *maturation* (high density, low growth) periods.

In the enclosed mall case, the data suggest that the latency period took place between 1956 and 1966, the proliferation period between 1967 and 1985, and the maturation period

between 1986 and the present. These date ranges coincide with the adopter categories (see again Rogers 2003) outlined in Chapter 5, with the latency period dates coinciding with the initial 16% of market entries (the "innovators" and "early adopters"), the proliferation period dates coinciding with the middle 68% (the "early majority" and "late majority"), and the maturation period dates coinciding with the final 16% (the "laggards").

Whereas the central concern of the business community during the latency period was determining whether or not malls were a viable organizational form (see again Chapter 2), one major topic of discussion during the proliferation period not yet systematically considered was the level of homogeneity among the malls built between 1967 and 1985. In the proliferation period, several mall builders reported the strategy of using a standardized mall layout in order to shorten development timelines (Chain Store Age Staff Writer 1969a; Chain Store Age Staff Writer 1975). Additional indirect evidence of this practice is reflected in articles regarding the problem of mall ubiquity (Chain Store Age Staff Writer 1973a; Chain Store Age Staff Writer 1973b; Chain Store Age Staff Writer 1973e) and the advantages of increased levels of mall differentiation (Chain Store Age Staff Writer 1973d). This qualitative evidence suggests that organizational differentiation (a key part of the resource partitioning process) was preceded by a period of heightened homogeneity.

Also recall that geographic region was not a significant predictor in the analysis of mall diffusion (see Table 4.2, Chapter 4) but was a significant factor in the analysis of mall failure (see Tables 2 and 3, Chapter 5). Given that substantial differences in economic, social, and myriad other conditions existed between the East, Midwest, South, and West regions during the entire study period, the lack of difference in the underlying hazard for mall development suggests that malls diffused in a very homogenous manner. The presence of significant

differences between the underlying hazard for mall failure for each of these reasons further suggests some level of breakdown in homogeneity once the nation had become saturated with malls.

Evidence of substantial changes in the level of mall homogeneity can also been seen in the results from Chapter 5 corresponding to the effects of organizational size. When failure was defined only in terms of complete mall closure, mall size was not a significant predictor. However, when the definition of failure was expanded to include the removal of the enclosed mall structure during renovations, the results showed that smaller malls were more likely to have failed. As I argued in Chapter 5, this pattern of results suggests that small malls frequently responded to competitive pressures by altering their retail format. As the conversion of small enclosed malls into non-enclosed centers would tend to reduce the overall level of homogeneity in a given retail market, higher levels are market saturation are once again linked to increased levels of organizational differentiation.

Previous ecological analyses have already noted this type of breakdown in organizational homogeneity under conditions of high market saturation through the repeated analysis of competition between generalist (i.e., firms occupying multiple niches in a market) and specialist (i.e., firms occupying only one niche) organizations. According to ecological theory's principle of allocation, generalists will perform moderately well in multiple niches while specialists will perform superiorly in only one and very poorly in the rest (Hannan, Carroll and Polos 2003; Hsu 2006). Whether the generalist or the specialist strategy is better at any given point in time depends almost entirely on how the economic environment shifts. As described by Freeman and Hannan (1983; see also Peli and Bruggeman 2007), generalists do better when alternative environmental conditions persist for relatively long periods of time and the duration of any

particular economic state is highly irregular and unpredictable. Specialists tend to perform better under most other economic conditions. Regardless of whether or not a firm is a generalist or a specialist, intense competition ensues when two or more organizations attempt to occupy the same niche within a given market (Baum and Singh 1994; Dobrev, Kim and Hannan 2001).

When markets become saturated (and hence more stable), specialist organizations tend to escape much of the deleterious competition that plagues generalists (Carroll 1985; Dobrev, Kim and Carroll 2002). In fact, the onset of market saturation has been found to be highly favorable to the entry of additional specialist organizations (Carroll and Swaminathan 1991; Carroll and Swaminathan 1992; Hannan et al. 1998a), particularly when surviving generalist organizations inadvertently open new niche space in their attempt to differentiate from one another (Sorenson 2000), become specialists themselves (see Dimmick and Rothenbuhler 1984 for an example), or when new resource dimensions are added (Peli and Nooteboom 1999). Hence, organizational diversity tends to increase under conditions of saturation as specialists survive and multiply.

Taken together, the findings of these previous ecological analyses and of the present study all point to the existence of organizational homogeneity prior to the saturation point and increased heterogeneity afterwards. The push towards increased organizational heterogeneity, otherwise known as resource partitioning, is clearly associated most strongly with conditions of organizational saturation. In other words, resource partitioning processes have already been shown to be confined to the maturation period along the cumulative density function.

The high incidence of organizational homogeneity thus appears to be confined to the proliferation period along the cumulative density function. The question of how this high level of homogeneity was established in the first place then becomes the pertinent issue, with the NIS concept of isomorphism being a logical concept to examine.

While not frequently discussed in the organizational literature, NIS and OE scholars view the importance of isomorphism very differently. NIS scholars marvel at the high degree of similarity between organizations, and argue that this similarity is the result of mimetic (adopting an existing organizational form in response to environmental uncertainty), normative (adopting a common organizational form due to between-peer consensus), or coercive processes (adopting an organizational form due to external pressure; see DiMaggio and Powell 1983), though the mimetic variant has received the most empirical attention (Mizruchi and Fein 1999). In contrast, OE scholars marvel at the diversity of organizational forms, and argue that "isomorphism holds as a good approximation only in stable environments" (Hannan and Freeman 1977).

Evidence clearly exists in support of both of these positions, which are easily synthesized when one considers the possibility that the effects of both isomorphism and resource partitioning are confined to distinct regions along the cumulative density function. Under this framework, the high level of homogeneity observed during the proliferation period would simply be the result of the dominance of isomorphism. As already discussed, the high level of heterogeneity observed during the maturation period would simply be the result of the onset of resource partitioning processes and the waning of isomorphic ones.

Homogeneity during the proliferation period and the role of *accelerative* isomorphism

While the results seem to suggest that the proliferation period was characterized by isomorphic-driven homogeneity, the evidence does not clearly implicate mimetic, normative, or coercive processes. Recall that mimetic isomorphism is thought to be the result of environmental uncertainty. The isomorphism observed in the proliferation period of the present study does not appear to be mimetic as there was little remaining uncertainty as to the superior competitiveness

of the shopping center and enclosed mall forms by the mid-1960s (see Chapter 2). Coercive isomorphism, on the other hand, is thought to be the result of external pressures exerted by powerful institutions such as regulatory agencies and lenders. The type of isomorphism observed in the shopping center case also does not appear to fit this description. While it was certainly true that lenders supported shopping center development once the chain store industry legitimized them, there was no evidence to suggest that shopping center or mall developers were pushed to adopt a standardized type of shopping center. Normative isomorphism, thought to be the result of shared values and ideas, also does not appear to describe shopping center and mall isomorphism to a satisfactory degree. There was a steady stream of articles in the business press highlighting newly developed centers and malls, with each featured center having been selected because of some innovation it incorporated (see Figure 3.2 in Chapter 3, which identified the number of articles containing descriptions of new centers by year). When one also considers that business press articles focused on a wide array of center sizes, it becomes very difficult to argue that a retail industry norms pushed retail developers to homogeneity.

Instead, the isomorphism observed in the proliferation period seems to be of a fourth type that derived from developers' use of a homogenous, standardized organizational form to enable a more rapid entry into and saturation of a given niche (this new type of isomorphism I will call *accelerative* isomorphism). As the trend towards suburbanization strengthened, retail developers were quick to recognize that inter-developer competition for advantageous shopping center locations would be fierce. Developers did recognize that the long-term success of a shopping center hinged upon ensuring a good match between center design and local economic and social conditions. Experimentation and innovation in the pursuit of a superior level of environmental fit was certainly valued by the retail development community, but the development of a unique

shopping center format was the exception rather than the rule. Retail developers were faced with a tradeoff: either face the risks associated with being generic or face the risks associated with being late. The high level of homogeneity noted in the business press and the speed with which the industry expanded suggests that developers were more desirous of avoiding the hazards of delayed market entry.

While the qualitative evidence suggests the existence of accelerative isomorphism, a follow-up study would be needed in order to assess why the growth rate of the shopping center and mall sectors was higher in the middle years. If this increased level of growth was primarily the result of the entry of additional retail developers, then the concept of accelerative isomorphism would not be supported. If, on the other hand, the data showed that center development times were reduced dramatically during the proliferation period then, coupled with existing evidence of a high level of center homogeneity, this would suggest that the concept of accelerative isomorphism is a valid addition to the existing typology of isomorphic types.

BIBLIOGRAPHY

Advertising Age Staff Writer. 1960. "Circus Provides Object Lesson to Shopping Center; Be One Says Adman Blake." *Advertising Age* 31:122.

Aerts, Walter, and Denis Cormier. 2009. "Media Legitimacy and Corporate Environmental Communication." *Accounting Organizations and Society* 34:1-27.

Agelasto, Michael, and David Listokin. 1975. *The Urban Financing Dilemma: Disinvestment, Redlining*. Monticello, IL: Council of Planning Librarians.

Aldrich, Howard E. 1979. *Organizations and Environments*. Englewood Cliffs, NJ: Prentice-Hall.

Alexander, Laurence A. 1967. "Private Dynamism in Urban Renewal." *Stores* 49:30-32.

Allison, Paul D. 2005. *Fixed Effects Regression Methods for Longitudinal Data Using SAS*. Cary, NC: SAS Institute, Inc.

—. 2006. "Fixed Effects Regression Methods in SAS (Paper 184-31)." in *the Proceedings of SUGI 31*. Retrieved from http://www2.sas.com/proceedings/sugi31/184-31.pdf.

Appel, David L. 1970. "Institutional Innovators: A Study of Market Segmentation." *MSU Business Topics* 18:70-77.

Archibald, M. E. 2008. "The impact of density dependence, sociopolitical legitimation and competitive intensity on self-help/mutual-aid formation." *Organization Studies* 29:79-101.

Aronov, Aaron. 1967. "Preface." in *Directory of Shopping Centers in the United States and Canada, 9th Edition*. Chicago: National Research Bureau, Inc.

Baker, R. G. V. 1994. "An Assessment of the Space-Time Differential Model for Aggregate Trip Behavior to Planned Suburban Shopping Centers." *Geographical Analysis* 26:341-363.

Barley, S. R. 2007. "Corporations, democracy, and the public good." *Journal of Management Inquiry* 16:201-215.

—. 2010. "Building an Institutional Field to Corral a Government: A Case to Set an Agenda for Organization Studies." *Organization Studies* 31:777-805.

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

Barnett, William P., and John Freeman. 2001. "Too much of a good thing? Product proliferation and organizational failure." *Organization Science* 12:539-558.

Barreto, I., and C. Baden-Fuller. 2006. "To conform or to perform? Mimetic behaviour, legitimacy-based groups and performance consequences." *Journal of Management Studies* 43:1559-1581.

Barron, D. N. 1998. "Pathways to legitimacy among consumer loan providers in New York city, 1914-1934." *Organization Studies* 19:207-233.

Barron, D. N., E. West, and M. T. Hannan. 1994. "A Time to Grow and a Time to Die - Growth and Mortality of Credit Unions in New-York-City, 1914-1990." *American Journal of Sociology* 100:381-421.

Baum, J. A. C., and C. Oliver. 1991. "Institutional Linkages and Organizational Mortality." *Administrative Science Quarterly* 36:187-218.

—. 1992. "Institutional Embeddedness and the Dynamics of Organizational Populations." *American Sociological Review* 57:540-559.

Baum, J. A. C., and J. V. Singh. 1994. "Organizational Niches and the Dynamics of Organizational Founding." *Organization Science* 5:483-501.

Baum, Joel A. C. 1996. "Organizational Ecology." Pp. 77-114 in *Handbook of Organization Studies*, edited by Stewart R. Clegg, Cynthia Hardy, and Walter R. Nord. London: Sage.

Baum, Joel A. C., and Christine Oliver. 1996. "Toward an Institutional Ecology of Organizational Founding." *Academy of Management Journal* 39:1378-1427.

Baum, Joel A. C., and Walter W. Powell. 1995. "Cultivating an Institutional Ecology of Organizations - Comment." *American Sociological Review* 60:529-538.

Baum, Joel A. C., and Andrew V. Shipilov. 2006. "Ecological Approaches to Organizations." Pp. 55-110 in *The Sage Handbook of Organization Studies, Second Edition*, edited by Stewart R. Clegg, Cynthia Hardy, Thomas Lawrence, and Walter R. Nord. London: Sage.

Benjamin, J. D., G. D. Jud, and D. T. Winkler. 1995. "An Analysis of Shopping Center Investment." *Journal of Real Estate Finance and Economics* 10:161-168.

Beyard, Michael D., W. Paul O'Mara, and others. 1999. *Shopping Center Development Handbook, Third Edition*. Washington, D.C.: Urban Land Institute.

Breckenfield, Gurney. 1972. "Downtown Has Fled to the Suburbs." *Fortune* 86:80-87.

Brinton, Mary C., and Victor G. Nee. 1998. *The New Institutionalism in Sociology*. Stanford, CA: Stanford University Press.

Bruderl, J., and R. Schussler. 1990. "Organizational Mortality - the Liabilities of Newness and Adolescence." *Administrative Science Quarterly* 35:530-547.

Brueckner, J. K. 1993. "Inter-store Externalities and Space Allocation in Shopping Centers." *Journal of Real Estate Finance and Economics* 7:5-16.

Budros, A. 1992. "The Making of an Industry: Organizational Births in New York Life Insurance Industry, 1842-1904." *Social Forces* 70:1013-1033.

—. 1994. "Analyzing Unexpected Density-Dependence Effects on Organizational Births in New York Life Insurance Industry, 1842-1904." *Organization Science* 5:541-553.

Business Week Staff Writer. 1957a. "July Heat for January Shoppers: Southdale Shopping Center Near Minneapolis." *Business Week*:27-28.

—. 1957b. "July Heat for January Shoppers; Southdale Shopping Center Near Minneapolis." *Business Week* January 26:27-28.

—. 1972. "Weather or No, The Consumers Buy." *Business Week*:18.

—. 1974. "Suburban Malls are Trying Harder." *Business Week*:53.

Carroll, G. R., P. Preisendoerfer, A. Swaminathan, and G. Wiedenmayer. 1993. "Brewery and Brauerei: The Organizational Ecology of Brewing." *Organization Studies* 14:155-188.

Carroll, G. R., and A. Swaminathan. 1991. "Density Dependent Organizational Evolution in the American Brewing Industry from 1633 to 1988." *Acta Sociologica* 34:155-175.

Carroll, G. R., and J. Wade. 1991. "Density Dependence in the Organizational Evolution of the American Brewing Industry Across Different Levels of Analysis." *Social Science Research* 20:271-302.

Carroll, Glenn R. 1985. "Concentration and Specialization - Dynamics of Niche Width in Populations of Organizations." *American Journal of Sociology* 90:1262-1283.

Carroll, Glenn R., and J. Delacroix. 1982. "Organizational Mortality in the Newspaper Industries of Argentina and Ireland - an Ecological Approach." *Administrative Science Quarterly* 27:169-198.

Carroll, Glenn R., and Michael T. Hannan. 1989a. "Density Dependence in the Evolution of Populations of Newspaper Organizations." *American Sociological Review* 54:524-541.

—. 1989b. "On Using Institutional Theory in Studying Organizational Populations - Reply." *American Sociological Review* 54:545-548.

—. 2000. *The Demography of Corporations and Industries*. Princeton, NJ: Princeton University Press.

—. 2004. *The Demography of Corporations and Industries*. Princeton, NJ: Princeton University Press.

Carroll, Glenn R., and Anand Swaminathan. 1992. "The Organizational Ecology of Strategic Groups in the American Brewing Industry from 1975 to 1990." *Industrial and Corporate Change* 1:65-97.

Chain Store Age Staff Writer. 1951. "Shopping Centers from Coast to Coast." *Chain Store Age* 27:26-29.

—. 1952a. "Nine-chain Shopping-center Opening; Circus Promotion Packs 'em In." *Chain Store Age* 28:44, 52.

—. 1952b. "Prime Locations in Demand, Shopping Center Activity Heavy." *Chain Store Age* 28:70, 78.

—. 1954. "Shopping Center Teamwork." *Chain Store Age* 30:20-22.

—. 1955. "Are We Building Too Many Shopping Centers?" *Chain Store Age* 31:24-25.

—. 1957a. "Finding Locations in Congested Areas." *Chain Store Age* 33:19-20.

—. 1957b. "The Shopping Center Look." *Chain Store Age* 33:41.

—. 1961a. "Four Old Ohio Towns Get New Shopping Centers." *Chain Store Age* 37:17.

—. 1961b. "Malls Call for Exciting Use of Materials." *Chain Store Age* 37:34-36.

—. 1961c. "Rent and Taxes: Key to Downtown Survival." *Chain Store Age* 37:19-21.

—. 1964a. "Chains, Developers Exchange Views on Shopping Centers." *Chain Store Age* 40:9-10.

—. 1964b. "Low-cost Facelift: Air Conditioned Sidewalks for Chains in Small Centers." *Chain Store Age* 40:7-9.

—. 1965a. "Parking: Your Angle Determines Your Layout, Your Layout Sets Traffic Patterns, and Your Traffic Affects Your Sales." *Chain Store Age* 41:26-27.

—. 1965b. "Shopping Center Trends and What They Mean to the Chains: Special Report." *Chain Store Age* 41:22-44.

—. 1965c. "When an Open-mall Center is Enclosed." *Chain Store Age* 41:20-23.

—. 1966a. "Expansion and Remodeling: A Major Trend in Centers." *Chain Store Age* 42:38-39.

—. 1966b. "Experts Agree Renovation can Rescue Older Centers." *Chain Store Age* 42:50+.

—. 1966c. "Shopping Centers are Still Booming: Special Report." *Chain Store Age* 42:30-33.

—. 1967. "Courts Won't Order Tenants to Remain in Business." *Chain Store Age* 43:40.

—. 1968a. "Enclosed Mall Keeps Alaska Weather Out." *Chain Store Age* 44:38.

—. 1968b. "Upgraded Pocket Regional." *Chain Store Age* 44:26-27.

—. 1969a. "Chain of Prototype Center Planned: Century 21 Malls." *Chain Store Age* 45:56.

—. 1969b. "Major Stores Unite in Centers." *Chain Store Age* 45:23-24.

—. 1969c. "Towns Demand More From Builders." *Chain Store Age* 45:22-24.

—. 1971. "Anchors: Metro District Planning Keyed to Shopping Centers." *Chain Store Age* 47:22-23.

—. 1973a. "Adds Upgrade Fashion Mall with Local Tenants." *Chain Store Age* 49:24-25.

—. 1973b. "Center Court Focuses on Local Majors." *Chain Store Age* 49:22-23.

—. 1973c. "Developers See Trends in More Small Malls, Ecology Laws." *Chain Store Age* 49:34-35.

—. 1973d. "Malls Seek to Compete Through Local Identity." *Chain Store Age* 49:21.

—. 1973e. "Seven Shops Create a Village." *Chain Store Age* 49:26-27.

—. 1973f. "Shopping Center Anchors Increase Market Share." *Chain Store Age* 49:62-63.

—. 1973g. "Yonkers: A Tale of Two Mall." *Chain Store Age* 49:36-37.

—. 1974. "Added space in old centers offers chains going sites." *Chain Store Age* 50:25-26.

—. 1975. "Houston's Successful Galleria to Birth a Twin." *Chain Store Age* 51:20.

—. 1976a. "Jersey Center Enclosed, Size Doubled." *Chain Store Age* 52:37-41.

—. 1976b. "Old Syracuse Area Strip Becomes a Major Mall." *Chain Store Age* 52:34-36.

Cohen, Yehoshua. 1972. *Diffusion of an Innovation in an Urban System: The Spread of Planned Regional Shopping Centers in the United States, 1949-1968*. Chicago: Department of Geography, University of Chicago.

Colyvas, Jeannette A., and Walter W. Powell. 2006. "Roads to Institutionalization: The Remaking of Boundaries Between Public and Private Science." *Research in Organizational Behavior* 27:305-353.

Condon, E. J. 1953. "Changing Patterns in the Retail World." *Chain Store Age* 29:17, 34-42.

Congress for the New Urbanism. 2001. "Greyfield Regional Mall Study." Global Strategic Real Estate Research Group.

CoStar Group. 2009. "Shopping Center Property Database." Bethesda, MD: CoStar Realty Information, Inc.

Davis, Gerald F., and Mark S. Mizruchi. 1999. "The Money Center Cannot Hold: Commercial Banks in the U.S. System of Corporate Governance." *Administrative Science Quarterly* 44:215-239.

Delacroix, J., Anand Swaminathan, and M. E. Solt. 1989. "Density Dependence Versus Population-Dynamics - an Ecological Study of Failings in the California Wine Industry." *American Sociological Review* 54:245-262.

Delacroix, Jacques, and Hayagreeva Rao. 1994. "Externalities and Ecological Theory: Unbundling Density Dependence." Pp. 255-268 in *Evolutionary Dynamics of Organizations*, edited by Joel A. C. Baum and Jitendra V. Singh. Oxford: Oxford University Press.

Denrell, J., and B. Kovacs. 2008. "Selective sampling of empirical settings in organizational studies." *Administrative Science Quarterly* 53:109-144.

Des Rosiers, F., M. Theriault, and C. Lavoie. 2009. "Retail Concentration and Shopping Center Rents-A Comparison of Two Cities." *Journal of Real Estate Research* 31:165-207.

DiMaggio, Paul J., and Walter W. Powell. 1983. "The Iron Cage Revisited - Institutional Isomorphism and Collective Rationality in Organizational Fields." *American Sociological Review* 48:147-160.

Dimmick, J., and E. Rothenbuhler. 1984. "The Theory of the Niche - Quantifying Competition among Media Industries." *Journal of Communication* 34:103-120.

Dobrev, Stanislav D. 2001. "Revisiting Organizational Legitimation: Cognitive Diffusion and Sociopolitical Factors in the Evolution of Bulgarian Newspaper Enterprises, 1846-1992." *Organization Studies* 22:419-444.

Dobrev, Stanislav D., and Glenn R. Carroll. 2003. "Size (and competition) among organizations: Modeling scale-based selection among automobile producers in four major countries, 1885-1981." *Strategic Management Journal* 24:541-558.

Dobrev, Stanislav D., T. Y. Kim, and Glenn R. Carroll. 2002. "The Evolution of Organizational Niches: US Automobile Manufacturers, 1885-1981." *Administrative Science Quarterly* 47:233-264.

—. 2003. "Shifting gears, shifting niches: Organizational inertia and change in the evolution of the US automobile industry, 1885-1981." *Organization Science* 14:264-282.

Dobrev, Stanislav D., T. Y. Kim, and Michael T. Hannan. 2001. "Dynamics of niche width and resource partitioning." *American Journal of Sociology* 106:1299-1337.

Dobrev, Stanislav D., S. Z. Ozdemir, and A. C. Teo. 2006. "The ecological interdependence of emergent and established organizational populations: Legitimacy transfer, violation by comparison, and unstable identities." *Organization Science* 17:577-597.

Drachman, Roy P. 1963. "Preface." in *Directory of Shopping Centers in the United States and Canada, 6th Edition*. Chicago: National Research Bureau, Inc.

Editor & Publisher Staff Writer. 1971. "Regional Malls Slice Advertising Budgets." *Editor & Publisher* 104:24.

Egan, J. J. 1963. "Observing Shopping Centers with a Critic's Eye." *Chain Store Age* 39:22+.

Ellsworth, T. D., D. Benjamin, and H. Radolf. 1959. "Changing Trends in Regional Shopping Centers: A Study of 8 Centers Near New York." *Journal of Retailing* 34:177-194.

Engineering News-Record Staff Writer. 1959. "Failure with a Future? Urban Shopping Mall." *Engineering News-Record* 163:43-44.

Eppli, M. J., and J. D. Shilling. 1995. "Large Scale Shopping Center Development Opportunities." *Land Economics* 71:35-41.

—. 1996. "How Critical Is a Good Location to a Regional Shopping Center." *Journal of Real Estate Research* 12:459-468.

Ezilon Search. 2009. "U.S. Counties by State - Includes Population, Land Area and County Capital Cities."

Farber, Leonard L. 1959. "Preface: Future Unlimited." in *Directory of Shopping Centers in the United States and Canada, Second Edition*. Chicago: National Research Bureau, Inc.

—. 1960. "Preface." in *Directory of Shopping Centers in the United States and Canada, Third Edition*. Chicago: National Research Bureau, Inc.

Feinberg, Richard A., Brent Sheffler, Jennifer Meoli, and Amy Rummel. "There's Something Social Happening at the Mall." *Journal of Business & Psychology* 4:49-63.

Fisk, G. 1959. "Replanning of Center-city Shopping Districts." *Journal of Retailing* 35:80-84.

Flint, Lucious S. 1950. "How Chains are Selecting Locations." *Chain Store Age* 26:13-14.

Florence, Brian, Peter Blackbird, Jack Thomas, and Anita Rose. 2011. "deadmalls.com."

Fortune Staff Writer. 1957. "Brisk Business for a Bright Shopping Center: Southdale." *Fortune* 55:141-144.

—. 1966. "Merchants' High Hopes in Minneapolis." *Fortune* 73:161-162.

Freeman, John H., Glenn R. Carroll, and Michael T. Hannan. 1983. "The Liability of Newness - Age Dependence in Organizational Death Rates." *American Sociological Review* 48:692-710.

Freeman, John H., and Michael T. Hannan. 1983. "Niche Width and the Dynamics of Organizational Populations." *American Journal of Sociology* 88:1116-1145.

Fulweiller, J. H. 1973. "Shopping Centers vs. The Environment." *Chain Store Age* 49:6.

Gautschi, D. A. 1981. "Specification of Patronage Models for Retail Center Choice." *Journal of Marketing Research* 18:162-174.

Geisel, M. S., C. Narasimhan, and S. K. Sen. 1993. "Quantifying the Competitive Impact of a New Entrant." *Journal of Business Research* 26:263-277.

Green, Sandy Edward Jr., Yuan Li, and Nitin Nohria. 2009. "Suspended in Self-spun Webs of Significance: A Rhetorical Model of Institutionalization and Institutionally Embedded Agency." *Academy of Management Journal* 52:11-36.

Greenwood, R. 2008. "Focusing the asteroid belt of organizations." *Journal of Management Inquiry* 17:152-156.

Greve, H. R. 2000. "Market niche entry decisions: Competition, learning, and strategy in Tokyo banking, 1894-1936." *Academy of Management Journal* 43:816-836.

Gruen, Victor. 1950. "Yardstick for Shopping Centers." *Chain Store Age* 26:23-25.

H. W. Wilson Co. 1945-1959. *Reader's Guide to Periodical Literature, Volumes 15-21*. Minneapolis, MN: H. W. Wilson Co.

—. 1958-1976. "Business Periodicals Index, Volumes 1-19." New York: H. W. Wilson Co.

Haines, Michael R., and Inter-university Consortium for Political and Social Research. 2010. "Historical, Demographic, Economic, and Social Data: The United States, 1790-2002." [Computer file]. ICPSR02896-v3. Ann Arbor, MI: Inter-university Consortium for Political and Social Research.

Hallsworth, A. G. 1994. "Decentralization of Retailing in Britain: The Breaking of the 3rd Wave." *Professional Geographer* 46:296-307.

Hannan, M. T., and J. Freeman. 1988. "The Ecology of Organizational Mortality - American Labor Unions, 1836-1985." *American Journal of Sociology* 94:25-52.

Hannan, Michael T. 1991. "Theoretical and Methodological Issues in Analysis of Density-Dependent Legitimation in Organizational Evolution." *Sociological Methodology* 21:1-42.

—. 1997. "Inertia, Density and the Structure of Organizational Populations: Entries in European Automobile Industries, 1886-1981." *Organization Studies* 18:193-228.

—. 1998. "Rethinking age dependence in organizational mortality: Logical formalizations." *American Journal of Sociology* 104:126-164.

Hannan, Michael T., D. N. Barron, and Glenn R. Carroll. 1991. "On the Interpretation of Density Dependence in Rates of Organizational Mortality." *American Sociological Review* 56:410-415.

Hannan, Michael T., and Glenn R. Carroll. 1992. *Dynamics of Organizational Populations: Density, Legitimation, and Competition*. New York: Oxford University Press.

—. 1995. "Theory Building and Cheap Talk About Legitimation - Reply." *American Sociological Review* 60:539-544.

Hannan, Michael T., Glenn R. Carroll, Stanislav D. Dobrev, and J. Han. 1998a. "Organizational mortality in European and American automobile industries Part I: Revisiting the effects of age and size." *European Sociological Review* 14:279-302.

Hannan, Michael T., Glenn R. Carroll, Stanislav D. Dobrev, J. Han, and John Charles Torres. 1998b. "Organizational mortality in European and American automobile industries Part II: Coupled clocks." *European Sociological Review* 14:303-313.

Hannan, Michael T., Glenn R. Carroll, Elizabeth A. Dundon, and John Charles Torres. 1995. "Organizational Evolution in a Multinational Context: Entries of Automobile Manufacturers in Belgium, Britain, France, Germany, and Italy." *American Sociological Review* 60:509-528.

Hannan, Michael T., Glenn R. Carroll, and Laszlo Polos. 2003. "The Organizational Niche." *Sociological Theory* 21:309-340.

Hannan, Michael T., and John H. Freeman. 1977. "The Population Ecology of Organizations." *American Journal of Sociology* 82:929-964.

—. 1984. "Structural Inertia and Organizational Change." *American Sociological Review* 49:149-164.

—. 1989. *Organizational Ecology*. Cambridge, MA: Harvard University Press.

Hannan, Michael T., Laszlo Polos, and Glenn R. Carroll. 2007. *Logics of Organization Theory: Audiences, Codes, and Ecologies*. Princeton, NJ: Princeton University Press.

Hardin, W. G., and J. Carr. 2006. "Disaggregating neighborhood and community center property types." *Journal of Real Estate Research* 28:167-192.

Hassard, J., and M. Kelemen. 2002. "Production and Consumption in Organizational Knowledge: The Case of the 'Paradigms Debate'." *Organization* 9:331-355.

Haveman, H. A. 2000. "The Future of Organizational Sociology: Forging Ties Among Paradigms." *Contemporary Sociology* 29:476-486.

Hazlett, Curt. 2009. "Another Requiem for the Mall." *Shopping Centers Today* 30:17-20.

Hindersman, C. H. 1960a. "Evolving Downtown-Suburban Retail Pattern (Cincinnati Study)." *Journal of Marketing* 25:59-62.

—. 1960b. "Impact of Shopping Centers on Trade in Downtown Cincinnati." *Journal of Retailing* 35:185-196.

Hopper, T., and M. Major. 2007. "Extending institutional analysis through theoretical triangulation: Regulation and activity-based costing in Portuguese telecommunications." *European Accounting Review* 16:59-97.

Howard, E. B., and R. L. Davies. 1993. "The Impact of Regional, Out-of-Town Retail Centers: The Case of the Metro Center." *Progress in Planning* 40:89-165.

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.

Hudson, B. A. 2008. "Against all odds: A consideration of core-stigmatized organizations." *Academy of Management Review* 33:252-266.

Hudson, B. A., and G. A. Okhuysen. 2009. "Not With a Ten-foot Pole: Core Stigma, Stigma Transfer, and Improbable Persistence of Men's Bathhouses." *Organization Science* 20:134-153.

Jacobs, Jerry. 1984. *The Mall: An Attempted Escape from Everyday Life*. Prospect Heights, IL: Waveland Press, Inc.

Johnson, Cathryn, Timothy J. Dowd, and Celia Ridgeway. 2006. "Legitimacy as a Social Process." *Annual Review of Sociology* 32:53-78.

Kahn, M. 1958. "How We Make Promotions Pay Off for Stores in Shopping Centers." *Chain Store Age* 34:15-16.

Kaylin, Samuel O. 1953a. "The Chain Store in the Planned Shopping Center." *Chain Store Age* 29:23, 40-49.

—. 1953b. "Chains Seek 'Happy Medium' in Planned Shopping Centers." *Chain Store Age* 29:19.

—. 1953c. "Report on Shopping Centers." *Chain Store Age* 29:20, 33-34, 37-38.

—. 1955a. "Shopping-center Drama vs. Fact." *Chain Store Age* 31:3.

—. 1955b. "Too Many Shopping Centers?" *Chain Store Age* 31:30-35.

—. 1956. "Shopping-center Boom Continues." *Chain Store Age* 32:27-34.

—. 1960. "Shopping Centers Hotter than Ever: 8th Annual Special Report." *Chain Store Age* 36:27-58, 67.

—. 1961. "Shopping Centers are Rolling Along: 9th Annual Special Report." *Chain Store Age* 37:19-83.

—. 1962. "Shopping Centers: 10th Annual Report." *Chain Store Age* 38:13-58.

—. 1963. "Shopping Centers: 11th Annual Special Report." *Chain Store Age* 39:19-62.

Kennedy, Mark Thomas. 2008. "Getting Counted: Markets, Media, and Reality." *American Sociological Review* 73:270-295.

Koppell, J. G. S. 2008. "Global Governance Organizations: Legitimacy and Authority in Conflict." *Journal of Public Administration, Research and Theory* 18:177-203.

Koppelman, Lee E. 2008. "Interview." edited by David J. Roelfs. Stony Brook.

Kowinski, William Severini. 1985. *The Malling of America: An Insider Look at the Great Consumer Paradise*. New York: William Morrow & Co.

Kraatz, M. S., and E. J. Zajac. 1996. "Exploring the limits of the new institutionalism: The causes and consequences of illegitimate organizational change." *American Sociological Review* 61:812-836.

Krantz, Michael, Patrick E. Cole, Wendy Cole, William Dowell, Aixa M. Pascual, and David S. Jackson. 1998. "Click Till You Drop (Kiss Your Mall Goodbye)." in *Time*.

Lambert, Kai, and Joel A. C. Baum. 1998. "The Legitimacy of Organizational Downsizing in Canada: An Analysis of Explanatory Media Accounts." *Canadian Journal of Administrative Sciences-Revue Canadienne Des Sciences De L Administration* 15:93-107.

Lebhar, Godfrey M. 1953. "As We See It." *Chain Store Age* 29:21.

—. 1955. "The Status of Shopping Centers." *Chain Store Age* 31:122.

—. 1956. "Shopping Center Realities." *Chain Store Age* 32:122.

Lee, M. L., and R. K. Pace. 2005. "Spatial distribution of retail sales." *Journal of Real Estate Finance and Economics* 31:53-69.

Lemann, Nicholas. 1992. *The Promised Land: The Great Black Migration and How It Changed America*. New York: Vintage Books.

Life Staff Writer. 1954. "20th Century Bazaar: Detroit's Northland." *Life* 37:81-83.

—. 1956. "Splashiest Shopping Center in the U.S., Southdale, near Minneapolis." *Life* 41:61-62.

Lippmann, S. 2007. "The institutional context of industry consolidation: Radio broadcasting in the United States, 1920-1934." *Social Forces* 86:467-495.

Lomi, A. 1993. "A Semiparametric Random Effects Approach to Unobserved Heterogeneity in Count Data Models of Organizational Founding." *Quality & Quantity* 27:139-155.

—. 1995. "The Population Ecology of Organizational Founding: Location Dependence and Unobserved Heterogeneity." *Administrative Science Quarterly* 40:111-144.

Lomi, A., and E. R. Larsen. 1996. "Interacting locally and evolving globally: A computational approach to the dynamics of organizational populations." *Academy of Management Journal* 39:1287-1321.

Lomi, Alessandro, E. R. Larsen, and John H. Freeman. 2005. "Things change: Dynamic resource constraints and system-dependent selection in the evolution of organizational populations." *Management Science* 51:882-903.

Longstreth, Richard. 1997. *City Center to Regional Mall: Architecture, the Automobile, and Retailing in Los Angeles, 1920-1950*. London and Cambridge, MA: The MIT Press.

Lord, J. D. 2000. "Retail saturation: Inevitable or irrelevant?" *Urban Geography* 21:342-360.

Lounsbury, Michael, and Hayagreeva Rao. 2004. "Sources of Durability and Change in Market Classifications: A Study of the Reconstitution of Product Categories in the American Mutual Fund Industry, 1944-1985." *Social Forces* 82:969-999.

Martin, Harry E., and Vincent G. King. 1947. "Shore Shopping Center Designed to Pull Heavy Traffic." *Chain Store Age* 23:14-17.

Matthews, Hugh, Mark Taylor, Barry Percy-Smith, and Melaine Limb. 2000. "The unacceptable flaneur: The shopping mall as a teenage hangout." *Childhood* 7:279.

Max, Sarah. 2003. "Malls: Death of an American Icon." CNNMoney.com.

McKelvey, R. A. 1973. "Retailing's Future Downtown: The Market-place and the Urban Network." *Stores* 55:15-16.

McLaughlin, Paul, and Marwan Khawaja. 2000. "The Organizational Dynamics of the U.S. Environmental Movement: Legitimation, Resource Mobilization, and Political Opportunity." *Rural Sociology* 65:422-439.

McQuade, W. 1970. "Downtown is Looking Up." *Fortune* 81:132-136.

Mejia, L. C., and M. J. Eppli. 2003. "Inter-center retail externalities." *Journal of Real Estate Finance and Economics* 27:321-333.

Meyer, John W., and Brian Rowan. 1977. "Institutionalized Organizations - Formal Structure as Myth and Ceremony." *American Journal of Sociology* 83:340-363.

Minkoff, D. C. 1994. "From Service Provision to Institutional Advocacy: The Shifting Legitimacy of Organizational Forms." *Social Forces* 72:943-969.

Mintz, Beth A., and Michael Schwartz. 1987. *The Power Structure of American Business*. Chicago: University of Chicago Press.

Mizruchi, Mark S., and L. C. Fein. 1999. "The social construction of organizational knowledge: A study of the uses of coercive, mimetic, and normative isomorphism." *Administrative Science Quarterly* 44:653-683.

Monmonier, Mark. 2010. *[No] Dig, [No] Fly, [No] Go: How Maps Restrict and Control*. Chicago: University of Chicago Press.

National Research Bureau. 1957-1976. "Directory of Shopping Centers in the United States and Canada, Volumes 1-17." Chicago: National Research Bureau, Inc.

—. 1977-1992. "Directory of Shopping Centers in the United States, Volumes 18-32." Chicago: National Research Bureau, Inc.

—. 1993-2006. "Shopping Center Directory, Volumes 33-46." Chicago: National Research Bureau, Inc.

—. 2006. *Shopping Center Directory, 46th Edition*. Chicago: National Research Bureau, Inc.

New York Times Magazine Staff Writer. 1953. "Shopping Center Goes to the Shopper." *New York Times Magazine*:14-15.

New Yorker Staff Writer. 1954. "Sight Unseen: Cross County Center." *New Yorker* 30:20-21.

Newman, H. 1966. "Checklist for Center Development." *Chain Store Age* 42:40-44.

Nickel, M. N., and J. M. Fuentes. 2004. "Relationship between legitimation, competition and organizational death: current state of the art." *International Journal of Management Reviews* 5-6:43-62.

Nystrom, P. H. 1958. "Revival of Downtown Shopping Districts." *Journal of Retailing* 34:129-132.

Oakleaf, R. B. 1970. "Mall: Treasure Trove or Trap." *Management Accounting* 51:41-43.

Pahl, Jon. 2003. *Shopping Malls and Other Sacred Spaces: Putting God in Place*. Grand Rapids, MI: Brazos Press.

Pearlstone, J. H. Jr. 1961. "Demand for Centers Continues Strong." *Chain Store Age* 37:23.

—. 1962. "Preface." in *Directory of Shopping Centers in the United States and Canada, 5th Edition*. Chicago: National Research Bureau, Inc.

Peli, G., and J. Bruggeman. 2007. "The cricket and the ant: Organizational trade-offs in changing environments." *Journal of Mathematical Sociology* 31:205-235.

Peli, G., and B. Nooteboom. 1999. "Market partitioning and the geometry of the resource space." *American Journal of Sociology* 104:1132-1153.

Perrow, Charles. 2002. *Organizing America: Wealth, Power, and the Origins of Corporate Capitalism*. Princeton, NJ: Princeton University Press.

Persson, H. 2004. "The survival and growth of new establishments in Sweden, 1987-1995." *Small Business Economics* 23:423-440.

Petersen, T., and K. W. Koput. 1991a. "Density Dependence in Organizational Mortality - Legitimacy or Unobserved Heterogeneity?" *American Sociological Review* 56:399-409.

—. 1991b. "Unobserved Heterogeneity or Legitimacy in Density Dependence." *American Sociological Review* 56:416-416.

Pfeffer, Jeffrey, and Gerald R. Salancik. 1978. *The External Control of Organizations: A Resource Dependence Perspective*. New York: Harper & Row.

Pollock, Timothy G., and Violina P. Rindova. 2003. "Media Legitimation Effects in the Market for Initial Public Offerings." *Academy of Management Journal* 45:631-642.

Powell, Walter W., and Paul J. Dimaggio. 1991. *The New Institutionalism in Organizational Analysis*. Chicago: University of Chicago Press.

Pratt, S., and L. Pratt. 1960. "Impact of Some Regional Shopping Centers." *Journal of Marketing* 25:44-50.

Ranger-Moore, James, R. S. Breckenridge, and D. L. Jones. 1995. "Patterns of Growth and Size-Localized Competition in the New-York-State Life-Insurance Industry, 1860-1985." *Social Forces* 73:1027-1049.

Rao, Hayagreeva. 2004. "Institutional Activism in the Early American Automobile Industry." *Journal of Business Venturing* 19:359-384.

Redeker, P. B. 1964. "Enclosed, Cooled Malls are Big Hit with Shoppers, Tenants." *Air Conditioning, Heating & Refrigeration* 102:1+.

Rindova, Violina P., Timothy G. Pollock, and Mathew L. A. Hayward. 2006. "Celebrity Firms: The Social Construction of Market Popularity." *Academy of Management Review* 31:50-71.

Roelfs, David J. 2011. "Conflict, Incommensurability, and Theory Groups: A Longitudinal Investigation of Citations in the Organization-Environment Literature." *Journal of Management Inquiry* In press.

Rogers, Everett M. 2003. *Diffusion of Innovations, Fifth Edition*. New York: Free Press.

Rosenthal, R. 1969. "Renewal of Downtown is More Than Slum Housing Projects." *Stores* 51:26-27.

Rudelius, W., R. F. Hoel, and R. A Kerin. 1972. "Assessing Retail Opportunities in Low-income Areas." *Journal of Retailing* 48:96-114.

Schapker, B. L. 1956. "Effect of a Planned Shopping Center on an Older Center Serving the Same Area." *Journal of Marketing* 21:71-73.

Schwartz, S. M. 1968. "Analysis of Economic Life." *Appraisal Journal* 36:225-227.

Scott, W. Richard. 1995. *Institutions and Organizations: Theory and Research*. Thousand Oaks, CA: Sage Publications.

Severin, V., J. J. Louviere, and A. Finn. 2001. "The stability of retail shopping choices over time and across countries." *Journal of Retailing* 77:185-202.

Shinehouse, G. F. Jr. 1962. "Financing Shopping Centers." *Banking* 55:52-53.

Sine, Wesley D., Robert J. David, and Hitoshi Mitsuhashi. 2007. "From Plan to Plant: Effects of Certification on Operational Start-up in the Emergent Independent Power Sector." *Organization Science* 18:578-594.

Singh, Jitendra V., R. J. House, and D. J. Tucker. 1986. "Organizational-Change and Organizational Mortality." *Administrative Science Quarterly* 31:587-611.

Singh, Jitendra V., and C. J. Lumsden. 1990. "Theory and Research in Organizational Ecology." *Annual Review of Sociology* 16:161-195.

Sloan, L. 1969. "Ala Moana in Honolulu: A Great Shopping Complex." *Stores* 51:16-19.

Smangs, M. 2008. "Business Groups in 20th-Century Swedish Political Economy: A Sociological Perspective." *American Journal of Economics and Sociology* 67:889-913.

Sorenson, Olav. 2000. "The effect of population-level learning on market entry: The American automobile industry." *Social Science Research* 29:307-326.

Steinnes, Donald N. 1982. "Suburbanization and the "Malling of America": A Time-Series Approach." *Urban Affairs Quarterly* 17:401-418.

Stellwagen, P. E. 1950. "What We Look For in a Shopping Center." *Chain Store Age* 26:28, 43-44.

Stores Staff Writer. 1968a. "Enclosed Malls Encourage Open Stores." *Stores* 50:14-15.

—. 1968b. "Perils and Profits: Small Stores in Centers." *Stores* 50:38-39.

—. 1968c. "Some Aspects of Store Operations in Shopping Centers." *Stores* 50:19-24.

—. 1974. "Downtown Malls are Looking Up." *Stores* 56:10.

Storper, Michael, and Richard A. Walker. 1989. *The Capitalist Imperative: Territory, Technology, and Industrial Growth*. Oxford: Blackwell.

Studerellis, E. M. 1995. "Springboards to Mortarboards: Women's College Foundings in Massachusetts, New York, and Pennsylvania." *Social Forces* 73:1051-1070.

Suddaby, Roy, and Royston Greenwood. 2005. "Rhetorical Strategies of Legitimacy." *Administrative Science Quarterly* 50:35-67.

Sussman, Albert. 1973. "Preface." in *Directory of Shopping Centers in the United States and Canada, 14th Edition*. Chicago: National Research Bureau, Inc.

Sussman, Albert, and Milton Paul. 1975. "Preface." in *Directory of Shopping Centers in the United States and Canada, 16th Edition*. Chicago: National Research Bureau, Inc.

Swaminathan, A., and G. Wiedenmayer. 1991. "Does the Pattern of Density Dependence in Organizational Mortality Rates Vary Across Levels of Analysis? Evidence from the German Brewing Industry." *Social Science Research* 20:45-73.

Sweet, M. L. 1959. "Tenant-selection Policies of Regional Shopping Centers." *Journal of Marketing* 23:399-404.

Thompson, D. 1954. "Commercialism Takes and Wears a New Look: Northland Supershopping Center." *Ladies Home Journal* 71:11+.

Time Staff Writer. 1956. "Pleasure-domes with Parking." *Time* 68:96-98.

Timmermans, H., A. Borgers, and P. Vanderwaerden. 1992. "Choice Experiments Versus Revealed Choice Models: A Before-After Study of Consumer Spatial Shopping Behavior." *Professional Geographer* 44:406-416.

Tolbert, P. S., and Lynne G. Zucker. 1996. "The Institutionalization of Institutional Theory." Pp. 175-190 in *Handbook of Organization Studies*, edited by Stewart R. Clegg, Cynthia Hardy, and Walter R. Nord. London: Sage.

U.S. Department of Commerce [Bureau of Economic Analysis]. 2011. "National Income and Products Accounts Table: Table 1.1.5 Gross Domestic Product."

U.S. Department of Commerce [Bureau of the Census]. 2007. "County and City Data Book, 2007." Washington, D.C.: U.S. Department of Commerce [Bureau of the Census]. Accessed at http://www.census.gov/statab/ccdb/ccdbstcounty.html.

—. 2010a. "Population Estimates."

—. 2010b. "Small Area Income and Poverty Estimates."

U.S. Department of Labor [Bureau of Labor Statistics]. 2011. "Consumer Price Index: All Urban Consumers-U.S. City Average, All Items."

U.S. Federal Reserve. 2011. "Historical Data: Bank Prime Loan."

Van Leuven, Karl O. Jr. 1969. "Taking a Look at the Shopping Center of Tomorrow." *Stores* 51:7-9.

Weiss, E. B. 1963. "Retailing by Treaty (Shopping Center Restrictive Covenants)." *Advertising Age* 34:94.

—. 1964. "Will Shopping Centers Go Up in the Air?" *Advertising Age* 35:72.

—. 1965. "Downtown Retailing and the Coming Revolution in Mass Transit." *Advertising Age* 36:80+.

—. 1967. "Marketing's New Mecca: Downtown Shopping Centers." *Advertising Age* 38:71-72.

—. 1968. "Arteries Harden for the Suburban Shopping Center." *Advertising Age* 39:60.

—. 1969. "Down with Downtown Store?" *Stores* 51:45-46.

—. 1970. "Expect 1,000 Pedestrian Shopping Malls by 1980." *Advertising Age* 41:50.

—. 1972. "New Store Locations in the City Core." *Stores* 54:43-44.

Wholey, Douglas R., J. B. Christianson, and S. M. Sanchez. 1992. "Organization Size and Failure among Health Maintenance Organizations." *American Sociological Review* 57:829-842.

Wilkerson, Isabel. 2010. *The Warmth of Other Suns: The Epic Story of America's Great Migration*. New York: Random House.

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

—. 1981. "The Economics of Organization: The Transaction Cost Approach." *American Journal of Sociology* 87:548-577.

Yilmaz, V. 2004. "Consumer behavior in shopping center choice." *Social Behavior and Personality* 32:783-789.

Zucker, Lynne G. 1977. "The Role of Institutionalization in Cultural Persistence." *American Sociological Review* 42:726-743.

—. 1989. "Combining Institutional Theory and Population Ecology - No Legitimacy, No History." *American Sociological Review* 54:542-545.

Zuniga-Vicente, J. A., and J. D. Vicente-Lorente. 2006. "Strategic moves and organizational survival in turbulent environments: The case of Spanish banks (1983-97)." *Journal of Management Studies* 43:485-519.