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Making the next move : how experiential and vicarious learning shape the locations of Chains' acquisitions

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We examine acquisitions by multiunit chain organizations to determine why they acquire a particular target rather than others that are available to them and thus better understand chain growth. We advance experiential and vicarious learning processes as an explanation for chains' next spatial move. Our analysis of Ontario nursing home chains' acquisition location choices from 1971 to 1996 provides broad support for a learning perspective, demonstrating how experiential and vicarious processes shape and constrain the locations of chains' acquisitions. Experiential processes lead chains to replicate themselves by acquiring components geographically and organizationally similar to their own most recent and most similar prior acquisitions and their own current components. Vicarious processes lead chains to imitate location choices of other visible and comparable chains' most recent acquisitions, prior acquisitions nearest to potential targets, and their current components. Our study thus establishes organizational learning as a conceptual foundation for predicting the location of a chain's next acquisition and, more generally, the spatial expansion of chains over time.●

Although the chain organizational form arguably rivals the M-form as the twentieth century's most successful organizational form, organization theorists have only recently begun to study them systematically (e.g., Darr, Argote, and Epple, 1995; Ingram, 1996a, 1996b; Bradach, 1997). And although the chain form renders physical space a conspicuous variable, thus far, little attention has been given to the dynamics of chains' spatial expansion (Usher, 1995; Greve, 2000; Ingram and Baum, 1997a, 1997b, 2001). Yet chains' growth and spatial expansion patterns are inherently interesting and important from both organizational and societal perspectives. Chains are collections of service organizations, doing essentially the same thing, linked together into larger super-organizations (Ingram and Baum, 1997a). Often, geographic location is the only difference among a chain's components. Location is thus a critical strategic and organizational variable for chains. More generally, the spatial expansion of chains underlies the rise of an organizational form that is coming to dominate every service industry at the same time that service industries are becoming increasingly important to economies around the world.

To date, research on chains' spatial expansion has been left primarily to economic geographers, who have produced an extensive case study literature on the spatial strategies of individual retail chains (Allaway, Mason, and Black, 1991). These include analyses of regional and off-price shopping centers in the U.S. (Lord, 1985), hypermarkets in Europe (Dawson, 1984), and retailers, including McDonald's (Aspbury, 1984), Marks and Spencer (Bird and Witherwick, 1986), Macys (Laulajainen, 1987), Marshall Field (Laulajainen, 1990), Kwik Save (Sparks, 1990), and Wal-Mart (Graff and Ashton, 1994). Although this work provides many useful descriptive insights and identifies common patterns of spatial expansion, it provides little in the way of systematic empirical evidence on the processes underlying them. It is also grounded in theoretical approaches from economics that assume profit maxi-

mization and place few limits on organizational choices or decision makers' rationality. Our goal in this paper is to show how chains' spatial expansion can be understood as a product of organizational learning by boundedly rational decision makers whose attention, search, and choice are shaped by their organizations' experience.

Organizational learning is a complex, multilevel process. At the organization level, boundedly rational decision makers' reliance on attention and search routines that conserve cognitive resources binds their search for alternatives to past choices reinforced by increasing returns to experience (March, 1991; Miller, 1993). Organization-level learning is thus biased against discovering opportunities distant from past choices but does allow organizations that make good initial choices to exploit them until opportunities are exhausted. At the interorganizational level, the same boundedly rational decision makers, faced with insufficient information to learn from their own experience, attempt to reduce uncertainty by attending to visible and comparable organizations' actions for clues about how to interpret their own situation and act (Haunschild and Miner, 1997).

An organizational learning perspective seems particularly germane to an explanation of chains' location choices. Location choices are made repeatedly by growing chains and so are likely subject to an experiential process in which the chain learns by repeating choices that appear successful. Moreover, because chains grow by bringing together and standardizing operations of organizations that do essentially the same thing, reproducing successful routines across components seems vital to effective expansion. Because of this, Ingram and Baum (1997a: 100) referred to chains as "learning communities." Location choices also seem likely candidates for vicarious learning because uncertainty created by a chain's lack of information about unfamiliar locations can be reduced by observing and imitating other chains' location choices.

The empirical setting for our study is all 170 acquisitions made by the 32 chain nursing homes operating in Ontario between January 1971 and December 1996. During this period, chains' share of all nursing home beds in Ontario grew from less than 5 to over 50 percent. Thus, in addition to characterizing the expansion and location choices of individual chains, at the industry-level, these acquisitions reflect a dramatic consolidation and concentration of this industry under corporate control. Chains' spatial expansion frequently proceeds primarily through either new building (e.g., Blockbuster, McDonald's) or acquisition and conversion of existing operations (e.g., Century 21, Best Western), although research in economic geography shows analogous spatial patterns for both modes of expansion.[1] Acquisitions were the primary mechanism by which these chains expanded—while making 170 acquisitions, they founded only 17 homes during the study period, although they did engage in considerable reconstruction and updating of their acquisitions. The predominance of expansion through acquisition results from government control of the total number and geographic distribution of nursing home beds in the province. We take each acquisition by a chain as the unit of analysis and ask, given

[1] We do not distinguish franchised and non-franchised ownership because our interest is with the next unit's location, not how it will be managed. Moreover, we found no evidence of franchising among Ontario nursing home chains.

that an acquisition occurred, why was that particular target, among all possible targets, acquired by the chain making the acquisition? To answer this question, we relate experiential and vicarious learning processes to chains' acquisition location choices. Our analysis extends past research by establishing that experiential and vicarious learning processes provide a conceptual foundation for predicting the location of a chain's next acquisition and, more generally, the spatial expansion of chains over time.

EXPERIENTIAL AND VICARIOUS LEARNING IN ACQUISITIONS

For more than 40 years, organizational learning theorists have characterized organizations as routine-based, history-dependent systems that adapt incrementally to past experience (March and Simon, 1958; Lindblom, 1959; Cyert and March, 1963). Organizational routines are repeatedly invoked, socially constructed programs of action that embody the knowledge, capabilities, beliefs, values, and memory of the organization and its decision makers (Nelson and Winter, 1982). They are the products of a long-run process of incremental updating based on the interpretation of experience and the short-run focus of organizational decision making and action. Routines both enable and constrain organizational behavior by conserving on the cognitive capabilities of individuals and by limiting and channeling political conflict. Consequently, choices and actions encoded in routines are more likely to be attended to and accepted by organizational members and decision makers.

Within this experiential learning frame, organizational search is broadly conceived as a process through which organizations attend to and adapt to their external environments. More narrowly, organizations search for alternatives and information about specific courses of action, such as the acquisition of new facilities. In prior research, search has been conceptualized as a problem of allocating organizational attention and resources between exploring new routines and exploiting existing routines (March, 1991; Levinthal and March, 1993). Exploitation refers to learning gained via local search, experiential refinement, and selection of existing routines. Exploration refers to learning gained through processes of concerted variation, planned experimentation, and play. March (1991) advocated that organizations strike a balance between exploitation and exploration, since too much exploitation can lead to adoption of suboptimal routines, while too much exploration can lead to incurring high costs of experimentation without realizing any benefit.

As a rule, however, the more certain rewards of exploiting routines learned in the past distract organizations from exploring novel, potentially superior, routines and behaviors from which returns are less certain. Competence building is a cumulative activity facilitated by concentrating in areas of established competence, and the higher likelihood of enhancing organizational functioning in areas of prior experience creates strong incentives for exploitation. Exploration of new routines, in contrast, is risky, uncertain, and time consuming and can disturb the reliability and efficiency of current opera-

tions. Even if the expected value of exploration is greater than that of exploitation, loss aversion might still lead to a preference for exploitation (Kahneman and Tversky, 1979). Organizational search for new alternatives is thus typically conducted within the "neighborhood" of routines that have evolved in an organization. Considerations close in temporal, organizational, and strategic distance outweigh those that are more distant, and, as a result, organizations' choices and actions tend to replicate the current state of the organization. Organizational search tends to begin, in particular, in the vicinity of choices resulting from the most proximate prior searches, whether proximate in time (i.e., the most recent choice) or space (i.e., the choice most alike in content, context, or location) (Cyert and March, 1963; Nelson and Winter, 1982; Levitt and March, 1988).

This self-reinforcing bias toward exploitation creates organizational momentum, the tendency to maintain the direction and emphasis of prior choices and actions in current behavior (Miller and Friesen, 1980). Although organizations' decision makers cannot initially be certain of the outcomes of their actions, with repetition they gain experience and confidence, and over time, uncertainties diminish as their understanding and capabilities improve. Given initial success with an activity (i.e., few immediate negative consequences), organizations are likely to repeat it because they know increasingly well how to, and it is less risky and more rewarding to repeat an action than to try alternatives with which they have limited experience (Levitt and March, 1988). Once a pattern or direction of organizational action is initiated, it thus quickly becomes routinized and subject to inertial pressures as localized feedback from experience and the short-run rewards of exploitation force out exploration of novel behaviors. In this way, organizations' choices and actions today are channeled by enduring routines resulting from experiences of long ago, often despite the fact that new opportunities and threats are present (Hedberg, Nystrom, and Starbuck, 1976; Starbuck, 1983).

Research offers substantial empirical evidence of local search and momentum in actions, including strategic and organizational change (Kelly and Amburgey, 1991; Amburgey, Kelly, and Barnett, 1993), mergers and acquisitions (Amburgey and Miner, 1992; Ginsberg and Baum, 1994), technological choices (Christensen and Bower, 1996; Noda and Bower, 1996; Stuart and Podolny, 1996), strategic alliance formation (Gulati, 1995; Gulati and Gargiulo, 1999), and foreign market entry (Mitchell, Shaver, and Yeung, 1994; Chang, 1995). These studies all show that the more experienced an organization's members become with a particular strategic activity or direction, the more likely they are to repeat the action or reinforce the direction in the future.

Geographically Localized Experiential Search and Momentum

Local search and momentum should shape the geographic locations of chains' acquisitions and thus channel their patterns of spatial expansion over time. Experience at particular locations focuses chains' decision makers' attention on those

locations, making it easy to acquire information about demand, competitor behavior, and feasibility of operations at those locations, as well as identify and exploit opportunities at adjoining locations (Greve, 1996, 1998). Exploitation of routines across a chain's components is also facilitated by geographic proximity. Close proximity permits more frequent contact among members, facilitating formal and informal transfer of knowledge, coordination of operations, control of consistency, and sharing of activities, which seem particularly important to chain acquisitions because chains bring together and attempt to standardize operations of organizations engaged in the same activities (Ingram and Baum, 1997a). Chains' intertwined past location choices and accumulated infrastructure may also reinforce path-dependent location choices.

A number of studies reveal patterns of chain expansion consistent with geographically localized search and momentum. Laulajainen (1987) found retail chains in the U.S. and Sweden had a strong tendency to stay in the regions and environments with which they were historically familiar. Greve (2000) found Tokyo banks were more likely to establish new branches in city wards in which they already operated branches or were adjacent to. Watts (1975) reported similar findings, showing how a British pharmaceutical retailer followed a pattern of expanding outward by saturating gradually expanding concentric circles from its original home base. Graff and Ashton (1994) reported a similar spatial diffusion of Wal-Mart stores. And Hedstrom (1994) found that a spatial contagion process strongly influenced the spread of the Swedish local union organizations. Geographically localized search should lead chains to replicate themselves by making acquisitions in the neighborhood of the acquisitions resulting from their past searches. In particular, because choices and actions resulting from proximate prior searches are natural starting points for initiating new searches, chains should tend to acquire targets adjacent to their most recent acquisition (i.e., local in time) and any of their own prior acquisitions (i.e., local in space).

In contrast to local search effects driven by geographic proximity to particular recent or neighboring actions, location momentum in acquisitions should be reflected in choices consistent with a chain's historical accumulation of location decisions, reflecting a strategic and organizational direction. Amburgey and Miner (1992) described three types of momentum: repetitive, positional, and contextual. Repetitive momentum occurs when an organization repeats an action (e.g., a merger or acquisition). Positional momentum occurs when organizational actions reinforce a strategic position (e.g., a diversified firm diversifies). Contextual momentum occurs when organizational features shape strategic actions (e.g., a decentralized firm diversifies). Location momentum is positional and contextual—the location of components is a central feature of chains' strategy and organization that shapes their behavior. As such, location momentum in acquisitions differs from the more frequently studied repetitive momentum in acquisitions. While repetitive momentum predicts the future likelihood of acquisitions from the past fre-

quency of acquisitions, positional and contextual momentum predict which acquisitions are more likely from accumulated features of the organization and its strategy. Moreover, because the strategic and organizational context created by acquisitions does not fade into the past, no time decay is expected (Amburgey, Kelly, and Barnett, 1993). Consequently, while we conceptualize local search in terms of a chain's most recent and nearest prior acquisitions, we conceptualize location momentum in terms of its current components. Because local search is less bound up in the overall spatial configuration of a chain, it is more likely to produce new spatial trajectories (e.g., a series of acquisitions that move the chain in a particular direction).

H1a: A chain is more likely to acquire a target the nearer the target is to the chain's most recent acquisition.

H1b: A chain is more likely to acquire a target the nearer the target is to the chain's nearest prior acquisition.

H1c: A chain is more likely to acquire a target the nearer the target is to all the chain's current components.

Figure 1 summarizes H1a–H1c graphically.[2] In the figure, A, B, C, and D represent locations of acquisition targets, O's represent locations of the acquiring chain's components, and O_R represents the location of the chain's most recent acquisition. Given the lengths of the solid circle-headed lines, which map the distance from the chain's most recent acquisition to each of the targets, H1a predicts target C as most likely to be acquired, followed by A. Given the lengths of the dashed diamond-headed lines, which show the distance between each target and the chain's nearest prior acquisition to it, H1b predicts A as the target most likely to be acquired, although targets B and C are also close to the chain's nearest acquisitions. Finally, although for clarity not drawn, target B is clearly closest, on average, to all the chain's components and, so, H1c would favor B for acquisition.

Organizationally Localized Experiential Search and Momentum

An acquisition search process based solely on geographic location fails to capture the extent to which the nearest target is close geographically but not in terms of other strategic and organizational features that also influence chains' acquisition choice process. The essence of the chain strategy, standardization, suggests that the odds of a chain acquiring a target will be lower when the target and its context are such that a chain could not operate it successfully without investing heavily in the development of new routines. The attractiveness of particular acquisition targets will thus vary among chains because the relevant routines are unequally distributed among them.

The strategy literature commonly invokes such arguments. For example, the competence-based view in strategic management proposes that firms embody different capabilities and that firms' boundaries and behavior are shaped by the nature of what firms can do particularly well (e.g., Zander and

2
We do not expect nonmonotonic effects of chains' geographically localized search and momentum. Although there may be limits to co-location for chains unable to differentiate their components, when this is possible, there is no reason to expect chains not to co-locate units. Ontario nursing home chains often pursue such a polymorphism strategy, co-locating several components, sharing resources, infrastructure, and costs among the components, and specializing each component for a particular resident mix (e.g., Alzheimer's and non-Alzheimer's). Even if such specialization is not possible, a munificent environment combined with limits on individual component capacities may result in co-location to take advantage of cost and resource sharing. In Ontario, these conditions prevail as a result of the public perception that larger nursing homes provide poorer quality care and the government-imposed cap on licensed beds. These conditions have led some chains to operate neighboring components to achieve scale and have mitigated the competitive impact of doing so.

Figure 1. Summary of H1a–H1c on geographically localized search and momentum.
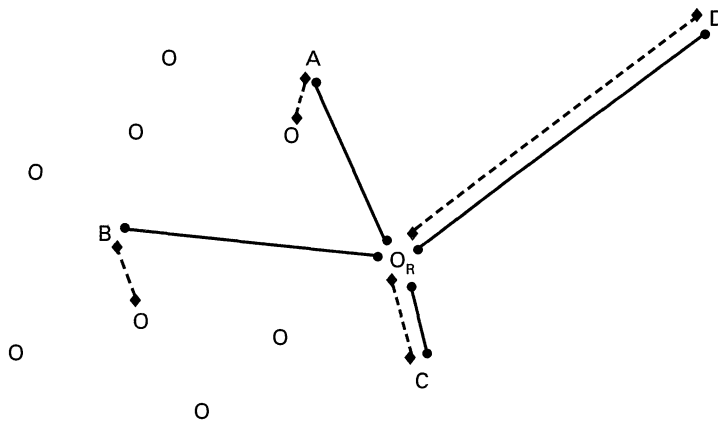
A, B, C, D = targets

O = chain's components

O_R = chain's most recent acquisition

•———————• = target's distance to chain's most recent acquisition

♦-------♦ = target's distance to chain's nearest prior acquisition

Kogut, 1995). Chains operating a particular class of component or in a particular context may thus possess routines that are most transferable to similar targets in similar situations. Wal-Mart, for example, focused its expansion on rural markets, and only after saturating them did it begin to enter and develop routines for urban markets (Graff and Ashton, 1994). Beyond the transferability of routines, component homogeneity also makes it easier to develop a competency in acquisitions (Amburgey and Miner, 1992), reduce coordination and control costs (Markides, 1992), and create economies of scale and reputation (Ingram, 1996a, 1996b; Ingram and Baum, 1997a).

Organizations different in size and operating context typically compete in different ways, for different resources, and using different strategic and operating routines (Hannan and Freeman, 1977; Aldrich, 1979; McKelvey, 1982). Routines may thus not transfer easily between them, and forcing their transfer could be worse than useless; it could even be harmful if the chain's managers are unable to differentiate routines that apply from routines that do not. Ingram and Baum (1997a, 2001), for example, found that Manhattan components of U.S. hotel chains became more likely to fail or be sold as their chains accumulated operating experience outside Manhattan (see also Greve, 2000). Ingram (1996b) also showed that U.S. hotel chains lower their survival chances when they operate components of more varied sizes. Differences in the size and operating context of a potential target from a chain's components should thus make it less attractive, because the chain would have difficulty operating it successfully with its current routines. Similarity of the target's size and operating context with the chain may be particularly critical to chain acquisitions because of the high costs of reconfiguring and relocating a component's capacity.

While transferability of routines depends on the target's similarity to the acquiring chain's components, the value of shar-

ing and coordinating activities depends more on the fit of the target in the acquiring chain's overall spatial configuration. A chain's level of spatial compactness—the average minimum distances among its components—is basic to the chain's strategic organization (Laulajainen, 1987; Moulaert and Gallouj, 1993; Ingram, 1996a). Spatially compact chains stress development of economies in transportation and communication infrastructure, purchasing, and other functions. Spatially compact chains also emphasize possibilities for integrating complex technical and strategic knowledge, combining chain-level competencies with benefits of component-level specialization across or within individual units, for example (Bradach, 1997). Such polymorphism (Usher, 1999), specializing each component for a particular resident mix (e.g., Alzheimer's and non-Alzheimer's residents), can help reduce excess capacity in both facilities and specialized professional staff, while mitigating the cannibalism that might otherwise obtain among neighboring components.

Rather than pursuing high spatial compactness, however, some chains pursue advantages of multiunit operation that do not depend on geographic concentration of activities. Chains can pursue deterrent strategies, locating components around the periphery of a geographic area, developing infrastructure to support operations within the area, and subsequently building scale by adding units within the area (Graff and Ashton, 1994). Chains may also pursue outpost strategies that may expand the overall market by helping legitimize the chain form in new regions (Durvasula, Sharma, and Andrews, 1992). Alternatively, a flagship strategy might be geared toward developing a chain's reputation for quality, resulting in less focus on efficiencies and greater concern with achieving standardization (to ensure quality) and the visibility and image of locations (Ingram, 1996b; Ingram and Baum, 1997a). Chains focused on serving less densely populated rural areas will also tend to exhibit greater geographic dispersion and so will emphasize economies not primarily dependent on geographic concentration. Regardless of the impetus for its level of spatial compactness, we expect chains to be more likely to acquire targets that are a similar distance from its current components and thus compatible with capabilities associated with its level of spatial compactness.

Local search based on organizational similarity to a chain's most recent and nearest prior acquisitions may also be important to the choice process. For example, as well as acquiring targets similar in size (or operating context) to its current components, a chain may also be more likely to acquire targets similar in size (or operating context) to its most recent acquisition or a prior acquisition located nearby. In the same way, as well as acquiring targets reinforcing its overall spatial compactness, a chain may select targets that are a similar distance from its most recent (or nearest) acquisition as that acquisition is to the chain's other components. Pursuit of such localized distance similarity may reflect demand characteristics or chain infrastructure where the target is located that affect the desired proximity of components. Such choices may also reflect the chain's operational

strategy (e.g., differential specialization of co-located units). Therefore, we predict:

H2a: A chain is more likely to acquire a target the more similar the target is to the chain's most recent acquisition.

H2b: A chain is more likely to acquire a target the more similar the target is to the chain's nearest prior acquisition.

H2c: A chain is more likely to acquire a target the more similar the target is to all the chain's current components.

Vicarious Learning: Trait-based Imitation

Although learning in established organizations tends to focus on local search exploiting old routines rather than on developing new ones, industries may still engage in substantial exploration and generate new knowledge that individual organizations may acquire for themselves. By observing others, organizations can thus potentially learn the myriad strategies, administrative practices, and technologies produced by the ongoing explorations of others in their industry and imitate those that are successful (Levinthal and March, 1993). Organizational learning theorists have long contended that organizations learn vicariously, imitating or avoiding specific actions or practices based on their perceived impact (Cyert and March, 1963). Faced with insufficient information from their own experience, organizations' decision makers can use this learning mode to reduce uncertainty by turning to others' actions for clues about how to interpret their own situation. Since others' choices and actions suggest that they have positive opinions of those actions, observers' evaluation of options is influenced by their actions. Because decision makers' attention is limited, however, they are selective in their observation and imitation of other organizations and select role models based on their traits, with decision makers more likely to notice and imitate other visible and comparable organizations (DiMaggio and Powell, 1983).

Imitating large organizations' locations. Large organizations are particularly likely imitation candidates because of their salience, status, and the visibility of their actions and because the size they have achieved suggests that they have done something right to gain access to resources and to satisfy constituents (e.g., Burns and Wholey, 1993; Haveman, 1993; Lant and Baum, 1995; Haunschild and Miner, 1997). For expanding chains, location choices of large chains may be a particularly important source of information to reduce uncertainty about locations that can support growth and about how large chains behave in general. When making acquisition location decisions, growing chains may thus be particularly sensitive to location choices of other chains that have already achieved large size. If large chains' location choices are imitated, acquisitions will tend to occur in locations near those of their acquisitions. Consistent with this idea, Lord and Wright (1981) found that lead banks' branch locations were imitated by other banks.

It is unclear, however, which actions of large chains will be attended to. Most past studies assume that large organiza-

tions' adoption of a specific choice or action, regardless of timing, is imitated (e.g., Lord and Wright, 1981; Haveman, 1993; Korn and Baum, 1999). Haunschild and Miner (1997), however, assumed that large organizations' most recent actions were imitated. Greve (1995, 1996, 1998) has made both assumptions in his studies of imitation of strategy adoption and abandonment. Consequently, it is possible that large chains' most recent acquisitions and acquisitions nearest to the target acquisitions will be objects of imitation. It is also possible that large chains' locations, in general, will be imitated. Given this ambiguity, we examine all these possibilities.

H3a (trait imitation, time): A chain is more likely to acquire a target the nearer the target is to other large chains' most recent acquisitions.

H3b (trait imitation, space): A chain is more likely to acquire a target the nearer the target is to other large chains' nearest prior acquisitions.

H3c (trait imitation, generalized): A chain is more likely to acquire a target the nearer the target is to other large chains' current components.

Imitating comparable organizations' locations. As decision makers look for role models, they also monitor the behavior of a reference group of comparable organizations in similar situations, and their opinions and actions evolve toward those in their reference group (Fiegenbaum and Thomas, 1995; Lant and Baum, 1995; Porac et al., 1995). A focus on imitating comparable organizations increases the potential relevance to the observer of the experiences and actions being observed. An inherent risk in imitating large organizations, however, is that their actions may not transfer well, proving either useless or even harmful to the imitator.

For another organization's actions to influence a potential imitator, the organization and its context must be seen as sufficiently similar to the imitator's that information that it has acted in a particular way is viewed as having diagnostic value for the imitator. Organizations can be similar in myriad ways, which researchers have found influence their actions. Large thrift banks in California imitated market entries of other large thrifts (Haveman, 1993). Strategists of Scottish knitwear firms based their perceptions of similarity on products and, thus, target markets (Porac et al., 1995). Manhattan hoteliers attended to the strategic and competitive behavior of other hotels similar in size, class, and location (Lant and Baum, 1995). U.S. radio broadcasters copied actions of broadcasters in markets of similar size (Greve, 1998). Along with the other dimensions of similarity discussed above, therefore, we considered similarity in chains' overall sizes as well, since different-sized chains may also compete in different ways, for different resources, and using different operating and strategic routines. And, as for H3a–H3c, we considered similar chains' most recent acquisitions, acquisitions nearest to the target, and locations in general as possible foci of imitation.

H4a: A chain is more likely to acquire a target the nearer the target is to other similar chains' most recent acquisitions.

H4b: A chain is more likely to acquire a target the nearer the target is to other similar chains' nearest prior acquisitions.

H4c: A chain is more likely to acquire a target the nearer the target is to other similar chains' current components.

METHODS

The data for this study include information on all 557 independent and chain nursing homes operated in Ontario between January 1971 and December 1996. We used two archival sources to compile these data: the Ontario Ministry of Health (MOH) licensing records, which contained detailed information—recorded by day, month, and year—for all nursing homes in Ontario starting in 1971, and the *Ontario Hospitals' Association (OHA) Directory*, published annually since 1968. Because much detailed organizational data are missing prior to 1971, this study begins in 1971, even though archival sources begin in 1968. Nevertheless, the study covers the period in which chains first began to appear in Ontario. It also covers the period (after April 1972) in which the Ontario Ministry of Health (MOH) provided "extended-care" insurance for nursing home residents under the Ontario Health Insurance Plan and held regulatory responsibility for licensing nursing homes and setting fees paid for their services (see Baum, 1999, for details).

In 1971, 479 of the nursing homes in the sample—447 (93 percent) independents and 32 (7 percent) components operated by seven chains—were already in operation; thus, the life histories for these nursing homes began before the study period. With available archival information, we confirmed founding dates for all these left-censored nursing homes. During the study period, 78 nursing homes were founded and 226 failed (161 independents and 65 components). A nursing home was defined as founded (or failed) in the year it was first licensed (or de-licensed) by the MOH. The 32 nursing home chains that operated in Ontario between 1971 and 1996 acquired 158 independent and 12 component homes. No chain ever acquired another chain in its entirety. The net effect of these acquisitions, foundings, and failures is that chains' share of nursing home beds in Ontario increased from less than 5 to more than 50 percent. It is commonly asserted that costs of licensure and introducing public extended-care insurance triggered this transformation from independent to chain ownership (e.g., Tarman, 1990; Baum, 1999). The passage of Medicare and Medicaid is thought to have had a similar impact on the U.S. nursing home industry (Light, 1986).

Dependent Variable and Analysis

The dependent variable in our study, *P(t)*, is a chain's probability of acquiring a particular independent or component nursing home from among all possible targets, given that the chain made an acquisition during year t. We modeled P(t) using a logistic regression model with chain-specific fixed effects to account for unobserved heterogeneity (Blossfeld and Rohwer, 1995):

$$\log\left[\frac{P(t)}{1 - P(t)}\right] = a + bx + cz(t)$$

where a is a constant term, b is a vector of coefficients for chain-specific fixed effects, and c is a vector of coefficients for theoretical and control variables measured at the start of the year t in which the acquisition occurred. The model was estimated with *TDA 5.7* (Rohwer, 1995). Given that the sample chains acquired nearly one in three nursing homes during the study period, we defined the set of possible acquisition targets to include all homes operating in Ontario at the start of the year in which an acquisition was made.

Normally, the unit of analysis in organizational event studies is the organization, but in our analysis, the unit was the chain-acquisition target dyad: each time a chain acquired a nursing home, we pooled observations on all homes at risk of being acquired. We treated each observation as right-censored unless the home was acquired, which permitted us to examine empirically why the chain acquired a particular home. The resulting structure of our data is similar to what economists refer to as event studies (e.g., Whinston and Collins, 1992). Consequently, our data do not comprise a time series of pooled observations on the same system or actors over time. Rather, we pooled observations on many different actors (nursing home chains) that experienced one or more events (acquisitions) at any time between 1971 and 1996. This poses an estimation problem.

If a chain decides to acquire n nursing homes in a strategic maneuver in a given year, logistic regression treats these as n independent acquisitions, but this would bias ordinary maximum-likelihood estimates. One approach to this problem would be to make the dubious assumption that all acquisitions by the same chain in a given year are independent. Another is to treat the problem as a sampling issue (Barnett, 1993). In each year, chains can be treated as oversampled according to the number of components they simultaneously acquire. Oversampling can be corrected during model estimation by using standard weighting methods to discount oversampled cases in proportion to their degree of oversampling (Hoem, 1985). For example, each of the n acquisitions mentioned in the above scenario would be given a weight of 1/n in the likelihood calculations. Although this approach, which we employ, *does not eliminate the problem of non-independence*, it does correct for the overrepresentation of coordinated strategic moves. The non-independence problem, also known as the common-actor problem, can also be understood as a model specification problem (Lincoln, 1984). If the statistical model incorporates all essential chain-level characteristics that influence chains' acquisitions, no unobserved effects of cross-sectional interdependence would remain. Therefore, in addition to correcting for oversampling, as indicated above, we estimated models that account for unobserved heterogeneity using chain fixed effects (Blossfeld and Rohwer, 1995). Given our event study design, there is little within-chain variance on chain-level characteristics; chain fixed effects should thus effectively capture differences among acquiring chains.

Theoretical Variables

Local search and momentum. To test our hypotheses, we constructed a series of Euclidean distance-based measures. Euclidean distances were measured using the latitude and longitude of nursing homes' postal addresses. For each variable, smaller values indicate greater proximity or similarity. All variables are time varying, measured at the start of the year in which the acquisition occurred. We tested H1a and H1b with the following measures:

$$ED_{iK} \qquad \text{(H1a)}$$

$$ED_{iK_{min}} \qquad \text{(H1b)}$$

where ED_{iK} is the Euclidean distance between target i and the Kth (last) of chain j's K prior acquisitions, and $ED_{iK_{min}}$ is the Euclidean distance between target i and k_{min}, chain j's prior acquisition closest to target i. Since chain j's most recent acquisition and acquisition nearest target i can both have occurred more or less recently, we controlled for possible temporal decay in their impact on chain j's subsequent acquisition behavior. To do this, we included separate variables for the natural logarithm of the time (in months) since chain j's most recent acquisition and since its acquisition nearest target i. We tested H1c with a measure of the average Euclidean distance between target i and chain j's current components:

$$\frac{1}{K}\sum_{k=1}^{K} ED_{ik} \qquad \text{(H1c)}$$

where ED_{ik} is the Euclidean distance between target i and chain j's kth of K total components.

Size, context, and compactness similarity. We tested H2a–H2c with variables capturing the similarity of target i to a chain's most recent acquisition (H2a), acquisition nearest target i (H2b), and current components (H2c). To compute similarity, we measured a nursing home's size as its number of beds and its context based on its latitude. In Ontario, latitude effectively differentiates among densely populated, urban southern regions, less densely populated mixed urban-rural central regions, and sparsely populated, primarily rural areas in the north.[3] Consistent with our earlier definition, we measured target i's spatial compactness using equation (H1b), target i's distance to the acquiring chain's prior acquisition nearest to it. For H2a, we calculated size, context, and compactness similarity as:

$$|Bed_i - Bed_K| \qquad \text{(H2a–1)}$$

$$|Latitude_i - Latitude_K| \qquad \text{(H2a–2)}$$

$$\left| ED_{ik_{min}} - \operatorname*{Min}_{k=1}^{K-1} ED_{kK} \right| \qquad \text{(H2a–3)}$$

where i is the target, K is chain j's most recent of k acquisitions, $ED_{ik_{min}}$ is as defined in equation (H1b), and $MinED_{kK}$ is the Euclidean distance from chain j's most recent acquisition to its nearest other unit. For H2b, similarities were computed analogously for chain j's prior acquisition nearest target i:

$$\left| Bed_i - Bed_{K_{min}} \right| \qquad \text{(H2b–1)}$$

$$\left| Latitude_i - Latitude_{K_{min}} \right| \qquad \text{(H2b–2)}$$

$$\left| ED_{ik_{min}} - \operatorname*{Min}_{k \neq k_{min}}^{K} ED_{kk_{min}} \right| \qquad \text{(H2b–3)}$$

where $MinED_{kk_{min}}$ is the Euclidean distance between chain j's prior acquisition (k_{min}) nearest to target i and the nearest of chain j's other k components. Lastly, for H2c, they were computed as:

$$\left| Bed_i - AvBed_j \right| \qquad \text{(H2c–1)}$$

$$\left| Latitude_i - AvLatitude_j \right| \qquad \text{(H2c–2)}$$

$$\left| ED_{ik_{min}} - Av\operatorname*{Min}_{k \neq k_1}^{K} ED_{kk_1} \right| \qquad \text{(H2c–3)}$$

where $AvBed_j$ and $AvLatitude_j$ are the average number of beds and latitude of chain j's current components, k_1 is a component of chain j's other than k, and $AvMin(ED_{kk_1})$ is chain j's spatial compactness—the average minimum Euclidean distance among its current components.

Trait-based imitation of large chains. To test H3a, we computed the average Euclidean distance from target i to each other chain's most recent acquisition, scaled by each other chain's size:

$$\frac{1}{H} \sum_{h \neq j}^{H} \frac{ED_{iL}}{Bed_h} \qquad \text{(H3a)}$$

where ED_{iL} is the Euclidean distance between target i and the Lth (last) acquisition by other chain h, Bed_h is the sum of beds in all of chain h's components, and H is the total number of other chains (i.e., not including chain j). Scaling ED_{iL} by chain size discounts the distance between target i and chain h's last acquisition in proportion to chain h's size; the larger h's size the greater the discount. For H3b, we computed an analogous measure based on other chains' acquisitions nearest to target i:

$$\frac{1}{H} \sum_{h \neq j}^{H} \frac{ED_{il_{min}}}{Bed_h} \qquad \text{(H3b)}$$

where $ED_{il_{min}}$ is the Euclidean distance between target i and chain h's nearest acquisition to target i. To test H3c, we used the following, analogous variable:

$$\frac{1}{H} \sum_{h \neq j}^{H} \frac{AvED_{il}}{Bed_h} \qquad \text{(H3c)}$$

where $AvED_{il}$ is the average Euclidean distance from target i to all chain h's current components.

Trait-based imitation of similar chains. To test H4a, that a chain is more likely to acquire targets close to other similar chains' most recent acquisitions, we used a set of four variables, one each for chain size, component size, spatial compactness, and latitude (i.e., context). The basic form of the variables is:

$$\frac{1}{H} \sum_{h \neq j}^{H} [ED_{iL} \times Difference_{jh}] \qquad \text{(H4a)}$$

where ED_{iL} is as in equation (H3a), and $Difference_{jh}$ is the magnitude of the difference between the acquiring chain j and chain h on one of the organizational features. Weighting ED_{iL} by the $Difference_{jh}$ magnifies the distance between target i and chain h's last acquisition as the difference between chains j and h increases. The four difference factors were computed as follows:

$$|TotalBed_j - TotalBed_h| \qquad \text{(H4a–1)}$$

$$|ComponentBed_j - ComponentBed_h| \qquad \text{(H4a–2)}$$

$$|Latitude_j - Latitude_h| \qquad \text{(H4a–3)}$$

$$|AvMin_{k \neq k_1}^{K} Ed_{kk_1} - AvMin_{l \neq l_1}^{L} Ed_{ll_1}| \qquad \text{(H4a–4)}$$

where TotalBed is the total number of beds currently operated by chains j and h, ComponentBed is the average size (in beds) of their respective current components, and Latitude is the average latitude of their respective current components. $AvMin(ED_{kk_1})$ is the spatial compactness of chain j, measured as the average minimum Euclidean distances between its current components. $AvMin(ED_{ll_1})$ is the spatial compactness of chain h, measured in the same way (k_1 and l_1 are, respectively, components of chain j's other than k, and chain h's other than l). For H4b and H4c, the organizational features were identical, and variables were constructed in the same way:

$$\frac{1}{H} \sum_{h \neq j}^{H} [ED_{il_{min}} \times Difference_{jh}] \qquad \text{(H4b)}$$

$$\frac{1}{H}\sum_{h \neq j}^{H} [AvED_{il} \times Difference_{jh}] \qquad \text{(H4c)}$$

where $ED_{il_{min}}$ is as in equation (H3b) and $AvED_{il}$ is as in equation (H3c).

Defining chains' initial acquisitions. Computing values for our theoretical variables posed a challenge for the first acquisition each chain made because no such prior acquisition or current components existed. Rather than exclude each chain's first acquisition from the analysis, we developed random assignment procedures to identify a prior acquisition or current component. For the seven chains already operating in 1971, we lacked information on which component was the most recently acquired. To determine this, we randomly assigned one of the components each chain operated in 1971 as its most recent acquisition for computational purposes, unless which one was most recent could be determined from the *OHA Directory*.

Although for the 32 chains entering after 1971 no prior acquisitions or current components existed, inspection of monthly licensing information revealed that all but one of these chains acquired a second (and sometimes third) component within six months of their initial acquisition.[4] Ten new entrants acquired two components in their first month. Therefore, rather than exclude these new entrants' initial acquisitions, we used the "other" components acquired in the same first month or within six months of the initial entry as a basis for computing our theoretical variables. Thus, for a chain acquiring two components in the month of its entry, or within its first six months, we used the other acquisition for computation purposes, and for a chain acquiring three components, we randomly chose one of the other components to be the first.

Using this approach we were able to compute all but six of our theoretical variables for 42 of the new entrants' 43 initial acquisitions (because we cannot distinguish temporally between two components acquired in the same month, the total number of initial acquisitions is 43). The six exceptions were equations H2(a, b, c)–3 and H4(a, b, c)–4, which each require at least two prior acquisitions (or components) to define distance(s) between the acquiring chain's components. Consequently, in addition to the models we report below, which include these variables but exclude the 12 acquisitions for which they could not be defined, we reestimated the models for the full sample while excluding these variables. To ensure that our results were not affected by our random assignment procedures for the other variables, we also reestimated our full model after removing the 42 new entrants' initial acquisitions and the seven left-censored chains' initial acquisitions. In these supplementary analyses, estimates for the theoretical variables were all comparable to those we report below. So, our findings appear robust to our random assignment procedures.

4
The three-to-six-month difference in reported acquisition times may result from different facilities, acquired at the same time, taking different lengths of time to complete the provincial license transfer process (for example, due to different facility improvements being required of the acquirer).

Control Variables

Many other factors may influence the likelihood of a given nursing home being acquired by a particular chain. Accordingly, in addition to the variables described above, we controlled for a variety of additional features of nursing homes and their contexts, as well as nursing-home-industry-specific environmental factors. All control variables were measured at the start of each observation year.

Target nursing home's characteristics. Because targets may vary in their attractiveness for acquisition to chains and also in their own interest in being acquired, we controlled for a range of target characteristics. We defined *target age* as the number of months since the date of a nursing home's founding and *target size* as the natural logarithm of the number of beds a home operated at the start of each year. Chains may prefer older and larger targets because older homes may benefit most from an infusion of new skills (Ingram and Baum, 2001) and because larger homes are more compatible with chains' efforts to achieve economies of standardization (Baum, 1999). We used a dummy variable, coded 1 for *components* of chains and 0 otherwise, to control for possible differences in a chain's propensity to acquire independent homes compared with other chains' components. In general, we expected that independent nursing homes would be quite receptive acquisition targets as licensing requirements and low government-set fees became increasingly demanding and constraining over time (Baum, 1999). We also controlled for the effects of nursing homes' *linkages* to two important institutional actors (Baum and Oliver, 1991): (1) membership in the Ontario Nursing Homes' Association (ONHA) and (2) Accredited Care Center (ACC) status, which affords eligibility for extended-care benefits under the Health Insurance Act. We also included a *replacement facility* dummy variable, coded zero unless a nursing home closed its original facility and transferred its license and residents to a new facility constructed to meet provincial requirements, and coded 1 after the new facility opened. Lastly, we included a *left-censored* dummy, coded 1 for homes founded before 1971 to examine whether such homes, which were excluded from meeting regulatory standards of the Nursing Homes Act, had systematically different acquisition rates.[5]

Target nursing home's context. To account for effects of differences in a target's operating context on its likelihood of being acquired, we controlled for *target latitude*, which differentiates between densely populated southern regions of Ontario and more sparsely populated areas to the north. A target's familiarity with a potential acquirer might also influence the likelihood that the target would be receptive to advances by a particular chain. We measured familiarity as a *target's distance from other chains relative to an acquiring chain* defined as the target's average distance to the components of all other chains divided by the average distance between the target and the acquiring chain's components. The smaller the value of this variable, the closer (more familiar) the target and acquiring chain relative to all others.[6]

[5]
We could not estimate the effects of the target's profit orientation since no non-profit homes were acquired.

[6]
We are grateful to an anonymous reviewer for suggesting this variable.

Finally, as multiunit organizations, nursing home chains likely consider the implications of acquiring a particular target for its multimarket relationships with other nursing home chains (Laulajainen and Gadde, 1986; Cotterill and Haller, 1992; Baum, 1999; Greve, 2000). Multimarket relationships between competitors, that is, their joint presence in more than one distinct geographic market, is widely held to result in mutual forbearance—less vigorous competitive interaction in all markets in which they meet and more predictable competitor behavior (for a review, see Baum and Korn, 1999). If multimarket contact reduces rivalry and stabilizes chains' competitive relationships, a chain may be deterred from acquiring targets located near components of its multimarket competitors, since such actions may be interpreted as aggressive behavior. Our control variable therefore measures an acquiring chain's multimarket contact with respect to each target (i.e., how distant the target is from the acquirer's multimarket competitors). More formally our measure of a *target's distance from an acquiring chain's multimarket competitors* is:

$$\frac{1}{H} \sum_{h \neq j}^{H} \left[\underset{l=1}{\overset{L}{\text{Min}}} \, (ED_{il}) \times \frac{\sum_{k=1}^{K} \underset{l=1}{\overset{L}{\text{Min}}} \, (ED_{kl})}{K} \right] \qquad \text{(CV–1)}$$

Working from right to left in the equation, $Min(ED_{kl})$ is the minimum Euclidean distance between each of the K components of acquiring chain j and any of the L components of a rival chain h. These minimums are summed over all K components and then divided by K to compute an average minimum distance between the components of chains j and h. This average minimum distance measures the level of multimarket contact between chains j and h. The smaller the value, the closer the components operated by chains j and h and, so, the higher their multimarket contact. To factor in the significance of target i to chain h, we weighted the multimarket contact between chains j and h by $Min(ED_{il})$, the Euclidean distance from target i to the nearest of chain h's L components. These weighted pairwise scores for chain j were then summed over all H other chains and divided by H to determine the average. The smaller this value, the more likely it is that chain j will provoke a multimarket competitor by acquiring target i. An example calculation is given in Appendix A. This measure of multimarket contact is compatible with other recent operationalizations (e.g., Boeker et al., 1997; Baum and Korn, 1999), with the exception that market contacts were measured continuously rather than dichotomously. We adopted this relational measurement approach because of the problems associated with specifying local markets in health and human service industries (e.g., Phibbs and Robinson, 1993; Succi, Lee, and Alexander, 1997).[7] To control for a ∩-shaped relationship (Baum and Korn, 1999), we included both linear and squared terms for this variable in our models.

Environmental characteristics. Considerable evidence supports the idea that organizations imitate actions and practices adopted by many others (e.g., Palmer, Jennings, and Zhou, 1994; Han, 1994; for a review, see Miner and Haunschild,

7
A limitation of our measure is that two chains with multiple units in one "local market" would be assigned a high multimarket contact score in the same way as two chains with multiple units co-located in a set of distinct local markets even though the former are not multimarket competitors. Using six-character postal codes, we checked to see whether any chains in our sample could be viewed as operating multiple components in a single local market and whether any two such chains operated in the same local market. We arbitrarily defined a local market as the area with the same first three postal-code characters. Although we found several chains whose components shared the same first three characters in some years, none of these chains shared the same first three characters.

1995). Neoinstitutional theorists explain such frequency-dependent imitation by noting that the prevalence of a practice reduces uncertainty about it and increases its legitimacy (DiMaggio and Powell, 1983). We control for three forms of frequency-dependent imitation: (1) *frequency imitation, time*, the average Euclidean distance of other chains' most recent acquisitions from target i, (2) *frequency imitation, space*, the average Euclidean distance of other chains' nearest acquisitions to target i, and (3) *frequency imitation, generalized*, the average Euclidean distance of all other chains' current components from target i. Including these controls, which parallel the three forms of trait-based imitation we examine, simplifies our tests of H3a–H3c and H4a–H4c by ensuring that our trait-based imitation variables do not spuriously capture frequency-dependence. Of course, at high levels, geographic concentration of organizations may signal intense localized competition and exhaustion of resources (Baum and Mezias, 1992). To control for effects of *geographically localized competition*, we included both linear and squared terms for *frequency imitation, generalized*. This specification is similar to legitimacy-competition specifications of organizational density (Hannan and Carroll, 1992), but we interpret the linear term as generalized frequency-based mimicry and the squared term as geographically localized competition due to crowding. We also controlled separately for geographically localized competition faced by target i from independent nursing homes, computed analogously as the sum of the Euclidean distances between target i and all other independent nursing homes.[8]

We incorporated three measures reflecting environmental munificence and the potential demand for nursing home services. The first two were time-varying 1986-constant-dollar values for the Ontario Ministry of Health's nursing home budget and extended-care per diem to control for effects of government funding. The *provincial nursing home budget* reflects the overall level of government support for nursing home care and directly affects the number of nursing home beds the provincial government will license. The *extended-care per diem* sets the basic fee paid for services covered under the extended-care plan. Nursing homes are required to provide extended care for at least 75 percent of their beds and are prevented by law from offsetting the cost of providing extended-care services by charging their residents above the government fee schedule. The per diem is thus a major determinant of revenues and profitability and, ultimately, the viability of nursing homes. The third measure, *population density of people aged 65 or older*, accounted for direct effects of population agglomerations in the county in which target i was located. Lastly, to ensure that our main findings were not simply a result of increasing consolidation under chain ownership or the passage of time, we included controls for the *cumulative number of acquisitions* by all chains since 1971 and a time trend variable, *calendar time*.

Appendix table B.1 presents means, standard deviations, and bivariate correlations for all theoretical variables. Appendix table B.2 gives means and standard deviations for the control variables. Correlations among the theoretical variables are

[8]
We included only a linear term for localized competition from independent homes, since a nonmonotonic specification did not provide a significant improvement. We also considered competition from homes for the aged operated by local municipalities and charitable organizations, which represent the major competing government-sanctioned and supported institutional form of long-term care in Ontario, but we found no evidence of such competition.

generally significant but of small magnitude, with only a fraction larger than $r = .50$ (25 percent shared variance). Although such moderate multicollinearity will not bias estimates and does not pose a serious estimation problem, it can introduce a conservative bias to tests of coefficient significance by inflating standard errors for the collinear variables (Kennedy, 1992). Therefore, following Long (1997), we tested significance of groups of variables by comparing nested regression models instead of relying only on significance tests for individual coefficients. Although this process produced little evidence that multicollinearity was hampering our estimation, it is still possible that coefficients for some variables are a product of their joint estimation. We therefore also estimated coefficients separately for subsets of our theoretical variables. The coefficients were not substantively different when estimated separately, although estimates for most variables were more efficient.

RESULTS

Table 1 presents fixed-effects logistic models of nursing home chains' acquisitions and gives likelihood-ratio statistics to compare the fit of nested models. Model 1 presents a baseline model, and models 2-5 test our hypotheses. The baseline model includes target i's characteristics, fixed effects and acquisition time-lapse controls for acquiring chain j, and the environmental control variables.

Model 2 adds variables to test for geographically localized search (H1a–H1b) and location momentum (H1c). Model 2 provides a significant improvement over model 1. Because larger Euclidean distances indicate greater distance between target and acquirer, the significant negative coefficients mean that more distant targets are less likely to be acquired, indicating support for all three hypotheses. As we predicted, acquiring chains engaged in a local search for new components anchored on their most recent (H1a) and in the neighborhood of their prior acquisitions (H1b). Thus, the closer a target was to an acquiring nursing home chain's most recent acquisition, and the shorter the distance between the target and the chain's nearest prior acquisition, the more likely the chain was to acquire the target. Nursing home chains' acquisitions also exhibited location momentum (H1c): the closer a target was, on average, to an acquiring chain's current components, the more likely the chain was to acquire it.

Model 3 adds variables to test for organizationally localized search and momentum (H2a–H2c). In the model, coefficients for each new variable are significant and negative, and their inclusion significantly improves model fit, providing strong support for hypotheses H2a–H2c. Supporting local search based on organizational similarity, chains were more likely to acquire targets more similar in size and latitude to their most recent acquisitions as well as to prior acquisitions they made nearest to the target. Chains were also significantly more likely to acquire targets more similar in spatial compactness to its most recent and nearest acquisitions. This means that a target was more likely to be acquired when its distance to the chain's most recent (or nearest) acquisition was more similar to the distance from the most recent (or nearest)

Table 1

Logistic Regression Models of Chain j's Likelihood of Acquiring Target i*

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
Constant	−9.706	−11.093	−16.941●	−2.883●	−28.602●
	(6.653)	(6.982)	(8.059)	(8.314)	(9.469)
Target i					
Age (In months)	−.079	−.087	−.074	−.071	−.082
	(.083)	(.083)	(.085)	(.085)	(.085)
Number of beds (In)	.537●	.514●	.663●	.607●	.410●
	(.137)	(.137)	(.158)	(.161)	(.169)
Component	−.803●	−.776●	−.678●	−.666●	−.432●
	(.216)	(.216)	(.215)	(.217)	(.245)
Latitude	−.016	−.001	.034	.111	.126
	(.093)	(.098)	(.104)	(.119)	(.129)
Replacement facility	.117	.088	.034	.066	.071
	(.202)	(.203)	(.206)	(.207)	(.206)
ONHA member	−.114	−.135	−.108	−.132	−.135
	(.216)	(.216)	(.217)	(.218)	(.220)
ECC/ACC status	.378●	.396●	.300	.321	.358●
	(.212)	(.213)	(.215)	(.217)	(.216)
Left-censored	.108	.125	.072	.087	.083
	(.212)	(.218)	(.217)	(.218)	(.219)
Distance from other chains relative to chain j	−.611●	−.573●	−.544●	−.544●	−.530●
	(.131)	(.135)	(.137)	(.137)	(.138)
Distance from j's multimarket competitors	.155●	.207●	.226●	.243●	.253●
	(.056)	(.063)	(.068)	(.096)	(.113)
Distance from j's multimarket competitors squared /100	−.168●	−.172●	−.184●	−.239●	−.245●
	(.093)	(.098)	(.102)	(.114)	(.130)
Chain j					
Time since j's last acquisition (In months)	.020	.020	.018	.011	−.005
	(.037)	(.037)	(.038)	(.038)	(.040)
Time since j's acquisition nearest to target i (In months)	.027	−.000	.037	.044	.070●
	(.028)	(.030)	(.030)	(.030)	(.031)
Environment					
Provincial budget (In 1986 C$)	.119	.297	.213	.166	.315
	(.285)	(.295)	(.319)	(.328)	(.348)
Extended-care per diem (1986 C$)	.003	−.003	.025	−.003	.009
	(.043)	(.046)	(.051)	(.055)	(.058)
i's local population density > 65	.001	−.001	.000	−.000	.000
	(.001)	(.001)	(.001)	(.001)	(.001)
i's distance from other chains' last acquisitions	−.396●	−.367●	−.384●	−.367	−.117
	(.204)	(.207)	(.216)	(.233)	(.286)
i's distance from other chains' nearest acquisitions	.513	.505	.630	−.326	−.714
	(.417)	(.449)	(.463)	(.479)	(.501)
i's distance from other chains' current components	.099	.111	.191●	.067	−.130
	(.085)	(.085)	(.108)	(.113)	(.123)
i's distance from other chains' current components squared /100	−.309●	−.318●	−.468●	−.477●	−.298
	(.179)	(.183)	(.246)	(.250)	(.256)
i's distance from independents	.068●	.067●	.072●	.095●	.162●
	(.024)	(.025)	(.028)	(.034)	(.037)
Number of prior chain acquisitions	.000	.001	−.000	−.001	−.002
	(.002)	(.002)	(.002)	(.002)	(.002)
Calendar time (In months)	.389	.451	.183	.474	1.063
	(.434)	(.448)	(.472)	(.507)	(.676)
Hypotheses					
H1a: i's distance from j's last acquisition		−.154●	−.196●	−.182●	−.178●
		(.054)	(.067)	(.069)	(.070)
H1b: i's distance from j's nearest acquisition		−.123●	−.228●	−.211●	−.208●
		(.050)	(.083)	(.088)	(.089)
H1c: i's distance from j's current components /10		−.174●	−.180●	−.155●	−.154●
		(.035)	(.070)	(.072)	(.071)
H2a-1: i's size similarity to j's last acquisition /100			−.223●	−.201●	−.212●
			(.107)	(.119)	(.127)
H2a-2: i's latitude similarity to j's last acquisition			−.384●	−.388●	−.367●
			(.152)	(.155)	(.156)
H2a-3: i's distance similarity to j's last acquisition			−.634●	−.617●	−.585●
			(.135)	(.136)	(.137)
H2b-1: i's size similarity to j's nearest acquisition /100			−.608●	−.483●	−.509●

Table 1 (continued)

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
			(.209)	(.210)	(.212)
H2b-2: i's latitude similarity to j's nearest acquisition			−.817•	−.617•	−.584•
			(.252)	(.254)	(.257)
H2b-3: i's distance similarity to j's nearest acquisition			−.238•	−.228•	−.243•
			(.115)	(.117)	(.127)
H2c-1: i's size similarity to j's current components/ 100			−.130•	−.130•	−.171•
			(.032)	(.032)	(.040)
H2c-2: i's latitude similarity to j's current components			−.055•	−.044•	−.037•
			(.014)	(.014)	(.016)
H2c-3: i's distance similarity to j's current components			−.038•	−.033•	−.030•
			(.016)	(.017)	(.017)
H3a: i's distance to large chains' last acquisitions ×100				−.263•	−.244•
				(.112)	(.118)
H3b: i's distance to large chains' nearest acquisitions ×100				−.125	−.157
				(.139)	(.151)
H3c: i's distance to large chains' current components ×100				.308•	.235
				(.148)	(.166)
H4a-1: i's distance to similar size chains' last acquisitions /1000‡					.147•
					(.050)
H4a-2: i's distance to similar component size chains' last acquisitions /100					−.142•
					(.066)
H4a-3: i's distance to similar compactness chains' last acquisitions					.102
					(.134)
H4a-4: i's distance to similar latitude chains' last acquisitions					−.172
					(.353)
H4b-1: i's distance to similar size chains' nearest acquisitions /1000					.036•
					(.012)
H4b-2: i's distance to similar component size chains' nearest acquisitions /100					−.206•
					(.074)
H4b-3: i's distance to similar compactness chains' nearest acquisitions					.050
					(.129)
H4b-4: i's distance to similar latitude chains' nearest acquisitions					−.146•
					(.046)
H4c-1: i's distance to similar size chains' current acquisitions /1000					.292•
					(.131)
H4c-2: i's distance to similar component size chains' current acquisitions /100					−.306•
					(.156)
H4c-3: i's distance to similar compactness chains' current acquisitions					−.125•
					(.056)
H4c-4: i's distance to similar latitude chains' current acquisitions					−.141•
					(.063)
Loglikelihood	−1053.4	−1036.4	−936.8	−930.3	−899.5
Likelihood ratio		34.0•	158.1•†	13.0•	61.6•
d.f. (vs. model #)		3 (vs M1)	9 (vs M2b)	3 (vs M3)	12 (vs M4)
Observations	60,746	60,746	56,055	56,055	56,055
Acquisitions	169	169	157	157	157

• $p < .05$.
* Standard errors are in parentheses; variables are rescaled for comparability as indicated. Variables for H1–H4 are reverse scaled—smaller values indicate greater proximity and similarity.
† Model 2b, which reestimates model 2 on the reduced sample, is not reported.
‡ For H4a–H4c, dissimilarity is relative to acquiring chain j.

acquisition to its nearest other component. Positional-contextual momentum (H2c) based on organizational similarity to acquiring chains' current components is also supported for each of the similarity dimensions. Thus, chains were more likely to acquire targets similar to the average size and latitude of their current components. Chains were also more likely to acquire targets compatible with their overall level of spatial compactness.

Overall, these effects of local search and momentum on nursing home chains' acquisitions suggest that these chains expanded following path-dependent trajectories of growth shaped by early location choices and organizational features that were reinforced through local search and location momentum. This conclusion is reinforced by the absence of a time-decay in the effects of local search initiated by chains' most recent and nearest acquisitions. A further implication of this local search and momentum is that by limiting chains' geographic and organizational scope, these processes promote the evolution of spatially compact and homogeneous chains. Finally, the strong support for both geographically and organizationally localized search and momentum highlights the ongoing trade-off chains must make between geographic proximity and organizational similarity. In this regard, the joint support for H1a–H1c and H2(a, b, c)–3 is particularly interesting because it reveals how spatial compactness can override geographically localized search and momentum: targets that are too close (or too distant), given the chain's spatial arrangement, are less likely to be acquired because they do not fit well with the chain's infrastructure.

Models 4 and 5 add trait-based imitation of large chains' and similar chains' location behavior to test H3a–H3c and H4a–H4c, respectively. Coefficients in model 4, which is a significant improvement over model 3, provide support for H3a (trait imitation, time), but not for either H3b (trait imitation, space) or H3c (trait imitation, generalized). The coefficient for H3c is significant and positive, opposite to the prediction. Thus, chains were more likely to acquire targets located near other large chains' recent acquisitions (H3a), but not those nearest their prior acquisitions (H3b). Chains were also less likely to acquire targets in the general vicinity of large chains' current components (contrary to H3c). Taken together, these estimates imply a temporally localized imitation of large chains' recent location behavior and, also, an avoidance of their locations more generally. This latter finding, however, does not remain significant at $p < .05$ in the full model, model 5.

Model 5 is again a significant improvement over model 4, but support for H4a–H4c is more mixed than for the preceding hypotheses. Of these hypotheses, support for H4c (trait imitation, generalized) is strongest. Chains were significantly more likely to acquire targets in the general vicinity of current components of other chains that were similar in component size, spatial compactness, and latitude (H4c–2, 3, 4) but not those similar in overall size (H4c–1). The coefficient for imitation of locations of similar-sized chains' current components is significant and positive, indicating chains were less likely to co-locate with other similar-sized chains. Although this contra-

dicts our hypothesis, it is consistent with the idea that more similar-sized organizations compete more intensely (Baum and Mezias, 1992) and thus actively avoid one another. H4a (trait imitation, time) and H4b (trait imitation, space) are also partially supported. Chains were more likely to acquire targets located near recent acquisitions of other chains with similar-sized components (H4a–2) and close to nearest acquisitions by chains with similar-sized components and similar latitudes (H4b–2, 4). But, again, coefficients are significant and positive for imitation of similar-sized chains' most recent (H4a–1) and nearest (H4b–1) acquisition locations, consistent with avoidance of size-localized competitors, not with our hypotheses. Overall, model 5 indicates that component size was a strong comparability heuristic for chains' decision makers and that comparable chains' nearest and general location choices exerted a broader impact than their recent choices. Locations thus had to prove themselves before imitation. Such a wait-and-see approach contrasts chains' tendency to imitate large chains' most recent moves.

Relative Magnitudes of Effects

Although local search, momentum, and trait-based imitation all shaped chains' selection of acquisition targets significantly, it is also important to assess the absolute and relative magnitudes of these effects. Effect magnitudes for logistic regression coefficients can be assessed by translating them into multipliers of the likelihood of chains' acquiring particular targets, computed as $e^{\beta x}$, where β is the coefficient estimate, and X is some value of the variable. A multiplier greater (or less) than 1 indicates that the likelihood of a chain acquiring a target is increased (decreased) by a factor equal to the multiplier. A multiplier of 2 (or .5) indicates a doubling (or halving) of the likelihood, for example. Figure 2 shows multipliers (computed from model 5 βs) for one standard deviation increases in the variables. The figure also shows ranges around the point estimates computed at β for $\beta \pm 1$ standard error. A logarithmic scale is used to better represent the multiplier's relative magnitudes.

Multipliers for geographically localized search and location momentum (H1a–H1c) are all around .6, indicating that a one-standard-deviation increase in a target's distance from an acquiring chain's most recent and nearest acquisitions and current components lowered the likelihood of the chain acquiring the target about 60 percent. Multipliers for organizationally localized search and momentum (H2a–H2c) are similar in magnitude but more varied, particularly for H2a. Among these, the .22 multiplier for local search based on distance similarity to the most recent acquisition (H2a–3), was largest, indicating a 78-percent decrease in the likelihood of a chain acquiring a target for a one-standard-deviation rise in distance similarity to the most recent acquisition. The .89 multiplier for local search based on similarity in component size to the most recent acquisition (H2a–1) was smallest, but component size similarity has the largest multiplier (.28) for organizational momentum (H2c–1). Among the trait imitation effects, the multiplier for H3a-1, imitation of large chains' most recent acquisition locations, is the smallest (.78), and imitation of similar-component-size chains' current locations

Figure 2. Effect magnitude multipliers.
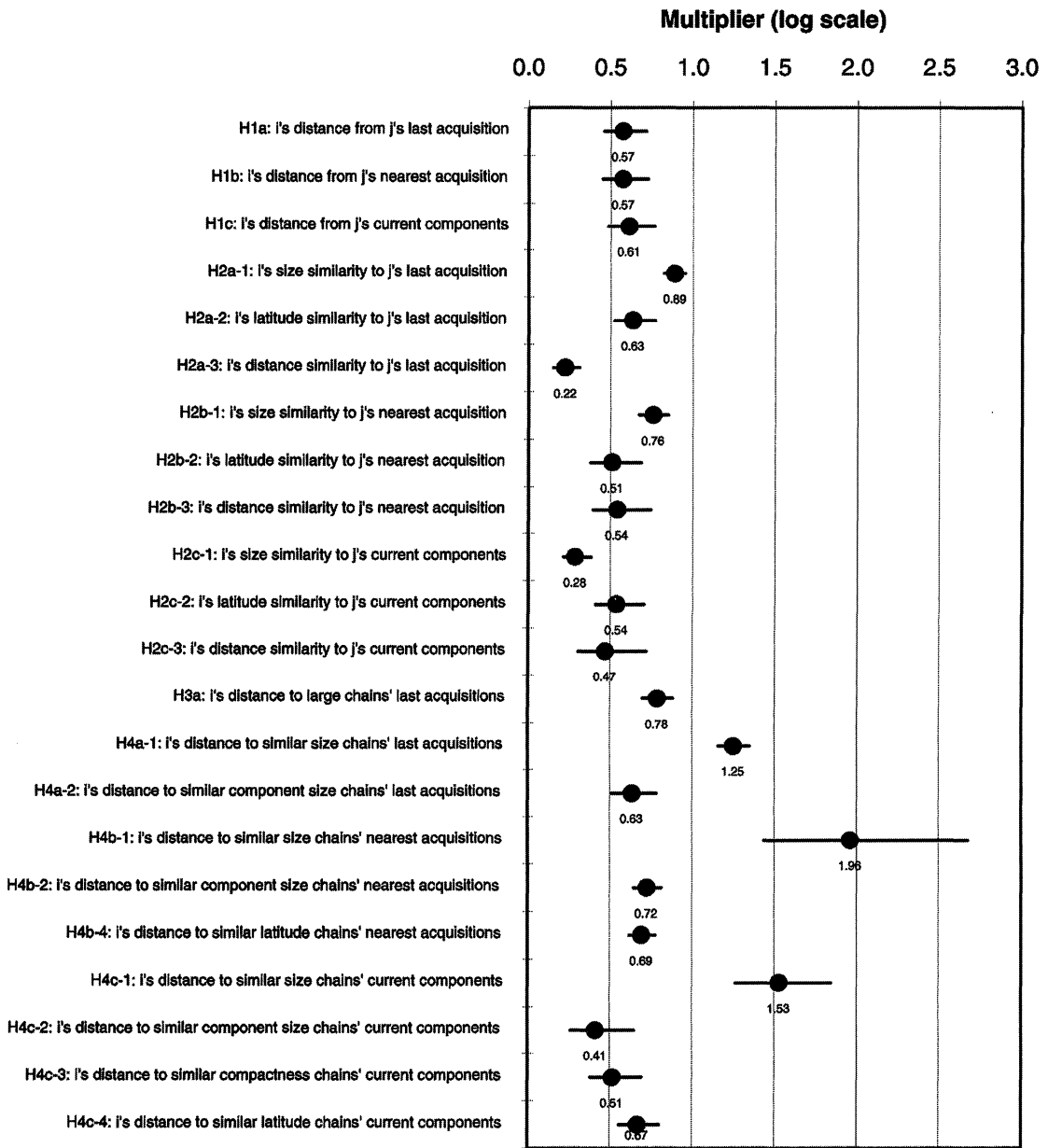
is largest (.41; H4c–2). The remaining multipliers for trait imitation are all in the .5–.7 range. Taken together, figure 2 reinforces the significance of experiential and vicarious learning to chains' acquisition decisions. They also reveal that geographically and organizationally localized search and momentum are similar in magnitude and somewhat larger than the effects of trait imitation effects, although not significantly so, as their overlapped ±1 standard-error ranges indicate.

Control Variables

Several of the control variables also affected chains' acquisition patterns. Large, accredited, and independent targets

were significantly more likely to be acquired. Thus, consistent with the idea that chains seek economies of scale, they avoided smaller targets and unaccredited targets, to which provincial regulators might potentially attach more onerous (and costly) conditions for completion of the acquisition. Accredited targets may also require less knowledge transfer to meet the chain's own internal standards. The lower probability of acquiring other chains' components may reflect, among other things, the greater interest among independent targets in being acquired or chains' desire for the coordination benefits of industry consolidation.

A target's location relative to the acquiring chain and its competitors also mattered. Targets that were in closer proximity to the acquiring chain's components than to other chains' components were more likely to be acquired. The likelihood of a target being acquired was also affected by the acquiring chain's multimarket contact with other chains in the vicinity of the target. The positive linear and negative squared terms for the acquiring chain's multimarket contact with respect to a target supports Baum and Korn's (1999) ∩-shaped prediction. Thus, nursing home chains were most likely to acquire targets near chains with which they had moderate multimarket contact. At moderate levels, additional contact increases opportunities for chains to signal to and observe each other, improving their ability to interpret and coordinate each other's actions and avoid unintended rivalry. Targets near low multimarket contact chains are less attractive because single-market competitors tend to be more aggressive; those near high multimarket contact chains are less attractive because acquiring them risks destabilizing established forbearance relationships.

Only one environmental variable is significant in the full model. Targets facing greater localized competition from independent nursing homes were more likely to be acquired. From the chain's perspective, such a context provides an opportunity for consolidation. From the target's perspective, being acquired may be seen as a viable strategy for organizational survival under conditions of localized competition. Lastly, although there is some evidence of frequency-dependent location imitation of other chains' most recent acquisitions and current components, as well as localized competition from components shaping chains' selection of targets, these effects fall from significance once trait-based imitation processes are introduced.

DISCUSSION AND CONCLUSION

To understand better chains' location strategies, we theorized and modeled chains' acquisition location choices as a product of organizational learning. Following organizational learning theorists, we represented organizations as routine-based systems that adapt incrementally to past experience and found that experiential local search (in time and space) and momentum exerted powerful influences on chains' acquisition locations that drove them to exploit locations with which they have greater recent, past, and cumulative experience. Also following organizational learning theorists, who have long contended that organizations learn vicariously, imitating

actions or practices of other organizations based on their expected impact, we predicted and found trait-based location imitation, particularly of comparable chains' nearest acquisitions and current components. We found less evidence of imitation of large chains, focused on their most recent location choices. Perhaps, in contrast to imitation of large organizations' structures (Burns and Wholey, 1993) or practices (Haunschild and Miner, 1997), imitation of their locations is tempered by a fear of operating too close to them (Korn and Baum, 1999).

Local search and momentum limit the scope of chains' spatial and organizational evolution, biasing them against discovering opportunities that are distant from past choices. But they also enable chains that make good initial choices to accelerate their exploitation, until the environment changes. Even then, chains' multiple locations and flexibility in adding and dropping components may enable chains to continue their exploitation successfully. Local search and momentum also foster development of economies of spatial compactness (e.g., shared infrastructure and administrative functions, transfer and integration of complex technical and strategic knowledge) and advantages of component standardization (e.g., transferability of routines, competency in acquisitions, reduced coordination and control costs, economies of scale and reputation). Local search and momentum thus kept nursing home chains from engaging in potentially costly and uncertain explorations into unfamiliar organizational and geographical territory and also, possibly, from responding too quickly and detrimentally to idiosyncratic competitive and environmental events. Substantial empirical evidence supports the claim that chains and their components, including nursing home chains (Baum, 1999), improve their performance survival chances by standardizing their operations and concentrating their efforts spatially (e.g., Laulajainen, 1987; Ingram, 1996a; Ingram and Baum 1997a, 1997b). Thus, in contrast to the common view that path-dependent, inertial processes are a challenge for organizations to overcome, chains' inertia appears to facilitate their creation of important competitive advantages.

The inertia was not so strong, however, that it kept chains from attending to and adopting the location choices of other chains. Organizational decision makers' emphasis on vicarious learning of competitors' successful actions and strategies is often seen as a mechanism for overcoming the bonds of experience (Levinthal and March, 1993; Miner and Haunschild, 1995). Notably, however, decision makers' attention heuristics—visibility and comparability—may limit the exploratory value of vicarious learning. Attending to visible (e.g., large or successful) competitors may produce observations that do not transfer well to the observer and may prove useless, perhaps even harmful, if imitated. A focus on comparable organizations increases their relevance but may narrow decision makers' attention to a set of organizations too similar to their own to promote behaviors sufficiently novel to alter the learner's behavior or performance. By imitating primarily comparable competitors, rather than making use of vicarious learning to overcome the bonds of experience,

nursing home chains thus seem to use vicarious learning to generate new chances to repeat their past choices.

Nursing home chains thus appear to be fundamentally exploitive, deriving competitive advantage by repeating and incrementally updating past choices that appear successful, so as to create economies of spatial compactness and advantages of component standardization, and emphasizing vicarious learning of similar competitors' actions to identify opportunities to reproduce their current routines. Although the high costs of reconfiguring chains' components and the path dependence of their past location choices and accumulated infrastructure may bias them toward such behavior, similar trait-driven imitation has been observed among organizations facing far fewer sunk costs (e.g., Haunschild and Miner, 1997; Korn and Baum, 1999). These attention heuristics may explain an apparent contradiction in research on vicarious learning: while numerous studies, including our own, show organizations imitating a wide range of one another's strategies, practices, and actions (e.g., Haveman, 1993; Greve, 1995, 1996, 1998; Haunschild and Miner, 1997; Korn and Baum, 1999), research has found with equal consistency that performance benefits of vicarious learning occur only at the time of start-up (e.g., Zimmerman, 1982; Argote, Beckman, and Epple, 1990; Baum and Ingram, 1998). Thus, while a great deal of interorganizational imitation may occur, decision makers' attention heuristics may undermine its exploratory value for learning new things.

Although the findings generally supported imitation of comparable others, similar-sized chains—large or small—tended instead to avoid one another, a result that we attributed, potentially, to size-localized competition. Competitive relations among firms are a source of ambivalence in learning. Competitors certainly observe each other carefully and learn from each other (Porac et al., 1995; Lant and Baum, 1995), but competition also creates pressures to differentiate (Hawley, 1950; Baum and Haveman, 1997). Thus, even though organizations may learn from their competitors' behavior, they may hesitate to implement what they learn for fear of increasing competition (Greve, 1996). This result raises the more general question of how competition among nursing home chains shaped their acquisition location choices. When making location decisions, chains cannot ignore their competitors. A chain must try to anticipate how competitive relationships will change in the future because of competitors' reactions to its location decisions. Because chains have the potential to stabilize competition through mutual forbearance, their patterns of multimarket contact are of particular significance to competitor-oriented spatial strategy. For this reason, we included the acquiring chain's multimarket contact with other chains in the vicinity of each target as a control in all our models, and the estimates robustly supported Baum and Korn's (1999) ∩-shaped prediction.

Simultaneous operation of experiential and vicarious learning and mutual forbearance seems to contradict bounded-rationality perspectives. Boundedly rational decision makers should have difficulty juggling past, present, and future concerns simultaneously and, consequently, deemphasize future-

oriented strategies in favor of more salient and certain information on past experience and current opportunities (March, 1991; Greve, 2000). Future research identifying factors affecting decision makers' time orientations would thus further enrich our understanding of chains' location behavior. One possibility is that, through experience with multimarket contact, decision makers learn about mutual forbearance and subsequently seek to profit from it by orienting the basis for their location behavior away from past-oriented experiential and vicarious learning processes and toward a future-orientation based on anticipation of competitors' future actions. This suggests that experience with multimarket contact may moderate the strength of local search and momentum.

Subsequent research might thus also seek to identify factors that moderate the tendency of chains and other multiunit organizations to favor spatial and organizational exploitation over exploration. In their study of the geographic dispersion of corporate production, for example, Friedland, Palmer, and Stenbeck (1990) found both industry and organizational influences (e.g., diversification, ownership) on spatial arrangements. While, like our own, some of their findings are consistent with predictions of industrial location theory in economics, others, such as non-family ownership resulting in more geographically dispersed production, demonstrate social influences more akin to the social comparison implied by our trait-based imitation effects. Additional moderating factors might include environmental heterogeneity, uncertainty, and dynamism, as well as complexity and flexibility of organizational operations. Exploitation is implicit in an expansion process in which well-honed routines are replicated in new but operationally familiar locations. Exploration, in contrast, necessitates the ability to adapt, whether to local variability in demand characteristics or strategies of multimarket competitors, within the framework of multiunit expansion.

The fact that our study is limited to acquisitions as a mode of chain expansion may or may not limit its generalizability. Our review of the economic geography literature reveals neither discussion nor substantive empirical evidence of differences in spatial expansion patterns that depend on the mode of expansion (de novo vs. acquisition). This literature does suggest that chains typically specialize in one of these alternative modes to the exclusion of the other, rather than mixing them. Notably, such specialization and exploitation of a particular mode of expansion is consistent with the operation of local search and momentum processes. Thus, the process (or mode) as well as the content of expansion may be subject to experiential learning processes. This possibility raises several questions for further research. If an industry were characterized by equal access to both de novo and acquisition options, would experiential search and momentum lead chains to specialize in the use of either de novo entry or acquisition, thus leading to an industry mix? Would vicarious learning based on comparability focus decision makers' attention on chains adopting the same expansion mode, reinforcing this mix, or would imitation based on visibility tend to move them toward a single expansion approach favored, for example, by the largest chains? Finally, we wonder which of these forces—

local search, momentum, imitation based on comparability or visibility—would predominate if a chain were to make early and apparently effective use of one mode, only to be confronted by many comparable or visible firms using the other?

Taken together, our results suggest that experiential and vicarious learning processes provide a basis for understanding the location of a chain's next acquisition and spatial expansion over time. Our findings provide the first systematic empirical evidence that identifies and disentangles some key organizational and interorganizational determinants of chains' spatial processes, contributing to our understanding of the processes by which chains grow, evolve spatially through acquisitions, and come to dominate an industry. We believe our theoretical account and empirical results provide a rich contribution to our understanding of the evolutionary dynamics of chain organizations, particularly as they are played out across time and space.

REFERENCES

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

Allaway, A. W., J. B. Mason, and W. C. Black
1991 "The dynamics of spatial and temporal diffusion in a retail setting." In A. Ghosh and C. A. Ingene (eds.), Spatial Analysis in Marketing: Theory, Methods and Applications: 159–198. Greenwich, CT: JAI Press.

Amburgey, T. L., D. Kelly, and W. P. Barnett
1993 "Resetting the clock: The dynamics of organizational change and failure." Administrative Science Quarterly, 38: 51–73.

Amburgey T. L., and A. S. Miner
1992 "Strategic momentum: The effects of repetitive, positional, and contextual momentum on merger activity." Strategic Management Journal, 13: 335–348.

Argote, L., S. L. Beckman, and D. Epple
1990 "The persistence and transfer of learning in industrial settings." Management Science, 36: 140–154.

Aspbury, G. F.
1984 "The geography of franchise expansion: An Illinois example." Bulletin of the Illinois Geographical Society, 26 (2): 20–34.

Barnett, W. P.
1993 "Strategic deterrence among multipoint competitors." Industrial and Corporate Change, 2: 249–278.

Baum, J. A. C.
1999 "The rise of chain nursing homes in Ontario, 1971–96." Social Forces, 78: 543–584.

Baum, J. A. C., and H. A. Haveman
1997 "Love thy neighbor? Differentiation and agglomeration in the Manhattan hotel industry, 1898–1990." Administrative Science Quarterly, 42: 304–338.

Baum, J. A. C., and P. Ingram
1998 "Survival-enhancing learning in the Manhattan hotel industry, 1898–1990." Management Science, 44: 996–1016.

Baum, J. A. C., and H. J. Korn
1999 "Dynamics of dyadic competitive interaction." Strategic Management Journal, 20: 251–278.

Baum, J. A. C., and S. J. Mezias
1992 "Localized competition and organizational failure in the Manhattan hotel industry." Administrative Science Quarterly, 37: 580–604.

Baum, J. A. C., and C. Oliver
1991 "Insitutional linkages and organizational mortality." Administrative Science Quarterly, 36: 187–218.

Bird, J., and M. E. Witherwick
1986 "Marks and Spencer: The geography of an image." Geography, 71: 305–319.

Blossfeld, H. P., and G. Rohwer
1995 Techniques of Event History Modeling: New Approaches to Causal Analysis. Mahwah, NJ: Erlbaum.

Boeker, W., J. Goodstein, J. Stephan, and J. P. Murmann
1997 "Competition in a multimarket environment." Organization Science, 8: 126–142.

Bradach, J. L.
1997 "Using the plural form in the management of restaurant chains." Administrative Science Quarterly, 42: 276–303.

Burns, L. R., and D. R. Wholey
1993 "Adoption and abandonment of matrix management programs: Effects of organizational characteristics and interorganizational networks." Academy of Management Journal, 36: 106–138.

Chang, S. J.
1995 "International expansion strategy of Japanese firms: Capability building through sequential entry." Academy of Management Journal, 38: 383–407.

Christensen, C. M., and J. L. Bower
1996 "Customer power, strategic investment, and the failure of leading firms." Strategic Management Journal, 17: 197–218.

Cotterill, R. W., and L. E. Haller
1992 "Barrier and queue effects: A study of leading U.S. supermarket chain entry patterns." Journal of Industrial Economics, 40: 427–440.

Cyert, R. M., and J. G. March
1963 A Behavioral Theory of the Firm. Englewood Cliffs, NJ: Prentice-Hall.

Darr, E. D., L. Argote, and D. Epple
1995 "The acquisition, transfer and depreciation of knowledge in service organizations: Productivity in franchises." Management Science, 42: 1750–1762.

Dawson, J. A.
1984 "Structural-spatial relationships in the spread of hypermarket retailing." In E. Kaynak and R. Savitt (eds.), Comparative Marketing Systems: 156–182. New York: Praeger.

DiMaggio, P. J., and W. W. Powell
1983 "The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields." American Sociological Review, 48: 148–160.

Durvasula, S., S. Sharma, and J. C. Andrews
1992 "STORELOC: A retail store location model based on managerial judgments." Journal of Retailing, 68: 420–444.

Fiegenbaum, A., and H. Thomas
1995 "Strategic groups as reference groups: Theory, modeling and empirical examination of industry and competitive strategy." Strategic Management Journal, 16: 461–476.

Friedland, R., D. Palmer, and M. Stenbeck
1990 "The geography of corporate production: Urban, industrial, and organizational systems." Sociological Forum, 5: 335–359.

Ginsberg, A., and J. A. C. Baum
1994 "Evolutionary processes and patterns of core business change." In J. A. C. Baum and J. V. Singh (eds.), Evolutionary Dynamics of Organizations: 127–151. New York: Oxford University Press.

Graff, T. O., and D. Ashton
1994 "Spatial diffusion of Wal-Mart: Contagious and reverse hierarchical elements." Professional Geographer, 46: 19–29.

Greve, H. R.
1995 "Jumping ship: The diffusion of strategy abandonment." Administrative Science Quarterly, 40: 444–473.

1996 "Patterns of market competition: The diffusion of a market position in radio broadcasting." Administrative Science Quarterly, 41: 29–60.
1998 "Managerial cognition and the mimetic adoption of market positions: What you see is what you do." Strategic Management Journal, 19: 967–988.
2000 "Organizational location decisions: Competition, learning, and strategy in Tokyo banking, 1894–1936." Academy of Management Journal, 43: 816–836.

Gulati, R.
1995 "Social structure and alliance formation patterns: A longitudinal analysis." Administrative Science Quarterly, 40: 619–652.

Gulati, R., and M. Gargiulo
1999 "Where do interorganizational networks come from?" American Journal of Sociology, 104: 1439–1493.

Han, S. K.
1994 "Mimetic isomorphism and its effects on the auditor services market." Social Forces, 73: 637–664.

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

Hannan, M. T., and J. Freeman
1977 "The population ecology of organizations." American Journal of Sociology, 83: 929–984.

Haunschild, P. R., and A. S. Miner
1997 "Modes of interorganizational imitation: The effects of outcome salience and uncertainty." Administrative Science Quarterly, 42: 472–500.

Haveman, H. A.
1993 "Follow the leader: Mimetic isomorphism and entry into new markets." Administrative Science Quarterly, 38: 593–627.

Hawley, A. H.
1950 "Human Ecology: A Theory of Community Structure. New York: Ronald Press.

Hedberg, B. L. T., P. C. Nystrom, and W. H. Starbuck
1976 "Camping on seesaws: Prescriptions for a self-designing organization." Administrative Science Quarterly, 21: 41–65.

Hedstrom, P.
1994 "Contagious collectivities: On the spatial diffusion of Swedish trade unions." American Journal of Sociology, 99: 1157–1179.

Hoem, J. M.
1985 "Weighting, misclassification and other issues in the analysis of survey samples of life histories." In J. Heckman and B. Singer (eds.), Longitudinal Analysis of Labor Market Data: 249–293. New York: Cambridge University Press.

Ingram, P.
1996a The Rise of Hotel Chains in the United States, 1896–1980. New York: Garland.
1996b "Organizational form as a solution to the problem of credible commitment: The evolution of naming strategies among U.S. hotel chains, 1896–1980." Strategic Management Journal, 17 (Summer Special Issue): 85–98.

Ingram, P., and J. A. C. Baum
1997a "Chain affiliation and the failure of Manhattan hotels, 1898–1980." Administrative Science Quarterly, 42: 68–102.
1997b "Opportunity and constraint: Organizations' learning from the operating and competitive experience of industries." Strategic Management Journal, 18 (Summer Special Issue): 75–98.
2001 "Interorganizational learning and the dynamics of chain relationships. In J. A. C. Baum and H. R. Greve (eds.), Multiunit Organization and Multimarket Strategy: Advances in Strategic Management, vol. 18. Oxford, UK: JAI Press (forthcoming).

Kahneman, D., and A. Tversky
1979 "Prospect theory: An analysis of decision under risk." Econometrica, 47: 263–291.

Kelly, D., and T. L. Amburgey
1991 "Organizational inertia and momentum: A dynamic model of strategic change." Academy of Management Journal, 34: 591–612.

Kennedy, P.
1992 A Guide to Econometric Methods, 3rd ed. Cambridge, MA: MIT Press.

Korn, H. J., and J. A. C. Baum
1999 "Chance, imitative and strategic antecedents to multimarket contact." Academy of Management Journal, 42: 171–193.

Lant, T. K., and J. A. C. Baum
1995 "Cognitive sources of socially constructed competitive groups." In W. R. Scott and S. Christensen (eds.), The Institutional Construction of Organizations: 31–47. Thousand Oaks, CA: Sage.

Laulajainen, R.
1987 Spatial Strategies in Retailing. Boston: Reidel.
1990 "Defense by expansion: The case of Marshall Field." Professional Geographer, 42: 277–288.

Laulajainen, R., and L. E. Gadde
1986 "Locational avoidance: A case study of three Swedish retail chains." Regional Studies, 20: 131–140.

Levinthal, D. A., and J. G. March
1993 "The myopia of learning." Strategic Management Journal, 14: 94–112.

Levitt, B., and J. G. March
1988 "Organizational learning." In Annual Review of Sociology, 14: 319–340. Palo Alto, CA: Annual Reviews.

Light, D. W.
1986 "Corporate medicine for profit." Scientific American, 225: 38–45.

Lincoln, J. R.
1984 "Analyzing relations in dyads." Sociological Methods and Research, 13: 45–76.

Lindblom, C. E.
1959 "The science of muddling through." Public Administration Review, 19: 79–88.

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

Lord, J. D.
1985 "The malling of the American landscape." In J. A. Dawson and J. D. Lord (eds.), Shopping Centre Development: Policies and Prospects: 209–225. London: Croom Helm.

Lord, J. D., and D. B. Wright
1981 "Competition and location strategy in branch banking: Spatial avoidance or clustering." Urban Geography, 2: 189–200.

March, J. G.
1991 "Exploration and exploitation in organizational learning." Organization Science, 2: 71–87.

March, J. G., and H. A. Simon
1958 Organizations. New York: Wiley.

Markides, C. C.
1992 "Consequences of corporate refocusing: Ex ante evidence." Academy of Management Journal, 35: 398–412.

McKelvey, B.
1982 Organizational Systematics. Berkeley, CA: University of California Press.

Mester, L. J.
1987 "Multiple market contact between savings and loans." Journal of Money, Credit and Banking, 19: 538–549.

Miller, D.
1993 "The architecture of simplicity." Academy of Management Review, 18: 116–138.

Miller, D., and P. H. Friesen
1980 "Momentum and revolution in organizational adaptation." Academy of Management Journal, 4: 591–614.

Miner, A. S., and P. R. Haunschild
1995 "Population level learning." In B. M. Staw and L. L. Cummings (eds.), Research in Organizational Behavior, 17: 115–166. Stamford, CT: JAI Press.

Mitchell, W., J. M. Shaver, and B. Yeung
1994 "Foreign entrant survival and foreign market share: Canadian companies' experience in United States medical sector markets." Strategic Management Journal, 15: 555–567.

Moulaert, F., and C. Gallouj
1993 "The locational geography of advanced producer service firms." Service Industries Journal, 13: 91–106.

Nelson, R. R., and S. G. Winter
1982 An Evolutionary Theory of Economic Change. Cambridge, MA: Harvard University Press.

Noda, T., and J. L. Bower
1996 "Strategy making as an iterated process of resource allocation." Strategic Management Journal, 17 (Summer Special Issue): 159–192.

Palmer, D. A., P. D. Jennings, and X. Zhou
1993 "Late adoption of multidivisional form by large U.S. corporations: Institutional, political and economic accounts." Administrative Science Quarterly, 38: 100–131.

Phibbs, C. S., and J. C. Robinson
1993 "A variable-radius measure of local hospital market structure." Health Services Research, 28: 313–324.

Porac, J. F., H. Thomas, F. Wilson, D. Paton, and A. Kanfer
1995 "Rivalry and the industry model of Scottish knitwear producers." Administrative Science Quarterly, 40: 203–227.

Rohwer, G.
1995 TDA (Transitional Data Analysis) 5.7. Florence: European University Institute.

Scott, J. T.
1982 "Multimarket contact and economic performance." Review of Economics and Statistics, 64: 368–375.

Sparks, L.
1990 "Spatial structural relationships in retail corporate growth: A case study of Kwik Save Group PLC." Service Industries Journal, 10: 25–84.

Starbuck, W. H.
1983 "Organizations as action generators." American Sociological Review, 48: 91–102.

Stuart, T. E., and J. M. Podolny
1996 "Local search and the evolution of technological capabilities." Strategic Management Journal, 17 (Summer Special Issue): 21–38.

Succi, M. J., S. Y. D. Lee, and J. A. Alexander
1997 "Effects of market position and competition on rural hospital closures." Health Services Research, 31: 679–699.

Tarman, V. I.
1990 Privitization and Health Care: The Case of Ontario Nursing Homes. Toronto: Garamond Press.

Usher, J. M.
1995 "Location, location, location: The spatial context of organizations." In N. Phillips (ed.), Proceedings of the Annual Conference of the Administrative Science Association of Canada, 16 (13): 129–138.

1999 "Specialists, generalists and polymorphs: Spatial advantages of multiunit organization in a single industry." Academy of Management Review, 24: 143–150.

Watts, H. D.
1975 "The market area of a firm." In L. Collins and D. F. Walker (eds.), Locational Dynamics of Manufacturing Activity: 357–383. New York: Wiley.

Whinston, M. D., and S. C. Collins
1992 "Entry and competitive structure in deregulated airline markets: An event study analysis of Peoples Express." RAND Journal of Economics, 23: 445–462.

Zander, U., and B. Kogut
1995 "Knowledge and the speed of transfer and imitation of organizational capabilities." Organization Science, 6: 76–92.

Zimmerman, M. B.
1982 "Learning effects and the commercialization of new energy technologies: The case of nuclear power." Bell Journal of Economics, 13: 297–310.

APPENDIX A: Calculation of Multimarket Competition

Consider the following tabular example computation of our multimarket contact variable for a given target, i. In this example, chain j has five components (i.e., K = 5) and there are four chains operating in all (i.e., H − 1 = 3). Column 1 in table A.1 shows the minimum Euclidean distance between the K components of chain j and the L components of chain h1 (rows 1–5), the average minimum distance between the components of chains j and h1 (row 6), the minimum distance between the target i and the components of chain h1 (row 7), and the weighted pairwise multimarket contact score (row 8). Columns 2 and 3 repeat this information for chains h2 and h3. A comparison of rows 6–8 of columns 1–3 reveals that chain h2 has the greatest extent of multimarket contact with chain j (column 2, row 6) but, because of its greater proximity to target i, chain h3 has the smallest weighted average minimum distance to chain j with respect to target i (column 3, row 8). Column 4 (row 8) sums and averages the weighted pairwise j-h scores over all three other chains to compute an overall multimarket contact score for chain j. This distance, 4.93, is the value of chain j's multimarket contact with respect to target i. The smaller this score, the greater the multimarket contact between chain j and its competitors (with respect to target i). Although averaging over chain j's number of components plays no obvious role in this example, it provides a standard metric or scale for computing multimarket contact across chains with different numbers of components, which is vital to measuring multimarket contact (e.g., Scott, 1982; Mester, 1987).

Table A.1

Chain j	1 $Min(ED_{kl})$ Chain h1	2 $Min(ED_{kl})$ Chain h2	3 $Min(ED_{kl})$ Chain h3	4 $1/(H-1)\Sigma_h$
1 Component k1	1	1	3	
2 Component k2	2	2	2	
3 Component k3	3	3	1	
4 Component k4	4	2	2	
5 Component k5	5	1	3	
6 $1/K \Sigma_k[Min(ED_{kl})]$	15/5 = 3	9/5 = 1.8	11/5 = 2.2	
7 $Min(ED_{il})$	3	2	1	
8 $Min(ED_{il}) \times 1/K \Sigma_k[Min(ED_{kl})]$	3 x 3 = 9	2 x 1.8 = 3.6	1 x 2.2 = 2.2	(9+3.6+2.2)/3 = 4.93

APPENDIX B

Table B.1

Means, Standard Deviations, and Bivariate Correlations for Theoretical Variables*

Target i Variables	Mean	S. D.	1	2	3	4	5	6	7	8
1. H1a: Distance from chain j's last acquisition	2.89	3.13								
2. H1b: Distance from chain j's nearest acquisition	1.65	2.69	-.01							
3. H1c: Distance from chain j's current components	15.98	32.09	.49	-.04						
4. H2a-1: Size similarity to j's last acquisition	63.3	56.83	.00	-.03	.06					
5. H2a-2: Latitude similarity to j's last acquisition	1.2	1.25	.40	-.02	.14	.01				
6. H2a-3: Distance similarity to j's last acquisition†	1.6	2.62	.49	.02	.22	-.02				
7. H2b-1: Size similarity to j's nearest acquisition	61.27	55.12	.00	-.04	.05	.27	.22			
8. H2b-2: Latitude similarity to j's nearest acquisition	.83	1.16	.27	.23	.18	-.04	.56	.34	-.02	
9. H2b-3: Distance similarity to j's nearest acquisition†	1.4	2.54	.38	.25	.23	-.02	.23	.53	-.01	.26
10. H2c-1: Size similarity to j's current components	529.8	736.48	.06	-.05	.31	.26	.05	-.05	.21	-.11
11. H2c-2: Latitude similarity to j's current components	10.51	16.9	.30	-.04	.47	.13	.28	.09	.09	.19
12. H2c-3: Distance similarity to j's current components†	10.46	25.42	.47	-.02	.43	.04	.20	.29	.03	.13
13. H3a: Distance to large chains' last acquisitions	.01	.01	.41	-.01	.24	-.02	.30	.54	-.03	.25
14. H3b: Distance to large chains' nearest acquisitions	.01	.01	.50	.00	.27	-.03	.29	.47	-.04	.17
15. H3c: Distance to large chains' current components	.01	.01	.43	-.02	.39	-.02	.30	.71	-.03	.26
16. H4a-1: Distance to similar size chains' last acquisitions ‡	1798.1	1520.9	.61	.01	.28	-.05	.17	.55	-.03	.16
17. H4a-2: Distance to similar component size chains' last acquisitions	341.9	322.94	.46	-.01	.26	-.01	.16	.46	-.03	.24
18. H4a-3: Distance to similar compactness chains' last acquisitions†	6.14	7.42	.44	-.04	.23	-.01	.24	.41	-.04	.29
19. H4a-4: Distance to similar latitude chains' last acquisitions	3.01	2.79	.47	.00	.25	-.03	.27	.46	-.04	.20
20. H4b-1: Distance to similar size chains' nearest acquisitions	1149.8	2590.4	.36	-.01	.30	.10	.17	.42	-.01	-.01
21. H4b-2: Distance to similar component size chains' nearest acquisitions	98.69	157.24	.54	.00	.20	.04	.14	.59	.00	.00
22. H4b-3: Distance to similar compactness chains' nearest acquisitions†	2.07	3.22	.35	.02	.12	-.05	.25	.51	.01	.01
23. H4b-4: Distance to similar latitude chains' nearest acquisitions	2.2	2.52	.47	.00	.15	-.04	.19	.48	.00	.00
24. H4c-1: Distance to similar size chains' current components	1711	1447	.47	.01	.20	-.05	.16	.61	-.06	.25
25. H4c-2: Distance to similar component size chains' current components†	334.42	290.03	.43	.00	.30	-.02	.29	.49	-.05	.23
26. H4c-3: Distance to similar compactness chains' current components†	5.75	5.34	.57	-.01	.32	-.01	.23	.48	-.03	.27
27. H4c-3: Distance to similar latitude chains' current components	3.17	2.88	.44	.00	.23	-.03	.24	.34	-.04	.23

Target i Variables	9	10	11	12	13	14	15	16	17	18
10. H2c-1: Size similarity to j's current components	-.09									
11. H2c-2: Latitude similarity to j's current components†	.07	.34								
12. H2c-3: Distance similarity to j's current components	.41	.20	.23							
13. H3a: Distance to large chains' last acquisitions	.46	.01	.12	.31						
14. H3b: Distance to large chains' nearest acquisitions	.38	.00	.15	.48	.79					
15. H3c: Distance to large chains' current components	.37	.01	.19	.35	.55	.43				
16. H4a-1: Distance to similar size chains' last acquisitions ‡	.48	-.02	.09	.43	.68	.74	.55			
17. H4a-2: Distance to similar component size chains' last acquisitions	.54	.00	.19	.47	.62	.48	.77	.70		
18. H4a-3: Distance to similar compactness chains' last acquisitions†	.40	.03	.12	.26	.52	.44	.59	.64	.56	

Table B.1 (Continued)

Target i Variables	9	10	11	12	13	14	15	16	17	18
19. H4a-4: Distance to similar latitude chains' last acquisitions	.47	-.04	.06	.31	.55	.54	.38	.39	.51	.32
20. H4b-1: Distance to similar size chains' nearest acquisitions	-.05	.26	.24	.44	.44	.36	.42	.32	.29	.35
21. H4b-2: Distance to similar component size chains' nearest acquisitions†	.05	.07	.13	.40	.74	.49	.70	.43	.58	.66
22. H4b-3: Distance to similar compactness chains' nearest acquisitions†	.03	-.05	.14	.32	.54	.41	.49	.39	.66	.45
23. H4b-4: Distance to similar latitude chains' nearest acquisitions	.02	-.06	.11	.31	.36	.31	.52	.29	.57	.38
24. H4c-1: Distance to similar size chains' current components	.48	-.05	.12	.30	.62	.62	.61	.54	.56	.45
25. H4c-2: Distance to similar component size chains' current components†	.46	.00	.17	.30	.62	.54	.68	.71	.58	.37
26. H4c-3: Distance to similar compactness chains' current components†	.56	.03	.20	.53	.56	.45	.52	.50	.69	.60
27. H4c-3: Distance to similar latitude chains' current components	.57	-.04	.05	.25	.58	.59	.36	.49	.45	.27

Target i Variables	19	20	21	22	23	24	25	26
20. H4b-1: Distance to similar size chains' nearest acquisitions	.42							
21. H4b-2: Distance to similar component size chains' nearest acquisitions†	.54	.71						
22. H4b-3: Distance to similar compactness chains' nearest acquisitions†	.48	.46	.65					
23. H4b-4: Distance to similar latitude chains' nearest acquisitions	.61	.33	.53	.40				
24. H4c-1: Distance to similar size chains' current components	.57	.49	.63	.47	.46			
25. H4c-2: Distance to similar component size chains' current components†	.51	.45	.65	.66	.51	.73		
26. H4c-3: Distance to similar compactness chains' current components†	.30	.33	.47	.45	.39	.43	.59	
27. H4c-3: Distance to similar latitude chains' current components	.52	.37	.45	.52	.46	.45	.48	.35

* The sample included 60,746 target-acquirer observations except when otherwise noted.
† Sample included 56,055 target-acquirer observations.
‡ For H4a–H4c, similarity is relative to acquiring chain j.

Table B.2

Descriptive Statistics for Control Variables*

Variable	Mean	S. D.	Min.	Max.
Age (In months)	4.99	6.08	0.00	10.07
Number of beds (In)	4.40	4.14	0.00	5.91
Component	0.27	0.44	0.00	1.00
Latitude	44.12	1.35	42.02	54.00
Replacement facility	0.23	0.42	0.00	1.00
ONHA member	0.81	0.39	0.00	1.00
ECC/ACC status	0.34	0.47	0.00	1.00
Left-censored	0.38	0.46	0.00	1.00
Target i's distance from other chains relative to chain j	0.86	0.45	0.04	4.14
Target i's distance from chain j's multimarket competitors	1.53	0.61	0.65	4.59
Time since chain j's last acquisition (In months)	6.08	6.79	0.00	8.84
Time since chain j's acquisition nearest to target i (In months)	6.88	7.42	0.00	9.08
Provincial budget (In 1986 C$)	19.99	19.37	0.00	21.14
Extended Care per diem (1986 C$)	28.86	3.33	0.00	35.66
Target i local population density > 65	49.68	116.89	0.00	702.20
Target i distance from other chains' last acquisitions	2.98	2.65	0.73	39.68
Target i distance from other chains' nearest acquisitions	1.87	2.47	0.46	37.74
Target i distance from other chains' current components	20.33	12.82	11.76	226.48
Target i distance from independents	48.55	71.05	12.96	2469.23
Number of prior chain acquisitions	86.08	48.87	1.00	170.00
Calendar time (In months)	5.01	4.22	0.00	5.70

* The sample included 60,746 target-acquirer observations.