We appreciate suggestions from Nick Argyres, Glenn Carroll, Jay Kim, Anne Miner, and Rob Salomon.
A key question for organizational learning research is to determine conditions under which firms can or cannot gain information from the activities and performance of other firms and then use what they learn to guide their own strategic choices. We argue that vicarious information contained in outlet-level ownership transfers and in contemporaneous entries and exits of other firms affects the decision of entrepreneurs of whether to enter the market with new independent outlets. Further, we hypothesize that the geographical distance between a focal firm’s headquarters and a potential market will reduce the amount of vicarious information available to potential entrants. We find that more new independent outlets are founded in a market following larger numbers of ownership transfers and more contemporaneous entries and exits of independent outlets in the same market. We also find that the presence of contemporaneous exits and entries in a market increases the entry of new proximately headquartered independent outlets more than entry of distantly headquartered outlets. The results suggest that ownership transfers, outlet exits, and outlet entries generate substantial vicarious information used by entrepreneurs in making their initial entry decision.
VICARIOUS INFORMATION, PROXIMITY, AND ENTRY OF INDEPENDENT OUTLETS IN SPATIALLY DISPERSED INDUSTRIES

Recent research in strategy, economics, and organizational theory has explored many aspects of the nature, sources, and effects of organizational learning (Argote, 1999). Many studies suggest that much of what a firm learns derives from its own experience (March, 1991; Levinthal and March, 1993). Yet, organizational research has long recognized that firms adapt by observing and imitating others’ strategies (e.g., Alchian, 1950) and increasingly argues that firms learn from others (Miner and Haunschild, 1995; Henderson and Cockburn, 1996). Information from others has been shown to alter firms’ routines (Miner, Kim, Holzinger, and Haunschild, 1999) and influence their performance (Ingram and Baum, 1997). Kim and Miner (2001) argue that activities of individual firms can be viewed as experiments from the point of view of the industry as a whole. Other firms can link these experiments with observed performance and decide whether to mimic or avoid the activities. Following research that refers to gathering and using information from other firms’ experience as vicarious learning (e.g., Huber, 1991; Dodgson, 1993), we refer to information regarding the activities and performance of other firms as vicarious information.

We emphasize two research questions. The first question is to determine phenomena from which firms can gain vicarious information about the activities and performance of other firms and then use the information to guide their own strategy. In this paper, we posit that substantial vicarious information embeds in two forms of activities: (1) business outlet ownership transfers and (2) contemporaneous market exits and entries, which we refer to as contemporaneous exit-entry pairs. The vicarious information will influence entrepreneurs’ decisions to enter a geographic product market with a new independent outlet. Business outlets are specific sales locations. Consistent with previous work in
organization theory (e.g., Ingram and Baum, 1997), independent outlets are single-outlet firms, that is, outlets with owners that have no pre-existing outlets. Outlet ownership transfers are cases in which new owners undertake operation of an existing business, while a contemporaneous exit-entry pair arises when one outlet leaves a market and another outlet enters the market during the same period.

Our perspective on this question builds on research in organizational theory and economics. Population ecology has investigated the effects of exits and entries on subsequent entry rates (Carroll and Hannan, 2000: 213 – 260 provide an extensive review). A small body of work in economics, meanwhile, examines how ownership transfers affect entry, focusing on the effect of acquisitions on market concentration (e.g., Werden and Froeb, 1998). Ownership transfers and contemporaneous exits and entries provide appealing instruments for this study because they isolate the effects of vicarious information from other mechanisms through which ecologists and economists argue that entries and exits influence subsequent business entries, such as signaling demand sufficiency or indicating changes in the availability of resources and market power.

The second research question arises in the need to deepen our understanding of factors that constrain vicarious learning. An increasing body of literature suggests that firms sometimes do not take advantage of vicarious information. For example, Argote, Beckman, and Epple (1990) find that firms use vicarious information primarily at founding, possibly because knowledge of others is most easily embedded in start-up activities or because internal experience is less costly to obtain once it is acquired. We propose that geographic distance also constrains vicarious information. Geographical distance often will alter the cost of obtaining vicarious information and, in turn, influence firm’s entry decisions. Past studies show that distance inhibits information transfer between subsidiaries (Adams and Jaffe, 1996) and between firms (Almeida and Kogut, 1999; Jaffe, Trajtenberg, and Henderson, 1993). More recent
studies show that distance plays a major role in circumscribing the set of expansion choices. Baum, Li, and Usher (2000) and Brickley and Dark (1987), for example, find that firms’ acquisitions and new outlets, respectively, remain relatively close to their existing locations and headquarters. By implication, these studies suggest that limitations of learning about routines and concern about monitoring may inhibit the entry choices of firms to locations that are proximate to existing operations.

We develop two sets of hypotheses. First, we consider how vicarious information contained in the outlet-level ownership transfers and contemporaneous exit-entry pairs in a market influences subsequent entry rates into that market. Second, we hypothesize that entry rates of outlets of proximately headquartered firms will be more responsive to vicarious information than those of distantly headquartered firms. We test the hypotheses by analyzing the entry rates of independent outlets in three industries in Texas: drug stores, pizza restaurants and video rental outlets. From the beginning of 1992 through the end of 1999, 2,519 new independent outlets entered markets in Texas in these three industries.

BACKGROUND, THEORY AND HYPOTHESES

Ownership Transfers

As we noted above, ownership transfers are cases in which new owners undertake operation of existing businesses. Ownership transfers provide two types of vicarious information to potential entrants. First, recent ownership transfers indicate that some other person has assessed a market and found it potentially profitable. Second, transfers provide information about what strategies have worked and not worked in a market. New entrants may use the changes in strategy that new owners of existing units have undertaken as a guide to their own entry strategies or, alternatively, may set out with their own new strategies.
We are particularly interested in ownership transfers that involve changes in the name of the business. Name changes commonly arise when the original business was struggling and typically involve changes in strategy of the outlet. The fact that an outlet was struggling provides information to potential entrants. In some cases, the information may simply be that the market is not large enough to support entry. In many cases, though, the struggles provide information that can help other firms avoid ineffective strategies and offer hints about new choices of strategies (Miner, et al., 1999). Information concerning failure of other firms may be salient in the same way that failure is for individuals. For example, Sitkin (1992) argued that the dissatisfaction of individuals with their performance may lead to increased processing of information about potential problems, and encourage searching for new strategies and methods. We argue that failures in a market will not only help existing firms learn, as Miner, et al. (1999) argue, but will also attract others to that market because potential entrants will gain a sense of what strategic choices and routines to avoid in that market.

Potential entrants can learn vicariously from ownership transfers. For example, an ownership transfer at one particular location within a geographic market may suggest to potential entrants that they avoid building outlets with a particular type of décor. Alternatively, a transfer of an outlet with high-priced differentiated products could indicate that a cost leadership strategy may be more appropriate at a given location. Moreover, particular routines at an outlet may be inappropriate at a location. Restaurants with routines in place for fast service may not do well in particular areas where the customers are not particularly time-sensitive. For reasons such as these, business development associations that advise site-seeking entrepreneurs encourage them to find out why businesses previously in the area have failed (e.g., Gingerich, not dated).
Business exits, without ownership transfer, also provide vicarious information about strategic problems. At the same time, though, exits offer other incentives and signals to potential entrants. Carroll and Delacroix (1983), for example, argue that exits produce two opposing forces on subsequent entry: freeing resources and signaling insufficient demand. First, exits allow resources such as customers and specialized workers to become available for new organizations. Second, exits also provide a signal of the “noxious countervailing force” of insufficient demand in the environment (Carroll and Delacroix, 1983: 279). Resource availability should attract potential entrants, as should vicarious learning opportunities, while signals of insufficient demand should repel potential entrants. Thus, it is difficult to separate the effects of vicarious learning on firm entry from these other effects based on an observation of only firm exits.

By contrast, examining ownership transfers allows us to focus more directly on how vicarious information affects entry decisions, because transfers do not provide incentives and signals other than vicarious information. First, an ownership transfer does not free any resources. The new owner of the transferred outlet is likely to retain a large majority of the valuable resources that the previous owner possessed. In addition, the signals regarding sufficiency of demand also cancel out. That is, one owner has left the market, possibly because it believed that demand is insufficient, but another owner has replaced this owner and clearly the new owner would not have entered had they not believed that demand is sufficient. Thus, vicarious information is left as the one clear incentive associated with ownership transfers that may encourage additional entrants into a new market.

As we noted above, we focus on ownership transfers that involve name changes to the business outlet. Ownership transfers of outlets that retain the original name provide much less vicarious information. Some outlets will be sold because owners simply wish to retire or change their lifestyle. In
such cases, it is likely that the business was doing well before the sale and that the new owner will maintain the strategies and operational routines of the previous owner. Further, the retention of the business name is a strong signal to customers that the products or services will be the same. In fact, the new owner that keeps the name often even pays a goodwill premium for the name of the business beyond the value of the physical property and equipment, specifically because a group of customers values the name and its associated products, strategies, and routines (see, e.g., Tadelis, 1999). In this case, while some vicarious information might be available to potential entrants, this information is largely equivalent to the information that arises when an existing outlet continues to operate under the same ownership. Both cases signal that certain strategies and routines must be reasonably effective in a particular market.

Thus, potential entrants are likely to learn much more from ownership transfers involving name changes, which typically indicate that the first owner was struggling. In this case, the potential entrant can observe the strategies and routines of the new owner and compare how they differ from those of the exiting owner. Our argument here is similar to Kim (2000), who argued that near-failure experiences contain more vicarious information than outright failures. Near-failures contain information not only about routines or strategies that do not suit a particular market, but also about the potentially viable strategies that new owners initiated following the transfer.

The argument so far suggests that ownership transfers involving name changes provide substantial vicarious information that may induce subsequent entry. Such transfers provide greater information than arises when businesses simply change hands but continue to operate with their original name, and also lack confounding signals regarding market demand and resource availability that arise.
with business exits. Because of the availability of vicarious information, entry rates will tend to increase in a market following ownership transfers that involve business name changes.

**Hypothesis 1a:** The greater the number of ownership transfers with associated business name changes that occur in a market, the higher the entry rate of new independent outlets into that market during the subsequent period.

Nonetheless, some potential entrants will not be able to take advantage of vicarious information. In particular, we argue that distance alters the ability of potential entrants to gain access to the vicarious information embedded in the ownership transfers. Owners typically possess superior information about the areas around their firms’ headquarters. For example, they are able to directly and repeatedly observe the routines and strategies of other outlets, both before and after transfers have taken place. By contrast, potential entrants with headquarters distant to a given market will be less likely to learn vicariously. Distant entrepreneurs are more likely to obtain only an occasional snapshot of the activities and performance of outlets and aggregate trends in that market. Because distant firms may rely on secondary sources available at their headquarters location to determine that ownership transfers have taken place, they are unlikely to know, for example, that a particular outlet before transfer was not performing adequately because they had chosen a misguided differentiation strategy. As a result, they are unable to learn vicariously from the transfer, even if they know that the transfer occurred. Moreover, distantly owned independent firms may be unaware of the ownership transfer events altogether.

Local owners also benefit from the social capital that business and civic organizations create near their headquarters, where the owners often reside (Coleman, 1988). By participating in community organizations, local owners can find out about current and past strategies and routines of other owners’ outlets in the same line of business. Further, Barringer and Greening (1998) present case study evidence that local communities treat entrepreneurs who locate outlets distantly from their home areas as
outsiders and denied them patronage and information that would have helped them succeed. For these reasons, distant owners often lack scanning ability and social ties to gain and learn from local vicarious information.

**Hypothesis 1b:** The number of ownership transfers with name changes that occur in a market will have a greater impact on the entry rate of outlets with proximate headquarters than the entry rate of distantly-headquartered outlets.

**Contemporaneous Entries and Exits Within a Market**

Like ownership transfers, outlet-level entries and exits contain vicarious information about strategies and routines that may be useful for potential entrants. A new outlet’s routines and strategies may be particularly worthy of imitation, while firms will commonly want to avoid the routines and strategies of a failed outlet. At the same time, though, as we noted above, entries and exits also produce confounding effects beyond vicarious information. Entries reduce available resources but signal the viability of a market area, while exits free resources but also signal insufficient demand.

Because of the confounding factors of resource availability and demand insufficiency, analyzing entries and exits separately does not allow one to focus on the effects of vicarious learning. By contrast, one can eliminate the confounding factors by examining contemporaneous pairs of entries and exits. A contemporaneous exit-entry pair arises when one outlet leaves a market and another outlet enters the market during the same period. For example, if an outlet-level exit and entry takes place in the same market in the same period (even if not at the same location, as in the case of an ownership transfer), the transactions will free few resources for additional new entrants. Instead, the entry is likely to consume the resources that the exited outlet frees. Similarly, the entry will tend to cancel any signal of insufficient demand sent by the exiting firm, because the entry signals another owner’s belief in the viability of a market area.
More so than cases of exit or entry alone, contemporaneous exit-entry pairs allow entrepreneurs contemplating entry the opportunity to learn vicariously. Some potential entrants can observe the strategies and routines of the outlet that exits, and associate them with the failure of the outlet, while associating the strategies and routines of the new outlet with another firm’s assessment of successful strategies. Using Kim and Miner’s (2001) analogy, the combination of an exit and an entry allows the observer to view not only the germs and symptoms, but also a potential vaccine. We hypothesize that potential entrants will use these learning opportunities and be more likely to enter markets with large numbers of contemporaneous exit-entry pairs. Once again, we argue that geographical distance will moderate firms’ ability to collect and interpret the vicarious information.

**Hypothesis 2a:** The greater the number of contemporaneous exit-entry pairs that occur in a market, the higher the outlet-level entry rate in the market during the subsequent period.

**Hypothesis 2b:** The number of contemporaneous exit-entry pairs that occur in a market will have a greater impact on the entry rate of outlets with proximate headquarters than the entry rate of distantly-headquartered outlets.

**EMPIRICAL RESEARCH DESIGN**

**Data**

We focus on the entry decisions made by firms within three industries in Texas between 1992 and 1999: drug stores, pizza restaurants, and video rental outlets. We focus on Texas because the State Comptroller’s Office provides detailed entry and exit data at the business outlet level, including address, business name, owner name and address, and entry and exit date. The state provided data beginning in January 1990. Because we need two years of exit and entry data preceding each entry to test our hypotheses, we begin with entries in January 1992. To our knowledge, Texas is the only state that makes such detailed business data available. Many states do not provide data because of confidentiality, while some states (e.g., California) provide information only about existing outlets without detailing entry
or exit dates. Fortunately, Texas is a large and varied state so that it represents types of locations that exist throughout the U.S. (e.g., urban, rural, major highways, and coastal resorts) and our results are likely to generalize to other North American markets.

We analyze only the initial entries of independent outlets. Independent outlets typically make their entry decisions without the standardized routines of chains (Barringer and Greening, 1998) and thus may particularly value the opportunity to learn vicariously. In addition, some chains make many entry decisions simultaneously, implying statistical non-independence. As a separate entrepreneur undertakes each entry in our sample, we can be sure that each entry is an independent decision.

At the same time, however, we do include chain outlet-level events within the same industry as control variables, for several reasons. Chain firms’ entries, exits, and ownership transfers also are likely to provide relevant vicarious information. Further, some degree of competition and niche overlap between chains and independents is plausible in these three industries. Assuming some overlap of demand between independents and chain outlets, theoretical arguments suggest that independents may imitate market entries of large, visible firms (Haveman, 1993; Haunschild and Miner, 1997), and so may follow chain outlets into markets. On the other hand, work on resource partitioning (Carroll, Dobrev, and Swaminathan, 2002) suggests that independents (often specialists) may locate in niches, such as particular geographical markets, that chains (generalists) tend to avoid. Because of these possible relationships between chain dynamics and entry of independent outlets, we record the number of ownership transfers and contemporaneous exit-entry pairs of chain-affiliated outlets. Because we do not know whether imitation or partitioning influences dominate in these three industries, we leave the presence or absence of the effects of chain dynamics on independent entries as an empirical question.
Variable Definitions

Our unit of analysis is the industry/zip code/year. We created eight observations, one for each year from 1992 through 1999, for each of the three industries for each zip code where at least one outlet of the given industry existed at some point during the study period. The dependent variables are the entry rates of proximately and distantly headquartered independent outlets. An entry entails the founding of a new firm, because the owner of the outlet has no pre-existing outlets. We note that the initial entry often includes a simultaneous choice of outlet location and headquarters location. That is, the headquarters choice may be endogenous to the choice of the first outlet. Indeed, over 60% of independent outlets list the business address as an owner address. We believe it is a reasonable assumption that most owners listing the business address also as a headquarters area do come from the local area; we acknowledge that there may be some cases in which owners from distant areas list the business address as headquarters, adding some noise to our separation of dependent variables into local and distant rates. We use a cutoff of seven miles between business address and owner address to distinguish between distant and proximate headquarters locations. Seven miles represents the 75\textsuperscript{th} percentile of headquarters distances for independent outlets. We discuss robustness tests with other cutoff distances following the results section.

The covariates of theoretical interest are the number of ownership transfers and contemporaneous exit-entry pairs that take place during the period before the new entries occur. We measure the covariates separately at the level of the zip code for the independent outlets and chain affiliated outlets in the two years before the opening of new outlets. This is an appropriate reaction period because it often takes about twelve to eighteen months to set up a new business.
The ownership transfer measures are the number of cases within a zip code where the data report that an outlet selling the same products exited under one owner and opened with another owner at the same business address. We differentiate ownership transfers that involve business name changes from those that continue with the same business names. We define ownership transfers as involving independent outlets only if both the buyer and the seller operate no other outlets. While vicarious learning may arise from transfers both of independent and chain-affiliated outlets, the focus on pure independent transfers is important because transfers from one single-outlet owner to another cannot change the overall ownership concentration in the market, implying that a quest for market power does not provide an alternative explanation for possible increased entry rates associated with the transfers.

The contemporaneous exit-entry pair variables record the lower of the number of outlet entries and exits in a market during a given year. That is, if there are fewer exits than entries, then the contemporaneous exit-entry pair variable is equal to the number of exits, and vice versa. The pairs variable focuses on the opportunities that entries and exits create, while avoiding confounding effects from signals of demand sufficiency and resource availability. Like the ownership transfer variable, the number of independent outlet contemporaneous exit-entry pairs eliminates ownership concentration and market power as explanations for entry, because those constructs do not change as a result of the combined exit and entry of independent outlets. Of course, the entries and exits must be of similar size for the confounding factors of an entry and an exit within the same period to equilibrate. Splitting the variables into separate numbers for chains and independents helps achieve this end. Chain-affiliated pizza, video rental, and drug store outlets are often larger than independent outlets, but outlets exhibit similar size characteristics within the independent category. However, the pairs variable may be noisier
than the ownership transfer variable due to the possibility that the signals of demand sufficiency and resource availability do not fully cancel.

We include several control variables. First, we include the “excess exits” and “excess entries” beyond the number that the contemporaneous exit-entry pair variable uses. Note that at least one of the “excess” variables must equal zero for each zip code in each time period. We include these “excess” events because of the combined signals they provide regarding demand sufficiency and resource availability. As we have no reason to believe a priori that one of these signals will outweigh the other, we do not hypothesize the directions of the effects. Second, we include the count of existing independents and chain outlets in a given year, because markets with more existing outlets are more likely to have more entries and exits.

Finally, we include four measures of market conditions. We include the net addition (entries less exits) of retail outlets in the two years previous to the entry to control for growth of each market. Without this variable, we might misattribute effects caused by overall economic growth to entries and exits within the focal industry. In the logit part of the zero-inflated Poisson model (we discuss the model below), we include two measures of market size, including population and the total number of retail outlets of all businesses in the zip code at the time the outlet opens. We include per capita income of each zip code (from the 1990 census) to identify markets that firms may consider to be more lucrative. Table 1 reports descriptive statistics and correlation tables.

Method

We estimate zero-inflated Poisson regression models (Greene, 2000: 889-892 discusses these models) for the analyses, which is appropriate when dependent variables take the form of integer counts.
in which a majority of the counts are zeros. Zero-inflated Poisson models assume that two processes generate the observed data. A first process determines the probability of observing non-zero counts (i.e., whether the market is capable of sustaining any new outlets of the industries we study). A second process then generates the magnitude of the count.

The model is reasonable in our case. Some of the less populated zip codes, for example, will have no new entries, because these markets are too small to sustain any new outlets in those industries.

The zero-inflated Poisson framework uses a standard logit mode for analysis of the first process, determining the probability that non-zero counts will occur. A standard Poisson count regression model then analyzes the second process. The model appears as:

\[
[1] \text{Prob}[y_i = 0] = \text{Prob}[\text{regime 1}] + \text{Prob}[y_i = 0|\text{regime 2}]\text{Prob}[\text{regime 2}]
\]

\[
[2] \text{Prob}[y_i = j] = \text{Prob}[y_i = j|\text{regime 2}]\text{Prob}[\text{regime 2}] \text{ where } j > 0
\]

where \( y_i \) is the number of entries in market \( i \), regime 1 is the type of market that cannot sustain entry of any new outlets of the focal industry, and regime 2 is the type of market that can sustain outlets. The Poisson model then applies in markets governed by regime 2 to predict the actual number of entries in a time period.

As the possibility exists that non-independence within zip codes for each industry makes the standard errors appear smaller than they really are (see, e.g., Haveman and Nonnemaker, 2000), we estimate all models using Huber-White robust standard errors. This approach allows the observations to correlate within groups (in our case, the eight observations for each zip code/industry combinations). We used several alternative techniques to estimate the count model. All alternatives exhibited material equivalence to the results that we present below, as we discuss in the robustness section.
While the analysis tests Hypotheses 1a and 2a using the standard approach of rejecting the null hypothesis that a variable’s coefficient is equal to zero, testing Hypotheses 1b and 2b is more complicated. Because these hypotheses involve comparisons between two coefficients, a Chow-type chi-squared difference provides an appropriate test. We estimate Poisson models with two observations for each industry/zip/year. The covariates of both observations have the same values, as they exist within the same zip code, but the dependent variables are the annual rates of proximately headquartered entries and distantly headquartered entries. Within this model, the subset of observations associated with each dependent variable takes a separate coefficient for all independent variables. We then compare this model to a similar model that constrains the coefficient for one variable to be the same while allowing all other variables to vary across both subsets. A hypothesis regarding the difference of the coefficient between the two subsets is supported if the chi-squared test performed on the difference of the log likelihoods of the two models is significant. See Greene (2000: p. 826) for a similar example.

RESULTS

Core Results

Table 2 presents results of the zero-inflated Poisson regressions for local and distantly-headquartered independent outlets. The table contains four sets of models consisting of regressions in which each industry/zip/year observation appears twice, once with the dependent variable as the rate of entries with local headquarters and once with the dependent variable as the entry rate of distantly headquartered independent outlets.

The model in column 1 of Table 2 constrains all coefficients of the independent variables to be equal for the proximate and distant subsets of the data. The coefficients, standard errors, and significance levels from this approach (two observations for each industry/zip/year) are materially
equivalent to a model with only one observation for each industry/zip/year in which the dependent variable is the sum of the two dependent variables in our regressions (proximate and distantly headquartered entry rates).

Columns 2a and 2b of Table 2 jointly provide a second model where none of the coefficients are constrained to be equal between the proximate and distant subsets. If the simpler Poisson model were used, the coefficients and standard errors would be identical to two models estimated separately for the proximate and distant subsets. We estimate a joint model with the two subsets so that a chi-squared difference test can compare the log likelihoods of model 2 with those of models 3 and 4. These later models constrain only one variable each across the two subsets: the ownership transfers and contemporaneous exit-entry pairs of independent outlets. The resulting chi-squared difference scores test Hypotheses 1b and 2b.

[Insert Table 2 about here]

The results in Table 2 support Hypothesis 1a. The positive coefficient for “Independent Transfers – Name Change” is statistically significant for the overall sample in Column 1 and among the locally headquartered entry subsample in Column 2a. Thus, as expected, increases in the number of ownership transfers that involve business name changes lead to subsequent increases in the outlet-level entry rate in the same market.

The results in Table 2 do not support Hypothesis 1b. Based on the insignificant value of the chi-squared statistic of 0.16 found under model 3, we cannot reject the null hypothesis that the coefficients associated with “Independent Transfers – Name Change” for proximate and distantly headquartered outlets are identical. The hypothesis would have been supported if Model 2, which allowed separate
coefficients for this variable for the two sub-samples, generated a significantly different log likelihood from Model 3, which constrained the coefficients to be equal.

The results support Hypothesis 2a, because the “Independent Contemporaneous Exit-Entry Pairs” variable in Columns 1 and 2a is statistically significant. As expected, therefore, the entry rate of independent outlets with proximate headquarters in a market increases with the number of independent contemporaneous exit-entry pairs in the same market in the previous period. We note that the coefficient of this variable is larger (0.36 vs. 0.21) than that of the “Excess Independent Entries” variable in column 2a, which is also significant. Thus the vicarious information value to potential entrants appears to come more from contemporaneous exits and entries, rather than from entry alone.

The results support Hypothesis 2b. Based on the value of the chi-squared statistic of 4.48 found under Model 4 in Table 2, we reject the null hypothesis that the coefficients associated with “Independent Contemporaneous Exit-entry Pairs” for proximate and distantly headquartered outlets are identical. As expected, the propensity to enter a market based on the vicarious information opportunities made available from contemporaneous exit-entry pairs decreases with distance, even if the propensity to enter markets with ownership transfers of independent outlets does not.

We note that most covariates associated with chain outlets are insignificant, save that of chain contemporaneous exit-entry pairs for the dependent variable of distantly headquartered entries. Further, in sensitivity analysis, we found that removing all chain variables did not alter any of the significance levels of the variables of theoretical interest. Thus, activities related to chain-affiliated outlets appear to provide little information of value for the initial entry decisions of independent outlets. While we did not derive any hypotheses about independent/chain differences in effects, this is an interesting non-result, as
competition and niche overlap between independents and chains is certainly plausible in the industries we have chosen.

At the same time, the positive impact of the “Chain Contemporaneous Exit-Entry Pairs” variable on the entry of distantly-headquartered independents (columns 2b, 3b, and 4b) is intriguing. It appears that independent firms based far from a local market may pay more attention to chain activity in that market than to the activity of other independent outlets. This result most likely arises because chains have a higher public profile than independent firms, and so are easier to track from the public sources that distant firms have access to.

Finally, we note that two control variables are significant in Table 2. First, “Excess Independent Entries” positively influence entry rates, suggesting that the entries’ signaling of sufficient demand outweighs the amount of resources the entries consume. Second, the growth of retail outlets (“Retail Count Net Growth”) also is significant for both the proximately and distantly headquartered sample, implying that entrants tend to enter fast growing markets.

Robustness Tests

We conducted several robustness tests. First, we varied the proximate-distant cutoff thresholds. In addition to the reported results, which use a seven-mile cutoff (75th percentile of observations), we also used a five-mile cutoff (70th percentile), a ten-mile cutoff (80th percentile), and a 25-mile cutoff (90th percentile). We also used a zero-mile cutoff (62nd percentile) that considered any headquarters location other than the outlet’s address itself as “distant”. Hypotheses 1a and 2a remained supported using all cutoffs. The distance results concerning H2b also remained unchanged with cutoffs above seven miles. For cutoffs of zero miles and five miles, however, the null hypothesis that the “Independent Contemporaneous Exit-Entry Pair” variable for both the proximate and distant subsamples had an
identical coefficient could not be rejected. These boundary conditions are reasonable, because owners located within five miles of their headquarters likely are able to gather the same vicarious information as even more “local” firms.

Second, we tested for methods sensitivity. We performed the same tests using a regular Poisson model, as well as the more general negative binomial model and its associated zero-inflated version. Our results remained at the same levels of statistical significance in all approaches.

Third, our results above consist of observations pooled across three industries. We estimated the same models for each industry separately. All signs remained in the predicted directions. The results for drug stores and video rental outlets were statistically significant. The results for pizza restaurants were not significant at conventional levels, likely owing to a smaller sample size.

DISCUSSION AND CONCLUSION

This study offers two sets of core results concerning vicarious learning and firm strategy. First, the study found compelling evidence that independent firms are more likely to enter areas where ownership transfers with business name changes have taken place in the recent past and in which entry and exit are both common. We argued that vicarious learning is the causal mechanism underlying these relationships. We believe that the results identify an important source by which firms can learn about market opportunities and constraints.

We focused on ownership transfers with name changes, because transfers where the name stays the same are less likely to undergo shifts in strategy as a result of the ownership transfer itself. While isolating the mechanism of vicarious learning from other signals and incentives provided to potential entrants by exits and entries is difficult, we argued that analyzing ownership transfers helps solve this problem. While exits clearly provide vicarious learning opportunities, they also free resources, reduce
competition and send signals of insufficient demand. Ownership transfers do not have these confounding
effects. Further, by explicitly analyzing ownership transfers of independent outlets, where both the old
and new owners own no other outlets, we are assured that entrants are not enticed by market power
caused by changes in ownership concentration.

Similarly, studying pairs of outlet exits and entries that occur in the same market during the same
period helps eliminate confounding effects of resource availability and market sufficiency. If an entry and
an exit take place at a similar time, few resources in a market will be freed, competition will not increase
or diminish, and the positive signal regarding demand sent by a new entrant will cancel the negative
signal associated with a different owner closing their outlet. The results suggest that vicarious learning is
a major factor that makes a market with contemporaneous exit-entry pairs more attractive to potential
entrants than one with outlets that merely remain in operation.

Second, we found some evidence that distance to an outlet’s headquarters location inhibits the
ability to learn vicariously. Distantly headquartered outlets were significantly less likely to enter areas
with many contemporaneous exit-entry pairs. By contrast, distance did not moderate how ownership
transfers affected entries. Nonetheless, while we are cautious in our affirmation of the effects of
geographical distance, we note that our result is partially consistent with evidence that geographical
distance inhibits some knowledge spillovers across firms (Jaffe, Trajtenberg, and Henderson, 1993) and
even within firms (Adams and Jaffe, 1996). This finding also has implications for population-level
learning because organizations in a population exposed to the same set of salient events may react
differently based on their proximity to the source of these events (e.g., Greve, 1995, 1996). In this
context, it is useful to think of distance more broadly than geographic distance, and to encompass other
distance measures such as those based on differences in technology, organizational form, and culture.
We also found that chain firm dynamics had little influence on the entries of independent outlets. While we did not derive hypotheses regarding the relationship of independents to chains, our null result has interesting implications that future work could investigate. First, independents might not actively compete with chains in these industries. Second, it is possible that independents have less to learn from a chain’s exits and ownership transfers, because the reasons for an outlet’s sale or demise may be managerial difficulties at the chain level that do not provide meaningful information regarding appropriate strategy or routines at a particular outlet. Relatedly, chains might act as “buffers,” keeping outlets open longer than would be optimal from the point of view of an owner of an independent outlet (Miner, Amburgey, and Stearns, 1990) and limiting the value of now outdated vicarious information when the chain outlets finally exit. By contrast, independent firms often will not have the resources to replace poor managers of their outlets (indeed, many of these managers are the owners themselves) and will be forced to exit more promptly following choice of unsuccessful strategies.

Future work could usefully examine the possibility of performance differentials based on location choice. The fact that firms seek areas with recent independent exits and avoid areas with recent branded chain entries suggests that firms behaving in such a way may enjoy superior performance. Recent work (Kim and Miner, 2001) finds that a high number of exits of similar others since a firm’s founding improves that firm’s performance. The findings in this study imply that such work could be fruitfully extended to incorporate ownership transfers as well as exits and entries before a firm’s founding and more heavily weight geographically localized market events.
References


Table 1: Descriptive Statistics and Correlations

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Table 2. Impact Of Ownership Transfers And Contemporaneous Entry-Exit Pairs On Entries Of Independent Outlets: Zero-inflated Poisson Regression Results

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* p< .05, ** p<.01

a 39,456 total observations, with 2,360 non-zero observations.
b The table does not report three variables that appear only in the logit stage of the model (1990 Population, 1990 Income, Total Number of Retail Outlets)