TURNOVER EVENTS, VICARIOUS INFORMATION AND THE REDUCED LIKELIHOOD OF OUTLET-LEVEL EXIT AMONG SMALL MULTI-UNIT ORGANIZATIONS

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Version: Local9ifnal.doc (May 23, 2005)

Acknowledgements

We appreciate suggestions from Nick Argyres, Glenn Carroll, Jay Kim, Anne Miner, Rob Salomon, and Olav Sorenson. We also thank Libby Weber for research assistance.
ABSTRACT

A key question for organizational learning research is to identify opportunities and constraints for firms to gain useful information from the activities and performance of other firms. We argue that market-level turnover events generate and release vicarious information that small multi-unit organizations can use to enhance their own performance. We focus on two specific turnover events, ownership transfers and contemporaneous exit-entry pairs (cases in which both outlet entry and outlet exit occurs within a market), because these events are likely to generate and release vicarious information without greatly altering market concentration. We find that the likelihood of a multi-unit owner’s outlet exit declines when there are many ownership transfers and exit-entry pairs in other markets where the owner has other outlets. The results suggest that these turnover events, even in just one market where a small multi-unit organization is present, generate vicarious information substantial enough to benefit performance of all outlets of that organization.
Recent research in organizational theory and economics has explored the nature, sources, and effects of organizational learning (Argote, 1999). Many studies suggest that firms learn from their own experience (e.g., Levinthal and March, 1993; Darr, Argote, and Epple, 1995). In parallel, though, organizational research has long recognized that firms adapt by observing and imitating others’ strategies (e.g., Alchian, 1950). Scholars increasingly argue that firms gain information from others’ experiences (Baum and Ingram, 1998; Miner and Haunschild, 1995; Henderson and Cockburn, 1996; Shaver and Flyer, 2000) and change their own activities based on that information (Miner, Kim, Holzinger, and Haunschild, 1999; Kim, 2000). Following research that refers to learning from others as vicarious learning (e.g., Huber, 1991), we refer to information emerging from activities and performance of other firms as vicarious information.

The goal of this paper is to develop and test theory regarding a common but under-emphasized source of marketplace information: market-level turnover events. By focusing on ownership transfers and contemporaneous outlet exits and entries within the same industry and market, which we refer to as “exit-entry pairs”, we build on work by Ingram and Baum (1997) and Miner et al. (1999) that discussed information generated by one type of turnover event—business exits. We argue that ownership transfers and exit-entry pairs generate and release vicarious information about viable strategies into the marketplace environment, without some of the confounding competitive dynamics that accompany business exits. Either of these turnover events may result in firms applying new business strategies and serving new niches within the same geographic-product market. Further, transfers may result in increased productivity at the same location (Caves, 1998), suggesting that they generate valuable information for observers. Expanding these arguments to a multi-unit setting, we apply the logic behind Darr, Argote, and Epple’s (1995) findings that multi-unit franchisee owners transferred cost-saving knowledge
based on one outlet’s experience to other outlets they also owned. We argue that, if owners can benefit from the vicarious information that ownership transfers and exit-entry pairs of others generate and release, then the occurrence of these events in the proximity of a small multi-unit owner’s outlets should reduce the probability of exit of all outlets that the owner operates.

We test our hypotheses by analyzing the exit rates of outlets of single-unit and small multi-unit organizations in three industries in Texas during the 1990s: drug stores, pizza restaurants, and video rental outlets. From the beginning of 1992 through the end of 1999, 7,225 outlets affiliated with small multi-unit owners operated in Texas in these three industries, of which 3,226 exited. We define an event as an outlet exit only if the outlet shuts down or the location converts for use as an entirely different type of business. We exclude outlets affiliated with national or regional brands, either via ownership or franchise relationships. Small non-franchisee multi-unit organizations should be particularly likely to act based on local vicarious information because they typically make operating decisions without the standardized routines of franchisors or large national chains. Therefore, they are appropriate objects for this study.

Our strategy of studying any exit-reducing effect on a multi-unit owner’s outlet caused by ownership transfers and exit-entry pairs in the other markets in which that owner operates isolates the effects of vicarious information from other mechanisms that affect performance. We do not focus on the effect of transfers or exit-entry pairs in the same market as the outlet at risk. Though such same-market turnover events may release vicarious information, the transfers have other consequences that will confound any observable effect on outlet performance. Studies in economics have examined how ownership transfers in the form of mergers and acquisitions affect incumbent performance, but the mechanisms involve either tougher direct competition from new, more productive owners (McGuckin and Nguyen, 1995) or from the decreased price
competition that results from greater market concentration (e.g., Kim and Singal, 1993) rather than from vicarious information. By studying ownership transfers and exit-entry pairs in a multi-unit owner’s other markets, we avoid confounding vicarious information effects with changes in the ownership concentration or competitiveness of the market containing the outlet at risk.

Further, our choice of analyzing small non-franchisee multi-unit owners eliminates the possibility that an exit-reducing effect on a multi-unit owner’s outlet that appears to stem from turnover events in the other markets actually results from some sort of multimarket contact competition. Of 1,337 ownership transfers that took place during the study period, only 17 involved outlets with direct multimarket contact with the owner of the outlet at risk.

The paper proceeds as follows. The background section identifies information sources that owners of small businesses use, drawing on the scholarly literature and information that emerged from our own interviews of small business owners, and reviews existing work that has considered how outlet-level exits and entries influence survival. We then develop hypotheses regarding the benefits generated by vicarious information resulting from ownership transfers and exit-entry pairs. Finally, we test the hypotheses and discuss the results.

**BACKGROUND**

**Information Seeking by Small Businesses**

Surveys conducted by scholars of small business management suggest that small firms analyze their competitors and use the analysis to innovate. These findings are consistent with the premise that firms will be aware of transfers, exits and entries taking place in their vicinity, that these events contain valuable information, and that owners benefit from using this information.

Several studies show that small businesses analyze their competitors. Brush (1992) surveyed 66 new manufacturing ventures with average annual production of $3 million and
found that 69% regularly or continuously collect information regarding their competitors’ strategies, while 79% collected information about competitors’ products. In addition, 52% collected information about new entrants into their market. Based on surveys of 132 organizations with 100 employees or less, Johnson and Kuehn (1987) found that managers of small firms spend more time gathering information about the marketplace, including competitors and entrants, than they did about growth issues (e.g., new facilities, achieving economies of scale), and about technology (e.g., improving products and processes).

How do small businesses gather information about competitors? Johnson and Kuehn (1987) found that customers, employees, and suppliers were most likely to supply marketplace information. Fann and Smeltzer (1989) confirmed this result for a sample of 48 small businesses. They emphasized that customers were an important conduit through which firms received information about their competitors. Fann and Smeltzer (1989) also found that turnover events such as exits and expansions are two of the four most important types of information about competitors for a firm’s long-range planning. Finally, small businesses appear to gain ideas regarding innovation from observing competitors. Hartman, et al. (1994) found that information about competitors is the second most important source that spurs innovation, behind only ongoing analysis of the firm’s own products. Interestingly, competitor information was more important in this regard than information about either customers or employees.

**Interviews with Pizza Restaurant and Video Store Owners**

For this study, we interviewed twelve owners of pizza restaurants and video rental stores regarding the importance of learning about their competitor’s activities and specifically about the role of ownership transfers in releasing information. The interviews offer supplemental support for our theory and statistical analysis. Six of twelve owners that we contacted reported that they
are aware of ownership transfers at competitors’ locations and that they gained information as a result of the ownership transfer. Three others said that they do monitor their competitors, but that they were not aware of any ownership transfers that had taken place in their vicinity. The remaining three told us they never pay attention to competitors, because there were either too few or too many competitors to keep track of.

How did the owners find out about ownership transfers? All six owners that had identified ownership transfer information mentioned that customers told them about ownership changes, three stated that vendors mentioned the changes, and three stated that they heard the news from employees. In addition, one video store owner and one pizza restaurant owner emphasized that the incumbent owners knew each other and relayed such information among themselves. One owner stated that new owners sometimes came to their store to introduce themselves. More details from the interviews follow below.

**Information Contained in Outlet Exits and Entries**

Previous academic work on turnover has focused on how business exits and entries influence the survival of incumbent firms. Research shows that business exits influence the survival rates of competing businesses (Ingram and Baum, 1997; Kim, 2000). In part, the survival benefits arise because the exits generate vicarious information about the ineffectiveness of the exiting firm’s strategies. For example, the exit of an airline such as People’s Express that offered only low-cost service could induce surviving airline firms to implement a differentiation strategy (Miner, et al., 1999). Outlet exits are cases where operations of a particular type of business cease at a given location. After an outlet’s exit, other owners may avoid the strategies that the defunct outlet used, thereby increasing the survival chances of their own outlets.
In addition to generating vicarious information, though, business exits involve other issues that would affect the likelihood of exit of other outlets in the vicinity of the exit. Carroll and Delacroix (1983) argued that exits both free resources for surviving outlets and signal that there is low demand in a market. That is, exits allow resources such as customers and employees to become available for other existing organizations, while signaling that a market is suffering from the “noxious countervailing force” of insufficient demand (Carroll and Delacroix, 1983: 279). Resource availability should decrease the exit probabilities of multi-unit owners’ outlets, as should the presence of vicarious information, while signals of insufficient demand should be associated with increased probabilities of exit. Thus, it is difficult to separate the effects of vicarious information within a market that arises from exits from the effects of economic growth and competitive intensity within the same market.

Much like the case of exits, entries also have multiple influences that can affect the survival of incumbent firms. On the one hand, entries provide new information to incumbents about appropriate strategies and routines. On the other hand, entries lead to increased competition and reduced resource availability for incumbent outlets (e.g., Bresnahan and Reiss, 1991).

In contrast to entries and exits, ownership transfers and contemporaneous exit-entry pairs in a market are turnover events that involve few alternative influences on the survival of multi-unit outlets in other markets, beyond the influence of vicarious information. For this reason, we focus on these turnover events in our hypotheses.
HYPOTHESES

The Effects of Ownership Transfers on the Likelihood of Exit

Ownership transfers are cases in which new owners undertake operation of existing businesses. We argue that ownership transfers generate and release vicarious information. Ownership transfers at the retail and service outlet level are visible events. Customers, suppliers, and direct competitors are likely to be aware of a transfer from a change in physical appearance at the outlet, or perhaps from a prominently displayed “under new management” banner. As we found in our survey, many owners are aware of these transfers and pay attention to them. They are able to gain information about the transfers not only from their own direct observation, but also indirectly through their networks of customers and suppliers. We discuss three reasons why transfers are likely to generate and release valuable information to competitors: the first related to different strategies used by the new and previous owner of the transferred outlet, the second related to a greater awareness of competition, and the third related to the movement of employees following an ownership transfer.

Economists have developed and tested the matching theory of ownership transfers. According to the logic of this theory, ownership transfers take place because external shocks over time reduce the fit between an existing owner’s skills and those required for successful ongoing operations (Caves, 1998, presents a detailed review of this literature). Individuals whose skills would bring out greater value from an existing location should be willing to pay the existing owner (who lacks those skills) a premium, relative to what the existing owner could earn by operating the outlet, to assume ownership. Consistent with this argument, McGuckin and Nguyen (1995) found that productivity went up after ownership changes at manufacturing plants. While the matching theory does not discuss operating changes explicitly, it follows that the new
owner will make changes in the strategies, routines, and policies of the organization in order to gain productivity benefits from their skills.

Even if the new owner does not possess superior capabilities, organizational change may result merely from the new owner’s belief that they can extract improved performance from the outlet (see, e.g., Camerer and Lovallo, 1999, on overconfidence). Sorenson and Waugespack (2003) report that such beliefs may result in self-confirming outcomes. Applied to our setting, owners will invest greater effort in the ventures they believe in most, even if there is no objective reason for them to be so optimistic. Their increased efforts should be observable and should generate vicarious information.

As we noted above, ownership transfers are events that are visible by direct observation and via indirect communication from customers and suppliers. Thus, owners of outlets proximate to that undergoing an ownership change should be able to analyze the ownership transfer as a natural experiment. They can compare the actions of the previous owner and the new owner and identify features that they could incorporate into their own strategies. For example, an ownership transfer that involves a change of décor may suggest to the multi-unit owner that they avoid remodeling outlets in a fashion similar to the transferred outlet under its previous owner. The transfer may allow the multi-unit owner not only to conclude that particular strategies or routines of the previous owner were ineffective, but also that the new owner’s approach may be superior.

Productivity-improving ownership transfers can also generate information through a second mechanism, in the form of competition. Similar to the alerting effect of firm exits that Miner et al. (1999) describe, incumbent firms may see the transferred outlets as harbingers of increased competition and respond with efforts to improve their own managerial routines, processes, and products. Unlike the first mechanism, the competition effect does not assume that
the incumbents actually observe valuable information from the post-transfer behavior of the new managers of the outlet. Productivity improvement could occur, for example, as a result of regression to the mean, where improvement is statistically more likely after a spell of poor performance. If the observer acts based on this information, then even a coincidence of improvement in performance and ownership transfer may accentuate the competition effect.

The owners we interviewed had varied opinions on whether competition became tougher after ownership transfers. One owner stated that there was “Less [competition], we get some of those customers that used to go to the previous owner’s store,” while another stated “Depends, sometimes tougher competition, sometimes [we] get lucky and fresh ownership with lack of experience, then it goes in our favor.” Overall, five of the six interviews noticed new owners doing things differently from the previous owners: substantial remodeling, new product mix, new displays, new menu items, and new types of promotion. In turn, four said that they had adopted specific practices as a result of their observations.

A third mechanism through which incumbent firms can gain information from an ownership transfer is the turnover of employees from the outlet whose ownership is changing, whether or not the outlet’s productivity has improved post-transfer. Ownership transfers increase the likelihood that employees will leave the firm. Sorenson and Audia (2000) and Klepper and Sleeper (2002) argue that some departing employees start their own new ventures, often in the vicinity of their prior employer. In addition, though, competitors hire many other departing employees. Employees often serve as repositories for tacit knowledge (Argote and Darr, 2001) and take substantial information regarding the strategies and operations from their old employer to the new (Almeida and Kogut, 1999). Hence, incumbents in the vicinity can benefit from the
information provided by employees that they hire away from other outlets undergoing ownership changes. In this case, the ownership transfer facilitates the release of information.

Two pizza store owners mentioned to us that employee turnover is the primary means through which they acquire important vicarious information, as well as a reason why they find out about ownership transfers. One owner noted how ownership transfers affect employees, stating “Cooks don't like it when businesses change owners.” This owner stated that he has hired many employees that way. These employees have provided information about quality of various vendors, ingredient proportions, and substitutable products.

The last piece of logic that our first hypothesis requires is that owners can transfer information among their outlets. Evidence exists that owners transfer information from outlet to outlet, implying that vicarious information can diffuse among outlets of the same multi-unit owner. Darr, Argote, and Epple (1995) found that cost-reducing information at pizza restaurants based on an outlet’s own experience was shared with outlets of the same multi-unit owner. Similarly, Mitchell et al. (2002) showed that capabilities transferred from nursing home chains to their newly acquired outlets, and Ingram and Simons (2002) observed transfers between kibbutzim of the same federation. Within the small multi-unit business organizations that we study here, the mechanism for the transfer of information from one outlet to others is straightforward; most often, the owners transfer the information themselves during their visits to their individual outlets. Employees typically are willing to provide the owners with information, and the owners share the information with their other locations during their next visit.

**Hypothesis 1:** The greater the number of ownership transfers that occur in other markets in which a multi-unit owner operates, the lower the probability of exit of an outlet of the multi-unit owner.
Ownership Transfers with and without Changes of Business Name

In this section, we argue that, while all ownership transfers should provide some vicarious information, transfers of outlets that change the “doing business as” name provide more vicarious information than those that keep the original name. Some outlets will be sold because owners simply wish to retire or change their lifestyle. In such cases, the business often 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, a new owner that keeps the name often pays a goodwill premium for the name of the business beyond the value of the physical property and equipment, specifically because the name and its associated products, strategies, and routines are of value to a group of customers.

Thus, incumbents within a market are likely to learn more from ownership transfers involving name changes, which typically indicate that the first owner was struggling or had poor prospects. Incumbents 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 that of Kim (2000), who argued that near-failure experiences contain more vicarious information than outright failures. Ownership transfers with name changes are likely to be near-failures, which will 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.

Hypothesis 2. Ownership transfers with a change in business name that occur in other markets in which a multi-unit owner operates will reduce the probability of exit of an outlet of the multi-unit owner more than ownership transfers that keep the same name.
Exit-Entry Pairs within a Market

Like ownership transfers, outlet-level entries and exits contain vicarious information about strategies and routines that may be useful for others in the market. 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. As we noted above, though, entries and exits also produce confounding effects beyond vicarious information. Entries reduce available resources but signal a market’s viability, while exits free resources but also signal insufficient demand.

Exit-entry pairs are the number of cases in which an entry is matched by an exit during the same year in a given market. More so than cases of exit or entry alone, exit-entry pairs allow others the opportunity to learn vicariously. Managers and owners of other outlets 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. We hypothesize that owners will transfer the information from their markets with exit-entry pairs, to all their other outlets, and therefore be less likely to exit at any of their locations. We contrast exit-entry pairs with excess entries and exits, where “excess entries” are entries that exceed the number of exits and “excess exits” are exits that exceed the number of entries.

**Hypothesis 3a:** The greater the number of exit-entry pairs that occur in other markets in which a multi-unit owner operates, the lower the probability of exit of an outlet of the same multi-unit owner.

**Hypothesis 3b:** The effect of exit-entry pairs that occur in other markets in which a multi-unit owner operates (H3a) will be significantly stronger than the separate effects of excess entries and exits that occur in other markets in which the multi-unit owner operates.
RESEARCH DESIGN

Data

We focus on the survival and exit of non-franchised outlets within three industries in Texas between 1992 and 1999: drug stores, pizza restaurants, and video rental outlets. We analyze the occurrence of 3,226 exits among 7,225 outlets of single-unit and small multi-unit organizations, which we define as owning from one to twenty outlets. We exclude outlets affiliated with franchisors. Of these 7,225 outlets, 2,665 are drug stores, 2,016 are pizza restaurants, and 2,574 are video rental outlets.

We choose these industries because of their extensive turnover, including many entries, exits, and ownership transfers. During our period of study, there were 564 ownership transfers in these three industries where the new owner assumed a new business name and 773 where the business name remained the same after the change of owner. There were 1,640 cases of exit-entry pairs in the same zip code in the same time period. We use zip codes as empirically convenient measures of geographic proximity because they commonly share transportation and other economic and social features for which vicarious information is relevant (we explore alternative market definitions in sensitivity analyses).

While we believe that vicarious information will also help outlets affiliated with franchisors and with large national chains, we exclude these outlets from our analysis because they are more complicated situations. Franchisors often constrain their franchisees’ ability to react to vicarious information. The franchisor is typically responsible for developing organizational routines (Knott, 2001) and franchisees are often forbidden to make “strategic local responses” such as changing a menu item to serve local tastes (Bradach, 1998: p. 23). Nonetheless, we discuss sensitivity analyses that include franchisor-affiliated outlets.
We focus on Texas because the State Comptroller’s Office provides detailed and complete entry and exit data beginning in January 1990 at the business outlet level, including address, business name, owner name and address, and entry and exit date. 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., such as urban, rural, major highways, and coastal resorts. Therefore, our results are likely to generalize to other North American markets. We note that Kalnins and Mayer (2004) previously conducted a survival analysis using these pizza restaurant data, while no academic study has used the drug store and video data sets. Even for the pizza data, no studies have analyzed the variables of theoretical interest here.

We include the outlets of single-unit owners even though they had no other outlets that could help them gather vicarious information to use in other markets. Outlets of single-unit owners add relevant information for the identification of control variables, and they act as a control group. A strong test of our hypotheses should find that single-unit firms do not benefit from outlet level ownership transfers in other local markets. We also account for the relative competitiveness of single and multi-unit firms. Previous research has shown that more focused firms may be less viable because of their reliance on a single product or market, but they exert greater competition on rivals than firms that occupy a broader niche (Selten, 1978; Barnett, Greve and Park, 1994). We note that sensitivity analyses that excluded the outlets of single-unit owners did not change any of the results we present below.
Method and Variable Definitions

We used event history analysis to test the hypotheses. Specifically, we used parametric hazard models, which require that a functional form for the transition rates be specified. We estimated regressions using the piece-wise exponential, Gompertz, and Weibull forms. Because our results did not differ based on the model used, we present results using the piecewise exponential model, which is a flexible approach that allows the hazard rate to change over time. Following Blossfeld and Rohwer (1995: 116), this model takes the following form:

\[ r(t) = (\exp\{\alpha_i + A\alpha_i\}) \] (1)

In equation (1), \( \alpha_i \) is the constant for the lth time period. The hazard rate can vary across time periods without restriction, but is assumed to be constant within a time period. The \( A \) vector contains the covariates and the estimates of the coefficients appear in the \( \alpha_i \) vector. In the analysis that follows we estimate models with period effects with three time periods corresponding to outlets aged 0-2 years, 3-5 years, and greater than 5 years. Because the values of all our covariates of theoretical interest change over time, we split the life histories of all outlets into yearly spells and set all covariates for each spell to their values at the beginning of that year (see, e.g., Ingram and Baum, 1997). We then estimated the parameters using maximum likelihood analyses, clustering on location to generate robust standard errors.

Many of the drug stores, pizza restaurants, and video rental outlets were in business before 1990, meaning that part of the sample is left-truncated—outlets that entered and exited before 1990 are not in the sample. Including outlets founded before 1990 but exiting after 1990 in the analysis does not cause left-censoring problems because the Texas data sets contain information of the founding dates, even if those are before 1990. For example, the event history model will only analyze an outlet founded in 1985 with others that have survived until the fifth
year. The outlet will never be directly compared to outlets in the first four years after founding. Thus, the analysis avoids problems of left-censoring (see Guo, 1993; Stata Corp, 2001: 441-446).

The dependent variable for the event history analysis is outlet-level exit. Outlets are at risk of exit until they have permanently closed down. We do not consider outlets to have exited merely due to changes of ownership or business name, as long as someone is operating the same type of business at that location. We note that finer-grained financial performance data are not available for a large group of privately owned outlets. Because the coarseness of exit as a dependent variable may obscure some effects of vicarious information (e.g., the information improves profits but is not strong enough to influence exit rates), any effects that are observed to be reducing exit are likely to be particularly strong.

The two main independent variables of theoretical interest are the count of ownership transfers within the same industry that take place in other zip codes in which a multi-unit owner has outlets (variable 1, H1), and the count of exit-entry pairs within the same industry that take place in other zip codes in which a multi-unit owner has outlets (variable 4, H3a). The counts are calculated in the year before each spell that each outlet is at risk. Sensitivity analyses found similar results using a two-year period before each spell.

To calculate the “Transfers in these other zips” variable (variable 1) for an outlet x of a multi-unit owner that owns outlets x, y, and z in three different markets (zip codes), we count the number of ownership transfers in the vicinity of outlets y and z in the previous year, including only those of non-franchised outlets whose owners own 20 or fewer outlets. Similarly, we include the counts in the zip codes of x and z in the variable for outlet y. Variables 2 and 3 are
variable 1 split into two separate counts, depending on whether the ownership transfer involved a change of business name or not.

We determined that a transfer occurred when an individual with a different surname was listed as an outlet’s new owner. In some cases, the outlet was listed with multiple serial owners where the old owner was a person or a corporation and the new owner was a different corporation. We checked such cases against the Texas Secretary of State’s Incorporation Database in order to determine the actual human owners. If the same individual appeared as an owner of both corporations, we concluded that an ownership transfer did not take place.

To calculate the “Exit-entry pairs in these other zips” variable (variable 4) for an outlet x of a multi-unit owner that owns outlets x, y, and z in three different markets (zip codes), we count the number of pairs of exits and entries in the vicinity of outlet y and the number of pairs of exits and entries in the vicinity of z in the previous year. Like the case of transfers, both the exits and entries must be of non-franchised outlets with small owners. If outlet y only has exits in its vicinity and outlet z only has entries in its vicinity, the exits and entries are not considered to be a pair. In this case, the value of the “Exit-entry pairs in these other zips” variable would be zero. The exits in the vicinity of outlet y would be included in the “Excess exits in these other zips” variable (variable 5), and the entries close to z would be included in the “Excess entries in these other zips” variable (variable 6). We did not base hypotheses around the excess exit and entry variables because their benefit as a consistent source of vicarious information remains unclear. For example, if a market experienced many exits due to insufficient demand, these events will provide little valuable vicarious information that an owner can use in other markets. Instead, the exits simply mean that a particular market is unattractive. Similarly, many entries may merely signal high growth of a new market.
The final control variables across other markets record the total existing outlets (distinguishing between single-unit and multi-unit owners, in variables 7 and 8) in all the zips where the multi-unit owner has outlets other than the zip of the outlet at risk and the contiguous zips. Zip codes with more total outlets are more likely to experience entries, exits, and ownership transfers. Thus, the presence of the total existing outlet variables ensures that simple counts of outlets of the same industry are not generating the results attributed to ownership transfers or exit-entry pairs.

To ensure that the markets of the multi-unit owner’s other outlets are geographically distinct from the market of that owner’s outlet at risk, we do not include counts in zip codes that are contiguous to that of the zip code of the outlet at risk. Ownership transfers in neighboring zip codes might cause a change in a market’s ownership concentration, much like those within the same zip code, instead of the vicarious information effects that we seek to demonstrate. Nonetheless, sensitivity analyses in which the “Transfers in other zips with outlets of same owner” variable includes counts in these contiguous zip codes produced equivalent results to those that we report.

We include turnover control variables in the same zip as the outlet at risk (variables 9 through 13). We include the count of ownership transfers, exit-entry pairs, excess exits, excess entries, and existing outlets of single- and multi-unit owners. These events in the same zip as the outlet at risk likely generate and release vicarious information but may also contain confounding effects: insufficient demand (excess exits), freeing of resources (excess entries), and changes in market concentration and market power (ownership transfers and exit-entry pairs).

Third, we include three measures of market conditions. We include zip code population and per capita income from the 1990 census (variables 15 and 16) to identify markets that firms
may consider to be larger and more lucrative. In addition, retail growth in zip (variable 17) records the count of entries less exits of retail outlets in the two years previous to the current spell; without this variable, we might misattribute effects caused by overall economic growth to ownership transfers within each industry.

Finally, we include several owner and outlet characteristics. First, we include a firm’s size in number of outlets (variable 18) and a squared term (variable 19). Larger firms operate in more zip codes and thus will be able to observe more ownership transfers. This control ensures that results regarding ownership transfers in other zips do not arise from a simple size effect. Second, we include the experience of an owner in the vicinity of the outlet at the time of the outlet’s founding, which Huber (1991) refers to as congenital experience (variable 20). This variable is measured as in Baum and Ingram (1998), using a square-root discount factor, and using the closest 25 outlets as the local area (see Kalnins and Mayer, 2004). Third, we include a dummy variable for whether an outlet has transferred ownership (variable 21), which allows us to determine whether transfers improve performance as per the matching theory we discussed above. Fourth, we include the logged distance from the outlet to its owner’s headquarters (variable 22). Finally, as we discussed earlier, we included three cohorts of outlet age (variables 23 to 25). Table 1 reports descriptive statistics and correlations for all the variables.

[Insert Table 1 about here]

RESULTS

Core Results

Table 2 reports four exponential hazards models that analyze likelihood of outlet exit. The first model includes the two main count variables for “other zips with outlets of the same owner.” The “Transfers in these other zips” variable (variable 1) tests Hypothesis 1, while the
“Entry/exit pairs in these other zips” variable (variable 4) tests Hypothesis 3a. The negative and statistically significant coefficients on both of these variables show strong support for both hypotheses. The more ownership transfers and exit-entry pairs that occur in other markets in which a multi-unit owner operates, the lower the probability of exit of an outlet of the same multi-unit owner. Further, a chi-squared comparison of the coefficient of the “Exit-entry pairs” variable with the sum of the “Excess entries in these other zips” variable and the “Excess exits in these other zips” variable (variables 5 and 6) is displayed at the bottom of the columns associated with Model 1. The significant chi-squared statistic tests Hypothesis 3b: the effects of exit-entry pairs that occur in other markets in which a multi-unit owner operates are significantly stronger than the separate effects of entries and exits that occur in those other markets.

In order to test Hypothesis 2, Model 2 splits the “Transfers in these other zips” variable into the two types of transfers, “Transfers with a change of name” and “Transfers that keep the same name.” The analysis first reports that both types of transfers lead to lower chance of exit in other zips, in parallel with Hypothesis 1. The split of the ownership transfers variable demonstrates significant exit-reducing effects for transfers that have changed business name and marginally significant effects for those that have not changed business names.

[Insert Table 2 about here]

To test Hypothesis 2, a chi-squared test comparing the magnitude of the coefficients of these two variables is displayed at the bottom of the columns for the second model. While the coefficients have the expected relative magnitude, the results do not support H2 in terms of statistical significance. Although the “Transfers with a change of name” variable has a coefficient that is both larger in absolute magnitude and in terms of statistical significance, the chi-squared test on the difference between the two variables has a value of 1.40, which is not
significant at conventional levels. Nonetheless, the direction of the results suggests that transfers with a change of name have somewhat more impact than those without name changes.

In addition to the variables of theoretical interest, several controls are significant in Models 1 and 2. First, “Multi-unit owner’s size (in number of outlets)” (variable 18) is strongly negative and significant and its squared term (variable 19) is positive and significant, indicating that owners with many outlets fail less often than their smaller counterparts but that the benefits decrease as the owners possess more and more outlets and might even turn around at the extremes of chain size. Further, “Log distance to HQ from outlet at risk” (variable 22) was strongly significant and positive, indicating that an owner’s outlet is more likely to fail the more distant it is from the owner’s headquarters location.

We note that the “Excess exits in these other zips” and “Excess entries in these other zips” with outlets of same owner (variables 5 and 6) were insignificant. While these were control variables in this study, the non-effect of the exits variable may be surprising because of past work (e.g., Miner et al., 1999) that discusses the ability of firms to benefit from the presence of exits. While multi-unit owners could transmit any knowledge acquired based on exits in the vicinity of their outlets, much like they appear able to do for the case of ownership transfers, it is not clear what proportion of exits are in fact a source of vicarious information. If a market experienced many exits due to insufficient demand, for example, these events do not likely provide valuable vicarious information that an owner can use in other markets. Instead, as we noted above, it may only mean that a particular market is not attractive.

**Comparison test of ownership transfers and exit-entry pairs in contiguous zip codes**

Model 3 includes two additional “comparison test” variables (C1 and C4). In model 3, these variables record ownership transfers and exit-entry pairs that occurred in the zip codes
contiguous to the multi-unit owners’ other zip codes. These variables help assess whether the
owners can gain vicarious information not only in the immediate vicinity of their outlets, but
over a broader area. The coefficients of C1 and C4 in Model 3 show that there is little benefit
from transfers in contiguous zip codes. We confirm this formally with chi-square tests, shown at
the bottom of the column for Model 3. The effect of transfers and exit-entry pairs in the same zip
code as an owner’s other outlets are significantly greater in absolute magnitude than are the
comparison variables in the contiguous zip codes. This finding strongly suggests that the results
are localized. The outlets sense little vicarious information outside of the immediate area.

Comparison tests of outlets of single-unit owners as a control group

As we noted earlier, the outlets of single-unit owners, which necessarily had no outlets in
other zip codes that could help them gather vicarious information, serve as a useful control
group. We use them in Model 4 to assess the following possible confounding issue: even though
we have shown that outlets are less likely to fail when their owners have outlets in other zip
codes with recent ownership transfers and exit-entry pairs, the possibility exists that the
relationship is not causal. Perhaps, for example, shifting demographics or, more generally,
greater economic activity throughout a region cause both a high count of transfers as well as
lower exit rates for all outlets, whether multi-unit or single-unit owned.

Model 4 reports the control group analysis. In this model, we assigned to all the outlets of
single-unit owners the average counts of ownership transfers (variable C1) and exit-entry pairs
(variable C4) experienced by the multi-unit owners in their same zip at the same time. These
variables are compared with variables 1 and 4, which we used to test the two main hypotheses.
All multi-unit owners receive values of zero for the control variables C1 and C4, while all
single-unit owners receive values of zero for main variables 1 and 2. If the variables C1 and C4
are significant in the same direction as variables 1 and 4, and not significantly different in size, then we would not be able to refute the alternative possibility that some regional effects are driving both the high number of transfers and the lower exit rates.

As the results of Model 4 show, neither C1 nor C4 are significant in the same direction as the main variables 1 and 2. Further, the chi-square tests at the bottom of the column for Model 4 that compare the magnitudes of variables C1 to 1 and C4 to 4 show that the variables for the multi-unit owners’ outlets are significantly greater in magnitude than the control group variables. Sensitivity analyses that used the maximum rather than the average value of the transfers and exit-entry pair variables when constructing variables C1 and C4 for the single-unit owner outlets found similar results: chi-squared tests showed that the real variables for the multi-unit owners were significantly greater in absolute magnitude than were the control variables. We conclude that regional economic and demographic effects are not driving both the independent variables of theoretical interest and the low exit rates.

**Additional robustness tests**

We conducted additional robustness tests. First, we split the Texan population into metropolitan (1,488 exits/3,473 outlets) and rural (1,738 exits/3,782 outlets) subsamples. We defined metro areas as the ten most populous counties in Texas, which contain all the state’s major cities. We found that H1, H3a and H3b hold for the metro subsample, and H1, H2, and H3a hold for the rural subsample. The fact that H2 holds in the rural subsample, when it did not hold in the combined data, suggests that vicarious information from outlet transfers with name changes may be particularly valuable in more far-flung regions, where information sources may be weaker than in more extensively networked urban populations.
Second, we analyzed the three industries separately. All coefficients had the expected signs, although significances varied somewhat. Drug stores (960 exits/2,665 outlets): H1, H2, and H3b were supported, while H3a was close to significant (p < 0.13). Pizza restaurants (872 exits/2,016 outlets): H1 was supported, and the signs for all other coefficients were in the expected direction. Video rental stores (1,394 exits/2,574 outlets): all coefficients had the expected signs and H1 and H3a were close to significant (p < 0.20). We can only speculate about differences among the industries, but one possibility is that drug stores are a somewhat more complicated business than pizza and video rentals, and that vicarious information is particularly valuable in helping owners to refine their activities. At the same time, we emphasize that all three industries contributed to the overall support for the hypotheses.

Third, we analyzed the exit of small franchisees, both by adding them to the subpopulation of independent owners and as a distinct subpopulation. The analyses in Table 2 excluded franchised outlets, both as observations at risk as well as from the count variables. When we added the 1,619 outlets with 402 exits that were owned by small franchisees (using our criterion of 20 or fewer outlets owned), both as observations and to the count variables, our main results become stronger than those reported in Table 2. Further, when we analyzed the exit of only these 1,619 franchised outlets (while including outlet counts of both franchised and non-franchised small owners in the independent variables), we found similar though slightly weaker results than for the non-franchised subpopulation (the franchise-only results supported H1 and H3a, but they did not support H3b at conventional significance levels).

Limitations

A limitation of a study such as this that demonstrates a relationship between a type of event (an ownership transfer or exit-entry pair) and an outcome (outlet exit) is that the study
does not directly observe the causal role of any particular mechanism. We suggested two main mechanisms through which ownership transfers and exit-entry pairs could provide beneficial information to incumbent multi-unit owners: information regarding changes in strategy that may have resulted in improved productivity or profitability, and specific information from personnel who left the employ of the transferred outlet. While we believe our strategy of studying the effect of ownership transfers in the vicinity of a multi-unit firm’s outlets in other markets upon the likelihood of exit of an outlet in a given market isolated these mechanisms of vicarious information from other turnover-related mechanisms that may influence exit rates (e.g., changes in level of competition, signals of sufficient or insufficient demand), we cannot determine which mechanism played the greatest role, nor can we be certain that some other mechanism that we have failed to imagine could be affecting the results. Our interviews suggest that employee turnover may be the primary mechanism, but this is anecdotal evidence. Rigorous qualitative work that could distinguish the relative role of these mechanisms would be a very useful complement to this study.

**DISCUSSION AND CONCLUSION**

This study offers robust core results that some market turnover events enhance multi-unit firm performance: outlets of multi-unit owners are less likely to exit if ownership transfers or contemporaneous exits and entries take place in the vicinity of other outlets in different markets that are owned by the same multi-unit owner as the outlet at risk. We developed theory that vicarious information is the causal mechanism underlying this relationship. Our theory and results support the idea that market-level turnover events generate and release vicarious information into the local business environment.
We focused on ownership transfers and exit-entry pairs in other markets because they are market turnover events that likely to generate and release vicarious information and because the informational mechanism is less likely to be confounded with other competitive dynamics.

Potential vicarious learning benefits also exist for other market events such as exits (without entries in the same time period in the same market) and entries (without exits). For these cases, however, vicarious information may be confounded with other signals regarding demand provided to incumbent owners as well as any change in competitive intensity in the market.

We argued that ownership transfers and exit-entry pairs generate information by acting as real-world experiments from which proximately located outlets of the same industry can benefit. When outlets change hands, the new owner often pursue different operating strategies than the previous owner, hoping to improve performance. Owners of incumbent outlets in the vicinity can make inferences from such ownership transfers, which they can then apply in the operation of all their outlets. Owners can make similar inferences when exits and entries take place contemporaneously in the same market. They can view what a new outlet’s owner is doing similarly and differently from the owner of the exited location.

Ownership transfers and exit-entry pairs also act as mechanisms to release information. Employees often switch jobs and work for competitors after transfers and exits. These employees then can take their information with them to their new employers, who, in turn, can pass the information along to other outlets that they own. Further, as we argued, ownership transfers at the retail and service outlet level are visible events. The transferred outlets often receive attention from the local business community, either from reports of the transfer event in local business journals, from discussion within the networks of buyers and suppliers, or from the
owners calling attention to themselves via an “under new management” banner. The attention also serves to release vicarious information into the local business environment.

Examining the relative strength of information generation and release in reducing exit rates is a fruitful opportunity for future work. Scholars have made great strides in assessing how firms generate information and learn from their own experience (e.g., Argote 1999), as well as what firms can learn from others (e.g., Miner et al. 1999, Kim, 2000; Shaver and Flyer, 2000). Yet, we know much less about the release of information. We hope that this study will provide incentive for additional research regarding sources and mechanisms of vicarious information.
References


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### TABLE 1: Correlations and Descriptive Statistics (N=29,753)

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# TABLE 2: Exponential Hazard Regressions on Outlet Exit (Non-Franchised Outlets of Single-Unit and Small Multi-unit Owners—up to 20 Units)

3,226 Failures, 7,255 Outlets total at risk (29,753 total years at risk): All regressions include industry-year intercepts for each year 1992-1999

<table>
<thead>
<tr>
<th>1: H1, H3a, H3b</th>
<th>2: H2</th>
<th>3: Contiguous Zips</th>
<th>4: Control Group</th>
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<tr>
<td><strong>Coeff.</strong></td>
<td><strong>Std. Error</strong></td>
<td><strong>Coeff.</strong></td>
<td><strong>Std. Error</strong></td>
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<table>
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<tr>
<th>Counts in other zips with outlets of same owner</th>
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<tbody>
<tr>
<td>(1) Transfers in these other zips (H1: -)</td>
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<td>(2) Transfers with a change of name</td>
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<tr>
<td>(3) Transfers that keep the same name</td>
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<tr>
<td>(4) Exit-entry pairs in these other zips (H3a: -)</td>
</tr>
<tr>
<td>(5) Excess exits in these other zips</td>
</tr>
<tr>
<td>(6) Excess entries in these other zips</td>
</tr>
<tr>
<td>(7) Existing outlets of single-unit owners</td>
</tr>
<tr>
<td>(8) Existing outlets of multi-unit owners</td>
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</table>

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<thead>
<tr>
<th>Comparison test variables</th>
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<tr>
<td>(C1) Transfers</td>
</tr>
<tr>
<td>(C4) Exit-entry pairs</td>
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<table>
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<th>Counts in same zip as outlet at risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>(9) Transfers in same zip</td>
</tr>
<tr>
<td>(10) Exit-entry pairs in same zip</td>
</tr>
<tr>
<td>(11) Excess exits in same zip</td>
</tr>
<tr>
<td>(12) Excess entries in same zip</td>
</tr>
<tr>
<td>(13) Existing outlets of single-unit owners</td>
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<td>(14) Existing outlets of multi-unit owners</td>
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<table>
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<tbody>
<tr>
<td>(15) Population of zip (10,000s)</td>
</tr>
<tr>
<td>(16) Income of zip ($10,000s)</td>
</tr>
<tr>
<td>(17) Retail growth in zip (10s)</td>
</tr>
<tr>
<td>(18) Multi-unit owner’s size (in number of outlets)</td>
</tr>
<tr>
<td>(19) Multi-unit owner’s size squared</td>
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<tr>
<td>(20) Local congenital experience</td>
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<tr>
<td>(21) Outlet has transferred ownership</td>
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<tr>
<td>(22) Log distance to owner’s HQ from outlet</td>
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<td>(23) Outlet age: 0-2 years</td>
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<tr>
<td>(24) Outlet age: 3-5 years</td>
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<tr>
<td>(25) Outlet age: 6+ years</td>
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</table>

Chi-squared tests for significant relationships among variables

- H3b: |5|>|6|+|7|: 7.43**
- H2: |2|>|3|: 1.40
- |1|>|C1|: 10.45**
- |4|>|C4|: 10.76**
- |4|>|C4|: 8.72**

LogLikelihood of Regression

-5047.0**
-5046.4**
-5044.8**
-5045.1**

**: p < 0.01; *: p < 0.05; +: p < 0.10 (two-tailed tests).