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Judging a book by its cover: survival analysis of independent and branch bookstores

Abstract

Following the organizational ecology tradition, I view independent and chain organizations as two distinct organizational forms, each with potentially separate functions within the community (Hannan and Freeman 1986; Hawley 1986; Rao 2002). The marked dissimilarities between these forms exist to attract unique resources, providing sustenance to that particular form. I test hypotheses regarding what these resources are and how they influence organizational survival. I find support for the models, providing insight into the diversity of an organizational population and the cultural factors that attenuate its heterogeneity. The empirical setting is retail bookstores in California from 1990-2003.

Introduction

At the brink of this century, independent booksellers perceived themselves that they were to be under siege. During the 1990s, chain stores were initiating a in the process of national expansion, moving out of successful regional positions and dotting communities from coast to coast with their branch establishments., the The result of which this expansion was an unprecedented change in the character of retail bookstores in the United States (Oda and Sanislo 2001). In 1993, Barnes and Noble and Borders, – the two largest booksellers in the U.S., - occupied 35% of the market (Egelko and McCabe 2001). Six short years, later the picture looked dire in the eyes of independent book retailers: as tthese same two chains announced revenues that consituted made up more than 50% of half of the $120 billion U.S. bookselling industry (Oda and Sanislo 2001). Furthermore, during the same time period, the American Booksellers Association, the trade association representing independent bookstores, lost 40% of its membership. which mMany feared this drop to be a sign was a portent of the fate facing of all independent American booksellers in the face of the this new era of competitive pressures emanating from the large chain stores. In response to the "unfair" and "illegal" business practices of chain bookstores, the American Booksellers Association (the trade association representing independent bookstores) filed an anti-trust lawsuit against Barnes and Noble and Borders (Association 1998). This episode of contention ended in a stalemate, with both sides claiming victory as the parties settled out of court. While being unsuccessful in convincing the judge that the independent bookstores' loses were a the result of illegal competitive practices, the ABA did receive compensation from Barnes and Noble and Borders for half of its legal fees (Egelko and McCabe 2001).

The picture of an honest, local bookseller forced into bankruptcy is highly compelling for an American public that typically roots for the underdog. But that picture may be wrong. Industry observers, while acknowledging the challenges, affirm the resilience of the independent bookstores (Oda and Sanislo 2001). With a product that is relatively homogenous and sourced from the same general set of producers, and operations that benefit from scale economies and technological efficiencies (Raff 2000), how is it that small actors survive? How might we explain the state of détente that persists between chains and independents as opposed to the total decimation of the population that was once feared?

I address these questions with the goal of understanding and analyzing the competitive dynamics that determine the level of heterogeneity in the population of bookstores. At the core of this effort is an analysis of the survival of California bookstores between 1990 and 2003, the period of significant transition in industry structure. My dataset encompasses observations on approximately 8,000 different organizations, distinguished as either independent bookstores or chain establishments.

Although the cause of the independent bookstore is no doubt near and dear to the heart of bibliophiles and scholars, my primary intent is to contribute to the progress of organizational theory. Following the organizational ecology tradition, I view independent and chain organizations as two distinct organizational forms, each with potentially separate functions within the community (Hannan and Freeman 1986; Hawley 1986; Rao

2002). The marked dissimilarities between these forms exist to attract unique resources, providing sustenance to that particular form. I test hypotheses regarding what these resources are and how they influence organizational survival. I find support for the models, providing insight into the diversity of an organizational population and the cultural factors that attenuate its heterogeneity.

Organizational Form and Mortality

In their seminal work "Population Ecology of Organizations," Hannan and Freeman (1977) call for an examination of the circumstances and constraints that contribute to the diversity of organizations within an environment. In other words why are there so many different kinds of organizations or, more specifically organizational forms? Answering this challenge, many researchers have broadly studied the diversity of organizations within an organizational population and the factors that influence population transformation and organizational founding and survival rates.   The literature on mortality has linked organizational survival to change processes (Dobrev 1999), age and size dependent processes (Barron, West and Hannan 1994; Ranger-Moore 1997; Ranger-Moore, Breckenridge and Jones 1995), environmental changes (Olzak and West 1991), learning (Barnett and Hansen 1996) and the effects of the legal institutions (Barnett and Carroll 1993).   Although these studies examine a wide range of factors influencing mortality of organizations, I am interested in explicitly examining organizational form and differential mortality.

It is useful to employ the notion of organizational form to delineate and describe the similarities and differences between chain and independent organizations. Organizations with the same core (not periphery) structures may be gathered under the heading of the same form (Hannan and Freeman 1977). The fact that chain organizations rely on a centralized bureaucracy to accomplish routine tasks that are both critical and core capabilities (such as procurement and information processing)(Raff 2000) differentiates them from independents. Organizations that do not belong to a chain rely on their own idiosyncratic methods for accomplishing critical tasks that may vary with the whim of the proprietor.

Moreover, organizations of the same form are dependent on a common set of material and social resources (Carroll and Hannan 2000). Chain establishments by definition are monitored by entities outside of most of the communities in which they are active and it is in these remote locations where the key competitive capabilities reside or are derived. Given this fundamental structure of chain organizations, it is clear that these forms draw many of their resources for survival from outside the locality or at minimum from different sources than those required by independent organizations. Some of the differential resources that chain organizations are thought to have as a result of their organizing structure are recognizable branding from the parent entity (Barnett and Swanson 2004; Ingram 1996), channels to facilely communicate learning and innovation (Ingram and Baum 1997) and local manifestation of powerful, remote actor (Ingram and Rao 2004). Whereas these studies do aver that chains and independents organizations appeal to dissimilar resources, why is this significant?

Utilizing different resources or resources derived from different sources will have a significant impact on survival. Simplistically, divergent factors will determine the relative proliferation or scarcity of those different resources and in turn differentially impact the resources available to the two distinct organizational forms. I suggest that chains and independents necessitate different resources which results in survival rates that at baseline are divergent. Additionally, since independent organizations are smaller (in overall organizational size, not necessarily establishment size), allowing less buffering of their core capabilities (Thompson 1967) and rely on resources that are more limited in scope (i.e. they are localized), they will have a higher failure rate than chain establishments.

> *H1: Independent organizations will have higher rates of failure*
> *than branch organizations.*

Organizational Form, Identity and Consumption

Within this population of firms, one could conceive of the delineation of organizational form as a division between specialists and generalists (Carroll 1985; Dobrev, Kim and Hannan 2001a), but this characterization does not adequately describe the character of the division between these organizational forms. Specialists are organizations that utilize a narrow band of resources, whereas generalists draw upon resources from a wider swath of the resources space (Freeman and Hannan 1983). To be specific, there are many vital

independent bookstores throughout the country that are large and offer a broad array of general interest books (like those from the N. Y. Times Best Sellers list) in addition to specialty books and thus so not rely on a singular or limited set of customers. Cody's Books is a local example; Powell's in Portland, OR is another well-known independent and very large bookstore which stocks everything from technical books to used and new fiction under one giant roof.

Returning to the theoretical conception of organizational form we may gain some further insight as to what impact form has on mortality rates. Carroll and Hannan suggest that form is a special type of organizational identity that conveys certain features and constraints that are defining for that organizational type (2000). These features and constraints are akin to a code of conduct and set of signals for those inside and outside the organization. These indicate a "recognizable pattern" of repertoires of interaction which actors in the resource space acknowledge as being legitimate given the prescriptions of the organizational form. Violations of the code should have observable consequences. As an example, should an independent bookstore reduce the number of bibliophile staff and place in their stead computer terminals to search for a particular title or type of book, observers might avow that the organization has lost that independent bookstore "feel" or perhaps customers might express a sense of betrayal. These reactions would stem from the violation of the code of behavior articulated for the specific organizational form of "independent bookstore" and may enact a toll on the accumulation of resources for this imagined establishment.

Furthermore, the organizational form (which is bound by its legitimate code of action) is constituted as a cultural object (Carroll and Hannan 2000; Rao 1998). As a cultural object, it is not just recognizable by actors in the resources space, but may also invoked and utilized by these actors for their own projects and aims. This idea has been used to explain how boundaries of organization forms are shaped by politics and social movement activists (Carroll and Swaminathan 2000; Rao 1998). In the case of bookstores, I suggest that consumers seek to utilize particular organizational forms to reinforce their own (or a portion of their) identity.

One of the projects which modern people undertake is the construction of identity. The microsociological view of consumption avers that symbolic goods (i.e. products in the marketplace) are potential resources with which individuals construct these identities and by extension define relations other desirable others (DiMaggio 1994). Feelings of belonging stem from the symbolic goods that we surround ourselves with. Although in this view, choice of goods is unstructured by strict class differentiation or occupation, individuals enact membership in society in part via consumption and their consuming preferences. From this point of view, individuals may have more fluid choices about which identities to invoke and when to invoke them. At one moment, identifying with and feeling connected to popular American culture or our broad Consumer Republic (Cohen 2003) may drive consumption choices in one direction and later the desire to be identified with a smaller, more differentiated group will manifest buying behavior that reflect these desires.

As an example, with the book DaVinci Code being released in as a movie soon there may be droves of individuals who will now read the book, just because it has become such a popular phenomena so as not to be completely socially marginalized. This may hold true even when a mass market best seller novel is not the consumer's usual choice of book. To relate this to the discussion of chain establishments as opposed to the independents, branches provide predictable replication of mass marketed goods, basic symbols of popular culture - the currency of conformity to the larger society in the U.S. Independents may have some of these goods, but they cannot be relied upon for these. What they can be relied upon is the unique or special book that intends to speak to their "audience." Even general interest bookstores of the independent stripe want to make particular and unique connection with their customers. This scratches the smaller itch to be an individual in a small way with one's identified group. Furthermore, it is important to reiterate, the consumption choice entails constructing a symbolic link between what one buys and how one identifies. To wit, Paco Underhill, consultant for booksellers and other small retailers points out to independent booksellers that besides convenience and value, customers want to feel special.

> *"…somebody relates differently to a bookstore than to a grocery store…. Books, for many of us, aren't about reading, they aren't about knowledge, they are a religion. I like having books in every corner of my house. A bookstore is the one place where I give myself permission to buy whatever I want."   (Schechner 2006)*

Leonard Riggio, the founder of Barnes and Noble understood this before his organization branched out into multi-units across many communities. In describing his customers at his single location, he said:

> *They have no intention of reading the books they buy. They buy them as shelf fillers, in order to project images of themselves through their collections (Raff 2000).*

Multiple types of organizational forms suggest multiple functions and interdependence (Durkeim 1933 (1984); Hawley 1986). The difference in these two organizational forms has less to do with exact product offerings and more with the manner in which these retailers connect or match their customers with the product they offer. Chain bookstores provide consumers the opportunity to imbibe in popular culture e.g. Border is focused on bestsellers within many different genres looking to maximize entertainment and pleasure. Independent booksellers link consumers with an identity that connects to a more differentiated self-concept, that fits within a narrower social group. Given the complementary nature of the relationship between these two organizational forms and the differentiated resources that they demand, branch store openings will not negatively affect the baseline survival rates of independent stores, even when they enter into the same community.

> *H2: Branch openings in the same competitive space will not negatively affect the baseline survival rate of independent bookstores.*

Influence of Community Values

There is reason to believe that the basic description of the competitive relationship between independent organizations and chain organizations may be influenced by local social structures. Indeed research suggests that nonlocal establishments (like chains or multinational corporations) may bow to community norms (Galaskiewicz 1991) or that community traditions influence organizational vital rates (Freeman and Lomi 1994; Lomi 1995a).

There may be several reasons why a particular community's values could impact the survival rates of independent organizations. Chief among them are a common focus on the community, what Robert Putnam has termed Civic Engagement. According to this view, areas with rich social networks from activities like civic, religious and political participation enjoy stronger communities and are more likely to avoid the "civic malaise" (Putnam 2000: p.25) that has beset many American neighborhoods. These community focused behaviors and values may manifest themselves in an insulating property for independent organizations. Locally owned firms in areas with high civic mindedness are likely connected, i.e. embedded in these more developed community networks. These relationships will protect the independent firms from their usual frailty (Granovetter 1973; Saxenian 1996), but probably have little impact on the survival of branch organizations. However, this protective effect for independent organizations will be exaggerated when a branch organization is founded in such a community.

H3a: The number of member organizations in a community will not positively impact the baseline survival rate for branch organizations.

H3b: The percentage of eligible voters voting in a community during a midterm election will not positively impact the baseline survival rate for branch organizations.

H4a: The number of member organizations in a community will positively impact the survival rate for independent organizations.

H4b: The percentage of eligible voters voting in a community during a midterm election will positively impact the survival rate for independent organizations

H5a: The number of member organizations in a community will positively impact the survival rate for independent organizations where branch organizations have recently opened.

H5b: The percentage of eligible voters voting in a community during a midterm election will positively impact the survival rate for independent organizations where branch organizations have recently opened.

Data and Methods

The National Establishment Time-Series (NETS) Data is constructed from annual snapshots of the Dun's Marketing Information (DMI) files identifying which establishments were active in January of each year. The establishment level data includes

firm location (zip code, FIPS codes and longitude and latitude); type of establishment (single location, headquarter or branch; headquarters where not included in the following analysis), years business was active and founding date; up to 8 digit SIC code; employment at each establishment. The essential component of the NETS data is the Duns and Bradstreet DUNS number. Any business location with unique, separate and distinct operations is eligible for a DUNS number.

Data on U.S. bookstores was pulled from the larger NETS dataset.

Bookstores in the U.S.

It was not until the 1920s that independent bookstores established a presence. Prior to that most retailing venues for book were adjacent to their publishing house (Tillman 1999), essentially an annex to the printing process. Now, no longer clinging to the skirt hems of the publishers, independent bookstores longed to showcase information and knowledge, particularly if it piqued the interest of their local community (Raff 2000). By and large they located in the city center or downtown. And they developed a shared value and idealism around what an independent bookstore was committed to. As David K. Brown remarked, "Sometimes a[n independent] buyer will say to me, 'I'll put it out, not multiple copies, but one to have for the store, because I'd like to represent that book'" (as quote in (Tillman 1999). Perhaps more importantly, independent bookstore owners (and usually the buyers) were passionate about matching customers with books. Indeed, Betsy Burton, owner of The King's English Bookshop (TKE) in Salt Lake City, has had a single-minded pursuit since her store's inception in 1977: "Pick good books, pass them

on. That's all that counts in the end"(Burton 2005). Independent booksellers as a group then tend to be bibliophiles who want to be personal booklists for their customers because this is an idealistic,, essential and worthy endeavor for their lives (Tillman 1999). Additionally, independent bookstore owners hire their sales staff, hoping they are cut from the same cloth. Thus whether interacting with the owner herself or a staff person, whether in a large store or small, customers expect something very specific from the book buying experience in this organizational form. Via the breadth of knowledge of the owner or sales staff, they will not only locate a book that they will enjoy, but this great "find" is delivered based on a tip, insider information from someone who could couple the little-known book with what this customer would uniquely appreciate.

The two largest chains booksellers in the U.S. operate with a completely different set of structures in place to ensure that their customers receive the book that they demand. Barnes and Noble and Borders, of course, were born as independent bookstores. With ambitious growth goals, each eventually turned to an organizational form that encompassed a large, often free-standing retail space, feeling less like an intimate book store and more like a library (Raff 2000). But besides the space and ancillary services like cafes and reading areas, these chains mastered economies of scale either via software optimized to handle the inventory tracking or via price and volume. In these situations, staff was expected to be efficient cashiers for the droves of customers buying best sellers or have enough book expertise to utilize the database to find or order a book. In both cases, the customer relied upon another source to inform her buying decision (e.g. the New York Times Best Seller List) or information housed in a database to locate the

product. In neither case is any personal connection being made with the customer. And more over the customer is selecting and evaluating their potential purchase based on information available to the masses, to everyone and anyone and to no one special. This is in sharp contrast to the interaction with an independent bookseller whose *raison d'etre* is to personally pair the customer with a previously undiscovered book.

Independent Variables

Independent establishments: Each firm was coded as either independent (1) or branch (0). Headquarters were left out of the analysis chiefly because the substantive question at hand does not consider this organizational form.

Size: Size was included in the models so as not to confound the independent organizational observed effects on survival with those of size. **Independent X Size** an interaction term was also added.

Branch births in the community: branch births are operationalized as the total number of branch births in the county or adjacent counties of the focal organization, lagged by one year. This raises the question of why to cluster the branch births (and other variables) for the organizations own county and all adjacent counties. This is question is not trivial since the idea that environmental circumstances will influence the nature of competition is well supported in the ecology literature. Hawley's (1986) early formulations specifically bound competition or other forms of interdependence as occurring within a community. In line with Hawley's thinking, Hannan, Carroll, Dundon and Torres (1995) found that competitive effects manifest more at a local level, rather than a national level. In other studies, Freeman and Lomi (Freeman and Lomi 1994) and

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Lomi (Lomi 1995b) explicitly compare the results of community level and national level analyses of competitive dynamics among Italian banks. They found that geographically defined structures influence the evolutionary dynamics of organizational populations. Put another way, the nature of intrapopulation structures varies by location and therefore organizational vital rates vary systematically in alignment with these locally defined structures. Thus, unique community characteristics interact with the organizational populations to determine competitive relationships.

Additional examples of sub-population analysis and branch operations find similar results. Baum and Singh (Baum and Singh 1994a; Baum and Singh 1994b) have found different founding rates and different mortality rates for organizations in the same metropolitan area depending on the constituency that they serve. That is to say organizations in the same niche may have a mutalistic relationship if they are located in different neighborhoods within the same city. For the day care centers evaluated by Baum and Singh, geographic space was the key characteristic that determined the nature of the competitive relationship between organizations in the same niche. To turn to a branch operations example, when looking at Manhattan hotel chains, Ingram and Baum (1997) found that hotels with chain affiliation have lower failure rates than independent operators. However, for a chain establishment, the greater the chain's *non-local* experience, the greater the *failure* rate of the chain's affiliated units. In short, for the Manhattan hotel industry, variations in local knowledge contributed to the difference in vital rates among organizations, even if they were part of a chain. Thus, a variety of local conditions (social, cultural, political) may determine variation within the population of

organizations and thereby construct the character of competition, even if those firms are affiliated with a parent company located outside of the system. All of this suggests that identifying the appropriate level of aggregation for the "community" in which to measure the competitive effect is vital for adequately modeling the dynamics between chain organizations and independents.

Since attraction to a store location is based largely on convenience (usually proximity) for the consumer, bookstores sharing the same resource space will be located in same general geographic area. However, instead of strictly identifying this area as the city or the county, I operationalized competition variables (like density of firms or branch births) or community values for each focal unit as those in the county in which the unit is located and any adjoining counties. As an example, when counting the number of independent organizations in the resource space, I counted all independents in that same county and all adjacent counties. This modeling decision is not arbitrary, but it is not perfect. However, I believe that it is a better measure of the location of competitive forces when consumers in a mobile society like California's think little of driving 20 or 30 miles away to shop for a desired good. Crossing political borders (like dividing lines between municipalities or counties) rarely enters the consideration of a shopper and certainly does not prevent them from traveling to a sought after shopping destination. Essentially for retailing, the competitive environment is defined by access by car within a limited window of time. The county clustering that I used seemed to imitate just this competitive space better than the alternatives like county or city or MSA.

Branch births X independent : an interaction term between lagged branch births in the community and independents.

Member organizations : Sourced from the 1997 Economic Census this is the number of Civic and Social Membership associations in the county and adjacent counties per 10,000 people. Interaction terms with Independent and Independent and lagged branch births were also used.

Voter turn out in 1998 : This is percentage of eligible voters that cast ballots in the 1998 mid-term election (not national). Sourced from the State of California Elections Division. Interaction terms with Independent and Independent and lagged branch births were also used.

Control variables

Control variables were included in the model to account for alternative explanations. They included density (counts) of independent establishments, density of independents squared, density of branch establishments, density of branches squared, human population per square mile, the log of human population, retail sales per capita and the annual pay per retail employee. Also included were measures of a community's education level and general wealth: percent of population with BA or higher degree and personal income per capita.

Model Specification and Estimation

For the failure analysis of these organizations, the unit of analysis is the organization-year. The clock (i.e. analysis time) is age of the organization. If age is not known, I included a the binary variable "left truncated," coded 1 if left truncated and 0 otherwise to control for the bias of my estimates due to this omitted data. So the baseline hazard rate will be for a non-truncated organization. To model the hazard rates of these different organizational forms, I utilized a piecewise exponential proportional hazard rate model. Following other ecological studies of failure (Dobrev, Kim and Hannan 2001b), given a non-negative random variable, T that records time to failure The hazard function $h(t)$, or the conditional failure rate, using and exponential model is defined as:

$$h(t \mid \mathbf{x}_j) = h_0(t) \exp(\mathbf{x}_j \beta_x)$$

(If a firm exits the population by some other event [e.g., acquisition], I treat the spell as [noninformatively] censored at the observed event time.)

This allows me to split the analysis into age specified time periods (1, 2, 3, 4, 5, 7, 10 years) without assuming a specific functional form for time dependence. Moreover the base rate is allowed to vary from period to period, even thought the rate remains the constant within each period.

Results

[Briefly!] The results for hypothesis 1 indicate that independent organizations have nearly double the hazard rate (i.e. probability of death) that branch organizations do. However as these organizations increase in size, the differential in hazard rate when

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compared to branch organizations is dramatically reduced. In short, being a large independent significantly improves your chances of survival.

Branch births alone reduce the likelihood of death for other branch births and have a small, but statistically significant impact on the likelihood of death. That is to say, independents who operate in communities where a branch birth has recently occurred have a .003% greater chance of death than a branch (holding everything else at zero). Although not strictly in support of Hypothesis 2, it does not suggest that a massive die-off occurs among independents when a branch opens in their area.

The number of membership organizations (per 10,000) people slightly increases the likelihood of failure for branch organizations. Percentage of voters astonishingly massively increases the likelihood of death for a branch organization – 7 fold increase (holding everything else at zero, the baseline). The magnitude of this hazard rate is dodgy and is perhaps the result of being a percentage and therefore not well centered. This would suggest support for Hypothesis 3.

There were mixed results for Hypothesis 4. There membership organizations interacted with independent significantly reduces the rate of failure compared to branch organizations (holding all other variables at zero)– by 37%. However, voting participation dramatically increases the hazard rate for the independent organizations. Even post hoc, it is difficult to explain this result.

However, important to note that now with this model, the failure rate for an independent firm compared to the baseline branch firm is not longer statistically significant. This is suggestive that we have account for the variance of independent failure rates somewhere in the interaction terms that were introduced here.

Finally, there is strong support for Hypothesis 5. The three-way interaction term evaluating the insulating effects of membership organization participation in communities with independent bookstores and newly opened branch bookstores was statistically significant and in the predicted direction. The failure rate for independents when there is a new bookstore and higher amounts of membership in civic organization is lower than that of branch organizations. Moreover the same association is found for voter participation during midterm (local) elections. Although the effect is reversed from the previous model, this seems to indicate that after the opening of a branch organization energizes politically active citizens (who maybe in general do not have a strong connection to the local independent bookstore) to vote with their feet, too. These community behaviors and values seem to insulate independent organizations from their typical frailty in comparison to branch organizations.

Conclusion

The hazard rate models presented here suggest that different organizational forms have differential hazard rates and live and die by different resource allocations. Their critical resources are so dissimilar that the opening of a new branch organization in a locality does not appear to be associated with a large jump in the hazard rate for independents.

Moreover there is strong evidence that local community values and routines (like regular civic participation) are associated with strong independent organizations, most particularly in the face of non-local competition from a branch organization. It would appear that in communities where individuals do not bowl alone (Putnm 1999) independent organizations are likely to live longer and should thrive.

The limitations of this study, like its generalizability, beg that further work be done on intraorganizational populations, their form and function, and the community factors that may shape their competitive dynamics.

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Table 1:		Summary Statistics				
Variable |		Obs	Mean	Std. Dev.	Min	Max
-------------	+	------------	----------	-------------	-----------	---------
Independent establishment	|	52435	0.8014303	0.398927	0	1
Size	|	48389	7.757734	58.48483	1	3280
Density of independent establishments [a]	|	54172	784.3957	488.1852	15	1778
Density of independents squared [a]	|	54172	853597.1	846261.8	225	3161284
Density of branch establishments [a]	|	54172	238.8482	151.5561	0	534
-------------	+	------------	----------	-------------	-----------	---------
Density of branches squared [a]	|	54172	80017.29	79205.21	0	285156
Population per square mile [a]	|	54172	459.721	437.7346	13.86437	1338.3
Log of Population [a]	|	54172	15.51649	1.005581	12.1414	16.59951
Retail sales per capita [a]	|	54172	7.909665	0.7646658	6.584282	9.535342
Annual pay per retail employee [a]	|	54172	19261.6	1010.533	15322.85	20757.79
-------------	+	------------	----------	-------------	-----------	---------
Percent of population with BA or higher degree [a]	|	54172	0.2231365	0.0456746	0.1327554	0.299913
Personal income per capita [a]	|	54172	27.24259	5.273419	19.03188	36.66792
Percent of eligible voters voting in 1998 election [a]	|	54172	0.4100272	0.035599	0.3515137	0.5513868
Membership organizations [a] x independent	|	54172	6.017062	1.052643	4.540372	11.65121
Branch births [a,b]	|	54172	17.1505	21.14774	0	143
-------------	+	------------	----------	-------------	-----------	---------
Independent births [a,b]	|	54172	97.60354	76.16746	0	339

Table 2: Correlations Among Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Independent establishment	1															
Size	0.12	1.00														
Density of independent establishments [a]	-0.05	0.01	1.00													
Density of independents squared [a]	-0.04	0.01	0.97	1.00												
Density of branch establishments [a]	-0.06	0.01	0.97	0.93	1.00											
Density of branches squared [a]	-0.05	0.01	0.94	0.95	0.97	1.00										
Population per square mile [a]	-0.03	-0.01	-0.22	-0.28	-0.19	-0.27	1.00									
Log of Population [a]	-0.07	0.01	0.73	0.64	0.73	0.64	0.18	1.00								
Retail sales per capita [a]	-0.02	0.01	-0.26	-0.32	-0.23	-0.31	0.91	0.11	1.00							
Annual pay per retail employee [a]	-0.04	0.00	-0.05	-0.03	-0.07	-0.02	0.85	0.50	0.88	1.00						
Percent of population with BA or higher degree [a]	-0.03	0.00	-0.18	-0.26	-0.15	-0.24	0.94	0.25	0.94	0.91	1.00					
Personal income per capita [a]	-0.03	0.01	-0.21	-0.28	-0.18	-0.27	0.96	0.20	0.96	0.91	0.99	1.00				
Percent of eligible voters voting in 1998 election [a]	-0.05	0.01	-0.64	-0.56	-0.63	-0.56	0.27	-0.64	0.39	0.11	0.33	0.35	1.00			
Membership organizations [a] x independent	-0.04	0.00	-0.59	-0.51	-0.60	-0.53	0.30	-0.64	0.29	0.01	0.25	0.28	0.80	1.00		
Branch births [a,b]	-0.01	0.00	0.48	0.43	0.53	0.51	-0.13	0.36	-0.13	-0.02	-0.10	-0.11	-0.34	-0.39	1.00	
Independent births [a,b]	-0.05	-0.01	0.88	0.87	0.88	0.87	-0.25	0.61	-0.27	-0.01	-0.21	-0.24	0.56	0.54	0.55	1

		Exponential Piecewise Proportional Hazard Models of Mortality of California Bookstores: 1990-2003				

Table 3:

	Model				
Independent Variable	1	2	3	4	5
Age at one year	0.0583**	0.0000**	0.0000**	0.0000**	0.0000**
	(0.0368)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Age at two years	0.051**	0.0558**	0.0131**	0.0414**	0.0285*8
	(0.0319)	(0.0353)	(0.0121)	(0.0433)	(0.0300)
Age at three years	0.0732**	0.0776**	0.0182**	0.0575**	0.0396**
	(0.0457)	(0.0491)	(0.0168)	(0.0602)	(0.0418)
Age at four years	0.142**	0.1634**	0.0383**	0.1209*	0.0837*
	(0.0886)	(0.1031)	(0.0353)	(0.1265)	(0.0883)
Age at five years	0.0532**	0.0587**	0.0137**	0.0539**	0.0301**
	00000	(0.0371)	(0.01267)	(0.0565)	(0.0318)
Age at seven years	0.0693**	0.0747**	0.0174**	0.0268**	0.0371**
	(0.0433)	(0.0472)	(0.0161)	(0.0281)	(0.0392)
Age at ten years	0.0332**	0.0367**	0.0086**	0.5812	0.0185**
	(0.0208)	(0.0232)	(0.0079)	(0.3723)	(0.0195)
Independent establishment	2.095**	1.9061**	1.9094**	0.5812	0.3243
	(0.1235)	(0.1467)	(0.1468)	(0.3723)	(0.2173)
Size (# of employees)	0.9908*	0.9895*	0.9894*	0.9879*	0.9877*
	(0.0043)	(0.0047)	(0.0047)	(0.0051)	(0.0051)
Independent x size	1.0056	1.0071	1.0071	1.0086	1.0088
	(0.0046)	(0.0050)	(0.0050)	(0.0054)	(0.0055)
Branch births [a,b]		0.9884**	0.9884	0.9920**	0.9919**
		(0.0022)	(0.0022)	(0.0021)	(0.0021)
Branch births x independent [a,b]		1.0039	1.0040	0.9999	1.0719**
		(0.0023)	(0.0023)	(0.0022)	(0.0162)
# of membership organizations/10,000 population [a]			1.0092	1.5114**	1.5324**
			(0.0308)	(0.1076)	(0.1091)
Percent of eligible voters voting in 1998 election [a]			7.1512	0.0014*	0.0008**
			(9.0793)	(0.0033)	(0.0020)
Membership organizations [a] x independent				0.6336**	0.6278**

				(0.0458)	(0.0466)
Voters [a] x independent				17297.58**	88021.49**
				(38914.17)	(206710.3)
Membership [a] x independent x branch births [a,b]					0.9984*
					(0.0016)
Voters [a] x independent x branch births [a,b]					0.8536*
					(0.0339)
Density of independent establishments [a]	0.9974**	0.9983**	0.9981**	0.9981**	0.9979**
	(0.0005)	(0.0006)	(0.0006)	(0.0018)	(0.0006)
Density of branch establishments [a]	1.0069**	1.005**	1.0061**	1.0063**	1.0068**
	(0.0016)	(0.0017)	(0.0081)	(0.0018)	(0.0018)
Density of independents squared [a]	1.000**	1.000**	1.0000**	1.0000**	1.0000**
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Density of branches squared [a]	1.0000**	1.0000	1.0000*	1.0000*	1.0000*
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Left truncated	1.5309**	1.5708**	1.5866**	1.6015**	1.6056**
	(0.0502)	(0.0526)	(0.0543)	(0.0548)	(0.0549)
Population per square mile [a]	1.0004**	1.0003*	1.0005**	1.0005**	1.0005**
	(0.0001)	(0.0001)	(0.0002)	(0.0002)	(0.0002)
Log of Population [a]	1.1317**	1.1428**	1.2244**	1.2409**	1.2684**
	(0.0494)	(0.0510)	(0.0688)	(0.0697)	(0.0723)
Retail sales per capita [a]	1.3415**	1.367**	1.4481**	1.4754**	1.4504**
	(0.1135)	(0.1170)	(0.1200)	(0.1322)	(0.1322)
Annual pay per retail employee [a]	0.9998**	0.9998**	0.9998**	0.9998**	0.9998**
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Percent of population with BA or higher degree [a]	0.2073	0.2496	0.0678	0.1041	0.1866
	(0.4347)	(0.5312)	(0.1498)	(0.2303)	(0.4187)
Personal income per capita [a]	0.9666	0.9714	0.9538	0.9496	0.9473
	(0.0271)	(0.0276)	(0.0284)	(0.0282)	(0.0280)
Number of establishments	8058	7908	7908	7908	7908
Number of observations	68772	65782	65782	65782	65782
Number of failures	4624	4474	4474	4474	4474
Log pseudolikehood	-7112.2768	-6592.9669	-6591.0350	-6573.652	-6566.5352

*p<.05
**p<.01
[a] in the county and adjacent counties

[b] lagged one year
Note: numbers in parentheses are robust standard errors.