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Abstract

While the Canadian newspaper industry is mature and stable, in terms of the total number of papers, it has continued to be dynamic. We examine the risk of exit in the Canadian daily newspaper industry between 1972 and 1992 as one aspect of industry dynamics. We add to the growing literature in spatial ecology by differentiating between large regional papers and small local papers, and show how competition in the centre of large regional markets has two primary effects: (1) it increases the risk of exit in the center; and, (2) it leads to geographic differentiation away from the center which exerts competitive pressures in nearby local markets. For papers in small local markets, such competitive pressures diminish with distance from regional markets, and are further mitigated by firm specific advantages, especially those related to competitive strength and scale. Geographic differentiation for regional papers is, however, a two-edged sword: it relieves competitive pressures in the center, but generates more in the periphery, up to a critical level, after which it declines.
Although early work in organizational ecology emphasized the importance of both spatial and temporal processes in the ecology of markets and industries (e.g. Hawley, 1950), much of the later work, following Hannan and Freeman’s (1977) lead, focused on understanding temporal processes. By contrast, there has been little emphasis on the spatial ecology of markets and industries. This is clearly an oversight given that spatial structure influences inter-firm interaction, and alters selection pressures (Barnett & Carroll, 1987; Lomi, 2000). Of the work that has taken spatial structure into account, much of the research has been directed toward developing multilevel density-dependent models, which examines the effects of the number of firms at different levels of analysis (Greve, 2002; Hannan, et al., 1995; Lomi, 1995; 2000). Some have also examined competitive spillovers across market boundaries within a more broadly defined industry (e.g. Barnett & Carroll, 1987).

At the core of these models is the assumption of location-dependence (Lomi, 1995). Location-dependence can be the result of institutional forces that constrain how firms behave, such as in the banking industry (Greve, 2002; Lomi, 1995); or it may be due to local variation in the resource or market base, or both. The key implication of location-dependence is that industries usually evolve to a particular spatial configuration which affects the opportunities and constraints that firms face. However, even under conditions of location dependence, firms are not always strictly constrained by their location. Often overlooked is the fact that firms have spatial extension (Lomi, 2000); however, the extent to which firms interact with others beyond the boundaries of their core market varies. This extensibility is often tied to a fundamental asymmetry between markets, which can lead to different market structures. Market structure therefore has obvious implications for the way firms interact across markets, as well as for the nature of the selection process.
In this paper, we add to the growing literature on spatial ecology by studying exits in the Canadian daily newspaper industry between 1972 and 1992. Because of the importance of newspapers in the life of communities, understanding exits takes on a special significance. Unlike prior research, which has tended to examine dynamics within a single market or assumed the existence of a cohesive national market in newspapers, our study examines the effects of competition within and across localized markets. We argue that this industry can best be characterized by a dual market structure, and that the basis of competition differs fundamentally for papers in large regional markets and those in small local markets. Large regional papers compete head-to-head, but competition in the center can spill over into the periphery, thereby affecting the performance of papers in nearby local markets. We find that while the competitive intensity exerted by regional papers increases the risk of a local paper exiting a market, this effect diminishes with greater distance from the center. The risk of exit for local papers is further dampened by firm level advantages such as competitive strength in its home market, as well as its scale. However, such effects are less operative in regional markets where papers can adapt to changes in their competitive environment by expanding geographically. We find that the geographic scope of regional papers has an inverse U-shaped effect on the risk of exiting – those papers having either a small or a large scope in those markets are less likely to exit. We emphasize the importance of location dependence and the dual market structure of the industry in interpreting these results.

Given the attention that ecologists have focused on the newspaper industry, this is an ideal setting to revisit some issues related to competitive interaction, and especially those dealing with spatial structure. The paper is organized as follows: first, we provide a brief overview of the theoretical background related to the study and a description of the research setting, followed by the hypotheses that we test. This is followed by a description of the data and the methods used to
test the hypotheses, and a discussion of the results. We conclude with a discussion of the implications of this study, and directions for future research.

THEORETICAL BACKGROUND

Market dynamics are characterized by entries and exits into and out of markets, as well as by mergers and acquisitions among incumbents. These processes fundamentally alter the structure of markets because as actors change, so too does the nature of competition. Most of the work in organizational ecology has focused on modeling the growth and decline in the number of organizations in long period studies, usually as a function of density-dependence. Such processes have been documented in a wide variety of industries, including the banking industry (Lomi, 1995), the hotel industry (Baum & Mezias, 1992), and most important for our purposes, the newspaper industry (Amburgey, et al., 1993; Carroll & Delacroix, 1982; Carroll & Hannan, 1989). Although the density-dependence model has received substantial empirical support, the assumption that all members of an organizational population are equal has been shown to be unrealistic. Some work, for instance, has shown that a variety of other factors such as population mass (Barnett & Amburgey, 1990), and niche position and width (Baum & Singh, 1994), are also important factors influencing the vital rates of organizations.

The ability of organizations to survive in markets depends on a variety of factors. In general, firm expansion or contraction depends on the carrying capacity of the environment, in terms of both resource availability and market size, as well as the degree of competition for either of these. When organizations compete for the same resources or markets, they affect one another’s potential for growth and survival (Hannan & Freeman, 1989); and similarity in resource requirements and markets determines the extent of competition (Aldrich, 1979; Hannan & Freeman, 1989). Competition can become especially intense in a mature industry since once
the carrying capacity is reached competition leads to a zero-sum game; resource/market constraints can become harder, and growth opportunities diminish. Swaminathan & Delacroix (1991) suggested that firms react to market overcrowding by either exiting or finding new, less crowded markets or niches.

Under conditions in which scale economies dominate, which assumes a homogeneous market space, organizations that have greater scale have cost and therefore competitive advantages over rivals. It has also often been assumed that scale-based competition dominates the newspaper industry (Carroll, 1985). In his study of entire newspaper publishing organizations in seven U.S. cities, Carroll (1985) showed that crowding by generalists in the center of markets gives rise to partitioning of markets and the resources they rely on, thus providing opportunities for specialists in the periphery (in this case, non-dailies).1 While this is certainly an important process to document, the notion of resource partitioning is crucially dependent on how the boundaries of a population are defined. Center and periphery, as defined by this theory, are abstract concepts in a homogeneous market space (but a heterogeneous product space). However, defining the “population” as a metropolitan region misses some important interactions in the broader industry. This is typical of studies in the ecological tradition, which tend to focus on social rather than geographic space (Haveman & Nonemaker, 2000).

In many of the earlier studies in ecology, including most of those that have studied the newspaper industry (e.g. Carroll & Delacroix, 1982), the nation is treated as a cohesive market. In some cases this may be justified, if, for instance, there is a high degree of overlap in the markets across geographic regions; however, this is clearly unjustified in many cases. Consequently, a number of recent studies have sought to develop multilevel density models (Greve, 2002; Hannan et al., 1995; Lomi, 1995; 2000), arguing that legitimacy operates at a broader (national) level, and competitive effects tend to be stronger at the local level (Zucker,
Other models have examined how different sub-populations interact with one another, relying on the common sense notion that there is often substantial variation in local resources that differentially affect firms’ vital rates. An early example is Barnett and Carroll’s (1987) study of the telephone industry in Pennsylvania in which competitive spillovers across neighboring regions, specified at the county level, influenced organizational outcomes. Neighborhood effects are only one type of spatial interaction to consider, however; in fact, such models may be limited by the assumption that competition occurs only with one’s immediate neighbors.

Organizational inertia notwithstanding, ecologists have argued that adaptation to changing environments is possible under certain conditions. In particular, niche position and niche width are two key dimensions along which firms define their competitive domains (Dobrev, et al., 2001). In geographic space, niche position is analogous to a firm’s location, and niche width to its geographic scope. A firm’s location can be either an opportunity or a constraint. When it acts as a constraint, due for instance to restricted growth opportunities, it may be possible to change either location or geographic scope in order to mitigate competitive or environmental pressures. However, under conditions of strong location dependence, position is essentially fixed, in which case changing niche width may be the only option, and the discretion to change that may even be limited under certain conditions. The choice of the scope (or niche width) of the firm, which relates to what products to produce or what markets to be in, is a fundamental strategic decision (Gimeno & Woo, 1999). There are costs and benefits to scope: the benefits relate to a firm’s ability to exploit complementarities across resource domains. Haveman and Nonemaker (2000) note that growth and entry into new markets is how firms redefine their domains. But since changes in identity can be costly and risky, as we discuss in more detail below, so too can geographic expansion.
Some goods, such as newspapers, are identity-based and in this sense their legitimacy is at least partially derived from their location. Scope is also a key dimension of that identity – geographic scope in particular since it is grounded in location. Since urban spaces also have extensity beyond their physical and political boundaries (Hawley, 1986), media that deliver news and information about a given city often have relevance beyond those boundaries. The extent of this influence depends on the relative gravity of the urban space. Larger cities have greater relative gravitational pull (or push), which influences the import (or export) demand for those products identified with that region, as well as how firms interact. Thus, unlike their use in resource partitioning theory, center and periphery also have clear geographic significance since they can and do refer to the spatial organization of industry. Such a distinction is central to understanding the competitive landscape of the newspaper industry.

THE DAILY NEWSPAPER INDUSTRY IN CANADA

An organizational core, according to organization ecologists, consists of goals, authority, structure, and marketing strategy (Hannan & Freeman, 1984). Since the frequency of publication constitutes a core feature of a newspaper (Carroll & Hannan, 1989), dailies are essentially a distinctly different organizational form than papers of lesser frequency. As news has a very limited shelf life, publications of lesser frequency are less likely to compete directly with dailies. Location and geographic scope also seem to be core features of newspapers because both position and spatial extension are central to their identity.

The newspaper industry is an important cultural institution because it represents a key outlet for freedom of expression, and hence is regarded as a cornerstone of any democracy. In Canada, this is embodied in the Charter of Rights and Freedoms (1981), which guarantees the “freedom of thought, belief, opinion and expression, including freedom of the press and other
media of communication.” Because of the quasi-public service of newspapers, they have been closely monitored over the years by politicians and other advocates for freedom of the press – anything that has represented a threat to this fundamental freedom has come under intense public scrutiny. In particular, there has been widespread concern over the years about the increasing concentration of ownership by large chains, which is believed to diminish competition, and therefore the diversity of press opinion.²

The Canadian newspaper industry is highly localized, with only a handful of publications being widely distributed; in fact, during the study period, the Globe & Mail from Toronto was the only paper that was national in scope. Also during this period, the number of dailies remained somewhat constant although total circulation increased. Many of the existing daily newspapers have been around for more than a century, and the average age of all existing dailies in Canada is about 80 years. In fact, Quebec City’s Chronicle-Telegraph, founded in 1764, claims to be the oldest surviving paper in North America (it became a weekly during the study period). Competition in the newspaper industry is based on two interdependent factors: circulation, and advertising; roughly 80% of revenues are derived from advertising (Canada, 1981), which is primarily a function of circulation since advertisers are drawn to papers with greater reach for a given target demographic.³ Though there may be some cross-media competition for audience and advertising dollars, much of the research in media studies argues that other media are not good substitutes for newspaper advertising (Shaver & Lacey, 1999).

While a number of factors likely influence a paper’s survival chances,⁴ at least some of the market dynamics from the 1970s onward seem to have been driven by chains jockeying for position. The first chain in Canada started when William Southam, whose first paper was the Hamilton Spectator (1877), began acquiring other papers such as the Ottawa Citizen (1897), the Calgary Herald (1908), the Edmonton Journal (1912), the Winnipeg Tribune (1920), and the
Vancouver Province (1923) (Fetherling, 1990). Another early chain was gradually built up by the Sifton brothers – Clifford and Victor – in the mid-western provinces during the 1920s and 1930s. Later still, after launching the Timmins Press (1934), Roy Thomson and family began acquiring papers, eventually building up the largest chain in Canada (as well as one in the United States) by the 1970s. Though chains have been around for a long time, the period of this study is marked by their increasing importance, and consequently by the gradual disappearance of the independent papers. Currently there are only four independents remaining, of which Montreal’s Le Devoir, founded in 1910, is the oldest and largest.

Still, even if part of a chain, newspapers are not merely branches of the parent since they have their own separate identity which is tied to their history in the region. Chains provide scale advantages for affiliates due to standardization of format and content across papers. The latter is the more important since it results in on-going cost savings due to the pooling of resources across all affiliates, including stories and columns, especially those that are regional or national in scope (Desbarats, 1996). Chain affiliation can also lower distribution costs for the chain as a whole, and regional papers in particular; and in some cases, regional papers are even printed on the presses of local affiliates. Another important cost-related advantage of chain affiliation is that more advanced technology tends to diffuse to the local affiliate faster than to non-affiliates (Baum & Greve, 2000). For instance, capital equipment upgrades are common after the acquisition of a small independent, and in some cases this is the reason independents ultimately seek chain ownership (Desbarats, 1996).

The scope of a newspaper, based on its content, also has a significant impact on the degree of competition because it reflects the extensity of its market space, and determines the extent of overlap with other papers. For instance, those papers that are centered in large metropolitan areas usually have a readership that extends well beyond the boundaries of the city.
in which it is published. This is in part because of the socio-economic importance of such cities outside of their boundaries, as well as the fact that these papers usually report on regional, national and international news in greater depth than a local paper typically would. In Canada, the most important regional markets are Toronto, Montreal, Vancouver, and Ottawa; other regional markets include Calgary, Edmonton, Winnipeg, Quebec City, and Halifax.

THEORY AND HYPOTHESES

In general, the greater the competitive intensity a firm faces in a market, the more likely it will exit. However, newspapers face different types of competition depending on the type of market they inhabit. Regional papers tend to experience direct competition with other papers resident in the same market, which can spill over into local markets in the periphery. Although regional papers exert competitive pressures on local papers, this effect likely diminishes the more distant a local paper is from a regional center. Competitive pressures on local papers are further mitigated by firm characteristics such as competitive strength, as well as scale. Geographic scope, on the other hand, is more likely to affect regional papers because they have more discretion to set their scope than local papers do. Although expansion eases competitive pressures in their home markets, it opens papers up to more competition from other markets and splits their resource base.

Competitive Intensity

Competition with other organizations for either resources or markets is one of the key factors that influence the exit decision of firms. Firms could exit by either dying, changing their form or identity, or under certain circumstances, by relocating to another market that is more munificent (Swaminathan & Delacroix, 1991). The latter option, however, is not available in the
newspaper industry since it is identity-based. While firms may coexist in the same market space they compete only to the extent that there is overlap – either in the market space, or in the product space (Baum & Mezias, 1992). In the newspaper industry, the greater the similarity among the papers in a market, the greater the competitive intensity they face.

However, in many contexts, competitive intensity will differ by the status (or types) of others in the market (Barnett & Carroll, 1987). Since newspapers are identity-based, they gain a legitimacy advantage in their home market. In this sense, papers compete more directly with other papers that are also resident in that home market. Thus, the competitive intensity faced by regional papers is more likely to be due to direct competition with other resident papers, and local papers are more likely to face indirect competition from non-resident, usually regional, papers. Both types of competition will increase the risk of exit for papers in those respective markets.

H1: *The risk of exit increases with the competitive intensity faced by the paper in its home market. In regional markets, the greater the direct competitive intensity from other resident papers, the greater the risk of exit. In local markets, the greater the indirect competitive intensity from non-resident especially regional papers, the greater risk of exit.*

**Distance from the Center**

Although we expect regional papers to exert some competitive pressures on local newspapers in the periphery, it is likely that such pressures are greater with greater proximity to the center (i.e. to regional markets). One reason for this is because, over time, communities in close proximity to large metropolitan centres, even if they began as independent entities, have tended to coalesce into an undifferentiated periphery (Knox, 1994). Thus, papers in suburban
environments in particular may have become disadvantaged by the lack of a central identity of their home market. For a given distance, regions of greater relative size will exert a relatively stronger pull, or in this case, demand for what comes from that place which puts pressure on indigenous (local) papers. While this suggests a kind of passive co-evolution, competitive pressure in the near periphery may also increase due to the strategic intent of regional papers in their incursion into proximate markets. To put it another way, the farther a local paper is from a regional center, the more insulated it is from indirect competition, and the more likely that regional and local papers in that market will be complements rather than substitutes.

H2: The risk of exit for a small local paper due to the indirect competitive intensity in its home market decreases with its distance from the regional center.

**Competitive Strength**

In general, the greater the market penetration, the greater the competitive strength the firm has in that market. But more than that, under conditions of location-dependence, it may also indicate the extent to which a firm’s identity is linked to that region. A paper that is strongly identified with a region is likely in a position to defend vigorously against actual or potential competitive threats. In small local markets, papers are generally constrained by their home market, and hence their ability to penetrate that market is paramount to their survival. That is not necessarily the case with regional papers, however, since they may be able to expand into other markets if they do not have a strong home market position. In fact, in some cases, their appeal to other regions may be tied, either positively or negatively, to how closely identified they are with a particular place. Thus, higher levels of market penetration should be more important to papers in small local markets.
H3: *The risk of exit decreases the greater the market penetration of a local paper in its home market.*

**Scale and Scope**

A firm’s other characteristics, especially its scale and scope, can also influence the risk of exit. Scale is usually considered important to a firm’s survival in part because it confers cost advantages, especially in a mature industry. The greater the number of units across which it can spread fixed costs, the greater the relative advantage over others in the same market. This advantage is realized in terms of higher margins, enabling a firm to cope with resource constraints for longer periods of time, and in general, reducing selection pressures. For these reasons, Carroll (1985) suggested that scale is fundamentally related to chain affiliation in the newspaper industry. In particular, there are economies associated with spreading the costs of news gathering and reporting across all affiliates. Chains that have a mix of local and regional/national papers may also have cost advantages in the distribution of their regional/national paper through local affiliates. This lowers the overall cost structure of the chain, and raises the value of its individual units – especially those in small local markets. This is because, first, those of small size are more likely to operate near an ‘extinction boundary’ (Levinthal, 1991); and second, regional papers are already large in size compared to papers in small local markets, and therefore the marginal effect of chain affiliation for regional papers should be relatively small compared to local affiliates.6

Scale advantages could also be expected to result from higher circulation since the greater the number of units over which fixed costs are spread, the lower the average total operating cost. Though there are likely to be differences between regional and local papers, the scale advantages from higher circulation are unlikely to be specific to a type of paper. Regional
papers are, on average, much larger in terms of the number of pages and sections compared to small local papers, which means that, *ceteris paribus*, they are much more costly to produce. However, greater relative technological advantage likely offsets this higher cost to some extent. Another benefit of higher circulation is on the revenue side since papers that sell more are likely to attract more advertising. Note however that even large regional papers fail. In absolute terms regional papers have scale advantages over small local papers; however, in relative terms they may not. In the center of regional markets there may be a kind of winner-take-all in advertising revenue, depending on the degree of differentiation, and price discrimination (in advertising rates) between competitors. Thus, the extent to which the effects for papers in each market type differ is unclear; but in general, the greater the circulation, we expect that the greater the margins and the greater the survival prospects.

H4a: *The risk of exit decreases for a paper in a small local market if it has scale advantages due to chain affiliation.*

H4b: *The risk of exit of either type of paper decreases with scale advantages due to higher circulation.*

Organizations are differentiated from each other in a number of ways in the newspaper industry, but especially through format and content. The latter is by far the most important dimension and is closely tied to the geographic scope of the paper. For a given circulation, a paper may have a high penetration in a concentrated geographic area, or it may have relatively lower penetration but be more geographically dispersed. Thus, expansion seems to suggest a trade-off between the penetration rate of a paper in its home market, and its scope. Changing scope in the strategic sense means a fundamental redefinition of the firm (Haveman & Nonemaker, 2000), and therefore constitutes a risk. By expanding geographically, a paper must
change its identity in order to be more attractive to other communities, consequently becoming relatively less attractive in their home market. In so doing, they risk losing penetration in their home market, and may have substituted the competitive pressures they experienced in that market with competition with local papers because in reducing their overlap with direct competitors, they increase their overlap with indirect competitors.

Competition in the newspaper industry is based not just on readership, but also on advertising revenue, which of course are linked. Those papers that venture too far from home may find margins diminish due not so much to rising distribution costs associated with a paper’s presence in another market, which is easy enough to control, as it is to declining revenues. The risk is that the paper splits its market, making advertising marginally less effective in each of the markets. For advertisers in a focal market, the paper’s expansion may therefore result in a decline in the relative impact of each advertising dollar spent, which may prompt switching to competitors (depending, of course, on the alternative outlets, as well as the nature of the advertiser since they may benefit by broader exposure).

Scope is a fundamental choice variable (Gimeno & Woo, 1999), but one that is not available to all types of papers. While regional papers are likely to be broadly attractive, at least in part because of the relative importance of the region they are centered in, local papers are more likely to be constrained by their market primarily because their core market is of relatively little importance to other regions. On the other hand, those papers that are very broadly based are likely to have a completely unique identity, one that is less tied to any one place, which consequently reduces their competitive pressures at home and elsewhere. In fact, because of their lack of identity with a specific place they may become complements rather than substitutes with other papers. The revenue base of a paper is also likely to be broad – retail chains that operate coast to coast, for instance. In other cases, it may split runs by region. Thus, we posit that the
scope of the firm has an inverse U-shaped effect with the risk of exit for papers in regional markets. Those that find themselves stuck in the middle may suffer from greater competition, and lower margins, and are therefore at greater risk of exiting.

H5: The scope of a regional paper will have an inverted U-shaped effect on the risk of exit.

DATA, MODEL AND METHODS

Data Description

The hypotheses are tested on the population of Canadian daily newspapers that existed between 1972 and 1992. The primary data source was the Audit Bureau of Circulations (ABC) Factbook, “ABC Canadian Daily Newspaper Analysis,” which has been published since 1971 and contains circulation figures for each of the counties in which a given newspaper is present, the number of households in each county, and specifies the home county of the newspaper (where the newspaper was published). The end date was chosen because the reorganization of some county boundaries after 1994 would have made comparisons to prior periods problematic. A given market is defined here by the home county of a paper, which corresponds well with the city level. These data are augmented by provincial level data on average income from CANSIM. Data on chain affiliation came from the ABC Factbook for 1989 onward, as well as from a comprehensive search of Lexis-Nexis and other archival sources for prior years. The ABC data reports newspapers sold, rather than produced. Although there is inevitably some deviation between the two, it is likely that they are highly correlated, especially in stable markets.

Of the 102 dailies that existed in 1972, there were 24 exits, a couple of which were terminal mergers, and 21 subsequent entries. This yields a dataset with 123 different papers. The tests were first run on all the papers that were in existence during the study period, and then on
the sub-populations by market type. In the case of missing data, linear interpolation was used. Since there was no systematic pattern to this missing data, the results should not be biased.

**Dependent Variable**

The dependent variable is the exit rate of a newspaper from a market. An exit occurs when a paper is present in a market at time $t$, but not at time $t+1$. An exit is not necessarily a death since it is possible that the paper scales back its operations such that it remains in production but diminishes its frequency. We distinguish between those papers whose home is in a small local market, and those whose place of residence is in a regional market. A market is therefore defined simply by the county in which a daily paper makes its home (the “home county”). In total there were 93 markets, or communities, serviced by at least one paper during the study period. About 87 of these were small local markets and 9 regional markets (36 papers). About half of the exits occurred in each type of market.

**Independent Variables**

*Competitive intensity (of market).* Because we sought to measure differences in the competitive intensity exerted by resident and non-resident papers, we used a variant on the familiar Hirschmann-Herfindahl Index (HHI) to capture each. We take the root of the sum of squares of the share of newspapers sold by each paper in the focal market in each category (resident and non-resident papers). Because the market space of a regional paper tends to be a mix of the focal regional paper and other resident (regional) papers, we expect a strong positive direct effect in those markets. Because the market space of a local paper tends to be a mix of the focal local paper and non-resident, though predominantly regional papers, we expect a strong indirect effect to predominate in those markets.
Geographic distance. The distance of each local paper from the closest regional market is measured in kilometres (of functional driving distance), rescaled by dividing by 1000. To test H2, we interact distance with the competitive intensity measure (for outsiders), as described above. We expect that the negative effect on exit rates due to competition from outsiders (especially regional papers) should also be moderated by the distance a small local paper is from the closest regional center. Since proximity is measured by lower values, support for this effect would be shown by a negative coefficient.

Competitive strength (market penetration). The market penetration is given by the circulation of the paper divided by the number of households, both in the home market. (Since the ABC data do not distinguish between French and English households in each market, this was estimated using Statistics Canada census data.) Changes in this variable can be driven either by changes in competitive position, or demographics, or both. Penetration rate in the core market captures an identity-based competitive strength because it makes no assumptions about the interaction with other papers. Also, because it is comparable across market types we can see how this differs across market types.

Scale. The scale effect is proxied by two things: first, by whether the paper is part of a chain or not, and second, by the paper’s total circulation. Chain affiliation is dichotomous – it either is or is not part of a chain, with no distinction between chains. The second measure of scale is the total circulation of the paper. Both cost and revenue advantages should lower the risk of exit. The log transformation of the circulation was used to reduce skewness.

Scope. The geographic scope of the paper, measured as the number of markets in which the paper is sold, is expected to reflect the scope of its content. The square of this value is also included to test for the hypothesized non-monotonic effect.
Control Variables

In addition to the above theoretical variables, we added some controls that are standard in organizational ecology. These include national, and local (market) level density, as well as organizational age. Density at the national level may put constraints on the expansion of (primarily regional) papers – the more papers there are, the less likely a paper is to expand. That is less likely to be the case in small local markets. Local density should only have an effect in regional markets since local markets are usually only occupied by a single paper. Prior research has shown that age is an important variable influencing failure; however, its expected effect is unclear. For instance, firms may experience a liability of adolescence if the founders have little prior experience, which is unlikely during this period, or a liability of obsolescence if firms become locked into routines or technology that are relatively less efficient as they age thereby putting them at a relative competitive disadvantage. Conversely, age may provide legitimacy advantages thereby enhancing survival chances, as previously discussed, or they could have survivor advantages from prior competitive battles (Barnett, 1997).

The total number of households in the home market could also be expected to impact on the risk of exiting a market since the potential demand, particularly if it is declining, may affect the exit decision. This is generally regarded as a much better measure than total population in capturing the effect of potential demand (and the carrying capacity) due to the sometimes wide variation in the demographic characteristics of particular regions. Due to skewness, the log of this number was used in the analysis.

Since some papers were in existence prior to the start of the study period, we also control for left censoring. This control is required because of the potential for survivor bias; i.e., similar to age, papers that are in the sample at the start of the study period may be survivors of prior competitive battles thus possibly exerting stronger competitive effects than their less successful
rivals. The *language* of the paper is also controlled for since there may be differential effects for French and English papers (French = 1). *Average income* in a market may also influence the survival prospects of newspapers because it likely affects the level of advertising in a market and is therefore also controlled for (in 1992 constant dollars). Data at the provincial level are available from the Statistics Canada census, which until 1980 was conducted every 10 years, and every five years thereafter. Unfortunately, data at a more local level were either not consistently available throughout the whole study period, and/or were not available for some smaller markets. The provincial data were interpolated for missing years and rescaled by dividing by 1000.8

**Model**

Hypotheses tests were conducted using a piecewise exponential model in Stata 8.0. Time spells were split into two sub-periods of roughly equal duration. The instantaneous hazard rate model allows for the estimation of the risk of exit while explicitly controlling for time dependence (Blossfeld & Rohwer, 2002). The hazard rate model estimated is defined as follows:

$$
\mu(t) = \lim_{\Delta t \to 0} \text{Prob}(t < T < t+\Delta t \mid T > t)/ \Delta t
$$

where $T$ is a random variable for the time of exit, $t$ denotes the year, and the probability function represents the risk of exit over the interval $(t, t+\Delta t)$. All of the time-varying covariates are lagged one period to ensure causal order.

**RESULTS**

The summary statistics for papers in local versus regional markets (in Table 1) indicate some important differences in these types of markets. First, small local markets are characterized by a much smaller number of households and much higher relative outside presence than
regional markets. Second, the papers in those local markets are characterized by a much lower average circulation in their core markets, and a much smaller geographic scope, but a much higher penetration rate than regional papers. Table 2 presents the overall summary statistics and the correlations among the variables used in the analysis. Table 3 shows the results of the piecewise exponential models of exit as a function of the independent variables. These are first tested on the full dataset, then on the two sub-populations.

Though there is a high degree of correlation between some variables (in Table 2), especially the paper’s circulation, its scope (the number of markets in which it is present), and the number of households in its home market, multicollinearity is not expected to bias the results since the number of observations is high. Nonetheless, alternative models were run to test for the robustness of results with and without highly correlated variables, without any material differences in the reported results. It is also important to note an important trend throughout the period of the study: that although circulation itself was increasing, the number of households was increasing at a faster rate, suggest that the average penetration rate was declining. We also note the significant negative correlation between the regional paper’s penetration rate and the number of markets it is present in, which points to the trade-off suggested earlier: the greater the geographic scope of the paper, the marginally less attractive it appears to be in its home market.

As expected, the results of the piecewise exponential models (in Table 3) show that both national and local densities have an effect on papers in regional markets, and that only local density has an effect in small local markets. Presumably, this latter results is because papers in local markets rarely have direct competitors. (Though in some cases there was overlap in some local markets either when two papers originally occupied the market and one exited, or when another paper entered an already occupied market.) Also as expected, the local density effect
dominates the national effect in regional markets. The number of households in the paper’s home market only influences exit in the baseline model for papers in local markets. The average provincial income and the age of the paper are only significant in the full regional model, increasing the risk of exit in both cases. The latter result may be because provincial level data is used with no distinction between markets within provinces. An examination of the limited CMA level data that we had available showed that metropolitan centres typically had a much higher average income than the provincial average. French language papers in local markets are at greater risk than English language papers, whereas the opposite is true in regional markets. Left censoring, on the other hand, consistently lowers the risk of exit in both regional and local markets, though this is only significant in the full models.

The results of the hypotheses tests show that indeed, competitive forces influenced the risk of exit in the newspaper industry in Canada during this period. H1 argued that the greater the competitive intensity in regional markets, the greater the risk of exit (Model 6); and indirect competition, primarily from regional papers, increased the risk of exit for local papers (Model 4), thus providing support for this hypothesis. Also as hypothesized (H2), this latter effect decreases with the distance a local paper is from a regional center. The main effect of distance, however, appears to significantly increase the risk of exit. H3 suggested that competitive strength in terms of market penetration should lower the risk of exit for those in local markets. This too is supported. Neither the total nor the regional market results are significant. H4a argued that if a paper within local markets had scale advantages due to chain affiliation, the risk of exit would diminish. The results in Model 2 show that chain affiliation is highly significant overall, as well as in both sub-populations (Models 4 and 6). Thus, H4a is supported. Though not hypothesized, the results also appear quite strong in regional markets. We also argued that higher circulation should represent a scale effect for all papers, and as such should lower the risk of exit. However,
the results across all models are insignificant, and therefore H4b is not supported. Thus, overall, the results provide mixed support for a scale effect. H5, which tested for an inverted U-shaped effect of scope on exiting in regional markets, is supported (Model 6). This suggests that papers in regional markets that were either of large or small scope had survival advantages over those in the middle. Thus, papers in regional markets are at greater risk up to a particular threshold value after which their fates improve.

The effect of a paper’s circulation on the risk of exit, though unexpected, might not be so surprising in retrospect. In fact, it is likely that the hypothesized effects are already picked up by penetration rate and geographic scope. However, scale and scope, as defined here, are not substitutes for one another since theoretically they differ. Furthermore, the total circulation of the paper is theoretically important to include, at least as a size control (Barnett, 1997). The strong chain effect for regional papers, though somewhat unexpected, might be the result of a regional paper’s expansion strategy. Given the location dependence of the industry, another way to expand from the perspective of a regional paper, aside from doing so directly, is to acquire small local papers, which will generate economies of scale.

Also note that the reported results are not highly sensitive to the lag structure of the independent variables. Alternative specifications of the models were run with and without one-period lags with very little difference. We report results with lags for time-varying covariates to maintain consistency with prior studies. The time spells also suggest that the effects are time-dependent for papers in local markets. All full models are statistically significantly better fitting models than the baseline alternatives as determined by the chi-squared tests.

Insert Tables 1, 2 and 3 about here
DISCUSSION AND CONCLUSION

Spatial structure is of obvious importance in understanding the competitive nature of industries. In some industries, spatial structure evolves through a variety of factors that reinforce the advantages of certain locations – often due to the interdependence of firms. In other cases, the conjunction between location and identity creates the conditions for quasi-natural excludability and monopoly. Such location dependence may be linked to institutional forces such as regulatory constraints, or to identity linked to local resources and markets, as shown here. In either case, location dependence is important in a number of settings – not only in service industries such as banking (Greve, 2002; Haveman & Nonemaker, 2002; Lomi, 1995), but also in manufactured goods such as beer, wine and other spirits (eg. Swamination & Wade, 1991). Understanding the nature of location dependence provides insights into the spatial structure of industry and is fundamental in determining how selection forces act on firms.

We suggested at the outset that exits of Canadian newspapers can primarily be explained by the dual market structure of the industry, which is itself a function of location-dependence as well as the relative strength of central markets. Two related patterns of exit are observed in the newspaper industry in Canada: the first is in the center of regional markets due to competitive rivalry, the second is in the periphery where competition spills over due to geographic differentiation by central actors. Given the latter pattern of exit, we might speculate that newspapers in the near periphery of major markets ended up succumbing to competition from the center as their respective urban spaces became more integrated and less differentiated over time. Suburban growth was tied to metropolitan growth, primarily due to the demand for skilled labor in the service base; and congestion in the housing market in the center contributed to the growth of contiguous regions. Although most of these communities had their own distinct identities at one time, they gradually began to lose that with their growth, because it was closely tied to their
proximity to a regional center. Consequently, many commuters began to develop a dual identity since they worked in the regional center and lived in “bedroom-communities”; over time, issues related to the center became central to their concerns (Knox, 1994). At the same time, regional papers began to expand their coverage of proximate communities. Either way, regional papers became viable alternative news sources in those communities.\(^9\)

In many cases, local papers exited despite a long history in their communities because they became maladapted to changes in their (competitive) environments. They essentially had no strategic options except to withdraw by exiting when regional papers began to expand into their markets. In these cases, large regional papers simply took over the space left vacant by the exiting paper. Thus, the gradual erosion of markets in the periphery, often leading to exit, is endogenous to (strategic) expansion from the center. Local papers more distant from the center were essentially insulated from competition from regional papers. The results also show that firm level advantages, especially in terms of competitive strength (penetration rate) and scale (chain affiliation) mitigated the competitive forces faced by firms, though only in small local markets for the former. Both of these are under the control of the local paper to some extent. If the paper is independent, it is usually easy enough to find a buyer; however, the penetration rate is really the key to a local paper’s survival, especially in markets more proximate to the center. Although some of the factors that lead to such success are vaguely understood, such as a reputation for editorial outspokenness or investigative reporting, this is a matter that clearly requires further investigation. As regional papers expanded, they traded off a more narrow, focused identity associated with strength in a particular market, for a broader one. In so doing, they increased their risk of exit up to a critical point, after which they tended to become complements with other papers in more distant local markets.
Although this study represents an advance on prior work in many respects, there are some limitations that should be noted. First, the income data are limited by the fact that they are at the provincial rather than the specific market level. Since there is local variation in income, which likely affects revenue from advertisers, it would have been preferable to have a direct measure, or at least a more local measure, for this, but that was not available. Second, we do not yet know the specific chain affiliation of each paper throughout the whole period. It is highly likely that scale effects vary across chains, which should result in differing abilities to respond to changes in the environment. Third, there are no controls for possible cross-media effects. Although research has found that advertising is not highly substitutable across media since the nature (and scope) of the different media, and their audiences, are not highly substitutable (Shaver & Lacey, 1999), it is likely that competition from radio and television in particular accounts for the decline in average penetration rates across Canada during this period, as well as the declining relative share in advertising dollars, if trends in the U.S. are any indication (American Newspaper Publishers Association). The problem is finding measures to capture such effects – simple counts of radio and television stations, and/or listening/viewing estimates are clearly inadequate. Thus, an examination of cross-effects is left to future research. Finally, it is also likely that dailies compete with non-dailies to some extent – especially as their frequency approaches that of daily publication. Such measures probably should be included but are not due to the unreliability of available data sources. It is unlikely however that refinement of any these measures, or inclusion of those not present, would have yielded substantively different conclusions regarding the nature of the competitive interactions examined here.

Another issue has to do with the assumption that all daily newspapers occupy the same competitive domain. In this model, content (coverage) is regarded as a reflection of the geographic scope of the paper, leaving other dimensions assumed constant. However, content is
obviously not just based on coverage. For instance, there is often variation in the relative amount of advertising to news content (advertising lineage) across papers (Shaver & Lacy, 1999). On the one extreme, a newspaper may differentiate by becoming a pure “advertiser”; in fact, that is how some actually started out. On the other extreme, it may become more like an ad-free periodical that is more reliant on subscriptions than advertising for revenues. Thus, one way of exiting is to change identity to such a degree that it is no longer in the form of a newspaper. Nonetheless, although there is variation in the extent to which papers are merely mediums of advertising, dailies are generally regarded as a common form.

Despite these limitations, the results of this study have both theoretical and substantive implications. From a theoretical perspective, we have shown even in an industry that has been the subject of much theorizing about density-dependence, such explanations of exit are clearly limited. Related to that, we have also gone beyond models that simply assume that competition spills over from neighboring regions by expanding on the notion of location-dependence. In so doing, we have been able to demonstrate that a particular market structure has profound implications for the nature of interaction and survival in an industry.

This study also has implications for what is surely the central public policy issue in this industry – diversity; which, of course, is also central to ecological theory. Since the majority of papers in Canada are in small single paper markets and are therefore partially insulated from direct competition, the argument regarding press diversity (and concentration) centers around two things: (1) regional market competition; and, (2) ownership – especially by chains. As we have shown in this study, regional papers exert strong competitive effects in both their home markets and in small local markets. Competitive pressure exerted by regional papers on other papers in both regional and local markets presumably is good for diversity since it often leads to differentiation; but on the other hand, it also increases the risk of failure, which reduces the
number of entities giving voice to the issues of the day. Chain affiliation itself plays a dual role since, on the one hand, it would seem to decrease diversity among papers because it diminishes the number of independent voices, yet on the other it improves survival prospects. However, in both cases, the spatial structure of the industry may alter key mechanisms for generating diversity. Since competitive interaction at the chain level is clearly central to the diversity debate, future work should examine this in more detail.

Future work should also examine entries since they too affect diversity. Studying entries would also shed some more light on the spatial evolution of the industry. Although not dealt with directly here, we do know that the number of new entrants into the industry has roughly offset the number of exits. New entrants appear both in regional markets as challengers to incumbents, as well as in small local markets – but only rarely in those local markets that have seen an exit. This suggests that the industry co-evolves to some extent with urban spaces; however, the spatial evolution also seems to be tied to the relative gravity of central places. It may be that centrifugal and centripetal forces simultaneously attract and repel to keep spatial balance and order, subject to the inertia and path dependence of incumbents.

Since the extent to which firms are dependent on their location varies, future work should take account of the structural variation that this engenders. The dual market structure of the daily newspaper industry in Canada, which is essentially hierarchical, is but one type of configuration; however, we have shown that accounting for that structure is fundamental to understanding exits in this industry. Neglecting to account for that structure would have yielded very different conclusions. This study therefore represents a modest step toward the goal of developing a better understanding of the spatial ecology of markets.
REFERENCES


Canada (1981), *Royal Commission on Newspapers*, Supply and Services Canada: Hull, PQ.


Endnotes

1 Scale is likely endogenous to such advantages: those that have cost advantages increase in size, while those that increase in size develop costs advantages.

2 In an effort to determine the extent of the problem, two Royal Commissions on newspaper ownership have been established – the Davey Commission of 1970, and the Kent Commission of 1980. The second was prompted by the simultaneous demise of two large regional papers – the Ottawa Journal, owned by the Thomson family, and the Winnipeg Tribune, a Southam paper, both major chains (Canada, 1981). The real issue in this case was multi-market competition at the chain level – in the case of the former with the Ottawa Citizen (Southam), and in the case of the latter with the Winnipeg Free Press (Thomson), both of which had much higher penetration rates than their competitors. Each city had one Southam and one Thomson paper, and both chains agreed to close what was their relatively weakest paper so that each could have a monopoly in the other market. However, both cities later saw the entry of another paper, and in both cases run by Sun Media Corp.

3 Advertising accounts for, by far, the greatest contribution to revenues for newspapers, which is largely a function of circulation (Canada, 1981). Chains may have a cost advantage under certain conditions, but local independents are likely to have a legitimacy advantage. However, local independents may lose their legitimacy if they do not update their style (format) or content periodically.

4 Papers scale down relatively effortlessly in response to changes in demand within a given market, however, scaling up can be more difficult if it also means scoping up and hence having to change the content to meet the demands of more geographically diverse audience. Competition is also likely to lead to other types of differentiation, but since there is little price competition in this industry, it is most likely to be manifested in advertising lineage, and content.
5 It has also been argued that chain affiliation affects the content scope of a paper since the proportion of nonlocal to local news coverage is usually thought to be higher, which may affect the extent of overlap in content between local and regional papers.

6 In this sense, chain affiliation would seem to mediate other effects – initiating an acquisition of a local paper may allow regional papers to expand without actually expanding; also, insofar as it provides content advantages for small local papers, it may also facilitate an increase in the penetration of the home market.

7 There are a variety of ways in which firms can exit, as noted by Schary (1991). Although there are a number of cases in which two paper markets merged their publications, these are not included in the analysis if both were owned by the same publisher, since this really just constituted a rationalization of production. In almost all of those cases, one of the papers was a morning edition and the other an evening edition.

8 Since there is very little price competition in the newspaper industry, prices are assumed constant (a common and usually valid assumption in studies on newspapers).

9 If this is correct, even with increasing circulation, papers were under pressure due to declining margins. On the revenue side, it may be that proximity to the center meant that advertisers in local markets switched to regional papers since they increasingly serviced the periphery. The extent to which this occurred however would depend on the target market of the advertiser.
<table>
<thead>
<tr>
<th>Variables</th>
<th>All Papers</th>
<th>Standard deviation</th>
<th>Local Market</th>
<th>Standard deviation</th>
<th>Regional Market</th>
<th>Standard deviation</th>
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<tr>
<td></td>
<td>Mean</td>
<td></td>
<td>Mean</td>
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<td>Mean</td>
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<tr>
<td>Local density</td>
<td>1.46</td>
<td>1.04</td>
<td>1.06</td>
<td>0.23</td>
<td>2.93</td>
<td>1.45</td>
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<td># of households in home market</td>
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<td>261521</td>
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<td>Average income</td>
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<td>2991</td>
<td>24838</td>
<td>3127</td>
<td>24679</td>
<td>2421</td>
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<td>Age of paper (years)</td>
<td>79.4</td>
<td>38.0</td>
<td>80.5</td>
<td>34.9</td>
<td>76.2</td>
<td>35.0</td>
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<td># of within market competitors</td>
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<td>1.04</td>
<td>0.05</td>
<td>0.23</td>
<td>1.93</td>
<td>1.45</td>
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<td># of outside market competitors</td>
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<td>Own circulation in home market</td>
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<td>46604</td>
<td>22215</td>
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<td>88006</td>
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<td>Competitor’s circulation in home market</td>
<td>38418</td>
<td>102904</td>
<td>501</td>
<td>3031</td>
<td>151951</td>
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<td>Outsider’s circulation in home market</td>
<td>8388</td>
<td>11192</td>
<td>8580</td>
<td>12331</td>
<td>7814</td>
<td>6689</td>
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<td>Penetration Rate (Home Circ/HH)</td>
<td>0.45</td>
<td>0.22</td>
<td>0.48</td>
<td>0.20</td>
<td>0.33</td>
<td>0.21</td>
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<td>Distance to major market (kms)</td>
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<td>329</td>
<td>314</td>
<td>314</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>Chain</td>
<td>0.74</td>
<td>0.44</td>
<td>0.74</td>
<td>0.43</td>
<td>0.68</td>
<td>0.47</td>
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<td>Circulation across all markets</td>
<td>50269</td>
<td>74618</td>
<td>23261</td>
<td>25009</td>
<td>134272</td>
<td>105884</td>
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<tr>
<td># of markets</td>
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<td>4.46</td>
<td>1.72</td>
<td>1.41</td>
<td>8.37</td>
<td>7.15</td>
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<td># of papers</td>
<td>99.1</td>
<td>1.6</td>
<td>99.1</td>
<td>1.6</td>
<td>99.2</td>
<td>1.6</td>
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### Table 2
Overall Descriptive Statistics

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<th>4</th>
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<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
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</thead>
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<tr>
<td>1. National density</td>
<td>100.00</td>
<td>5.70</td>
<td>1.00</td>
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<td></td>
<td></td>
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<tr>
<td>2. Local density</td>
<td>5.33</td>
<td>7.89</td>
<td>0.035</td>
<td>1.00</td>
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<tr>
<td>3. ln(Households in home market)</td>
<td>8.41</td>
<td>1.75</td>
<td>-0.007</td>
<td>0.712*</td>
<td>1.00</td>
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<tr>
<td>4. Total average income/1000</td>
<td>24.84</td>
<td>2.99</td>
<td>0.114*</td>
<td>-0.149*</td>
<td>0.025</td>
<td>1.00</td>
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<tr>
<td>5. ln(Age of paper)</td>
<td>2.09</td>
<td>0.28</td>
<td>-0.001</td>
<td>0.053</td>
<td>0.023</td>
<td>-0.053</td>
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<tr>
<td>6. Language (French)</td>
<td>0.09</td>
<td>0.28</td>
<td>0.008</td>
<td>0.335*</td>
<td>0.179*</td>
<td>-0.077*</td>
<td>0.005</td>
<td>1.00</td>
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<tr>
<td>7. Left censored</td>
<td>0.57</td>
<td>0.50</td>
<td>0.006</td>
<td>-0.107*</td>
<td>-0.073*</td>
<td>-0.071*</td>
<td>0.562*</td>
<td>0.083</td>
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</tr>
<tr>
<td>8. Local competition</td>
<td>11.97</td>
<td>14.03</td>
<td>-0.021</td>
<td>-0.312*</td>
<td>-0.489*</td>
<td>0.222*</td>
<td>-0.077*</td>
<td>-0.077*</td>
<td>-0.106*</td>
<td>1.00</td>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>9. Non-local competition</td>
<td>11.97</td>
<td>14.03</td>
<td>0.013</td>
<td>-0.052</td>
<td>0.712*</td>
<td>0.010*</td>
<td>-0.053</td>
<td>0.090*</td>
<td>-0.004</td>
<td>0.186*</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>10. Penetration rate</td>
<td>0.320</td>
<td>0.173</td>
<td>0.001</td>
<td>-0.422*</td>
<td>-0.338*</td>
<td>-0.088*</td>
<td>0.195*</td>
<td>-0.090*</td>
<td>0.291</td>
<td>-0.330*</td>
<td>-0.110</td>
<td>1.00</td>
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<tr>
<td>11. Distance/1000</td>
<td>26.33</td>
<td>16.21</td>
<td>0.003</td>
<td>-0.305*</td>
<td>-0.443*</td>
<td>0.131*</td>
<td>-0.152*</td>
<td>0.042</td>
<td>-0.029*</td>
<td>0.301*</td>
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<td>0.141*</td>
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<tr>
<td>12. Chain</td>
<td>0.74</td>
<td>0.44</td>
<td>-0.037</td>
<td>-0.117*</td>
<td>-0.002</td>
<td>0.052</td>
<td>-0.114*</td>
<td>-0.047*</td>
<td>0.006</td>
<td>-0.037</td>
<td>0.060*</td>
<td>0.115*</td>
<td>0.092*</td>
<td>1.00</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>13. ln(Circulation)</td>
<td>14.57</td>
<td>7.98</td>
<td>-0.010</td>
<td>0.522*</td>
<td>0.842*</td>
<td>-0.035</td>
<td>0.125*</td>
<td>0.150*</td>
<td>-0.045</td>
<td>-0.715*</td>
<td>-0.112*</td>
<td>0.166*</td>
<td>-0.394*</td>
<td>0.050</td>
<td>1.00</td>
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</tr>
<tr>
<td>14. Number of markets</td>
<td>3.50</td>
<td>3.38</td>
<td>-0.006</td>
<td>0.486*</td>
<td>0.662*</td>
<td>-0.003</td>
<td>0.101*</td>
<td>0.086*</td>
<td>0.096</td>
<td>-0.356*</td>
<td>-0.284*</td>
<td>-0.120*</td>
<td>-0.253*</td>
<td>-0.182*</td>
<td>0.680*</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>15. Number of markets$^2$</td>
<td>6.50</td>
<td>9.38</td>
<td>-0.011</td>
<td>0.297*</td>
<td>0.424*</td>
<td>-0.051</td>
<td>0.073*</td>
<td>0.001</td>
<td>0.001</td>
<td>-0.178*</td>
<td>-0.256*</td>
<td>-0.132*</td>
<td>-0.147*</td>
<td>-0.198*</td>
<td>0.422*</td>
<td>0.903*</td>
<td>1.00</td>
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</tbody>
</table>

Level of significance: * p < 0.05
Table 3

Piecewise Exponential Models of Exit

<table>
<thead>
<tr>
<th>Variables</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
<th>Model 6</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All Papers</td>
<td>Local Market</td>
<td>Regional Market</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Controls:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year &gt; 10 years</td>
<td>-38.875**</td>
<td>-35.659**</td>
<td>-42.959*</td>
<td>-32.017*</td>
<td>-37.843</td>
<td>-11.177</td>
</tr>
<tr>
<td>National density</td>
<td>0.307**</td>
<td>0.230*</td>
<td>0.122</td>
<td>0.107</td>
<td>0.352*</td>
<td>0.629**</td>
</tr>
<tr>
<td>Local density</td>
<td>0.315*</td>
<td>0.083</td>
<td>3.285*</td>
<td>1.948</td>
<td>0.376**</td>
<td>2.210*</td>
</tr>
<tr>
<td>In (# of households in market)</td>
<td>0.244</td>
<td>0.449</td>
<td>1.818*</td>
<td>0.087</td>
<td>-0.298</td>
<td>0.891</td>
</tr>
<tr>
<td>Average income/1000</td>
<td>-0.714</td>
<td>0.149*</td>
<td>0.192</td>
<td>3.686</td>
<td>-0.009</td>
<td>1.314**</td>
</tr>
<tr>
<td>In(Age of paper)</td>
<td>0.009</td>
<td>0.391*</td>
<td>-0.182</td>
<td>0.143</td>
<td>0.226</td>
<td>3.570**</td>
</tr>
<tr>
<td>Language (French)</td>
<td>-1.105</td>
<td>-0.441</td>
<td>-14.191***</td>
<td>-16.381***</td>
<td>0.312</td>
<td>3.990*</td>
</tr>
<tr>
<td>Left censored</td>
<td>0.258</td>
<td>-1.141*</td>
<td>-1.977</td>
<td>-2.435**</td>
<td>-1.012</td>
<td>-4.877*</td>
</tr>
</tbody>
</table>

**Independents Variables:**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Within market competition</td>
<td>2.580</td>
</tr>
<tr>
<td>Competition from outsiders</td>
<td><strong>6.384</strong>*</td>
</tr>
<tr>
<td>Distance to major market/1000</td>
<td>2.303**</td>
</tr>
<tr>
<td>Major market competition x distance</td>
<td>-0.012</td>
</tr>
<tr>
<td>Penetration Rate (Home Circ/HH)</td>
<td>-5.384</td>
</tr>
<tr>
<td>Scale (Chain)</td>
<td><strong>-2.153</strong>*</td>
</tr>
<tr>
<td>Scale (ln(Circulation))</td>
<td>-0.025</td>
</tr>
<tr>
<td>Scope (# of markets)</td>
<td>-0.067</td>
</tr>
<tr>
<td>Scope (# of markets)²</td>
<td>-0.001</td>
</tr>
<tr>
<td><strong>Chi-squared</strong></td>
<td>402.38***</td>
</tr>
<tr>
<td><strong>Chi-squared difference (d.f.)</strong></td>
<td>36.71 (9)***</td>
</tr>
<tr>
<td><strong>#Observations</strong></td>
<td>2081</td>
</tr>
</tbody>
</table>

Level of significance: * p < 0.10; ** p < 0.05; *** p < 0.01