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By

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ABSTRACT

A STUDY OF HOW A STRATEGY CREATING CLUSTERS OF COMMONLY-OWNED NEWSPAPERS AFFECTS PRICES, QUALITY AND PROFITS

By

Hugh J. Martin

Newspaper companies have adopted a strategy of acquiring newspapers in adjacent markets. The acquisition of neighboring newspapers creates clusters of commonly-owned newspapers that previously competed with each other. Newspaper companies argue clusters allow them to create economies of scale by sharing production and news gathering resources, resulting in lower costs. However, economic models suggest this strategy could be intended to deter competition from other newspapers.

Industry data was used to identify all clustered newspapers in 1988 and 1998. Random samples of clustered newspapers were selected and detailed information about their markets, their advertising and subscription prices, and their ownership was gathered. This data was analyzed in comparisons with a randomly selected control group of non-clustered newspapers. A mail survey was used to gather additional information about newsroom expenditures and resource sharing at clustered and control newspapers.

Results support industry arguments that clustered newspapers are more likely to share resources in an apparent attempt to create economies of scale. However, there is no evidence that cost savings are used to increase spending on news gathering and publication. Cost savings may instead be used to finance additional acquisitions or to increase profits.

Results also show there is less competition in markets with clustered newspapers. Evidence shows demand is less elastic in those markets. Clustered newspapers charge

higher advertising and subscription prices. Clustered newspapers also spend less on news. Theory suggests less elastic demand would allow clustered newspapers to reduce quality without risking a disproportionate decline in readers.

Predictions that companies would use savings from clustering to increase profits received only weak support, however. Predictions about relationships among costs, the degree of diversification and the degree of inside control at companies that own clustered newspapers also received only limited support. The data precluded multivariate tests, so the effects of clustering on these relationships could not be examined.

However, there is evidence that clustering has contributed substantially to the overall decline in the number of daily newspapers in the United States. At the same time, the number of clustered newspapers is increasing. The implications of clustering for newspapers and public policy are discussed.

For Peggy and for Catherine.
In loving memory of
Susan S. Martin.

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Thanks to my father for all he has given me. Thanks also to Mary and Mike Marchner for standing with us through the years.

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INTRODUCTION

The First Amendment of the U.S. Constitution encourages vigorous competition in the marketplace of ideas as the best way to find truth in a public debate. Economic theory argues vigorous competition to supply goods and services efficiently allocates scarce resources among competing consumer demands. United States newspapers operate in markets for ideas and markets for goods and services -- but for decades newspaper competition has declined and the concentration of newspaper ownership has increased (Lacy and Simon 1993, p. 132; Lacy and Simon 1997, p. 815).

These trends accelerated in the 1990s when daily newspapers changed hands 856 times, including 153 dailies that were sold more than once. Sales of daily newspapers in the 1990s were higher than sales for the previous two decades (Presstime, 2000). Most of this activity involved newspaper groups; only 114 independent dailies were sold from 1990 to 1999. Many acquisitions were driven by an increasingly popular strategy as groups assembled clusters of dailies in markets where adjacent newspapers previously had multiple owners (Presstime, 2000). Newspaper markets are geographically defined and newspaper clusters, the industry argues, can reduce production costs, provide regional coverage for advertisers, and concentrate a group's newspapers in thriving markets (Asher 1999; Bass 1999, p. 64-68). In 1999 a journalism review identified "125 major regional concentrations ... involving more than 400 papers – or well over a fourth of the nation's dailies" (Bass 1999, p. 66).

However, researchers argue that clusters also stifle the competition that exists when adjacent newspapers are separately owned (Lacy & Simon, 1997). This "circulation gerrymandering" (p. 822) may result in a reduction in the quality of news coverage and an increase in some advertising prices (Fu, 2000; Lacy & Simon, 1997). Lacy and Simon (1997) describe clustering as a strategy with "the potential of promoting anticompetitive actions across county lines" (p. 822). They call for the U.S. Justice Department to investigate whether newspaper sales that create clusters violate anti-trust laws intended to protect the public by preserving competition.

The popularity of newspaper clusters and their potential effects on competition, prices, and quality suggest the importance of empirical examination. Lacy and Simon (1997), in the only published study of newspaper clusters, concluded clustering is associated with a reduction in competition between daily newspapers in adjacent counties. In a dissertation Fu (2000) concluded that when one group owns a newspaper and its potential competitors, the newspaper enjoys higher circulation and charges more for a column inch of advertising. A published study by Shaver and Lacy (1999) found evidence that newspapers compete with other media for some forms of advertising, but concluded the effect of this competition varies across markets and the type of advertising.

However, much remains to be done. None of the three studies (Fu, 2000; Lacy & Simon, 1997; Shaver & Lacy, 1999) examined how clustering affects the quality of news coverage. None of the studies examined industry arguments that clusters reduce costs or how cost reduction might interact with other variables. Only one study included newspaper cover prices, but not as a dependent variable (Fu, 2000). Fu did concluded newspaper clusters are associated with higher advertising prices. However, the price

measure was not adjusted for circulation and the study did not control for competition from other newspapers. Shaver and Lacy (1999) measured the effect of radio and television competition on newspaper advertising linage, concluding "competition varies by type of advertising and from market to market" (p. 740). However, Shaver and Lacy had a limited sample of 40 newspapers and did not include a measure for clustered papers. Therefore, current studies of the relationship between clustering and advertising prices leave many questions unanswered.

Shaver and Lacy (1999), noting the acceleration of clustering, said there is an "urgent" (p. 740) need to determine whether it has anticompetitive effects on advertising and circulation markets. They point out competition is difficult to recreate once it disappears. This dissertation replicates and extends existing studies by examining how newspaper clustering affects prices, quality, and profits.

CHAPTER 1
MOTIVES FOR MERGER

Newspapers operate in geographic markets defined by the extent of their circulation. Newspapers compete when one paper crosses another's circulation boundary and enters its rival's market. The acquisition of one newspaper by an adjacent newspaper represents a form of "horizontal integration" (Lacy and Simon 1997, p. 817) that eliminates competitors.

Horizontal mergers can result from either normal business motives or from attempts to profit from the reduction of competition (Scherer and Ross 1990, p. 160-166). Firms assembling newspaper clusters cite normal business motives, such as reducing production costs, as the reason for their strategy (Bass, 1999). However, research demonstrates clustering also reduces competition (Fu, 2000; Lacy & Simon, 1997).

Horizontal mergers arising from normal business motives include a larger firm's acquisition of a smaller firm when the larger firm enjoys lower capital costs. Such mergers can benefit the smaller firm by making possible otherwise uneconomical capital investments in new plants or equipment (Scherer and Ross 1990, p. 163-166). Another example of such motives are horizontal mergers to create economies of scale. Economies of scale exist when a firm's long-run average costs decline as more goods are produced. Economies of scope are a special subset of scale economies. When the cost of separately producing at least two goods is higher than the cost of producing those goods together, there are economies of scope (Teece, 1980).

There are three kinds of scale economies. The first, product-specific economies, are associated with the volume of a single product (Scherer & Ross, 1990, p. 97-98). These economies are available when there are specialized production processes that require substantial preparation before a production run can begin. If this is the case, the cost of setting up for a production run may be substantial, so average production costs decline as production increases. Product-specific economies of scale may also be available if workers become more efficient as they learn more about how to perform their individual, specialized tasks. Product-specific economies might be available to newspapers if creating and editing news and advertising entails substantial initial costs for labor and specialized machinery, such as computerized typesetters. Lacy and Simon (1993, p. 72) suggest there are product-specific economies in circulation when the costs of putting a single truck in service are spread across increasing numbers of newspapers delivered by that truck. Economies also exist for labor costs when a carrier delivers increasing numbers of newspapers on the same block. However, Lacy and Simon point out, if circulation is less concentrated economies dissipate as the carrier has to cover increasing distances to deliver newspapers.

The second kind of scale economies are associated with the total output of an entire production plant (Scherer & Ross, 1990, p. 98-99). These may be available if output increases with the size of equipment used by the plant. However, economies will only be available if costs of acquiring and operating the larger equipment are proportional. In other words the ratio of cost to production capacity cannot increase with size. Newspapers might realize plant-level economies of scale if they can expand their presses, and their output, without a disproportional increase in associated costs.

Economies of scope result from interactions between these first two kinds of scale economies. This is because the cost of producing individual products is affected both by the volume of production and the size of the plant where a product is produced (Scherer & Ross, 1990, p. 100-102). If a single plant is not producing a large enough volume to realize all available scale economies, then producing more than one product may result in economies of scope. For instance, overhead and other costs associated with operating a press are spread across each day's press run. However, if a larger press run would not increase these costs, but instead allow them to be spread across more copies, then economies of scope would be available. In this case, more than one newspaper might be printed on the same press.

The third kind of scale economies are associated with the operation of multiple plants. This may allow firms to lower their average production costs if different parts of the production process can be located in different plants (Scherer & Ross, 1990, p. 102). Newspaper groups might be able to take advantage of multi-plant economies if, for instance, they centralize administrative functions such as payroll processing instead of having each newspaper perform these separately.

Empirical studies beginning with Rosse (1967) have found evidence that newspapers enjoy scale economies. These studies have reported evidence of what appear to be plant level economies associated with size (Blankenburg, 1989, p. 100; Ferguson, 1983, p. 645). There also is evidence of what appear to be economies of scope associated with interactions resulting from the production of "circulation and news at a single plant" (Dertouzos & Trautman, 1990, p. 12). Thompson (1988, p. 372) found indirect evidence

of what appear to be product-specific economies of scale associated with increases in circulation.

However, Scherer and Ross (1990, p. 164-165) state that using mergers to expand existing economies of scale is difficult when production facilities already exist. A firm may instead find it more efficient to take the newly acquired plant out of business. Horizontal mergers may make it easier to achieve scale economies if a firm can afford to replace previously separate production facilities with new plants after the merger. This suggests newspaper groups might make such replacements if capital equipment used by the acquired newspapers is obsolete. Such economies also can be realized if they are product specific and the acquiring firm can quickly rearrange production of similar products (Scherer and Ross 1990, p. 164). In the newspaper industry, this might be achieved if previously separate production facilities for multiple newspapers are combined.[1]

Newspaper companies that create clusters have indeed argued they are trying to rearrange production processes to gain economies of scale (Asher, 1999; Bass, 1999). These include economies of scope available from printing more than one newspaper on a central press or by consolidating the production of news or advertising. What appear to be attempts to create multi-plant economies include consolidating administrative functions for multiple newspapers, and offering regional placement of advertising across clustered newspapers. Cross-promotion of newspapers is another way companies try to create economies with clusters.

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[1] Economies also can be achieved by merging facilities that represent different steps in a manufacturing process (Scherer & Ross, 1990). However, daily newspapers are likely to own facilities, such as presses and distribution networks, needed for timely production and delivery.

If clustering creates such economies of scale, then these horizontal mergers may be regarded as arising from normal business motives because the merged newspapers are becoming more efficient than competitors or matching cost advantages enjoyed by competitors.

However, empirical studies of horizontal mergers in a range of industries provide weak evidence that post-merger profits increase. Profits decrease in many cases (Scherer and Ross, p. 170-171). These general studies also show horizontal mergers often fail to increase efficiency, and that the efficiency of smaller firms may actually be reduced after they are absorbed by larger firms (p. 172-174). These studies are consistent with evidence showing the breakup of monopolies results in lower operating costs for individual business units, a result attributed to so-called X-inefficiency resulting from the absence of competitive pressure on monopolists.

The degree of similarity between different businesses involved may be another important factor influencing the success of mergers. Litman and Sochay (1994) report that economies are difficult to achieve in mergers that created large, diversified mass media conglomerates. One reason economies are difficult to achieve is that conglomerate mergers create a diverse set of strategic business units that duplicate, rather than share, resources. Conglomerate media mergers also tend to diversify and decentralize operations at the expense of focusing on a single core business (p. 259).

Firms that diversify their lines of business also increase the complexity of problems facing their managers (Govindarajan & Fisher, 1990; Hill, Hitt, & Hoskisson, 1992; Hill & Hoskisson, 1987). This line of research suggests that if different business units within the firm do not engage in related activities, managers should focus on

quantifiable performance measures such as production costs. However, when lines of business are related it may be more important that managers of different business units coordinate their activities.

Studies show diversified firms with related lines of business are generally more profitable than unrelated diversification (Markides & Williamson, 1994; Robins & Wiersema, 1995). However, even related diversification cannot provide sustained increases in profits if managers are unable to efficiently coordinate the firm's activities to take advantage of the potential for economies of scale (Markides & Williamson, 1996).

These studies generally view diversification resulting from mergers from the perspective of effects on cost. An alternate view argues that companies diversify not to become more efficient, but to provide a hedge against cyclical changes that may affect one business and not another. This view argues that newspapers, with their dependence on retail advertising sales, are particularly sensitive to "changes in the local and national economies" (Picard & Rimmer, 1999, p. 16). Newspaper companies therefore diversify into other media because they "are not as dependent on advertising or not as affected by recessions as the newspaper industry" (p. 7).

This study (Picard & Rimmer, 1999) measured diversification as the percentage of revenue from newspaper operations at diversified newspaper companies. The study concluded companies with a higher percentage of revenue from newspapers earned lower profits before, during and after a recession in 1990-1991. The study also examined overall costs for these companies. However, the company level measures in the study suggest the analysis would only indirectly record any effects from economies of scale, which most likely exist at the level of individual newspapers.

These studies leave open the question of whether economies of scale may be available when a firm creates a cluster of newspapers in the same geographic region (Asher, 1999; Bass, 1999). The creation of a cluster of newspapers represents a form of diversification, but not into unrelated businesses. It seems less likely that resources will be duplicated or that firms with clusters will face the same problems coordinating production that exist when different types of mass media products -- such as magazines, movies and outdoor advertising -- are at issue.

Therefore, this dissertation examines whether there is evidence that newspaper clusters result in lower costs. The previous discussion also suggests that if companies which own newspaper clusters also diversify into other lines of business, it will be more difficult to translate such cost advantages into higher profits. However, other variables will mediate this effect. First, this disadvantage will be more acute if those companies diversify into unrelated lines of business than if they are in related businesses. Second, newspaper companies may gain a financial hedge against fluctuations in the retail advertising market by diversifying. Therefore, this dissertation also examines how diversification affects the profitability of firms which own clusters of newspapers.

Mergers for Market Power

For decades, daily newspapers have battled an erosion of audience and circulation. The effort to maintain profits in the face increasing competition from radio, television, cable television, and most recently the Internet has preoccupied researchers and members of the industry (Hickey, 1997; Lacy, 1992b; Lacy & Simon, 1993, p. 266; Meyer, 1995; Moses, 2001). However, publicly-owned newspaper companies still earned

extraordinary profits – substantially above the levels that might be expected in a highly competitive industry – throughout the 1980s and the early 1990s (Martin, 1998).

This suggests newspaper companies had successfully adopted strategies to maintain profitability despite the maturity of the industry. Picard and Rimmer (1999) suggested diversification into broadcasting, cable television, book and magazine publishing and other industries was intended to preserve profitability by providing a hedge against cyclical variations in advertising sales. Economic theory suggests that clustering may be another strategy intended to maintain profits.

Neoclassical theory assumes that markets will be competitive if firms produce a homogenous product, have identical production costs, and nothing prevents new firms from freely entering markets if positive economic profits can be earned (Nicholson, 1995, p. 462-463). Positive profits are defined as any earnings above the amount a business owner would receive from the alternative of investing capital elsewhere.

In a competitive market, firms keep producing additional goods until the marginal cost of producing the last unit equals the price of the good (Nicholson, 1995). In equilibrium, this marginal cost will also equal the average cost of production. If firms can raise their prices above this marginal cost, then they are earning positive economic profits. New firms will enter the market and offer their products at lower prices, restoring equilibrium conditions.

However, if these basic assumptions are changed markets become less competitive and firms in them can earn positive economic profits without having their advantage competed away. One way to do this is by differentiating a product so that consumers distinguish between offerings from different firms. Lacy (1989, p. 41 ; Lacy

& Simon, 1993, chap. 2-3) has discussed how newspapers can differentiate themselves by altering the news and other information they publish. This is an application of the theory of monopolistic competition which argues that by catering to differences in consumer taste, firms can to some degree isolate themselves from the effects of competition and raise prices above their costs (Scherer & Ross, 1990, p. 32).

Differentiation alone is insufficient to entirely protect a newspaper from the effects of competition. As Lacy (1989) pointed out, the content of newspapers is defined by the geographic area where the newspaper circulates. Other newspapers circulating in the same area can offer plausible alternatives for consumers if they match the content. Differentiation, in other words, may reduce the importance of prices and cost, but it does not eliminate them.

The fact that newspapers enjoy economies of scale offers them additional alternatives for escaping the effects of competition. Keep in mind that economies of scale mean that average production costs decrease as the number of copies produced increases. The newspaper able to take most effective advantage of scale economies often won a battle for survival in cities where there was direct competition. This was because papers with increasing circulation attracted more and more advertising (Lacy & Simon, 1993, p. 96-99). The advertisers abandoned papers with smaller circulation, which could only respond by cutting prices and trying to increase quality. However, these tactics often failed because the larger papers costs were spread across more copies as circulation increased, so it cost less for advertisers to reach each reader.

The same economies that allow a newspaper to win this kind of competitive battle can also create a barrier that keeps other newspapers from entering the market by

undercutting the higher prices charged by the now dominant paper. This is illustrated in Figure 1. This shows that that a newspaper must print a certain number of copies before it can take full advantage of economies of scale. Let Q be quantity, or the number of copies printed by a newspaper. Let C be the average cost of printing each copy, defined as the newspaper's total production costs divided by the number of copies. If Q1 is the number of copies printed and sold by the dominant newspaper in a market, its average cost per copy is C1. However, some consumers are not buying newspapers because the price is too high; they would be willing to buy them if the price were lowered. A second newspaper might enter the market by taking advantage of this unmet demand for papers if it could charge a lower price. The amount of unmet demand is represented by Q2, which is the number of copies the second newspaper will be able to sell.

The problem facing the second newspaper is that even if it meets the unmet demand, its average cost per copy of C2 is higher than C1. This is because the second newspaper cannot publish enough papers to take full advantage of economies of scale and reach the lowest point on the cost curve. This point is called the Minimum Efficient Scale (MES). The MES is the smallest number of copies a newspaper can print and still match the low cost of its competitor.

However, economies of scale alone may be insufficient to deter other newspapers from entering this market. A single newspaper in a market can be expected to raise prices above costs, therefore another newspaper could enter the market charging lower prices and still make enough to cover its costs. Economic theory suggests the mere threat of such entry could be enough to deter the existing newspaper from raising prices much

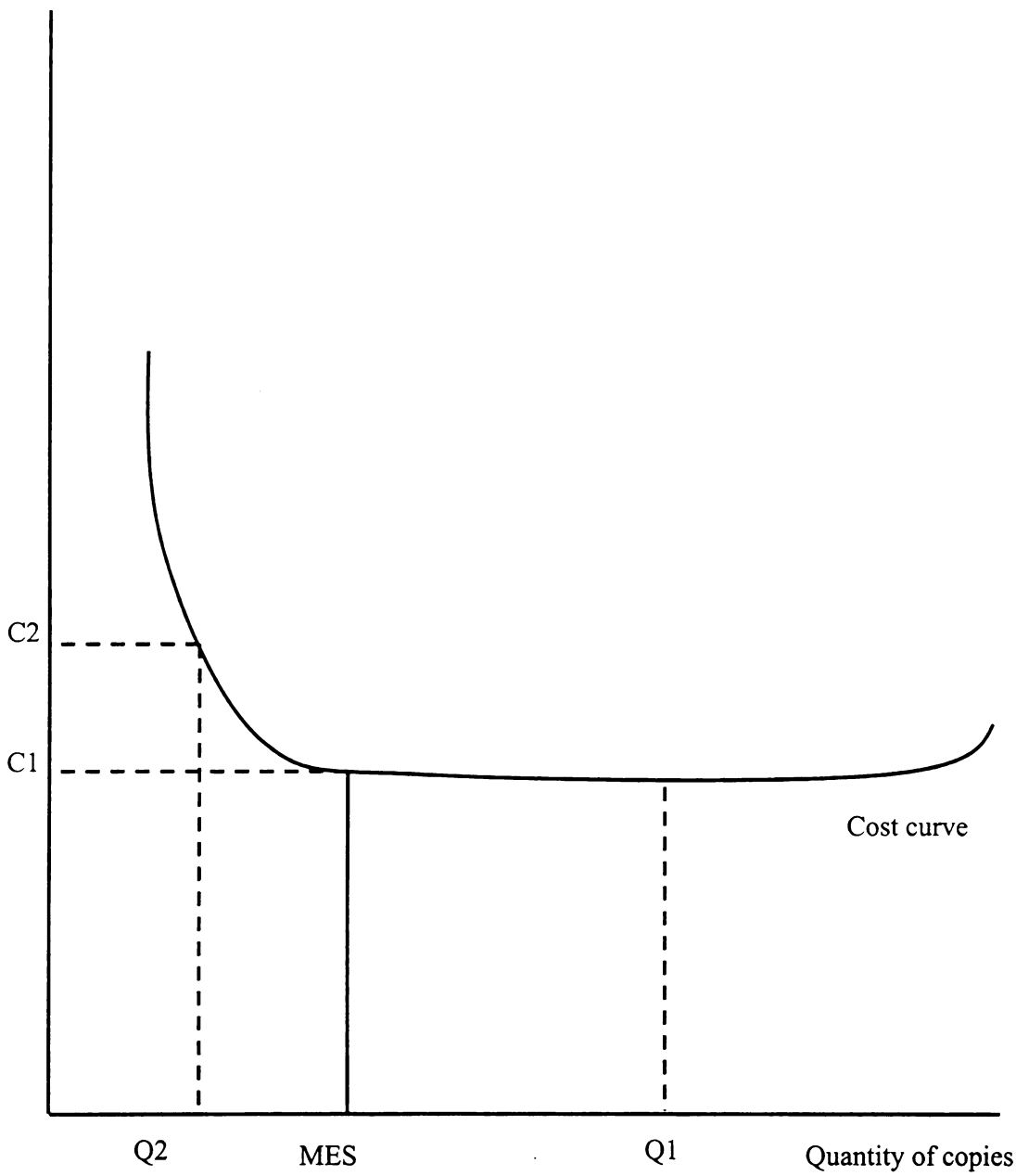

Figure 1. How economies of scale may deter entry into newspaper markets.
The Minimum Efficient Scale (MES) is the smallest quantity of newspapers that must be produced to reach the lowest point on the cost curve.

beyond its costs if such restraint was rewarded by keeping potential competitors out of the market (Tirole, 1988, p. 308-309).

The threat of such entry is likely to exist in many U.S. newspaper markets. By Feb. 1, 1999 only 19 cities had separately-owned daily newspapers in direct competition (Maddux, 1999, p. xxiii), but this does not mean competition no longer exists. Lacy and Simon (1993, p. 95, 112-115) describe how newspaper competition exists in different layers. The first layer is regional metropolitan dailies, the second layer is satellite-city newspapers emphasizing local coverage, the third layer is suburban dailies and the fourth layer is weeklies, shoppers and specialized newspapers. National dailies are a fifth layer of competition, and group-owned suburban newspapers make up a sixth layer.

Newspapers in this model are not perfect substitutes, but studies show they do compete. Lacy (1984) surveyed editors and publishers of southwestern newspapers using a three-layer model of competition. Respondents reported competition between layers, with respondents at lower levels reporting competition from metropolitan dailies. A national study (Niebauer Jr., Lacy, Bernstein, & Lau, 1988) of 900 suburban communities examined how competition in those communities was affected by metropolitan newspapers in markets that were competitive, had monopoly dailies, or had joint-operating agreements. The study (Niebauer Jr. et al., 1988) concluded the central city market structure had little effect on suburban papers.

Lacy and Davenport (1994) studied the potential for competition in daily newspaper markets in 1983 and 1988. In 1988 about 44% of all U.S. counties had at least one daily from at least two layers of the umbrella model. About 47% of all U.S. counties had two or more dailies from the same layer of the umbrella model that year. Both of

these percentages had decreased slightly from 1983 (p. 38-39). Still, in 1988 about 22% of U. S. counties had dailies that potentially could engage in both interlayer and intralayer competition.

The study (Lacy & Davenport, 1994) also examined concentration in daily markets using a random sample of 500 counties. Results showed that both daily and Sunday markets had a high degree of concentration – three dailies tended to dominate these markets in 1983 and 1988. However, the authors concluded the newspaper industry "was far more competitive than many have thought, and it was not declining in that competitiveness" (p. 43).

Another study that examined newspaper penetration in non-metropolitan counties in Michigan during four years found intense competition between satellite dailies and weeklies, and noticeable competition between satellite dailies and metro dailies (Lacy & Dalmia, 1993). The Michigan study was extended to throughout the United States using a random sample of 381 counties (Lacy, Coulson, & Cho, 2001). This unpublished study also used three layers, and again found competition between different layers. The study also concluded umbrella competition varies between metropolitan and non-metropolitan areas, identifying weekly circulation as an important intervening variable.

These studies of the umbrella model suggest many newspapers not only face the threat of entry, they feel the pressure of competition. Therefore, newspapers can be expected to look for strategies that allow them reduce that pressure. One way to do this is find a way to take advantage of the fact that competing newspapers must be able to lower their costs enough to match the MES shown in Figure 1. A competing newspaper can only do this by selling a large enough "lump" of circulation to reach the MES. Clustering

may allow newspapers to take advantage of this problem of "lumpiness" to deter the entry of new competitors and protect profits.

Lumpiness can become an advantage if transportation costs are a significant contributor to the final cost of a product (Scherer & Ross, 1990, p. 396-404). If this is the case, a product's market tends to be defined within a geographic region. When transportation costs are important, consumers farther away from a company's plant must pay a higher price because transportation costs increase with distance. A competitor can enter the market by locating in an area where the existing firm's transportation costs are high enough to be undercut and still allow the new firm to earn a profit.

Newspapers incur substantial transportation costs when they distribute copies to individual subscribers. If a newspaper extends its circulation to distant areas where the population is increasing it may be forced to increase subscription or advertising prices to cover the increased transportation costs. However, a second newspaper that is closer could enter this growing market with lower prices because its transportation costs are lower. There is evidence that newspapers benefit from reducing circulation that is costly to maintain (Blankenburg, 1982). Gannett newspapers in the 1970s reduced circulation and market share when compared with a control group of newspapers. The strategy was rewarded with increases in revenues and profits. However, Blankenburg did not measure the effects of competition on the changes in circulation.

Economic theory suggests firms can solve the problem of transportation costs and deter the entry of new competitors by locating new plants at the edges of the territories that existing plants serve (Scherer & Ross, 1990). However, this strategy can only be effective if the company locating plants throughout a region enjoys economies of scale.

Otherwise, new competitors can enter on a very small scale and still compete by lowering prices. This is because "economies of scale create a lumpiness problem" (Scherer and Ross, 1990, p. 400).

A regional cluster of commonly-owned newspapers means a new competitor would have to produce a large, low-cost "lump" of circulation in a market where existing newspapers are already meeting the demand needed to absorb the lump. This gives the entering newspaper the option to circulate only to consumers unwilling to pay for the existing newspapers. There will not be enough of those consumers to allow the entering newspaper to reach the MES shown in Figure 1.

Clusters of newspapers, in other words, may result from a strategy to deter competition. Instead of paying high transportation costs to circulate newspapers in more distant areas, companies acquire existing newspapers that are closer to those areas. The acquisition of these newspapers reduces transportation costs. The scale economies in newspaper production also deter the entry of new competitors.

Effects of Reducing Competition

There is evidence that the horizontal mergers which create newspaper clusters are associated with decreased competition. Lacy and Simon (1997) compared commonly-owned newspapers in adjacent counties to a control group of separately-owned newspapers in adjacent counties. The commonly-owned newspapers had an average of 6% less penetration outside their home counties (p. 820). Fu (2000) examined the home county circulation of newspapers in clusters, and found a positive association between circulation and common ownership of adjacent newspapers (p. 32).

Fu also examined how contacts in multiple markets between a group that owns clustered newspapers and its competitors affected circulation. Theory suggests that if competitors have asymmetric positions in different markets, they will collude to refrain from competition because they can retaliate against each other in different markets (p. 15-16). This is called mutual forbearance. This might take place if the same groups have newspapers in different markets, but the group with the highest market share in one market has the lowest market share in the other. Fu found a positive association between the circulation of clustered newspapers and multimarket contact with competing groups (p. 32).

Neoclassical economic models suggest that mergers which lower production costs should also result in lower prices as firms exploit the cost advantage relative to their competitors. However, if the mergers have reduced or eliminated competition, then the firm can be expected to increase prices as it exploits market power arising from the lack of consumer choice.

Recall that in a competitive market new firms enter if prices rise above costs. Firms in these markets cannot control the price they charge, they must instead accept whatever price is dictated by conditions in the market. Product differentiation gives firms some control over prices, but relatively high prices still will convince consumers to accept the imperfect substitute of another firm's differentiated product. As the number of firms in a market decreases the market becomes an oligopoly. Oligopoly is characterized by a relatively small number of firms that divide a market while keeping prices relatively high, but still below the levels found in a monopoly. A monopoly sets its own price. The

only constraint on a monopolist's price is whether consumers are willing to pay for its product.

Newspaper markets have some characteristics of monopolistic competition, but tend toward oligopoly or monopoly (Lacy & Simon, 1993, p. 92-94; Litman, 1988; Morton, 1997). This suggests newspapers have some degree of market power even when they face competition. Therefore, mergers that eliminate competition will increase existing market power. Therefore, this dissertation examines both the size and geographic extent of clusters and how clusters influence prices.

CHAPTER 2
MODELING THE BEHAVIOR OF CLUSTERED NEWSPAPERS

Newspapers complicate economic analysis because they are joint products that provide information, ideas and entertainment to an audience, and then sell advertisers access to that audience (Lacy & Simon, 1993, p. 5). Newspapers do all this using a single production process. This makes advertising prices dependent on the newspaper's ability to attract an audience. However, the ability to attract an audience depends on how much utility is available from the news and advertising that the newspaper produces.

Clustering's Effects on Quality

The effect of competition on news coverage is generally described by the financial commitment model first developed by Litman and Bridges (1986). Lacy (1992) formalized this model as: (1) increased competition leads to an increase in financial resources devoted to covering news, and (2) increased spending results in an increase in the quality of news coverage which (3) increases reader utility resulting in (4) increased circulation and improved market performance. Empirical tests support the financial commitment model (see, e.g., Lacy, 1992; Lacy, Shaver, & St. Cyr, 1996).

This model suggests that if clustering decreases competition less money will be spent covering news and quality will decrease. The financial commitment model also suggests the decline in spending eventually will lead to a decline in audience and a consequent loss of advertising revenue.

However, two other variables can mitigate this effect. First, if newspaper clusters reduce production costs these economies may create an option for managers who want to

maintain quality. Cost reductions could allow those managers to offset declines in newsroom spending, and in turn limit the reduction in quality.

Second, if demand for a newspaper is relatively inelastic, then a decline in quality does not necessarily imply there will be a proportionate loss of audience or advertiser demand for that audience. Elasticity, or the percentage change in circulation divided by the percentage change in quality, measures the sensitivity of readers to changes in quality. Elasticity can also be used to determine whether readers and advertisers are sensitive to changes in price.

Let Q= the quantity, or circulation, of a newspaper. Let S = spending on the news, or quality. Let P = the newspaper's cover price. Elasticity of demand is $(\Delta Q/Q)/\Delta S/S)$ when quality is at issue, or $(\Delta Q/Q)/\Delta P/P)$ when price is at issue. If the result is less than 1, then demand is inelastic. Readers are less sensitive to changes in quality or price. If the result is greater than 1, demand is elastic. Readers are more sensitive to changes in quality or price. If the result is 1, then demand is said to be unit elastic.

Lacy (1989) modeled how quality affects demand elasticity when newspaper firms compete. Lacy argued that if newspaper readers expect a minimum level of acceptable quality, there will be a kink in the newspaper's demand curve. Demand is more elastic below the minimum quality level, and less elastic above the minimum quality level. This means consumers are less sensitive to changes in quality above the minimum level. This is because higher quality makes the product more useful -- consumers receive more utility from the newspaper.

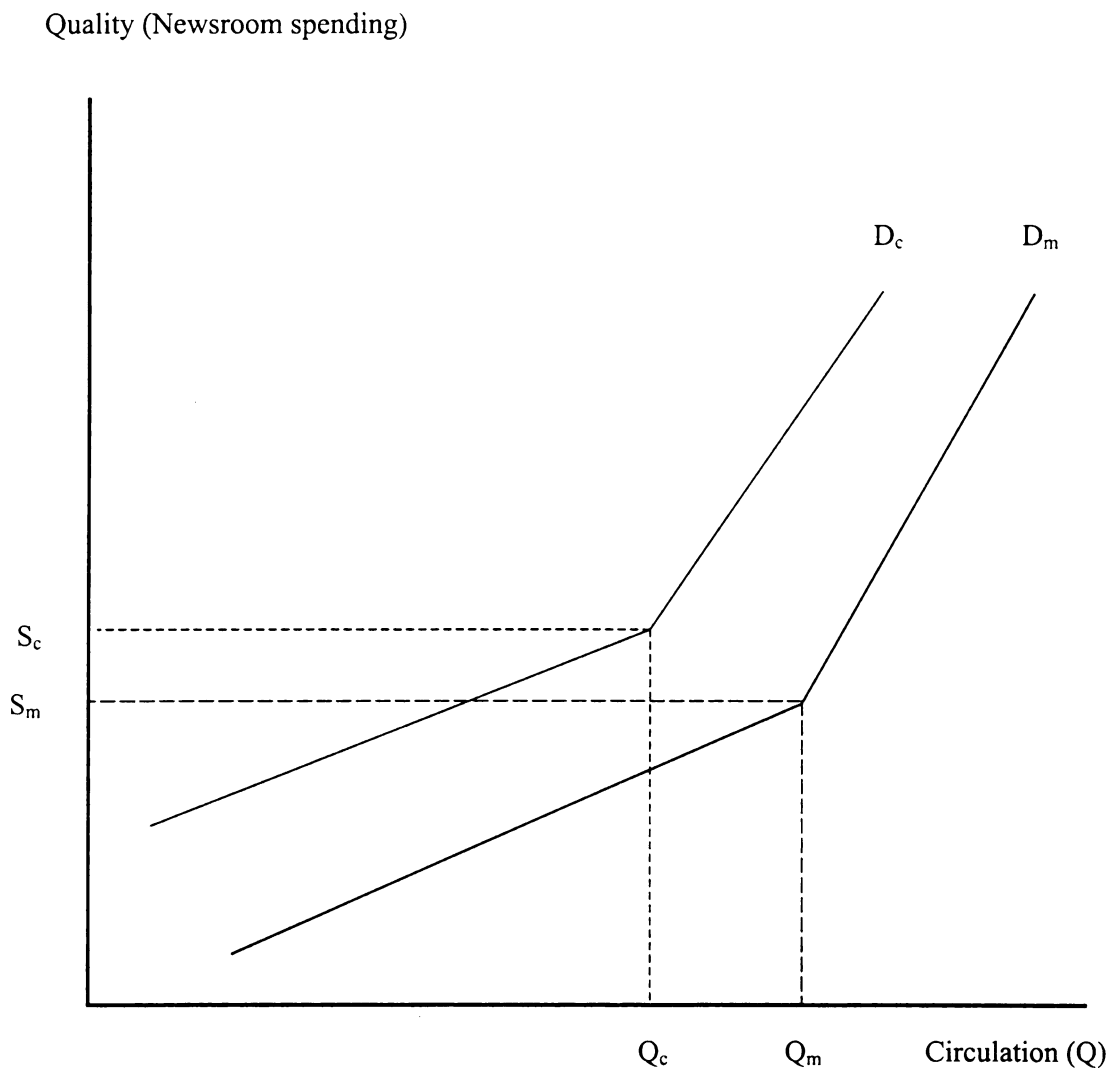

Figure 2. Competition's effects on reader demand for quality.
Quality (S) is measured as newsroom spending in competitive (c) and monopoly (m) markets. The demand (D) for quality shifts in a monopoly market because substitute newspapers are not available. This figure was adapted from Lacy, S. (1989). A model of demand for news: Impact of competition on newspaper content. *Journalism Quarterly, 66*(1), 40-48, 128.

However, Lacy (1989, p. 46) noted that if only one newspaper serves a market, the demand curve shifts because of the lack of substitutes and readers accept a lower level of quality. Figure 2 shows how this shift, to the right and down, lowers the minimum acceptable level of quality. The minimum acceptable quality for consumers in a competitive market is S_c, which results in circulation of Q_c. However, the minimum acceptable level of quality in a monopoly market, S_m, results in a higher level of circulation, Q_m. This allows the monopoly newspaper to maintain circulation while reducing quality. This suggests that if newspaper clusters reduce competition, quality may also be reduced without a proportionate loss of audience.

Martin (1997, p. 15-16) developed a simple model of consumer surplus (V) from newspaper use as a function of price (P), the utility a newspaper provides to readers (U, determined by the quality of content) and opportunity cost:

$$V = U - P_n - P_{oc} \tag{2.1}$$

In this model P_n is the cover price of a newspaper and P_{oc} is the opportunity cost of time devoted to reading the newspaper. Opportunity cost is assumed to represent the value of using a competing form of mass media (Martin, 1997). The first equation can be rewritten to show high newspaper's cover price can be set. This is accomplished by setting V equal to 0, then adding newspaper's cover price to both sides of the equation.

Rewriting Equation 2.1 then shows the cover price of a newspaper must be

$$P_n \leq U - P_{oc} \tag{2.2}$$

or consumers will not subscribe. This model implies that competition from other media, which offers alternatives to reading the newspaper, also can affect the elasticity of reader demand.

Both models (Lacy, 1989; Martin, 1997) imply that as competition decreases clustered newspapers can reduce the quality of news without risking a substantial loss of audience. This is because (a) the consumer cannot switch to other newspapers that may provide more utility so (b) the relative "price" of the news that still is available has declined. However, both models also suggest the reduction in quality is constrained either by (a) some minimum quality level that consumers find acceptable or (b) the availability of imperfect substitutes such as television or other competing forms of mass media.

One study indirectly supports this argument. Lacy and Martin (1998) concluded newspapers owned by a company that emphasized high profit margins at the expense of news lost substantially more circulation than a control group of newspapers during the 1980s. The study controlled for competition, but did not directly measure quality.

Other studies also show competition results in more spending on news or more space for news. For example, two studies of publicly-owned newspaper companies (Blankenburg & Ozanich, 1993; Lacy et al., 1996) concluded there is less emphasis on profit at the expense of newsroom spending if the original owners or their successors have more control of the company. Lacy, et al. (1996) also concluded these newspaper companies increase news budgets when newspapers they own face competition. They found that companies facing competition had a lower return on equity, but were forced to spend more to keep their newspapers "attractive to readers and advertisers" (p. 339). Lacy (1988) studied the amount and type of news in 114 newspapers, concluding the "intensity of intercity newspaper competition influences the percentage of space in a

newspaper given to news coverage and coverage of news in the city in which the newspaper is located" (p. 405).

However, the two studies of newspaper clusters did not directly measure quality (Fu, 2000; Lacy & Simon, 1997).[2] Fu (2000) included independent variables estimating the effects of clustering on the elasticity of demand associated with a newspaper's price. He concluded that newspaper clustering is associated with a 22% reduction in cover-price elasticity of demand. This suggests that clustered newspapers may be able to substantially reduce quality without losing circulation.

This discussion suggests that if clustering reduces competition, it also will allow newspapers to reduce newsroom spending and the quality of news coverage without a disproportionate loss of circulation. However, this will only be possible if (a) quality still is above the minimum acceptable level represented by the kink in Figure 2 or (b) competition from other media does not significantly reduce the newspaper's audience. This dissertation examines spending on news by companies that own clustered newspapers to determine how quality is affected. Measures used include the size of the news staff and the space available for news at individual newspapers. Overall spending on the newspaper division of companies that own clustered newspapers provides a second level of analysis.

Clustering's Effects on Prices

The previous discussion implies there is an interaction between quality and prices. Industrial Organization models suggest a formalization of this problem (Scherer & Ross,

[2] Fu (2000) measured the average number of pages printed each day, arguing this represented quality because news, advertising, editing and print quality are highly correlated. However, this fails to account for newsroom spending or factors such as the ratio of newspaper staff to wire service stories (Lacy and Simon 1993, p. 64-67).

1990, p. 70-71). These models measure the price-cost margin, known as the Lerner Index:

$$M = (P - C)/P$$

In this model P is the price of one unit of a product and C is the marginal cost of producing one additional unit of that product. In competitive markets, price is equa the marginal cost of producing an additional unit of output so M = 0. However, as competition decreases firms can raise prices above marginal cost because consumer cannot then substitute products from other, lower priced firms. Therefore, the value the Lerner Index increases as markets become less competitive.

The Lerner index is related to elasticity of demand (Tirole 1988, p. 66). Let the price a monopoly newspaper would charge, C the change in cost associated with change in quantity or marginal cost, and ε is price elasticity of demand or the Percer Change in Demand/Percentage Change in Price:[3]

$$P_m - C/P_m = 1/\varepsilon$$

Equation 2.4 implies that a monopolist's increase of price above marginal cost is "inversely proportional to the demand elasticity" (Tirole 1988, p. 66). In other word demand becomes more elastic and consumers respond to small increases in price wi disproportionately large decreases in consumption, and the monopolist must accoun the effect that high prices have on consumption. This equation also implies the monopolist always operates in the elastic portion of a demand curve because if ε < 1 price-cost margin will be negative -- the monopolist will actually charge a price belc marginal cost.

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[3] The relationship between price and demand is negative.

Interactions Between Newspaper Prices

The application of this analysis to newspapers is complicated by the fact newspapers actually must decide how to adjust two sets of prices -- prices for advertising and prices for copies of the newspaper. These prices are charged to two different sets of consumers -- advertisers and readers.

This means newspapers must set prices based on the demand in two separate markets. However, demand in these markets interacts. Advertisers are buying access to the newspaper's readers, while readers are, in part, buying newspapers to read the ads. This suggests there is a negative relationship between advertising prices and newspaper cover prices. If cover prices decrease, the newspaper's circulation and audience increase. This, in turn, makes the newspaper more attractive to advertisers, enabling it to raise advertising prices.

Bucklin, Caves and Lo (1989) constructed one formal model of this relationship (p. 632-634). Their model suggests that advertising and cover prices must also be set so the newspaper produces enough revenue to cover its costs. These costs include producing advertising, gathering the news, and printing and distributing the newspaper. Therefore, this model (Bucklin et al., 1989) suggests newspapers adjust cover prices based on "the ability of additional circulation to induce additional advertising [sales], which feeds back positively to the increase in total revenue resulting from any decrease in the circulation price" (p. 634).

In other words, decreases in circulation price must be more than offset by increases in advertising sales or prices. The study (Bucklin et al., 1989) points out that changes in the demand for either circulation or advertising can reduce the revenue earned

from both. This is because if advertising sales decrease, then circulation prices must be raised to make up for the lost revenue, and vice versa. Merrilees (1983) argues this interaction between audience size and advertising demand explains why monopoly or duopoly newspapers may want to set their cover prices below the marginal cost of producing additional newspapers.

This has clear implications for newspaper clusters. As newspaper markets become less competitive, allowing individual papers to begin acting like monopolists, there will be a shift toward pricing advertising in the elastic portion of the demand curve. Another way to think of this is that clustered newspapers will increase advertising prices until the price-cost margin ≥ 1. At this point, the elasticity of demand becomes important in determining the actual magnitude of further increases in price.

This interaction between circulation and advertising also suggests that clustered newspapers can select from two alternative strategies when setting the level of newsroom spending, or quality. The first alternative is to reduce costs by reducing spending until quality is below the minimally acceptable level. As noted earlier, Lacy (1989) suggests this is the point where demand for news becomes elastic. Therefore, the magnitude of further spending cuts will depend on how much audience elasticity of demand for news exceeds 1. Given the importance of audience to advertisers, newspapers adopting this strategy risk substantial reductions in advertising revenues as readers transfer their attention to competing forms of mass media.

This suggests a second strategy, which is to maintain the quality of news at a level where demand is inelastic -- perhaps at the minimum acceptable level represented by the kink in Figure 2. This, in turn, would reduce the elasticity of demand among advertisers

because the size of the audience, measured in circulation, does not decline. The clustered newspaper can then impose even larger price increases on its advertisers.

The second strategy would be moderated by two considerations. First, the cost of maintaining quality cannot exceed the additional revenue generated by the advertising price increases. Second, the price increases cannot be so large that advertisers begin to shift business to other forms of media.

Still, assuming that advertiser elasticity of demand for access to an audience is a function of audience size, clustered newspapers still have an incentive to operate on the inelastic portion of their audience demand curve.

This relationship will be complicated by the fact that some advertisers target certain segments of an audience (Shaver, 1995), so increases in cover price will only lead to reduced advertising prices if the readers who stop taking the newspapers are considered desirable. However, this does not negate the general point that interactions between the demand for advertising and circulation require that newspapers protect their ability to attract both readers and advertisers. From this perspective, clustering is a strategy that protects newspapers from competition in both markets so they can maintain higher prices and profitability.

Recall that Lacy (1989) and Martin (1997) argue a reduction in competition allows newspapers to maintain audience size even when the level of quality is reduced. Fu (2000) concluded clustering is associated with decreases in cover-price elasticity. Newspaper clusters may also create economies of scale that reduce production costs. This suggests that clusters create long-run changes in market conditions -- shifting demand curves so demand remains inelastic even when quality is below the minimum

acceptable level in a competitive market (see Figure 2). Cost curves may shift in a similar fashion, allowing newspapers to maintain minimum quality while spending less on production then is required in a competitive market. Clustering may provide newspapers with a cushion that reduces the effects of short-term fluctuations in the demand for advertising or circulation. This cushion may allow clustered papers to reduce newsroom spending while maintaining quality at levels that still result in relatively inelastic demand. This, in turn, would allow clustered newspapers to maintain higher advertising prices.

Implications for Quality and Prices

This discussion suggests some general results. First, as clusters are formed, reductions in quality will be constrained by (a) whether a newspaper wants to create inelastic demand among its audience and (b) the degree of elasticity resulting from reductions in quality. However, these constraints will be relaxed in comparison to competitive markets where newspapers must maintain inelastic demand to hold onto their audiences. Therefore, the quality of newspapers in clustered markets will be lower than the quality of newspapers in competitive markets.

Second, as clusters form, there will be interactions between quality and prices. Clustered newspapers may be able to save costs by reducing quality without risking a proportionate loss of audience. This suggest that the negative relationship between advertising and cover prices will be less intense in clustered markets. Newspapers in clustered markets will have a cushion allowing them to respond to changes in demand for either advertising or circulation with smaller prices changes than newspapers in competitive markets.

Therefore, this dissertation examines the effect of clustering on both advertising and cover prices. As noted earlier, the two clustering studies did not examine cover prices as a dependent variable (Fu, 2000; Lacy & Simon, 1997). However, Lacy and Simon (1997) found clustering is associated with decreased competition. Fu (2000) concluded clustering is associated with decreased price elasticity and increases in home county circulation, traditionally the core of a newspaper's market. These results imply clustered newspapers may not have to lower cover prices to increase circulation as much as newspapers in competitive markets do. Therefore, this dissertation includes cover price as a dependent variable.

Fu (2000) did include advertising prices as a dependent variable, concluding that clustered papers charge more for a standard column inch. This study did not control for competition from other daily newspapers.[4] Fu did include the number of radio and television stations in a market to control for competition from other media.

However, advertising price studies are sensitive to different measures. Research that did not adjust for circulation or did not measure the intensity of competition failed to show expected relationships between competition and prices (Lacy and Simon 1993, p. 108-109). Ad prices can be adjusted to reflect the advertising cost per thousand copies of a newspaper (cpm). This is the industry standard because it allows advertisers to compare prices while controlling for differences in circulation. When researchers used the ad cpm and measured the intensity of competition, they found the expected negative relationship between prices and competition (Shaver & Lacy, 1999, p. 731). Shaver and Lacy argue the contradictory results reflect different measures and the complexity of

[4] The study (Fu 2000) argues advertisers regard each newspaper reader as another potential customer. Therefore, if newspapers reach separate audiences they will not compete for advertising.

advertising markets where cost is only one factor determining where to place ads. Another factor is advertiser perceptions of ability to reach a target audience (p. 732-733).

Shaver and Lacy (1999) also argue the assumption that newspapers compete with other media for advertising may explain why the U.S. Justice Department, with one exception, has not investigated the potential anti-competitive effects of newspaper clustering. Shaver and Lacy used a convenience sample of 40 papers which had released the number of lines of advertising they sold in 1994. The papers also made public their run of the paper (ROP) advertising lines, a measure of local retail advertising sold during the year. The study included the advertising cpm and controlled for competition from other newspapers and from television and radio stations.

The study (Shaver & Lacy, 1999) concluded that newspapers selling ROP ads do compete with radio and television stations in some markets. However, other dailies provided the strongest competition for total advertising lines, probably because they are the best substitutes for classified and insert advertising (p. 739).

Shaver and Lacy (1999) did not include a variable measuring newspaper clusters. The small, non-random sample in their study also precludes generalization.

The need for more research into the effects of clustering on advertising prices is apparent. Therefore, this dissertation also examines advertising prices as a dependent variable. This study examines clustering using both unadjusted advertising prices and advertising cpm.

CHAPTER 3
HYPOTHESES

The theoretical discussion in the previous chapters suggests that newspaper clusters exist when newspaper in adjacent markets are owned by the same company. Clusters may allow these firms to take advantage of decreased costs by increasing earnings without imposing price increases on advertisers or readers. If there are cost savings in news production, then quality might also be maintained without compromising earnings. This implies that if there are cost savings associated with newspaper clusters, firms will prefer to use those savings to increase profits instead of reducing prices or increasing quality. This is possible because in clustered markets competition is reduced, so the pressure to use cost savings to gain market share is also reduced.

However, the discussion also suggests that clusters allow newspapers to exploit economies of scale and effectively deter the entry of other newspapers into clustered markets. This reduction in competition means clustered newspapers need not maintain the pre-clustered status quo. Clustered newspapers are less constrained than competitive newspapers when imposing price increases on advertisers, reducing the quality of news offered to their readers, or imposing price increases on those readers. The theoretical discussion suggests clustered newspapers can make some or all of these changes and still reap the benefits of lower costs and higher earnings.

These general propositions will be examined using four dependent variables:

1. The advertising prices newspapers charge.

2. The cover prices newspapers charge.

3. The quality of news coverage measured by newsroom spending and by the space available for news content.

4. The profit a newspaper firm earns.

The propositions will be examined using nine independent variables:

1. The size of a newspaper cluster.

2. The distance between newspapers in a cluster.

3. The extent of a newspaper's participation in a cluster.

4. The cluster's share of a newspaper market.

5. The intensity of competition from other newspapers in the market.

6. The intensity of competition from other media in the market.

7. Production costs for companies that own clustered newspapers.

8. The degree of diversification at companies which own clustered newspapers.

9. The degree to which insiders, and not the public, have ownership control of companies that own clustered newspapers.

An additional independent variable, the number of multi-market contacts between different newspaper companies, was considered for inclusion in this dissertation. However, the markets in the study proved too complex to fully identify these contacts, so the variable was dropped from the study.

Expected Relationships Among Variables

The theoretical discussion suggests the following relationships between independent and dependent variables in this model. These relationships are stated as explicit hypotheses.

The newspaper industry is a mature industry where markets are defined geographically by the extent of circulation. Transportation costs are significant when distributing newspapers, but newspapers also enjoy economies of scale. Newspaper companies assemble clusters of commonly-owned papers in adjacent markets to deter competition, a strategy that relies on economies of scale to make it difficult for competitors to enter these markets. Lacy and Simon (1997) found that clustered newspapers are less aggressive competitors than non-clustered newspapers.

Hypothesis 1. Clustering is a strategy to reduce competition from other newspapers in markets where clustered newspapers operate.

Hypothesis 1a: Clustered newspapers are less aggressive competitors.

This reduction in competition, in turn, affects prices, quality, profits and costs.

Neoclassical economic models describe a negative relationship between competition and prices. This prediction is supported by newspaper studies that measure advertising cpm and the intensity of competition. One clustering study (Fu, 2000) found a positive relationship between clustering and advertising prices. The theoretical discussion also suggests a negative relationship between competition and newspaper cover prices. This relationship, however, is moderated by interactions between demand for circulation and demand for advertising since advertisers are buying access to the newspaper's readers.

Clustering is a strategy to reduce competition and increase market power to set advertising and cover prices by decreasing the elasticity of demand for advertising and demand for circulation. The theoretical discussion also suggests that competition for advertising and circulation is not confined to other newspapers. Other media, such as

television and radio, compete for some forms of advertising but not for others. These other media also compete for a newspaper's audience, thereby affecting circulation demand.

Hypothesis 2: There is positive relationship between clustering and advertising prices. This is because clustering reduces newspaper competition, reducing the elasticity of circulation demand. This makes clustered newspapers less sensitive to advertising competition from other newspapers and media.

Hypothesis 2a: There is a positive relationship between clustering and newspaper cover prices. This is again because clustering reduces elasticity of circulation demand. This makes clustered newspapers less sensitive to competition for audience from other newspapers and media.

Hypothesis 2b: Clustering moderates the interaction between demand for circulation and demand for advertising which usually creates a negative relationship between ad and subscription prices. This negative relationship is weakened because circulation demand is relatively inelastic.

Hypothesis 2c: If newspapers are not clustered, the negative relationship between advertising and cover prices is strengthened because circulation demand is relatively elastic.

Hypothesis 2d:. There is a stronger effect of competition on advertising prices in markets without clustered newspapers. The demand for these newspapers is more elastic, so they are more sensitive to advertising competition from other newspapers and from other media.

Hypothesis 2e: There is a stronger effect of competition on subscription prices in markets without clustered newspapers. This again is because demand is more elastic, making these newspapers more sensitive to competition from other newspapers and media.

The financial commitment model predicts a positive relationship between competition and newsroom spending to increase the quality of content. This model states that newspapers spend more on quality to increase demand for circulation when they are threatened by competition. There is empirical support for this model (Lacy, 1992a; Lacy, Shaver, & St. Cyr, 1996; Litman & Bridges, 1986)

Hypothesis 3: There is a negative relationship between clustering, which reduces competition, and newsroom spending. This, in turn, reduces the quality of clustered newspapers because they face less elastic demand.

Hypothesis 3a: There is a positive relationship between competition and newsroom spending in markets without clustered newspapers. These newspapers can differentiate themselves by increasing quality. The theory of monopolistic competition suggests differentiation will reduce the elasticity of demand.

The neoclassical models that predict a negative relationship between competition and prices also suggest what happens when competition is reduced. As markets become less competitive, newspapers can increase their prices above their costs. This so-called monopolists' mark-up, however, will attract new competitors seeking to undercut the newspapers unless anti-competitive strategies are in place. Clustering is a strategy to deter competition.

Hypothesis 4: There is a positive relationship between clustering and the profits earned by firms that own clustered newspapers. This is because clustering allows newspapers to charge higher prices without attracting new competitors into clustered markets.

The theoretical discussion also states that newspaper companies may form clusters to reduce production costs and protect profits in a mature industry. Economic theory suggests cost savings from economies of scale can only be achieved if production processes are rearranged properly – for instance if more than one newspaper is printed on the same press. Clustering makes this possible because commonly-owned newspapers are located adjacent markets. The trade press also reports many companies that own clustered newspapers are rearranging production processes (Bass, 1999).

Hypothesis 5. There is a negative relationship between clustering and the costs incurred by companies which own clustered newspapers.

Hypothesis 5a: Clustered newspapers are more likely than non-clustered newspapers to share resources in an attempt to save costs by creating economies of scale. This is possible because clustered newspapers are in adjacent markets and can more easily rearrange production processes.

Clustering occurs on one level of analysis, the individual newspaper's market. The diversification of newspaper companies into different lines of business occurs at a second level of analysis. The literature review discussed conflicting evidence regarding the effects of diversification. Firms that diversify into different lines of business hoping to achieve economies of scope often fail to increase profits. This occurs at a higher level of analysis than clustering does. One reason for the failure of diversified firms to create

increased profitability may be that they are more complex, making it more difficult for managers to efficiently coordinate business activities.

However, one study of newspaper firms found diversification was associated with increased profits (Picard & Rimmer, 1999). This study included a cost measure, but did report relationships between cost and diversification or examine potential economies of scale. This study concluded diversification offers a hedge against fluctuations in advertising sales, and therefore is associated with higher profits.

This suggests that diversification will interact with clustering, but leaves open the question of exactly how. As a general rule, however, diversified newspaper firms which also own clustered newspapers can be expected to take advantage of clusters to increase profits in markets where the firm faces less competition. If diversification creates problems managing different lines of business to achieve company-level economies of scale, these firms will have an incentive to take advantage of clusters to compensate. If diversification is a hedge against fluctuations in advertising markets, then the reduction in competition associated with clustering would provide an additional hedge. In either case, companies could be expected to take advantage of the lack of competition in clustered markets by increasing prices and reducing newsroom spending. This will be possible because demand is less elastic in these markets.

Hypothesis 6: There is a negative relationship between profits and the degree of diversification at firms that own clustered newspapers. This is because problems managing multi-business firms outweigh the benefits of hedging against fluctuations in the advertising market.

Hypothesis 6a: There is positive relationship between advertising and subscription prices and the degree of diversification at firms that own clustered newspapers.

Hypothesis 6b: There is a negative relationship between newsroom spending and the degree of diversification at firms that own clustered newspapers.

Empirical studies also suggest that pressure to maintain or increase profits at the expense of quality is affected by whether a company is publicly owned (Blankenburg & Ozanich, 1993; Lacy et al., 1996). This is because publicly-owned companies attempt to maintain high stock prices by increasing profit and reducing earnings fluctuations. This can be accomplished by increasing advertising prices and reducing spending on news, which in turn reduces quality. This is also accomplished by reducing circulation in areas where circulation costs are high (Blankenburg, 1982).

However, the degree of public ownership moderates these effects. Companies where more stock is controlled by the public tend to define quality based on "financial concerns, not by news values" (Lacy et al., 1996, p. 332). This study found the tendency to favor profits over quality was lessened at companies where the managers or directors still controlled substantial portions of the stock.

This suggests pressures to take advantage of clustering to maintain or increase profitability will be moderated by the degree of inside control at companies that own clustered newspapers.

Hypothesis 7: There is a negative relationship between profits and the amount of stock controlled by insiders at firms that own clustered newspapers.

Hypothesis 7a: There is negative relationship between advertising and subscription prices and the amount of stock controlled by insiders at companies that own clustered newspapers.

Hypothesis 7b: There is a positive relationship between newsroom spending and the amount of stock controlled by insiders at companies that own clustered newspapers.

CHAPTER 4
METHOD

The hypothesized relationships were tested by comparing the characteristics and behavior of clustered newspapers with a control group of papers that are not clustered. Data was collected for two years, 1988 and 1998, to examine whether these relationships were consistent. Ten years is long enough to allow for changes in the ownership of newspapers as new clusters form and old ones are reconfigured. Ten years is also long enough to allow for changes in capital investments, such as realignment of production processes to achieve economies of scale, that might alter the economics of clusters. This long-run comparison of clustered behavior provides a more robust examination of hypothesized relationships than a single-cross sectional analysis.

Defining and Identifying Clustered Newspapers

Clustered newspapers were defined as commonly-owned newspapers operating in adjacent markets. The local newspapers included in this study typically have their largest market share in the county where they are located. These newspapers often circulate in more than one county and therefore operate in multi-county markets, but this circulation represents an addition to their core circulation in their home county. Therefore, only the newspaper's core market -- its home county -- was used to identify clusters. Newspapers were considered to be operating in adjacent markets if they were (a) operating in separate towns within the same county or (b) in counties with a common boundary (Lacy & Simon, 1997).

This definition excluded commonly-owned newspapers -- typically a morning and afternoon paper -- in the same town because that represents a form of vertical, not horizontal, integration. However, commonly-owned morning and evening newspapers were included in clusters if a third newspaper in an adjacent market was also owned by the same group. Newspapers that were part of a joint-operating agreement, where separate companies combine the business operation of two newspapers, were excluded from the study because they are exceptional. Fewer than five markets with joint-operating agreements were excluded from the study.

The rules in this definition of clusters were used to identify all clustered newspapers in the United States during 1988 and 1998. Information about these newspapers and their markets came from standard industry references published in 1989 and 1999 (*American Newspaper Markets Circulation 89-90*, 1989-1990; Jessell, 1999; Maddux, 1999; *SRDS Circulation 99*, 1999; Taliaferro, 1999; Velez, 1989; West, 1989). Much of the data in these references is from the year prior to publication.

The clustered newspapers were identified using lists of all newspapers owned by newspaper groups operating in the United States. These lists are published in the *Editor & Publisher International Year Book*. This annual also provides individual listings of all dailies, including the address and county where the newspaper is located and the name of its owner.

The lists of group-owned newspapers were first used to locate all of these newspapers geographically. Maps were then used to identify commonly-owned newspapers in the same or adjoining counties. The initial location of newspapers and their counties was made with county maps published by Standard Rate & Data in its

comprehensive listings of newspaper circulation in 1988 and 1998. The 1999 edition of the *Editor & Publisher International Year Book* also included county maps. However, the maps in both references are relatively crude, so county boundaries were also checked against a standard road atlas published by National Geographic. Additional checks were made with a computerized road atlas, DeLorme Street Atlas USA, Version 7.0.

This procedure identified clustered newspapers in 39 states in 1988 and 42 states in 1998. However, a preliminary examination of statistics for circulation, annual subscription prices and the number of wire services showed that the distribution of these variables had a substantial positive skew. Numerous newspapers had circulation, subscription prices and wire subscriptions that were more than three standard deviations from the mean. Newspapers with circulation more than three standard deviations were eliminated, but the skew remained. In both years, several iterations of this procedure failed to eliminate outliers even after 25% of the population was eliminated.

An alternative approach identified outliers using boxplots and normal probability plots. Normal probability plots were used to examine differences between expected and observed standardized scores for circulation. The plots were used to eliminate the largest 3% of clustered newspapers in 1988, and the largest 3% of clustered newspapers in 1998.

This procedure defined the 1988 study population as clustered newspapers with a circulation of 100,000 or less. In 1998, the study population included clustered newspapers with a circulation of 106,000 or less. There still were outliers apparent on the plots used in the procedures, but they were judged to be close enough to the other data points to proceed with drawing a sample.

A random sample of 200 clustered newspapers was selected each year from the study population for further analysis. All clustered newspapers, except those in Los Angeles, New York, and Chicago, were eligible for inclusion in the sample. Newspapers in these three cities were excluded because the size and complexity of the markets makes them exceptional. About three newspapers in the counties where these cities are located were excluded from the sample. A control group of 200 newspapers was also selected randomly from the same states where the study newspapers were located. The control group was selected from state-by-state listings of individual newspapers in the *Editor & Publisher International Year Book.*

Information About Newspapers

Information about newspapers in the study came from a variety of sources. Basic information about the newspaper's owner, its advertising price, subscription price, and the number of wire service subscriptions it had came from the *Editor & Publisher* yearbook. Detailed information about each newspaper's circulation and the circulation of other newspapers in its market was gathered from Standard Rate & Data *Circulation* listings.

Standard Rate & Data publishes county-by-county information throughout the United States. To accurately measure the extent of newspaper competition in the study, complete data was gathered for all counties where each newspaper circulated, not just for the home county. This data was broken down to identify the circulation of the clustered or control newspaper in the study. A second category included all circulation from other newspapers that were part of a cluster because this does not represent competition for clustered newspapers. A third category included circulation for all other daily

newspapers, which compete with the clustered and control newspapers. A fourth included weekly newspaper circulation, which was also assumed to compete with the clustered and control papers.

A fifth category of circulation included commonly-owned newspapers that were not part of a cluster. For instance, a statewide newspaper might have some circulation in a distant county where its group owns another newspaper. This commonly-owned circulation was identified for clustered and control papers, but the variable was dropped after initial regressions showed it contributed little to the analysis.

The Standard Rate & Data listings also were used to gather county-by-county information about the number of newspapers headquartered in each county. This provided an additional measure of competition. These newspapers were categorized as competitors if they were not owned by the same company as the clustered or control newspapers. The newspapers were categorized as friendly if they were owned by the same company that owned the newspaper in the study.

Data about the population, the number of households, retail sales, and average household income in each county also came from the Standard Rate & Data listings. The circulation and demographic data for all of the counties were each newspaper circulated was combined to provide data for the newspaper's entire market. The average household income was corrected before it was combined. This was done by multiplying the figure for each county by the number of households in that county to recover the actual income. Income was than totaled for all counties in a newspaper's market and divided by the total number of households in that market.

Information about Competition from Other Media

Information about the number of radio and television stations in each newspaper's market was gathered from listings in the *Broadcasting & Cable Yearbook.* In 1988, this yearbook was also used to gather information about the number of cable television subscribers in each newspaper's market. However, these cable listings were no longer available for 1998. The 1998 cable data came from the *Television & Cable Factbook.*

Like newspapers, radio stations, television stations, and cable companies operate in geographically defined markets. However, the location of these markets is not always congruent with the location of newspaper markets in this study.[5] Therefore, the number of radio stations in the market was measured as the number of stations in the town where a newspaper was located. The number of cable subscribers was measured as subscribers to the cable system serving the town where the newspaper was located. These measures accurately identify radio and cable companies operating in a market where the newspaper's circulation is based.

Television competition was measured as the number of stations in the Area of Dominant Influence (ADI) that included the newspaper's home county. Every county in the United States is assigned to an ADI for a given number of television stations. This is a more geographically diverse market definition than the one used for radio and cable television, but it again accurately identifies stations operating in the market where the newspaper's circulation is based.

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[5] Differences in reporting the location and markets of different media make it impossible to precisely determine differences in the boundaries of these markets.

Local newspapers are most likely to face significant competition for advertising from radio, cable and television companies that also operate in the newspaper's core market – which is always its home town or county.

A diagnosis of initial regressions using this data showed there were problems with multicollinearity. This was corrected by (a) eliminating the population and retail sales variables and (b) using the market share for different media in the study instead of raw numbers for circulation, cable subscribers, and radio and television stations. Market share was defined as the household circulation penetration for newspapers. The market share for other media was also calculated as household penetration for cable subscribers, radio stations, and television stations. A list of variables used in the dissertation is in Appendix A.

Information about Quality and Resource Sharing

A mail survey was used to gather information about newsroom spending and whether newspapers engage in resource sharing. A one-page questionnaire was mailed to senior news executives at all clustered newspapers with a circulation of 106,000 or less which were part of the 1998 study population. The questionnaire also was mailed to a similar number of control newspapers selected randomly from the same states. Responses to this survey made a second sample used for analysis of the 1998 papers. This sample, which was separate from the random sample of clustered and control newspapers for that year, is described in the Results chapter.

The survey questionnaire asked about the size of the newspaper's news staff, the ratio of news to advertising, and the size of its newshole. Four additional questions asked

whether the newspaper shared newsgathering, administrative and production resources. A copy of the cover letter and the questionnaire are in Appendix B.

The resource-sharing questions provided information about whether newspapers are making an effort to realize economies of scale. The questions about news staff and size of newshole replicated measures of quality that Litman and Bridges (1986) used in their financial commitment study.[6] Information replicating a third variable from that study, the number of wire service subscriptions at each paper, was gathered from the *Editor & Publisher International Year Book.*

Information about Publicly-Owned Newspapers

Information about profits, cost, the degree of diversification and insider control of stock was available only for publicly-owned companies included in the study. This information was gathered for these companies when they had newspapers appearing in the sample of clustered or control newspapers for both 1988 and 1998.

Financial and ownership data about these publicly-owned companies was gathered from three sources. The first source of financial data was Compustat, a financial information service owned by Standard & Poor's. Compustat takes financial information filed with the U.S. Securities and Exchange Commission (SEC) and converts it into easily accessible formats. The second source, used in a few instances when data not available from Compustat, was SEC files available on the agency's website. The third source used to gather information about the percentage of stock owned by company insiders was *The Value Line Investment Survey*, a monthly newsletter for investors. The newsletter calculates these percentages using information about stock ownership filed

[6] The space measure in the original study was based on data about 134 papers gathered by Media Records, Inc. (Litman & Bridges, 1986, p. 12).

with the SEC. If information was not available from Value Line, it was supplemented with data from the SEC.

The Profit Measure

Each company's overall profit was measured as its return on sales (Martin, 1998). This is a measure of pre-tax profits. The measure is:

$$\text{Return on Sales} = \frac{[\text{Operating Revenue} - \text{Operating Expenses} - (\text{Non - Operating Expenses} - \text{Non - Operating Income})]}{\text{Operating Revenue}}$$

Operating revenue comes from the sale of products and services. Operating expenses include items such as production costs and depreciation. Non-operating income and expenses include investment income and interest expenses.

The Cost Measure

Costs for each company's newspaper division were calculated using line of business data. This is information about the total revenues and costs associated with a company's different lines of business. These lines of business are identified using Standard Industrial Classification Codes. The cost for the newspaper division was recovered from the line of business data for newspaper publishing. This data includes revenue from sales associated with newspaper publishing and the profit from that revenue. The measure is:

$$\text{Cost} = \frac{\text{Segment sales} - \text{Segment profit (loss)}}{\text{Segment Sales}}$$

The Diversification Measure

The financial data for different lines of business also was used to calculate a diversification index for each company. This index was intended to describe the degree to which different lines of business contributed to the company's total revenues. The

index was modeled on the Herfindahl-Hirschman Index used to measure the degree of concentration in an industry (Scherer & Ross, 1990, p. 72-73). This index squares and then sums the market share of each firm in an industry, so that 1 = an industry that is a pure monopoly.

In this dissertation, the index can be thought of as measuring the degree of concentration, or diversification, among a company's lines of business. The index was calculated by squaring and then summing total revenues from each line of business:

$$\text{Diversification Index} = \sum_{i=1}^{N} \text{Sales for segment}_i{}^2$$

This index assigns a value of 1 to a company that only publishes newspapers. Values less than 1 are assigned to companies with multiple lines of business. Smaller values indicate the company's revenues are more diverse and are not dominated by one line of business.

The Measure of Inside Control

This is a straightforward percentage based on the amount of stock owned by the company insiders such as managers and members of the board of directors (Lacy et al., 1996). This information is calculated by The Value Line Investment Survey from SEC filings detailing who owns the company's stock.

Potential Problems with Endogenous Variables

Some variables in this dissertation may feed back into each other because their values are determined simultaneously. If there is feedback between simultaneously determined variables, the variables are considered endogenous instead of exogenous (Doran, 1989, chap. 11). Regression analysis assumes the independent variables are not correlated with the errors in prediction. This is because the errors are assumed to be

random. This assumption is violated if the dependent and independent variables are endogenous. Violations of the assumption can alter the coefficients for the independent variables, leading to incorrect interpretation of the regression slopes.

This problem can be addressed by identifying variables which are not determined simultaneously with the other independent variables (Doran, 1989). These so-called instrumental variables have a one-way relationship with the endogenous variable. Instrumental variables can be used to correct for endogenity using two-stage regression. In the first stage, instrumental variables are used to predict the value of the endogenous variables. The second stage uses the corrected values of the endogenous variables in a regression to produce a corrected result.

This problem may exist in this dissertation. The feedback between subscription and advertising prices described in the theoretical discussion raises the possibility these prices are determined simultaneously.

However, two-stage regression was not used in this dissertation for practical and theoretical reasons. One technique for identifying instrumental variables is to find a value of the endogenous variable in a previous time period (Norusis, 1994, p. 238). For instance, the price of advertising in one year is not likely to be determined by the price of a subscription in the next year. However, this dissertation is not a true-time series study where such values are available.

In addition, the problem of endogeneity exists at a theoretical level and correctly identifying instrumental variables requires a formal theoretical explication. This is done by creating a system of simultaneous equations and then solving them to identify both

endogenous and instrumental variables (Greene, 2000, p. 656-657). This is beyond the scope of this dissertation.

However, two-stage regressions were attempted using demographic variables, such as households, and the number of radio and television stations, that appeared intuitively to be instrumental variables. The results made no theoretical sense.

The problem of endogenity was addressed instead by examining correlations among variables to determine whether the direction of relationships appeared robust in regressions. This was the case with the price variables. In addition, Ordinary Least Squares (OLS) regression coefficients in this study are interpreted with caution. Results significant at less than the .05 level are considered weak. Results significant at the .005 level are considered stronger. These measures should reduce the chance of Type I error arising from endogenity.

CHAPTER 5
RESULTS

Results in Table 1 describe the population of clustered papers in each of the study years. There was a net increase of 55 clustered dailies from 1988 to 1998. The average circulation of a clustered newspaper increased by 16% during the decade of the study. Clustering spread to three more states during the study, and the average number of newspapers in a cluster declined about 4%. The number of newspaper groups with clustered newspapers remained stable.

Table 1: *The Population of Clustered Newspapers*

Year	1988	1998
Clustered Papers	442	497
Smallest/largest circulation	1,299-462,084	768-1,065,540
Mean circulation	22,112	26,310
Circulation Std. Deviation	38,659	67,948
Smallest-largest cluster	2-11	2-8
Mean cluster size	3.33	3.26
Cluster Std. Deviation	1.99	1.54
States with clustered papers	39	42
Newspaper groups with clustered papers	81	82

However, these figures do not tell the entire story of changes in the number of clustered newspapers. A comparison of newspapers that were clustered in both years identified 135 papers that were clustered in 1988 but were not part of a cluster in 10 years later. Results in Table 2 show how 190 newspapers were added to clusters after 1988, resulting in the net gain of 55 clustered newspapers.

Table 2: *Changes in Clustered Newspapers From 1988 to 1998*

	Total in 1988	Removed from clusters	Added to clusters	Total in 1998
Clustered U.S. dailies	442	135	190	497

Listings in the *Editor & Publisher International Year Book* were examined to determine what happened to the 135 papers which left the population of clusters after 1988. Eighty-one, or 60%, of these papers no longer appeared in the daily newspaper listings..

In other words, the net increase of 55 clustered dailies between 1988 and 1998 is misleading. A substantial number of newspapers left clusters, but even more newspapers were added to clusters. At the same time, a substantial number of clustered papers ceased daily operations.

These complex changes had a substantial effect on the newspaper industry. The Newspaper Association of America keeps track of the total number of dailies in the United States. Newspaper Association figures show 153 dailies ceased publication between 1988 and 1998. Results in Table 3 show the 81 clustered dailies that ceased publication accounted for 53% of this total.

Table 3: *Changes in the Number of U.S. Newspapers From 1988 to 1998*

	1988 Total	Clustered dailies ceasing publication by 1998	Total dailies ceasing publication by 1998	1998 Total
U.S. dailies	1,642[a]	81[b]	153[a]	1,489[a]
Percent dailies in clusters	27%	--	--	33%
Total clustered	442			497

a Figures from Newspaper Association of America.
b Based on analysis of *Editor & Publisher International Year Book* listings.

This decline in the number of dailies was accompanied by a substantial increase in the proportion of United States newspapers that are part of a cluster -- one-third of all newspapers were part of a cluster by 1998.

However, these results leave open the question of what happened to the 81 clustered dailies ceasing publication. Their fate was determined by examining reports of newspapers ceasing publication in *Presstime* magazine, and similar information in the *Editor & Publisher* yearbook. Both publications were reviewed during each year from 1989 to 1999 when information for the previous year would have been published. Results in Table 4 show two-thirds of the dailies merged with another newspaper or went out of business. The rest converted to weekly publication. Almost all of these papers were still in the hands of their 1988 owners when they left the daily rolls.

Table 4: *Why Clustered Dailies Ceased Publication*

Total from 1988 to 1998 = 81	N	Percent
Out of business or merged with another daily	51	63%
Converted to weekly publication	27	33%
Information not available	3	4%
Changed owners after 1988	9	11%

Note: Based on analysis of *Editor & Publisher International Yearbook* listings and information published in *Presstime*.

The fact that only a few of these newspapers changed hands before they ceased daily publication suggests their owners might have been cutting costs. Closing or merging some of the newspapers in a cluster may be a way to rearrange production processes to realize economies of scale. These results support Hypothesis 1 that clustering reduces competition.

t-Tests of Differences between Clustered and Control Newspapers

As described in the method section, the population of clustered newspapers in both years was screened for outliers. Random samples were then selected for further analysis. The initial screening resulted in the exclusion of 12 clustered dailies with a circulation of more than 100,000 in 1988. A random sample of 200 newspapers was

selected from the remaining 430 clustered dailies. A control group of 200 non-clustered newspapers was randomly selected from the 36 states where clustered newspapers in the 1988 sample were located.

The screening excluded 15 dailies with a circulation of more than 106,000 in 1998. A random sample of 200 newspapers was selected from the remaining 482 clustered dailies. A control group of 200 was randomly selected from the 36 states where clustered newspapers in the 1998 sample were located.

The fact that samples for both years included newspapers in 36 states is a coincidence. The clustered sample in each year was drawn from the entire study population.

Table 5: *Circulation Comparisons for Study Population and Random Samples*

Year	1988			1998		
	Clustered papers 100,000 or less	Clustered sample	Control sample	Clusters papers 106,000 or less	Clustered sample	Control sample
Mean circ.	17,195	16,367	18,858	17,193	17,365	19,330
Std. dev.	16,988	16,195	16,902	18,267	18,781	21,089
N	430	200	200	482	200	200

Table 5 compares the circulation for newspapers in the samples with the study populations of clustered newspapers. In 1988, the sample of clustered dailies averaged about 5% less circulation than the study population. In 1998, there was no circulation difference between the population and the sample. The control newspapers were larger than clustered newspapers in both years. Control papers averaged about 15% more circulation in 1988, and about 9% more in 1998.

Statistical tests in this dissertation were based on information about each newspaper and its market. As described in the Method chapter, each newspaper's market was defined as all of the counties where it had circulation.

The first set of statistical tests examined mean differences between clustered and control samples of newspapers. The price and market share variables used in these tests were not distributed normally. However, this does not violate assumptions of the *t*-test because "even when samples are taken from a non-normal population, the distribution of the sample means will be approximately normal for sufficiently large samples" (Norusis, 1993, p. 252).

Table 6: *t-Tests of Intercounty Circulation Differences*

	1988		1998	
	Clustered	Control	Clustered	Control
Mean number of adjoining counties where paper circulates	1.19	2.44**	1.55	2.38*
Std. Deviation	2.14	3.79	2.58	3.92
Paper's mean penetration in adjoining counties	.032	.069**	.037	.062**
Std. Deviation	.069	.105	.066	.096
N	200	200	200	200

* difference between clustered and control significant, $p < .05$
** difference between clustered and control significant, $p < .005$

Lacy and Simon (1977) found that clustered newspapers circulated in fewer counties than newspapers that were not clustered. Results in Table 6 replicate these findings. Clustered newspapers circulated in fewer counties outside their home county during both years of the study. Clustered newspapers also averaged about half as much penetration in counties outside their home county as the control papers did, although this difference was less pronounced in 1998. These results support Hypothesis 1a that clustered newspapers are less aggressive competitors.

This study also examined differences in the number of other newspapers headquartered in clustered and control newspaper markets. This was done by counting (a) the number of competing newspapers headquartered in all counties where each newspaper circulated and (b) the number of commonly-owned newspapers headquartered in these counties. This measure examines whether newspapers operate in the core market of competing newspapers. The measure also examines whether newspapers circulate in areas where they potentially can coordinate circulation with other papers owned by the same company.

Table 7: *t-Tests of Differences in Number of Papers Headquartered in Markets*

	1988		1998	
	Clustered	Control	Clustered	Control
Mean of competing dailies headquartered in paper's market	1.77	2.15	1.21	1.59
Std. Deviation	2.73	2.92	2.13	2.30
Mean of commonly-owned dailies headquartered in paper's market	0.73	0.00**	0.51	0.02**
Std. Deviation	1.26	0.07	0.76	0.12
N	200	200	200	200

* difference between clustered and control significant, $p < .05$
** difference between clustered and control significant, $p < .005$

Table 7 shows fewer newspapers headquartered in clustered markets for both years, but the difference is not significant. However, clustered newspapers frequently circulate in counties where commonly owned newspapers are located. This is rare, but possible, for control newspapers. Recall that newspapers are clustered if they are located in the same or adjoining counties. However, non-clustered newspapers could extend their circulation across adjacent counties to more distant counties where commonly-owned newspapers are located. One control newspaper did this in 1988, and one control paper did it in 1998. These results suggest that only clustered newspapers seek opportunities to

circulate in markets where commonly-owned newspapers are located. This supports Hypothesis 1 that clustering is a strategy to reduce competition.

Table 8 examines differences in the average household penetration, or market share, of newspapers and their competitors. Clustered newspapers had significantly smaller market shares than control newspapers in 1988 and 1998. Meanwhile, circulation from other members of the cluster added about 7% to the market share of clustered papers in both years. This additional circulation was enough for clustered papers to dominate their markets with 31% penetration in both 1988 and 31% percent penetration in 1998.

Table 8: *t-Tests of Differences in Market Share*

	1988		1998	
	Clustered	Control	Clustered	Control
Paper's mean penetration in its market	.241	.282*	.242	.288**
Std. Deviation	.193	.182	.174	.177
Mean penetration for other members of cluster	.072	NA	.067	NA
Std. Deviation	.110	NA	.097	NA
Mean competing daily penetration in paper's market	.394	.423	.294	.340**
Std. Deviation	.198	.195	.160	.169
Mean weekly penetration in paper's market	.411	.471	.233	.254
Std. Deviation	.410	.401	.296	.223
N	200	200	200	200

* difference between clustered and control significant, $p < .05$
** difference between clustered and control significant, $p < .005$

The average market share of competing daily newspapers was lower in clustered markets during both years of the study, and the difference was significant in 1999. Weekly penetration was lower in clustered markets both years, but the difference was not significant.

Overall, Table 8 suggests clustered newspapers are less aggressive competitors than non-clustered newspapers. This is because clustered papers can rely on other members of the cluster to increase their market share. There also is evidence that clustered newspapers may face less competition from other dailies than control newspapers do. These results support Hypotheses 1 and 1a that clustering reduces competition and allows clustered newspapers to be less aggressive.

This dissertation also examines prices at clustered and control newspapers. Prices are measured two ways. The first measure is the actual advertising or subscription price listed in the *Editor & Publisher International Year Book*. The second measure uses prices that are standardized to control for the newspaper's size.

Recall from the theoretical discussion that the industry standardizes advertising prices as the cost per thousand circulation. The advertising cpm allows advertisers to compare the cost of reaching 1,000 readers at newspapers with different sizes.

This dissertation also uses a standardized subscription price per thousand circulation. This is not a measure of price paid by readers, but of the circulation cost faced by the newspaper. Recall from the theoretical discussion that circulation costs vary. There can be economies of scale in circulation when many subscribers are located close together, but circulation can be costly when subscribers are distant from the newspaper or there are only a few subscribers in an area. In either case, subscription prices should reflect circulation costs. Standardizing these prices to remove the effects of circulation size should (a) allow comparisons of subscription prices across newspapers and (b) better reflect other factors affecting the newspaper's circulation costs. Therefore,

this dissertation adopts a standardize measure of subscription price per thousand copies, or subscription ppm.

All advertising prices reported here are based on the price of Standard Advertising Unit (SAU), which is one standard column inch. All subscription prices are for a year's subscription.[7] Table 9 shows clustered newspapers averaged significantly higher advertising prices in three of the four comparisons for 1988 and 1998. Clustered newspapers charged more for an SAU in 1998, but this difference was not significant. The lack of significance may have been because of the large increase in the variance of prices charged by control papers that year.

Table 9: *t-Tests of Differences Between Prices*

	1988		1998	
	Clustered	Control	Clustered	Control
Mean price of standard advertising unit	$14.47	$11.28*	$21.85	$20.61
Std. Deviation	$18.29	$7.79	$25.38	$20.26
Mean annual subscription price	$75.15	$78.61	$108.97	$109.96
Std. Deviation	$22.55	$27.10	$36.13	$38.83
Mean advertising cpm	$1.42	$0.80**	$1.60	$1.39*
Std. Deviation	$2.22	$0.39	$1.14	$0.66
Mean subscription cpm	$9.50	$7.24**	$14.01	$10.73**
Std. Deviation	$10.66	$5.49	$16.15	$7.10
N	200	200	200	200

* difference between clustered and control significant, $p < .05$
** difference between clustered and control significant, $p < .005$

[7] If no annual price was listed, the price for the longest available period was multiplied to determine an annual price. This was usually a monthly or weekly price. A few newspapers only listed a daily price.

Table 9 shows the average advertising cpm at clustered papers was 44% higher than for control papers in 1988. In 1998 this difference was 13%. These results support Hypothesis 2, that clustered newspapers charge higher ad prices.

Clustered newspapers did not have significantly higher annual subscription prices in either year of the study. However, clustered papers averaged significantly higher subscription ppm in both years. Subscription ppm at clustered papers was 24% higher than control papers in 1989. This difference was 23% in 1999. These results support Hypothesis 2a, that clustered newspapers have higher subscription prices.

Results from Tests of Association

Regression analysis was used to examine relationships between clustering, prices and measures of newsroom spending. First, a decision had to be made about which price variables should be included in which regressions. This was done by examining correlations between newspaper prices, circulation, and household penetration.

The correlations for clustered newspapers also used three variables measuring different dimensions of a cluster (see Appendix A for a list of variables in the study). The first was cluster size, defined as the number of papers in a cluster. The second variable was the percent of a cluster's total circulation that came from the paper in the study. Percent measures the paper's participation in a cluster. The third variable was the distance, in miles, from the clustered paper in the study to the nearest other member of the cluster.[8]

The correlations in Table 10 show that at clustered papers in 1988 there was a generally positive relationship between the advertising and subscription prices. This

[8] Distance was determined with DeLorme Street Atlas USA, version 7.0. The program was used to map the shortest travel distance between towns where clustered newspapers were located.

contradicts the argument in the theoretical discussion that these prices have a negative relationship because of interacting demand curves.

The unadjusted and standardized prices had different signs when correlated with the newspaper's circulation. The unadjusted prices increased with circulation size. The standardized prices decreased with circulation size, perhaps because of economies of scale.

Table 10: *Pearson's Correlations in 1988 for Clustered Papers*

	Ad price	Sub. price	Ad cpm	Sub. ppm	Paper's circ.	Paper's pent.	Cluster size	Percent	Distance
Ad price	1.000								
Sub. price	.452**	1.000							
Ad cpm	.610*	.143**	1.000						
Sub. ppm	-.120	.030	.493**	1.000					
Paper's circ.	.412**	.431**	-.235**	-.453**	1.000				
Paper's pent.	-.233*	-.172**	-.225**	-.080	-.178*	1.000			
Cluster size	.574**	.261**	.367**	-.042	.134	-.168**	1.000		
Percent	-.099	.123	-.207**	-.077	.238**	.146*	-.541**	1.000	
Distance	-.220**	-.085	-.204**	-.084	-.035	.191**	-.065	-.046	1.000
N	200	200	200	200	200	200	200	200	200

** Correlation significant at the 0.01 level (2-tailed).
* Correlation significant at the 0.05 level (2-tailed)

All prices were negatively correlated with the paper's household penetration, although the correlation for subscription ppm was not significant. This shows that prices decline as a newspaper's market share increases. This is not surprising since lower prices should increase the paper's circulation and also allow it to attract more advertising.

The correlations in Table 10 also show that larger clusters are associated with higher advertising prices and higher unadjusted subscription prices. However, ad prices decrease as the distance between clustered papers increases. This may be because

increasing distance provides more opportunities for competitors to enter a market. These correlations support Hypothesis 2 that clustering increases ad prices.

There is a negative correlation between advertising cpm and percent, or participation in a cluster. This may be because participation increased with circulation and penetration. However, this does not support Hypothesis 2.

Unadjusted subscription prices also have a positive association with cluster size. None of the other correlations between subscription prices and clustering variables are significant, however. The significant correlation offers only limited support for Hypothesis 2a that clustering increases cover prices.

Table 11: Pearson's Correlations in 1988 for Control Papers

	Ad price	Sub. price	Ad cpm	Sub. ppm	Paper's circ.	Paper's pent.
Ad price	1.000					
Sub. price	.573**	1.000				
Ad cpm	-.329*	-.388**	1.000			
Sub. ppm	-.533**	-.269**	.819**	1.000		
Paper's circ.	.878**	.583**	-.551**	-.603**	1.000	
Paper's pent.	-.237*	-.239**	.069	.183**	-.154*	1.000
N	200	200	200	200	200	200

** Correlation significant at the 0.01 level (2-tailed)
* Correlation significant at the 0.05 level (2-tailed)

Correlations in Table 11 show positive relationships between prices, but only when both prices are either unadjusted or standardized. The relationship between unadjusted and standardized prices is negative. This same sign relationship between similar price measures again contradicts the theoretical argument that demand for circulation and advertising interact negatively. The negative correlations between unadjusted and standardized prices may result from the different signs these prices have

for circulation. Larger papers have higher unadjusted prices, and lower standardized prices. This is the same relationship found with clustered papers.

For control papers, unadjusted prices decrease with market share, the same relationship found with the clustered papers. Standardized subscription prices, however, increase with penetration, an association that was not significant for clustered papers.

The positive correlations between advertising and subscription prices, and between advertising cpm and subscription ppm, are higher for control papers than for clustered papers. This supports Hypotheses 2b and 2c that interactions between prices are weakened at clustered newspapers. However, these interactions are not in the predicted direction.

Comparisons of price correlations for clustered and control papers show they are similar in many respects. However, there are some differences. Multivariate analysis will be needed to sort these out.

Table 12: *Pearson's Correlations in 1998 for Clustered Papers*

	Ad price	Sub. price	Ad cpm	Sub. ppm	Paper's circ.	Paper's pent.	Cluster size	Percent	Distance
Ad price	1.000								
Sub. price	.190**	1.000							
Ad cpm	-.145*	-.139*	1.000						
Sub. ppm	-.319**	.050	.841**	1.000					
Paper's circ.	.738**	.324**	-.369**	-.451**	1.000				
Paper's pent.	-.314**	-.176*	-.017	.067	-.311**	1.000			
Cluster size	-.042	-.046	.220**	.256**	-.094	-.084	1.000		
Percent	.183**	.132	-.288**	-.302**	.340**	.106	-.589**	1.000	
Distance	-.111	-.102	-.066	-.084	-.010	.182**	-.093	.099	1.000
N	200	200	200	200	200	200	200	200	200

** Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed)

Table 12 shows associations between prices changed for clustered newspapers in 1998. The association between similar prices still is positive, but there is a negative association between unadjusted and standardized prices. This again contradicts theoretical predictions of a negative association between prices. However, these results also suggest there is some difference between 1988 prices 1998 prices at clustered papers. The signs for correlations between 1998 prices are similar to those for the control papers in 1988.

Table 12 also shows unadjusted prices are positively associated with circulation. Standardized prices are negatively associated with circulation. There is a negative association between unadjusted prices and market share. These results are similar to 1988, suggesting again there are economies of scale in circulation.

There is a positive association in 1998 between standardized prices and cluster size. This supports Hypotheses 2 and 2a that clustering is associated with higher prices.

The associations between distance and prices are not significant in 1998. However, there is again a negative association between participation in a cluster and standardized prices. At the same time, there is a positive association between unadjusted ad prices and participation in a cluster. Meanwhile, participation has a positive association with circulation, just as it did in 1988. These correlations may reflect the relationships of price to circulation. However, they both support and fail to support Hypotheses 2 and 2a.

Table 13 shows the 1998 associations between prices, circulation and penetration at control papers were generally unchanged from 1988. The correlation between similar prices is again positive, contradicting theoretical predictions. However, the correlations

between prices are all larger for control papers with the exception of advertising cpm and subscription ppm. These results again offer some support for Hypotheses 2b and 2c that interactions between prices are weakened at clustered newspapers.

Table 13: *Pearson's Correlations in 1998 for Control Papers*

	Ad price	Sub. price	Ad cpm	Sub. ppm	Paper's circ.	Paper's pent.
Ad price	1.000					
Sub. price	.625**	1.000				
Ad cpm	-.200**	-.320**	1.000			
Sub. ppm	-.533**	-.366**	.728**	1.000		
Paper's circ.	.902**	.630**	-.438**	-.645**	1.000	
Paper's pent.	-.327*	-.353**	.081	.307**	-.330**	1.000
N	200	200	200	200	200	200

** Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed)

Tables with correlations for all variables in the multivariate analysis are in Appendix C. However, the results reported here suggest there is interaction between demand for circulation and demand for advertising, but this interaction is not negative. For three of the four groups of papers, the only negative relationship was between unadjusted and standardized prices. This appears to be because unadjusted prices increase with circulation – larger newspapers charge higher prices. Standardized prices, however, decrease with circulation. This may reflect the presence of economies of scale which lower costs as circulation increases thereby allowing lower prices. In other words, the negative relationship between unadjusted and standardized prices is unlikely to reflect the interaction of demand.

So what explains the positive relationship between like prices? Unadjusted prices are positively correlated with circulation, but this is probably because larger newspapers

which operate in larger, more affluent markets, also have higher prices. It's unlikely that demand for circulation rises when prices go up, leading in turn to increased demand for ads and higher advertising prices. A more likely explanation is that ad and subscription prices are not determined simultaneously. Lewis (1995) discussed a series of studies that show circulation demand is relatively inelastic. Blankenburg (1982) showed how Gannett was able to raise its cover prices while cutting marginal circulation, and still increase both revenues and profits. This suggests factors such as the size of a newspaper and its costs may be as important as demand for determining subscription prices.

As for the unusual relationships among prices for the 1988 clustered papers, regression analysis is needed to further illuminate these and other relationships. However, the generally positive associations among similar kinds of prices suggests regressions should also use either unadjusted or standardized prices. Mixing different price measures seems likely to produce misleading results.

Results from Regressions

As discussed in the Method chapter, the descriptive statistics for variables used in the regressions showed that most had a positive skew. Outliers for these variables were recoded as three standard deviations from the mean (Tabachnick & Fidell, 1996, p. 69). The Method chapter also reported there was multicollinearity for regressions using circulation variables. These problems were resolved by using variables for market share instead.

Examination of scatter plots for the residuals showed linear relationships for all regressions reported in this dissertation. However, the scatter plots also show the regressions using untransformed variables frequently have a skewed distribution. In

some cases, there is evidence of heteroscedasticity. These problems do no invalidate regression analysis, but they do weaken it (Tabachnick & Fidell, 1996, p. 138-139). Other diagnostic statistics, such as Cook's distance and Mahalanobis distance, also showed discrepant cases in the 1988 regressions. These cases potentially can have extraordinary influence on regression results (p. 133-134).

However, attempts to eliminate multivariate outliers and discrepant cases produced results similar to the attempts to eliminate skewed cases reported in the Method chapter. Eliminating one set of influential cases simply revealed a new set.

To reduce the chance of Type I error, correlations that are only significant at the .05 level are considered weak in this dissertation. As suggested in the earlier discussion of endogenity, multiple measures will be examined to determine whether relationships appear consistent and robust instead of relying on single, possibly misleading, result.

The variables used in the regressions included the measures for prices and clusters used in the Pearson's correlations. The regressions also include households, defined as the number of households in each paper's market, and average household income in that market. These are control variables. The regressions include as independent variables the market share of competing daily newspapers and weekly newspapers. The market share for radio stations, television stations and cable companies is also included in the regressions.

The first set of regressions examined relationships between clustering variables and advertising prices. These regressions were repeated using the control papers – which do not have any of the clustering variables – to see how relationships might differ.

Table 14: *1988 Cluster and Control regressions, Advertising Price as DV*

	Cluster (N= 196)				Control (N = 197)			
	B	Std. Error	Beta	t	B	Std. Error	Beta	t
(Constant)	-28.261	5.104		-5.537**	.029	2.527		.012
Households	.000	.000	.297	4.95**	.000	.000	.554	7.805**
Avg. household income	.001	.000	.375	5.261**	-.000	.000	-.009	-.901
Paper's penetration	7.344	7.592	.108	.967	14.608	3.626	.364	4.029**
Clustered penetration	13.880	8.156	.111	1.702	NA	NA	NA	NA
Daily penetration	-7.195	5.879	-.110	-1.224	-1.498	2.772	-.040	-.540
Weekly penetration	-1.346	1.807	-.038	-0.745	-1.059	.952	-.054	-1.112
Subscription price	.112	.035	.193	3.155**	.099	.015	.370	6.645**
Size of cluster	2.864	.483	.381	5.929**	NA	NA	NA	NA
Percent of cluster's circ.	13.163	3.952	.217	3.331**	NA	NA	NA	NA
Distance to nearest paper	-.056	.034	-.089	-1.643	NA	NA	NA	NA
Radio penetration	7487	9088	.064	0.824	-824	6548	-.011	-.126
TV penetration	-1575	24533	-.049	-0.642	-4087	1343	-.228	-3.041**
Cable penetration	-.680	5.531	-.008	-0.123	-6.166	2.970	-.139	-2.076*
Adjusted R^2	.543				.568			
F statistic	18.936**				29.831**			

* $p < .05$, ** $p < .005$

All regression tables give results for both clustered and control newspapers so they easily can be compared. These tables should be read from left to right, with the data for clustered papers in the left-hand columns. Data for the same variables from the control papers is in the right-hand columns.

Table 14 shows a significant positive association between unadjusted ad prices and the clustering variables in1988. If the OLS coefficients are accurate, the addition of

one newspaper to a cluster resulted in a $2.86 increase in ad price. A 1% change in the paper's participation in a cluster increased ad prices $13.16. The standardized coefficients suggest cluster size had more influence on ad prices than any other variable. These results support Hypothesis 2 that clustering increases ad prices.

The betas for the control papers show households were the most important predictor of ad prices. However, the OLS coefficient indicates an increase of 1,000 households increases ad prices by less than a cent. Control papers are also sensitive to competition from television and cable – both of which are negatively associated with advertising prices. Interpretation of these OLS coefficients is difficult because of the extremely large value for television. These results offer weak support for Hypothesis 2d that prices at non-clustered papers are more sensitive to competition.

Large standard errors make the negative association between ad price and competition from dailies and weeklies unstable for both cluster and control papers. This is also true for television and cable coefficients for clustered paper.

Table 14 also shows subscription prices positively influence ad prices. If the OLS coefficients are correct, a one cent change in subscription prices increases ad prices 11 cents at clustered newspapers, and 10 cents at control papers. However, the betas suggest subscription prices have more influence on ad prices at control papers. These results offer weak support for Hypotheses 2b and 2c that interactions between prices are stronger at non-clustered papers.

Table 15 shows the 1998 predictors of unadjusted ad prices. Cluster size and a newspaper's participation in a cluster still had positive associations with advertising prices, but only participation was highly significant. However, the market share for

Table 15: *1998 Cluster and Control Regressions, Advertising Price as DV*

	Cluster (N= 199)				Control (N = 195)			
	B	Std. Error	Beta	t	B	Std. Error	Beta	t
(Constant)	-22.342	8.633		-2.588**	4.947	6.702		.738
Households	.000	.000	.672	10.460**	.000	.000	.515	8.339**
Avg. household income	.000	.000	.133	2.149*	-.000	.000	-.061	-1.038
Paper's penetration	19.649	10.486	.178	1.874	10.339	8.345	.103	1.239
Clustered penetration	37.025	12.578	.186	2.902**	NA	NA	NA	NA
Daily penetration	-11.803	8.965	-.099	-1.317	-15.377	6.342	-.150	-2.425*
Weekly penetration	3.433	4.810	.036	.714	-3.622	3.787	-.967	.335
Subscription price	.053	.028	.100	1.922	.188	.025	.432	7.649**
Size of cluster	1.904	.727	.158	2.619*	NA	NA	NA	NA
Percent of cluster's circ.	22.993	5.744	.255	4.003**	NA	NA	NA	NA
Distance to nearest paper	.021	.069	.016	.305	NA	NA	NA	NA
Radio penetration	-12410	11890	-.082	-1.044	-16641	10709	-.121	-1.554
TV penetration	-2433	2153	-.079	-1.130	-2291	2498	-.917	.360
Cable penetration	.029	.992	.002	.030	.129	1.516	.085	.932
Adjusted R^2	.548				.601			
F statistic	19.574**				33.612**			

* p < .05, ** p < .005

other members of the cluster also had a positive, highly significant association with ad prices. If the OLS coefficients are accurate, a 1% increase in participation resulted in a $23 increase in ad price. A 1% increase in the penetration for other members of the cluster raised ad prices $37.03. However, the betas suggest the most important predictor of ad prices in 1998 was households in the market, which also was true for control papers. These results support Hypothesis 2 that clustering increases ad prices.

Control newspapers in 1998 appeared sensitive to competition from other dailies, but the significance level was weak. This offers only weak support for Hypothesis 2d that competition has more effect on ad prices in non-clustered markets.

There is also a negative association between ad prices and weekly penetration, radio penetration, and television penetration at control papers but these are not significant because of large standard errors. The same is true for competing daily penetration and radio and television penetration at clustered papers.

There is a highly significant positive relationship between ad and subscription prices at control papers. The relationship at clustered papers is not significant. This supports Hypotheses 2b and 2c that clusters weaken interactions between prices.

Table 16 examines predictors of advertising cpm in 1988. There is a highly significant relationship between cluster size and ad price. The OLS coefficient indicates the addition of one paper to a cluster increases ad cpm by 15 cents. This result supports Hypothesis 2 that clustering increases ad prices.

However, the betas suggest subscription ppm is the most important predictor of ad price in clustered markets. The same is true for control papers. If the OLS coefficients are correct, a 1 cent increase in subscription ppm increased ad cpm 14 cents for clustered papers, but just 5 cents for control papers. The betas suggest the influence of subscription ppm was roughly equal at clustered and control papers. These results fail to support Hypotheses 2b and 2c that clustering weakens interactions between prices.

There is, however, a weak indication that control papers have to lower ad cpm to increase market share. Recall that ad cpm represents the cost an advertiser pays to reach 1,000 readers. This relationship makes sense if readers value advertising and newspapers

Table 16: *1988 Cluster and Control Regressions, Advertising cpm as DV*

	Cluster (N= 196)				Control (N = 197)			
	B	Std. Error	Beta	t	B	Std. Error	Beta	t
(Constant)	-2.246	.568		-3.952**	.401	.097		4.123**
Households	.000	.000	.033	.486	.000	.000	.088	1.423
Avg. household income	.000	.000	.393	5.823**	.000	.000	.068	1.157
Paper's penetration	-.236	.859	-.031	-.275	-.421	.163	-.214	-2.588*
Clustered penetration	1.060	.865	.076	1.225	NA	NA	NA	NA
Daily penetration	-.792	.626	-.109	-1.266	-.127	.114	-.069	-1.108
Weekly penetration	-.300	.186	-.077	-1.617	-.060	.039	-.062	-1.542
Subscription ppm	.140	.011	.719	12.225**	.054	.005	.723	11.418**
Size of cluster	.151	.049	.180	3.116**	NA	NA	NA	NA
Percent of cluster's circ.	.298	.403	.044	.740	NA	NA	NA	NA
Distance to nearest paper	-.005	.004	-.072	-1.379	NA	NA	NA	NA
Radio penetration	1251	972	.095	1.287	932	293	.261	3.178**
TV penetration	-350	276	-.098	-1.266	56.221	58.248	.064	.965
Cable penetration	.197	.585	.022	.338	-.136	.122	-.062	-1.115
Adjusted R^2	.588				.702			
F statistic	22.473**				52.551**			

* p < .05, ** p < .005

can increase market penetration by offering more ads. A similar negative association between market share and ad cpm for clustered papers is not significant, again because of the large standard error.

Surprisingly, Table 16 also shows a positive and highly significant association between radio competition and ad cpm at control papers. A similar association for clustered papers has a large standard error and is not significant. An earlier study of

weekly newspapers found a positive association between radio penetration and ad cpm at Michigan weeklies (Lacy & Dravis, 1991, p. 342). These correlations are puzzling. Still, results in this study weakly support Hypothesis 2d that prices at non-clustered newspapers are more sensitive to the effects of competition.

Table 17: *1998 Cluster and Control Regressions, Advertising cpm as DV*

	Cluster (N= 199)				Control (N = 195)			
	B	Std. Error	Beta	t	B	Std. Error	Beta	t
(Constant)	1.401	.377		3.718**	.938	.236		3.978**
Households	-.000	.000	-.050	-.778	.000	.000	.116	1.838
Avg. household income	.000	.000	.044	.742	.000	.000	.012	.217
Paper's penetration	-1.554	.449	-.326	-3.463**	-1.226	.295	-.346	-4.185**
Clustered penetration	-.957	.515	-.111	-1.858	NA	NA	NA	NA
Daily penetration	-.501	.364	-.097	-1.376	-.474	.232	-.131	-2.044*
Weekly penetration	-.242	.194	-.059	-1.243	-.154	.131	-.056	-1.179
Subscription ppm	.049	.005	.682	10.787**	.069	.006	.782	11.857**
Size of cluster	-.001	.030	-.002	-.029	NA	NA	NA	NA
Percent of cluster's circ.	-.151	.235	-.039	-.639	NA	NA	NA	NA
Distance to nearest paper	-.004	.003	-.078	-1.531	NA	NA	NA	NA
Radio penetration	1249	485	.191	2.573*	817	386	.168	2.111*
TV penetration	117.258	95.547	.088	1.227	118	90.754	.094	1.303
Cable penetration	-.016	.040	-.019	-.399	.038	.053	.035	.723
Adjusted R^2	.598				.612			
F statistic	23.181**				35.128**			

* $p < .05$, ** $p < .005$

Table 17 shows a change in influences on advertising cpm in 1998. Clustering had no significant effect on ad cpm. However, for both clustered and control papers there

was a highly significant negative association between ad cpm and market share. The OLS coefficients indicate changes in penetration had a slightly larger effect for clustered papers. However the betas suggest the effect was slightly more influential for control papers. This relationship suggests, as it did in the 1988 regressions, that newspapers are willing to lower the standardized price to reach 1,000 readers in return for the benefits of increased market share. Larger market share presumably makes newspapers even more attractive to advertisers. These results do not support Hypothesis 2 that clustering is associated with increased ad prices.

However, control papers also had a weakly significant, negative association between the penetration of competing dailies and ad cpm. A similar negative association for clustered papers was not significant, possibly because of the relatively large standard error. This relationship is expected if papers compete with other dailies for market share by offering lower ad prices. However, it contradicts the stronger and more significant relationship between a paper's own market share and ad cpm. At both clustered and control papers there also was a weakly significant, positive association between radio penetration and ad cpm. Both the OLS coefficients and the betas suggest this association had more effect for clustered papers. These results are difficult to interpret and do not appear to support Hypotheses 2 and 2d that clustered newspapers are less sensitive to competition.

There is a positive, highly significant association between subscription ppm and ad cpm for both clustered and control papers. If the OLS coefficients are correct, increases in subscription prices have a larger effect for control papers. The betas also

show subscription prices are more influential at control newspapers. These results support Hypotheses 2b and 2c that clustering moderates interactions among prices.

Table 18: *1988 Cluster and Control Regressions, Subscription Price as DV*

	Cluster (N= 196)				Control (N = 197)			
	B	Std. Error	Beta	t	B	Std. Error	Beta	t
(Constant)	39.556	10.386		3.650**	55.801	10.291		5.422**
Households	.000	.000	.023	.781	-.000	.000	-.063	-.659
Avg. household income	-.000	.000	-.009	-.098	-.000	.000	-.044	-.526
Paper's penetration	43.513	15.155	.371	2.871**	6.643	16.543	.045	.402
Clustered penetration	26.315	16.618	.122	1.584	NA	NA	NA	NA
Daily penetration	2.401	12.013	.021	.200	17.216	12.085	.124	1.425
Weekly penetration	13.489	3.547	.222	3.803**	4.981	4.168	.068	1.195
Advertising price	.462	.147	.267	3.155**	1.910	.287	.514	6.645**
Size of cluster	2.947	1.051	.227	2.804**	NA	NA	NA	NA
Percent of cluster's circ.	25.446	8.067	.243	3.154**	NA	NA	NA	NA
Distance to nearest paper	.113	.070	.103	1.624	NA	NA	NA	NA
Radio penetration	-51751	18133	-.255	-2.854**	-48360	28640	-.179	-1.699
TV penetration	-12998	4906	-.236	-2.649**	-11314	5971	-.170	-1.895
Cable penetration	-16.473	11.192	-.116	-1.472	24.708	13.031	.150	1.896
Adjusted R^2	.368				.400			
F statistic	9.765**				15.571**			

* p < .05, ** p < .005

The next set of tables examines relationships between clustering and subscription prices. Table 18 shows that both the size of a cluster and a paper's participation in a cluster are positively associated with unadjusted subscription prices. The OLS coefficients indicate adding 1 paper to a cluster increased the annual price $2.95. A 1%

increase in participation increased the annual subscription price $25.45. These results support Hypothesis 2a that clustering increases subscription prices.

Clustered newspapers also increased subscription prices as their market share increased. The beta suggests market share was the most influential price predictor. If the OLS coefficient is correct, a 1% increase in penetration was associated with a price increase of $43.51 at clustered papers. There was also a positive association between penetration and price at control papers, but the large standard error made it insignificant.

Advertising prices had a highly significant, positive association with subscription prices at clustered and control papers. However the OLS coefficients indicate increases in ad prices have much smaller effects at clustered newspapers. The beta for control papers, where ad prices were the only significant predictor of subscription prices, is also larger than for clustered papers. These results support Hypotheses 2b and 2c that clustering moderates interactions between prices.

However, subscription prices at clustered papers had a highly significant and negative association with competition from radio and television. The negative associations between prices and radio and television competition were not significant for control papers. This suggests readers considered radio and television substitutes for newspapers in clustered markets, but not in control markets. There are two possible explanations. First, managers at clustered papers may have set high subscription prices and readers began switching to other media. Managers at control papers, however, did not set such high prices because of concern that readers would switch to other media. In other words, managers at clustered papers overreached. The second possibility is that readers of clustered papers were responding to decreases in quality associated with

decreases in competition. Recall from the theoretical discussion that part of the "price" of reading a newspapers is the opportunity cost of not using a competing form of media. In either case, these results fail to support Hypotheses 2a and 2e that competition from other media has more effect on subscription prices at control papers.

Table 19: *1998 Cluster and Control Regressions, Subscription Price as DV*

	Cluster (N= 199)				Control (N = 195)			
	B	Std. Error	Beta	t	B	Std. Error	Beta	t
(Constant)	70.263	22.534		3.314**	35.380	17.303		2.045*
Households	-.000	.000	-.054	-.478	-.000	.000	-.074	-.883
Avg. household income	.000	.000	.039	.452	.001	.000	.204	3.097**
Paper's penetration	46.240	27.643	.222	1.673	19.027	21.799	.084	.873
Clustered penetration	44.683	34.166	.119	1.308	NA	NA	NA	NA
Daily penetration	26.474	23.619	.117	1.121	20.383	16.721	.090	1.246
Weekly penetration	22.852	12.562	.127	1.819	18.098	9.808	.102	1.845
Advertising price	.367	.195	.195	1.922	1.275	.167	.566	7.649**
Size of cluster	.986	1.946	.043	.507	NA	NA	NA	NA
Percent of cluster's circ.	13.825	15.720	.081	.879	NA	NA	NA	NA
Distance to nearest paper	.002	.181	.001	.014	NA	NA	NA	NA
Radio penetration	-63527	31031	-.223	-2.047*	3426	28096	.122	.903
TV penetration	-8802	5649	-.151	-1.558	-15715	6424	-.196	-2.446*
Cable penetration	1.632	2.606	.044	.626	-6.171	3.926	-.088	-1.572
Adjusted R^2	.120				.466			
F statistic	3.094**				19.922**			

* $p < .05$, ** $p < .005$

Table 19 shows these relationships had changed by 1998. The association between price and cluster size and participation was positive, but not significant because

of large standard errors. These results do not support Hypothesis 2a that clustering increases subscription prices.

The regression for clustered papers in 1999 is generally unstable. The adjusted R^2 is .12, compared with .37 in 1989. Radio competition is the only variable significantly associated with subscription prices, but the significance level is weak.

The regression for control newspapers has more stability; the adjusted R^2 is .47. Ad prices at control papers had a positive and highly significant association with subscription prices. A similar association at clustered papers was not significant. Given the small R^2 for clustered papers, these results weakly support Hypotheses 2b and 2c that interactions between prices are stronger at control papers.

Table 20 shows the 1988 relationship between subscription ppm and clustering. The association between price and cluster size was negative, and weakly significant. The association between price and penetration from other members of the cluster also was negative and weakly significant. These results fail to support Hypothesis 2a that there is a positive association between clustering and subscription prices.

There is also a negative, highly significant association between subscription ppm and households, income, and a clustered paper's market share. The OLS coefficients indicate a 1% increase in market share resulted in a decrease of $15.94 in the annual subscription ppm. Recall that this price reflects the newspaper's own circulation cost. Therefore, the results for clustered papers suggest that when size was held constant clustering was weakly associated with lower circulation costs. Increases in market size, income, and a clustered paper's market share also resulted in lower circulation costs. These results might reflect economies of scale in circulation. Another possibility is that

managers increase penetration in larger, more affluent markets by passing fewer circulation costs to readers.

Table 20: *1988 Cluster and Control Regressions, Subscription ppm as DV*

	Cluster (N= 196)				Control (N = 197)			
	B	Std. Error	Beta	t	B	Std. Error	Beta	t
(Constant)	16.717	2.549		6.559**	.056	1.201		.046
Households	-.000	.000	-.244	-4.081**	-.000	.000	-.261	-5.060**
Avg. household income	-.000	.000	-.252	-3.813**	-.000	.000	-.011	-.218
Paper's penetration	-15.940	3.941	-.409	-4.044**	-5.869	1.911	-.223	-3.071**
Clustered penetration	-8.938	4.106	-.125	-2.177*	NA	NA	NA	NA
Daily penetration	3.449	2.996	.092	1.151	3.490	1.333	.143	2.618*
Weekly penetration	1.621	.888	.081	1.827	.555	.460	.043	1.207
Advertising cpm	3.213	.262	.627	12.255**	7.559	.662	.566	11.418**
Size of cluster	-.503	.235	-.123	-2.254*	NA	NA	NA	NA
Percent of cluster's circ.	-2.830	1.921	-.081	-1.473	NA	NA	NA	NA
Distance to nearest paper	-.022	.018	-.060	-1.231	NA	NA	NA	NA
Radio penetration	6544	4650	.097	1.407	8751	3502	.184	2.499**
TV penetration	6266	1247	.343	5.025**	2599	663	.221	3.920**
Cable penetration	-1.003	2.797	-.021	-.359	2.901	1.428	.100	2.031*
Adjusted R^2	.640				.767			
F statistic	27.853**				72.898**			

* p < .05, ** p < .005

Table 20 shows that control papers also enjoy lower subscription ppm when they have larger market share or larger markets. However, at control papers there is a positive, weakly significant association between subscription ppm and competition from other dailies and from cable. The positive association between price and competition

from radio and television is highly significant. For clustered papers there is a positive, highly significant association between prices and television competition. The effects of competition from other dailies, and from radio and cable are not significant because of large standard errors. These results suggest that control papers are less able to ignore the effects of competition on circulation costs. This may be because they have higher costs and less "room" for price changes. These results support Hypothesis 2e that competition has stronger effects on subscription prices in control markets.

Table 20 also shows a positive, highly significant association between subscription ppm and ad cpm at clustered and control newspapers. If the OLS coefficients are correct, this effect is larger for control papers. However, the betas show ad prices have more influence at clustered papers. These results do not support Hypotheses 2b and 2c that clustering moderates interactions among prices.

Table 21 again shows that by 1998 the relationship between clusters and prices had changed. The sign of the associations between price and cluster size and penetration had changed. However, the associations were not significant because of large standard errors. These results do not support Hypothesis 2a that clustering increases subscription prices.

However, clustered papers again had lower subscription ppm in larger, more affluent markets. Control papers had lower subscription ppm in larger markets. These results again suggest there are circulation economies of scale, or that managers pass fewer circulation costs along in larger markets.

Clustered papers also had higher subscription ppm in markets with more television competition. A positive association between prices and daily competition had

a large standard error and was not significant. However, higher prices at control papers were associated with competition from television and from other daily papers. These results support Hypothesis 2e that competition has stronger effects on prices in control markets.

Table 21: *1998 Cluster and Control Regressions, Subscription ppm as DV*

	Cluster (N= 199)				Control (N = 195)			
	B	Std. Error	Beta	t	B	Std. Error	Beta	t
(Constant)	9.803	4.928		1.989*	.118	2.333		.050
Households	-.000	.000	-.193	-3.381**	-.000	.000	-.257	-5.150**
Avg. household income	-.000	.000	-.144	-2.711**	-.000	.000	-.083	-1.744
Paper's penetration	-8.324	5.874	-.124	-1.417	1.133	2.927	.028	.387
Clustered penetration	7.376	6.610	.061	1.116	NA	NA	NA	NA
Daily penetration	5.825	4.652	.080	1.252	10.126	2.100	.248	4.821**
Weekly penetration	.145	2.489	.003	.058	2.032	1.240	.065	1.639
Advertising cpm	7.912	.733	.564	10.787**	6.231	.525	.550	11.857**
Size of cluster	.099	.377	.014	.265	NA	NA	NA	NA
Percent of cluster's circ.	-3.819	2.993	-.070	-1.276	NA	NA	NA	NA
Distance to nearest paper	-.036	.036	-.046	-.992	NA	NA	NA	NA
Radio penetration	1837	6300	.020	.292	5632	3695	.103	1.524
TV penetration	4463	1178	.239	3.786**	2584	844	.182	3.059**
Cable penetration	.270	.514	.023	.525	.434	.499	.035	.869
Adjusted R^2	.668				.727			
F statistic	31.795**				58.635**			

* p < .05, ** p < .005

Table 21 also shows highly significant, positive associations between ad cpm and subscription cpm for cluster and control papers. If the OLS coefficients are correct, ad

prices had a larger effect at clustered papers. The betas are almost identical for clustered and control papers. These results do not support Hypotheses 2b and 2c that clustering weakens interactions between prices.

Regressions Examining Newsroom Spending

Only one measure of newsroom spending, or quality, was available for all newspapers in the random samples. This was the number of wire service subscriptions. Regressions using the number of wire subscriptions failed to produce a significant *F*, and scatterplots of the residuals showed a non-linear relationship.

However, a standardized measure did produce regressions that were linear and significant. This measure was the number of wire subscriptions per thousand circulation or wires pm. This measure again may be though of as holding the size of different newspapers constant while examining the relationships between variables.

Results for 1988 in Table 22 show a negative, highly significant association between wires pm and cluster size. There is also a negative, highly significant association between wire subscriptions and a paper's participation in a cluster. The OLS coefficients show an increase of 1 paper in cluster size resulted in a decrease of 0.02 wire subscriptions per thousand circulation. An increase of 1% in participation in a cluster decreased the number of wire subscriptions by 0.11 per thousand circulation. These results support Hypothesis 3 that clustering reduces newsroom spending.

Table 22 also shows a positive, highly significant association between radio penetration and wires pm for clustered papers. There are positive, weakly significant associations between the number of wire services and competition from other dailies and cable competition. These results show clustered papers had higher newsroom spending

Table 22: *1988 Cluster and Control Regressions, Wires pm as DV*

	Cluster (N= 196)				Control (N = 197)			
	B	Std. Error	Beta	t	B	Std. Error	Beta	t
(Constant)	.130	.062		2.095*	.013	.037		.728
Households	.000	.000	.007	.095	.000	.000	.059	.727
Avg. household income	-.000	.000	-.117	-1.562	.000	.000	.135	1.754
Paper's penetration	-.077	.090	-.099	-.851	-.087	.061	-.156	-1.433
Clustered penetration	.092	.091	.064	1.011	NA	NA	NA	NA
Daily penetration	.165	.066	.221	2.510*	-.087	.042	-.168	-2.071*
Weekly penetration	-.004	.020	-.009	-.179	-.011	.014	-.041	-.792
Advertising cpm	.0316	.008	.309	4.094**	.033	.027	.118	1.251
Subscription ppm	.007	.002	.383	4.728**	.012	.002	.507	4.750**
Size of cluster	-.017	.005	-.198	-3.274**	NA	NA	NA	NA
Percent of cluster's circ.	-.114	.042	-.164	-2.698**	NA	NA	NA	NA
Distance to nearest paper	-.000	.000	-.051	-.942	NA	NA	NA	NA
Radio penetration	306	102	.228	2.998**	64.993	110.238	.064	.590
TV penetration	21.368	29.096	.059	.734	41.382	21.360	.166	1.937
Cable penetration	.127	.061	.135	2.072*	.012	.045	.020	.274
Adjusted R^2	.569				.501			
F statistic	19.457**				20.770**			

* $p < .05$, ** $p < .005$

in markets with more competition. The positive associations between wires pm and radio and cable penetration were not significant for control papers, apparently because of large standard errors. Competition from other dailies had a negative, weakly significant association with wire subscriptions at control papers. These results do not support

Hypothesis 3a that non-clustered papers spend more on the newsroom in response to competition.

However, these results do not show if control papers respond to competition by increasing local news coverage or hiring more staff. The results may also imply clustered newspapers have more money to purchase wire subscriptions.

Table 23: *1998 Cluster and Control Regressions, Wires pm as DV*

	Cluster (N= 199)				Control (N = 195)			
	B	Std. Error	Beta	t	B	Std. Error	Beta	t
(Constant)	.039	.069		.567	.012	.044		.273
Households	.000	.000	.028	.456	.000	.000	-.035	-.528
Avg. household income	-.000	.000	-.093	-1.626	-.000	.000	-.023	-.391
Paper's penetration	-.059	.081	-.068	-.727	.031	.055	.051	.567
Clustered penetration	.151	.091	.097	1.654	NA	NA	NA	NA
Daily penetration	.031	.064	.033	.482	-.029	.042	-.046	-.685
Weekly penetration	.025	.034	.033	.729	.012	.024	.025	.520
Advertising cpm	.042	.013	.230	3.247**	.051	.013	.297	3.913**
Subscription ppm	.006	.001	.436	5.602**	.007	.001	.430	4.749**
Size of cluster	.002	.005	.025	.465	NA	NA	NA	NA
Percent of cluster's circ.	-.028	.041	-.039	-.668	NA	NA	NA	NA
Distance to nearest paper	.001	.001	.081	1.627	NA	NA	NA	NA
Radio penetration	116.212	86.683	.098	1.341	-9.958	70.004	-.012	-.142
TV penetration	43.416	16.829	.180	2.580*	16.751	16.296	.077	1.028
Cable penetration	-.006	.007	-.042	-.904	.009	.009	.053	1.058
Adjusted R^2	.625				.606			
F statistic	24.734**				28.400**			

* $p < .05$, ** $p < .005$

Table 23 again shows that in 1998 the effects of clusters had changed. Cluster size and participation in a cluster had large standard errors and were no longer significantly associated with wire subscriptions. These results do not support Hypothesis 3 that clustering reduces newsroom spending.

There was a weak positive association between competition from television and wires pm at clustered papers. Competition from daily newspapers had large standard errors and was not significantly associated with wires pm for clustered or control papers. Competition from other media also was not significantly associated with wire subscriptions at control papers. These results fail to support Hypothesis 3a that control papers spend more in response to competition.

Prices had a positive, highly significant association with wires pm at both clustered and control papers in 1998. The OLS coefficients indicate there was little difference between the effects of prices at clustered and control papers. The betas suggest prices were equally influential for both groups of papers. These results, which use standardized prices reflecting costs, may simply show that wire subscriptions are one element of a newspaper's costs.

Comparing Elasticity for Clustered and Control Papers

Recall that elasticity is a measure of how sensitive newspaper readers, or advertisers, are to changes in price or quality. This is expressed as the Percent Change in Quantity/Percent Change in Price or Quality. If this ratio is larger than 1, demand is elastic. If this ratio is smaller than 1, demand is inelastic. Clustering, the theoretical discussion argues, reduces the elasticity of demand – it makes both readers and

advertisers less sensitive to changes in price or quality. Many of the hypotheses rely on this general assumption.

Calculus can be used to show that when variables in a regression are transformed as their natural logarithm, the resulting OLS coefficients represent the elasticities associated with those variables (Gujarti, 1992, p. 218-222). In other words, the regression coefficients show whether the dependent variable is elastic with respect to the independent variables.

The essential argument is that regression measures how changes in the independent variables affect the value of the dependent variable. However, as was pointed out in the theoretical discussion, elasticity is not constant (Gujarti, 1992; Nicholson, 1995, chap. 7). For instance, as price increases, demand eventually becomes more elastic as readers begin to switch to alternative forms of media. Therefore, the relationship between price and demand is non-linear.

Mathematically, let Y = a newspaper's market penetration and X = its cover price. A simple linear relationship would be:

$$Y = A + B_2X \tag{5.1}$$

where A is some constant and B_2 is the coefficient of change in Y resulting from a change in X. A non-linear form of Equation 5.1 is:

$$Y = AX^{B2} \tag{5.2}$$

where the exponent for A is 1. In this model there is a non-linear relationship between Y and X. However, an alternative expression of this non-linear model is:

$$\ln Y = \ln A + B_2 \ln X \tag{5.3}$$

This expression is equivalent to the first derivative of X because of the rule for calculating derivatives of exponential equations. The power rule states the derivative of X^n is nX^{n-1}.

Note that $\ln A = B_1$ because $\ln A = A^0 = 1$. So Equation 5.3 can be rewritten as:

$$\ln Y = B_1 + B_2 \ln X + u \tag{5.4}$$

where u is the error term (Gujarti, 1992, p. 220).

These equations suggest that elasticities can be measured using transformed variables by regressing price on a newspaper's circulation. Multicollinearity prevented the use of circulation in this dissertation. The natural log of a paper's market share was used instead. Initial regressions again showed evidence of multicollinearity, so the log of households and the log of income were removed from the regressions. One indicator, a conditioning index above 30, suggested there still were problems with multicollinearity (Tabachnick & Fidell, 1996, p. 87). However, other measures including small variance inflation factors (Norusis, 1993, p. 355), suggested the regressions should not be unduly affected.

Before transforming the variables to their natural log, 1 was added to all of the values for newspaper, radio, television and cable market share. This because these variables are percentages expressed in decimals, and values less than 1 have a negative log. This transformation was done to avoid confusion when interpreting signs of coefficients in the regressions. The natural log of a paper's market share is the dependent variable in these double-log regressions. The independent variables include the natural log of market share for all other papers in the market. However, this does make these regressions determinant because market share, or circulation penetration, does not sum to

1. Some households take multiple newspapers – total penetration in some markets was more than 200 percent during 1988 and more than 300 percent in 1998.

Results in Table 24 show that in 1988 there was a positive, weakly significant association between a clustered paper's market share and its subscription price. The OLS coefficient indicates a small increase in subscription price was associated with a 5% increase in market share. Keep in mind that market share is penetration, or a percentage, so this is a very small increase. The association between subscription price and market

Table 24: *1988 Elasticity Regressions, LN of Paper's Market Penetration as DV*

	Cluster (N= 196)				Control (N = 197)			
	B	Std. Error	Beta	t	B	Std. Error	Beta	t
(Constant)	.105	.091		1.162	.233	.083		2.824**
LN clustered penetration	-.374	.072	-.239	-5.164**	NA	NA	NA	NA
LN daily penetration	-.527	.052	-.505	10.078**	-.425	.050	-.422	8.486**
LN weekly penetration	.014	.023	.024	.614	.016	.023	.028	.693
LN ad price	-.002	.011	-.009	-.186	.015	.014	.065	1.112
LN subscription price	.048	.022	.102	2.227*	.005	.022	.014	.252
LN cluster size	-.013	.018	-.040	-.735	NA	NA	NA	NA
LN percent of cluster's circ.	.042	.051	.044	.823	NA	NA	NA	NA
LN distance to nearest paper	.009	.007	.057	1.349	NA	NA	NA	NA
LN radio penetration	119	65.611	.108	1.817	376	95.883	.287	3.929**
LN TV penetration	55.986	14.047	.232	3.986**	27.216	20.436	.090	1.332
LN cable penetration	.254	.054	.227	4.687**	.272	.047	.284	5.837**
Adjusted R^2	.738				.693			
F statistic	51.314**				64.427**			

* p < .05, ** p < .005

share for control papers had a large standard error and was not significant. This result weakly supports the theoretical argument that demand among readers is price inelastic in clustered markets.

Table 24 also shows a negative, highly significant association between a clustered papers' market share and the market share for other members of the cluster. If the OLS coefficient is correct, a small decrease clustered penetration is associated with a 37 percent increase in the paper's penetration. This suggests clustered papers can, by coordinating circulation, control their market share. This again suggests that clustering substantially affects a newspaper's elasticity of demand.

However, these results also show a negative, highly significant association between competition from other dailies and clustered papers' market share. There is a similar association between daily competition and market share for control papers. The OLS coefficients indicate increases in daily competition are associated with larger decreases in market share for clustered papers. The betas also show the effect of daily competition is more influential for clustered papers. These results do not support the general hypothesis that clustering reduces elasticity of demand.

There are positive, highly significant associations between competition from other media and market share for both clustered and control papers. These results are surprising, but may indicate that demand for other media increased demand for newspapers. In other words, newspapers and other media were compliments in 1988.

The cable coefficients are the only associations that are significant for both clustered and control papers. The OLS coefficients indicate increases in cable market share have almost identical effects for cluster and control papers. The betas show this

effect was more influential for control papers. These results weakly support the argument that clustering reduces elasticity of demand among readers.

The 1998 results in Table 25 show a change in relationships between price and market share. The coefficients for subscription price had large standard errors and were not significant for clustered or control papers. However, there was a negative, weakly significant association between ad prices and market share at clustered papers. There was a negative, highly significant association between ad prices and market share at control

Table 25: *1998 Elasticity Regressions, LN of Paper's Market Penetration as DV*

	Cluster (N= 197)				Control (N = 195)			
	B	Std. Error	Beta	t	B	Std. Error	Beta	t
(Constant)	.198	.097		2.033*	.193	.093		2.070*
LN clustered penetration	-.456	.084	-.286	-5.413**	NA	NA	NA	NA
LN daily penetration	-.295	.058	-.452	-8.647**	-.424	.053	-.400	7.949**
LN weekly penetration	-.031	.034	-.040	-.926	-.013	.034	-.016	-.383
LN ad price	-.021	.010	-.114	-2.139*	-.039	.012	-.207	-3.291**
LN subscription price	.039	.019	.095	1.965	.045	.023	.118	1.936
LN cluster size	-.000	.018	-.002	-.039	NA	NA	NA	NA
LN percent of cluster's circ.	.107	.053	.124	2.025*	NA	NA	NA	NA
LN distance to nearest paper	-.009	.010	-.044	-.949	NA	NA	NA	NA
LN radio penetration	214	63.318	.230	3.389**	248	65.940	.249	3.768**
LN TV penetration	34.147	9.895	.207	3.541**	63.719	12.092	.304	5.270**
LN cable penetration	.027	.019	.066	1.444	.045	.018	.105	2.443*
Adjusted R^2	.646				.670			
F statistic	33.739**				57.675**			

* $p < .05$, ** $p < .005$

papers. The OLS coefficients indicate a small increase in ad prices at control papers was associated with a 4% decrease in market share. However, the equivalent change at clustered papers was associated with 2% decrease in market share. The betas suggest ad prices were more influential at control papers. These results support the general hypothesis that clustering reduces elasticity.

The 1998 results also show a positive, weakly significant association between cluster size and market share for clustered papers. There again is a negative, highly significant association between the penetration of other clustered papers and market share. These results again suggest clustered papers can control their market share by coordinating circulation with their counterparts. These results weakly suggest that increases in cluster size are associated with larger market share. This supports the general hypothesis that clustering reduces elasticity of demand.

For clustered and control papers in 1998 there again was a negative, highly significant association between daily competition and market share. If the OLS coefficients are correct, this effect is much smaller for clustered papers. However, the betas show the effect of daily competition is more influential for clustered papers. These results cannot be interpreted to support the hypothesis that clustering reduces elasticity of demand.

The positive association between competition from other media and newspaper market share was again evident in 1998. The correlations for radio and television penetration were highly significant for both clustered and control papers. The OLS coefficients indicate radio and television penetration had larger effects on the market share of control papers. The betas show these effects were more influential for control

papers. These results support the hypothesis that that clustering reduces elasticity of demand.

First-Difference Regressions

The estimation of population parameters using regressions in two different time periods can be influenced by autocorrelation. Autocorrelation exists when the value of a variable in one time period is correlated with its value in the next time period (Gujarti, 1992, chap.12). This problem is similar to heteroscedasticity in cross-sectional data. Autocorrelation may exist in economic data because economic changes do not occur at a constant rate. Changes in economic conditions, a recession for example, will alter the rate of change in retail sales for newspapers.

Autocorrelation may exist and have no effect on the OLS estimations from regressions. However, autocorrelation may also result in an a variety of errors. For example, there could be underestimation of variances and standard errors and inflation of *t* values (Gujarti, 1992, p. 356). First-difference models can be used to correct for this problem by transforming the regression so the error term is homoscedastic (p. 366).

This transformation is accomplished by subtracting the value of a variable in one year from its value in another year. In this dissertation, the first difference regressions are based on subtracting the 1988 value of each variable from its 1998 value. However, two caveats are in order. This technique assumes the value of autocorrelation = 1 (Gujarti, 1992). In other words, there is a perfect positive correlation between errors in the regressions. First difference models also are assumed to not have an intercept.

Results in Table 26 show a positive, highly significant association between changes in advertising prices and changes in cluster size. These results support Hypothesis 2 that clustering increases advertising prices.

Table 26: *First-Difference Regressions, Ad Price Difference as DV*

	Cluster (N= 195)				Control (N = 193)			
	B	Std. Error	Beta	t	B	Std. Error	Beta	t
(Constant)	2.332	3.383		.689	-4.191	2.125		-1.972**
Change in households	.000	.000	.481	7.071**	.000	.000	.476	6.829**
Change in income	.000	.000	.284	4.154**	-.000	.000	-.055	-.752
Change in paper's penetration	15.537	12.789	.123	1.215	12.079	7.926	.137	1.524
Change in clustered penetration	16.860	16.103	.074	1.047	NA	NA	NA	NA
Change in daily penetration	-21.704	12.221	-.168	-1.776	-7.758	6.509	-.092	1.192
Change in weekly penetration	-2.608	3.580	-.040	-.729	-4.418	2.430	-.097	-1.818
Change in subscription price	.048	.046	.065	1.050	.184	.027	.308	6.766
Change in cluster size	5.033	.893	.374	5.634**	NA	NA	NA	NA
Change in percent of cluster's circ.	25.158	7.325	.237	3.434**	NA	NA	NA	NA
Change in distance to nearest paper	.002	.069	.002	.034	NA	NA	NA	NA
Change in radio penetration	-2223	14065	-.013	-.158	-21810	11867	-.171	-1.838
Change in TV penetration	-2123	2542	-.060	-.835	-363	2181	-.013	-.167
Change in cable penetration	-.597	1.183	-.028	-.505	-1.389	1.208	-.064	-1.150
Adjusted R^2	.491				.466			
F statistic	15.441**				19.686**			

* $p < .05$, ** $p < .005$

For clustered papers, there is a positive, highly significant association between changes in the number of households and household income and ad prices. These results may indicate that clustered papers were locating in growing, affluent markets.

Table 27: *First-Difference Regressions, Ad cpm Difference as DV*

	Cluster (N= 195)				Control (N = 193)			
	B	Std. Error	Beta	t	B	Std. Error	Beta	t
(Constant)	.938	.232		4.035**	-.274	.066		-4.176**
Change in households	-.000	.000	-.050	-.676	.000	.000	.153	2.450*
Change in income	.000	.000	.337	4.518**	-.000	.000	-.006	-.099
Change in paper's penetration	-1.550	1.036	-.161	1.496	-1.087	.250	-.346	-4.357**
Change in clustered penetration	-1.050	1.288	-.060	-.815	NA	NA	NA	NA
Change in daily penetration	-1.810	.981	--.183	-1.845	-.493	.206	-.165	-2.388*
Change in weekly penetration	-.312	.282	-.062	-1.107	-.131	.075	-.081	-1.749
Change in subscription ppm	.070	.008	.560	8.873**	.066	.006	.738	11.330**
Change in cluster size	.351	.071	.342	4.967**	NA	NA	NA	NA
Change in percent of cluster's circ.	.792	.561	.098	1.411	NA	NA	NA	NA
Change in distance to nearest paper	.003	.006	.027	.448	NA	NA	NA	NA
Change in radio penetration	1323	1126	.101	1.175	552	401	.122	1.378
Change in TV penetration	40.649	214	.015	.189	93.464	67.378	.096	1.387
Change in cable penetration	-.029	.096	-.018	-.308	-.019	.037	-.025	-.509
Adjusted R^2	.419				.602			
F statistic	11.795**				33.393**			

* p < .05, ** p < .005

Results in Table 27 show a positive, highly significant association between changes in cluster size and changes in ad cpm. These results support Hypothesis 2 that clustering increases ad prices.

The association between changes in subscription ppm and ad cpm is positive and highly significant for clustered and control papers. The OLS coefficients indicate changes in subscription ppm had the same effect on cluster and control papers. However, the betas indicate these changes were more influential for control papers. These results weakly support Hypotheses 2band 2c that interactions between prices are stronger at control papers.

Results in Table 28 examine the effects of changes on subscription prices. There are positive, highly significant associations between changes in three clustering variables and changes in subscription prices. Changes in cluster size, changes in a paper's participation in a cluster, and changes in the market share of other members of the cluster all were associated with higher prices. The fact that subscription prices increase along with the market share for other members of the cluster is particularly noteworthy. This suggests clustered papers may zone circulation within markets to avoid competing for the same readers. These results support Hypothesis 2a that clustering increases subscription prices.

Results for clustered papers also show positive, highly significant associations between changes in a paper's penetration, changes in weekly penetration, and changes in price. There is a positive, weakly significant association between price and changes in daily competition. Similar positive associations for clustered papers are not significant, possibly because of large standard errors. These results are counter-intuitive because

Table 28: *First-Difference Regressions, Subscription Price Difference as DV*

	Cluster (N= 195)				Control (N = 193)			
	B	Std. Error	Beta	t	B	Std. Error	Beta	t
(Constant)	-42.129	4.388		-9.600**	-16.465	5.079		-3.240**
Change in households	.000	.000	.084	.913	-.000	.000	-.112	-1.322
Change in income	.000	.000	.040	.466	.001	.000	.216	2.758**
Change in paper's penetration	66.759	19.809	.397	3.370**	23.737	19.311	.121	1.229
Change in clustered penetration	68.296	25.178	.224	2.713**	NA	NA	NA	NA
Change in daily penetration	48.367	19.268	.280	2.510*	25.585	15.774	.137	1.622
Change in weekly penetration	21.157	5.481	.241	3.860**	5.718	5.946	.057	.962
Change in ad price	.123	.118	.093	1.050	1.085	.160	.489	6.766**
Change in cluster size	4.101	1.509	.229	2.718**	NA	NA	NA	NA
Change in percent of cluster's circ.	51.497	11.397	.364	4.519**	NA	NA	NA	NA
Change in distance to nearest paper	.129	.110	.080	1.172	NA	NA	NA	NA
Change in radio penetration	-58716	21938	-.258	-2.676**	8322	29110	.029	.286
Change in TV penetration	-3842	4040	-.081	-.951	-13929	5204	-.229	-2.676**
Change in cable penetration	3.662	1.863	.127	1.966	-.497	2.948	-.010	-.169
Adjusted R^2	.275				.360			
F statistic	6.681**				13.043**			

* $p < .05$, ** $p < .005$

they suggest changes in prices at clustered papers were helped along by positive changes in both market share and competition. The meaning of these results is unclear.

Results in Table 29 show no significant associations between changes in cluster variables and changes in subscription ppm. However, there is a positive, highly significant association between changes in ad cpm and changes in subscription cpm at clustered and control papers. If the OLS coefficients are correct, these changes had a

Table 29: *First-Difference Regressions, Subscription ppm Difference as DV*

	Cluster (N= 195)				Control (N = 193)			
	B	Std. Error	Beta	t	B	Std. Error	Beta	t
(Constant)	-9.204	.1777		-5.179**	-.639	.659		-.969
Change in households	-.000	.000	-.120	-1.683	-.000	.000	-.254	-4.889**
Change in income	-.001	.000	-.357	-4.934**	-.000	.000	-.067	-1.240
Change in paper's penetration	-14.200	8.115	-.184	-1.750	-.120	2.521	-.003	-.047
Change in clustered penetration	-3.162	10.122	-.023	-.321	NA	NA	NA	NA
Change in daily penetration	10.266	7.735	.129	1.322	8.592	1.914	.259	4.490**
Change in weekly penetration	3.553	2.203	.088	1.612	1.403	.718	.079	1.955
Change in ad cpm	4.313	.486	.539	8.873**	6.163	.544	.557	11.330**
Change in cluster size	-1.038	.587	-.126	1.769	NA	NA	NA	NA
Change in percent of cluster's circ.	-7.075	4.397	-.109	1.609	NA	NA	NA	NA
Change in distance to nearest paper	-.038	.044	-.051	-.853	NA	NA	NA	NA
Change in radio penetration	581	8873	.006	.066	13491	3745	.269	3.602**
Change in TV penetration	5019	1644	.231	3.052**	1102	646	.102	1.707
Change in cable penetration	.622	.749	.047	.830	.565	.356	.066	1.587
Adjusted R^2	.440				.700			
F statistic	12.800**				50.939**			

* p < .05, ** p < .005

larger effect at control papers. The betas suggest changes in ad cpm were equally influential at clustered and control papers. These results weakly support Hypotheses 2b and 2c that interactions between prices are weaker at clustered papers.

There is a negative, highly significant association between changes in income and subscription ppm at clustered papers. There also is a negative, highly significant association between changes in households and prices at control papers. These results may indicate managers lowered the amount of circulation costs passed to subscribers in more affluent, or larger markets.

There is a positive, highly significant association between changes in daily penetration and radio penetration and changes in subscription ppm at control papers. The positive association with changes in daily penetration is not significant for clustered papers. However, there is a significant positive association between changes in television market share and subscription ppm for clustered papers. These results may indicate that managers at control papers passed on more of their circulation costs in response to changes in competition from dailies and other media. Clustered managers only passed on more costs in response to changes in competition from other media. These results support Hypotheses 2a and 2e that clustered newspapers are less sensitive to competition than control papers.

Results in Table 30 examine changes in one measure of newsroom spending, the number of wire subscriptions per thousand circulation. There is a negative, highly significant association between changes in wires pm and changes in a paper's participation in a cluster. These results support Hypothesis 3 that clustering reduces newsroom spending.

For control papers, there was a negative, highly significant association between changes in daily penetration and changes in wires pm. Changes in daily penetration had

Table 30: *First-Difference Regressions, Wires pm Difference as DV*

	Cluster (N= 195)				Control (N = 193)			
	B	Std. Error	Beta	t	B	Std. Error	Beta	t
(Constant)	.015	.021		.714	.055	.015		3.592**
Change in households	-.000	.000	-.004	-.063	.000	.000	.069	.956
Change in income	-.000	.000	-.145	-2.135*	.000	.000	,060	.852
Change in paper's penetration	-.117	.091	-.120	-1.282	-.073	.058	-.119	-1.261
Change in clustered penetration	-.022	.113	-.012	-.195	NA	NA	NA	NA
Change in daily penetration	.061	.087	.061	.703	-.137	.046	-.234	-2.950**
Change in weekly penetration	-.028	.025	-.056	-1.151	-.005	.017	-.016	-.299
Change in ad cpm	.016	.006	.162	2.529*	.019	.016	.099	1.186
Change in subscription ppm	.007	.001	.535	8.184**	.010	.002	.579	6.012**
Change in cluster size	-.011	.007	-.106	-1.670	NA	NA	NA	NA
Change in percent of cluster's circ.	-.174	.049	-.212	-3.417**	NA	NA	NA	NA
Change in distance to nearest paper	-.000	.000	-.043	-.806	NA	NA	NA	NA
Change in radio penetration	356	98.888	.270	3.603**	-73.788	89.412	-.084	-.828
Change in TV penetration	-5.707	18.789	-.021	-.304	42.655	14.979	.225	2.848**
Change in cable penetration	.000	.008	.000	.004	.004	.008	.027	.488
Adjusted R^2	.564				.487			
F statistic	19.040**				19.311**			

* $p < .05$, ** $p < .005$

the opposite sign for clustered papers, but were not significant because of a large standard error. Control papers had a positive, highly significant association between changes in television competition and wire subscriptions. There was a similar association between changes in radio penetration and wire subscriptions at clustered papers. These results are mixed, and do not support Hypothesis 3a that control papers are more likely to respond to competition by increasing newsroom spending.

Results of the Mail Survey

As described in the Method chapter, a one-page questionnaire was used to gather additional information from 1998 newspapers about newsroom spending and efforts to share resources. The questionnaire was mailed to the senior newsroom executive or publisher at 968 newspapers. This list included 482 clustered newspapers from the study population and 486 control newspapers selected randomly from the same states.

A mailing in June 2000 resulted in 275 returns for an initial response rate of 28%. A reminder postcard three weeks later, and a second mailing two weeks after that, produced 164 additional responses, bringing the total to 439. The final overall response rate was 45%.

Three questionnaires were returned as undeliverable and a fourth questionnaire was returned but not filled out. This means the effective response rate was 46%.

The response rate for clustered newspapers was lower than the response rate for control newspapers. There were 189 usable questionnaires returned from clustered papers, a response rate of 39%. The 249 usable questionnaires returned from control papers represented a 51% response rate.

The responses to the mail survey created new samples of clustered and control newspapers that were separate from the random samples drawn from the study population. There was limited overlap between the samples of newspapers that responded to the survey and the random samples of cluster and control newspapers in 1998. Only 75 clustered newspapers from the random sample also returned mail questionnaires. This was 38% of the random cluster sample. Only 106 control newspapers from the random sample also returned mail questionnaires. This was 53% of the random control sample.

Therefore, the *t*-tests used with the 1998 random samples were repeated to see if the survey respondents differed from newspapers in the random samples. The tests used all 189 clustered newspapers that responded to the survey. Another 189 control respondents were selected randomly for inclusion in this analysis. This was done to compensate for the larger number of control respondents because *t*-tests assume equal sample sizes. County-by-county circulation data was not available for a few papers in these tests.

Table 31: *Intercounty Differences, Survey Respondents*

	1998	
	Clustered	Control
Mean number of adjoining counties where paper circulates	1.64	3.34**
Std. Deviation	2.41	4.84
Paper's mean penetration in adjoining counties	.049	.071**
Std. Deviation	.074	.089
N	184	188

* difference between clustered and control, $p < .05$
** difference between clustered and control, $p < .005$

Table 31 shows clustered newspapers responding to the survey circulated in significantly fewer counties outside their home county than control papers did. The clustered newspapers also averaged significantly less penetration in those counties. These results replicate findings for the random sample in Table 6. These results support Hypothesis 1a that clustered papers are less aggressive competitors.

Table 32: *Papers in Markets, Survey Respondents*

	1998	
	Clustered	Control
Mean of competing dailies headquartered in paper's market	1.15	2.05**
Std. Deviation	2.02	3.36
Mean of commonly-owned dailies headquartered in paper's market	.54	.01**
Std. Deviation	.75	.10
N	184	188

* difference between clustered and control, $p < .05$
** difference between clustered and control, $p < .005$

Table 32 shows the average number of competing dailies headquartered in the clustered markets was significantly less than the number of competing dailies in control markets. This differs from the finding for the random sample in Table 7 showing no significant difference in the number of competing dailies. However, Table 32 also shows the average number of commonly-owned dailies headquartered in the clustered markets is significantly higher than in clustered markets. This replicates findings for the random sample in Table 7. The results in Table 32 support Hypotheses 1 and 1a that clustering reduces competition.

Table 33 shows the average market share for clustered newspapers is significantly less than for control newspapers among survey respondents. The average penetration from other members of the cluster is about 8 percent. These findings replicate results for

the random sample in Table 8. The average market share of competing dailies is higher for control papers responding to the survey, but the difference is not significant. Weekly penetration is about the same for clustered and control markets. Results for the random sample in Table 8 showed the higher penetration of dailies in control markets was significant. Results in Table 33 offer some support for Hypotheses 1 and 1a that clustering reduces competition.

Table 33: *Market Share, Survey Respondents*

	Cluster	Control
Paper's mean penetration in its market	.241	.285**
Std. Deviation	.152	.167
Mean penetration for other members of cluster	.079	NA
Std. Deviation	.000	NA
Mean competing daily circulation in paper's market	.289	.322
Std. Deviation	.165	.162
Mean weekly penetration in paper's market	.243	.255
	.204	.233
N	184	188

* difference between clustered and control, $p < .05$
** difference between clustered and control, $p < .005$

The comparisons in Tables 31-33 show clustered newspapers in the survey, like their counterparts in the random sample, are less aggressive competitors and operate in markets where there is less competition from other daily newspapers.

Table 34 shows ad prices are slightly higher in clustered markets, but the difference is not significant. Standardized subscription prices also are slightly higher in clustered markets, but the difference is not significant. The results for unadjusted prices replicate findings for the random sample in Table 9. However, standardized price

differences were significantly higher for the random sample. The price comparisons in Table 34 do not support Hypotheses 2 and 2a that clustering increases prices.

Table 34: *Price Differences, Survey Respondents*

	1998	
	Clustered	Control
Mean price of standard advertising unit	$23.25	$22.31
Std. Deviation	$24.01	$21.07
Mean annual subscription price	$111.94	$113.53
Std. Deviation	$37.07	$37.84
Mean advertising cpm	$1.47	$1.37
Std. Deviation	$0.72	$1.01
Mean subscription ppm	$11.93	$10.32
Std. Deviation	$11.01	$9.63
N	189	189

* difference between clustered and control, $p < .05$
** difference between clustered and control, $p < .005$

Table 34 shows clustered papers responding to the survey are less aggressive about pricing than clustered newspapers in the random sample. This suggests (a) clustered survey respondents are not representative of the population of clustered newspapers, or (b) the 1998 random sample is non-representative. The first seems more likely because respondents to the survey were self-selected and do not differ from the random sample in terms of market characteristics.

The questionnaire included three different measures of quality, or spending on news. The first was the size of the news staff, the second was the news/advertising ratio, and the third was the average number of column inches in the paper's weekday newshole.

Table 35 shows clustered papers had an average of about 5 fewer staff members than control newspapers, a difference that is significant. However, when the staff size

was standardized to control for the effects of circulation size the difference was not significant. These results weakly support Hypotheses 3 and 3a that clustered papers spend less on quality, while control papers spend more.

Table 35: *Quality Measures, Survey Respondents*

	1998	
	Clustered	Control
Mean size of paper's staff	22.78	28.23*
Std. Deviation	21.75	28.64
Mean size of staff per thousand circulation	1.43	1.38
Std. Deviation	1.39	1.05
N	189	189
Mean news/advertising ratio	1.33	1.33
Std. Deviation	.54	.55
N	163	166
Mean column inches in newshole	1707	1822
Std. Deviation	878	1531
Mean column inches per thousand circulation	138.52	125.53
Std. Deviation	120.54	120.83
N	102	119

* difference between clustered and control significant, $p < .05$
** difference between clustered and control significant, $p < .005$
Note: Many respondents did not provide information about news/ad ration or newshole size.

Clustered and control papers responding to the survey had identical news/advertising ratios. The differences in newshole also were not significant. These results do not support Hypotheses 3 and 3a that clustering reduces spending on quality.

The questionnaire included four yes/no questions about sharing resources to save costs (see Appendix B). The first was whether the paper shared local newsgathering resources, such as reporters, with commonly-owned papers. The second was whether

copy was produced for multiple papers using a universal desk. The third was whether administrative expenses, such as payroll, were shared with other papers. The fourth was whether production resources, such as a press, were shared with other newspapers.

Table 36: *Survey Responses to Questions About Resource Sharing*

	Cluster		N	Control		N
	Yes	No		Yes	No	
Shares newsgathering resources	139	49	189	67	131	198
Percent	73.9	26.1		33.8	66.2	
Has universal desk	31	156	187	16	180	196
Percent	16.6	83.4		8.2	91.8	
Shares administrative expenses	120	67	187	98	97	195
Percent	64.2	35.8		50.3	49.7	
Shares production resources	122	65	187	59	138	197
	65.2	34.8		29.9	70.1	

Table 36 reports all available responses to these questions. Results show substantially more clustered papers shared resources. Almost three quarters of the clustered papers shared newsgathering resources, and two thirds shared production and administrative resources. However, only about 17% had a universal desk to edit copy for different newspapers.

About half of the control newspapers shared administrative expenses. A third or less shared newsgathering or production resources. Results in Table 36 support Hypothesis 5a that clustered newspapers are more likely to share resources to create economies of scale.

A non-parametric Mann-Whitney test, which examines differences in the mean rank of ordinal level data (Norusis, 1993), was used to determine whether differences in

responses to the resources sharing questions were statistically significant. Responses were coded yes = 1, and no =2, so lower ranks indicate more yes responses. Results in Table 37 show significantly more resource-sharing among clustered respondents for every question. These results support Hypothesis 5a that clustered papers are more likely to share resources.

Table 37: *Test of Differences for Resource-Sharing Questions*

	Paper's classification	N	Mean Rank
Shares newsgathering resources	Cluster	188	153.80**
	Control	198	231.19
	Total	386	
Has universal desk	Cluster	187	183.75*
	Control	196	199.87
	Total	383	
Shares administrative expenses	Cluster	187	177.93**
	Control	195	204.51
	Total	382	
Shares production resources	Cluster	187	157.74**
	Control	197	225.50
	Total	384	

* difference between clustered and control significant, $p < .05$
** difference between clustered and control significant, $p < .005$
Note: Yes = 1, no = 2. More yes responses result in a lower mean ranking.

The survey responses cannot be generalized to the population of clustered newspapers because the respondents appear to differ in significant ways. However, there are significantly more efforts to share resources among clustered survey respondents. The only area where as many as half of the control papers share resources is administrative expenses. This is not surprising because processing items such as paychecks does not require that newspapers locate close to one another. Sharing

production or newsgathering resources to achieve economies of scale probably requires that newspapers be close to each other.

However, if clustering produces opportunities to create scale economies and save costs, there is scant evidence from the *t*-tests these savings are used to increase newsroom spending among clustered survey respondents. Nor is there any evidence the savings are passed to advertisers or readers in the form of lower prices.

Table 38: *Cluster and Control regressions, Size of News Staff as DV*

	Cluster (N= 181)				Control (N = 245)			
	B	Std. Error	Beta	t	B	Std. Error	Beta	t
(Constant)	-13.200	9.191		-1.436	.645	6.399		.101
Households	.000	.000	.178	2.168*	.000	.000	.243	4.762**
Avg. household income	.000	.000	.049	.889	-.000	.000	-.020	-.521
Paper's penetration	5.869	11.611	.044	.505	13.807	8.521	.082	1.536
Clustered penetration	7.017	11.455	.034	.613	NA	NA	NA	NA
Daily penetration	-7.737	8.281	-.063	-.934	-1.525	6.461	-.010	-.236
Weekly penetration	1.566	4.591	.016	.341	-.073	3.610	-.001	-.020
Ad price	.610	.081	.551	7.571**	1.016	.072	.675	14.191**
Subscription price	.043	.027	.077	1.583	.019	.028	.028	.702
Size of cluster	.864	.739	.064	1.170	NA	NA	NA	NA
Percent of cluster's circ.	19.641	5.893	.201	3.333**	NA	NA	NA	NA
Distance to nearest paper	.082	.067	.057	1.229	NA	NA	NA	NA
Radio penetration	-20957	14384	-.118	-1.457	-14599	11917	-.068	-1.225
TV penetration	-4375	3892	-.076	-1.124	-3285	2645	-.060	-1.242
Cable penetration	3.831	2.334	.076	1.641	.047	2.214	.021	.983
Adjusted R^2	.671				.785			
F statistic	27.381**				90.476**			

* p < .05, ** p < .005

Regressions were used to further examine how clustering affects the measures of newsroom spending. All available survey responses were used in each of these regressions which is why there are far more control cases than clustered cases. Results in Table 38 show a positive, highly significant association between the size of the news staff and participation in a cluster. These results do not support Hypothesis 3 that clustering reduces newsroom spending.

Table 38 also shows a positive, highly significant association between advertising prices and staff size at cluster and control papers. There is a positive, highly significant association between households and staff size for control papers. A similar association is weakly significant for clustered papers. If the OLS coefficients are correct, changes in ad prices result in larger changes in staff size at control papers. The betas show ad prices and households are more influential at control papers. These results fail to support Hypotheses 3 and 3a that control newspapers are more likely to increase newsroom spending in response to competition.

Table 39 uses a standardized measure of staff size per thousand circulation. This measure is not significantly associated with clustering. However, there is a negative, weakly significant association between daily competition and staff pm at control papers. A similar association for clustered papers has a large standard error and is not significant. There is a positive, weakly significant association between television penetration and staff size at control papers. A similar, highly significant association between cable and staff size exists for clustered papers. These results are difficult to interpret because they suggest control newspapers have smaller staff pm when daily competition increases. However, these results do suggest control papers are more sensitive to competition when

determining staff size. These results weakly support Hypothesis 3 that clustered newspapers are less sensitive to competition when determining spending.

Table 39: *Cluster and Control Regressions, News Staff pm as DV*

	Cluster (N= 181)				Control (N = 245)			
	B	Std. Error	Beta	t	B	Std. Error	Beta	t
(Constant)	.226	.420		.591	1.606	.226		7.108**
Households	-.000	.000	-.210	-2.346*	-.000	.000	-.043	-.522
Avg. household income	.000	.000	.274	3.333**	.000	.000	.089	1.233
Paper's penetration	-.794	.528	-.214	-1.503	-1.968	.321	-.699	-6.128**
Clustered penetration	.704	.461	.123	1.527	NA	NA	NA	NA
Daily penetration	-.219	.341	-.064	-.642	-.575	.225	-.205	-2.557*
Weekly penetration	-.118	.183	-.043	-.642	-.123	.124	-.061	-.995
Ad cpm	.377	.085	.426	4.437**	.056	.068	.080	.830
Subscription ppm	-.000	.006	-.008	-.075	-.002	.008	-.030	-.252
Size of cluster	.000	.031	.001	.009	NA	NA	NA	NA
Percent of cluster's circ.	.191	.240	.070	.794	NA	NA	NA	NA
Distance to nearest paper	-.001	.003	-.019	-.262	NA	NA	NA	NA
Radio penetration	128	636	.026	.201	803	450	.213	1.783
TV penetration	-49.216	170	-.031	-.289	222	99.470	.231	2.242*
Cable penetration	.303	.095	.214	3.194**	.134	.078	.115	1.722
Adjusted R^2	.294				.169			
F statistic	6.394**				5.978**			

* $p < .05$, ** $p < .005$

Regressions using the size of the newshole as a dependent variable had too few responses to be considered stable. There are 14 independent variables, so 118 to 162 to cases are required to test individual relationships and multiple correlation (Tabachnick &

Fidell, 1996). Only 97 cases were available for the clustered papers in regressions using newshole as a dependent variable. However, there were 158 cases available for control papers.

Table 40: *Cluster and Control Regressions, Column Inches in Newshole as DV*

	Cluster (N= 97)				Control (N = 158)			
	B	Std. Error	Beta	t	B	Std. Error	Beta	t
(Constant)	341.200	636.666		.533	347	434		.801
Households	.001	.000	.161	1.160	-.000	.000	-.029	-.307
Avg. household income	-.002	.009	-.018	-.212	.010	.010	.078	1.057
Paper's penetration	871	866	.138	1.006	1115	587	.193	1.900
Clustered penetration	549	790	.063	.696	NA	NA	NA	NA
Daily penetration	153	591	.028	.260	-27.039	425	-.005	-.063
Weekly penetration	-242	327	-.057	-.793	445	258	.104	1.722
Ad price	22.919	5.244	.529	4.370**	29.838	4.673	.564	6.386**
Subscription price	1.065	1.843	.048	.578	1.508	1.945	.061	.775
Size of cluster	44.348	54.196	.072	.818	NA	NA	NA	NA
Percent of cluster's circ.	395	394	.100	1.002	NA	NA	NA	NA
Distance to nearest paper	11.963	5.387	.170	2.221*	NA	NA	NA	NA
Radio penetration	-1961401	986478	-.250	-1.988	-1279040	853868	-.154	-1.498
TV penetration	-149719	253856	-.059	-.590	-330337	184663	-.162	-1.798
Cable penetration	168	129	.094	1.299	-184	159	-.075	-1.157
Adjusted R^2	.566				.497			
F statistic	10.046**				16.630**			

* $p < .05$, ** $p < .005$

Results in Table 40 show a positive, weakly significant association between distance to the nearest clustered newspaper and newshole size. Clustered papers might

increase newsroom spending if other members of the cluster are more distant because increases in quality help decrease reader elasticity of demand. However, the small number of cases in this regression means these results cannot be interpreted as supporting a hypothesis. The positive, highly significant associations between ad prices and newshole at cluster and control papers may reflect the fact that larger newspapers have higher prices.

Table 41: *Cluster and Control Regressions, Column Inches pm as DV*

	Cluster (N= 97)				Control (N = 158)			
	B	Std. Error	Beta	t	B	Std. Error	Beta	t
(Constant)	20.196	84.665		.239	86.704	41.547		2.087*
Households	-.000	.000	-.041	-.368	-.000	.000	-.139	-1.551
Avg. household income	-.000	.001	-.026	-.288	-.000	.001	-.041	-.175
Paper's penetration	-17.269	117	-.024	-.147	-33.989	59.212	-.069	-.564
Clustered penetration	58.794	92.152	.059	.638	NA	NA	NA	NA
Daily penetration	43.689	72.057	.070	.606	-38.332	40.078	-.083	-.956
Weekly penetration	-56.044	36.953	-.114	-1.517	37.817	23.871	.106	1.584
Ad cpm	36.955	18.222	.218	2.028	-8.240	11.769	-.070	-.700
Subscription ppm	5.218	1.284	.471	4.062**	6.937	1.512	.651	4.588**
Size of cluster	-.909	6.501	-.013	-.140	NA	NA	NA	NA
Percent of cluster's circ.	-4.366	45.279	-.010	-.096	NA	NA	NA	NA
Distance to nearest paper	.287	.660	.036	.434	NA	NA	NA	NA
Radio penetration	25379	134777	.028	.188	-14262	87527	-.021	-.168
TV penetration	40026	32338	.138	1.238	6047	18568	.036	.326
Cable penetration	7.280	15.435	.035	.472	-4.538	15.059	-.022	-.301
Adjusted R^2	.520				.380			
F statistic	8.503**				10.676**			

* $p < .05$, ** $p < .005$

Results in Table 41 show a positive, highly significant association between subscription ppm and newshole for clustered and control papers. This may indicate that increases in newsroom spending allow managers to pass more circulation costs to their subscribers, presumably because the newspaper's quality is higher.

An alternative to these regressions examined Pearson's correlations between the newsroom spending measures and clustering variables for survey respondents. These results are presented in Table 42. Thee is a positive association between staff size and

Table 42: *Pearson's Correlations for Spending and Clusters, Survey Respondents*

	News staff size	Staff pm	News/ad ratio	Col. inches	Col. inches pm	Cluster size	Percent	Distance	Clustered pent.
News staff size	1.000								
N	189								
Staff pm	.123	1.000							
N	189	189							
News/ad ratio	-.127	-.073	1.000						
N	163	163	163						
Col. inches	.803**	.046	-.123	1.000					
N	102	102	99	102					
Col. inches pm	-.345**	.631**	.166	-.156	1.000				
N	102	102	99	102	102				
Cluster size	-.086	.083	.028	-.076	.171	1.000			
N	189	189	163	102	102	189			
Percent	.269**	-.146*	-.093	.263**	-.295**	-.576**	1.000		
N	189	189	163	102	102	189	189		
Distance	-.087	-.110	-.090	.013	-.028	.000	-.014	1.000	
N	189	189	163	102	102	189	189	189	
Clustered pent	.116	.031	-.007	.107	.000	.040	-.221**	-.190**	1.000
N	184	184	159	100	100	184	184	184	184

** Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed)

participation in a cluster. However, this correlation is negative when using staff size standardized for circulation. This same pattern exists for the average column inches in

the newshole. The positive correlations for unadjusted figures may reflect the fact that a paper's participation in a cluster increases as the size of the cluster decreases. Participation, measured as the paper's percentage of the cluster's total circulation, also tends to increase with size. In other words, increased participation suggests larger papers in smaller clusters which may therefore spend more on the newsroom. However, once size differences are controlled, there is a negative relationship between clustering and newsroom spending. These results weakly support Hypothesis 3 that clustering reduces newsroom spending and news quality.

Results from Profit and Cost Measures

Data for publicly-owned newspaper companies in the study was gathered from sources in described in the Method chapter. These variables included each company's overall profit, and the costs associated with each company's newspaper division. The degree of diversification among different lines of business was another variable. Recall that lower values for this variable indicate more diversification. The degree of inside control at these companies was the fourth variable in this section of the study.

There were not enough public companies in either 1988 or 1998 to conduct regression analysis. Analysis of these variables was limited to correlations using Spearman's rho. This is a non-parametric measure that uses rank-order correlations and does not require the assumption of a linear relationship. Results for both years are essentially identical and will be discussed together.

Results in Table 43 show negative associations between newspaper division costs and the market share of other clustered newspapers in 1988. There is a negative association in Table 44 between costs and cluster size in 1998. These results support

Table 43: *1988 Correlations, Company Performance (Spearman's rho)*

	Profit	Cost	Inside	Divers	Cluster size	Percent	Distance	Cluster pent	Ad price	Sub price	Ad cpm	Sub ppm
Profit	1.000											
Cost	-.808**	1.000										
Inside	-.501*	.906**	1.000									
Divers	-.779*	.726*	.284	1.000								
Cluster size	.052	-.044	-.029	-.060	1.000							
Percent	-.157	-.028	.028	.117	-.640*	1.000						
Distance	-.306	.087	.160	.317	-.035	-.009	1.000					
Cluster pent.	.584**	-.594**	-.307	-.714**	.040	-.120	-.464**	.1000				
Ad price	.585**	-.680**	-.537**	-.613**	.231**	.066	-.231**	.359**	1.000			
Sub price	.409*	-.601**	-.554**	-.327	.101	.138	-.067	.207**	.495**	1.000		
Ad cpm	-.092	.076	-.506*	.164	-.032	-.237**	-.249**	-.065	-.248**	-.276**	1.000	
Sub ppm	-.450**	.395*	-.349	.562**	-.132	-.196**	-.028	-.218**	-.649**	-.189**	.780**	1.000
N	36	36	21	36	200	200	200	200	200	200	200	200

** Correlation is significant at the .01 level (1-tailed)
* Correlation is significant at the .05 level (1-tailed)
Note: There are fewer cases for company-level variables because many newspapers were not owned by public companies. There are 21 cases for the Divers variable because 1988 information was not available for all public companies.

Table 44: *1998 Correlations, Company Performance (Spearman's rho)*

	Profit	Cost	Inside	Divers	Cluster size	Percent	Distance	Cluster pent	Ad price	Sub price	Ad cpm	Sub ppm
Profit	1.000											
Cost	-.108	1.000										
Inside	-.338**	-.066	1.000									
Divers	.397**	.041	.278*	1.000								
Cluster size	-.186	-.274*	.131	.111	1.000							
Percent	.155	.071	-.184	-.133	-.636**	1.000						
Distance	-.130	.212	-.109	-.077	-.037	.067	1.000					
Cluster pent.	.066	.023	.073	.115	.013	-.163**	-.337**	1.000				
Ad price	-.101	-.269*	-.015	-.125	-.109	.242**	-.123*	.342**	1.000			
Sub price	.187	-.494**	-.042	.183	-.063	.169**	-.137*	.262**	.498**	1.000		
Ad cpm	.361**	.142	.206	.344**	.042	-.254**	-.015	-.190**	-.491**	-.325**	1.000	
Sub ppm	.322**	.087	.028	.413**	.095	-.297**	.025	-.269**	-.810**	-.187**	.741**	1.000
N	63	63	63	63	312	312	312	309	312	312	311	312

** Correlation is significant at the .01 level (1-tailed)
* Correlation is significant at the .05 level (1-tailed)
Note: There are fewer cases for company-level variables because many newspapers were not owned by public companies.

Hypothesis 5 that companies which own clustered newspapers have lower costs.

There is a negative correlation between profits and a company's diversification into different lines of business in 1988. However, this correlation is positive and significant in 1998. This mixed result does not support Hypothesis 6 that profits are lower at firms with a higher degree of diversification when those firms own clustered newspapers.

Unadjusted advertising prices were negatively correlated with diversification in 1988. This correlation was not significant in 1998. The correlation between diversification and standardized prices is positive in both years. However, the correlation for ad cpm is not significant in 1988. These results are mixed and only weakly support Hypothesis 6a that ad and subscription prices are higher at more diversified firms that own clustered newspapers.

There is a positive relationship between cost and diversification in 1988. This relationship is not significant in 1998. Since higher values of the diversification variable indicate a less diverse company, this weakly supports Hypothesis 6b that more diverse firms spend less on newspapers.

There is a negative relationship between profits and the amount of stock controlled by insiders in both years. This supports Hypothesis 7 that profits decrease as inside control increases at firms that own clustered newspapers.

There is a negative relationship between ad and subscription prices and the amount of stock controlled by insiders in 1988. These correlations are not significant in 1998. These results weakly support Hypothesis 7a that prices are lower at firms with more inside control when they own clustered newspapers.

There is a positive relationship between newspaper division costs and inside control for 1988. This correlation is not significant in 1998. This weakly supports Hypothesis 7b that firms spend more on their newspapers when insiders have greater control.

In 1988 profits were positively associated with penetration from other clustered papers in a market. This suggests clustering increases profits. However, in 1998 profits had no significant association with clustering. These results only weakly support Hypothesis 4 that clustering is associated with higher profits.

CHAPTER 6
CONCLUSIONS

Clustering is an increasingly popular strategy among United States newspapers, and results of this study show the strategy profoundly affects the industry. There is less competition among newspapers in clustered markets than in control markets. More than half of the United States daily newspapers that vanished during the decade of the study were part of a cluster. Clustering is also associated with increases in ownership concentration among the remaining newspapers. All of these effects are apparent from the descriptive statistics and from *t*-tests performed for this dissertation.

Multivariate tests did not always offer strong support for some hypotheses. This was partly due problems with skewness and other violations of regression assumptions that weakened these tests. These problems apparently contributed to the instability apparent in many regressions where OLS coefficients had large standard errors and relationships were not significant. There may also have endogenity associated with the price measures in the study.

However, most regressions in this study also produced an R^2 of .50 or higher, and many times this statistic was .60 or higher. This suggests that, despite the lack of significance, these regressions explain substantial portions of the variance associated with variables used in this study.

The instability of individual OLS coefficients may also result from lumping together markets of various sizes in the tests that were used. Previous studies have found substantial variation across newspaper markets – papers in larger markets sometimes

Table 45: *Results of Hypotheses Tests*

Statistic used	Descriptive	*t*-test	Correlation	Regression		First difference regression	Mann-Whitney U
				1988	1998		
Clustering's effect							
On elasticity				1	1		
On competition							
H1	1	4					
H1a		5					
On prices							
H2		1	2.5	2	1	2	
H2a			2.5	1		2	
		1					
H2b			2	2	3	2	
H2c			2	2	3	2	
H2d				2	1		
H2e				2		1	
On quality							
H3		1	1	1	2	1	
H3a		1			1		
On profits							
H4			1				
On cost							
H5			2				
H5a	1						1
Effects of diversification							
H6							
H6a							
H6b			1				
Effects of insider control							
H7			2				
H7a			1				
H7b			1				

behave quite differently from papers in smaller markets, (see, e.g., Lacy, Coulson, & Cho, 2001; Lacy, Fico, & Simon, 1989). However, the use of multiple tests in this dissertation allowed a check on whether any given result was robust.

Table 45 outlines the results of this approach. The table reports all tests that supported each hypothesis in the dissertation. The columns listing the type of test report the number of relevant tables supporting each hypothesis. If more than one statistic in a table supported a hypothesis, the table still was only counted once. If a table had mixed results which only partly supported a hypothesis, it was counted as 0.5. Keep in mind when reading the table that some hypotheses could not be subjected to tests using multiple statistics.

The tests of elasticity for 1988 and 1998 support the general argument in the theoretical discussion that clustering reduces elasticity of demand. Theory suggests this effect results from the decrease in newspaper competition that occurs when clusters are formed. Theory also suggests that clustered newspapers can take advantage of reduced competition to increase advertising and subscription prices. Results show that clustered newspapers do have higher prices when using unadjusted and standardized measures for advertising prices. However, price differences are less apparent using this study's measure of subscription ppm. These results may indicate that managers at clustered and control newspapers are reluctant to pass circulation costs to their readers. This would not be surprising given the importance of market share when trying to satisfy advertiser demand for reaching potential customers.

The results are not just consistent with predictions that clustered newspapers have increased market power allowing them to raise prices. The results are also consistent

with predictions that clustered newspapers are less sensitive to interactions between advertising and subscription prices. Recall from the theoretical discussion that if subscription prices affect demand for circulation, then they will feed back into advertising prices. This is because advertisers buy access to the readers the newspaper circulates to. One of the most consistent results in this study, found in Pearson's correlations, regressions and first-difference regressions, shows this interaction is weaker for clustered newspapers than for their non-clustered counterparts. Theory suggests this is because of the reduced elasticity of demand among readers in clustered markets.

However, theory also predicted a negative relationship between subscription and ad prices. That was not the case for clustered or for control papers. This may reflect the measure used. The price of a standard advertising unit is one among dozens of prices that many newspapers list for a variety of local and national retail and classified advertising . However, the SAU price was created to allow buyers to easily make comparisons between newspapers, which is difficult using other, non-standardized prices.

The consistently positive relationship between advertising and subscription prices more likely reflects the fact that circulation demand is inelastic according to previous studies (see, e.g., Lewis, 1995) and to the 1988 elasticity regressions in this study. Managers may be reluctant to pass subscription costs to readers, but this inelasticity means they do not have to lower subscription prices when they raise advertising prices. This may explain the positive association between the two.

Results suggesting that clustering is associated with higher prices can also be found in simple correlations, regressions and first-difference regressions. However, the effects of clustering on price differences were more apparent in 1988 than 1998. The

association between clustering and higher advertising prices still was apparent in 1998, but it was supported by fewer regressions. The association between clustering and higher subscription prices was no longer apparent in the 1998 regressions.

These results suggest something changed over the course of the study. By 1998 these differences might have been less apparent because of two factors. The first was a decline in competition in control markets that is apparent in Table 8. Average competing daily penetration dropped from 42% to 34% in these markets; weekly penetration declined from 40% to 22%. This, combined with a long economic boom that strengthened demand, may have brought prices in control markets closer to prices in clustered markets. The data in this study suggest this is the most likely explanation.

However, it's possible that clustering became less effective as a strategy during the 1990s. This seems unlikely given the continuing efforts by newspaper companies to assemble clusters. The first-difference regressions also show that changes in clustering variables were positively associated with advertising and subscription prices. This suggests there may be some changes in the nature of clusters that are not apparent when aggregating the data across different-sized markets. Another possibility is that the difference in 1998 reflects random fluctuations in the relationships among variables used in this study.

In any case, further study is needed to fully understand why the market power associated with clustering appears to have diminished in 1998. A true time series study would help answer this question.

This dissertation also used multiple measures to examine clustering's effects on quality. These tests were limited by the measures available in the study. However, there

is support from *t*-tests, correlations, regressions and first-difference regressions for the hypothesis that clustering reduces newsroom expenditures. Theory suggests that clustering reduces elasticity of demand, so clustered newspapers can reduce their newsroom spending, and quality, without risking a disproportionate loss of readers.

There is less support for the hypothesis that non-clustered newspapers must respond to competition by spending more on news coverage in an effort to differentiate themselves. Indeed, one surprising result showed control papers have fewer wire subscriptions in markets where there is more daily competition.

Responses to the mail survey provide strong support for industry arguments that companies which create clusters share resources to create economies of scale. The negative correlations between newspaper segment cost and clustering variables also provide some support for arguments that clustering reduces costs.

However, there is no evidence, using the limited measures available in this study, that these savings result in lower prices for subscribers or advertisers. There also is no evidence these savings are used to hire more news staffers or open up more space for news. As was pointed out earlier, results instead show clustering is associated with reduced newsroom spending.

Companies may instead use savings from clustering to increase their profits. The theoretical discussion suggested this would be the case, and the positive correlation between profits and clustered penetration in 1988 suggests this possibility. However, there was no similar correlation in 1998. The overall profit measure for companies which are sometimes diversified may not capture the relationship. This result may also indicate

savings from clustering were used to lower other costs or to finance additional acquisitions in 1998.

The correlations are also mixed with regard to the association between diversification and profits. There was a negative association between diversification and profit in 1988, and a positive association in 1998. The result in 1988 supports the theoretical argument that diversified companies are more difficult to manage effectively. However, the 1998 result fails to support this argument and is instead consistent with Picard's (1999) study suggesting diversification is a hedge against fluctuations in the advertising market. One possibility is that managers at diversified companies have learned how to overcome the problems posed by diversification, or perhaps the nature of diversification has changed. Recall from the theoretical discussion that profitability is easier to maintain when companies diversify into related lines of business.

Results of this study also show associations between increased diversification and higher advertising and subscription prices. In 1988 the correlations also showed more spending on newspaper divisions at less diversified companies. However, the lack of multivariate tests make it difficult to say how these relationships are affected by clustering.

This study also shows a positive association between the amount of stock controlled by insiders and spending on a company's newspaper division in 1988. In both years inside control was negatively associated with profits. These results replicate earlier findings (Lacy, Shaver, & St. Cyr, 1996). However, the lack of multivariate tests again makes it difficult to say how these relationships are affected by clustering.

Implications of the Study

Overall, this study shows that clustering has substantial effects on the newspaper industry. Newspaper companies appear to be buying competing newspapers so they can reduce elasticity of demand and increase their market power. They appear to be using this increased power to raise prices and reduce newsroom spending. In many cases, newspaper companies are taking some of their clustered newspapers out of business, apparently in an effort to reduce costs.

None of this is surprising. Competition's effects on individual businesses are rarely perceived by owners and managers as beneficial. In the case of newspapers, this is because competition gives consumers and advertisers an option if they believe the price of one newspaper is too high, or its quality too low (Lacy, 1992; Litman & Bridges, 1986; Martin, 1997; Nicholson, 1995). This, in turn, forces newspapers to lower their prices and increase spending at the expense of profitability. Competition increases the number of options available to consumers, but constrains the options available to newspaper managers.

Reductions in competition, however, have the opposite effect. By creating clusters newspaper managers may be fortifying their existing market positions, or extending the geographical limits of their markets (Scherer & Ross, 1990). Clusters also allow managers to reduce costs by creating economies of scale. As the choices available to consumers are reduced, managers are less constrained when focusing circulation in areas where cost is relatively low and advertisers want to target readers (Blankenburg, 1982). Reducing costs while increasing the newspaper's ability to attract advertisers increases the financial options available to newspaper managers. They can use the

savings to pay the acquisition costs associated with the creation of clusters. They also can use these savings to finance additional acquisitions. Or they can direct the savings to the newspapers' owners in the form of higher profits.

However, while individual newspaper companies may benefit from clustering, the larger effects are likely to be negative. Economic competition is regarded as an effective way to ensure that resources are distributed efficiently at the lowest possible price . The United States has for decades passed and enforced anti-trust laws intended to preserve competition and protect consumers from the effects of market power that accrues to businesses as competition is reduced (Breit & Elzinga, 1996). There has been at least one case where the Justice Department joined an anti-trust suit filed by a competitor which blocked a horizontal merger between two competing newspapers in northwest Arkansas (Shaver & Lacy, 1999, p. 741).

Federal anti-trust guidelines suggest that when mergers and market power are evaluated, one factor that should be examined is the potential effect of a "'small but significant and nontransitory' increase in price" (Breit & Elzinga, 1996, p. 413). The question is whether such a price increase can be sustained in a market because there are no substitutes available to consumers.

Results in Table 9 show the average advertising cpm was 44% higher in clustered markets than non-clustered markets in 1988. The average ad cpm was 13% higher in 1998. Shaver and Lacy (1999) speculated the government assumes competition between newspapers and other media is sufficient to keep advertising prices low. However, these results call such assumptions into question and suggest further study to examine whether price differences in clustered markets may be significant under the Justice Department

guidelines. The results support Shaver and Lacy's (1999, p. 740) call for the Justice Department to examine whether clustering has anticompetitive effects on advertising prices.

The decrease in competition associated with clustering raises concern about areas other than prices. First Amendment theory argues that competition is also important in the marketplace of ideas. The financial commitment theory makes a specific link between competition in this marketplace when it comes to covering the news, and competition in economic markets (Lacy, 1992a; Litman & Bridges, 1986). Economic competition increases the quality of news coverage (Lacy, 1988; Lacy, Fico, & Simon, 1989; Lacy & Martin, 1998; Lacy, Shaver, & St. Cyr, 1996). Competition between newspapers also increases the diversity of news and other ideas available to readers, which is precisely the kind of competition that First Amendment theory suggests is in society's interest. Two studies have examined how newspaper competition affects such interests.

The first study (Vermeer, 1995) examined how the increased diversity of ideas available in a "media-rich environment" (p. 98) affects the outcome of elections. The study concluded that as newspaper competition increased, elections were more competitive and decided by closer margins. Vermeer suggested the decline in newspaper competition "may therefore have effects that go beyond ... competition for advertising" (p. 104).

The second study examined the relationship between newspaper competition and public opinion in a survey about the most important problems facing the United States

(Lasorsa, 1991). The study concluded that newspaper competition made a significant contribution in explaining increases in the diversity of responses to this question.

Therefore, clustering may reduce both the quality of news coverage and the diversity of ideas available to readers. If this is the case, then clustering's effects on society go beyond higher prices paid by advertisers – clustering may also negatively affect democratic processes. This study does not provide any evidence that this is the case, but it does suggest a need for additional research into the potential for such effects.

Lacy and Shaver (1999) pointed out competition will be almost impossible to restore in markets where clusters exist. The urgent need for further study of clustering and its consequences that they first identified is reinforced by this study.

APPENDIX A

VARIABLES IN THE STUDY

Cluster = number of papers in cluster, from *Editor & Publisher International Year Book* listings and maps.

Percent = percent of cluster's circulation contributed by paper. From *Editor & Publisher International Year Book* listings.

Distance = Distance, in miles, to closest paper that is member of cluster. From DeLorme Street Atlas 7.0

Subscription price = Annual subscription price from *Editor & Publisher International Year Book* . Based on multiplication of price for longest available period if no price was listed for a full year. Price within county or city zone used when available.

Ad price = Price of an SAU. From *Editor & Publisher International Year Book.*

Wires = number of wire service subscriptions from *Editor & Publisher International Year Book.*

HQ1 = number of competing papers headquartered in counties where a paper circulates. From Standard Rate & Data.

HQ2= number of other clustered (or common ownership) papers headquartered in counties where a paper circulates. From Standard Rate & Data.

Compco = number of counties outside its home county where a paper circulates. From Standard Rate & Data.

Compent = paper's total circulation penetration in counties outside its home county. From Standard Rate & Data.

Avgpent = average penetration of paper's circulation outside its home county. Compent divided by Compco.

Hshlds = total households, in thousands, for all counties in a paper's market. From Standard Rate & Data.

AHI = Average household income for all counties in a paper's market. From Standard Rate & Data.

Radio = number of radio stations in paper's home town. From *Broadcasting & Cable Yearbook.*

TVADI = number of television stations in Area of Dominant Influence that includes paper's home county. From *Broadcasting & Cable Yearbook.*

Catvsub = number of cable subscribers for company serving paper's home town. From *Broadcasting & Cable Yearbook* in 1988. From *Television & Cable Factbook* in 1998.

Profit = Return on sales for paper's owner. From Compustat records.

Cost = Newspaper division costs for paper's owner. From Compustat.

Inside = Percent of stock controlled by insiders at paper's parent company. From *Value Line Investment Survey.*

Divers = diversification index, calculated as HHI using total revenue for different business segments. Expressed as percentage w/1 = 100% of revenue from newspapers. From Compustat.

Adcpm = ad cost per thousand circulation. Calculated as ad price/paper's circulation multiplied by 1,000.

covcpm = subscription cost per thousand circulation. Calculated as subscription price/paper's circulation multiplied by 1,000.

Paper's penetration = paper's total circulation penetration for all counties in its market. Calculated as circulation/hshlds. From Standard Rate & Data.

Clustered penetration = other clustered papers' total circulation penetration for all counties in paper's market. Calculated as clustered circulation/hshlds. From Standard Rate & Data.

Daily penetration = competing daily total circulation penetration for all counties in market. Calculated as total daily circulation/hshlds. From Standard Rate & Data.

Weekly penetration = weekly total circulation penetration for all counties in market. Calculated as weekly circulation/hshlds. From Standard Rate & Data.

Wirepm = wire subscriptions per thousand circulation. Calculated as wires/paper's circulation multiplied by 1,000.

Radio penetration = radio market penetration. Calculated as radio/hshlds.

TV penetration = television market penetration. Calculated as tvadi/hshlds.

Cable penetration = cable market penetration. Calculated as cable subscribers/hshlds.

Staff = size of news staff as reported on survey questionnaire.

Percent news = average percent news as reported on survey questionnaire.

Percent ads = average percent ads as reported on survey questionnaire.

Inches = average number of column inches reported on survey.

Share1 = answer to survey question about sharing newsgathering resources.

Share2 = answer to universal desk question.

Share3 = answer to question about shared administrative expenses.

Share4 = answer to question about shared production resources.

News/ad ratio = percent news/percent ads.

APPENDIX B

SURVEY LETTER AND QUESTIONNAIRE

Date

MANAGING EDITOR
NEWSPAPER
ADDRESS

Dear:

The enclosed confidential questionnaire is for a study of the journalistic and economic effects of cooperation among jointly owned newspapers. Much has been said about the advantages and disadvantages of such cooperation, but few systematic studies have examined these questions. This study's objectives include an examination of how such cooperation affects the distribution of resources for news coverage.

Yours is one of xxx United States newspapers selected for this survey. Some papers were selected because their location near jointly owned papers makes cooperation possible; other papers were selected to provide a comparison group.

The project needs as many responses as possible to produce reliable results. Please take two minutes from your busy schedule to help.

The identifying number on the questionnaire is used to track responses and plan follow-up mailings. All identifying information will be destroyed at the conclusion of the survey. The confidentiality of the questionnaire will be protected to the maximum extent allowable by law.

The data collected from individual newspapers will be aggregated for analysis. The aggregate results will be publicly available this fall, but individual newspapers will not be identified.

Please indicate your voluntary agreement to participate in this study by completing and returning the questionnaire in the enclosed self-addressed, stamped envelope. Enclose a business card if you would like a brief report on the results of the study.

If you have questions, please contact me the Michigan State University School of Journalism at (517) 353-6530 or by e-mail at martinhu@msu.edu You may also wish to speak to the acting director of the school, Dr. Stephen Lacy, or to e-mail him at slacy@msu.edu You may also contact the chair of Michigan State University's committee supervising research involving human subjects, David E. Wright, at (517) 355-2180.

Thank you for your help,

Hugh J. Martin
Project Director

Newsroom Resources Questionnaire

This first section concerns the resources and space available for news coverage in your newspaper.

1. How many full-time reporters, photographers, artists, editors and copy editors are on your staff? Please include employees in your newsroom and, if applicable, your bureaus.

Size of news staff _____

2. What is the average ratio of news to advertising in *weekday* editions of your newspaper?

Average percent news/average percent advertising ____/____ Don't know _____

3. What is the average size of your *weekday* newshole in column inches?

Average number of column inches _____ Don't know _____

This second section concerns resource sharing among newspapers in a group. If your newspaper is not owned by a group please skip this section.

1. Do you share local newsgathering resources with other newspapers in your group. For example, do reporters regularly write local stories that are published in more than one newspaper?

Yes ____ No _____

2. Does a universal desk edit and prepare local copy for your paper and other newspapers in your group?

Yes ____ No _____

3. Does your newspaper group have a central office to handle local administrative items such as payroll processing, expenses, or other items for your paper and other papers in your group?

Yes ____ No _____

4. Does your newspaper share production resources, such as a press or delivery trucks, with other newspapers in your group?

Yes ____ No _____

Thank you for taking the time to complete this confidential questionnaire. Please write any comments you wish to make on the back of this questionnaire. Please return the questionnaire in the enclosed stamped envelope.

APPENDIX C

CORRELATIONS FOR VARIABLES USED IN REGRESSIONS

Table 46: *1988 Pearson's Correlations for Clustered Papers*

	Ad price	Sub. price	Ad cpm	Sub. ppm	Wires pm	Cluster size	Percent	Distance	Paper's pent.	Cluster pent.	Daily pent.	Weekly pent.	Radio pent.	TV pent.	Cable pent[a].	Households	Income
Ad price	1.000	.452															
Sub. price	.452**	1.000															
Ad cpm	.610**	.143*	1.000														
Sub. ppm	-.120	.030	.493**	1.000													
Wires pm	-.115	-.286**	.415**	.653**	1.000												
Cluster size	.574**	.261**	.367**	-.042	-.083	1.000											
Percent	-.099	.123	-.207**	-.077	-.117	-.541**	1.000										
Distance	-.220**	-.085	-.204**	-.084	-.083	-.065	-.046	1.000									
Paper's pent.	-.233**	-.172*	-.225**	-.080	.024	-.168*	.146*	.191**	1.000								
Cluster pent.	.197**	.109	.174**	-.034	.003	.099	-.206**	-.309**	- 240**	1.000							
Daily pent.	.185**	.156*	.159*	.065	.035	.086	.013	-.103	-.669**	-.220**	1.000						
Weekly pent.	.119	.266**	-.035	.038	-.002	.033	.048	-.059	-.050	-.039	.146*	1.000					
Radio pent.	-.250**	-.340**	-.062	.120	.335**	-.149*	.043	.211**	.663**	-.154*	-.487**	-.075	1.000				
TV pent.	-.215**	-.309**	-.027	.175*	.244**	-.130	.019	.163*	.601**	-.198**	-.336**	-.055	.711**	1.000			
Cable pent.[a]	-.176*	-.204**	-.114	-.047	.097	-.079	.123	.051	.639**	-.113	-.507**	-.141*	.518**	.410**	1.000		
Households	.391**	.266**	.062	-.172*	-.170*	.188**	-.051	-.135	-.575**	.027	.512**	.044	-.408**	-.342**	-.418**	1.000	
Income	.524**	.275**	.321**	-.070	-.120	.239**	-.107	-.206**	-.499**	.086	.611**	.117	-.488**	-.322**	-.400**	.544**	1.000
N	200	200	200	200	200	200	200	200	200	200	200	200	200	200	197	200	200

** Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

[a] There are 197 cases with cable penetration.

Table 47: *1988 Pearson's Correlations for Control Papers*

	Ad price	Sub. price	Ad cpm	Sub. ppm	Wires pm	Paper's pent.	Daily pent.	Weekly pent.	Radio pent.	TV pent.	Cable pent[a].	Households	Income
Ad price	1.000												
Sub. price	.573**	1.000											
Ad cpm	-.329**	-.388**	1.000										
Sub. ppm	-.533**	-.269**	.819**	1.000									
Wires pm	-.426**	-.377**	.636**	.679**	1.000								
Paper's pent.	-.237**	-.239**	.069	.183**	.125	1.000							
Daily pent.	.238**	.266**	-.050	-.089	-.131	-.703**	1.000						
Weekly pent.	.030	.077	-.097	-.055	-.084	-.086	.129	1.000					
Radio pent.	-.367**	-.400**	.503**	.576**	.452**	.696**	-.553**	-.117	1.000				
TV pent.	-.420**	-.434**	.514**	.584**	.486**	.530**	-.358**	-.145*	.771**	1.000			
Cable pent.[a]	-.208**	-.047	.121	.238**	.143*	.552**	-.368**	-.074	.425**	.340**	1.000		
Households	.556**	.344**	-.139	-.333**	-.165*	-.585**	.540**	.074	-.456**	-.364**	-.330**	1.000	
Income	.348**	.271**	-.129	-.236**	-.108	-.482**	.617**	.138	-.474**	-.290**	-.170**	.647**	1.000
N	200	200	200	200	200	200	200	200	200	200	198	200	200

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).
[a] There are 198 cases with cable penetration.

Table 48: *1998 Pearson's Correlations for Clustered Papers*

	Ad price	Sub. price	Ad cpm	Sub. ppm	Wires pm	Cluster size	Percent	Distance	Paper's pent.	Cluster pent.	Daily pent.	Weekly pent.	Radio pent.	TV pent.	Cable pent[a].	Households	Income
Ad price	1.000																
Sub. price	.190**	1.000															
Ad cpm	-.145*	-.139*	1.000														
Sub. ppm	-.319**	.050	.841**	1.000													
Wires pm	-.323**	-.238**	.696**	.731**	1.000												
Cluster size	-.042	-.046	.220**	.256**	.265**	1.000											
Percent	.183**	.132	-.288**	-.302**	-.325**	-.589**	1.000										
Distance	-.111	-.102	-.066	-.084	.043	-.093	.099	1.000									
Paper's pent.	-.314**	-.176*	-.017	.067	.127	-.084	.106	.182**	1.000								
Cluster pent.	.127	.097	.157*	.195**	.127	.139*	-.272**	-.272**	-.317**	1.000							
Daily pent.	.184**	.167*	-.127	-.166*	-.198**	-.003	.046	-.128	-.569**	-.189**	1.000						
Weekly pent.	-.062	.071	-.001	.030	.040	.077	.014	-.063	-.020	-.022	-.020	1.000					
Radio pent.	-.299**	-.306**	.205**	.232**	.362**	.038	-.045	.273**	.671**	-.204**	-.482**	-.001	1.000				
TV pent.	-.261**	-.272**	.267**	.314**	.422**	.036	-.118	.202**	.561**	-.193**	-.260**	-.027	.671**	1.000			
Cable pent.[a]	-.080	.080	.027	.058	.013	-.080	.011	-.006	.123	-.082	-.109	.002	.023	.097	1.000		
Households	**.622	.142*	-.220**	-.310**	-.292**	-.041	.051	-.076	-.538**	.014	.406**	-.111	-.390**	-.297**	-.112	1.000	
Income	.341**	.186**	-.228**	-.321**	-.353**	-.093	.023	-.055	-.381**	-.005	.528**	-.144*	-.402**	-.254**	.031	.462**	1.000
N	200	200	200	200	200	200	200	200	200	200	200	200	200	200	199	200	200

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

[a] There are 199 cases with cable penetration.

Table 49: *1998 Pearson's Correlations for Control Papers*

	Ad price	Sub. price	Ad cpm	Sub. ppm	Wires pm	Paper's pent.	Daily pent.	Weekly pent.	Radio pent.	TV pent.	Cable pent[a].	Households	Income
Ad price	1.000												
Sub. price	.625**	1.000											
Ad cpm	-.200**	-.320**	1.000										
Sub. ppm	-.533**	-.366**	.728**	1.000									
Wires pm	-.415**	-.457**	.633**	.722**	1.000								
Paper's pent.	-.327**	-.353**	.081	.307**	.320**	1.000							
Daily pent.	.112	.204**	.018	.007	-.111	-.572**	1.000						
Weekly pent.	-.038	.035	-.009	.071	.081	-.040	-.072	1.000					
Radio pent.	-.358**	-.398**	.363**	.487**	.437**	.732**	-.511**	-.025	1.000				
TV pent.	-.332**	-.406**	.361**	.478**	.460**	.610**	-.165*	-.054	.640**	1.000			
Cable pent.[a]	-.123	-.120	.072	.120	.118	.111	-.011	-.093	.070	.057	1.000		
Households	.593**	.390**	-.157*	-.443**	-.369**	-.548**	.338**	-.093	-.441**	-.332**	-.140	1.000	.
Income	.240**	.344**	-.136	-.280**	-.246**	-.398**	.407**	-.248**	-.418**	-.229**	.176*	.409**	1.000
N	200	200	200	200	200	200	200	200	200	200	196	200	200

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).
[a] There are 196 cases with cable penetration.

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