

NEWSPAPER E-COMMERCE ADOPTION: A FIRST-MOVER PRECURSOR AND CONSEQUENCE, 1994-2006

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ABSTRACT

This paper empirically examines first-movership in the newspaper industry. The first hypothesis generated shows the size of a firm, as measured by advertising rates, is a precursor to which firm was a first-mover into e-commerce. The second hypotheses generated shows a surprising result coming from first-mover adoption of e-commerce. The firms that were first-movers actually experienced a decrease in size, as measured by advertising rates. The two hypotheses in conjunction show that the very reason some firms may have adopted e-commerce may have also caused a first-mover disadvantage. This study extends first-mover theory and e-commerce theory in a very understudied industry.

INTRODUCTION

Technological innovation in general supports the likelihood of affecting almost everything in management. New technologies can lead to environmental change (Carroll, 1994), initiate a change in industry structure (Porter, 1985), modify competition in an industry, (Nelson, 1994) and can vary firm performance (Zahra & Bogner, 1999). Technological innovation may have far reaching implications. One such example is e-commerce.

The hope for e-commerce technology was to reinvent how business is conducted (Boudreau, Loch, Robey, & Straud, 1998; Kambil, Nunes, & Wilson, 1999; Weil & Weil, 1999). The century change and demise of many e-firms created uncertainty among many (Coltman, Devinney, Latukefu, & Midgley, 2001; Moon & Frei, 2000; Rosen & Howard, 2000; Shapiro, 2000; Storey, Straub, Stewart, & Welke, 2000; Walton, 2000). Nevertheless, e-commerce remains a force to be considered. The introduction of this channel for sales, advertising, distribution, and customer relationships has created a plethora of questions, not the least of which is how e-commerce modifies an entire industry.

This paper combines first-mover advantage theory and e-commerce theory in the newspaper industry. One hypothesis is developed to test a first-mover precedent and one hypothesis is developed to test a first-mover consequences. First-mover advantage and e-commerce are well researched but have not been applied to the newspaper industry. Duvakova, Andreeva, Duvalova, and Ivasiv (2016) and Makadok (1998) investigate e-commerce and first-movership in banking while Borenstein and Saloner (2001) and Gregorio, Kassicieh, and de Gouvea Neto (2005) mentioned both superficially.

This study extends management theory in three directions. First, first-movership theory is extended to show that the size of the firm may be a factor in who will be an e-commerce first-mover. Second, e-commerce theory is extended by demonstrating first-mover advantage existence and what the advantages are. Finally, newspaper industry theory is extended in a seldom researched industry.

FIRST MOVER ADVANTAGE REVIEW

There appears to be widespread consensus about the definition of first-mover. This paper will use the definition of first-mover as the first firm to offer a distinctively new product to the market (Covin, Slevin, & Heeley, 1999; Robinson & Fornell, 1985).

Definitions for first-mover advantage are nebulous. General definitions suggest superior performance (e.g. Boulding & Christen, 2003; VanderWerf & Mahon, 1997) and benefits derived from introducing a new product (Golder & Tellis, 1993; Patterson, 1993; Baker & Becker, 1997) while some are operationalized as profits (Jensen, 2003) and larger market share (Carpenter & Nakamoto, 1989). Two definitions seem to stand out from the others. Porter (1985) defines first-mover advantage as augmenting a firm's position through acquiring sustainable sources of cost advantage or differentiation and establishing the ability to define competition in relationship to the innovation. Grant (2002), using a resource-based perspective, states first-mover advantage is obtaining resources and capabilities a follower cannot match. Porter (1985) and Grant (2002) grasp two aspects of being a first-mover, improving market position and strengthening the resource base of a firm. Thus, first-mover advantage occurs when a firm offers a new product or service, that product or service improves and sustains the firm's market position, and the product or service improves the firm itself. One can then observe first-mover advantages in terms of market share increases or in new capabilities of a firm among other things.

It has been noted that first-mover advantage is not available for all industries (Kerin, Varadarajan, & Peterson, 1992). First-mover advantage does exist in banking (Makadok, 1998), is less likely in the service industries (Ketchen, Snow, & Street, 2004; Song, Di Benedetto, & Zhao, 1999), and not at all among the retailers (Nikolaeva, 2005) although one sector where an advantage exists is in online book sales (Weinstein & Standifird, 2010).

Regarding market type, Robinson (1988) discovered that first-mover advantages exist in consumer markets when a product has a low purchase amount while in industrial markets the first-mover advantage increases as the purchase amount increases. Cui & Lui (2005) studied multinational firms in an emerging market economy and found first-mover advantage is more pronounced in emerging markets.

There are factors influencing the magnitude of first-mover advantage. Low purchase amount in a consumer market and moderate frequency of purchase contribute to an increase in first-mover advantage (Kerin et al., 1992; Porter, 1983). Thus, the newspaper market where subscriptions are inexpensive and purchased with moderate frequency should have higher first-mover advantage than other markets. If technology is process encapsulated, then first-mover advantage may increase over when technology is a product component (Christensen, Suarez, & Utterback, 1998; Kerin et al., 1992).

The firm size firm may influence first-mover advantage. Smaller firms are more likely to be first-movers (Lowe & Atkins, 1994). On the other hand, large first-movers perform better than small first-movers (Cui & Lui, 2005).

Industry environments can influence the probability not only of establishing first-mover advantage but also the magnitude. Covin et al. (1999) demonstrated the type of competitive environment and strategy employed by the firm affect first-mover advantage. First-movers in a highly competitive environment such as the newspaper industry may see first-mover advantages by adopting a strategy of sales growth or lower financial costs.

Arguably the most comprehensive study on factors contributing to first-mover advantage is Gomez-Villanueva and Ramirez-Solis (2013). This study created a model for advantages stemming from being a first-mover. More importantly for the study at hand is that Gomez-Villanueva and Ramirez-Solis (2013) provide insight as to the types of goods and industries that may or may not provide advantages. They indicate that for mature industries, firms presenting new goods may experience a disadvantage. However, when those goods are consumer goods and become frequently purchased, then there is a distinct advantage.

E-COMMERCE AND RELATED LITERATURE

Some definitions of e-commerce center around an electronic transaction; these definitions are similar. Broadly, e-commerce is any transaction handled electronically (Sterrett & Shah, 1998). This definition coincide with others, namely, electronic exchange transactions (Wood, 2001) and electronic exchanges of value (Senn, 2000; Standifird, 2001; Wang, Head, & Archer, 2002). Implicit in these views is an electronic transactions conducted through an automated, electronic network.

Other definitions center around an electronic exchange of value. Some definitions view the transaction as a simple exchange (Oelkers, 2002; Wood, 2001) while others incorporate exchange of value and still others include the exchange of ownership (e.g. VanHoose, 2003). A few speak of electronic value (Rosen, 2000; Standifird, 2001).

This paper makes the following definition for e-commerce: the electronic contracting for the exchange of value through the use of computing and communication technology. This definition not only incorporates the major aspects of the above-mentioned definitions but also is applicable to the current study. The foci of electronic contracting, the value exchange, and automation in other definitions are included. This definition confines e-commerce to the transaction level and is consistent with other literature (e.g. Pillutla & Allison, 2002).

Multiple authors have examined the issue of how e-commerce affects business management (Afuah & Tucci, 2001; Boudreau et al., 1998; Globerman, Roehl, & Standifird, 2001; Johnston & Mak, 2000; Kambil et al., 1999; Kickul & Gundry, 2001; Krishnamurthy, 2003; Mahadevan, 2000; Senn, 2000; Weil & Weil, 1999). Several researchers have examined the phenomenon of quick information gathering and dissemination in more detail (Johnston & Mak, 2000; Kickul & Gundry, 2001; Krishnamurthy, 2003). Also, e-commerce has opened up a whole new world of advertising possibilities (Hoque, 2000; Plant, 2000). This is especially important in the newspaper industry where the majority of income earned by a newspaper firm is from advertising. Newspaper firms can utilize e-commerce to collect data on individuals and target advertising using a variety of electronic means.

Several researchers have focused upon the effect that e-commerce has upon a firm's operations (e.g. Johnston & Mak, 2000; Maddox & Blankenhorn, 1998; Mahadevan, 2000). One theme is the reduction of costs in an organization. Objects that can be delivered electronically can now arrive instantly and incur no additional costs such as outside delivery or delayed production. This costs savings is echoed through the literature (Boudreau et al., 1998; Weiser & Brown, 1998). One example is in the newspaper industry where reporters transfer electronically stories to editors, the editors transfer finalized stories electronically to the layout department, the layout department designs the paper electronically, and then the layout department transfers the layout electronically to the production department.

Regarding sales, there are several areas in which multiple authors agree. First, e-commerce can bring about increased product value (e.g. Krishnamurthy, 2003; Targett, 2001). Second, the advent of e-commerce creates a brand new distribution channel for digital products (e.g. Afuah & Tucci, 2001; Krishnamurthy, 2003). Next, e-commerce makes time and geography in terms of shopping an insignificant issue (e.g. Oelkers, 2002; Standifird, 2001). Electronic commerce also creates a truly worldwide marketplace (e.g. Afuah & Tucci, 2001; Boudreau et al., 1998; Globerman et al., 2001; Jones, 1998; Oelkers, 2002; Pai, 2000). Finally, e-commerce may allow for the instantaneous collection and analysis of sales data. However, in recent years the protection of that data as well as other confidential data has become of great concern (Neal & Ilsever, 2016).

NEWSPAPER INDUSTRY RESEARCH

Management research in the newspaper industry has not been overwhelming (e.g. Carroll, 1984a, 1984b; Carter, 1984; Gilbert, 2001; Gomez-Mejia, Nunes-Nickel, & Gutierrez, 2001; Wishart, Elam, & Robey, 1996). Two research pieces examined the role technology has had on the newspaper industry. Carter (1984) determined organizational structure depends upon the degree and type of computer applications as well as extent of environmental uncertainty. The second study, Gilbert (2001), examined how technology could impede viability of a firm and concluded by stating management's framing of the threat issue and organizational processes are a determinant of strategic commitment.

The newspaper industry has several properties that are desirable for researchers such as Carter (1984) and Gilbert (2001). Newspapers are one of the oldest commercial activities in this country and have seen much technological change, some threatening the industry's existence. Finally, the industry's structure of operations is not complex, allowing considerable control over research extraneous variables.

FIRST-MOVER PRECURSOR HYPOTHESIS

The e-commerce adoption may necessitate structural and cultural changes of a newspaper firm. Adoption changes the technical infrastructure and, consequently, the organizational structure (Turban, Lee, King, & Chung, 2000). Boundaries between departments can be reduced through e-commerce so a flatter organization results (Singh & Waddell, 2004). Also required by e-commerce is innovative thinking (Hoque, 2000) and a learning attitude (Tapscott, Lowy, & Ticoll, 1998). E-commerce may be essential to foster creative input from employees (Singh & Waddell, 2004). Firms that do not have innovative thinking or a learning attitude may face stiff resistance internally to the adoption and implementation of e-commerce.

Larger firms generally require more complex communication (Durkheim, 1933; Simmel, 1992; Spencer, 1898) while early and honest communication is suggested for e-commerce adoption (De & Huefner, 1995; Singh & Waddell, 2004). Larger firms are likely to exhibit behavior formalization (Blau & Schoenherr, 1971; Caplow, 1957; Chapin, 1951; Gruskey, 1961; Pugh, Hickson, Hinings, & Turner, 1969; Tsouderos, 1955). E-commerce adoption in a larger firm may involve a lengthy process of review and implementation. Complex communication and formalization can make becoming an e-commerce first-mover difficult (Haveman, 1993). However, larger firms are pressured to conform to environmental changes more than smaller firms (Dobrev & Barnett, 2005) and have greater resources, enabling movement toward

technological change (Gomez-Villanueva & Ramirez-Solis, 2013; Haveman, 1993). In spite of these factors, first-movers in a market still tend to be smaller firms (Lowe & Atkins, 1994).

Not only subscribers but advertisers patronize the firm but for different reasons. Subscribers purchase the paper for news and complements and advertisers seek to acquire additional customers. Subscribers do not “need” advertisers but advertisers need subscribers. The fewer subscribers to a newspaper, the less likely advertisers will advertise in that newspaper (Miljan & Howorun, 2003). Consequently, small circulation newspaper firms will have little revenue coming from subscriptions and advertising. This could lead to extending revenue by e-commerce adoption. A newspaper firm increasing its subscribership through e-commerce could have a desired positive effect on advertising (Peng et al., 1999).

Advertising amounts have been linked to firm size (Picard, 1998), partly due to an advertising and circulation link (Geyskens, Gielens, & Dekimpe, 2000). However, this link is not linear, meaning as circulation increases advertising increases disproportionately.

Since advertising is a proxy for firm size, larger firms may have formalized cultures not conducive to change. Thus, initiating technological change such as e-commerce may be difficult. As a result, the following hypothesis is offered:

H1 In a given newspaper market, the lower a firm's advertising revenue when compared to other firms in the market, the more likely that firm is to be a first-mover into e-commerce.

The ramification of this hypothesis is a larger newspaper firm may have a lower incentive to being an e-commerce first-mover. However, once change is made by other firms, larger firms may feel more pressure to adopt. This change may need planning far in advance so firm structure and culture can be altered strategically.

FIRST-MOVER CONSEQUENCE HYPOTHESIS

The e-commerce adoption by a firm may have several benefits for advertisers. One benefit may be a reduction in advertising costs (Boudreau et al., 1998; Connor & O'Keefe, 1997). E-commerce allows an advertiser to request potential customers with certain characteristics only see certain advertisements, allowing the advertiser to expose the ads to those who may be interested. Another value created by e-commerce is the type of advertisement available. E-commerce advertising has the potential of much more variety (Afuah & Tucci, 2001; Krishnamurthy, 2003) with pop-up ads, placing an advertisement directly in front of a subscriber, and display ads, having rich color, animation, movies, and sound.

A newspaper firm adopting e-commerce may provide advertisers with a wide array of cost effective possibilities and, consequently, generating more advertising revenue for the newspaper firm (Peng et al., 1999). But a first-moving newspaper firm has a temporary monopoly on this type of advertising and has the potential additional advertising revenue. Thus, the following hypothesis can be made.

H2 In a given newspaper market, a newspaper firm that is the first-mover into e-commerce will see a more positive change from preadoption advertising revenue to postadoption advertising revenue than other firms in the market.

DATA SET

The sample came from the daily newspaper industry and not weekly or monthly publications. One reason for selecting the newspaper industry is the lower complexity over other industries, allowing for the control of variables that would otherwise be factors (Gomez-Mejia et al., 2001) and for results that are more pure. Also, newspaper first-mover advantage may be greater than other industries due to inexpensiveness and moderate frequency of subscription purchase (Kerin et al., 1992; Porter, 1983). Another reason for selecting the newspaper industry is readily available data since publishers commonly release subscription numbers to influence advertisers.

Several competitive markets in the United States were chosen for this study from divisions created by the U.S. Census Bureau (OMB, 2004). These divisions are metropolitan statistical areas and micropolitan statistical areas. Metropolitan statistical areas have at least one urbanized area of 50,000 people or more while micropolitan statistical areas have an urban cluster area between 10,000 and 50,000 people.

Several studies have used metropolitan statistical areas to study economic and social issues. Oh (2005) uses metropolitan statistical areas to show crime and employment opportunities affect growth of large cities, Skinner (2004) uses metropolitan statistical areas to examine labor markets in urban areas, and Blau, Kahn, and Waldfogel (2004) examined the impact of welfare benefits in certain metropolitan statistical areas.

In management, metropolitan statistical areas have been used to measure geographic influence upon initial public offerings and acquisitions by biotech firms (Stuart & Sorenson, 2003).

The data source for this study was the Editor & Publisher Yearbook, 1994 through 2006. This source is a standard reference tool for journalists (Weiner, 1975) and contains listings for all U.S. and Canadian daily papers. Daily paper data consists of location, ownership group, circulation, prices, and commodity consumption, broken down by component. Editor and Publisher Yearbook sends an annual questionnaire to every U.S. newspaper firm and attempts to obtain a 100% response rate. The Editor and Publisher Yearbook has been used in research, notably in studies regarding circulation (Kesler, 1981), foreign-language newspapers in the U.S. (Dunn, 1984), minority owned newspapers (Franklyn, 1985), how the press had been issued subpoenas (Dalglish, 2003), the relationship between circulation size and advertising rates (Picard, 1998), and women in newsroom management (Lacy, Davenport, & Miller, 1998). Thus, it would be consistent for a newspaper industry study to use *The Editor and Publisher Yearbook*.

TESTING METHODS

A random sample of 200 metropolitan and micropolitan statistical areas were chosen for this study. Since the variable firm size is related to geographic population, the statistical area list was stratified between large city metropolitan statistical areas, other metropolitan statistical areas, and micropolitan statistical areas. Then a proportionate sample was randomly chosen from each area grouping. Agresti and Finlay (1997) recommend a stratified random sample three groups are being contrasted as in this case.

After a statistical area is selected, the newspaper firms inside of that area are automatically chosen to create a cluster sample which is often used to select geographic regions

for study (Agresti & Finlay, 1997). This sample allowed complete groups of competitive newspaper firms to be chosen to examine first-mover status.

With data gathered, the statistical method for analysis was logistic regression for Hypothesis 1 and analysis of variance (ANOVA) for Hypothesis 2. Logistic regression can use continuous, discrete, or categorical data as the independent variables to predict group membership, a categorical dependent variable (Allen, 1997; Tabachnick & Fidell, 2001). Thus, logistic regression can predict first-mover or later-mover status based on characteristics of the firm. Logistic regression is used in medical research (e.g. Ball, Kirkpatrick, & Brenneman, 2005; Meijer et al., 2005; Vourakis, 2005), in behavioral marketing prediction (e.g. Moe & Fader, 2004; Roberts, 2003), and organizational change examination (e.g. Bergh, 2001; Bonn, 2000). Variables were entered into the logistic model and rejected one at a time based on insignificance.

Analysis of variance (ANOVA) tests for statistical differences among multiple continuous dependent variables and multiple discrete independent variables (Tabachnick & Fidell, 2001). In this study, three continuous dependent variables -- change in circulation, change in price, and change in advertising between pre- and post- e-commerce adoption -- are being tested against several discrete independent variables and control variables.

THE DEPENDENT VARIABLES

The dependent variable for Hypothesis 1 was first-mover status, a categorical variable. Each sample firm was examined to determine first versus later e-commerce adoption. E-commerce adoption was defined as utilizing the Internet for customer benefit, regardless of the scale. This variable was coded 1 for first-mover and 0 for other. The Editor & Publisher Yearbook editions between 1994 and 2006 supplied this data since there was an annotation for an electronic edition. The firm with this entry showing earliest was considered the first-mover. In the case where two or more firms enter the same year, the firms were contacted as to the actual date of entry.

Advertising was the dependent variable for Hypothesis 2. A proxy for advertising is the open inch rate, how much a newspaper charges per inch of column space. Traditional economics implies the more advertising customers a newspaper firm has, the greater the open inch rate should be. The open inch rate has been used in research to measure a newspaper firm's amount of advertising (Picard, 1998; Schargrodsky, 2002). As with circulation, the open inch rate prior to e-commerce adoption by the firm and the open inch rates for three years after adoption was recorded. The difference of the average of three years post-adoption open inch rate and one year pre-adoption open inch rate of first-movers will be compared to the same difference of non-first-movers to see if there is a statistical difference.

INDEPENDENT VARIABLES

For each hypothesis, there are different independent variables. The independent variable for Hypothesis 1 was the open inch advertising rate which *Editor & Publisher Yearbook* provides because it is the most comparative rate among papers (Picard, 1998). The open inch rate in the year the first-mover adopts e-commerce was used. The independent variable for Hypothesis 2 is whether a firm was a first-mover or not. First-movers were coded with a 1 while later movers are coded with a 0.

CONTROL VARIABLES

Capturing differences in the dependent variables for both hypotheses, a control variable for geographic region was created since some parts of the country might have a cultural leaning toward reading newspapers. Advertising prices might also be affected by geographic region. The U.S. is broken up into four regions: the North East, the South, the Midwest, and the Pacific region. Dummy variables were set up for North East, South, and Midwest. A newspaper from any one of these regions got a 1 in the appropriate dummy variable. Firms from the Pacific region had all zeros in the dummy variables.

Another control variable was metropolitan/micropolitan statistical area size. Two dummy variables were created where metropolitan statistical areas without a large city received a 1 in the first and a 0 in the second and micropolitan statistical areas receive a 0 in the first variable and a 1 in the second. The metropolitan statistical areas containing large cities received a 0 in both variables.

Survivorship could be a variable influencing the study. If a newspaper firm did not survive to the second or third year after e-commerce adoption, only data from one or two years may exist. For these existing data was used but two dummy variables, one for each case, were created to code as 1 if a firm fails to survive during the given period.

Another issue might be ownership change during the e-commerce adoption period. A dummy variable was created and coded as 1 when the ownership structure changed over the three years' data.

CONSTRUCTION OF THE DATA

The initial sample was randomly chosen stratified statistical areas, consisting of six major metropolitan areas, 73 metropolitan areas, and 121 micropolitan areas. Data collection for the major and areas and metropolitan areas went as planned but few of the micropolitan areas had multiple competing newspapers. As micropolitan areas were eliminated and replaced, the entire population of micropolitan areas was exhausted. Only 43 had multiple competitive newspapers. Thus, the sample comprised of 6 major metropolitan areas, 73 metropolitan areas, and 43 micropolitan areas.

Several of the statistical areas had multiple firms adopting e-commerce the same year. In each area, the individual newspapers were contacted. In several cases, a first-mover could be determined; however, in other cases the first-mover could not be determined. Several statistical areas had to be eliminated. This left 3 major metropolitan areas, 62 metropolitan areas, and 37 micropolitan areas remaining for the analysis.

TESTING FIRST-MOVER PRECURSOR

When analyzing variable correlation for Hypothesis 1, it was found that the circulation was very highly correlated with the advertising rate. The Pearson correlation coefficient was used for this test and showed 0.942 which was significant at the 0.01 level. No other pairs of variables were highly correlated. Since the advertising rate was essentially duplicated by the circulation, this variable was dropped from the Logistic Regression test.

Expected frequencies were run and about 23.7% of the cells still had expected frequencies less than five. The size of the MSA was creating the additional problem. To fix this

problem the large MSA and the regular MSA were combined. Logistic Regression would then use a control variable that compared small MSAs to other MSAs. After this control variable was recoded, the expected frequencies met the assumptions of the test.

Logistic Regression requires linearity in the logit and is at the same time very sensitive to multicollinearity. When linearity was checked, all variables had a p-value greater than the standard of 0.0125 (Tabachnick & Fidell, 2001), showing that there was support for linearity in the logit.

The final model to be tested consisted of the dependent variable of first-mover status and the independent variables of firm age, pre-adoption circulation, ownership type, and control variables of MSA size and region. After performing logistic regression, the first check is to see if the full model is significant when compared to a constant model. This is done by subtracting the χ^2 value of the full model from the χ^2 value of the constant model and then determining if the result is a significant χ^2 value. The full model had a χ^2 value of 310.01 and the constant model had a χ^2 value of 344.703 giving an extremely significant difference of 34.693 ($p < 0.001$).

The next step is to examine each of the variables to determine which are significant. Of the three independent variables tested, circulation showed to be strongly significant while the other two were not significant. Table 1 shows the results of the reduced model with only significant variables in it. The full model and the reduced model have little difference.

Table 1. The Logistic Regression Tests Results for Each of the Variables

		Parameter Estimates					95% Confidence Interval for Exp(B)		
First Mover		B	Std. Error	Wald	df	Sig.	Exp (B)	Lower Bound	Upper Bound
No	Intercept	.347	.231	2.251	1	.134			
	Circulation prior to first-mover adoption	-2.364E-05	.000	20.859	1	.000	1.000	1.000	1.000
	Small MSA	1.127	.315	12.800	1	.000	3.086	1.665	5.722

Table 1 shows the coefficient for circulation prior to first-mover status is negative, indicating the larger the circulation, the less likely the firm is to adopt e-commerce. Indirectly, this supports Hypothesis 1 since advertising rates were strongly correlated with circulation. The test was run again using advertising rates instead of circulation with the results were approximately the same. The results of this analysis are shown in Table 2.

Table 2. Result of the Logistic Regression Replacing Circulation with Advertising Rate

		Parameter Estimates					95% Confidence Interval for		
First Mover		B	Std. Error	Wald	df	Sig.	Exp (B)	Exp(B)	
							Lower Bound	Upper Bound	
No	Intercept	1.343	1.091	1.517	1	.218			
	Age	-3.066E-03	.004	.530	1	.467	.997	.989	1.005
	Ad rate prior to firm adoption	-3.076E-02	.007	18.841	1	.000	.970	.956	.983
	Small MSA	1.053	.318	10.985	1	.001	2.867	1.538	5.345
	Type of ownership	2.043E-02	.354	.003	1	.954	1.021	.510	2.043
	Northeast	-.495	.491	1.016	1	.313	.609	.233	1.596
	South	-.189	.497	.145	1	.703	.828	.313	2.191
	Midwest	-4.426E-02	.454	.010	1	.922	.957	.393	2.330

TESTING FIRST-MOVER CONSEQUENCE

The analysis of Hypothesis 2 removed univariate and multivariate outliers from the analysis first. In this instance 23 firms were removed from the study. This left 215 firms for the study.

The advertising rate variable was not normally distributed and very right skewed. Several transformations were applied but there was too much data centered at the median to get rid of the kurtosis. Homogeneity of variances could not be obtained without a transformation. In this event, one option is to decrease the significance level from 0.05 to 0.01 (Tabachnick & Fidell, 2001). The remainder of the analysis will use the 0.01 significance level.

ANOVA produced the results in Table 3. The model shows marginal significance at the 0.01 level and the significance of the first-mover variable is $p=0.01$. The coefficient for first-mover is negative indicating nonfirst-movers may have had better results with the advertising rate change than first-movers.

Table 3. ANOVA Coefficient and Significance Results for Hypothesis 2

Tests of Between-Subjects Effects

Dependent Variable: 28root of adjusted circulation

Source	df	F
Corrected Model	7	4.82**
Intercept	1	.918
Small MSA	1	9.72**
First mover	1	.437
Democrat	1	.243
Independent	1	.150
Change in ownership	1	.191
GNS subscription	1	2.674
Other subscription	1	8.06**
Error	200	(134.85) ^a

a. Values enclosed in parentheses represent mean square errors.
*p<.05 **p<.0

OVERVIEW OF HYPOTHESES AND FINDINGS

This paper brought together relevant research into first-movership, e-commerce, and the newspaper industry to develop hypotheses that extend the theory in all three areas. The hypotheses sought to extend management theory to fill gaps in first-mover theory, e-commerce theory, and newspaper industry theory.

Prior to this study, first-mover theory had been developed showing the relationship of firm size to first-mover advantage (Cui & Lui, 2005; Lowe & Atkins, 1994). First-mover theory also shows the relationship of e-commerce to first-movership (Huang, Makaju, Newell, & Galliers, 2003; Makadok, 1998; Nikolaeva, 2005). However, the relationship of firm size with first-movership into e-commerce had not been examined. This paper fills that void.

Hypothesis 1 was supported very strongly. This indicates that the smaller a firm is in a competitive market, the more likely it is to adopt a new technology such as e-commerce. These findings certainly agree with the studies mentioned in the previous paragraph.

Hypothesis 2 showed there may be first-mover disadvantage. The supported results showed that first-movers may experience lower advertising rates than later movers when adopting e-commerce in the newspaper industry. This finding is worthy of further study.

PRACTICAL APPLICATION

From the first hypothesis test, lower advertising rates were directly related to the firm adopting a first-mover stance. However, the resulting coefficient was extremely small. The test also showed that firms in smaller MSAs were more likely to adopt e-commerce than counterparts in larger MSAs. The coefficient on this variable was much larger than that of the variable.

In the case of firms in small MSAs and having lower advertising rates, the probability of adopting e-commerce first was the greatest since both significant variables are collaborating. In the case of high advertising rate firms in small MSAs, the probability of being a first-mover was

second greatest because the small MSA variable is the only one operating but the effects of this variable are greater than for advertising. The third most likely case occurs when a firm is in a large MSA with low advertising rates. The advertising rate variable is the only one operating but its coefficient is extremely small. Finally, a firm in a large MSA with advertising rates is least likely to be a first-mover since neither of the variables have an influence.

Regarding the consequences of first-movership related to advertising rates, results differed by MSA size. In either case, the non-first-mover experienced a better advertising rate effects. But in the small MSA, the change in the first-mover's advertising rate was positive while in the large MSA the change in the first-mover's advertising rate was slightly negative. Thus, a first-mover in a small MSA had a significantly better advertising rate change than a first-mover in a large MSA. The best change in advertising rate was to be a non-first-mover with lower advertising rates. In summary, it was better for a firm to wait to adopt e-commerce instead of becoming a first-mover indicating the industry has a first-mover disadvantage for e-commerce adoption.

One reason for the unexpected results might be many newspapers adopted e-commerce reacting to other newspapers adopting and not from strategic decision. This was evident in initial conversations with newspaper editors. Most claimed the need to adopt e-commerce because other newspaper firms had. Had many newspaper firms waited to adopt a web presence strategically, the benefit may have been much greater.

LIMITATIONS TO THE STUDY

The limitations to this study are twofold. First, the findings cannot be extended necessarily to other industries. The data and conclusions pertained solely to newspaper firms. Additional study could be done to generalize these results to other industries. The second limitation is conclusions are based on small MSAs versus regular MSAs. The large cities had little sample representation and conclusions might have differed had large cities been a larger part of the sample. Thus, the results found may apply to a portion of the newspapers industry instead of the whole.

DIRECTION FOR FUTURE RESEARCH

This study showed that newspaper advertising rates are a predictor of first-movership. One topic for future research is to look at operation costs to see if those had an impact on first-movership. Additionally, measurements stemming from firm resources and capabilities could be examined since these are suggested to have an influence upon whether a firm is a first-mover or not (Suarez & Lanzolla, 2007; Magnusson, Westjohn, Stanford, & Gordon, 2012). The model created by Gomez-Villanueva and Ramirez-Solis (2013) shows that multiple predictors may be possible due to the dynamic capabilities of a firm. Smaller firms are more dynamic, so these firms could be examined to determine if capabilities emerge from leadership types such as transformational leadership or strategic leadership or if capabilities emerge from certain types of culture. The finding of predictors can then lead to a study of the magnitude of such predictors.

One particular potential predictor of first-mover advantage is the age of the firm. Weinstein and Standifird (2010) showed that extensive experience in the book retail sector was a hindrance to becoming a first-mover. This experience implies firm learning due to having been a retailer for a significant amount of time. Consequently, new and less experienced book retailers

were more likely to be first-movers into e-commerce because management cognition was not constrained by the former ways of operation. While the newspaper firms studied were all older and experienced firms, a future study could include the entrance of the solely online news organizations as late entrants and how they affected the first-mover advantages or disadvantages incurred by the older firms.

Hypothesis 1 found the small MSA variable significant. Research could be done explaining why firms in an area with few people would be more likely to adopt e-commerce than an area with many people. Of course, this variable may be masking another reason such as competition differences between the two types of areas. In either case, additional research could provide significant insight into the newspaper industry, e-commerce theory, and first-movership theory.

Research could be performed for first-mover advantage existence. Studies continue to be performed showing the existence of an advantage in other markets (e.g. Mueller, Titus, Covin, & Slevin, 2009; Weinstein & Standifird, 2010; Goparaju, 2015). Advantages may occur deeper in the organization such as production costs or labor costs. Also, this study showed that low advertising rates were disadvantageous. Future research could search for more disadvantages and their magnitude.

Goparaju (2015) performed a study on e-commerce firms in India to see if first-mover advantage exists with those firms. Similar studies could be conducted in India and other emerging markets on news organizations from those countries to determine if the findings from the U.S. firms are similar. Magnusson et al (2012) found there are several environmental conditions that influence first-movership in emerging markets; thus, results may be possible that might be compared to U.S. firms. One potential issue currently with this direction is that the data is not complete; the news industry in the emerging countries would need to get through the Internet adoption phase as well as a few subsequent years to monitor the effects. Nevertheless, emerging countries provide a good opportunity for researchers to capture data as events happen rather than looking back in a historical perspective.

SUMMARY

This study developed first-mover theory to show a relationship between size of a firm and first-mover advantage as supported by Cui and Lui (2005) and Lowe and Atkins (1994). First-mover theory has also been developed to show the relationship of e-commerce to first-movership as supported by Huang et al. (2003), Makadok (1998), and Nikolaeva (2005). However, the relationship of firm size with first-movership into e-commerce had been ignored until now. This paper fills that void in first-mover theory since Hypothesis 1 shows such a relationship.

This study also extends e-commerce theory. Previously mentioned studies have linked first-movership and e-commerce, but none have linked e-commerce and the newspaper industry. The newspaper industry has special characteristics such as product digitization and electronic distribution. Support for Hypothesis 1 shows e-commerce adoption will be more likely under certain circumstances than others, namely, firm size affects a firm's adoption of e-commerce. Until now, this has been missing from the e-commerce literature. Hypothesis 2 reveals e-commerce's first-mover effects. Few studies conducted measure the e-commerce adoption effects. This study fills that void.

This study contributes to newspaper industry research. Very few studies have been done at all (Carroll, 1984a, 1984b; Carter, 1984; Gilbert, 2001; Gomez-Mejia et al., 2001; Wishart et

al., 1996) despite simplicity of the industry and availability of data. From Hypothesis 1 newspaper industry theory extends to predict firm types of e-commerce first-movership. While this is an after-the-fact explanation, e-commerce could change results when there is another first-mover opportunity. Hypothesis 2 supports existence of a first-mover disadvantage. This study is the first to show support for first-mover advantages in the newspaper industry.

This unique study extends management theory in three different directions. The hypotheses develop first-movership theory showing firm size plays a part determining which firm will be a first-mover. The hypotheses also develop e-commerce theory demonstrating the first-mover disadvantage existence what one disadvantage is. Finally, this study examined the newspaper industry which has a paucity of research.

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