# CONVERTING CULTURAL CAPITAL TO ECONOMIC CAPITAL IN THE JOURNALISM FIELD: CONTENT MANAGEMENT IN THE NEWSPAPER BUSINESS

A Dissertation presented to

the Faculty of the Graduate School

at the University of Missouri-Columbia

In Partial Fulfillment of the Requirements for the Degree

Doctor of Philosophy

by

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JULY 2012

The undersigned, appointed by the dean of the Graduate School, have examined the dissertation entitled

CONVERTING CULTURAL CAPITAL TO ECONOMIC CAPITAL IN THE JOURNALISM FIELD: CONTENT MANAGEMENT IN THE NEWSPAPER BUSINESS

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and hereby certify that, in their opinion, it is worthy of acceptance.

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| Professor Esther Thorson |
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## ACKNOWLEDGEMENTS

I wish to thank many sources that have contributed to this triangulated case study. Without their generous support of time and resource, this dissertation could not have been completed in time. I am grateful to the newspaper company that granted me access to many years of the company's data and interviews with managerial executives. The content management at this newspaper site and the executives' insights reflect the newspaper industry in flux: its challenges in allocating scarce resource among content areas and its opportunities in finding a business model by focusing on quality content.

First, I would like to thank Dr. Esther Thorson who served as my mentor and academic advisor throughout the doctoral studies and the dissertation process. Thanks to her encouragement, I was able to shift to my current research interest in media business and management. She has introduced me to the econometric modeling of media business and provided me with rich resources to content data and connections with media organizations. She has also graciously offered me the chance to be the Reynolds Journalism Institute fellow at the University of Missouri. Without her generous support in my academic career, I could not have chosen this path and completed my doctoral journey.

Dr. Tim Vos has guided me through the dissertation process. His insightful knowledge in institutional theory and media sociology has enriched my understanding of the issues at hand. Our many conversations about the field theory have shaped my

theorization and operationalization of the key concepts in this study. Our historical research in the business side of newspaper has also deepened my understanding of the evolving relationship between the editorial side and the business side of the newspaper industry. His timely feedback and continuous encouragement helped me identify a clear research path.

Dr. Earnest Perry has served as an invaluable resource and a great advisor to this dissertation. Our conversation about media organizations and their challenges facing the economic recession and digital disruptions have shaped my research focus of this dissertation. I am humbled that he was willing to serve as my dissertation committee members. In addition to research, he has offered me with great opportunities of teaching undergraduate courses. His advice has strengthened my teaching skills, which become invaluable assets to my doctoral education. He has also introduced me to Dr. Michael Diamond, from whom I have learned about the organizational theories for three semesters. These courses have laid a solid theoretical foundation for me to proceed with the dissertation research from an organizational perspective.

Dr. Margaret Duffy has known me for many years going back to our training trip in China. She has seen my growing from an unfocused master student wondering about what to do to a researcher, an instructor, and now an upcoming assistant professor who has a clear research agenda and program. Dr. Duffy has directed me in the qualitative research component of the dissertation, and helped me connect the qualitative data to the quantitative analysis, which provided the foundation for a triangulated method of this dissertation. Her views about the distinction between qualitative and quantitative research has profoundly affected my views of using mix methods and design in my future research.

Dr. Steven Osterlind has spent three semesters nurturing my statistical sills during my doctoral studies. I become a researcher that can use quantitative method fluently because of his teaching. His lectures have equipped me with solid knowledge about statistics and research design. These experiences allow me to learn more sophisticated techniques such as the Time Series Analysis by myself. I would not be capable of finishing the dissertation analysis without his instruction.

I would also like to thank my colleagues, Lea Hellmuller, Erin Schauster, Adam Maksl, Chad Painter who have listened to my unfocused ideas and thoughts and challenged my assumptions. They pushed me to outline my thinking as it constantly grows and changes over months.

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**CONVERTING CULTURAL CAPITAL TO ECONOMIC CAPITAL IN THE JOURNALISTIC FIELD: CONTENT MANAGEMENT IN THE NEWSPAPER BUSINESS**

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**ABSTRACT**

This case study examines the content management of a medium-sized, family-owned newspaper. Bourdieu's field theory guides the investigation of the relationship between the newspaper's cultural capital, embodied in the organization's management of content, and the newspaper's economic capital, embodied in the organization's revenue. Interviews with the newspaper's executives revealed the organization's perception of quality journalism, resource allocation in content management, and the editorial-business relationship. Ten years of content and financial data were then analyzed using Time Series Analysis to examine whether the newspaper's production of content matched its normative statement of quality journalism, and how content of different characteristics affected newspaper audience and revenue. The study found that the amount of economic capital affected resource management in content production, but did not compromise the newspaper's commitment to journalistic values. The study also found that content that fulfilled the journalistic missions significantly contributed to the newspaper's advertising revenue. In order to revive the business, a more collaborative, coherent, and collegial culture has to be built between the business side and the editorial side to figure out new ways of monetizing content and audience.

## I.  INTRODUCTION

The advent of technology disruption and the recent economic recession have
threatened the viability of the U.S. newspaper industry. The traditional business model
built upon print circulation and advertising revenue is under threat. The daily and Sunday
print circulation in 2009 plummeted eight to ten percent at its lowest point, compared to
the same period in 2003.[1] Newspaper advertising revenue was reduced to roughly 53
percent in a single decade (Pew Research Center, 2011). Furthermore, in 2010, the
newspaper industry lost another 6.4 percent in revenue compared to revenue in 2009
(Pew Research Center, March 14, 2011).

Meanwhile, though more Americans reported getting news from online than those
who read newspapers (Pew Research Center, March 14, 2011), newspaper websites
generated very little advertising revenue. The business model for online newspapers has
not yet been established. The online audience is not measured comparably or as reliably
as for print (Pew Research Center, March 14, 2011); in fact, there is still no uniform
"gold standard" for online audience measurement (Pew Research Center, March 14,
2011). Since newspapers cannot target audiences online as effectively as in print, the
rates for online advertising remain low. Moreover, the lion's share of online advertising
spending continues to be imparted to go to the big news aggregators, such as the portal
sites Yahoo and Google, rather than the newspapers' individual sites. In general, online

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[1] According to the Pew Research Center, the daily and Sunday newspaper circulations in
2010 were down 5 percent compared to those of 2003, but conditions were better than the
circulation figures in 2009.

advertising revenue contributes only about ten percent to newspapers' total revenue (Newspaper Association of America, 2010).

The challenges of identifying revenue sources for online and print newspapers have called for a reexamination of the traditional *media business model* that built upon the relationship between content, audience and revenue. This study aims to understand how the relationship has shifted, specifically, how newspaper content relates to its audience and revenue. The triangular relationship of audience, content, and revenue mirrors the *duality of media product.* Newspaper is not only a social institution that serves watchdog and educational functions, but also a business entity generating economic return. The newspaper product thus assumes both the nature of a public good and the nature of a commodity. In an ideal word, newspapers should produce quality content that meets both journalistic requirements and financial expectations. However, the current economic situation has put a strain on the singular attention to quality content.

This dual nature of journalistic product also reflects the dynamics between cultural capital and economic capital in the field of journalism, as described by Bourdieu (Bourdieu, 2005). In Bourdieu's opinion, the field of journalism is operating on a continuum scale, with economic capital on the right pole and cultural capital on the left pole. Economic capital refers to money or assets that can be turned into money. Cultural capital encompasses such things as educational credentials, technical expertise, general knowledge, verbal abilities, and artistic sensibilities (R. Benson, 2006). Bourdieu posits that the pressure of obtaining economic capital, as being part of heteronomous forces, can erode cultural capital. Higher economic capital may compromise autonomy of the field in

general; and higher cultural capital may defend the field against heteronomous forces (Bourdieu, 2005).

Boudieu's *field theory* provides an overarching framework to explain the relationship between the business side and the editorial side of newspaper journalism. The field of journalism, according to Bourdieu, is low in autonomy. The field increasingly faces economic and political constraints, while *market-driven journalism*, as an example, produces content that prioritizes stockholders' interest over public interest. Using economic standards to evaluate journalistic products has compromised the cultural capital of journalism. Media scholars have thus proposed *alternative media models* to replace the *market-driven* model.

Indeed, since the 2008 economic recession, major U.S. newspapers have attempted to restructure newsrooms and business strategies to stay profitable. Those business decisions have imposed affluent effects on resource allocation in newsrooms. Newspapers that took a retrenchment approach cut costs deeply and broadly. They reduced newsroom staff and the amount of news. The newspapers became smaller, thinner, and lighter. Big metropolitan newspapers trimmed their circulations in states and regions, and outsourced delivery costs (Pew Research Center, 2009). Some big newspapers, such as the New York Times, the Chicago Tribune, and the Los Angeles Times, have sold part, if not all, of their assets (Pew Research Center, 2009)

Other companies that took a recovery approach look for new growing opportunities. They merged with digital platforms, targeted emerging demographic groups, and developed creative products (Kilman, 2008). Some newspapers even eliminated their print editions, and moved mostly or entirely to digital platforms (Pew

Research Center, 2009). Some other news outlets combined resources to save cost. They may share physical assets, such as bureaus and printing operations, as well as intangible resources, such as content (McGinley, 2009; Stoll, 2009). In addition, some newspapers have experimented with nontraditional journalism, such as citizen journalism, to retain audience and save costs (McGinley, 2009; Newspapers face the final edition," 2009; Stoll, 2009).

Using the *field theory* framework, this study aims to understand how cultural capital relates to economic capital in the context of newspaper business. Cultural capital is defined by organization members's normative ideas of quality journalism and operationalized as the newspaper's content traits.  Economic capital is represented by the organization's ownership of monetary resources and is measured by revenue. The ultimate goal is to enable the newspaper organization to balance cultural and economic capital and to enhance overall journalistic and financial performance. To achieve this purpose of research, a triangulated case study was done at a medium sized family-owned newspaper that circulates in a city of three million residents. In the past decade, the newspaper has experienced a significant loss in circulation and advertising revenue. It has been revising its content management with an attempt to deliver content to digital platforms. To access to the company's data, the newspaper required keeping its identity anonymous. What this newspaper has gone through in the past decade resonates with a handful of U.S. daily newspapers, making it an ideal site for a case study.

The first phase of research included interviewing nine newspaper executives to derive an organizational understanding, definition of quality journalism, and definition of a quality newspaper. The transition of the organizational culture in face of economic

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pressure and digital shift was also examined and analyzed. The second phase of research drew on the newspaper's content, audience, and financial data over multiple years to calculate a mathematical relationship. Finally, the results were presented back to the company to solicit more feedback and interpretation. The qualitative and quantitative data of multiple sources improved reliability and revealed depth and width of the case.

Overall, this study is intended to contribute to a scholarly understanding of the dynamics between cultural capital and economic capital in the field of journalism as described in Bourdieu's *field theory*. The results can inform media professionals of making sound content decisions that meet both journalistic purposes and revenue expectations. Newspaper editors and managers can get insights about resource allocation in content management, such as knowledge about what content areas to invest in and the magnitude of content effect on revenue. The study proposes that ewspapers should commit to quality content, because it engages newspaper audiences, fulfills the journalistic missions, and also predicts significant results in revenue.

## II. LITERATURE REVIEW

This section reviewed important theories and concepts that guide the empirical research. First of all, the general arguments of Bourdieu's *field theory* was introduced, and followed by the specific application to the field of journalism. In particular, the review of the theory focused on the dynamics between cultural capital and economic capital and the conversion between the two forms of capital. Second, the *field theory* is relevant to newsroom culture, because the business departments produce the newspaper's economic capital, and the editorial departments produced the newspaper's cultural capital. The relationship between the two forms of capital has been changing since the wall of separation between the business and editorial sides of newsroom is torn down. The pursuit of two forms of capital also represents two distinct logics that guide journalism conducts. In practice, the market-driven journalism emphasizes pursuing economic capital, whereas the alternative models of journalism emphasize enhancing cultural capital. Audience, who consumes journalistic conducts and contributes to newspaper revenue, functions as a mediator that converts the newspaper's cultural capital to economic capital. Thus, the audience's consumption of and relationship with newspaper is also reviewed.

**A.** *Field theory*

Pierre Bourdieu's *field theory* (Bourdieu, 2005) originally focused on the power

struggle among agents within the same field and the dynamics between one field and its

surrounding environment. According to Bourdieu, as interpreted by Bensen and Neveu,

> A field is a field of forces within which the agents occupy positions that
>
> statistically determine the positions they take with respect to the field, this
>
> position-taking being aimed either at conserving or transforming the structure of
>
> relations of forces that is constitutive of the field (R. D. Benson & Neveu, 2005, p.
>
> 30).

The strength of an agent's autonomy, meaning the level of independence from forces of

other field, determines negotiation of power among agents. An agent who has a strong

autonomy has the ability to preserve his or her power within the field and is able to set his

or her principles as the legitimate rules or routines of the field. The power struggle has

thus become an internal struggle for imposition of the dominant principle of vision and

division. Likewise, a field should also accumulate autonomy in order to confirm its own

visions of the world and impose them as dominant principles of other field as a force of

transformation (R. D. Benson & Neveu, 2005, as cited in Li & Hellmueller, 2012).

Bourdieu particularly highlighted the oppositions between two forms of capital:

economic capital residing on the heteronomous pole and cultural capital residing on the

autonomous pole (R. D. Benson & Neveu, 2005). The word capital has two meanings,

though Bourdieu did not explicitly differentiate them in his original works. First, capital

denotes an abstract relationship of the powers within the field or the logic of the field. It

means the field gravitates toward acquiring a certain form of capital, which is set as the

dominant principles that guide activities in the field. Benson and Neveu paralleled

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Bourdieu's thought: "Each field is structured around the opposition between the so-called heteronomous pole representing forces external to the field (primarily economic) and the autonomous pole representing the specific capital unique to that field" (R. D. Benson & Neveu, 2005, p. 4). If a field resides on the heteronomous pole, it means that the logic of acquiring economic capital dominates the field's objectives and activities. If a field resides on the autonomous pole, it means that the logic of acquiring cultural capital orients the field's objectives and activities. Second, capital can be embodied in concrete objects. Specifically, economic capital is materialized as the agent' income, accumulated wealth and the monetary value of his or her possessions (Crossley, 2005, as cited in Li & Hellmueller, 2012). Cultural capital is embodied in things such as educational credentials, technical expertise, general knowledge, verbal abilities, and artistic sensibilities (Crossley, 2005, as cited in Li & Hellmueller, 2012). Inside the journalistic field, circulation, advertising revenue or audience ratings represent economic capital, whereas intelligent commentary, in-depth reporting and other serious news may represent cultural capital (R. D. Benson & Neveu, 2005, as cited in Li & Hellmueller, 2012).

**The logic of the journalistic field.** Bourdieu's earlier works (1998) argued that the journalistic field was strongly influenced by political and economic fields. The dominant logic of acquiring economic capital has invaded or at least affected journalistic autonomy. He noted that:

> As the journalism field has become more commercialized and more homologous
> with the economic field, it increases the power of the heteronomous pole within
> each of the fields, producing a convergence among all the fields and pulling them

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closer to the commercial pole in the larger field of power (R. D. Benson &

Neveu, 2005, p. 6).

Bourdieu categorized the field of journalism as a subfield within the field of cultural

production (1993). He noted the difference between commercial cultural production and

non-commercial cultural production, as different logics guide their principles and

practices respectively. The commercial cultural production follows the logic of economic

rationality (Bourdieu, 1993). In the context of journalistic field, it means to treat the

media production as a business like any other businesses that pursue economic profit. To

apply Bourdieu's interpretation of the cultural goods to journalism, the commercial

journalistic products respond to the existing demand of the mass audience and aim for

cost efficiency and return on investment (Bourdieu, 1993).

The *market-driven model* of journalism exemplified the logic of commercial

cultural production. Following this model, media companies are influenced by the forces

from other fields, such as needs and wants of consumer market, advertiser market, and

the stockholder market (McManus, 1993). The pursuit of economic interests set out the

practical principles of the field, and become the golden standard of evaluating journalistic

performance (Croteau & Hoynes, 2006). Hanitzsch (2011) noted that the economic

interests can be specified as profit expectations, advertising considerations, advertisers,

and market and audience research.

In contrast to the market-driven journalism or commercial journalism, the

alternative models of journalism are like non-commercial cultural productions that aim to

accumulate specifically cultural capital even at the cost of temporarily renouncing

economic profit (Bourdieu, 1993).  Cultural capital exists in three forms—in the

embodied state, the objectified state, and the institutionalized state (Bourdieu, 1986). The embodied state is comprised of "long-lasting dispositions of the mind and body" (p. 47), such as education and practical experience. By an objectified state of cultural capital Bourdieu (1986) emphasized the transformation of the embodied state into a form that sets itself apart from its bearer, such as books, awards, and prices. Cultural capital may manifest itself in products, for example, and undermines the embodied state of the cultural capital of its holder by objectifying it and by making it visible to others (Li & Hellmueller, 2012). The third state of cultural capital, the institutionalized cultural capital, neutralizes "some of the properties it derives from the fact that, being embodied, it has the same biological limits as its bearer" (Bourdieu, 1986, p. 50, as cited in Li & Hellmueller, 2012). In an institutionalized state, cultural capital "confers on its holder a conventional, constant, legally guaranteed value with respect to culture " (Bourdieu, 1986, p. 50). Such a form of cultural capital has relative autonomy from its bearer; it is based on conventions, a legally guaranteed value with respect to culture (e.g., a code of conduct). In essence, an institutionalized state of cultural capital establishes a normative idea of what constitutes journalism; it establishes conversion rates between the cultural capital and economic capital by guaranteeing the monetary value of a given form or capital of journalism (Li & Hellmueller, 2012). An objectified state of cultural capital can reflect the practice or products that actually realize the institutionalized state of cultural capital.

In the context of current study, the institutionalized state of cultural capital is assessed as the collective normative statement from the organizational members about what quality journalism is and what roles and functions the newspaper serves. In other

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words, the espoused value of quality journalism should reflect the newspaper's

professional culture and norms. The objectified state of cultural capital is operationalized

as newspaper content, the final product that reflects the newspaper's behaviors. In an

ideal situation, the institutionalized state of cultural capital should guide the practices and

conducts in reality. The espoused value of an organization should match organizational

behaviors.

**The dynamics in journalistic field: The conversion between forms of capital.** If the

journalism field is a subfield of cultural production, the selling of news at large is not an

economy of economic exchange but an economy of symbolic exchange. Rather than

seeking for immediate economic returns, the symbolic exchange aims for establishing

recognition and reputation of a brand in the long term (Bourdieu, 1993). Belief or faith in

the journalistic product itself is at the heart of symbolic exchange (Bourdieu, 1993; 1998).

Bourdieu explained the economy of symbolic exchange in this way:

> 'Symbolic capital' is to be understood as economic or political capital that is
>
> disavowed, misrecognized and thereby recognized, hence legitimate, a 'credit'
>
> which, under certain conditions, and always in the long run, guarantees 'economic'
>
> profit (Bourdieu, 1993, p. 75).

To apply this logic to journalism context, the symbolic capital of news is its credibility

that is built upon audiences' engagement and trust (e.g. McManus, 1993 and Sullivian

2006).  The price of news is often left in ambiguity because the symbolic capital is worth

different economic values to different audiences (Li & Hemueller, 2012). The economic

transaction of symbolic capital also confirms the duality of cultural goods, which

Bourdieu (1986) noted that "cultural goods can be appropriated both materially—which presupposes economic capital—and symbolically—which presupposes cultural capital" (p. 50).

When capital was defined as an abstract logic, this concept allows transaction among different forms of embodied capital. As Bourdieu put it, "capital does not exist and function except in relation to a field," and, "Capital is not a thing, but a social relation" (Bourdieu & Wacquant, 1992, p. 101). Bourdieu defines capital as accumulated labor and thus can be converted in its materialized form or embodied form (Li&Hellmueller, 2012, cited from Bourdieu, 1986). There are three fundamental transactions among different forms of capital. Economic capital can be institutionalized as property rights and be converted to money; cultural capital may be institutionalized as educational qualification and be converted to economic capital; and social capital is convertible into economic capital and may be institutionalized in the form of a tile of mobility (Bourdieu, 1986). Bourdieu (1986) suggest that the time invested for acquiring capital mediated the transformation between economic capital and cultural capital:

> If the best measure of cultural capital is undoubtedly the amount of time devoted to acquiring it, this is because the transformation of economic capital into cultural capital presupposes an expenditure of time that is made possible by the possession of economic capital (p. 54).

Among the three forms of capital, economic capital is the most fundamental form of capital and can be converted to other forms. The ability of converting one form of capital to another form indicates the amount of power that one agent possesses (Li & Hellmueller 2012, originally cited from Bourdieu, 1986). Following this logic, a field

with a strong economic capital can devote time and resource to produce cultural capital; a field with a strong cultural capital or symbolic capital can also generate more economic capital (Li & Hellnueller 2012). This study aims to investigate how the conversion between economic capital and cultural capital, both as abstract logics and as concrete objects, can take place in the field of journalism.

This study argues that, in the field of journalism, cultural capital is not necessarily in conflict with economic capital. Economic capital provides monetary resources to aid the production of cultural capital; an agent who accumulates solid cultural capital can also convert its symbolic value to economic capital, which in turn facilitates investment in the production of cultural goods. The best scenario is that the agent would accumulate both forms of capital and strengthen his or her power against emergent threats. Hence, this study focuses on the relationship between economic capital and cultural capital in the journalistic field. The overall research inquiry asks how a media company can accumulate cultural capital as well as economic capital in the context of an economic downturn and increased digital publishing.

**B. Newsroom culture: The wall of separation between the editorial side and business side**

**The theoretical and historical roots.** Scholars of different theoretical approaches have defined the nature of *organization* as both a cultural and economic entity. Cultural evolutionary theorists argue that an organization is a cultural entity in nature. An organization exists to preserve, replicate, and distribute cultural memes (Weeks & Galunic, 2003). Institutional theorists insist that an organization must develop a formal

structure that conforms to the prevailing norms, rules, routines and schemas of the society in order to gain political power and legitimacy. In other words, cultural legitimacy is the foundation for organizational survival (DiMaggio & Powell, 1983; J. W. Meyer & Rowan, 1977; Scott, 2005; Zucker, 1987). However, organization's ritual ceremony of cultural myths often conflicts with its criteria for efficiency. In order to acquire institutional legitimacy and achieve economic efficiency, an organization often detaches from the formal structure by developing a loosely decoupled structure to guide actual work activities (Meyer & Rowan, 1977). The gap between cultural legitimacy and working efficiency gives rise to an alternative viewpoint in which an organization develops economic legitimacy through managing resources.

Population Ecology theorists (e.g., Hannan & Freeman, 1984) maintain that an organization is the structure for accomplishing collective actions and mobilizing scarce resources. Transaction Cost Economics theorists (e.g., Williamson, 2005) also stress that an organization is the most efficient means of handling economic transactions in the face of opportunism and uncertainty. Resource Dependency theory (e.g., Hillman, Withers, & Collins, 2009) also endorses that an organization can achieve efficiency through improving one's own resource allocation or reduce one's resource dependency on other organizations. In sum, consistent with the idea of Bourdieu's *field theory*, an organization (or a field) should develop not only cultural capital to inherit the expected social and cultural values but also economic capital to manage resources, transaction, partnership, and competition. To survive and thrive, an organization must maintain a balance between its cultural capital and economic capital.

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The division between the editorial side and business side has long existed in the evolvement of news organizations. Historically, the newspaper presented two streams of thoughts and two walks of lives, which reflected two fundamental ideologies that governed the American society. One ideology focused on the market logic that granted free exchange and competition. The marketplace allowed individuals a freedom to pursue their personal interest in a civil society. The other ideology proposed an open access to public affairs. The public sphere logic permitted everyone an equal chance to participate in political affairs and discussions that were free of government interference (Barnhurst & Nerone, 2001). By the end of the 19th century, the commercial functions of the press finally outweighed its political function (Baldasty, 1992). The revenue source of the press gradually shifted from partisan subsidy to audience subscription and advertising fees. Newspapers began to abandon partisan affiliations and printed news of both sides in order to appeal to the mass audience.. This transition allowed the press to detach from partisan interests and become an independent institution (Hamilton, 2004).

The commercialization of the American newspapers also transformed the self-perception and internal structure of news organizations. Those who produced newspapers seemed to envision newspapers as nothing more than businesses (Baldasty, 1992). The editor's press, which viewed the press as political organ, gave way to the publisher's press, which viewed the press as a market tool. The line between newsgathering and manufacturing became more distinct, and the work of advertising, circulation and finance began to be independent from editing and printing (Barnhust & Nerone, 2001).

Though the business side was considered vital to a newspaper's commercial success, it became an opposing force against editorial independence. The ownership and

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management of a newspaper was thought to influence the editing and writing of editorials (Alden, 1900; Wingate, 1875). The extreme views even perceive the editorial side as an obstacle to business success. Baldasty (1992) documented that "Circulation managers defined a successful newspaper as one with high circulation and prompt delivery, and they saw the editor as a major obstacle to those goals" (p. 82). The debate  about which side was superior was finally settled in the early 20th century, with the metaphor "wall of separation". Henry Luce, the founder of *Time Magazine*, stated that the editorial and business sides of newsrooms should be separated like church and state. This elemental distinction was to ensure editorial credibility, integrity and independence against commercial influences. Since then, the wall of separation between editorial and advertising branches has become a code of ethics in traditional newsrooms, which prevents advertising departments and advertisers from interfering with the selection or editing of news stories. The content is independent of any consideration of economic interests of the news media (Iggers, 1998). Such separation has both ethical and practical values. Editors should provide unbiased and honest information, without any economic influence, to win readers' trust. If editorial content becomes the mouthpiece of wealthy companies or powerful institutes, the newsroom will lose readers' trust and advertising dollars (Evans, 2004).

The wall of separation does not mean that the editorial side does not communicate or interact at all with the business side. In fact, the wall has been disappearing. Business decisions have influenced editorial decisions regarding what types of news to cover and how many resources to invest (Croteau & Hoynes, 2006). For instance, the editorial department needs to know how many pages advertising can support in order to plan story

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length, andthe advertising department needs to know the editorial content so that they can place relevant advertisements in the right spot (Evans, 2004). Economic pressure has forced news organizations to respond reasonably and try new ways to make money (Croteau & Hoynes, 2006; Pompilio, 2009). Each section of editorial content is expected to generate return on investment As a result, few newsrooms are willing to invest in the in-depth, original, or comprehensive coverage of a news event (Croteau & Hoynes, 2006). Instead, the news has gone soft. Newsrooms create more infotainment such as health, travel, or food, to attract audiences' eyeballs. Some of those sessions carry branded products, e.g., *Fortune Magazine's* "Leaders on the Road," (Iggers, 1998). Advertisements are packaged as news copy and are printed by the news sections. Sponsored columns, reports, and even news sections have blurred the line between news and advertisements (Pompilio, 2009). Underwood and Stamm (1992) surveyed journalists of 12 west coast newspapers about the changes in the newsroom, of newsroom policy, and the balance between business and journalism. Results showed that newspapers have become more market-oriented, and they treat readers more as consumers than as citizens. To respond to such a change, newsrooms alternate their policies and invest in the content, design, and staff team to improve the newspapers' quality. Additional research by scholars from University of Missouri also infers that the devotion to business principles need not come at the expense of good journalism. An increase in certain economic resource sometimes will aid the organization's accumulation of cultural capital (Li & Hellmueller, 2012). In fact, as previously stated, research has demonstrated that newsroom investment in certain areas may positively affect news quality (Chen, Thorson, & Lacy, 2005; Mantrala, Naik, Sridhar, & Thorson, 2007; Tang, Sridhar, Thorson, &

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Mantrala, 2011). More empirical research is needed to identify what those areas are in order to yield increasing return on investment.

**Organizational change: To live or to die.** Organizational theorists debate about whether organizations can change, and, if they can, how change happens. Organizational change is a shift in the power structure or dynamics between the organization and other parties in the social and professional environment. Classical *Population Ecology* theory (i.e. Hannan & Freeman) posits change seldom occurs at the individual organizational level but at the population level. At the individual level, structural inertia, which refers to a correspondence between the behavioral capabilities of an organization and its environment, increases the organization's chance of survival. In other words, an organization with a high structural inertia responds to change much slower than the rate at which environmental conditions change. The adjustment of structure may enhance the chance of survival only if the speed of response is commensurate with the temporal pattern of relevant environmental change. At the population level, change occurs with new forms of organizations replacing the old.

However, rational adaptation theories, such as *Resource Dependency* theory and *Institutional* theory, admit that organization can change, but only at a moderate level. Organizational variability in strategy and structure is a form of individual response to environmental changes, threats and opportunities. For example, the *Resource Dependency* theory (Hillman, Withers & Collins, 2009) states that an organization can change interrelations by reducing its dependency on some firms and increasing its power over other firms for managing scarce resources. The *Institutional* theory (e.g., DiMaggio

& Powell, 1983) acknowledges that an organization can modify its actual working system that is loosely decoupled from the formal structure to sustain economic efficiency of the organization. However, any radical change at the formal structure level may undermine the organization's legitimacy (Meyer & Rowan, 1977). Moderate modification is attainable at a practical level, but may not bring fundamental change, according to Schein's culture theory (1992). Changing only artifacts and espoused value will leave a gap between form and core, which often results a failure to change. Along the lines of the same idea, cultural evolution theory (Weeks & Galunic, 2003) argues that organization is only an externalization of cultural memes; therefore, it is not organization that changes, but changes in the cultural memes that forces changes in organization. When an organization fails to fit the cultural memes, new organizations will arise to emulate those cultural memes.

These theoretical assumptions explain why organizational change often fails and why fundamental change rarely occurs. Organization is often unable to self-correct (Hannan & Freeman, 1984), and even if it is able, fundamental change, or transformation, must occur at multiple levels (i.e. goals, activities, and boundaries). Furthermore, such fundamental change can only be fully achieved when the organization shifts to a new routine and builds new organizational knowledge. Changing only the structure or activities without building a supportive routine or learning system increases the death rate of an organization (Aldrich & Ruef, 2006). Likewise, changing only the newsroom structure or technology of producing newspaper content without challenging the newsroom culture, such as incorporating digital media, will continue in a pattern of failed change.

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**Newsroom change: Transition to a digital world during economic downturn.**

Convergence has become an increasingly popular concept and practice that is reshaping

U.S. newsrooms. The idea of convergence can refer to an integration of content, structure,

procedure, culture, or management among previously distinct mediums, departments, or

markets (Achtenhagen & Raviola, 2009; Bressers, 2006; Gade & Perry, 2003; Huang &

Heider, 2007; Quinn, 2005; Jane B. Singer, 2004). Studies have shown that convergence

has impacted journalistic practices and values. Singer (2003) concluded that convergence

introduced a new group of online news workers who have challenged journalistic

professionalism in cognitive, normative, and evaluative dimensions. New knowledge and

skills need to be taught, and new codes of ethics need to be considered. Additionally, new

social strata and positions of journalists within an organization as well as in relation to

other social agents need to be reassessed.

The adoption of convergence has also changed organizational culture, routines,

and structure. Organizational tensions may arise at many occasions and form a resistant

force to the adoption of new technology. For example, individual journalists are not

comfortable with uncertainty and change in working routines (Daniels & Hollifield,

2002). They have to take on a larger workload without being compensated (Hunag &

Heider, 2007). Even worse, they feel frustrated when they have no time or resources to

learn about new skills (Singer, 2004). Journalists who are used to a competitive culture

are now encouraged to cooperate and share products across divisions (Singer 2004),

which has resulted in the business side and the editorial side not being well-converged.

Lastly, and more generally, it is said that the advertising and marketing departments have

not recognized the value of the online platform, and thus have not generated enough return on investment to make the online platform an attractive medium (Achtenhagen & Raviola, 2009).

The issue of convergence is particularly relevant to the current study. The newspaper under investigation in this study has online and print operations, and has tried restructuring the newsroom. Though the concept of convergence is not a central focus in this study, it serves more as a background. The executives were also interviewed about their opinions regarding the challenges and opportunities of digital publishing. In order to evaluate the content management in the context of digital transformation, executives' answers to the following research questions were compared and contrasted:

RQ 1-1: What constitutes quality journalism and a quality newspaper, according to the respondents?

RQ 1-2: How do the editorial side and the business side manage resource allocation in content production?

RQ 1-3: How do economic forces influence content production?

RQ 1-4: How has the relationship between the editorial side and the business side evolved?

## C. The dual nature of media products

Media products in the United States assume a dual nature. On one hand, media products are perceived as  commodities that should generate return on investment for stockholders. On the other hand, media products are perceived as public goods that serve important social and political functions. This duality highlights the unique characteristics

of media producst that possess both economic and cultural values. Stressing different values, two media models are proposed to guide media practices and to evaluate media performance. The market model focuses on the economic value of media products and perceives audiences as consumers. Serving consumers' interests is a means of gaining profit, and the ability to accomplish economic return determines media performance. Alternative models define audiences as citizens. Building an informed citizenry prioritizes media's democratic function, and media that maintain a strong relationship with audiences through value creation will accomplish business success.

In the mid- to late-19th century, newspaper evolved from a political liaison to a business entity. The idea that newspaper had a business side advocated the commercial functions of the press as a means of publicity, marketing, and distribution of consumer goods. Newspaper was compared to many other enterprises that adopted scientific management and followed the market principles of supply and demand. Baldasty (1992) remarked that newspaper staff referred to the press as a money-making machine. In fact, the editor of the Independent Cleveland Press said in 1879, "We are in the newspaper business for the same purpose as that of most people who go into business—to make money" (Baldasty, 1992, p. 139). The ascent of business logic has helped the press to form an advertising-based business model and be exempted from partisan subsidies. Newspaper created business department to take over accounting, advertising, circulation, and financial tasks (Vos & Li, 2010). The division of labor not only improved efficiency and productivity on the business side, but also encouraged the editorial side to move toward professionalization, and maintaining editorial objectivity and independence (Barnhurst & Nerone, 2008; Marzolf, 1991). The "wall of separation" between the

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business and editorial sides has thus become conventional wisdom that prevents economic interests from corrupting the newspaper's cultural values (Iggers, 1998; P. Meyer, 1991; Sanders, 2003).

Media products also carry the characteristics of public good (Croteau & Hoynes, 2006). The consumption of an article by one individual does not reduce the availability of the article for consumption by others. Ideally, every individual should be granted equal access to media products in order to make sound judgments about their environment (Baker, 2002). Media products have important social, political, and cultural values for society. They also affect individual's affectation, cognition, and behavior (Elizabeth M. Perse, 2001). The positive externalities of media products, such as aiding education and informing public discussion, cannot be commoditized for economic exchange (Baker, 2002). Neither do the immediate consumers of media, the audience, pay for the cost of producing those positive externalities (Baker, 2002). Therefore, managing media companies is unlike operating other enterprises, because the managers have to consider the dual nature of media products in order to fulfill both economic and democratic duties.

The business model of media also reflects this dual nature. The media market operates on a two-sided platform, selling products and services to audiences and then selling audiences' attention to advertisers for more revenue (Evans, 2003). The audience base creates externalities for advertisers who subsidize most of the cost of producing and delivering media products. Therefore, an increasing value of the platform to audiences will encourage advertisers' interests to participate in the exchange and thus improve the overall performance of the platform (Evans, 2003). Following this principle, serving audiences' needs and wants is a means to the end of gaining advertisers' dollars.

However, scholars, similar to Bourdieu, are often concerned that the desire for more revenue may compromise the public service function of media. This conflict again reflects the tension between the economic and cultural capital in the field of journalism.

**The market-driven journalism.** When journalistic products are considered as a commodity, the journalistic field follows the logic of pursuing economic capital and market principles dominate business operations. The market model is built on the assumption that society's needs should be met through a relatively unregulated exchange of goods that are based on supply and demand (Croteau & Hoynes, 2006). In a free market system, consumers determine quality and values. The market responds to consumers' needs and wants and assures the freedom of choice. In response, businesses are constantly motivated to excel and to develop (McManus, 1993). The market principles guide businesses and organizations to be more flexible, innovative, responsive, and competitive (McManus, 1993).

In the U.S., market-driven journalism mirrors the market model logic. The primary goal of any company is to generate profits for stockholders. Pursuing profit is the golden standard to evaluate a firm's performance (Croteau & Hoynes, 2006).The fact that more U.S. newsrooms are moving toward market-driven journalism (Underwood & Stamm, 1992) underlines an increasing economic impact on the field of journalism. The market logic assumes that news is a commodity that is sold to a mass audience. Audience attention is then sold to advertisers for advertising income, and advertising revenue should be maximized in exchange for investors' financial support (McManus, 1993). Media, like other enterprises, answer to the investors' interests first and foremost

(McManus, 1993). Audience is defined as consumers, who are encouraged to view advertisements and to shop. Only consumers who have the financial ability and willingness to consume media products will access media information and become informed citizens (McChesney, 2003). Since the amount and retention of audience attention is the foundation of financial success, market-driven journalism is committed to targeted consumers' wants and needs.

Market-driven journalism uses economic indicators to evaluate the quality of media. The accumulation of economic capital, such as resources, assets, newsroom size, circulation, advertising revenue, and return on investment, suggests a strong financial performance. More economic resource is also believed to produce better quality media products . The quality of the product, in this sense, is defined as how well it can help accumulate economic capital. In other words, good media products are expected to generate good business. Research has demonstrated the correlation between economic resources and financial performance (e.g., Chen, et al., 2005; Tang, et al., 2011), and between the characteristics of media content and media finance (e.g., Stephen Lacy & Fico, 1991; Stephen Lacy, Fico, & Simon, 1989; S. Lacy & Sohn, 1990).

For example, the financial commitment approach argues that more financial investment in newsroom yields more returns in revenue (Litman & Bridges, 1986). Scholars have operationalized financial commitment by measuring the dollars invested in newsrooms (Cho, Thorson, & Lacy, 2004; Cyr, Lacy, & Guzman-Ortega, 2005; Mantrala, et al., 2007; Rosenstiel & Mitchell, 2004). To predict circulation, Lacy argued that financial expenditure in newsrooms improves newspaper quality, which in turn improves audience utility, and thus increases the number of people wanting to read the paper

(Stephen Lacy & Fico, 1991; Stephen Lacy, et al., 1989; S. Lacy & Sohn, 1990). Analogously, a cutback in newsrooms would harm journalistic quality, and thus result in a decrease in circulation (Lacy & Fico, 1991). Rosenstiel and Mitchell (2004) found that news-editorial cost per copy (that is, how many dollars were invested in newsrooms) was positively and strongly correlated with total revenue, advertising revenue, and circulation revenue in a sample of newspapers from 1986 and 2001. Using financial data for around 300 newspapers from 1998 to 2002, Chen, Thorson and Lacy (2005) also found a positive relationship between newsroom investment and circulation revenue per copy, advertising revenue per copy, total revenue per copy, and gross profit per copy for newspapers with less than 86,000 in circulation. The strongest relationships were between newsroom investment and total revenue per copy and advertising revenue per copy. For total revenue per company and advertising revenue, newsroom investment accounted for at least 20 percent of the variance in those financial indicators.

Researchers at the University of Missouri have done extensive modeling of the financial connections of investment in newsrooms, circulation, and advertising departments to advertising and circulation revenues (Mantrala, et al., 2007; Sridhar, Mantrala, Naik, & Thorson, 2011; Tang, et al., 2011). Their findings, also based on analysis of newspaper financial data of multiple years, show that the major predictor of print advertising and circulation revenues, as well as online revenues, is the amount of dollars invested in newsrooms. The marginal impact of investment on advertising is less, and the effect on circulation is the lowest among the three departments. Alternative indicators of the financial commitment include newsroom investment (Cyr, et al., 2005), staff size (Blankenburg, 1989; Bogart, 2004; Mensing & Oliver, 2005), personnel

training, reporter/editor experience and skill, travel budgets, investment in enterprise, and investigative reporting.

However, the use of financial commitment to predict financial performance of newspapers has its limitations. Bogart (2004) was critical of the financial commitment approach, asserting that investment in newsrooms accompanies rather than produces newspaper quality. In other words, investment provides funding to newsroom operations, but the management of those funds to create high quality journalism is independent of the investment itself. Bogart suggested that investment in newsroom is a relatively gross index of news quality, and the financial commitment approach lacks the richness needed to understand what exactly goes on in the newsroom. The financial commitment approach cannot identify the relative effectiveness of various content types on circulation or revenue, and this limits its power to guide allocating financial resources in various content departments.

Indeed, scholars have so far found mixed results regarding the association between quality and revenue. Some research found that quality has only a limited impact on revenue. For example, Stone, et. al. (Stone, Stone, & Trotter, 1981) found that newspaper quality was related to newspaper circulation, but was not the strongest or most accurate predictor of circulation. Circulation depended more on the size of the community than on the quality of the newspaper published in that community, even when size was partially controlled. Moreover, even if an investment in newsroom improves overall quality and revenue, it may not generate more profit. Picard's (2004) model showed that a firm with a maximized profit could only maintain an average quality level. Cyr et. al. (2005) also acknowledged that even though they found a positive correlation

between investment and revenue, such a relationship cannot be interpreted as a causal one. Ultimately, then, investment in the newsroom is no guarantee of revenue growth (Cyr, et al., 2005). Kim and Meyer (2005) similarly pointed out that quality improved profitability up to a point. Beyond that point, additional quality failed to bring adequate new readers or advertising dollars to cover the initial investment.

To compensate for the limitations of the financial commitment approach, scholars have turned to measures of content, and especially the allocation of resources in content, to predict circulation and revenue. The resources allocation approach measures newspaper quality by the size of news-hole and the ratios of different types of content. Scholars have measured the amount of non-advertising content (Stephen Lacy & Fico, 1990, 1991) and the distribution of content amount by story topics, geographic focus (local, state, national, international) (Gladney, 1996; Maguire, 2005; Pardue, 2004; Plopper, 1991), types of writing (e.g., inverted pyramid vs. narrative style), and types of "voice" (e.g., straight news, opinion, analysis, columnists, citizen journalism) (Stone & Boudreau, 1995), and source origins (staff written vs. wire produced) (Bogart, 2004; Stephen Lacy & Fico, 1991). Research has supported that a perceived quality newspaper usually maintains a high ratio of original content to purchased content, a high ratio of local content to national or international content, a high ratio of news interpretations and backgrounders to spot news reports, and a high ratio of non-advertising content to advertising (Bogart, 1981, 2004; Gladney, 1996; Stephen Lacy & Fico, 1990, 1991). A quality newspaper should seek comprehensiveness of news coverage (Bogart, 2004; Gladney, 1996), diversities in news agenda (Culbertson, 2007), and the frames embedded in stories (Porto, 2007).

Resource allocation of content areas was proven to be an efficient predictor of a newspaper's economic performance. In a study to examine the correlation between newspaper content and circulation in four suburbs, Lacy and Sohn (1990) concluded that it was not the total amount of content space that affected circulation, but the amount of certain content. Circulation had the highest correlation with the amount of space devoted to local sports, local editorials, and local societal news, though the order of importance varied from market to market (Lacy & Sohn, 1990). Lacy extended this line of research and found that circulation is positively correlated with a high ratio of staff-written copy to wire service and feature service copy, a high ratio of interpretive to spot news, and total amount of non-advertising copy (Lacy & Fico, 1991). Later studies also found more positive correlations between local content and newspaper circulation (e.g., Schoenbach, 2004). Larger circulation is believed to lead to a higher advertising rate due to the duality nature of the media market (Thompson, March 1989). But currently, no scholarly research has empirically tested the direct relationship between content allocation, and advertising revenue and total revenue.

The second phase of this research applies the market-driven model logic to identify what content areas can generate the most revenue. Given the limitations of the financial commitment approach and the strengths of the resource allocation approach, this study measures the distribution of space ratios among a variety of content categories to predict two revenue indicators. The study hereby proposes the following research questions:

RQ 2-1: How do contents of different characteristics influence the newspaper's print advertising revenue?

RQ 2-2: How do contents of different characteristics influence newspaper's online

advertising revenue?

**The flaws of the market model.** The assumption that a market system is the best

solution to people's needs and wants is based on the proposition that the market is free

and competitive, responsive to customers' needs and wants, and self-corrective (Croteau

& Hoynes, 2006). However, the U.S. media market does not meet those propositions.

Free competition does not exist in the media industry. Collaboration and

conglomeration among media firms are common business strategies to minimize

environmental uncertainty and to maximize profit. Due to ownership concentration, most

media firms operate in a diverse monopoly market with minimum competitions from

alternative media forms (McChesney, 1999). Intra-media competition is very rare in the

same market, since one local market usually can afford only one newspaper, one

television station, and one radio station.

Moreover, the parties involved in business exchange and transaction do not have

equal power or knowledge enough to evaluate each other; the media firms and advertisers

often overpower audiences because they have more resources and capacity to gain

knowledge about audiences (Napoli, 2003). Negative externalities are present (Baker,

2002). Media firms, investors and news sources are able to corrupt and manipulate the

content in favor of business interests at the expense of public interests (McChesney, 1999,

2003).

The market model does not encourage innovation or creativity of media content.

Cost-benefit reasoning and economy of scale are the templates for routines of discovering

newsworthy events, covering the least expensive mix of content that protects the investors' interest, and garnering the largest audience that advertisers will pay to reach (McManus, 1993). This economic rationality has impacted the quality of media content. Scholars have accused market-driven journalism of producing more homogenous and commercial-oriented, with more trivial content than normative journalism (McChesney, 1999; McManus, 1993). Media firms have to conform to the dominant ideology and political opinions, leaving little room for dissenting voices or creative content (McChesney, 1999). Innovative or controversial content is disregarded for routine and safe content. Consumers can only choose content from a limited number of media outlets and media formats (Croteau & Hoynes, 2006).

Advertisers and news sources can manipulate consumers' minds and create a *buying* mood through commercial messages and other media content. As a result, consumers are driven to accept and to contribute to the commercial culture. They are often less informed and misled to make sound decisions about their everyday lives (McManus, 1993; McChesney, 1999). They learn less from news and become more apathetic about politics. These economic rationalities also influence the newsroom's organizational culture. The market logic collides with the philosophy of journalism, which is unconcerned about the cost and efficiency of producing news except for a few occasions: when the consumers need significant information during times of uncertainty and crisis, tragedies, disasters, and for human-interest stories (McManus, 1993). Scholars have certainly been concerned that business norms often dominate news decisions when they are in conflict with the journalistic norm. The more uncertain the newsroom

perceives the environment, the more attention is ascribed to market-driven journalism (Beam, 2001).

Last but not least, the market model cannot be self-corrective and responsive to audiences' or advertisers' demands. Accurate prediction and measurement of audiences are hard to achieve. Advertisers prefer measuring the quality of audiences, whereas media companies can only measure the quantity of audiences. Producing niche content that targets a small group of an audience is very costly to newsrooms, because low audience loyalty will yield little return on investment. The inconsistency in sampling, and issues in representativeness, accessibilities, and segment composition often make it harder to measure target audiences accurately (Napoli, 2003). As a result, advertisers often employ alternative marketing channels and techniques to target consumers, which reduces the amount of revenue that could have gone to the media company.

**The alternative media models.** As the market model fails to incorporate the public goods nature of media, scholars have compensated for disadvantages by proposing alternative media models . These alternative models attempt to promote the ideas of citizenry, relationship, and values. McManus (1993) advocated the idea of *normative journalism*. He said that the goal of quality journalism is to improve citizens' understanding of their environment and to achieve self-governance. McChesney (1999) also stressed that media that fulfills a political mission in a democratic society should create informed citizenry. In Croteau's and Hoynes' (2006) public sphere model, they argued that media should advocate informed citizenry and citizens' self-governance. In their minds, the media industry should grant the citizens equal access to information and

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pay attention to the needs of citizens. Media should serve the citizens, not consumers, with informative, educational, and integrative sources of information, and on mediating the relationship between citizens, and political and economic institutions (Sullivan, 2006).

Considering these perspectives, the standards of evaluating media performance, therefore, should be aligned with the rationale of alternative media models. The abilities to develop an informed citizenry determine media performance. The first set of standards associate the diversity of media content with the field's ability to serve citizens. For example, the Full News standard suggests that news should provide citizens with basic information to form and update opinions on all of the major issues of the day. The News Diversity standard evaluates news quality according to how well the news shapes citizens' abilities to perform civic roles. The availability of diverse interpretive frames in the public realm is also an important precondition for enhancing citizens' ability to interpret political reality in a consistent way (Porto, 2007). The Burglar Alarm standard, however, argues that quality news should alert the public to urgent matters and use all possible methods to call for citizens' attention (Zaller, 2003).

The second set of standards evaluates media performance by the strength of the relationship between media and audiences. News is deemed a credence good. The consumption of news content is based on audiences' belief in news quality, brand name, and reputation (McManus, 1993). The evaluations of news quality, therefore, should emphasize the amount of influence that news content creates. Media are in the business of influence. Social influence improves the credibility and reputation of media, which helps enhance media's commercial influence (Meyer, 2004). Sullivan (2006) also proposed a similar idea in his Service Model, in which audiences' knowledge and utility,

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loyalty, and strength of relationship with newspapers are perceived as important indicators of news quality. Newspapers should undertake community influence and leadership, and facilitate community dialogue.  Media should create a unique value to its audiences and clearly differentiate them from other information business (Sullivan, 2006). Since accurate prediction and measurement of audiences are hard to achieve, media should instead focus on audiences' needs and provide problem-solving formulas. Media providing unique value are likely to gain trust and loyalty from audiences, and in turn attract advertisers' investment (Pickard, 2004).

Alternative standards have evaluated content quality and media performance from audiences' standpoint. This approach aligns with the market-driven model in a way that both perspectives cater to audiences' needs and wants. The difference lies in their perceptions of audiences. The market-driven model regards audiences as consumers and serving consumers' interests is a means to an end of profit. On the contrary, the alternative models attempt to address the abstract and symbolic forms of cultural capital of media that have been left out by the market-driven model. The alternative models define audiences as citizens. Building an informed citizenry prioritizes their agenda. Media organizations that maintain a strong relationship with audiences through value creation will accomplish business success. The focal questions are how media organization can create values for audience, and whether, empirically, the audience's perceived value of content will materialize into financial return through audience retention. Since the major output of  a media organization is content, managing content appropriately can enable the media to create values for audiences. The ultimate question then becomes what content can deliver values that audiences demand. In order to answer

this question, we have to first understand audiences' consumption of media content and its correlation to expected gratification. Audience gratification varies as the type of media content changes.

**D. Audiences' needs and wants in a digital world**

The assumption that media can create values is based on the communication function theory. Harold Lasswell's (1948) first stated three classic functions of communication. *Surveillance of environment* means offering information that indicates power relations in society. *Correlation of the parts of society* explains and interprets events, providing supports for norms, socializing separate activities, and building consensus in society. The *transmission of cultural heritage* reflects dominant culture and recognizes subculture development, as well as forging and maintaining commonality of values. Wright (1960) added *entertainment* as the fourth element. McQuail (2005) cites Mendelsohn (1966), and explains that entertainment provides not only amusement and diversion but also mobilization to campaign for social objectives in the sphere of politics and war, among other issues. These functions are consistent with the five communication needs fulfilled by media: cognitive, affective, integrative, social contact, and escapism (i.e., entertainment) (Katz, Gurevitch, & Haas, 1973).

Building on those theoretical foundations, the uses-and-gratifications theory was developed to understand the interaction between audiences and media. The uses-and-gratifications approach examines "the social and psychological origin of needs, which generate expectations of the mass media and other sources, which lead to differential patterns of media exposure (or engagement in other activities), resulting in need

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gratifications and other consequences, perhaps mostly unintended ones" (Katz, Blumler, & Gurevitch, 1974, p. 510). The theory assumes that an active audience seeks out media in an effort to satisfy certain gratifications that can be grouped into categories based on a person's innate desire to survive and thrive in a complex social environment.

The attributes of media, especially content characteristics and transmission modes, influence audiences' perception of media's ability to gratify needs (E. M. Perse & Courtright, 1993; E. M. Perse & Dunn, 1998). Different attributes of media can gratify different needs; likewise, media of similar functions may serve similar needs. Earlier studies have associated newspaper use with the gratification of surveillance. For example, Katz, Gurevitch and Hass (1973) identified that newspapers met a broad set of information needs rather than specific affective needs. Elliot and Quattlebaum (1979) also found that newspapers provided environmental surveillance but not entertainment. Kippax and Murray (1980) discovered that the informational functions provided by newspapers included understanding, knowledge, and credibility.

Some recent empirical studies discovered that the type of medium also makes a difference in audience consumption and gratification of media content. College students with informational needs preferred newspapers, whereas those with entertainment and escapism needs preferred television (Henke, 1985; O 'Keefe & Spetnagel, 1973; Vincent & Basil, 1997). A more recent study discovered that surveillance and escapism gratifications were the most consistent predictors of news consumption behavior among college students across all of the six news consumption patterns: hometown newspapers, comedy news, cable news, Internet news, broadcast news, and diverse sources specializing in in-depth news coverage (Diddi & LaRose, 2006).

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In contrast to print newspapers, Internet has become an increasingly popular platform. Especially after the economic recession, more news organizations have increased their online presence as a business strategy to save cost and to enlarge market share and revenue stream (Kirchhoff, 2010). The Pew Research Center reported that, in 2010, more people got their news from Internet than from newspaper (Pew Research Center, 2011). But when people go online, they often visit the sites of traditional media, instead of Internet-only outlets (Rosenstiel, 2011). The motive of seeking surveillance and entertainment gratifications drives most online behaviors (Pew Research Center, 2011). This result is consistent with prior research, which claimed that over 80 percent of participants typically used the Internet for informational needs (e.g., e-mail or general Web browsing) (Sun, Rubin, & Haridakis, 2008). A closer look at what people read online revealed that elderly people tend to read more news about government and community, whereas younger people (age 18 to 34) tend to read more crime and infotainment news (Pew Research Center, 2011).

The literature suggests that audience gratification for online and traditional media consumptions are similar and correlated with each other. Kaye (1998) found similarities among motives of Internet use and television use. The motives of Internet use include entertainment, social interaction, passing time, escaping, information, and Website preference. In another study, Kaye and Medoff (2001) have described that the Internet integrates the attributes of television and computer. Ferguson and Perse (2000) found that people watching television for diversion also tend to use the Internet for diversion. In addition, Dimmick, Chen and Zhan (2004) argued that Internet has the broadest niche for gratification opportunities, providing users with more satisfaction than any traditional

media with regard to content variety at different time period of the day. Gratification opportunities are defined as perceived content, time, and space attributes of a medium. A medium that offers more of a given content type more often provides a greater array of gratification opportunities to its audience (Dimmick & Albarran, 1994).

The similar gratifications for online and print newspapers may be due to substantial content sharing between a newspaper's print and online editions. Several studies have documented that most newspapers reprinted or recycled their content on Website. The online staff only produced a small proportion of original content. D'Haenens, Jankowski and Heuvelman (2004) have found few differences between the online and print versions of two of Netherland's newspapers. They concluded that the print versions of the newspapers had more content than the online versions of the newspapers, and only in the case of national news was there significant difference between the percentages of stories. In addition, they found no difference in the news consumption and recall pattern between the print and online editions of the newspapers. News consumption seems to be more dependent on news category, reader gender and interest in a particular topic than on whether the news appears in print or online.

Internet has granted audiences more enhanced abilities to control and navigate information than traditional media. More diverse gratification opportunities may differentiate the consumption of online news from that of print. For example, the audiences surveyed reported greater scanning for online news use and greater skimming for newspaper use (Lin, Salwen, & Abdulla, 2003). In a national survey, Tewsksbury (2003) found that online audience was more likely to pursue their own interests, and less likely to follow the cues of news editors and producers. In general, online news audiences

chose to read public affairs news less frequently than survey research suggested. After comparing what viewers' self-reported to their behavioral data, they also ound that business, sports, U.S. national news, and entertainment were among the most frequently revisited and most frequently viewed topics. Health, state and local, and obituary news were among the least frequently visited topics.

The role of geography is also a documented factor that differentiates online and print news consumption and thus influences the supply of media content. Singer (2001) compared the amount of local and nonlocal news between the online and print versions of the sampled newspapers and found that the online newspapers had a stronger local orientation than their print counterparts. Johnson (2001) cited the Stanford and Poynter Study (2000) that readers favored their local newspapers' sites. Forty percent of respondents started their online surfing with their local newspapers. Their next favored news providers were large news organizations with a national presence.  Sixty-seven percent of the subjects read some national news while 48 percent read some local news.

An orientation to local news has strengthened newspapers' tie with their communities. Based on a national survey study from 1998 to 2008, Hollander (2010) suggested that local news drove readership. The print newspapers' audiences were made up of those with an interest in both local government and community news, and government news truly drove the print's readership, whereas community news contributed to online viewership. Meanwhile, media organizations that implement a local orientation should not ignore creating value for nonlocal audiences. In a national survey of 64 online versions of newspapers, Chyi and Sylvie (2001) found that online newspapers still intended to target audiences in local markets rather than in long-distance

markets, even though an estimated one third of the online traffic came from outside the print's primary circulation area. A decade later, in another national study, Chyi (2010) found that more than one fourth of the 28 surveyed newspaper sites had online audiences outside the print's target market. Most long-distance users had personal ties with the geographic areas associated with the newspapers. Compared with local users, long-distance users tended to be older, better educated, and had a higher income. They were more likely to read local sports online but less likely to visit classifieds areas. They also tended to be more loyal to and satisfied with the newspapers' sites. Given these data, Chyi (2010) recommended that newspapers should consider long-distance users as a potential audience segment when developing content, pricing, and marketing strategies.

However, using self-reported data to represent audiences' news consumption has serious flaws. First, when personal interest contradicts normative news values, the audience may not report what they actually read. Second, memory is not accurate. Audiences may vaguely recall where they came across what content and how much time they spent on it. These situations may seriously affect the quality of data and misrepresent audience behaviors. In contrast, researchers can accurately rate audiences' interest in specific news areas by measuring the number of visits and actual time spent (Tewksbury, 2003); through the aid of computer software, it has become more efficient to track audiences' behaviors on the web (Chyi & Sylvie, 2001, 2010).

Based on this literature, the third objective of this research is to identify what content characteristics drive audience consumptions of print versus online newspapers. Content areas that retain most online traffic, in terms of number of visits, frequency of visits, and number of page views, are rated as maintaining a high value to the audiences.

An assessment of audiences' online news consumption will help adjust the newsroom's resource allocation and advise content production. Based on the two-sided market theory, content areas that are most popular among the audience should also generate most advertising revenue. Hence, this research attempts to determine if there is any mismatch between audience and advertiser. By analyzing the circulation data from 2001 to 2010 and online audience traffic of the newspaper from 2005 to 2010, this dissertation raises the following research questions:

RQ 3-1: What content areas drive print circulation?

RQ 3-2: What content areas drive online audience traffic, in terms of the number of unique visits and the number of page views?

# III. METHODOLOGY

This study is carried out through two phases of research. The interviews with organizational members provide rich insights and interpretation to understand the newspaper's strategies and culture of managing content. The statistical analysis provides information about trends and patterns in content output, audience behaviors, and financial performance. The statistical results further provide numerical relationships among the content, audience, and revenue performance of the newspaper based on data entries of multiple years. This triangulated study is intended to provide both qualitative and quantitative information that enables the organization to evaluate and adjust its content management strategies.

Case study is an appropriate method because it draws on a holistic approach to bring out the details from participants' viewpoints by using multiple sources of data (Tellis, 1997). It examines one individual unit (person, group, incident) intensively using one or more methods, exploring the depth as well as width (i.e. longitudinal) of the case and stressing the developmental factors in relation to context (Yin, 1993). Scholars in media management research have often relied on case studies to capture the complexity of newspaper industry (e.g., Achtenhagen & Raviola, 2009; Jane B. Singer, 2004). This study inherits this tradition and illustrates the dilemma and opportunities facing the U.S. newspaper companies.

Triangulation is a commonly used technique that increases construct validity of a case study (Yin, 1993). The objective of triangulation is to search for converging findings from different sources that often involve both quantitative and qualitative evidence (Yin, 1993). The sources of evidence used in this study are from the organization's archival records (content database, budgets, financial records, etc) and interviews. The multiple sources of data can bring out the viewpoints from both the business side and news side and provide a holistic understanding of the organizational dynamics.

## A. Qualitative Interviews

Interviews are conducted to generate a contextual understanding of the newspaper's content management. This phase of research aims at three objectives: 1) derive a collective normative statement of quality journalism and quality content; 2) understand how the newspaper has managed its content, and how the economic forces may influence content selection, production, distribution and delivery; 3) assess the organizational context, especially the working culture regarding to the relationship between the editorial side and business side in face of adapting to digital platforms.

To achieve these objectives, managers at executive level from both the business side and the editorial side were interviewed. Specifically, five managers were selected from the business side, overseeing advertising, circulation, sales and marketing, research and digital publishing. Four managers were selected from the editorial side, overseeing content creation (i.e. work with reporters, editors, photographers), curation (i.e. work with design, copy desk, news desk, and online), opinions and editorial page, and the overall newsroom operations (Refer to Appendix B for more details). The research

director of the organization provided a list of the contacts and granted an entry to the researcher with the condition of keeping the organization's name and participants' identities anonymous. First, semi-structured interviews were conducted via telephone with a list of same questions to all participants. The semi-structured interviews allow for consistency in themes and flexibility in individual conversations. Managers' answers were then compared to see how they converged or differed in their understanding on the focused issues. Second, more feedback was solicited from these participants when the statistical analysis results were presented to them face to face. This round of group interview helped the researcher interpret and adjust the statistical results in the organizational context. Construct validity was achieved by using multiple sources of data—namely, interviews conducted with editors were triangulated with interviews with business mangers. Reliability was ensured by recording the interviews (Silverman, 1993). Internal validity does not apply for exploratory studies (Yin, 1989). And external validity cannot be established with one case study.

The analysis of the interview data went through four steps (See Table A). First, the interviews were transcribed as soon as they were done. Second, a close examination of each interview data identified patterns of narrative themes on each side of the newsroom. Third, follow-up interpretations compared and contrasted where the editorial and business sides converged and diverged and explained why. The conclusion addressed how the two sides may enhance mutual understanding toward each other and cooperate better on content management.

*Table A: Three steps in qualitative data analysis*

|  | **Description of analysis** | **Techniques** | **Goals** |
|---|---|---|---|
| **Step 1** | -Transcribe interviews<br>-Note-taking during interview | -Open coding<br>-Look for word-repetition | -Obtain first impressions of main arguments and positions of respondents<br>- Modify research questions; customize interview questions for individual interviewees |
| **Step 2** | - Read and analyze each interview transcript in details.<br>-Look for emerging themes guided by the research questions and purposes | - Open coding.<br>- Identify key words<br>- Look for emerging themes in respondents' answers to the research questions.<br>- Synthesize other themes | - Look for repeated key words.<br>- Decisions for inclusions or exclusions of themes. |
| **Step 3** | - Summarize the themes emerged from the editorial side.<br>- Summarize the theme emerged from the business side<br>. | - Relate themes to concepts of cultural capital, economic capital, and the conversion between the two forms of capital.<br>- Constant comparison method: look for differences and similarities. | - Compare and contrast the similarities and differences among the news people<br>- Compare and contrast the similarities and differences among the business people |
| **Phase 4** | -Compare and contrast the similarities and differences among the business side and the news side on the same issues. | -Constant comparison method: looking for similarities and differences among the themes. | - Interpret the connection and diversion between the two sides in regards to research questions. |

**B. Quantitative Data**

**Data source.** An anonymous newspaper located in the west pacific region of the United

States provided the content, audience, and financial data and granted the researcher's

access to interviews. The newspaper has an average daily circulation of over 1.25 million

copies and a Sunday circulation of approximately one million copies. Being the only

major newspaper in the city, it publishes content both in print and online. The newspaper claimed that about 1.8 million readers have access to the print and online versions of the paper (from the company's website). In recent years, the newspaper reorganized its newsroom and prioritized content creation, presentation, and community relationship (news leadership 3.0 blog). The newsroom houses approximately 150 editorial staff and managerial executives (from the newspaper's staff directory).

**Content data collection.** The content data were sampled on every fifth day starting on January 1, 2001 to June 2010. On average, one sample month of content consisted of six to seven sample days' content. One-year sample consisted of 12 to 13 constructed weeks of content. Altogether over 700 sample days of content data were collected during the period under study. The constructed week sampling is said to be more efficient than simple random sampling or consecutive day sampling (Stephen Lacy, Riffe, Stoddard, Martin, & Chang, 2001).

To ensure reliability, a computer-aided content analysis technique was used to collect the content data. Comparing to the hand-coded or interpretative content analysis, the computer-aided method has several advantages. The rules of coding text are made explicit. Once the computer programming formalizes those rules, it achieves perfect coder reliability. This high coder reliability frees researchers to concentrate on other aspects of inquiry, such as validity, interpretation, and explanation (Weber, 1984). Using computer program in content analysis has become popular because it produces efficient and reliable results (Dowling & Kabanoff, 1996).

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The newspaper content archive used a system of meta-fields that label the topic, author, city, date, column length and other miscellaneous information of each story. Computer program can easily detect these meta-fields and infer the content categories based on those meta-fields. Computer program can also report the data in several ways, including word counts, story counts, classification of words into content categories, and content category counts (Weber, 1984). In this study, a computer program using Jawa language was developed to code and categorize the meta-fields that infer the topic areas (i.e., news, sports, opinion, business and technology, and entertainment), geographic focus (i.e., local, regional, national and international), and authorship origin of each story (i.e. staff written and non-staff written). For each sampled day, the computer program went through the non-advertising content and counted the number of stories in each content category and the number of column length in each category. The content data of the sample days in the same month were then aggregated to form a monthly data.

**Audience traffic data collection.** The audience traffic data from January 2005 to June 2010 was collected from the online tracking system named Omniture. The indicators of audience traffic are the total number of page views and total number of unique visits in each month. The online audience data is chosen over traditional audience survey due to several reasons. Traditionally, the print readers' news consumption is often measured by survey. The self-report data, however, cannot actually reflect the reading behaviors because people's memories are not accurate or people sometimes lie about their actual behaviors. In addition, on-site observations of audience behaviors are rarely used due to high cost of money and time. To track audience behaviors online has superior accuracy

and consistency because it measures what and how audiences actually read at a relatively low cost. Though the online audience consumption cannot represent the behavioral pattern of the entire readership of the newspaper, it offers a way to analyze audiences' demand in respect to the newsroom's content supply.

**Financial data collection.** The financial data from January 2000 to June 2010 was obtained from the company with an agreement of nondisclosure to a third party. The indicators of the company's financial indicators include print advertising revenue, online revenue, circulation, circulation revenue, and total revenue. The record of operational cost was also available upon request, summarizing the expense in editorial, distribution, marketing and sales, and miscellaneous areas. The revenue figures were aggregated monthly to match the monthly accounts of the content and audience data.

**Data reduction.** To deal with a longitudinal dataset, it is important to come up with accurate indicators of content and financial performance and then reduce the number of variables into a manageable account. Consistent with previous research, this study assesses content with three dimensions of indicators: topic areas, geographic focuses, and authorship origins. For topic areas, a total of 75 unique story topics were discovered over the ten-year period. However, not all of the story topics were present in any month due to the seasonal and cycling trends of content. Some story topics appeared in certain months of a year. Indeed, as shown in the initial data collection, some content topics had missing values. The content data must be aggregated in a way that minimizes the missing values. Stories that fall into a similar conceptual meaning were grouped into one category. For

example, stories about movie, food, arts, and so on belong to the category of

entertainment and living. Altogether, the 75 topic areas were grouped into five major

topic categories: news[2], sports[3], business and technology[4], editorials and opinion[5], and

entertainment.[6] Newsroom editors were consulted to confirm the categorization was

accurate and appropriate. This categorization allows the following-up statistical analysis

to identify the major content areas that may affect the newspaper's revenue indicators.

Since the newsroom is also divided into the five departments, the statistical results are

consistent with and relevant to the newsroom's structural divisions. The number of

stories and the total column length of stories in each of the following content category

were measured and aggregated monthly. The monthly total score of story number and

column length are used as independent variables to represent the volume of a particular

story area in the follow-up statistical analysis.

   To identify the geographic focus of story, the computer programming coded the

meta- field that contained an identification of the city name about which the story focused.

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[2] News content category includes the topic areas with the following meta fields: news, local news, local, North Western Thursday, North Western Saturday, North Western Wednesday, North Western Sunday, North Western Monday, North Western Friday, and North Western Tuesday.

[3] Sports content category has only one meta-field in the archive.

[4] Business and technology content category includes the topic areas with the following meta fields: motoring, business, job market, personal technology, home/real estate, and real estate.

[5] Opinion and editorial content category has two meta-fields in the archive: opinion, and SE Living Opinion.

[6] Entertainment content category includes the topic areas with the following meta fields: Northwest Life, ticket, food, Pacific Northwest, travel, Northwest weekend, books, entertainment, arts & entertainment, weekend living, digs, Northwest Ticket, Northwest Traveler, Pacific gardening, SE living, Northwest Life, movie, Northwest Weekend, wine, Northwest Home, Northwest Arts, Your Monday, Your Tuesday, Your Thursday, Your Friday, Your Wednesday, Your Saturday, Movie Times, Religion, weekend, arts, style, Northwest life, and feature.

According to the newsroom, the newspaper primarily targeted a number of nearby

counties[7], known as local market. Any story with a meta-field of city name on that list

was categorized as story with a local geographic focus. Other counties in the home state

but not in the primary target areas are counted as regional market. Any story with a meta-

field of city name that belongs to cities other than the primary target markets in the home

state was categorized as story with a regional focus. Other cities in the United States but

not in the home state are regarded as national market. Any story with a meta-field of city

name or state name that does not belong to the home state but inside the United States

was categorized as story with a national focus. Foreign cities outside of the United States

are considered as international market. Any story with a meta-field of city name that

belongs to a foreign country was categorized as story with an international focus.

To identify the authorship origin of the story, the computer programming coded

the meta- field that identifies the news organization for which the author of the story was

working. For example, story with a meta-field that contains the full or partial name of the

newspaper was categorized as staff-written story. Story with a meta- field that contains

any other news organization's name was categorized as non-staff written story.

Sorting the content data from three dimensions can comprehend the multi-aspects

of content characteristics. It also helps reduce the content data to a few manageable

categories. Initially, Principle Component Analysis was also considered to reduce the

number of content categories. However, using the number of stories as scores, only two

factors were extracted to explain about 68% of total variance in content. Using story

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[7] The newspaper editor has supplied a list of counties described as the paper's local
market.

lengths as scores, only one factor was extracted to explain about 95% of the total variance. The number of factors extracted is too few to meet the research purpose of using content characteristics to predict revenue. The fact that few factors were extracted was because the content categories were highly correlated with each other. Therefore, categorizing content based on its topic areas, geographic focus, and authorship origin was chosen as a more appropriate reduction technique that satisfies the research purpose.

## C. Statistical analysis

The statistical analysis aims at three objectives: 1) understand the trend and pattern of the content (topic areas, geographic focus, and authorship origin), online audience traffic, and financial performance overtime; 2) understand how the content characteristics predict online audience traffic and financial performance of the newspaper; 3) identify the significant content predictors of online audience traffic and of financial performance respectively, and calculate the effect sizes of each content predictor.

**Multiple regression analysis.** Originally, regression analysis was considered to model the relationship among content, audience traffic and revenue. Regression analysis is often used to find out which combination of independent variables explain the variance of dependent variables and the magnitude of effect of each independent variable on dependent variables (Tabachnick & Fidell, 2007). However, the nature of this longitudinal dataset seriously violates the assumptions of regression analysis. First, the observations are not independent from each other. Since the content data and financial data are collected on the same variables over time, the error associated with one

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observation is correlated with the errors of other observations. For example, how much the newspaper earned last month is likely to affect how much the newspaper will make next month. How much the newspaper reported local community this month would also affect how much the newspaper would cover the same topic next month. Moreover, the content predictors are highly correlated with each other, which leads to a problem of multicollinearity. Since the newspaper usually has a limit number of pages for non advertising content, printing more content of one type will mean less space for another type of content. Indeed, the correlation tables (see Table C-4) showed that the number of news stories was positively and significantly correlated with the number of business and technology stories, the number of sports stories, and the number of editorial and opinion stories, but negatively correlated with the number of entertainment and life stories.

Although the above problems can be resolved or reduced by various methods[8], regression analysis overall is not a sophisticated method to handle and process time series data. Therefore, Time Series Analysis, specifically, the Auto-Regressive Integrated Moving Average (ARIMA) model, was chosen to process the data for this study.

**Time series analysis.** Time-series analysis is often used when observations are made repeatedly over 50 or more periods and the observations are often aggregated scores from many cases (Tabachnick & Fidell, 2007). In this study, each data entry is an aggregated score from a monthly observation of six to seven sample days of non-commercial content.

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[8] For example, log transformation of the variables can reduce the problem of nonlinearity. Adding lag term of the dependent variables can handle some of the autocorrelation problem of the dependent variables. Reducing or combining content variables of similar category can reduce the problem of multicolinearity.

The goal of the analysis is to model the patterns of the data that are often correlated but offset overtime. A second goal is to identify the effect of content variables on the revenue variables. Time Series Analysis is more appropriate for data with autocorrelation than multiple regressions technique, because it can model the correlated error terms. Otherwise, Type I error rate is substantially increased if regression is used on data with autocorrelation. The patterns may either obscure or spuriously enhance the effect of an intervention unless accounted for in the model (Tabachnick & Fidell, 2007).

As in other regression analyses, Time Series Analysis decomposes a score into several potential elements. The first potential element is overtime trend, being linear (where the mean is steadily increasing or decreasing over time), quadratic (where the mean demonstrates a bell-curve shape or a u shape curve), or something more complicated. The second potential pattern is the lingering effect of an earlier score. For example, if the revenue figure of last month affects the revenue figure of this month, then the lingering effect of previous revenue figure should be accounted for. The third potential pattern is lingering effect of earlier shocks. Shocks are similar to the error term in other analyses. If the error term of last observation affects the error term of the current observation, then the lingering effect of previous error term should be modeled (Tabachnick & Fidell, 2007). These patterns altogether can model the autocorrelation among observations and the overtime effects of content variables on the revenue variables. The objective for the statistical analysis is to find out the three potential elements of each revenue indicator and create a model that can best fit the data.

ARIMA (p, d, q) model, also known as the Box-Jenkins model (Box, Jenkins, & Reinsel, 1994), captures all of the three potential elements. The auto-regressive element,

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p, represents the lingering effects of preceding scores. The integrated element, d, represents trends in the data. The moving average element, q, represents the lingering effects of preceding random shocks. The ARIMA model follows identification, estimation and diagnosis in order to model the patterns in the data. The first step identification examines autocorrelation functions (ACFs) and partial autocorrelation functions (PACFs) to see which of the three potential patterns are present in the data. The second step estimation tests the estimated size of a lingering auto-regressive or moving average effect against the null hypothesis that is zero. The third step diagnosis examines the residual score to determine if there are still patterns in the data that needs further modeling (Tabachnick & Fidell, 2007).

The SPSS software has made the analysis process much easier. The first step in SPSS ARIMA is to plot the sequence of scores of DVs. When the mean shifts over time, it means the element of trend is present and should be removed. Differencing scores is a common procedure to make the mean stationary (flat). Differencing simply means subtracting the value of an earlier observation from the value of a later observation. The number of times that is differenced determines the value of d. If d=1, linear trend is removed. If d=2, both linear and quadratic trend are removed (Tabachnick & Fidell, 2007). When the dispersion (variance) shifts over time, logarithmic transformation can make the process stationary (Tabachnick & Fidell, 2007). The second step in SPSS is to ask for the autocorrelation and partial autocorrelation statistics and graphs. If an autocorrelation at some lags is significantly different from zero, the correlation is included in the ARIMA model. In an ARIMA (p, d, q) model, the value of p is the number of auto-regressive components; the value of q is the number of moving average

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components. The following table summarizes the patterns of the ACF and PACF graphs

which can determine the value of p and the value of q.

*Table B: How to determine the model by using ACF & PACF graphs*

| Model | ACP | PACF |
|---|---|---|
| AR (p) | Dies down | Cut off after lag q |
| MA (q) | Cut off after lag p | Dies down |
| ARMA (p, q) | Does down | Dies down |

When the value of p is 1, there is a relationship between observations at lag 1 (lag is the

time periods between observations; lag 1=$Y_t$-$Y_{t-1}$). A pth-order autoregressive model AR

(p) for a stationary series has the general form:

$$Y_t=\beta_0+\beta_1Y_{t-1}+\beta_2Y_{t-2}+...+\beta_pY_{t-p}+\varepsilon_t$$

Where $Y_t$= response (dependent) variable at time t

$Y_{t-1}$, $Y_{t-2}$, …, $Y_{t-p}$ = Response variable at time lags t-1, t-2, …, t-p, respectively.

$\beta_0$, $\beta_1$, $\beta_2$, …$\beta_p$ = coefficients to be estimated

$\varepsilon_t$ = Error term at time t.

When the value of q is 1, there is a relationship between the current score and the random

shock at lag 1. A qth-order autoregressive model MA (q) for a stationary series has the

general form:

$$Y_t=\mu+\varepsilon_t - \alpha_1\varepsilon_{t-1}-\alpha_2\varepsilon_{t-2} -...-\alpha_p\varepsilon_{t-q}$$

Where $Y_t$= response (dependent) variable at time t

$\mu$ = Constant mean of the process

$\alpha_1$, $\alpha_2$, …$\alpha_p$ = coefficients to be estimated

$\varepsilon_t$ = Error ter at time t.

$\varepsilon_{t-1}$, $\varepsilon_{t-2}$, …$\varepsilon_{t-q}$, = Errors in previous time periods that are incorporated in the

response $Y_t$

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An autoregressive moving average model ARMA (p, q) for a stationary series has the general form:

$$Y_t = \beta_0 + \beta_1 Y_{t-1} + \beta_2 Y_{t-2} + \ldots + \beta_p Y_{t-p} + \varepsilon_t - \alpha_1 \varepsilon_{t-1} - \alpha_2 \varepsilon_{t-2} - \ldots - \alpha_p \varepsilon_{t-q}$$

When predictors (independent variables) are included in the ARMA model for a stationary series, the general form is written as:

$$Y_t = \beta_0 + \beta_1 Y_{t-1} + \beta_2 Y_{t-2} + \ldots + \beta_p Y_{t-p} + \theta_1 X_{1,\,t-1} + \theta_2 X_{2,\,t-1} + \ldots \theta_n X_{n,\,t-1} + \varepsilon_t - \alpha_1 \varepsilon_{t-1} - \alpha_2 \varepsilon_{t-2} - \ldots - \alpha_p \varepsilon_{t-q}$$

Where X = the scores of predictors (independent variable)

$\Theta$ = coefficients to be estimated; the effect of X on Y.

If the predictor also demonstrates an autoregressive pattern, then a numerator term should be added to the predictor function. The predictor X at time t hence becomes a function of its previous performance: $X_t = \Phi_1 X_{t-1} + \Phi_2 X_{t-2} + \ldots + \Phi_p X_{t-p}$. For example, the amount of news content in month 3 can be influenced by the amount of news content in month 1 and month 2. Likewise, a moving average term can also be added to the predictor. X becomes a function of its previous error term. $X_t = \mu + \varepsilon_t - \Psi_1 \varepsilon_{t-1} - \Psi_2 \varepsilon_{t-2} - \ldots - \Psi_p \varepsilon_{t-q}$ Modeling predictor variables is only considered when the ARMA model cannot fully explain the remaining structure in the response variable. Often, adding one or two AR or MA terms to the predictor variables is enough. Alternatively, seasonable effect in the response variable should also be considered if the nonseasonal ARMA model couldn't fully explain the pattern in the response variable. Adding a seasonable term to the response variable means that the response variable at time t is not only influenced by its value at t-1, t-2,... t-p, but also is influenced by its value in the same month of least year, at t-13, t-14,…t-12-p. For example, the newspaper circulation in March 2008 was not only affected by the circulation in February 2008 and January 2008, but also by the circulation in March 2007.

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The seasonable term often applies to the variables that demonstrate a strong seasonality. A sophisticated analysis process often has to go back and forth in order to come up with the appropriate values of p and q. The process of creating an ARIMA model is visualized in the following page.

After selecting the ARIMA model, SPSS produces statistic outputs that detail the model fit, parameters, and comparing models. Comparing to regression output, the Stationary R-square is equivalent to the Adjusted R-square in regression analysis, which indicates the fit measures for the estimated model and the amount of variance in response variable that is explained by the predictors. Ljung-Box statistics is equivalent to the F statistics in regression analysis. But unlike regression analysis, a significant Ljung-Box statistics means that the currect model does not fully explain the patter of the data and thus needs modification. Therefore, a fit ARIMA model should have a non-significant Ljung-Box statistics. Another way to check if the model fits the data well is to examine the residual autocorrelation and partial autocorrelation functions. If they are not significant and the residual plots stay within the confidence intervals, it means that current model has explained the pattern of the data. Finally, the program can also plot the fit model against the observed data. If the estimated model fits well within the confidence intervals of the observed data, it means the model is a good fit. The table of parameter estimates displays the estimated effect of individual predictors on response variable. The meaning of estimate is equivalent to that of coefficient in regression analysis. The value of estimate indicates the effect size of each individual predictor on response variable.

*Figure A: Process of determining an ARIMA model*
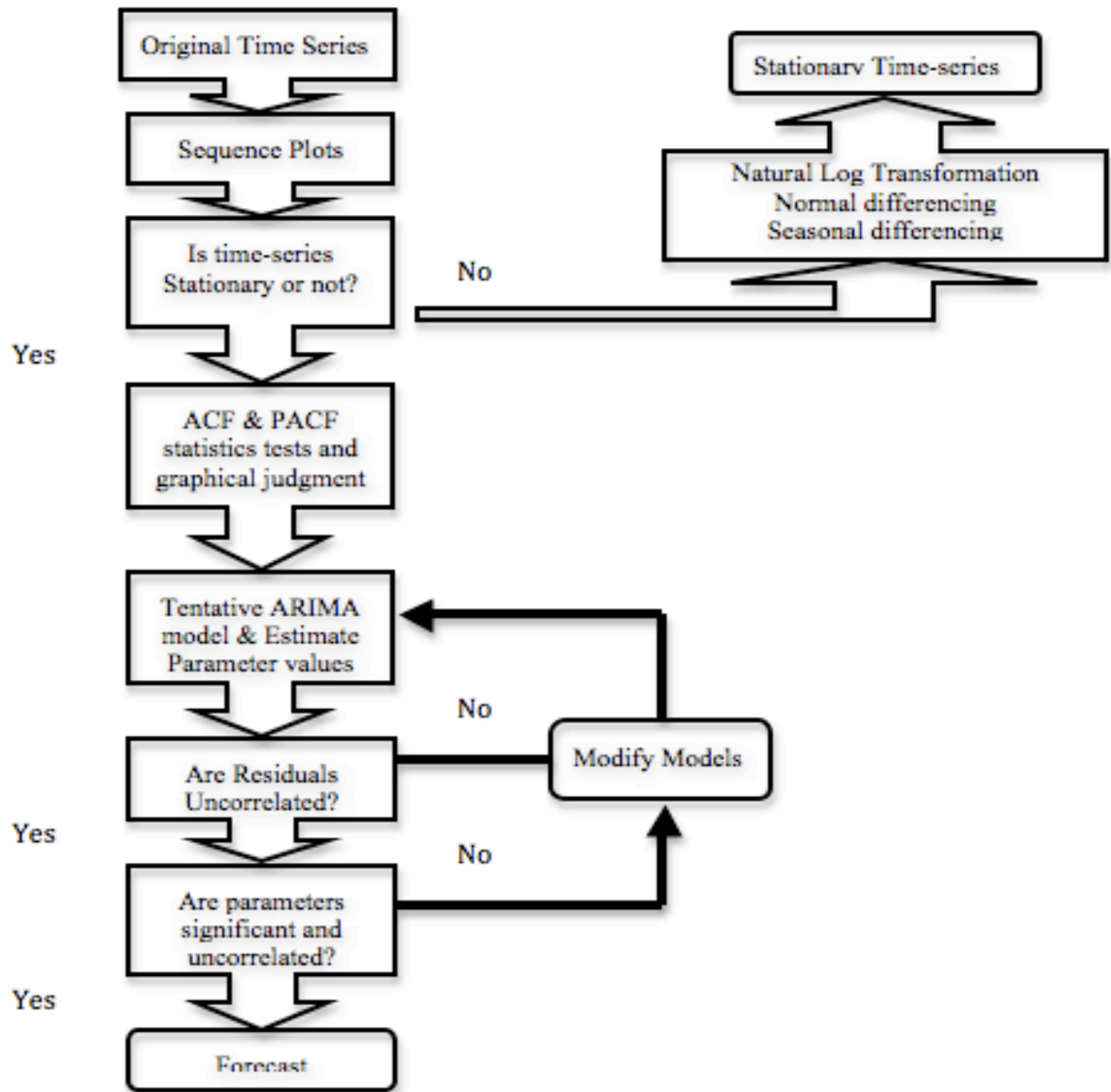


In this study, there are three sets of content predictors and five dependent variables that measure revenue and online audience traffic. The first set of content predictors measure content topics including sports, news, entertainment, business and technology, and opinions and editors. The second set of content predictors measure geographic focuses including local, regional, national, and international content. The third set of content predictors measure authorship origins including staff-written and non

staff-written content. The dependent variables include print advertising revenue, online

revenue, circulation, online page views, and online visits. For each analysis, the

dependent variable is modeled with one set of content predictors. Each dependent

variable is modeled three times, with three sets of content predictors. Altogether 15

models were generated to explain overall relationship among content characteristics,

revenue, and online audience traffic.

# IV. THE INSIDERS' VOICE: MANAGEMENT OF CONTENT, AUDIENCE & REVENUE

The central inquiry of the interviews is to understand newspaper content management. The management of content involves decision-making on a number of tasks including the selection, production, distribution, and delivery of newspaper content. Making those decisions requires a team effort from both the editorial side and the business side of the newspaper company. With diminishing resources, the decision-makers at the company have to prioritize tasks and spend resources more strategically. In addition, they have to consider new opportunities and challenges as the newspaper marches into a digital world. The organization as a whole has to adjust its culture and structure to the changing environment.

Four news managers and five business managers at the executive level were interviewed with the same sets of questions, though the phrasing of the questions varied and the follow-up questions differed. The first part of the questionnaire (see Appendix A) asked about their general understanding of *quality* journalism and a *quality* newspaper. The objective was to derive a conceptual definition of quality content by asking the respondents' normative judgment of their newspaper's roles and standards. The second part of the questionnaire asked the respondents about how they decided what content to cover and why. The objective was to examine how the respondents' value judgments

have actually guided the newspaper's content selection, and production, as well as resource allocation in the newsroom. The third part of the questionnaire questioned how economic forces on the business side (i.e. market research, profit expectation, and advertising consideration) affected content selection and production on the editorial side. The objective was to investigate whether the business values were in conflict with the news values. Additional questions were asked about this newspaper's adaptation to digital culture and any perceived challenges and opportunities therein.

To summarize, the interviews altogether provided a comprehensive understanding of three components of newspaper's content management: content, audience, and revenue. The relationship among the three components constitutes a complex business model of newspaper journalism—newspaper produces content to satisfy the needs and wants of the audience, and audience's attention is sold to advertisers for advertising revenue. Each component serves an important function by itself and also interrelates with the other two components to influence newspaper's financial performance. It is said that content defines what newspaper does and makes it relevant to local communities. The relationship between content and audience has been clearly understood with relation to the newspaper, but the conversation between content and revenue has been unclear. This study argues that the cultural value of content has to be materialized in the economic equation. Good journalism can bring in good business. But this potential requires deliberate thinking, sophisticated strategizing, and constant experimentation.

The following section summarizes the interviews corresponding to the three components mentioned above: content, audience, and revenue, and their interrelatedness. The answers from the editorial side were compared to the answers from the business side

to see if a mutual understanding about content management existed. Hearing from two sides of the newspaper also allows us to observe a shift in organizational culture from a distinctive and mechanic culture to a collaborative and coherent culture. Theoretical meanings and practical implications are summarized at the end.

## A. Content: The backbone of the business

**What is good journalism?** The normative statement about good journalism sets the standards and rules of behaviors and practices in reality. The ideal vision about journalism may not be achieved, but that vision could at least construct a symbolic culture that unites organizational members. All respondents voiced a remarkably similar understanding of what good journalism is.

The definition of good journalism is hierarchical. The highest notion resembles the roles and functions that a newspaper should play in a democratic society. As the director of advertising operations, digital and business analytics, one respondent explained that the newspaper has an emotional attachment to word journalism, which means that the decision about news does not always follow economic rationality. She distinguished the newspaper's activities into mission-based and revenue-based: "The things we have to do is our mission, investigative reporting, making people aware of issues, truth telling" (Director of advertising operations, digital, and business analytics, personal communication, April 12, 2012). Good journalism to her should be mission-based, in that " we don't say that we do this because we want to make money. We say we have to do this because this is our obligation. It is what we need to do. It is our mission

base" (Director of advertising operations, digital, and business analytics, personal communication, April 12, 2012).

Watching over government and businesses is the most appreciated mission of the newspaper by both the editorial staff and business staff. The responsibilities associated with this mission include "challenging and looking beyond the obvious to hold people and institutions to account" (Co-managing editor of newsroom K, personal communication, April 17, 2012), "asking hard questions" (Co-managing editor of newsroom K, personal communication, April 17, 2012; Executive editor of newsroom and chief vice president, personal communication, April 9, 2012), and "aggressive reporting on the local level, watching institutes, whether it's business or entities, or city halls" (Product director and associate publisher, personal communication, April 6, 2012). The role of being a *watchdog* is self-motivated rather than imposed by authority. As one respondent stated, "we have to keep an eye on institutions or government. If we are not watching them, I am not sure who else will watch them" (Product director and associate publisher, personal communication, April 6, 2012). The strong feeling of obligation to social justice and democracy suggests that good journalism should act as the fourth estate of the nation that checks and balances power.

Serving the community was another mission interpreted by many respondents from different angles. The word *community* can mean geographic location, which often points to the local regional market that the newspaper primarily covers and circulates. *Community* can also refer to the newspaper's audiences who share similar reading interests or demographic characteristics. Being an information disseminator has been the newspaper's basic role in serving the community. As respondents pointed out, "Good

journalism is journalism that accurately reflects the community to itself," (Co-managing

editor, personal communication, April 17, 2012), "celebrate[s] and reflect[s] the

community [that] it covers," (Circulation director, personal communication, April 5 and

April 6, 2012) and "tell[s] stories of [the] community you live in, [in] an accurate way"

(Product director and associate publisher, personal communication, April 6, 2012).

Delivering information to the community can "provide readers with information they

need to know about their community, government, their region, and their world, so that

they can make good decisions" (Editorial page editor, personal communication, April 9,

2012). Good journalism should not report just any information, but information that will

make a difference in people's lives. The newspaper should ask how and why questions,

"set a voice for those who won't have a voice otherwise," and encourage changes in

public policy (Circulation director, personal communication, April 5 and April 6, 2012).

This function connects to the newspaper's watchdog mission that aims to uphold social

justice and social order.

Being a public forum is another role that has enabled the newspaper to engage in

and form a community. For example, the executive editor respondent considered the

newspaper's single most important role to be "the town square of news information, to be

seen in the community to be an honest broker, a place that doesn't have any particular

political agenda" (Executive editor of newsroom and chief vice president, personal

communication, April 9, 2012). Even the editorial page acts as "a forum of different

opinions" that provides a variety of opinions so that readers can make up their own minds

(Editorial page editor, personal communication, April 9, 2012). The newspaper

moderates and facilitates communication. The product director said that he believes the

editorial side of the paper should frame political debates, "help foster an environment where there is good dialogue [that] people talk about and form community" (Product director and associate publisher, personal communication, April 6, 2012). The newspaper also embodies community focus through serving the needs and wants of local audiences. As the vice president of sales and marketing put it, good journalism "should engage readers. Understand their needs and wants in ways that connect to the newspaper as well as create a sense of community within the community itself" (Executive vice president of sales and marketing, personal communication, April 4, 2012). The newspaper that aims to develop a trustworthy and engaged relationship with its audiences has to stay connected and relevant to the community. Results in later analysis showed that the strength of the relationship between the newspaper and its audiences sets the foundation of the business model.

Moving from the ideal notion of good journalism to a more practical level, the respondents also defined good journalism from the standpoint of meeting professional standards in their journalistic works. Respondents from the editorial side and the business side agreed that the following standards are important: accuracy, truthfulness, factuality, thoroughness, fairness, and neutrality. These standards were highlighted because they were relevant and useful to the newspaper's articulated missions and roles. The co-managing editor said accuracy and fairness are the two fundamental things, "because if you are not accurate, you are not credible. If you are not credible, it doesn't matter what you do. People don't believe it," (Co-managing editor of newsroom K, personal communication, April 17, 2012). Other standards, such as truthfulness, factuality, and thoroughness are connected to accuracy, which all speak to the quality of information.

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Besides, as a public forum of the town, the newspaper has to be fair and neutral to retain

people's trust (Executive editor of newsroom and chief vice president, personal

communication, April 9, 2012). These standards guide the newspaper to be an objective

observer.

From the aspect of business strategies, respondents have defined good journalism

as providing unique, distinctive, and different products to stand out in market competition.

Being unique or different means that the newspaper does something that no one else does.

As the vice president put it, "Good journalism is local, proprietary, unique, and different

from which is reported anywhere else" (Executive vice president of sales and marketing,

personal communication, April 4, 2012). Some respondents emphasized local reporting

because that hyper-local approach differentiates the newspaper from other national or

regional media competitors. Some respondents emphasized investigative reporting

because it represents original and influential journalistic works that other information

providers, such as bloggers or citizen journalism, cannot do. An adequate and accurate

definition of the newspaper's unique offerings not only offers the company a competitive

advantage in the marketplace, but also directs the company to allocate resources more

strategically.

**What constitutes a quality newspaper?** With limited amount of resources, the

newspaper has to be more strategic about content management. Unlike the old days when

the newspaper company was printing money, nowadays it has to target resources to

focused areas that yield return on investment. The second set of questionnaire items

aimed at understanding how the newspaper managers defined and decided on the focus,

and how they managed resources among content areas. The path to arriving at those decisions is not clear. Respondents voiced the necessity for a strategic system, but had little clue about what measures, metrics, or data to begin with. As the co-managing editor explained, "Strategy is to say that we have a model, if we spend this amount of money on this product, it will bring us this much back and it will bring us values to the entire suit of product," but "that's the problem because it is hard to measure that" (Co-managing editor S, personal communication, May 3, 2012). Consequently, the editors still rely on common sense in most cases and draw on their beliefs in good journalism and professional standards. Their common sense goes back to the mission-based model and the revenue-based model mentioned above. On one hand, content that fall under the mission-based model is often unique and original, such as investigative reporting and local reporting, that has an impact on the community. The respondents perceived these contents as mandatory to the newspaper's professional identity, and they would preserve these core values regardless of financial cost or return. On the other hand, content that falls under the revenue-based model such as entertainment and features should be able to sell,. The respondents perceived this content as optional and irrelevant to their journalistic mission, and they would trade off this type of content that may compromise journalistic values.

Investigative journalism is the ultimate expression that the newspaper does its job well. Respondents from both the editorial side and the business side recognized the value of investigative reporting and were ready to commit to invest in investigative journalism. The co-managing editor said that "We carve out space, time for [journalists] to do that kind of work. It is a constant juggling act when [the] newsroom is shrinking" (Co-

managing editor of newsroom K, personal communication, April 17, 2012). The

circulation director's comments resonated with the devotion to investigative journalism.

He said, "Our paper is tight as other newspapers. But we painfully carve out dollars to

make sure we are doing that (investigative journalism), and we do that regularly"

(Circulation director, personal communication, April 5 and April 6, 2012). Journalists of

this newspaper do not hesitate to investigate its advertisers, and the business department

tries to persuade advertisers not to influence editorial content. One statement from the

circulation director highlighted investigative journalism as the essence of the newspaper:

> I believe, and some other decision-makers believe that extensions and investment
>
> in investigative journalism is why we are not going to be a commodity… we are
>
> going to put unlimited resources into this, not because we can afford it, but
>
> because at the end of the day, that's what keeps us from being a commodity. I
>
> believe if we do one thing right here that's not making money; we stay true to our
>
> mission. I am sure we will do it again. (Circulation director, personal
>
> communication, April 5 and April 6, 2012)

The newspaper has also made an affirmative choice to safeguard staff-produced

local content. For news people, being local means that reporters set their feet on the street

to cover events that are relevant to the community. The co-managing editor said that the

newsroom tried to protect the jobs of news-gatherers, which include reporters,

photographers, graphic artists, and the people who produce the content and its appearance

in the paper and on the digital platform (Co-managing editor of newsroom K, personal

communication, April 17, 2012). The newspaper placed more focus on local and regional

news to create unique values that readers cannot get elsewhere, said the executive editor

(Executive editor of newsroom and chief vice president, personal communication, April 9, 2012). For business managers, being local is more about market position or resource allocation. When asking about what makes a quality newspaper, the director of advertising operations said that "first and foremost… local land is the most important for regional newspaper," (Director of advertising operations, digital, and business analytics, personal communication, April 12, 2012). The circulation director arrived at the same conclusion. He said:

> We do not strive for being a national newspaper. Our definition of region is probably different from six or seven years ago. So celebrating and reflecting the community is local. We redefine region, make sure that we use those resource more targeted, geographically" (Circulation director, personal communication, April 5 and April 6, 2012).

The vice president also agreed that the newspaper should "focus on local, local, local" (Executive vice president of sales and marketing, personal communication, April 4, 2012).

The dedication to serious news coverage and local community paralleled the respondents' beliefs in quality journalism. As co-managing editor S said:

> News comes first. Quality journalism has been a mission for the whole company… News comes first no matter what we set in appropriate investment in news, for our mission and for our company (Co-managing editor S, personal communication, May 3, 2012).

However, a devotion to certain areas of content often forces the newspaper to trade off less important things. In the past few years, the newspaper had to make several rounds of job and budget cuts to improve cost efficiency. To preserve the core values of news,

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the newsroom had to cut elsewhere as well; production and editing, such as infrastructure and design, are additional places where they look for cuts, . The co-managing editor admitted that the choice was difficult to make: "We cannot keep up the same standards for perfect display, perfect copy with no typos. Something has to give" (Co-managing editor of newsroom K, personal communication, April 17, 2012).

Other areas to cut include entertainment or feature content, which is the vehicle of the revenue-based model. During the layoffs in 2008 and 2009, entertainment and features were among the earlier cuts because they provided less journalistic value to the newsroom and to the readers. As one of the co-managing editors explained:

I will not cut the city hall reporters. That will not be my first cut. That will be my last cut. Earlier cuts were entertainment, theatre critics, [the] food section, which pay me, because they are advertising customers. But if I have to make a choice, I am going to choose that [referring to the earlier cuts areas](Co-managing editor S, personal communication, May 3, 2012).

The executive editor agreed that the content that drives readership or revenue does not necessarily engage the readers or serve a journalistic function (Executive editor of newsroom and chief vice president, personal communication, April 9, 2012). But in retrospect, the other co-managing editor admitted that the decision was made in the heat of the moment, and the cuts probably went so far as to even damage the newspaper's online revenue (Co-managing editor of newsroom K, personal communication, April 17, 2012), since those content areas usually generated most online traffic and advertising opportunities. At first glance, it is ironic that a newspaper under financial crisis would cut back on areas that generate revenue. Once their emphasis on the mission-based content

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was made clear, their sacrifice on the revenue side starts to make sense. The director of advertising operations said, "If we focus on the revenue, we won't be in the business of this mission. I don't think it is a black or white choice. I think it is about understanding the trade-off" (Director of advertising operations, digital, and business analytics, personal communication, April 12, 2012). As a matter of fact, in this family-owned newspaper, profit maximization has never been a mission as it is at some corporate-owned newspapers. As long as the newspaper satisfies the banks, making a profit has always been secondary to its journalistic mission. As the director of advertising operations said, "revenue is important so that we can have the mission-based part. The mission base is something that unites us" (Director of advertising operations, digital, and business analytics, personal communication, April 12, 2012).

Another criterion of resource allocation is to cut back content that has the least impact. Whenever the newsroom faces these types of choices, the editors and managers ask whether the content is unique, and how many audiences will be affected by the decision. For example, in recent years, they terminated TV listings and TV critics because there was nothing unique about the way that the local audiences consume TV. Although this decision upset some elderly audiences, the executive editor believed it was the right decision (Executive editor of newsroom and chief vice president, personal communication, April 9, 2012). Being a general publication for the majority of audiences will guide the company's strategy in the next few years. To serve the mission base, a general interest newspaper should act as a town square delivering common interest information, said the executive editor (Executive editor of newsroom and chief vice president, personal communication, April 9, 2012). To serve the revenue base, a general

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interest newspaper can reach a wide and diverse audience for the advertisers, said the

product director (Product director and associate publisher, personal communication, April

6, 2012).

Sports content does not fit either the mission -based category or the revenue-based

category. On one hand, even though sports content does not serve the journalistic mission,

it attracts audiences, especially male and millennial audiences (Co-managing editor S,

personal communication, May 3, 2012). On the other hand, editors and business

executives has had a hard time figuring out how to monetize sports content. As co-

managing editor S put it, "We are very frustrated with the sports section so does

everybody, but we don't fault anybody for that" (Co-managing editor S, personal

communication, May 3, 2012). However, she continued, "We all realize that if we don't

have sports, that will be a problem. What are the different ways that the sports can at least

appeal to the audience?" (Co-managing editor S, personal communication, May 3, 2012).

The business people thought the problem lies in the way that they monetize sports. The

first obstacle is to convince advertisers. People who work at the advertising departments

have an impression that advertisers do not want to be in the sports section because

advertisers want female audiences, said the vice president of sales and marketing

(Executive vice president of sales and marketing, personal communication, April 4, 2012).

The executive director of advertising explained the situation in more detail:

> Most customers don't want sports. Partly I think [it] is perception. They think the
>
> section has been very male dominated, and most of our customers think [that]
>
> most purchase decision-makers are female. You do get some auto repairs, [and]
>
> medical gear toward men that go to sports. It's a smaller niche audience for

advertisers. But for readers, it is a big one (Executive director of advertising, personal communication, April 13, 2012).

The second obstacle is to understand the sports audience. Without adequate understanding and accurate description, the newspaper cannot sell the value of sports audiences to appropriate advertisers. The director of advertising operations explained the problem:

> We cannot monetize sports. The problem is we don't have the information or the framework that we need to really understand that audience in a way that really describes that audience. Which mechanism describes the sports audience? We don't really have the behavioral or tracking tools to really understand that sports audience and put them into more valuable assets. Part of the problem is lack of information, and what we know about our audience, and how we sell our audience. That's where I feel the disconnection (Director of advertising operations, digital, and business analytics, personal communication, April 12, 2012).

> The newspaper covers sports to secure the audience base. But if the newspaper does not understand or measure the value of audiences, it cannot monetize the content through advertising to cover cost. In addition to the mission-based or revenue-based criteria, the newspaper also considers audiences' preferences when producing content. The next section explains how the consideration about audience has influenced the newspaper's content management.

**B. Audience: Mediator in the business model**

Audience mediates the relationship between content and revenue in newspapers' business models. Audience consumes newspaper content and also purchase advertisers' products. Audience contributes directly to newspapers' circulation and circulation revenue, and indirectly generates advertising revenue. Newspapers have to consider audience's preferences and feedback for content selection, production, distribution, and delivery.

The importance of audience to the newspaper business has been described thoroughly by the director of advertising operations. She said:

> What revenue business are we in? We are in a business of attracting audience, and we are in a business of attracting revenue of that audience. It is not all audiences [that] are important. Who is the audience we want to attract? How do we get them engaged? How do we actually make money off that engagement? That's the business we are in. In a simple way, we make money through getting them pay for our works, products; they buy a newspaper subscription, buy a template, apps, or whatever that is.  We also make money by selling them off to advertisers in a lot of different ways (Director of advertising operations, digital, and business analytics, personal communication, April 12, 2012).

Her statement has highlighted three strategies in relation to audience management: targeting, engagement, and monetization. This section analyzes the first two strategies based on the respondents' narratives ; monetization strategy is left to the next section that focuses on newspaper revenue.

If not all audience is important, which audience is more important than the others and how does the newspaper determine the importance? In this instance, the importance of the audience refers to their economic value to the newspaper. Like other businesses, where consumers may demand different features from the same service provider, newspaper audiences also has different motives, areas of interests, reading habits, and utilities when they read newspapers, as stated in the *Uses and Gratification* theory. Newspapers need to customize their products and services in order to maximize the economic value of the audience through pricing differentiation. Unlike other businesses, newspapers are also obligated to fulfill journalistic missions in addition to profit expectations. The division between the mission-based model and the revenue-based model also applies to the handling of audiences and the audiences' influence on content.

For the mission-based part, the newspaper selects news items for the audiences — reporting events and information that are thought to be important to audiences' self-governing, sensemaking, and decision making in their everyday lives. This is what the executive editor referred to as the investigative pieces on government and big businesses (Executive editor of newsroom and chief vice president, personal communication, April 9, 2012). This content aims to form a community with some common areas of interest, which also builds a large general-interest consumer group for advertisers. Staying true to the journalistic mission is believed to develop readers' trust. As the editorial page editor explicated:

> We have to continue to be the seeker of truth. Be factual, honest, especially with the proliferation of the website and blogs, and all that stuff, as people get used to all that, and continue to become more and more sophisticated about their own

news-gathering, they are going to gravitate towards news and opinion they can rely on. Credible, truthful, factual, and relevant. It's really about keeping that trust with readers (Editorial page editor, personal communication, April 9, 2012).

For the revenue-based content areas, the newspaper has many options. Over the past ten years, in the entertainment and feature section, the newspaper created 34 topic areas altogether. The newsroom has to rely heavily on audience research to guide the creation and abandonment of those topic areas. As many respondents confirmed, marketing research plays a very important role for the newspaper company to get to know its audiences and create appropriate content products that respond to the audience demands. For many years, the company employed a professional research service to provide them with information about audience segmentation, media consumption patterns for different demographic groups, and audience feedback. Results from audience surveys and focus groups helped identify the newspaper's strengths and weaknesses, and most importantly opportunities for growing readership, which will affect content decisions. For example, the company is now in the middle of the process to identify content topics that will attract millennial readers. People from internal research, advertising, circulation, digital, and newsroom are brought together to dive into that research and figure out what content could help increase the audience. In their Sunday newspapers, the company also uses research to help inform content choices. As the co-managing editor K said, "We routinely talk a lot about who are our audience is, who we want our audience to be, and what kind of content might help us better," (Co-managing editor of newsroom K, personal communication, April 17, 2012). To the business people, marketing research is more than identifying popular content areas among the audience. As the executive

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director of advertising said, research guides them to what readers want. The advertising department then figures out how advertisers might want to target audiences through advertising in those particular content sections, and whether there is enough money from the advertisement segment to support the content area.  He said the change in content areas had to make sense from a reader's standpoint and a financial standpoint, because "if we do the changes, part of the changes have to be better for the readers and for the advertisers so that we can monetize it" (Executive director of advertising, personal communication, April 13, 2012).

Many respondents confirmed that there is no big conflict between what readers want and what advertisers want in newspaper content. But readers' engagement does not necessarily equal revenue, especially for sports content. Advertisers seem to want eyeballs, and some want certain segments of readers, said the product director (Product director and associate publisher, personal communication, April 6, 2012). The executive editor said that both the advertisers and the newspaper want audience engagement. Most of the advertisers want to take advantage of the trustful relationship the newspaper has with its readership (Executive editor of newsroom and chief vice president, personal communication, April 9, 2012). Even though there is occasional mismatch between audiences' and advertisers' interest, the audiences' interest is protected first and foremost. The newspaper purposefully constructs a wall of separation between the editorial side and the business side, so that advertisers do not influence what the newsroom does. The product director explained the relationship:

> Feature, for example, produces certain contents to attract certain segments of
> readers in order to attract advertisers' interest but does not serve a journalism

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purpose. Advertisers got down to us and said we need this kind of content to sell

this. We can collaborate with the newsroom on some special sections occasionally,

such as real estate stuff, etc. The content counted as the core product was left

alone to the newsroom to decide what to do (Product director and associate

publisher, personal communication, April 6, 2012).

When the newspaper printed some content that is important to the audience but not

flattering to advertisers, the business side of the newspaper was willing to work with the

advertisers to understand that news and advertising are separate, and the paper has to

adhere to their mission. The executive director of advertising explained why the

newspaper always chooses the mission and audience over advertisers' interests:

It really goes back to the news values for working with the news side, especially

for hard news and watchdog journalism. A scandal story about an advertiser who

is a large customer of the paper, the advertiser called to pull out the story; the

newspaper said no. That did cost the company quite a bit of money to do. We

were put in the middle of it. I would agree with that decision because it makes us

relevant in the marketplace and important to the community. It keeps readers

coming back to the newspaper (Executive director of advertising, personal

communication, April 13, 2012).

The co-managing editor also confirmed that business decisions regarding advertising

have to protect or supplement the audiences' reading experiences. There was a time that

advertising people wanted to put a big ad sticker on the front page. Circulation and

newsroom hated that, because the audience cannot see the content. The advertising

people had to back off (Co-managing editor S, personal communication, May 3, 2012).

The business side cooperates with the editorial side, and yet each side retains its own autonomy. On one hand, the two sides have to cooperate to maximize the editorial and financial value of the product. The business people have to understand and support the journalistic mission and be willing to sacrifice short-term profit. On the other hand, separation  still exists, and the editorial side maintains a high level of autonomy and aims for long-term audience engagement. Finding a balance in the relationship between the two sides is critical to the newspaper's revenue, which is the last element of the business model.

### C. Revenue: The final piece of the puzzle

Revenue expresses the economic value of content and audience. Even though revenue is not the primary goal that motivates the newspaper company, it empowers the news side to accomplish the journalistic mission. In the end, the cultural value of content and needs met for audience have to be converted and materialized into an economic form, so that the newspaper will survive in market competition. Because of limited resources, the respondents arrived at the same conclusion: they have to focus on products and services that can sell, and monetize their relationship with audiences. Under economic threats, the editorial side and the business side must work together to figure out a business model that can bring benefits to both sides.

**Content and revenue.** In the newsroom's perfect world, as the co-managing editor S described, they would like to see the content being sold. Content can sell in a way that appeals to audiences. When the news people were asked about what content can sell, they

responded that quality content creates value for audiences, and audiences' engagement and retention with the newspaper are converted into advertising dollars. But such a conversation is more complicated than a linear transition. It involves deliberate understanding of content value to the audience, along with strategic marketing and sales. When asked about whether good journalism will being in good business, the executive editor and vice president said,

> I absolutely believe that, but not blindly. I don't believe that all we have to do is to put out a journalistically good newspaper, and we will be fine. I believe that we have to have good journalism and smart strategic thinking and dialogue about presenting what we are doing, and how we work together to grow revenue at the same time (Executive editor of newsroom and chief vice president, personal communication, April 9, 2012).

Hence, when content did not bring in audience or revenue, the respondents attributed the fault to a broken link between content, audience, and revenue, but not to content quality. The co-managing editor S urged the sales and marketing people to get familiar with the product so that they would be sufficiently aware of its value. She said, "If you understand the audience, and if you understand the value, you could do a much better job at selling" (Co-managing editor S, personal communication, May 3, 2012). According to her, the newsroom does not just create some content that the advertising department can sell. The process requires more collaborative strategies to create content that serves audiences and drives revenue. The newsroom nowadays will consider input from the advertising department before content decisions are made. For example, if there are ten content areas

that the newsroom can do, the editor would decide to focus on the areas that also help the most in selling advertising. The co-managing editor K justified the decision in this way:

If there is an option that A and B are both good journalism, but B is something that the advertising department says would work better for them, then we can live with B since they are both good journalism. Fortunately, we work for the kind of company where good journalism is the fundamental question. We are not going to do bad journalism to make money. But if we can do different kinds of journalism, and one makes more [money] than the other, we will do it (Co-managing editor of newsroom K, personal communication, April 17, 2012).

The executive editor has confirmed this philosophy. Both the business side and the editorial side frequently mentioned the word balance. When they have limited financial and human resources, they have to take care of both content quality and revenue. The newspaper company has applied this criterion to design content for any new product (Executive editor of newsroom and chief vice president, personal communication, April 9, 2012).

Now, with a digital platform, the production and distribution of content have become more complicated. The newsroom tries to differentiate the content to serve audiences' reading experiences on different platforms. The co-managing editor K said that quality content is important no matter what the device:

No matter what device people are reading on, they want us to produce journalism that matters to their lives. That means watchdog journalism; it means producing quality exclusive content. I don't think those things will change. How we cover them and the way we present them [on] different devices - we will figure that out

as we go, and I think those things will evolve (Co-managing editor of newsroom K, personal communication, April 17, 2012).

The commitment to mission-based content was believed critical to business success by the editorial side, but more importantly, it was recognized and appreciated by the business side. The circulation director said, by the end of the day, content differentiates the newspaper from its competitors:

It (quality journalism) was always important, because it is the main thing, the product. About 15 years ago, when there were many weeklies with good content, it was more about marketing, sales, and phone calls. Right now, it is more about that unique offering… It is more and more about journalism than it was. I am absolutely convinced of that. That will pull us through to the end (Circulation director, personal communication, April 5 and April 6, 2012).

The product director also agreed that working on the creation, packaging, delivery, and pricing of quality content would save the industry:

Industry has to focus on quality journalism. If you don't have good content, you are not going to keep your audience. If you don't keep your audience, you are not going to make any money. In the way that newspaper is struggling, we are lucky to have this large and engaged audience, which a lot of companies would go for. Now it is how we start to make more money off them to sustain the journalism that we do. Going forward really depends on good journalism; not afraid of coming up with new ideas, from the business standpoint, selling content in new ways, packaging the content in different and new ways. That may have some

benefits to the paper (Product director and associate publisher, personal

communication, April 6, 2012).

Before the newsroom figures out a new business model, safeguarding core news values

has been a consensus across the company. The editors seem very optimistic about the

future with the caveat that they stick to quality product. To the executive editor, keeping

a strong and quality newsroom is also essential to strengthen the relationship with the

newspaper's audience (Executive editor of newsroom and chief vice president, personal

communication, April 9, 2012).

**Audience and revenue.** As many respondents mentioned, the newspaper does not have

an audience problem, but a revenue problem. How to monetize the audience has been the

key to solving the business puzzle. The executive editor realized that audience is not

necessarily equal to revenue. He said the newspaper tripled its audience size in the past

five years but only increased half of its revenue (Executive editor of newsroom and chief

vice president, personal communication, April 9, 2012). The mismatch between

circulation and revenue was partially due to different perceptions of audience values.

Over the years, the editorial side tried to engage the audience with content serving

journalistic missions. Audiences were valued as citizens of a democratic society who

needed information for self-governance. The business side, however, underestimated the

economic value of the audiences, said the vice president of sales and marketing

(Executive vice president of sales and marketing, personal communication, April 4, 2012).

They were afraid to charge for online subscriptions or raise the price of print papers.

Moreover, as co-managing editor S pointed out, there is also a mismatch between the

advertisers and audiences, (Co-managing editor S, personal communication, May 3, 2012). If the advertisers did not understand the audiences' economic value, the dollars did not connect with the audience volume. Advertising content can be disturbing to the audience if it does not match the their demographic interest. To correct those mismatches, respondents recommended two potential solutions. First, audiences' subscription, either through print or online platforms, has to be monetized. Second, the newsroom should continue collecting data and designing metrics to gain knowledge about their audience. The director of advertising operations said the newspaper has to reach the right audience and monetize his or her consumption of news through whichever platform he or she is using. In addition, knowing the audience can also help increase advertising revenue.

> We sell the advertisers our audiences. The more we know, the more data we have about those people, the more we can target those people for them, the higher prices we can charge them to reach their audiences. Newspaper has a pretty high quality and well-educated audience that advertisers want to get. The more you understand them, the more you can print the products that connect to the advertisers. You are still selling your audiences. I know people hate when I say that. But that's what we are doing. (Director of advertising operations, digital, and business analytics, personal communication, April 12, 2012).

When asked about how to monetize audience subscription, the executive editor envisioned that the newspaper would continue raising the print subscription price, so that the newspaper will serve a smaller population of elite audiences. Meanwhile, the newspaper should establish a pay-model online to monetize digital audiences, of which 55%-60% are from local markets (Executive editor of newsroom and chief vice president,

personal communication, April 9, 2012). The circulation director defended the necessity of the online pay-model. He said the traditional revenue model, which gets 20% of revenue from subscription and 80% of revenue from advertising, is not working anymore; print advertising and subscription revenues are getting very similar. Given that digital advertising revenue is not growing, and print subscription has migrated to digital, the new revenue model must be built upon digital subscription. He said:

> A paid subscription in digital is significant. We look at the digital products first and foremost to add value to print subscription to assure print retention. We also grow digital-only subscription revenue. Our long term strategy is to shorten print subscription, have [readers] already in the fold in the digital when your print folks move completely to digital, they move to you, not to somebody else. We'd better find a way to charge them (Circulation director, personal communication, April 5 and April 6, 2012).

The most heated discussion around the digital subscription is the feasibility of establishing a pay-wall. Though many respondents recognized the need to monetize the digital subscription, they were not certain about how and when to implement the pay-wall model. Some respondents voiced their concerns. For example, the co-managing editor K said:

> The thing that scares me about the pay-wall is that we are in a very competitive market here… If we put up the wrong kind of pay-wall, we can do damage. We've been very careful of what it might look like, when we are going to do it. We need to continue being careful. Ultimately that might be the right answer, and how we

do it and when we do it, I think will be critical (Co-managing editor of newsroom K, personal communication, April 17, 2012).

The competition that she was referring to includes local information websites free of charge, three network televisions, and public radio. The director of advertising operations was even more conservative and negative about the pay-wall model. She was afraid that charging the audience would eventually hurt the advertising revenue:

> If we are going to put [up] the pay-wall, we are going to shrink the audience. Therefore, we are going to impact our advertiser revenue. There is a correlation, and sometimes a negative correlation on what we try to do on the subscription side, and what we try to do on the advertiser's side. And we don't have the mathematical framework that allows us to know what that might look like. We always make money off the audience (Director of advertising operations, digital, and business analytics, personal communication, April 12, 2012).

The circulation director agreed that the pay-wall would reduce some page counts at a level of materials to the advertisers in the short term and put the newspaper in a competitive landscape. But if the model is done right, it does not have to reduce audience traffic or advertising revenue in the long term.

> I am certain there is way to do that right. A number of ways we can rely on. You see a drop immediately, and you see a climb back up. You have to be smart about it, appropriate paid access and also serve the public (Circulation director, personal communication, April 5 and April 6, 2012).

Getting to know the audience is the second potential solution to audience monetization. The knowledge of the audience has to be captured in a measurable and strategic way. With an intentional and strategic matrix of the audience, the newsroom can create more targeted and focused content, and calculate the cost and return on investment (Co-managing editor S, personal communication, May 3, 2012). Data is critical. The director of advertising operations also attempted to advocate a data-driven audience value framework. She said the newspaper industry could learn from retailers, identifying customer segments with high economic values. and quantifying the value of each segment (Director of advertising operations, digital, and business analytics, personal communication, April 12, 2012).

Despite different approaches on monetizing audiences, the respondents agreed that there is a business model focused on audience. The executive editor voiced his optimism about the future of newspaper industry, which has to be based upon the audience engagement with the paper:

Because of the strength of our audience, I am very confident that there is a business model on the other end, unless we commit suicide in the meantime. We got to keep the audience, and then figure out new ways to monetize our audience type, whether there is a consumer pay-model, whether there is a targeted advertising model. I think it is a combination of both and maybe other revenue streams. We got to hold on to our audience and our relationship with the audience in the meantime (Executive editor of newsroom and chief vice president, personal communication, April 9, 2012).

Co-managing editor K also urged the newspaper to come up with a business model that was based on audience but aimed at revenue. She said:

> We need to stay focused on our audiences, what they want, and I think we got a lot better in the last few years about engaging our audience more and broke down the walls of the ivory tower, which really is a good thing. We have to keep going on that front. But audience isn't the problem ultimately. The problem is finding the money to keep paying the reporters, and photographers, and videographers to produce content, so that we can be viable news organizations (Co-managing editor of newsroom K, personal communication, April 17, 2012).

**D. The wall becomes invisible: The shifting relationship between the editorial side and the business side**

The evolving business model also transforms the organizational culture from a distinctive relationship between the editorial side and the business side to a more collaborative relationship between the two sides. Developing a business model involves decisions about content, audience, and revenue, which have compelled the two sides to cooperate and communicate more often than before. As a result, the wall of separation between the two sides has become less clear.

Decades ago, when the newspaper had plenty of resources at disposal, the editorial side worked separately from the business side. As co-managing editor S described, the relationship between the two sides was rather distinctive and mechanic. The newsroom created content, and the sales and advertising people went to sell them. The sales and advertising people didn't care or did not know the journalistic mission of

the product. They often came to the newsroom and requested the news people to create

certain content so that they could sell more advertisements. The newsroom did. But when

the advertisements went away, the content quality was maintained (Co-managing editor S,

personal communication, May 3, 2012). The lack of communication and mutual

appreciation from the two sides resulted in poor strategic management of resource

allocation.

Since the industry is under siege, the desire to survive and succeed has united the

two sides. It has been in the newsroom's best interest to work with the business side and

to continue doing good journalism (Co-managing editor of newsroom K, personal

communication, April 17, 2012). And it has been in the business sides' interest to direct

resources to the content areas that serve journalistic purpose and make money (Product

director and associate publisher, personal communication, April 6, 2012). The product

director referred to the old metaphor of a wall of separation to describe the shifting

relationship. He said, "In the past, a very high wall was between news and advertising.

Now, it is a low wall with big windows" (Product director and associate publisher,

personal communication, April 6, 2012).

When asked about whether a consideration of business interest would conflict or

compromise news values, none of the respondents reported that the problem was seen at

this newspaper. In fact, some of them even criticized such an accusation. The director of

advertising operations said, "I can't image many at this point would say that. I am sure

they will understand what's going on. If you find journalists who said that, they feel no

pain, their jobs are protected" (Director of advertising operations, digital, and business

analytics, personal communication, April 12, 2012). The executive editor did not

perceive this as a problem, either:

> It is a largely false dichotomy that newspaper gets caught up in. A really dangerous
>
> perspective to start with the notion that revenue and journalism are in conflict, and
>
> it is an either-or. In all the years that I have worked in journalism, there are very
>
> very few occasions where I thought the two are in conflict. In a company like
>
> where I am now, the journalistic values are never compromised (Executive editor
>
> of newsroom and chief vice president, personal communication, April 9, 2012).

Collaboration between the two sides has been perceived as a very healthy working

culture. The respondents said they constantly communicate with the other side about

what content to produce, and what content will drive audiences and generate revenue.

The open dialogue often helps both sides understand what is going on and make sense of

why certain decisions are made. Co-managing editor K described the new culture as "a

more cooperative, collegial and actually respectful relationship than it has been in the

past" where "neither side is dictating" (Co-managing editor of newsroom K, personal

communication, April 17, 2012). Both the business side and the editorial side have

welcomed this new relationship. The executive director of advertising said:

> It's very nice that we can have this conversation. The news people listen to me. I
>
> spent 17 years in Gannett. I did not get quite the same interaction. Here we have
>
> talked about these things in terms of what content will bring the readers to the
>
> paper, which helps me, and what content can help advertisers of the paper
>
> (Executive director of advertising, personal communication, April 13, 2012).

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The product director also said that the team works well together: "The business side understands [the] journalism that we do" (Product director and associate publisher, personal communication, April 6, 2012). Neither side commands the other side. They are able to work through the decisions together. As the product director and associate publisher said he is very comfortable with the quality of journalism in this newspaper. The journalistic mission has been understood for a long time and will be continuously understood. "For us, it wasn't too painful to go with the lower wall with big windows" (Product director and associate publisher, personal communication, April 6, 2012).

The collaborative culture was also aided and strengthened by a shift in organizational structure. Last year, the newspaper moved away from its print / digital split to a more coherent structure. According to the executive editor, the newspaper company was reorganized as three intersecting circles in the middle of which is engagement (Executive vice president of sales and marketing, personal communication, April 4, 2012). The first circle focuses on the creation of content, which includes reporters, photographers, and the frontline editors who work with them, along with informational people, graphic people, and videographers. The second circle focuses on the curation of content: overseeing standards, quality, editing, and production: getting the content into the best form and device: and staying tuned to what people want and expect on different platforms. The third circle, which is more conceptual, focuses on community engagement. Community can be an input mechanism, for which the newspaper produces content and stays relevant. Community can also financially support the newspaper, since audience and advertiser are main source of revenue.

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This new organizational structure reflects the newspaper's focus on the near future. When asked about tasks to be done, both of the co-managing editors mentioned three concerns: 1) content– invent new ways to produce and provide content to readers; 2) audience– research how to reach and monetize the audience; and 3) collaboration – work with the business side to have an integrated strategy regarding revenue, advertising, and consumers. They acknowledged that a shared understanding about the three tasks has to be realized across the company (Co-managing editor of newsroom K, personal communication, April 17, 2012; Co-managing editor S, personal communication, May 3, 2012). Overall, after discussing the revenue issues with all participant, it seems that when every penny counts, every decision has to satisfy journalistic as well as economic expectations.

**E. Summary of interview findings**

The interviews were meant to determine the respondents' conceptual definition of good journalism and good newspapers, content management at the newspaper, and the relationship between the business side and the editorial side. The findings are summarized below.

At face value, the newspaper divides its content production into the mission-based model and the revenue-based model. The mission-based model defines the newspaper's roles and responsibilities as a journalistic institution. The respondents claim that they are willing to preserve and sponsor the newspaper's core values no matter what the cost. Under this model, good journalism is compelled to watch over government and business entities and serve the community. Being a *watchdog* is perceived as the most important

role, but the newspaper should also serve as an information disseminator and a town square that engages and unites of the community. When the mission-based model is operationalized in the newspaper's content management, it means more investigative reporting and coverage about the local community by the newspaper staff. The unique content offering in those categories is expected to differentiate this newspaper from other competitors in the market. On the other hand, the revenue-based model finances the newspaper. Compared to the mission-based model, the revenue-based model is regarded as optional and less critical. If necessary, the newspaper will sacrifice revenue to protect its journalistic missions. Content that falls under the revenue-based model refers to story topics in entertainment and feature categories, since they primarily create customers for advertisers. These two models have guided the newspaper to decide what content categories to invest. The criteria of selecting content are multifaceted and hierarchal. The content has to serve journalistic missions and audiences' interest, and bring in revenue. The editorial side and the business side have to work together to identify quality content areas that can sell. As a consequence, the newsroom structure and culture have been more collaborative and integrated than ever before to endure economic threats and declining readership.

The newsroom has articulated a determination to protect its cultural capital, as embodied in quality journalism and a quality newspaper, even at the cost of losing some economic capital. The respondents have justified this dedication since it makes journalistic as well as economic sense. At first glance, the newspaper seems to march more toward cultural capital. Given the economic downturn, in which newspaper companies in general are vulnerable to economic threats, gravitation toward cultural

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capital should be praised, even though it seems contrary to instinct. Though this tendency is good news for journalism, it could mean financial disaster for a newspaper business. First of all, creating some quality content, especially investigative stories, is very costly. Some respondents said that the newspaper is willing to invest in investigative journalism regardless of budget limits, or even sacrifice content that generates revenue. They believed such a devotion to quality journalism and quality content would eventually pull the newspaper out of the financial crisis. This almost religious belief was built upon the assumed bond with readers, who said, in a marketing survey, that they welcomed serious news.

However, three potential flaws may contradict such an assumption. First, Napoli (2003) has pointed out that audience research is not always a reliable measure of what an audience actually reads. If the newspaper created content solely based on self-reported data but not combined with the audiences' behavioral data, a marketing survey can produce misleading results and thus violate the assumption that quality content engages audiences. Second, even though audience research indeed measures what an audience truly wants and reads, audience engagement does not necessarily convert to revenue. As mentioned above, several respondents mentioned the mismatch between audience growth and revenue growth, especially in the area of sports content. If the newsroom continues investing in those areas without fixing the broken link between audience and revenue, the investment will not generate immediate financial return, which will make the declining business even worse. Moreover, the respondents used many words such as "believe", "confident", and "should" when they described the connection between good journalism and good business. But faith alone in good journalism cannot bring in revenue; at least

the respondents have no empirical evidence to show that quality content increases advertising revenue. Traditionally, revenue was a function of advertising sales, which were sometimes independent of content quality. In other words, good content may appeal to audiences but not interest advertisers, unless the audiences' interests matched advertisers' interests. For example, if the advertisers believe that the news section attracts the most eyeballs, they would purchase advertising space in the section regardless of what news was printed. Therefore, a blind belief in quality journalism is not enough to sustain the business. During the economic downturn when resources were scarce, an overinvestment or overproduction in some content areas could easily devastate a newspaper business , because this strategy consumes many resources without yielding sufficient economic return. To prevent this scenario from happening, the newsroom should at least verify whether content affects revenue, and if so, what kind of content is the most influential.

Even though the respondents claimed that they were willing to sacrifice revenue for journalistic missions, they have to balance mission with revenue expectations in practice. The gap between the respondents' espoused value and actual practice has been noted in organizational culture theory. The organization often decouples its technical routine and practice from its formal and normative ritual to improve efficiency and chance of survival (J. W. Meyer & Rowan, 1977). In fact, the editorial side compromises with the business side by advancing content that can sell. In other words, content that is only sound in journalism but not in making money will be abandoned. The editorial side still has autonomy to deal with content, but only when such content meets revenue expectations. The business side also compromises with the editorial side to ensure that

content that can sell should also meet journalistic purposes and missions. Each side gives away some autonomy in exchange for a better financial and journalistic performance overall.

However, the newspaper has not yet figured out a strategy or mechanism to measure what content can sell. The relationship between content and revenue is mediated and materialized through the audience. The newspaper as a whole perceives marketing research as a favorable method to get to know its audience. The respondents said that marketing research provides useful information about demographics and uses of media, which helps the newspaper craft content that targets the right audience segment. This popularity of using marketing research confirms what scholars have observed about the news media becoming more market-oriented (Underwood and Stamm, 2002). However, newspaper managers did not view this tendency as problematic or intruding, but rather strategic and insightful. They welcome marketing research and launch panel studies, focus groups, and surveys to solicit audience feedback on a regular basis; they also consider audiences' input when a new product is under design.

The issue at hand is how much marketing research is sufficient? Some respondents felt that they need to do more sophisticated audience research, and develop matrix and analytic frameworks to understand audience's economic value, whereas other respondents felt they've already done enough. These different reactions echoed the respondents' professional backgrounds, from which they drew references and comparisons. Considering its history, the newspaper under study has done tremendous research about its audience. Compared to other businesses, such as retail stores, the

newspaper maintains descriptive research but lacks more relational research that would quantify the dynamics between content elements and audience.

To solve the puzzle between content and revenue, the respondents have pressed for a data-driven and analytic approach to the business model in order to understand the economic values of content and audience. The second part of this study responds to the issue by examining the economic value of content. More specifically, it operationalizes content variables from three dimensions that cover five topic areas (i.e. news, entertainment, sports, business and technology, and opinion and editorial), four geographic focuses (i.e., local, regional, national, and international), and two authorship origins (i.e. staff-written, and non-staff written). These dimensions encompass the newsroom's definitions of quality content. A series of statistical analyses were done to model the relationships between each dimension of the content with print and digital revenue, and between each dimension of the content with online audience consumption. The models and results are discussed in the next chapter.

## V: TIME SERIES ANALYSIS: MATHEMATIC RELATIONSHIP BETWEEN CONTENT, AUDIENCE, AND REVENUE

### A. Descriptive statistics

The sequence plots Figure C-1 and Figure C-2 show the trends of revenue and circulation from January 2001 to June 2010. The amount of print advertising revenue stably fluctuated in a seasonal pattern and then plunged throughout 2008 to 2010. The average monthly print advertising revenue was $16 million (SD= 4,029,435.84). Though the amount of print circulation revenue varied from season to season, its overall trend was steady. The average monthly print circulation revenue was $3.13 million (SD= 570,204.045). The amount of online advertising revenue was flat for the first three years, and then took off in 2004. The growth of online advertising revenue reached its peak between 2007 and 2008 and then slowed down beginning in 2009. The average monthly online advertising revenue was $1.52 million (SD= 900,500). Print circulation was steadily declining throughout the ten years. Except for a steep dive in January 2002, the print circulation reached its lowest point during year 2009 and then rose again in year 2010. The average monthly circulation was .34 million (SD=37,092.23). As the Figure C-3 showed, the number of visits online grew steadily since 2005 and reached its highest point in 2008. But in 2009, the number of visits dropped to a level that was slightly higher than that of 2007. On average, about 12.67 million unique visits to the newspaper's online platform were observed in a month. Likewise, the number of page

views online was increasing steadily since 2005 and reached its highest point in the mid of year 2009 and then plunged in late 2009. Though the trend was recovering in 2010, the number of page views has not reached the same level as it was before 2009. On average, about 77.36 million of pages of the online newspapers were viewed in a month.

The sequence plots Figure C-4 show the trends of newspaper content measured by the number of stories from January 2001 to June 2010. Overall, the total number of stories fell a bell-shape curve, the number rising from year 2002 and then declining significantly from year 2008. The mean number of stories by each category was steady over the ten-year period, though the absolute amount and dispersion changed from month to month. Among the five topic areas, news category had an average of 217 stories in each constructed month (SD=76.25); sports category had an average of 161 stories (SD=53.33); entertainment and life category had an average of 107 stories (SD=45.58); business and technology category had an average of 115 stories (SD=92.38); and opinion and editorial category had an average of 39 stories (SD=34.11). Among the four geographic focuses, the number of stories with a local focus ranked the highest, with an average output of 483 stories per month (SD=119.33). The number of stories with a national focus ranked the second, with an average output of 101 stories per month (SD=29.73). The number of stories with a regional focus ranked the third, with an average of 101 stories per month (SD=13.15). The number of stories with an international focus ranked the last, with an average of 19 stories per month (SD=6.93). The average number of stories that were written by a staff in a month (Mean=477, SD=119) was much more than the average number of stories that were originally published by other sources (Mean=166, SD=48).

The sequence plots Figure C-5 show the trends of newspaper content measured by the number of column length from January 2001 to June 2010. Overall, the monthly column length of each content category was stationary, except for a surge during year 2002 and 2003. Newsroom editors said that they used to publish five editions of the newspaper that targeted five markets during those two years, which created some redundancy in content. However, the surge still existed even after only the main edition of the newspaper content was counted. Neither newsroom nor the researcher can explain why the monthly story length during those two years was longer than the other years. It could be due to a change in page design like a shift in column width of the paper. This sudden surge may affect the follow-up statistical prediction since both mean and variance shifted in those two years. Consistent with the pattern of content measured by the number of stories, news content was produced with the longest column length, with an average of 1,759.16 inches per month (SD=416.19). Business and technology content ranked the second, with an average of 1,437.06 inches per month (SD=1,904.25). Sports content was the third largest content category, with an average output of 1,381.77 inches (SD=553.46). Entertainment and life content had produced an average of 854.7 inches per month (SD=307.48). Opinion and editorial content had the smallest amount of output, with an average of 454.11 inches per month (SD=659.73). Stories with a local focus had the largest output (Mean= 4,633.58 inches, SD=2,600.87). Stories with a national focus had the second largest output (Mean=915.83, SD=622.85). Stories with a regional focus (Mean=379.28, SD=291.53) and stories with an international focus (Mean=164. 02, SD=102.27) had less output than the other two categories.

When the content was measured by the number of stories produced in each month, the correlation Table C-4 showed that the number of news stories demonstrated a significantly positive relationship with the numbers of entertainment stories (r= .6, p<. 01) and sports stories (r=. 89, p<. 01), and yet a significant negative relationship with the number of opinion pieces (r= -.63, p<.. 01) and the number of business and technology stories (r= -. 57, p<. 01)

The correlations between the content categories, audience behaviors and the revenue indicators further indicate the magnitude of relationship. As the Table C-6 showed that the circulation demonstrated a significantly positive correlation with the number of stories in opinion and editorial, and business and technology, but not with the number of entertainment stories (r= -.503, p<. 01) or the number of news or sports stories (not significant). Except for the number of news stories, all the other content areas have significantly correlated with the amount of print advertising revenue. All of the content areas correlated with the online advertising revenue significantly. However, the correlations between content and online traffic observed a reverse trend. All content areas except of entertainment were positively and significantly correlated with the online page views. The number of news, business and technology, and sports stories correlated negatively with the number of online visits.

When the content was measured by the length of column in each month, all of the content categories demonstrated a significantly positive correlation with each other except for entertainment, and the coefficient was high (See Table C-5). This high correlation will lead to a multicollinearity problem, which is a serious violation of the assumptions of regression analysis. The correlation Table C-7 showed that online page

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views and print advertising revenue were positively correlated with the column lengths of all of the content categories. Circulation was positively correlated with all of the content areas except for entertainment content; whereas the circulation revenue was negatively correlated with all of the content areas except for entertainment content. The amount of entertainment content did not significantly correlate with either the circulation or the circulation revenue. The amount of online advertising revenue was significantly correlated with the amount of entertainment content ($r= .762$, $p< .01$), but negatively correlated with the amount of opinion content ($r= -.506$, $p< .01$) and business and technology content ($r= -.525$, $p< .01$). The number of online unique visits was negatively correlated with all of the content areas except for the opinion content.

## B. Selection of independent and dependent variables

Though both the number of stories and the length of column can measure newspaper content output, the latter measurement is considered a more accurate indicator of the actual content volume. The length of column measures the size of news hole, whereas the number of stories measurement cannot reflect the space ratio among different content categories. For example, if the entertainment content had ten stories and each story ran about ten inches, the total entertainment content volume was less than the news content that had five stories and each ran 25 inches. Therefore, the number of column length was chosen as the ultimate measurement for content categories operationalized on the three dimensions: topic area, geographic focus, and authorship origin. Hence, the three sets of independent variables include: 1) the monthly column lengths of news, sports, entertainment, opinion and editorial, and business and technology content; 2) the

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monthly column lengths of content with local, regional, national, and international focuses; 3) and the monthly column lengths of content that was written by newspaper staff or not.

The dependent variables of the study were consisted of the indicators of audience behaviors and indicators of financial performance. The audience consumption patterns of print and online content were articulated through print circulation, the number of page views of online content, and the number of visits to online newspaper website. The newspaper's financial performance was operationalized as the dollar amounts of print advertising revenue and online advertising revenue. Circulation revenue was not considered as a dependent variable, because it was affected by the pricing strategies of the company. The price of the newspaper varied from year to year and from region to region, but the price information was not available to this study. Compared to circulation revenue, circulation was considered as a more appropriate measure of the audience reception of the newspaper's content.

## C. Model diagnosis and specification

Following the principles of the ARIMA model as illustrated in Figure A, sequence plots, autocorrelation functions and partial autocorrelation functions were first examined to diagnose the appropriate differing term (d), autoregressive term (p) and moving average term (q) for each of the dependent variable. If the selected model cannot fully explain the structure of the data, the independent variable was then modeled with appropriate differing term (D), numerator (P), and denominator (Q), in order to capture the remaining structure of the data. The seasonal ARIMA model is then written as (p, d,

q)(P, D, Q). The conceptual meaning of numerator is equivalent to the autoregressive term, and the meaning of denominator is equivalent to the moving average term.

To compare various models for prediction, four information criteria were referred to: mean absolute error (MAE), Liung-Box Q statistics, stationary R-square, and the coefficient size of each content predictor. As demonstrated in previous descriptive statistics, the content volume surged during year 2002 and 2003. Therefore, the models with and without the first three years of data were analyzed separately. First, the results with and without adding seasonal effects of the content variables were compared for years from 2001 to 2010. Second, the results with and without adding the seasonal effects of content variables were compared for years from 2004 to 2010. Third, the results of with and without the data of the first three years data were compared and the best models were selected according to the mentioned criteria.

Next, both independent and dependent variables were recoded using natural logarithm transformation. Since the variables demonstrated a large variance as shown in the descriptive statistics, it is common to transform the data in order to make it more stationary and less varied. After transformation, the coefficient has the meaning and function of elasticity, detailing the percentage change in the dependent variables that was due to one percentage change in independent variable.[9] The following session explains the model diagnosis and selection for each dependent variable.

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[9] Ln $(Y)=\beta_0+\beta_1$Ln(X). By the chain rule, the derivative of the Ln(Y) with respect to X is the same as the derivative of the Ln(Y) with respect to Y times the derivative of Y with respect to X. Also, since the derivative of the Ln(X) with respect to X is 1/X, we can write: $\dfrac{dLn(Y)}{dX}=\dfrac{dLn(Y)}{dY}\dfrac{d(Y)}{dX}=\dfrac{1}{Y}\dfrac{dY}{dX}$, taking the derivative of $[\beta_0+\beta_1 Ln(X)]$ with

**Print advertising revenue 2001-2010.** As shown by the Figure D-1, the Time-series plot of the print advertising revenue from 2001 to 2010 showed that the time series data were not stationary, even after the variable was log transformed. The data was corrected through appropriate differing of the dependent variable. After adding the first differencing order, the plot of the print advertising revenue seemed stationary (See Figure D-2). Using the principles as explained in Table B, the charts and statistics of autocorrelation and partial autocorrelation further indicated that the autoregressive term is probably around 2 (See Figures D-3 and D4). The effect of seasonality was probably present because the autocorrelation chart spiked around month 6 and month 12. In this case, the nonseasonal ARIMA model $(2,1,0)(0,0,0)_{12}$ was first applied. However, the Ljung-Box Q statistic was small and significant, which meant that the model was inadequate. Next, the seasonal ARIMA model $(2,1,0)(0,1,0)$ was applied. Adding one seasonal differencing term to the dependent variable had allowed the model to capture the structure of the data (Ljung-Box Q= 18. 802, df= 16, sig. =. 279, p> .05).

In addition, to exhaust the model and explore other possibilities, more complexity was built upon the seasonal ARIMA model. For example, when the content variables measured by the topic areas (i.e. news, sports, business and technology, entertainment, and opinion and editorial) were entered as predictors, the autocorrelation and partial autocorrelation of the independent variables showed that seasonality was present. Hence, one numerator (lag=1) was added to all of the independent variables. Though the model

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respect to X, we can then write $\dfrac{1}{y}\dfrac{dY}{dX} = \dfrac{\beta_1}{x}$, which implies that the constant elasticity of revenue with respect to content amount if equal to $\beta_1$. Therefore,

$$\frac{dY}{Y}\frac{X}{dX} = \frac{dY/Y}{dX/X} = \frac{\%changeinY}{\%changeinX}$$

was adequate to capture the structure of the data (Ljung-Box Q= 18.29, df=16, sig.=. 307, p>. 05), none of the content variables at lag 1 significantly predicted the print advertising revenue. This result indicated that adding the numerator term to the all of the content variables was not necessarily. Thus, a second seasonable model was applied when adding the numerator term only to news, entertainment, and sports content, but not to the opinion and editorial content, business and technology content, and circulation. The reason for this discrimination was that the first three variables had demonstrated more sharp seasonality than the other content variables. Again, the updated model with selective numerator terms was adequate (Ljung-Box Q=18.977, df=16, sig.=. 27, p>. 05), but none of the selective content variables at lag 1 significantly predicted the print advertising revenue. Therefore, the seasonal ARIMA model $(2,1,0)(0,1,0)_{12}$ was considered the best model to fit the print advertising revenue data from 2001 to 2010. The residual plots also confirmed it was an appropriate model (See Figure D-5).

When the content variables measured by the geographic focus (i.e., local, regional, national, and international) were entered as predictors of the print advertising revenue, the model $(2,1,0)(0,1,0)_{12}$ also successfully fit the data (Ljung-Box Q=15. 03, df=16, sig.=. 522, p>. 05). Likewise, the model also fit the data when content variables were operationalized as staff and non-staff written content to predict the print advertising revenue (Ljung-Box Q=21.47, sig.= .161, df=16, sig.=. 27, p>. 05). In sum, the seasonal AR model $(2,1,0)(0,1,0)_{12}$ fit the print advertising revenue from 2001 to 2010 when content of three dimensions were entered as predictors.

**Print advertising revenue 2004-2010.** As explained in the descriptive statistics, the surge of content volume in 2002 and 2003 was suspected to influence the prediction on print advertising revenue. Therefore, the print advertising revenue from 2004 to 2010 was also modeled.

The sequence plot showed that the mean of print advertising revenue from 2004 and 2010 was not stationary (See Figure E-1). The data was corrected through differencing. The autocorrelation and partial autocorrelation plots also indicated an autoregressive term should be added to the model (Figures E-3 and E-4). In this case, the seasonal ARIMA model $(1,1,0)(0,1,0)_{12}$ was applied and proven to be appropriate (Ljung-Box Q=25. 34, df=17, sig. =, p>. 05). To further improve the model, a numerator term was added to the content variables measured by the five topic areas. The model was adequate (Ljung-Box Q=27.265, sig.= .054, df=17, p>. 05). Some content variables at lag 1 also significantly predicted the print advertising revenue, which meant that the numerator term was necessary to capture the structure remaining in the data.

When the content variables were operationalized as content geographic focuses, the seasonal AR model $(1,1,0)(0,1,0)_{12}$ sufficiently explained the print advertising revenue (Ljung-Box Q=20.793, sig.=. 237, df=17, p>. 05). When the content variables were operationalized as staff and non staff written, the seasonal MA model $(0,1,1)(0,1,1)_{12}$ was obtained to capture the structure of the print advertising revenue (Ljung-Box Q=14.603, sig.=. 554, df=16, p>. 05).

**Online advertising revenue 2001-2010.** The sequence plot of the online advertising revenue after log transformation still demonstrated a quadratic trend (See Figure F-1). To

make such a trend stationary, the differencing term should be 2 or consider adding both nonseasonal differencing and seasonal differencing orders. The plots of autocorrelation and partial autocorrelation suggest that the autoregressive term or the moving average term was approximately close to 1, since both charts spiked at lag 12 (See Figures F-3 and F-4).

Using the first set of content predictors, operationalized as the topic areas, the following models were tried and finalized. First, the nonseasonal AR model (1,1,0)(0,0,0) and MR model (0,1,1)(0,0,0) were tried and compared. The statistics showed the two models fit the data adequately and the results were very close (AR model: Ljung-Box Q=22.91, sig.=. 152, df=17, p>. 05; MR model: Ljung-Box Q=22.86, sig.=. 154, df=17, p>. 05). Next, a seasonal differencing term was added to the AR and the MR model with an intention to remove the additional trend. However, neither of the models sufficiently fit the data, since the Ljung-Box Q was significant. Third, a numerator term (lag=1) was added to the independent variables and the seasonal differencing term was dropped. With numerator added, the AR model (1,1,0)(0,0,0) and the MR model (0,1,1)(0,0,0) model produced very similar results. Though more variance was explained, but none of the content variables at lag 1 was significant predictor of the online advertising revenue. Though the model was slightly better than the nonseasonal AR or nonseasonal MR model, the lagging term made the whole model more complicated to interpret. Overall, the nonseasonal MR model (0,1,1)(0,0,0) was chosen as the best fit model among all of the attempted models.

When the content was operationalized as the geographic focus (i.e., local, regional, national, and international), the nonseasonal AR model (1,1,0)(0,0,0) and MR model

(0,1,1)(0,0,0) delivered very similar results. Both models fit the online advertising

revenue data very well. Since most content predictors were not significant even at the lag

0 level, adding more lagging to the content variables would make no sense. The MR

model (0,1,1)(0,0,0) was chosen as the final model of the content variables measured

from the geographic focus to predict the online advertising revenue.

When the content was operationalized as the staff-written and non staff-written,

the MR model (0,1,1)(0,0,0) also fit the data, which was consistent with using other

content variables to predict the online advertising revenue.

**Online advertising revenue 2004-2010.** After the first three years of content data was

removed, the online advertising revenue was remolded using the three sets of content

variables. The sequence plot of the online advertising revenue from 2004 to 2010 still

demonstrated a quadratic trend (See Figure G-1). The autocorrelation and partial

autocorrelation charts spiked at lag 12 (See Figures G-3 and G-4).

When the three dimensions of content variables were entered with one set at a

time, the nonseasonal AR model (1,1,0)(0,0,0) was applied to predict the online

advertising revenue data. The model was a good fit for every prediction. When using the

content topic areas as predictors, the model explained a total of 46.2% variance of the

online advertising revenue (Ljung-Box Q=20.28, sig.=. 26, df=17, p>. 05). When using

the content geographic focuses as predictors, the model explained a total of 45.7%

variance of the online advertising revenue (Ljung-Box Q=20. 92, sig.=. 23, df=17, p>. 05,

MAE=. 06). When using the authorship origin of content as predictors, the model

explained about 42.6% variance of the online advertising revenue (Ljung-Box Q=20.67, sig.=. 242, df=17, p>. 05, MAE=. 061).

**Circulation 2001-2010.** The sequence plot of the circulation data after log transformation demonstrated a nonstationary mean from 2001 and 2010 (See Figure H-1). Particularly, the trend plunged in 2009 and then picked up again in 2010. The autocorrelation and partial autocorrelation charts spiked at lag 9, which suggest the autoregressive or the moving average term was approximately 1 (See Figures H-3 and H-4). The seasonal trend might also be present.

When using the five content topic areas as predictors, neither did the nonseasonal AR model (1,1,0)(0,0,0) nor the nonseasonal MR model (0,1,1)(0,0,0) capture the full structure of the circulation data. After exploring the other possibilities, the simple seasonal model $(0,1,0)(1,0,0)_{12}$ was chosen as the best fit. Altogether it explained 84.3% of the variance in circulation (Ljung-Box Q=14.93, sig.=. 601, df=17, p>. 05, MAE=. 015).

When using the four content variables measured by the geographic focuses, the seasonal model $(0,1,0)(1,0,0)_{12}$ had to be modified to the seasonal MA model $(0,1,1)(1,0,0)_{12}$ to capture the structure of the circulation data sufficiently (Ljung-Box Q=16.05, sig.=. 449, df=16, p>. 05, MAE=. 013). A total of 86.9% of variance in circulation was explained. This model also applied to the data when the content variables were measured by the authorship origins (Ljung-Box Q=16.92, sig.=. 38, df=16, p>. 05, MAE=. 014). The model explained 86.7% variance in circulation.

**Circulation 2004-2010.** The sequence plot of the circulation data from 2004 to 2010 was very similar to the pattern of the data from 2001 to 2010 (See Figure I-1). The nonstationary trend was corrected by adding a differencing term and log transformation. The autocorrelation and partial autocorrelation charts suggest potential seasonal trend (See Figures I-3 and I-4).

The seasonal MA model $(0,1,1)(0,1,0)_{12}$ was proven to be a best fit. When the content variables were measured by topic areas, the model explained 93.7% variance in circulation (Ljung-Box Q=11.54, sig.=. 827, df=17, p>. 05, MAE=. 004). When the content variables were measured by geographic focuses, the model explained 93.3% variance (Ljung-Box Q=10. 91, sig.=. 861, df=17, p>. 05, MAE=. 011). When the content variables were measured by the authorship origin, the model explained 93.7% variance in circulation (Ljung-Box Q=9.67, sig.=. 917, df=17, p>. 05, MAE=. 01). Overall, the model was a much better fit for the 2004-2010 circulation data than for the 2001-2010 circulation data, because the model explained over 90% of the variance in the circulation data from 2004 to 2010.

**Online audience page views 2005-2010.** The sequence plot of the number of page views on the newspaper's website demonstrated a nonstationary trend from 2005 to 2010 (See Figure J-1). The trend was corrected by adding a differencing term to the log transformed data. The autocorrelation and partial autocorrelation charts showed no spike was beyond the confidential interval (See Figures J-3 and J-4).

Therefore, a very basic, nonseasonal AR model (1,1,0)(0,0,0) was adequate to explain the trend of the online audience page views from 2005 to 2010. In particular,

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when using the content topic areas variables as predictors, the model explained 60.6% of the total variance in the dependent variable (Ljung-Box Q=7.28, sig.=. 98, df=17, p>. 05, MAE= .048). When using the geographic focuses variables as predictors, the model explained 60.9% variance (Ljung-Box Q=7.297, sig.=. 979, df=17, p>. 05, MAE=. 048). When using the authorship origin indicators as predictors, the model explained about 59.4% of variance in the monthly online audience page views (Ljung-Box Q=6.34, sig.=. 991, df=17, p>. 05, MAE=. 048). The remaining residuals stayed within the confidence interval (See Figures J-5, J-7, J-9). The predicted pattern fit the observed pattern of data well within the confidence interval (See Figures J-6, J-8, and J-10).

**Online audience visits 2005-2010.** The sequence plot of the monthly number of visits to the newspaper's online website demonstrated a nonlinear trend from 2005 to 2010 (See Figure K-1). The nonstationary trend was corrected by adding a nonseasonal differencing term and log transformation of the data. The autocorrelation and partial autocorrelation charts showed that all of the spikes were within the confidence intervals (see Figures K-3 and K-4). These plots indicated that the model for the number of online visits would be simple. Indeed, the seasonal model $(0,1,0)(1,0,0)_{12}$ successfully captured nearly 90% variance in the monthly number of visits to the newspaper's website. Specifically, when the five content areas were entered as predictors, the model explained 91.5% variance in the monthly number of online visits. The model was a good fit (Ljung-Box Q=13.03, sig.=. 734, df=17, p>. 05, MAE=. 043). When the content predictors were operationalized as the four geographic focuses, this model explained 92.5 % variance in the number of online visits (Ljung-Box Q=16.79, sig.=. 469, df=17, p>. 05, MAE=. 043). In addition,

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when the content variables were entered using the two dimensional measures of authorship origins, the same model explained 87.6% variance in the number of visits to the newspaper's website (Ljung-Box Q=13.41, sig.=. 708, df=17, p>. 05, MAE=. 053). The remaining residuals were within the confidence intervals (See Figures K-5, K-7, and K-9). The model fit the pattern of the observed data very well (see Figures K-6. K-8, and K-10).

In sum, two revenue indicators (i.e., print advertising revenue, online advertising revenue) and three audience behavior indicators (i.e. print circulation, online page views, and online visits) were modeled using the three dimensional measures of the content data (i.e. topic areas, geographic focuses, and authorship origins). In other words, for each dependent variable, three models were created using three sets of content variable as predictors respectively. In addition, in order to remove the noise of the content data in 2002 and 2003 and its potential effect on the dependent variables, additional three models were created using the content data from 2004 to 2010 to predict the print advertising revenue, online advertising revenue, and circulation. In addition to the statistical criteria, the selection of models follows the rules of simplicity and consistency. When more than one model meets the statistical criteria, a simple model is chosen for easier explanation and interpretation. To predict the same dependent variable, a consistent ARIMA model was chosen for the three sets of content variables. If consistency was not possible to achieve, the original model is modified to fit the data by adding the least complex term. The following table summarizes the best fit models for each of the dependent variable:

*Table C: Summary of the ARIMA models using the three dimensions of content variables to predict print and online newspaper revenue and readership*

| IVs / DVs | Years of data | Content Dimensions ARIMA model (p, d, q)(P, D, Q)$_{12}$ | | |
| --- | --- | --- | --- | --- |
| | | Topic Area | Geographic Focus | Authorship Origin |
| Print Ad Revenue | 2001-2010 | $(2,1,0)(0,1,0)_{12}$ | $(2,1,0)(0,1,0)_{12}$ | $(2,1,0)(0,1,0)_{12}$ |
| | 2004-2010 | $(1,1,0)(0,1,0)_{12}$ | $(1,1,0)(0,1,0)_{12}$ | $(0,1,1)(0,1,1)_{12}$ |
| Online Ad Revenue | 2001-2010 | $(0,1,1)(0,0,0)$ | $(0,1,1)(0,0,0)$ | $(0,1,1)(0,0,0)$ |
| | 2004-2010 | $(1,1,0)(0,0,0)$ | $(1,1,0)(0,0,0)$ | $(1,1,0)(0,0,0)$ |
| Circulation | 2001-2010 | $(0,1,0)(1,0,0)_{12}$ | $(0,1,1)(1,0,0)_{12}$ | $(0,1,1)(1,0,0)_{12}$ |
| | 2004-2010 | $(0,1,1)(0,1,0)_{12}$ | $(0,1,1)(0,1,0)_{12}$ | $(0,1,1)(0,1,0)_{12}$ |
| Online PageViews | 2005-2010 | $(1,1,0)(0,0,0)$ | $(1,1,0)(0,0,0)$ | $(1,1,0)(0,0,0)$ |
| Online Visits | 2005-2010 | $(0,1,0)(1,0,0)_{12}$ | $(0,1,0)(1,0,0)_{12}$ | $(0,1,0)(1,0,0)_{12}$ |

## D. Results

**Content influence on print advertising revenue (See Table D).** Using the ARIMA

model $(2,1,0)(0,1,0)_{12}$ to predict the print advertising revenue from 2001 to 2010 using

the three content dimensions has produced the following results. The circulation, entered

as a control variable, exhibited a significantly negative effect on the print advertising

revenue when the content areas served as predictors (coefficient=-. 127, p<. 05). The

negative influence could happen if the circulation decelerated more quickly than the print

advertising revenue. In reality, the print newspaper circulation might lose quite some

readership, and that may affect the advertisers' decisions to turn away from advertising in

the paper. This trend is consistent with recent observation from the industry, where

newspaper circulation and advertising revenue dropped in recent years. Among the

content categories, news content significantly contributed to print advertising revenue

(coefficient=. 203, p<. 01). For every one percent of column length increase in news

category in the current month, the print advertising revenue was likely to increase .203%

next month. Content with a regional focus also significantly contributed to print advertising revenue (coefficient=. 045, p<. 05). For every 1% column length increase in the regional content in the current month, another .045% increase will occur to print advertising revenue in next month. By contrast, the amounts of sports content and content with a national focus negatively affected the print advertising revenue. For every 1% increase in the column length of sports content in the current month, the print advertising revenue would drop .055% next month (coefficient=-. 055, p<. 1). For every 1% increase in the column length of the content with an international focus, the print advertising revenue would drop .023% (coefficient= .023, p<. 1). The authorship origin did not seem to affect the print advertising revenue significantly, since neither staff-written nor non staff-written content demonstrated a statistically significant impact on the print advertising revenue.

Using the content variables from the three dimensions to predict the print advertising revenue from 2004 to 2010 has demonstrated a more obvious pattern of influence and the effect sizes are larger. When the content was measured by the topic areas, the amount of news content has exhibited a significantly positive effect on the print advertising revenue. For every 1% increase in the news amount in the current month, the print advertising revenue would increase .469% (coefficient = .469, p<. 01). For every 1% increase in the difference between the last month of news output and this month of news output, the print advertising revenue would increase additional .223% in next month (coefficient = .223, p<. 05). Similarly, the amount of entertainment content also positively contributed to the print advertising content. For every 1% increase in the amount of entertainment content in the current month would result in .117% increase in

the print advertising revenue next month (coefficient =. 117, p< .05). For every 1%

increase in the amount of entertainment content in the difference between the output of

last month and this month would results in .156% increase in the print advertising

revenue next month (coefficient =. 156, p< .01). However, the amount of opinion and

sports content demonstrated an opposite trend of influence. Specifically, for every 1%

increase in the amount of opinion content produced in the current month, the print

advertising revenue would drop .237% (coefficient =. 237, p< .01). For every 1%

increase in the difference of amount produced in the opinion content category between

the adjacent two months, the print advertising revenue would drop .159% (coefficient =-.

159, p<. 05). Consistent with the pattern using the data from 2001 to 2010, the amount of

sports content produced in the current month again negatively influenced the print

advertising revenue (coefficient=-. 14, p<. 05). The amount of content with a national

focus also demonstrated a significantly negative effect on the print advertising revenue

(coefficient = -.102, p< .1). For every 1% increase in the output of national content in the

current month, the print advertising revenue would drop .102%. Content with other

geographic focuses did not seem to significantly affect the print advertising revenue. The

authorship origin did not seem to matter since none of the predictors was significant.

**Content influence on online advertising revenue (See Table E).** When the three

dimensions of content variables were used to predict the online advertising revenue from

2001 to 2010, only two content categories demonstrated significant influence. The staff-

written content positively affected the online advertising revenue (coefficient = .142,

p< .05). For every 1% increase in the amount of the staff-written content, the online

advertising revenue would increase by .142%. The amount of content with a regional focus negatively affected the online advertising revenue (coefficient = -.082, p< .05). For every 1% increase in the amount of regional content, the online advertising revenue would drop by .082% in the following month. In addition, the amount of news content approached a significantly positive influence (coefficient = .148, p<. 1).

Among the content categories that were attempted to predict the online advertising content from 2004 to 2010, none of the content variables were significant at the p<. 05 level. If the significance level was raised to p< .1, the amount of news content positively contributed to the online advertising revenue (coefficient=. 555, p<. 1). So did the amount of content with a national focus (coefficient= .14, p< .1). None of the authorship origin variables demonstrated an influence on any significance level.

**Content influence on circulation (See Table F).** The influence of content data on the circulation data again was split into two time periods: the data spanning from year 2001 to 2010, and the data spanning from year 2004 to 2010. When the first time period was used, only the amount of content with an international focus approached a significant influence on circulation (coefficient = .007, p< .1). None of the other content variables significantly predicted the circulation data from 2001 to 2010. When the second time period was used, only the amount of news content positively contributed to circulation (coefficient =. 063, p<. 05). For every 1% increase in the amount of news content, the circulation would increase by .063% in next month. The amount of content with a regional focus approached a significant influence on circulation (coefficient=. 017, p<. 1).

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The fact that time effect has accounted for a large percentage of variance in circulation has left little room for the content variables to explain additional variance. The seasonal effect of the circulation data was dominant. Once the seasonal effect was removed, the chosen model can explain around 90% of variance in circulation even without significant contributions from the content predictors. This is a typical example of the dominant influence of time effect on the response variable in a time-series data. Therefore, using a time-series analysis technique, specifically the seasonal ARIMA model, was necessary and legitimate to deal with the time effect that was commonly seen with the repeated observations over time.

**Content influence on online audience page views (See Table G).** The data of the monthly page views to the newspaper's website was only available to this study from 2005 to June 2010. Since the archive of the online content was not available when this study was conducted, this study has to assume that a significant proportion of the print content was also run on the website. Therefore, using the print content as predictors can still inform us of the content influence on the online audience traffic.

Like circulation, the number of online page views demonstrated a dominant time effect. Using the basic nonseasonal AR model (1,1,0)(0,0,0) can predict over 60% of the variance. Among the content categories, the amount of sports content was likely to attract online page views (coefficient =. 009, p< .1). The amount of content with a local focus also drove the number of online page views significantly (coefficient = .153, p< .05). For every 1% output increase in the local content category, the online page views would increase by .153% in next month. The amount of staff-written content significantly

contributed to the number of online page views (coefficient= .158, p< .05). For every 1%

increase in the content output that was written by the newspaper staff, the number of

online page views would increase by .158% in next month.

**Content influence on the number of visits to the newspaper's website  (See Table H).**

Like the other two audience behavior data (i.e. print circulation, and online page views),

the number of visits to the newspaper's website also demonstrated a strong seasonal

effect. A number of content variables showed significant influence on the dependent

variable after the seasonal effect was removed. Unlike the prediction of the other

dependent variables, none of the content variables in the five topic areas showed

significant influence on the number of online visits. By contrast, the content variables

measured by the geographic focuses and by the authorship origins demonstrated

significant effects. For example, the amount of content with a local focus positively

influenced the number of online visits (coefficient = .126, p< .05). For every 1% increase

in the amount of local content, the number of visits to the online newspaper would

increase by .126% in next month. The amount of content with an international focus also

drove the number of visits to online newspaper (coefficient = .053, p< .01). For every 1%

increase in the amount of international content, the number of online visits would

increase by .053% in next month, However, the amount of content with a national focus

showed a negative trend of influence (coefficient = -.145, p< .05). For every 1% increase

in the amount of national content, the number of visits to the newspaper's website would

drop by .145% in next month. Between the two authorship origins, the amount of staff-

written content significantly contributed to the number of online visits (coefficient = .283,

p< .01). For every 1% increase in the amount of staff-written content, the number of visits to the newspaper's website would increase by .283% in next month. However, the amount of content written by sources outside the newsroom negatively affected the number of visits to the newspaper's website (coefficient = -.144, p< .05). For every 1% increase in the amount of non-staff written content, the number of online visits would drop by .144% in next month.

**E. Summary of time-series analysis findings**

Overall, the content influence on the revenue indicators (i.e. print advertising revenue and online advertising revenue) was different from its pattern of influence on the audience consumption indicators (i.e. print circulation, number of online page views, and number of online visits). To model the revenue streams, the content variables measured by the five topic areas seemed to predict the revenue more effectively than content variables measured by the other dimensions, especially for predictions of the print advertising revenue. Content measured by the authorship origin did not have significant influence on most of the revenue indicators. The content measured by geographic focuses and authorship origins exhibited more significant influence on the audience behavioral variables than on the revenue indicators. The content measured by the five topic areas, except for a few categories, had less obvious impact on the audience data than on the revenue indicators. This division suggested that advertisers and audiences might have a different purchase pattern of the newspaper content. Advertisers purchase advertising space in newspaper by section. They may value one particular content section more than the other section. Audiences, on the other hand, not only pay attention to the content

topics, but also care whether a newspaper staff writes the story or not and whether it focuses on local community or national issues. The scenario can also be interpreted from the newspaper's standpoint. The newspaper may sell advertising space by the content sections. It may charge a higher advertising rate in one particular content section than it may charge for other sections. Or a particular content section is likely to attract more advertising than the other content section. Therefore, some content topic areas had more positive influence on the print advertising revenue than the other topic areas did. The newspaper primarily targeted the three counties surrounding the headquarter city of the paper. To serve the local readers' interest, the newspaper may print more content with a local focus than content with national or international focus. The newspaper may assign staff reporters to cover local community and then purchase wire stories that mainly cover the national and international events. This interpretation is consistent with the managers' interviews. The newsroom uses wire stories to save time and resource for the staff reporters who cover local communities (Co-managing editor K, personal communication, April 17, 2012).

For the print advertising revenue, online advertising revenue, and print circulation, the predictions with and without the data from 2001 to 2003 were modeled and compared. Generally, using either dataset, the content categories had a consistent pattern of influence on the print advertising revenue. For online advertising revenue and print circulation, however, using two dataset resulted in different significant content predictors. For example, when the dataset of 2001 to 2010 was used, the amount of staff written content had a positive influence on online advertising revenue, whereas the regional content had a negative influence on online advertising revenue. The amount of

international content had a positive influence on print circulation. When the dataset of 2004 to 2010 was used, the amount of news content and national content had a positive influence on online advertising revenue. The amount of news content and regional content also positive contributed to print circulation. In sum, the predictions with the data from 2004 to 2010 generated more significant content predictors and the results were more compatible with the findings from previous studies. This outcome confirmed the suspicion that the sudden surge of content output in 2002 and 2003 might dilute predictions. Therefore, only results obtained from the 2004-2010 dataset were compared and summarized in the following section.

The patterns of influence from the various content categories were compared across all of the five dependent variables. Among the five content topic areas, the amount of news content consistently had a significantly positive effect on print and online advertising revenue, and print circulation. The effect size was large. The amount of entertainment content only significantly contributed to print advertising revenue, but exhibited none significant effect on any other dependent variables. The amount of opinion content negatively affected the print advertising revenue, and not significantly affected any other dependent variable. The amount of sports content seemed contributed a small size of effect to the number online page views, but negatively drove back the print advertising revenue. The amount of business and technology content did not seem to affect any dependent variable.

Apparently, news content and entertainment contents were strong forces to drive revenue up. This statistical trend was consistent with the managers' observation. The executive director of advertising said that the advertisers were eager to advertise in the A

section, where most news content were printed and read (executive director of advertising, personal communication, April 13, 2012). The fact that news drove both circulation and revenue was consistent with other scholars' arguments that good journalism could also mean good business (see more in Newspaper Research Journal, special issue 25 (2004)). As the newspaper mangers have voiced, news is what journalism does. The news content category includes coverage on local community, politics, investigative reporting, and other daily events that are necessary to keep readers informed. News is expensive to do, but doing news can also generate significant revenue in return. This finding suggests that news does have an economic value to the news organization in addition to its democratic and cultural values. Newspapers that look to revive their business models should continue focusing on producing quality and quantity of news. In addition to news category, entertainment content is also popular among advertisers. The nature of entertainment content allows the advertisers to craft a commercial message that gears toward the target readers. Readers who saw a relevant product to the editorial content may develop an interest in the ad.

On the other hand, though sports content can attract online viewership, it did not generate positive revenue in return for the print product. This division again suggests a mismatch between the audience market and the advertiser market. The audiences may welcome sports content, whereas the advertisers may be reluctant to advertise in the sports page. The newspaper managers confirmed this hypothesis. The managers from both the business divisions and news divisions had mentioned that advertisers did not want to advertise in the sports page, because advertisers believe the male readers read the sports section more often than the women readers who actually make decisions about

household purchase. However, the newsroom has to produce the sports section because it attracted viewership especially the millennial readers. How to monetize the sports section and improve the matching between the audience and the advertisers markets has been a business problem.

The fact that opinion and editorial content had a negative effect on print advertising revenue was not a surprise. Opinion and editorial section often stands for the newspaper's viewpoint on important social, political, and economic issues. The editorial page editor said that the newsroom purposefully detaches the department from any economic interest to ensure and protect editorial integrity (Editorial page editor, personal communication, April 9, 2012). Any liaison with or consideration of the economic influence or business incentive compromises the autonomy and authority of the editorial voice. When it is necessary, the newspaper will sacrifice its economic interest to preserve its editorial independence. The opinion page editor mentioned that once upon a time, the editorial page insisted running a criticism about a local company who was also one of the biggest local advertisers to the newspaper. Even under the threat of withdrawing advertising dollars, the newspaper decided to publish the criticism to stay true to its readers (Editorial page editor, personal communication, April 9, 2012). In practice, the opinion and editorial page seldom run any advertisement, which also explained why the opinion and editorial content often demonstrated a negatively statistical influence on the revenue indicators.

To our surprise, the amount of business and technology content did not predict any of the dependent variable. Business and technology was a regular content category that consumes a large amount of resource. The non-significant results indicate a

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necessary relocation of the newsroom resource. In addition, the editorial side of the newspaper should create more topic areas in the business and technology section that may attract viewership. The business side of the newspaper should innovate management and marketing strategies that can sell more pages to the advertisers.

Among the content categories measured by geographic focuses, the amount of content with a local focus demonstrated a positive influence on the number of online page view and the number of online visits, but had no significant impact on any of the revenue indicators. This trend has suggested that local content indeed attracted viewership, especially for the online platform, but has not yet generated revenue. The amount of content with a regional focus only positively affected the circulation. The amount of content with a national focus negatively affected the print advertising revenue and the number of online visits, but positively contributed to the online advertising revenue. This trend makes sense once the geography of market distribution was considered. The print edition of the newspaper primarily targets local market to gain local readership and advertising dollars. Newspaper readers look for content about local community but not content about national issues. Likewise, the advertisers will want to advertise in the newspaper sections that cover local community to stay relevant. As a complementary, advertisers can also advertise in the national section of the online newspaper to attract local views who read out-of-town content. The amount of content with an international focus also positively influenced the number of online visits, but the effect size was very small.

The content variables that were measured by the authorship origins only mattered statistically to the number of page view and to the number of online visits. As predicted,

content that was written by newspaper staff significantly contributed to the number of

online page views and the number of online visits. This trend is consistent with the

influence of local content on the same dependent variables. It is reasonable to draw the

connection between the two predictions, because the staff wrote about local community

and events more often than they wrote stories with a nonlocal focus. In addition, the

amount of content that was not written by staff negatively influenced the number of

online visits. These results mean that viewers who read the newspaper online welcomed

content written by staff more than the content written by wire services. The interview

with the newsroom managers also revealed that the newsroom tended to remain relevance

to the local community by reflecting and celebrating community life. However, the fact

that the authorship origin did not make a difference on any of the revenue indicators

implied that the newspaper has not been able to monetize the local-produced content. The

newspaper needs to find out ways to educate local advertisers and convince them of the

unique values provided by the staff-written content. It is the time for the advertisers to

recognize the value and pay the newsroom back with actual dollars.

# VI: DISCUSSIONS & CONCLUSIONS: CONVERTING CULTURAL CPAITAL TO ECONOMIC CAPITAL

This research is intended to contribute to and continues Bourdieu's inquiry about the relationship between cultural capital and economic capital in the context of the newspaper industry. In Bourdieu's earlier works, he voiced concern that the journalistic field, under the economic pressure, would lose autonomy and damage its cultural capital. This study applies the framework of *field theory* and queries how the perception of cultural capital and the relationship between cultural and economic capital has shaped the newspaper's content management and the dynamics between the editorial side and the business side. Revisiting Bourdieu's concern is timely and important. As the newspaper industry brainstorms a new business model and migrates to a digital platform, this study investigates how the newspaper company, working with diminishing resources, can meet both journalistic and financial expectations. The findings reveal that the newspaper company under examination still prioritizes its journalistic missions and roles, and strives to preserve quality content. But the concerns for making revenue and adapting to digital platform have made the selection, production, distribution, and delivery of content more complicated. Statistics results confirm that quality content can have economic value, and yet the fusion of cultural value and economic value of content demands more strategic

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management. To overcome these challenges, the editorial side and the business side of the newspaper have to cooperate.

The triangulated case study on one medium-sized metropolitan newspaper has provided rich qualitative and quantitative data (See Figure B). In the first phase, the interviews achieved three research objectives. First, the respondents articulated their perceptions of quality journalism, i.e., its roles and standards, which is the institutionalized form of cultural capital in this study. Second, the respondents explained what content represented quality journalism, and how the selection of content was influenced by economic and market forces. Third, the respondents' answers, between the news side and the business side of the newspaper, were compared and contrasted.

In the second phase, based on the organization's inquiry, statistical analyses assessed the mathematic relationship among the newspaper's content, audience, and revenue. Ten years of content and revenue data, from 2001 through 2010, were collected to represent the company's behaviors in content management and financial performance. The statistical results were then contrasted with respondents' value judgments about content that they provided in the interviews. The comparison identified that the espoused value of content in the first phase is consistent with the organization's actual content output. Some content areas that are valued by the organization indeed drove revenue and exhibited significant magnitude of influence. However, some other content areas that were perceived as having high cultural value have not yet generated economic value. The mismatched areas deserve more attention from both the news side and business side. The following sections will illustrate the findings and interpret their theoretical meanings and practical implementations.

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*Figure B: Overview of study design*
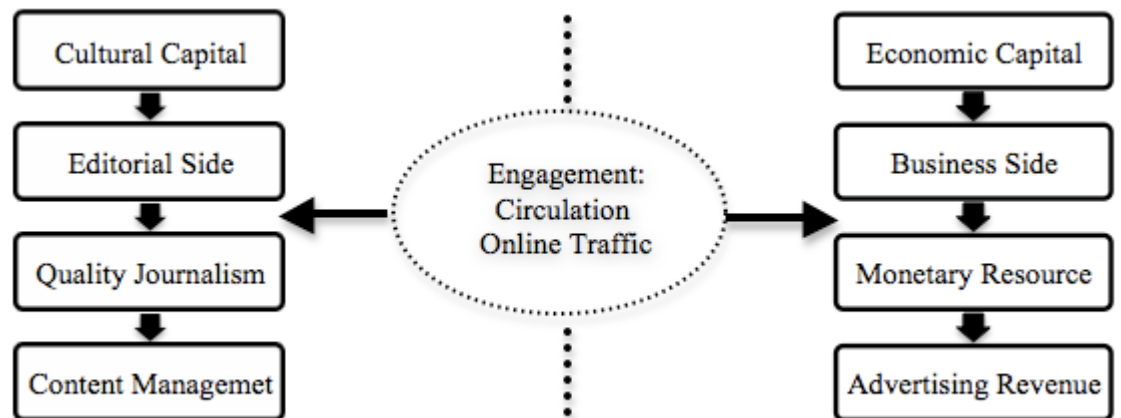


**A. Cultural capital: Journalistic missions guide resource allocation in content management**

This researched organization's definition of quality journalism parallels an institutionalized form of cultural capital. This definition further establishes a normative idea of what journalism does. In this newspaper company, quality journalism is expected to watch over powerful institutions and serve the community through being a watchdog, an information disseminator, and a public forum. Furthermore, in practice, a quality newspaper is expected to inform the public by covering news, investigative pieces in particular, and by entertaining the public through features and sports content. These content areas were believed to offer unique and local flavor that engaged audience and satisfied advertisers. Therefore, the newsroom allocated more resources to aid local and staff-produced content.

The executive managers perceived cultural capital, in the form of journalistic missions, as the most important asset of the newspaper. They preserved news values first and foremost, and carved out space and resources to defend journalistic works against

heteronomous forces (i.e., advertising influence, and profit expectation, in particular). The business side understood what journalism does and cooperated with the editorial side to enhance core values. Even under economic pressure and constraints, content that can generate more revenue was cut back to retain more resources for news. The commitment to quality journalism originated from a long history of family ownership that aims for community service instead of profit maximization. This logic clearly reflects a business model alternative to market-driven journalism. A continuous team effort of accumulating cultural capital was believed to be sufficient in sustaining the newspaper business before a new business model was figured out.

Results from the statistical analysis confirmed that the newspaper's content output has met the newsroom's normative standard. Descriptive statistics of content data revealed that the newspaper indeed produced the most amount of content in the news category, which included investigative reporting, local news, and many other news topics. If the column length of news content, and the column length of business and technology content were combined, the total would far exceed the column length of sports content or the column length of entertainment content.

In addition, the topics of entertainment content changed quite frequently in the past ten years. Altogether, the newsroom launched 34 topics in the entertainment category, but many of them existed temporarily and then were replaced by other topics. This frequent shift reflected the newsroom's understanding that entertainment content is more market-driven. Entertainment content is perceived as engaging audiences but not serving any journalistic purpose. When resources were tight, entertainment content was

among the first of content categories that incurred the deepest cuts. Compared to news, entertainment content is optional and dispensable.

This distinction between the mission-based model (represented by news) and the revenue-based model (represented by entertainment) in the newspaper's content management clearly follows the two-sided market theory. According to this theory, the media company has to secure its relationship with audiences in order to generate advertising revenue through selling audiences' attention. In order to maintain audiences' engagement, the newspaper has to produce quality content and deliver the content in the most desired format with appealing pricing strategies. Therefore, content is the foundation of the business model; it is recognized by audience reception and monetized through advertising revenue. The newspaper's primary customer is the audience, not the advertiser. As the director of advertising operations explained,

> "We are always in a business of making money out of audiences. Advertisers are our business partners. We connect, we sell to them. So they are not our audience, they are not our customers per say. They are the people we go to sell our access to our customers" (Personal communication, April 4, 2012).

It makes sense that newspapers sometimes trade off content that truly engages audiences with content that appeals to advertisers.

The top executives not only recognized the normative value of quality journalism, but also believed that quality journalism will help them stand out in market competition and survive the economic downturn. In envisioning the future, they identified the relationship between content and audience as a key area to invest and grow. The newspaper's dedication to the cultural capital of journalism, even when facing economic

pressure, can somewhat ease Bourdieu's concern that economic forces would erode

journalistic autonomy and hence compromise cultural capital. In fact, the executives

hypothesized that good quality content would not only serve journalistic missions but

also make money. This vision is in line with Bourdieu's (1986) argument that "cultural

goods can be appropriated both materially—which presupposes economic capital—and

symbolically—which presupposes cultural capital" (p. 50).


**B. Economic Capital: Material representation and support of cultural capital**

. In this study, economic capital is operationalized as advertising revenue of print

and digital platforms. As the interviews revealed, economic capital is important to the

newspaper business only in the sense of providing financial support to the accumulation

of cultural capital. The director of advertising operations said, "revenue is important so

that we can have the mission base part" (personal communication, April 4, 2012). Her

statement again emphasized that cultural capital outweighs economic capital in this

newspaper company, but the accomplishment of cultural capital depends on the strength

of economic capital. A strong economic capital will equip the newsroom with resources

to produce quality culture goods.

As descriptive statistics showed, the newspaper has undergone threatening

financial situations, just as many other newspaper companies in the nation. Print

advertising revenue was steady until 2005, then decreased slightly, and finally plunged in

2008 during the economic recession. Digital revenue, on the other hand, started to take

off in 2004, reached its peak in 2007 and 2008 during the economic recession, and then

declined in 2009. Even though digital revenue grew fast, its aggregate revenue only

accounted for about 10% of the total advertising revenue. This percentage is consistent with a general industry trend. Altogether, the revenue of the company shrunk to half of its size ten years ago; the gains in digital advertising revenue did not compensate the loss in print advertising revenue.

Meanwhile, the company has strived to identify new ways of monetizing content and audience. Though the executives claimed that the newspaper has no audience problem, the strong relationship between its content and audience has not yet turned to revenue. As a matter of fact, descriptive statistics showed that print circulation has been descending in the past ten years, and this trend of decline was even steeper than that of the print advertising revenue. The loss of print audiences may contribute to the drawback of advertising revenue, since circulation is a main factor that influences advertisers' purchase of newspaper space. Many of the print audience may migrate to the digital world and enjoy free online content. Therefore, though the total audience size, with print and digital combined, tripled in the past few years (according to the executive editor), while overall revenue was still shrinking. In order to revive the business and develop new revenue source, the newspaper has to work through the audience challenge and then convince advertisers to invest in the digital platform.

The shrinking revenue did have an impact on the newsroom, not on its content per say, but on resource allocation among content areas. In the past few years, the newspaper company went through several rounds of cuts. The newsroom is now only half the size of what it was. With limited human and financial resources, the newsroom cannot spend money or create content areas as they wish. Every decision has to be made strategically. The newsroom has to make trade-offs to identify the top priorities and invest only in

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those focused areas. The optional feature content was cut back in exchange for more resource dedication to important news content. The design and copy desk were streamlined to protect the jobs of news-gathers. Making these trade-offs means that the newspaper cannot be everything to everyone as it used to be. The paper became thinner, and some content became less superior.

On the other hand, making trade-offs also means that the newspaper became more focused, targeted, and unique. The newsroom was forced to improve efficiency and to balance journalistic quality with economic return. The decision-makers rely more and more on audience research to define and design popular content areas. Approaching Bourdieu's concern once more, the pressure of economic capital concerns, in this case, did not erode cultural capital, but it did change the way in which cultural capital was accumulated. The newspaper company still devotes resources to fulfill journalistic missions first and foremost. But the decision is not made with one single criterion. Now, resource allocation in content areas has to be based on journalistic purpose (normative values), audience engagement, and revenue expectations. Finding a balance among the three components requires an involvement from both the editorial side and the business side of the newspaper company.

**C. Converting cultural capital to economic capital: Relationship between content and revenue**

The interviews indeed confirmed the dual nature of the newspaper. As a social institution, the newspaper has to fulfill its journalistic missions that provide watchdog and community service functions. As an economic entity, the newspaper has to make

some profit to satisfy the banks and cover operational costs. Hence, the content that is guided by the mission-based model assumes the nature of public good; the primary goal is not to make a profit but to serve the public. The content that is guided by the revenue-based model assumes the nature of a commodity; the primary function is to attain revenue. The newspaper company is trying hard to balance this dual nature. Under increasing economic pressure, the newspaper wishes that the mission-based content could also generate revenue.

According to Bourdieu, all forms of capital can be converted to economic capital. The convertibility of different forms of capital establishes the strategies that ensure the production of economic capital, and the ability to transform one form of capital into another also indicates the autonomy of the field in general (Bourdieu, 1986). In the field of cultural production, the dominant and powerful agent has a strong ability to convert cultural capital into economic capital and vice versa (Bourdieu, 1993). The second phase of research attempts to verify whether content output matches respondents' normative statements about quality journalism, and then identify what content areas (the objectified form of cultural capital) contributed to the newspaper's revenue. After removing the effects of time, statistical analysis showed a strong and significant effect of content on revenue.

Consistent with the newsroom's estimate, news content, which best represents the newspaper's mission and constitutes journalistic cultural capital, significantly and positively predicted advertising revenue, and the extent of the effect is larger than any other content category. This is a great encouragement to the journalistic field. Theoretically, it provides evidence for the argument that good journalism can bring in

good business. The newspaper that possesses a strong cultural capital is likely to generate a significant economic return. The results also encourage the newspaper company to continue focusing on news and strengthen its mission-based model.

Entertainment content was the second largest content category that significantly contributed to advertising revenue. This result is in line with newspaper's objective that content following the revenue-based model should make money. A cut back in entertainment content will significantly reduce advertising revenue, and harm the newspaper's financial stability during economic downturn. Hence, the newspaper's reduction of the entertainment content to save resources may not be an economically wise choice. Consistent with executives' observations, sports content generates some online audience traffic but did not significantly contribute to any of the revenue streams. The newsroom is now experimenting with ideas that could monetize the sports audience through selling apps or subscriptions. Contradictory to the newsroom's estimate, business and technology content did not significantly predict online audience traffic or advertising revenue. Therefore, to improve the investment on return, the newspaper should consider reducing investing resources in those content areas since they do not generate significant revenue..

According to Bourdieu, selling news is an exchange of symbolic goods that are built upon belief (Bourdieu, 1998). Hence, the economic transaction of news depends on how well the customers trust the newspaper's cultural goods. The executives at the newspaper company fully realize the importance of audiences both as recipients of cultural goods and purchasers of advertising goods that ultimately bring in revenue. In fact, audience engagement has become a central concept that is reorganizing the

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newspaper company. In the creation division, the company continues to produce content that truly engages readers. The newsroom constantly uses audience research to identify popular content areas and look for new growing opportunities of readership. In the curation division, the company keeps track of what audiences read, and on which device, so that the newsroom can rewrite and package the same story in different ways to satisfy different reading preferences. In order to monetize audience on its digital platform, the newspaper company has to develop a mechanism to understand and measure digital audience behavior before it can sell the audience to advertisers. Concerned, the executives recognized the necessity for an online pay-wall model. In addition, they have been working on data collection and business analytics to measure audience economic value.

Statistical analysis confirmed that audience does not necessarily denote revenue. Staff-written content and content with a local focus generally contributed to online audience traffic but did not predict any revenue. On the contrary, news and entertainment content areas predicted revenue statistically but did not affect online traffic. The mismatch between audience traffic and advertising revenue could also be due to advertisers' perception about audiences. According to the executive director of advertising, the advertisers mostly requested the A section, because they believe most audiences read the general news of the day. On the digital platform, the advertisers have not been convinced by its effectiveness of reaching audiences. The newsroom also had a hard time figuring out what audience number should present to advertisers, in addition to the total audience clicks.

The relationship between the editorial side and the business side of the newspaper also shifts. To survive the economic threat, the editorial side and the business side now find a common ground and are willing to cooperate. The business side did not necessarily degrade the editorial side or dominate the company. Instead, power was distributed more evenly to form a collaborative, respectful, and collegial relationship. The two sides often consulate each other and collaborate to achieve a common interest. The so-called wall of separation between church and state still exists to some extent in order to assure content integrity and editorial autonomy, but now with metaphorical big windows, so that people from either side can see through and communicate more easily. The shifting organizational culture reflects the newspaper's response to the economic downturn. A coherent working relationship with an organic and interactive working structure will allow the organization more chances to survive in this constantly changing environment.

**D. Limitations and future studies**

This research comes with limitations. Although a case study focused on one newspaper company has provided rich and comprehensive understanding of the newspaper's content management, the findings cannot be generalized to the whole population of newspaper organizations. While the findings might apply to and resonate with other media companies who have gone through similar situations or operate in a similarly sized market, managerial insights and statistical data are based on the specific situation of this company.. Future research can replicate this method with newspaper companies of different sizes or in different markets to compare and contrast similarities

and differences. Moreover, more research is called for in order to develop a mechanism that can measure online audiences' behaviors and propose ways of using the data for business decisions. For example, researchers can explore different audience monetization strategies, such as pay-wall, price discrimination and service bundling, and investigate their subsequent effects on newspaper journalism and revenue. Future research should also inform understanding about relationships between audiences and advertisers. For example, researchers could evaluate advertisers' perceptions about audiences and what variables influence advertisers' purchasing decisions on different media platforms.

During the course of this study, the participant executives recommended the following areas for future investigation:

- Local advertising versus nonlocal advertising: Research should examine local advertising separately from advertising that comes from outside markets. Local advertising should be the main driver of revenue for a local newspaper. Research should also inform the newspaper about improving efficiency of selling advertisement.

- Advertising as content: The director of the research department said that many of their studies have shown that segments of their loyal readers consider advertising (at least on the print side) to be useful content. Future research should think about whether the volume (column inches) of advertising could be determined and analyzed as other content channels are.

- Online content and revenue: Given the availability of data when this study was conducted, print content archives were used to predict online audience traffic and digital revenue. For future research, if possible, digital content archives should be

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used instead to ensure that unique local content such as blogs or columns were included.

- Circulation: Content variables demonstrated very little effect on circulation, which indicates that other factors, such as pricing or promotions, may affect the circulation more significantly. The director of circulation proposed control of the price of newspapers over a period of analysis and determine the role that circulation pricing may have.

In conclusion, this research is original in several ways. Interviews and longitudinal data provide both depth and width of the case. The content, audience, and financial data, especially, come from a real newspaper company and cover a ten-year period. The statistical analysis is compared and contrasted with the perceptions of newspaper executives, which provides a rich context and interpretation of a complex situation. Though the case study cannot be generalized to the overall newspaper journalism population, it still illustrates a situation that most other newspapers have been experiencing. The findings empirically tested the relationship between cultural capital and economic capital in the journalistic field. This is one of the first studies that draws a mathematical connection between newspaper content and revenue generation. The Time Series Analysis technique produces reliable models that demonstrated a strong and measurable content effect on revenue, even after the time effect was removed. The findings confirmed that strong economic capital can help the newspaper accumulate cultural capital, and good cultural capital can contribute to the newspaper's economic capital. Furthermore, the two forms of capital are not necessarily in conflict. With strategic management and collaborative organizational culture, the newspaper can

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improve resource allocation and enhance both cultural and economic capital. This research informs the newspaper managers, in a practically applicable way, of appropriate resource allocation in content management. With diminishing resources, the news managers should continue focusing on the fundamental products, which are news and entertainment, and advocate their journalistic values. Moreover, resources should be allocated to the newsroom, so that the staff can write more stories about local communities. Meanwhile, the managers have to fix the broken link between audience and advertisers, and keep experimenting with new ways of monetizing audiences and providing more sophisticated audience data to advertisers. With a joint effort from both the editorial side and the business side, a strategy that coordinates resource allocation, content production, audience engagement, and financial performance is promising.

**Appendix A: Interview questionnaire**

In your opinion, what is good journalism?

There are a number of things the news media do or try to do. Please tell me, in your own words, what is the most important role of journalists in your company?

What are the journalistic standards and values that are most fundamental in your company?

In your opinion, what constitutes a quality newspaper?

What does good journalism look like in newspaper content?

How does your understanding of good journalism influence your decision of what to cover (for business people, where to spend the money)?

In your organization, what is considered more important in weighing a decision? News values or economic factors?

Has profit expectation influenced what content and how much of that content to produce?

Has profit expectation influenced how you spend money in the newsroom among different content areas?

Has profit expectation influenced how much labor you assign to cover different content areas?

Has advertising considerations influenced what content and how much of that content to produce?

Has advertising considerations influenced how you spend money in the newsroom among different content areas?

Has advertising considerations influenced how much labor you assign to cover different content areas?

Has market and audience research influenced what content and how much of that content to produce?

Has market and audience research influenced how you spend money in the newsroom among different content areas?

Has market and audience research influenced how much labor you assign to cover different content areas?

When news values and economic concerns are in conflict, how would you choose between the two?

What are the tasks to be done in order to revive the newspaper business?

**Appendix B: Demographics of the Interviewees**

| Title | Years in media Industry | Years of working for the current company | Number of people under supervision |
|---|---|---|---|
| Co-managing editor K | 32 years | 5 years | 120-140 |
| Co-managing editor S | 32 years | 12 years | 100 |
| Executive editor and vice president | 33 years | 28 years | 200 |
| Editorial page editor | 27 years | 10 years | 7-8 |
| Executive vice president of sales and marketing | 30 years | 20 years | 180 |
| Director of advertising operations, digital, and business analytics | 4 years and half | 4 years and half | 7 |
| Circulation director | 33 years | 13 years | 67 |
| Product director and associate publisher | 25 year | 25 years | 3 direct report, 70 indirectly report |
| Executive director of advertising | 29 years | 11 months | 80 |

# Appendix C. Descriptive Statistics

*Table C-1: Content variables measured as the number of stories from three dimensions 2001-2010*

|                          | Minimum | Maximum | Mean   | Std. Deviation |
|--------------------------|---------|---------|--------|----------------|
| Total Number of Stories  | 234     | 920     | 556.51 | 200.989        |
| News                     | 52      | 373     | 217.20 | 76.252         |
| Entertainment            | 19      | 172     | 106.61 | 45.582         |
| Opinion                  | 17      | 233     | 38.91  | 34.111         |
| Business and Technology  | 37      | 344     | 115.24 | 92.375         |
| Sports                   | 52      | 285     | 161.28 | 53.332         |
| Staff Written            | 158     | 396     | 264.26 | 57.619         |
| Staff Written _ Adjusted | 287     | 697     | 477.53 | 115.586        |
| Non Staff                | 77      | 251     | 165.93 | 48.224         |
| International            | 8       | 48      | 19.35  | 6.934          |
| National                 | 46      | 170     | 101.14 | 29.726         |
| Regional                 | 14      | 76      | 40.11  | 13.154         |
| Local                    | 2       | 49      | 16.93  | 9.612          |
| Local _ Adjusted         | 289     | 700     | 482.86 | 119.337        |

*Table C-2: Content variables measured as the column length of stories from three dimensions 2001-2010*

|                          | Minimum | Maximum | Mean    | Std. Deviation |
|--------------------------|---------|---------|---------|----------------|
| Total Length of Stories  | 2593    | 9583    | 4625.09 | 1105.349       |
| News                     | 938     | 3618    | 1759.16 | 416.692        |
| Entertainment            | 377     | 1610    | 854.74  | 307.484        |
| Opinion                  | 87      | 3789    | 454.11  | 659.735        |
| Business and Technology  | 269     | 6094    | 1437.06 | 1904.245       |
| Sports                   | 572     | 3008    | 1381.77 | 553.461        |
| Staff Written            | 1301    | 7480    | 2841.80 | 1680.153       |
| Staff Written _ adjusted | 1975    | 11353   | 4504.56 | 2598.423       |
| Non Staff Written        | 570     | 4221    | 1588.16 | 981.641        |
| International            | 46      | 518     | 164.02  | 102.274        |
| National                 | 301     | 2967    | 915.83  | 622.851        |
| Regional                 | 84      | 1318    | 379.28  | 291.529        |
| Local                    | 27      | 605     | 143.50  | 126.182        |
| Local _ adjusted         | 2118    | 11451   | 4633.58 | 2600.869       |

*Table C-3: Circulation, print advertising revenue, and online traffic*

|  | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|
| Circulation | 239925.15 | 404603.26 | 342420.34 | 37092.23 |
| Circulation Revenue | 1832721.28 | 4691544.09 | 3127806.64 | 570204.045 |
| Print Ad Revenue | 6546956 | 22212270.19 | 16008865.52 | 4029435.85 |
| Online Ad Revenue | 285874 | 3297641.10 | 1519402.90 | 900500.13 |
| Online Page Views | 49286675 | 111412311 | 77357959.76 | 16604835.85 |
| Online Visits | 2330459 | 21154209 | 12669375.97 | 5394364.79 |

*Table C-4: Correlations among five content topic areas (measured by number of stories)*

|  | News | Entertainment | Opinion | Business & Technology |
|---|---|---|---|---|
| Entertainment | .600** |  |  |  |
| Opinion | -.630** | -.828** |  |  |
| Business & Technology | -.570** | -.896** | .919** |  |
| Sports | .890** | .381** | -.416** | -.323** |

**P<.01, *P<.05

*Table C-5: Correlations among five content topic areas (measured by column length of stories)*

|  | News | Entertainment | Opinion | Business and Technology |
|---|---|---|---|---|
| Entertainment | .225* |  |  |  |
| Opinion | .356** | -.537** |  |  |
| Business and Technology | .464** | -.552** | .951** |  |
| Sports | .874** | .012 | .597** | .698** |

**P<.01, *P<.05

*Table C-6: Correlations among content topic areas, circulation, advertising revenue, and online traffic (content is measured by number of stories)*

|  | Circulation | Circulation Revenue | Print Ad Revenue | Online Ad Revenue | Online PageView | Online Visits |
|---|---|---|---|---|---|---|
| News | -.160 | .148 | .170 | .711** | .389** | -.603** |
| Ent. | -.503** | .462** | -.359** | .460** | -.237 | -.031 |
| Opinion | .481** | -.419** | .320** | -.466** | .374** | -.159 |
| Biz & Tech | .523** | -.469** | .397** | -.441** | .495** | -.488** |
| Sports | .019 | .017 | .326** | .618** | .362** | -.502** |

**P<.01, *P<.05

*Table C-7: Correlations among content topic areas, circulation, advertising revenue, and online traffic (content is measured by column length)*

| | Circulation | Circulation Revenue | Print Ad Revenue | Online Ad Revenue | Online Page View | Online Visits |
|---|---|---|---|---|---|---|
| News | .413** | -.327** | .526** | .054 | .443** | -.488** |
| Ent. | -.169 | .170 | .196* | .762** | .410** | -.402** |
| Opinion | .477** | -.417** | .302** | -.506** | .261* | .055 |
| Biz & Tech | .500** | -.440** | .333** | -.525** | .523** | -.350** |
| Sports | .478** | -.399** | .550** | -.085 | .399** | -.416** |

**P<.01, *P<.05

*Table C-8: Correlations among four geographic focuses of content (measured by number of stories)*

| | International | National | Regional |
|---|---|---|---|
| National | .505** | | |
| Regional | .398** | .846** | |
| Local _ Adjusted | .332** | .636** | .534** |

**P<.01, *P<.05

*Table C-9: Correlations among four geographic focuses of content (measured by column lengths)*

| | International | National | Regional |
|---|---|---|---|
| National | .815** | | |
| Regional | .823** | .956** | |
| Local _ Adjusted | .678** | .802** | .770** |

**P<.01, *P<.05

*Table C-10: Correlation among content geographic focuses, circulation, advertising revenue, and online traffic (measured by number of stories)*

| | Circulation | Circulation Revenue | Print Ad Revenue | Online Ad Revenue | Online Page View | Online Visits |
|---|---|---|---|---|---|---|
| International | .179 | -.191* | .366** | .234* | .259* | -.255* |
| National | .436** | -.371** | .608** | .166 | .335** | -.615** |
| Regional | .422** | -.326** | .560** | .040 | .177 | -.661** |
| Local _ Adjusted | .454** | -.377** | .423** | -.116 | .221 | -.363** |

**P<.01, *P<.05

*Table C-11: Correlation among content geographic focuses, circulation, advertising revenue, and online traffic (measured by column lengths)*

|  | Circulation | Circulation Revenue | Print Ad Revenue | Online Ad Revenue | Online Page View | Online Visits |
|---|---|---|---|---|---|---|
| International | .435** | -.412** | .365** | -.344** | .218 | -.149 |
| National | .526** | -.451** | .441** | -.386** | .378** | -.540** |
| Regional | .510** | -.425** | .410** | -.435** | .180 | -.575** |
| Local _Adjusted | .513** | -.434** | .384** | -.385** | .221 | -.239 |

**P<.01, *P<.05


*Table C-12: Correlation between content authorship origins (measured by number of stories)*

|  | Non-Staff |
|---|---|
| Staff _ adjusted | .887** |

**P<.01, *P<.05


*Table C-13: Correlation between content authorship origins (measured by column lengths of stories)*

|  | Non-Staff |
|---|---|
| Staff _ adjusted | .970** |

**P<.01, *P<.05


*Table C-14: Correlations among content authorship origins, circulation, advertising revenue, and online traffic (measured by number of stories)*

|  | Circulation | Circulation Revenue | Print Ad Revenue | Online Ad Revenue | Online Page View | Online Visits |
|---|---|---|---|---|---|---|
| Staff _adjusted | .715** | -.625** | .877** | .682** | .415** | -.540** |
| Non Staff | .668** | -.658** | .900** | .674** | .452** | -.542** |

**P<.01, *P<.05


*Table C-15: Correlations among content authorship origins, circulation, advertising revenue, and online traffic (measured by column lengths of stories)*

|  | Circulation | Circulation Revenue | Print Ad Revenue | Online Ad Revenue | Online Page View | Online Visits |
|---|---|---|---|---|---|---|
| Staff _adjusted | .642** | -.548** | .837** | .684** | .429** | -.449** |
| Non-staff | .658** | -.618** | .891** | .703** | .472** | -.500** |

**P<.01, *P<.05

*Figure C-1: Trend of print advertising revenue and online advertising revenue, January 2001-June 2010*



*Figure C-2: Trend of circulation, January 2001-June 2010*

*Figure C-3: Trend of online traffic, 2004-2010*
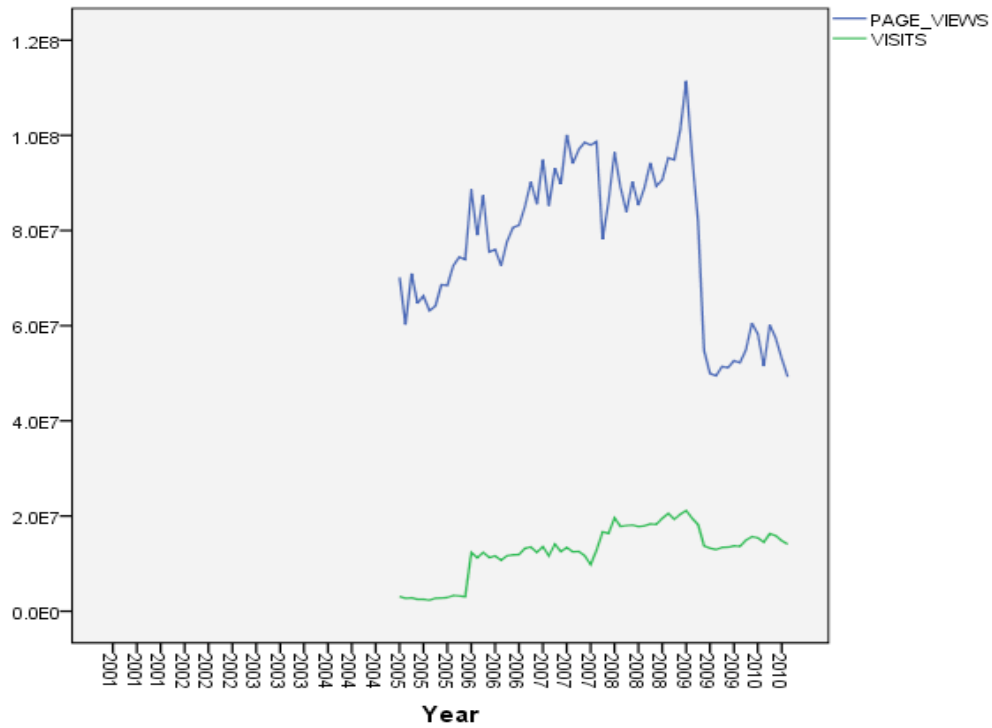


*Figure C-4: Trend of content output in the five topic areas (measured by number of stories), 2001-2010*
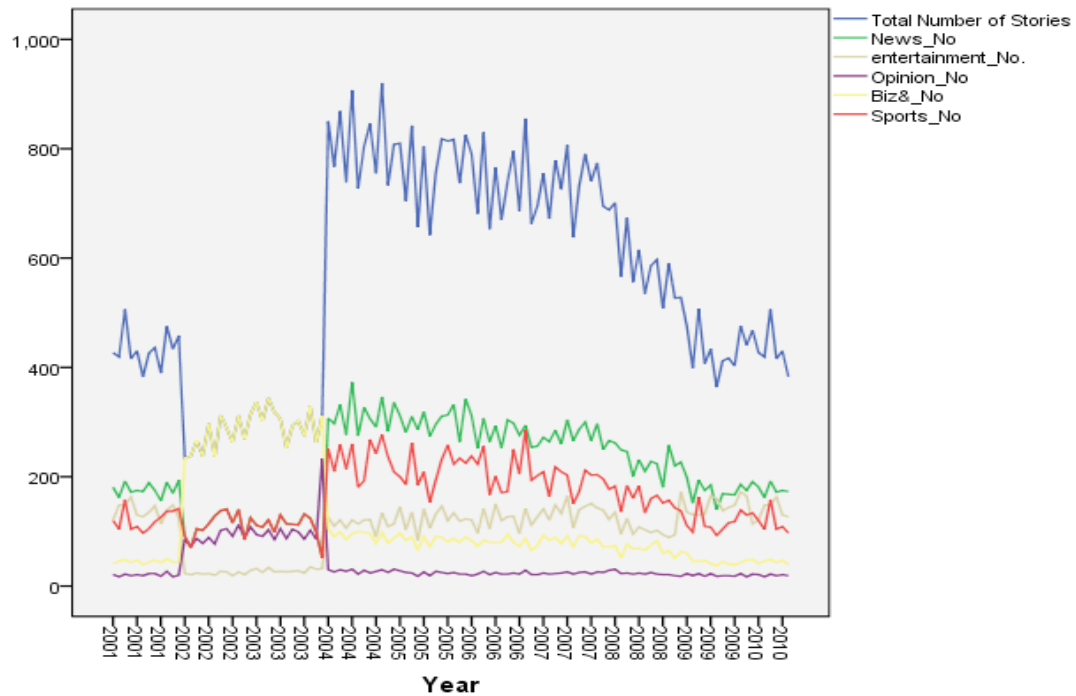
*Figure C-5: Trend of content output in the five topic areas (measured by column lengths of stories) 2001-2010*
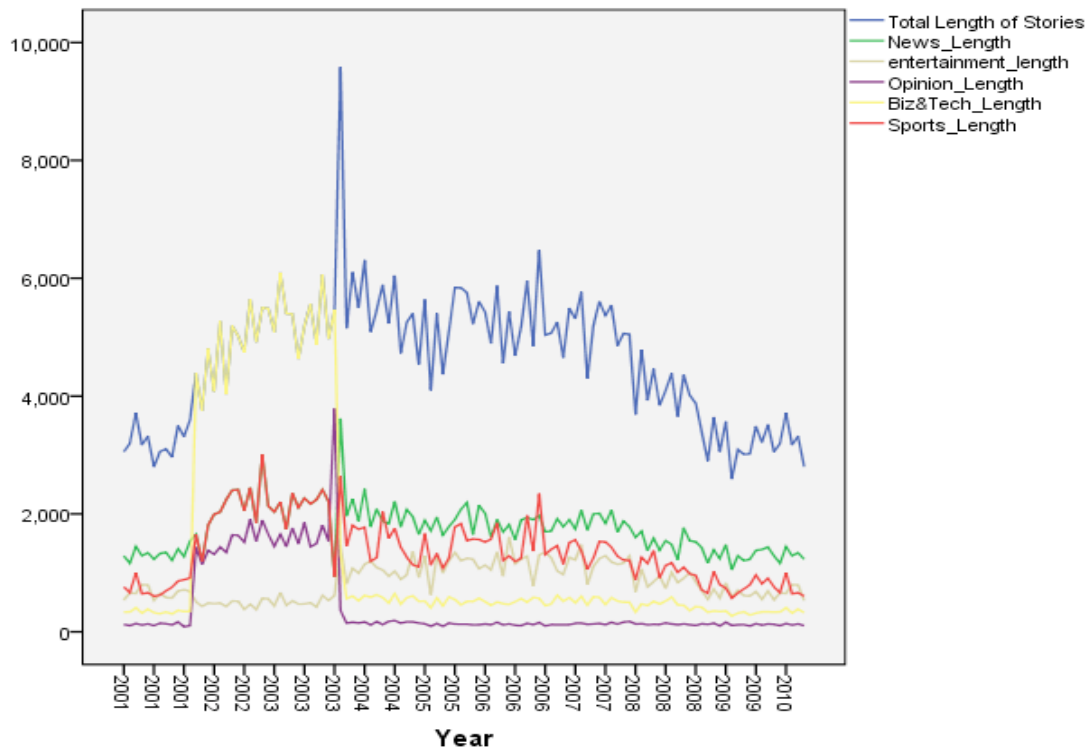


*Figure C-6: Trend of content output in the four geographic focuses (measured by number of stories) 2001-2010*



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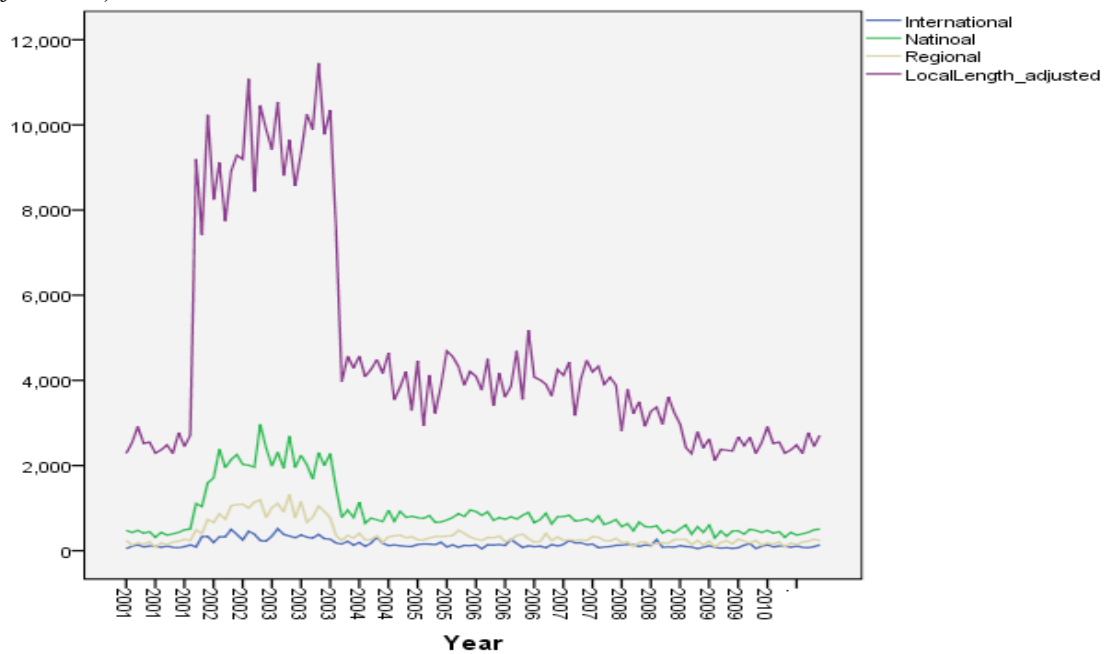
*Figure C-7: Trend of content output in the four geographic focuses (measured by column lengths of stories) 2001-2010*
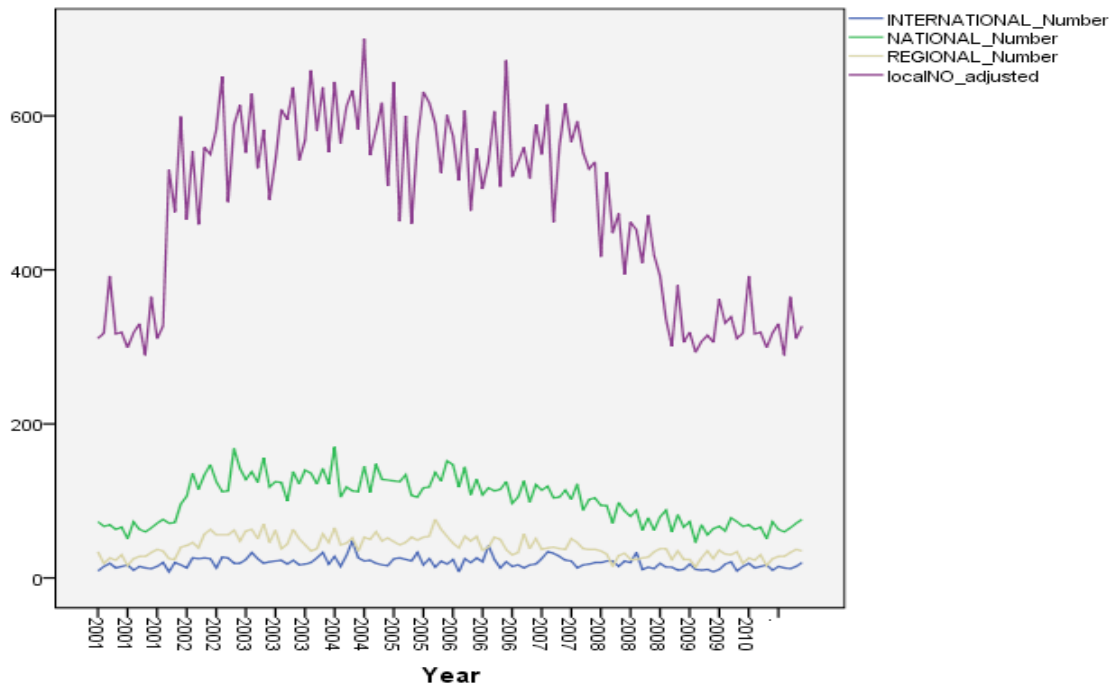


*Figure C-8: Trend of content output in the authorship origins (measured by number of stories)*
*2001-2010*
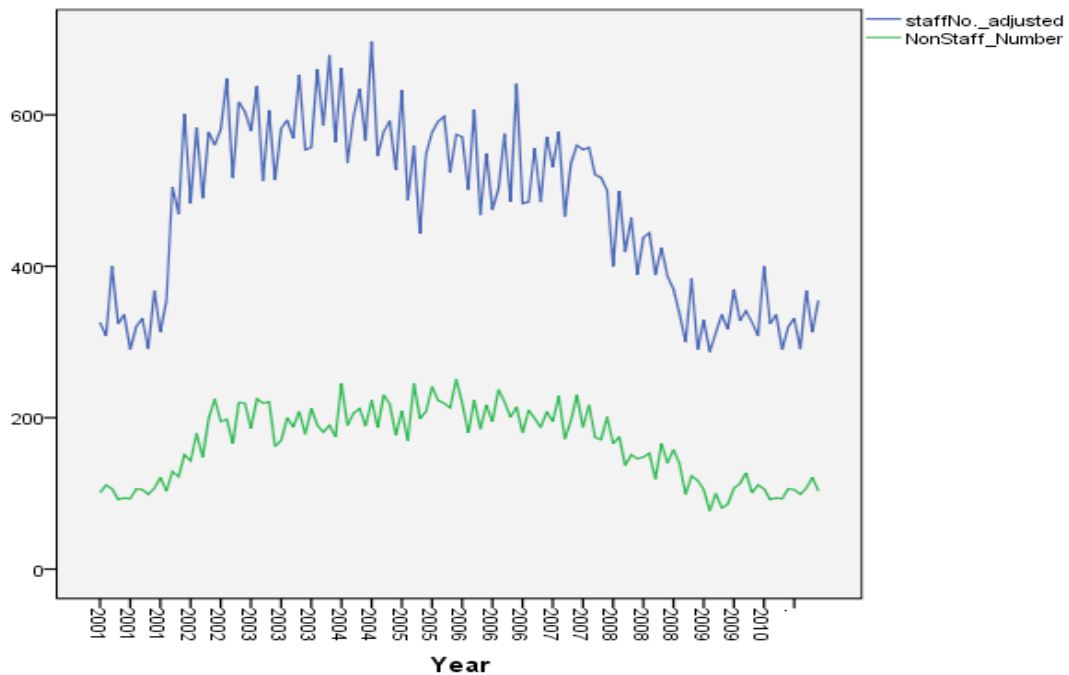
*Figure C-9: Trend of content output in the authorship origins (measured by column lengths of stories) 2001-2010*
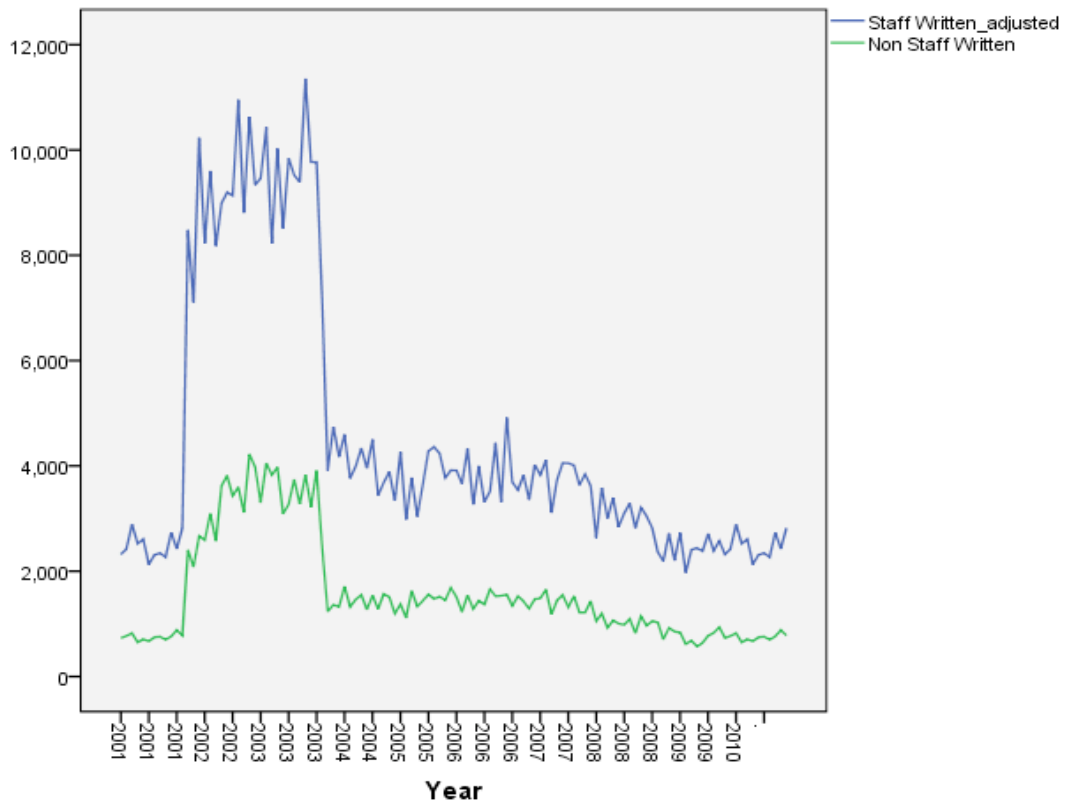
**Appendix D. Time Series Analysis of Print Advertising Revenue Prediction 2001-2010**

Figure D-1: Sequence plots of print ad revenue after log transformation
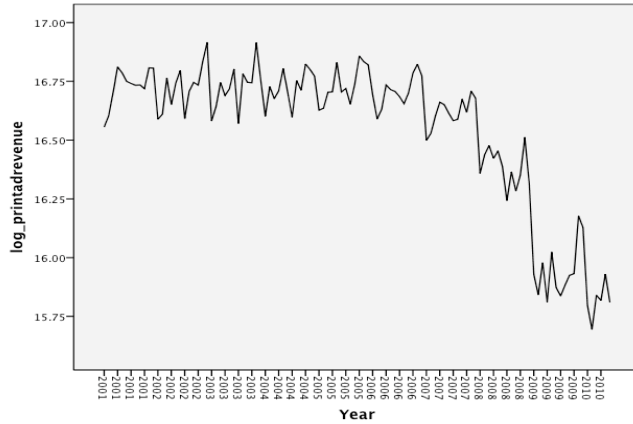


Figure D-2: Sequence plots of print ad revenue after log transformation and one-term differencing
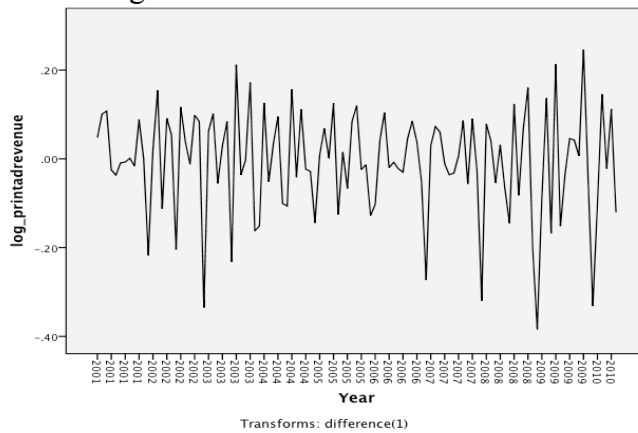


Figure D-3: Autocorrelation graph of print ad revenue after log transformation and differencing
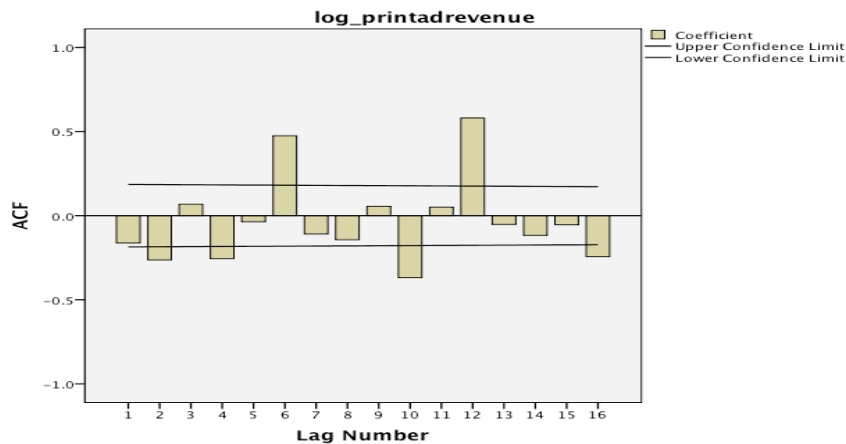
Figure D-4: Partial autocorrelation graph of print ad revenue after log transformation and differencing by content topic areas
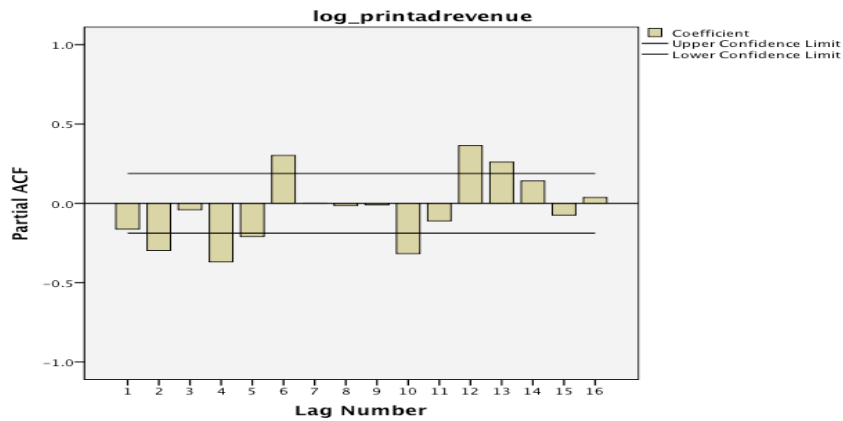


Figure D-5: The residual plots of print ad revenue as predicted by content topic areas
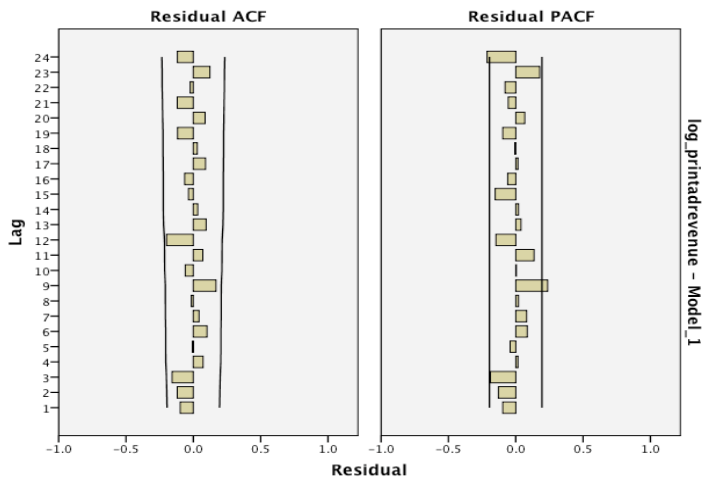


Figure D-6: The Fit Plot of Print Ad Revenue after using Content Predictors by Topic Areas
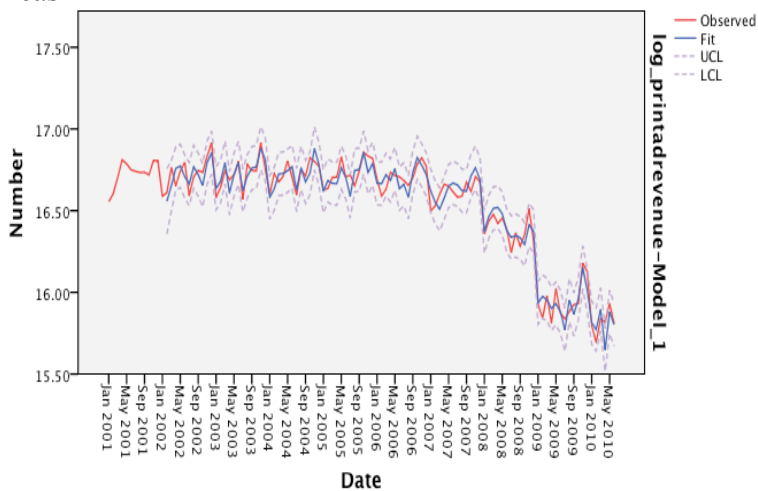
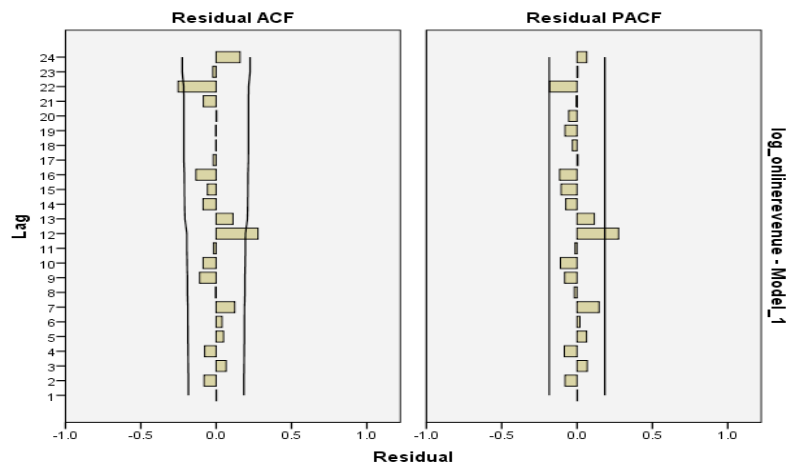Figure D-7: The residual plots of print ad revenue as predicted by content geographic focuses
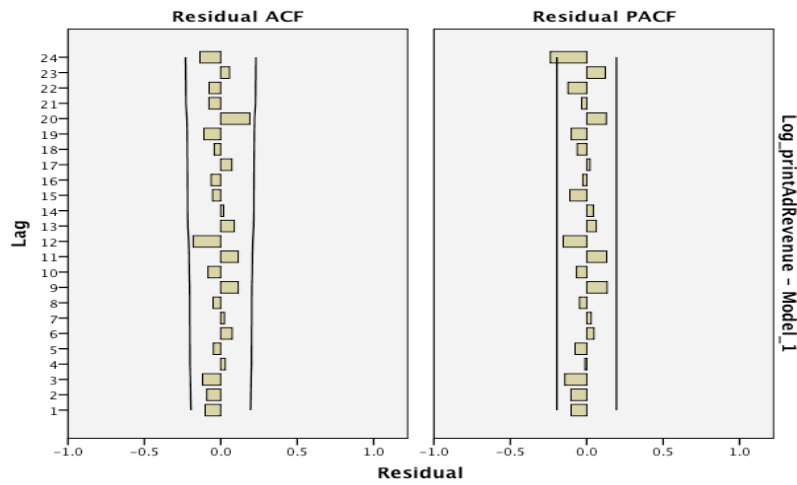


Figure D-8: The fit plot of print ad revenue after using content predictors by geographic focuses
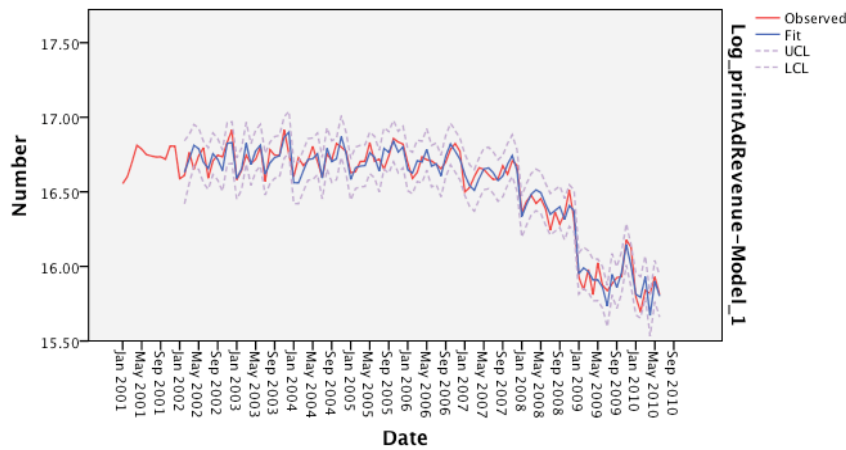


Figure D-9: The Residual Plots of Print Ad Revenue as predicted by Content Authorship Origins
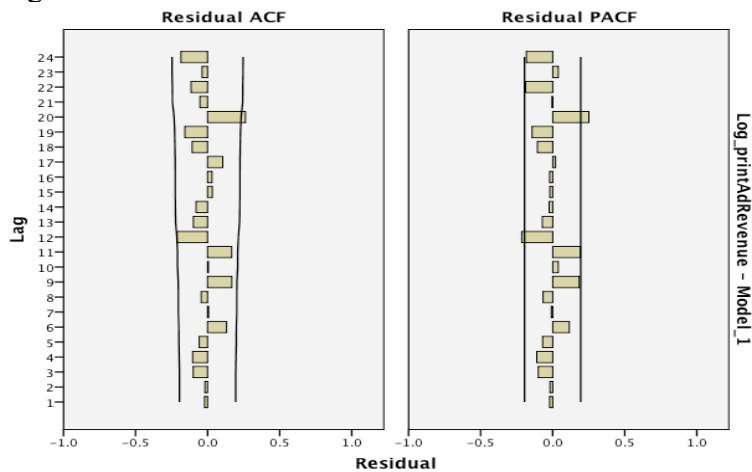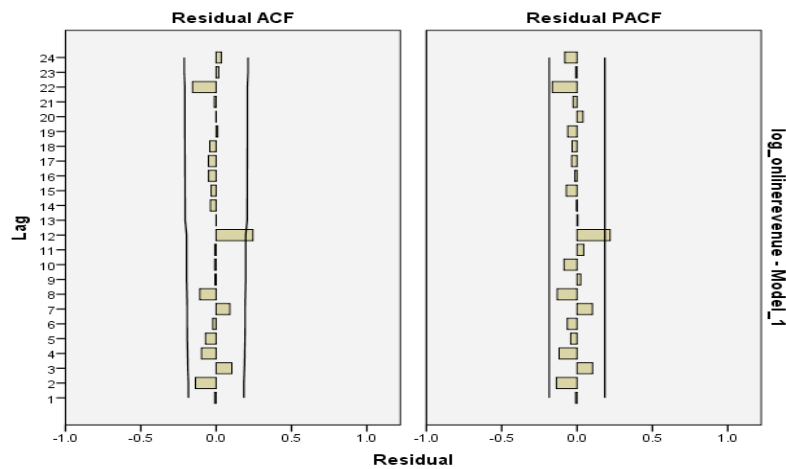
Figure D-10: The Fit Plot of Print Ad Revenue after using Content Predictors by Authorship Origins
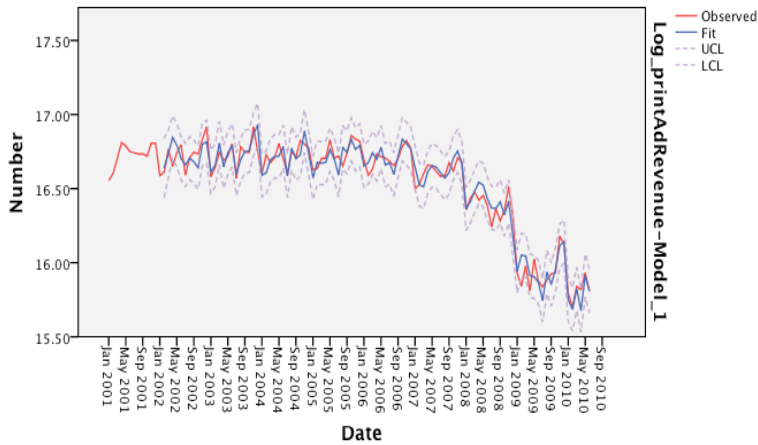


**Appendix E: Time Series Analysis of Print Ad Revenue 2004-2010**

Figure E-1: Sequence Plots of Print Ad Revenue after Log Transformation
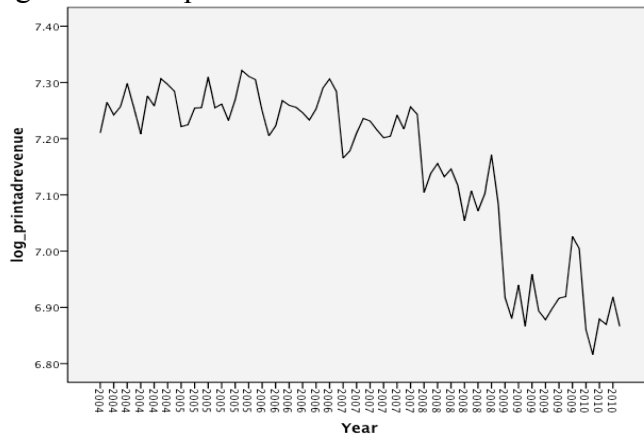


Figure E-2: Sequence Plots of Print Ad Revenue after Log Transformation and one-term differencing



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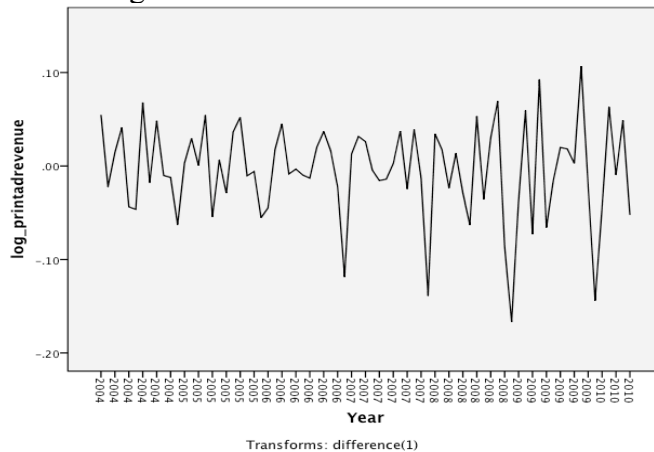
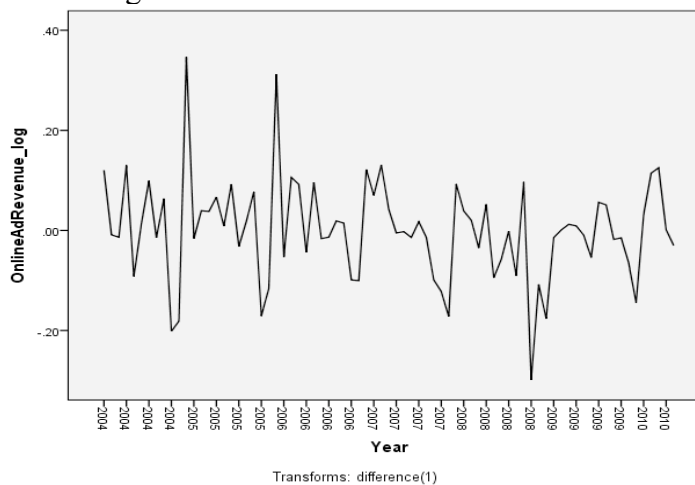Figure E-3: Autocorrelation graph of Print Ad Revenue after log transformation and differencing
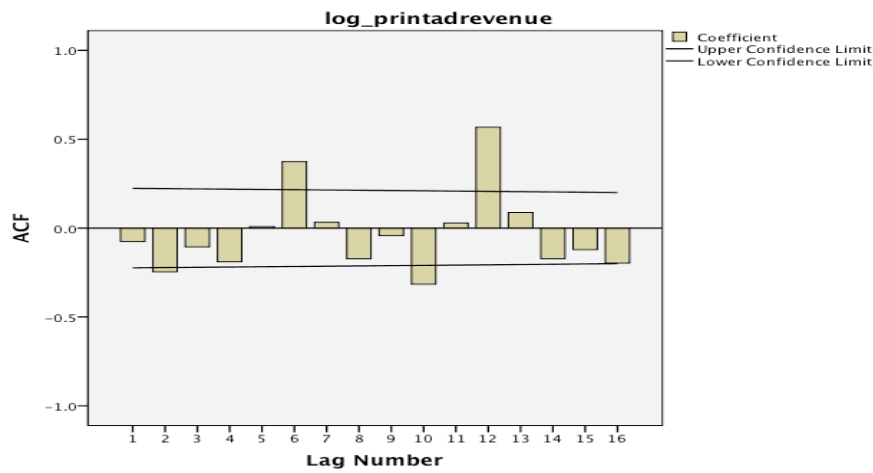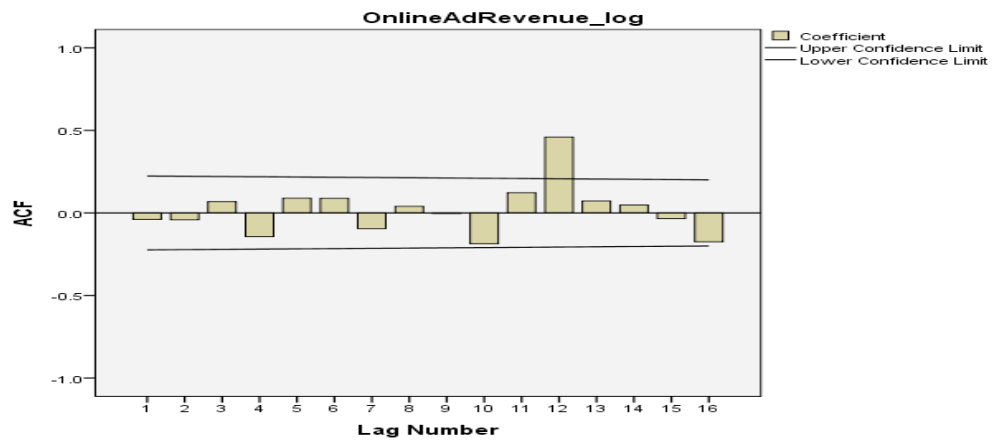


Figure E-4: Partial autocorrelation graph of Print Ad Revenue after log transformation and differencing
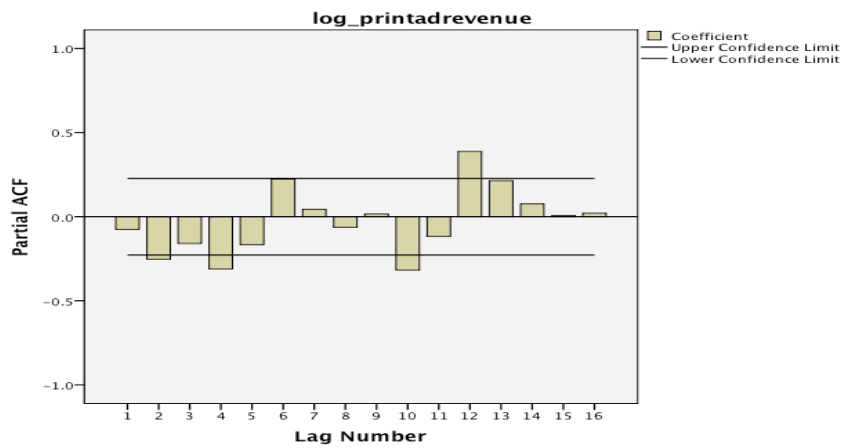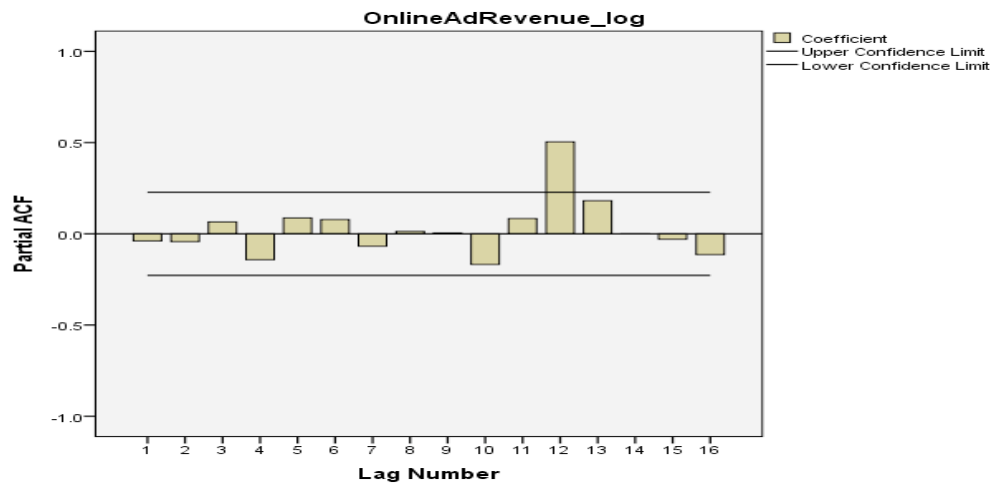


Figure E-5: The Residual Plots of Print Ad Revenue as predicted by Content Topic Areas
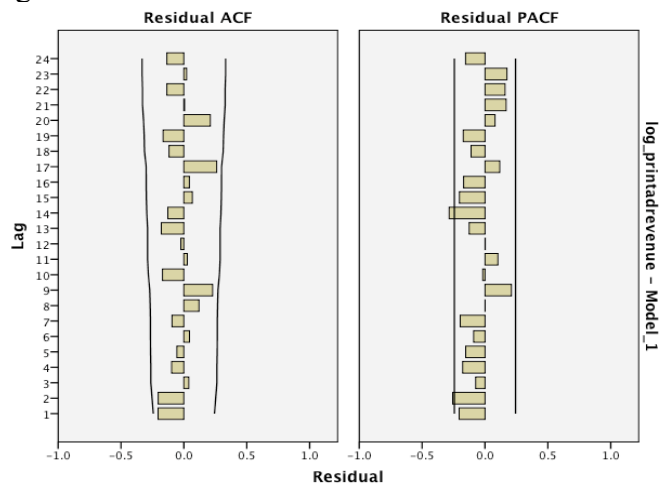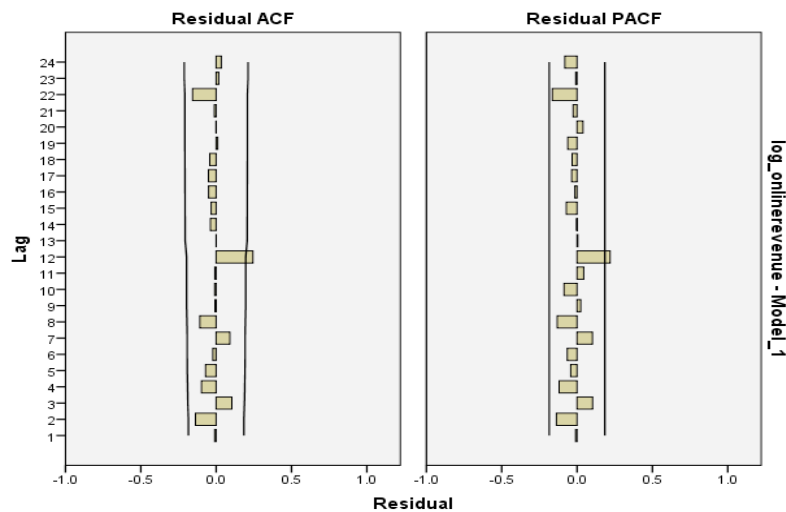
Figure E-6: The Fit Plot of Print Ad Revenue after using Content Predictors by Topic Areas
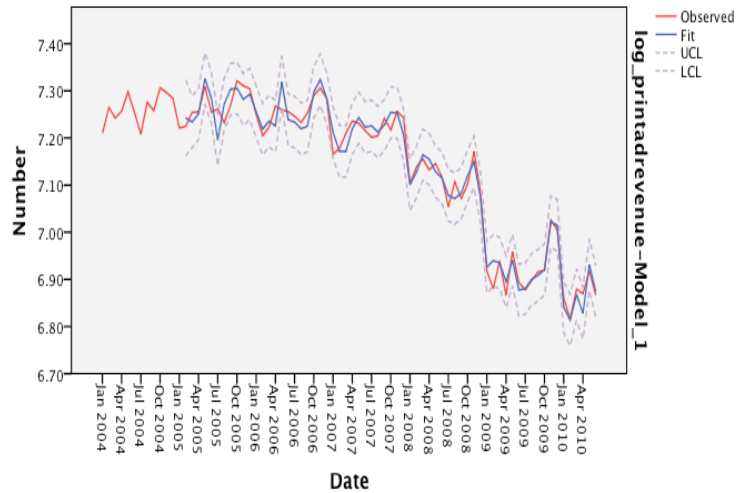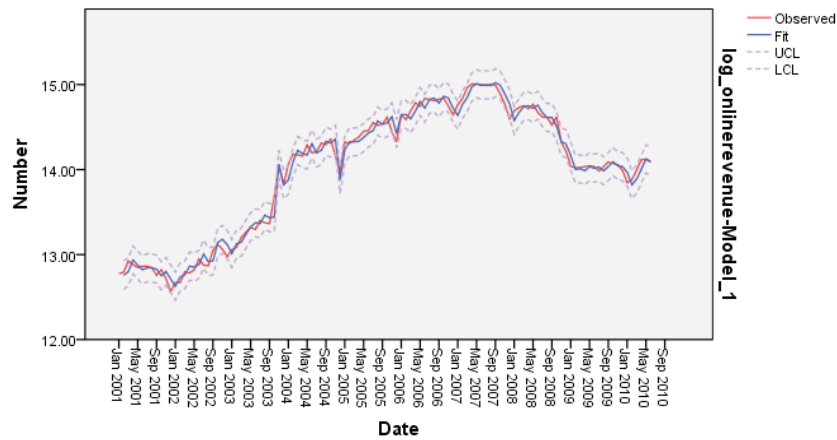


Figure E-7: The Residual Plots of Print Ad Revenue as predicted by Content Geographic Focuses
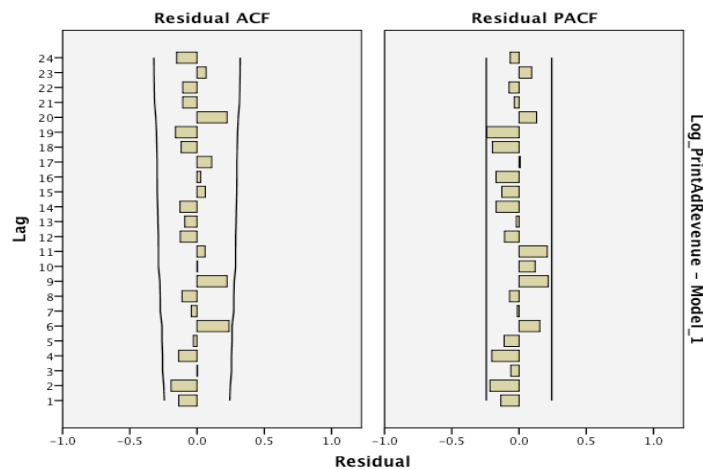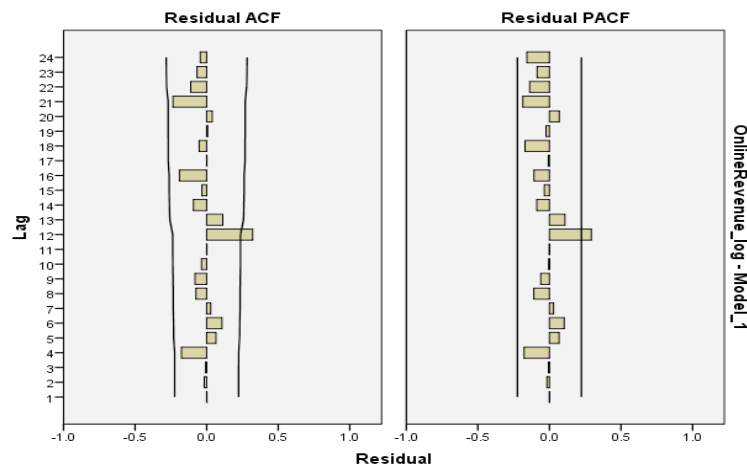


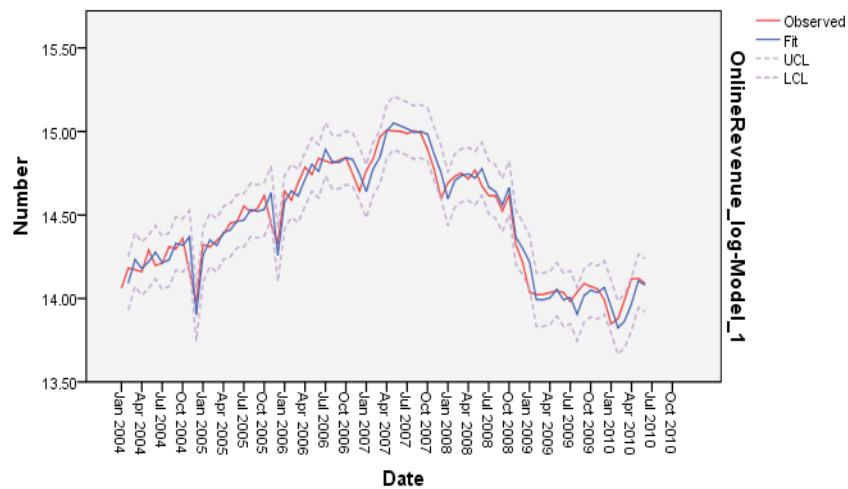Figure E-8: The Fit Plot of Print Ad Revenue after using Content Predictors by Geographic Focuses
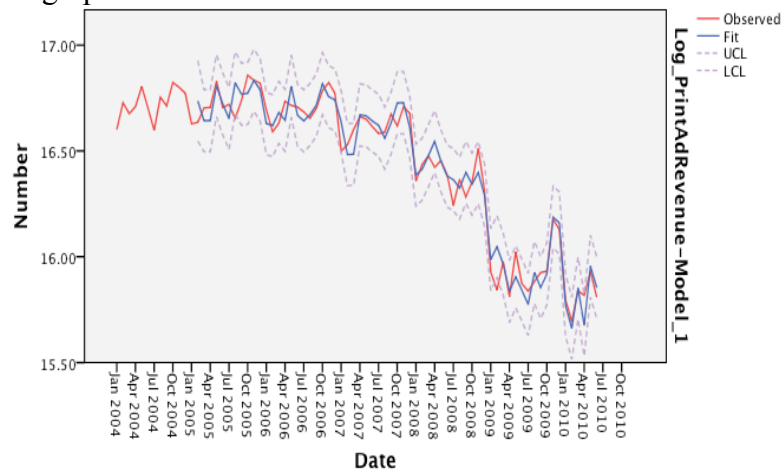
Figure E-9: The Residual Plots of Print Ad Revenue as predicted by Content Authorship Origins
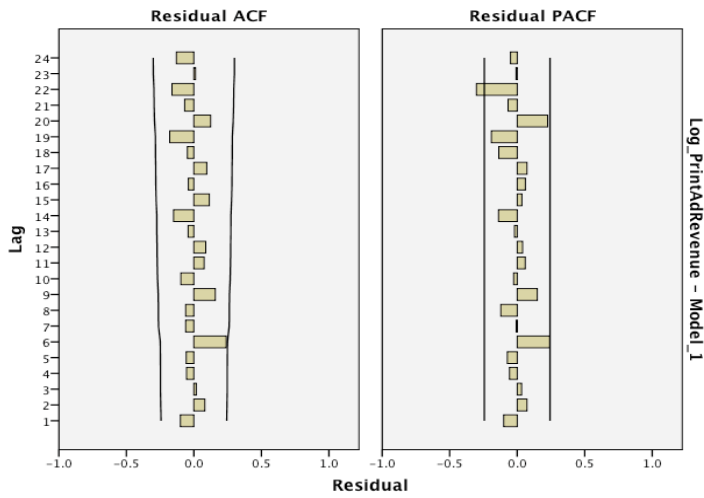


Figure E-10: The Fit Plot of Print Ad Revenue after using Content Predictors by Authorship Origins
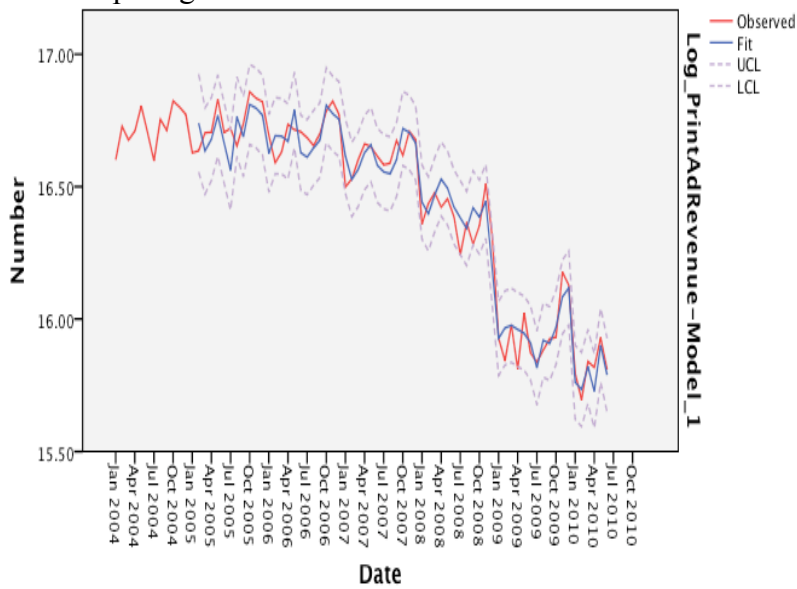
**Table D: Content Effect on Print Advertising Revenue**

| ARIMA | Model Predictors | Year 2001-Year 2010 | | | Year 2004-Year 2010 | | |
|---|---|---|---|---|---|---|---|
| | | (2,1,0)(0,1,0) | (2,1,0)(0,1,0) | (2,1,0)(0,1,0) | (1,1,0)(0,1,0)$_{12}$ | (1,1,0)(0,1,0) | (0,1,1)(0,1,1) |
| Topic Areas | Stationary $R^2$ | .598 | | | .656 | | |
| | Ljung-Box Q | 18.802, df=16 | | | 27.265, df=17 | | |
| | MAE | .053 | | | .066 | | |
| | AR (1) | -.964*** | | | -.736*** | | |
| | AR (2) | -.527*** | | | -- | | |
| | MA (1) | -- | | | -- | | |
| | News | .203*** | | | .469*** | | |
| | News _ lag1 | -- | | | .223** | | |
| | Entertainment | -.029 | | | .117** | | |
| | Entertainment_lag1 | -- | | | .156*** | | |
| | Opinion | .026 | | | -.237*** | | |
| | Opinion_lag1 | -- | | | -.159** | | |
| | Business | -.034 | | | -.123 | | |
| | Sports | -.055* | | | -.14** | | |
| | Circulation | -.127** | | | -.043 | | |
| Geographic Focus | Stationary $R^2$ | | .552 | | | .459 | |
| | Ljung-Box Q | | 15.03, df-16 | | | 20.793, df=17 | |
| | MAE | | .054 | | | .053 | |
| | AR (1) | | -.964*** | | | -.638*** | |
| | AR (2) | | -.531*** | | | | |
| | MA (1) | | | | | | |
| | Local | | -.040 | | | .03 | |
| | Regional | | .045** | | | .053 | |
| | National | | -.029 | | | -.102* | |
| | International | | .023* | | | .031 | |
| | Circulation | | -.052 | | | -.019 | |
| Authorship Origin | Stationary $R^2$ | | | .5 | | | .478 |
| | Ljung-Box Q | | | 21.473, df=16 | | | 14.603, df=16 |
| | MAE | | | .054 | | | .055 |
| | AR (1) | | | -.843 | | | -- |
| | AR (2) | | | -.425 | | | -- |
| | MA (1) | | | -- | | | .711*** |
| | MA (1) seasonal | | | -- | | | .405*** |
| | Staff | | | .028 | | | -.041 |
| | Non-staff | | | -.022 | | | .062 |
| | Circulation | | | -.042 | | | -.042 |

***p<.01, **p<.05, *p<.1

**Appendix F: Time Series Analysis of Online Revenue 2001-2010**

Figure F-1: Sequence Plots of Online Revenue after Log Transformation
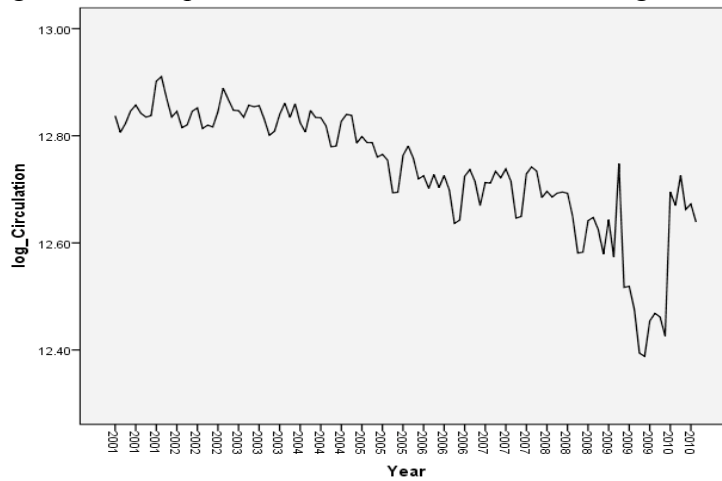


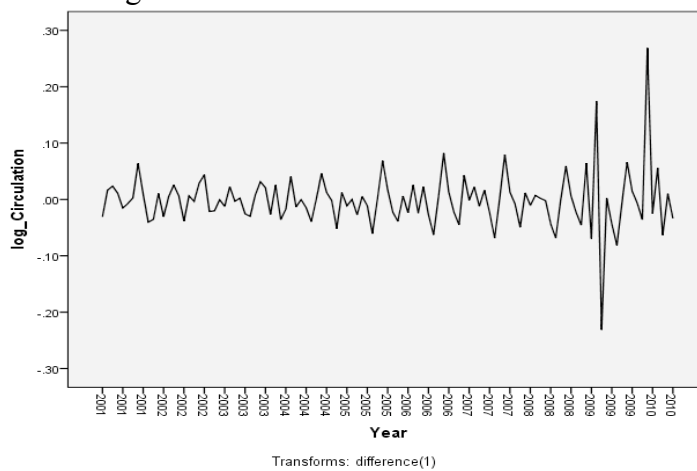Figure F-2: Sequence Plots of Online Revenue after Log Transformation and one-term differencing
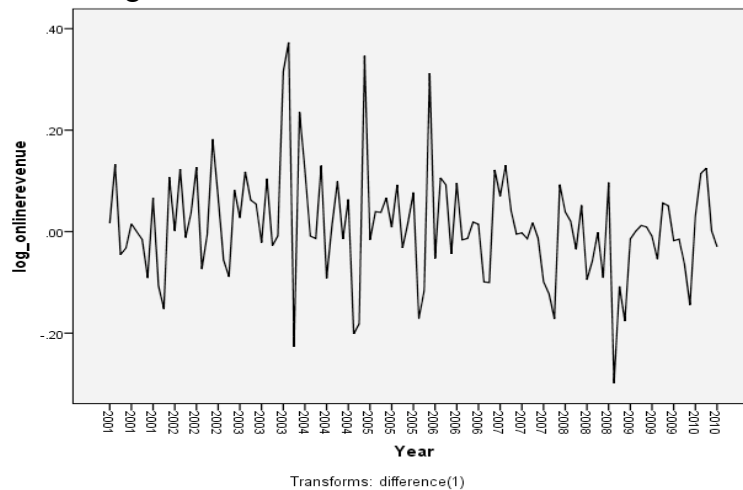


Figure F-3: Autocorrelation graph of online revenue after log transformation and differencing
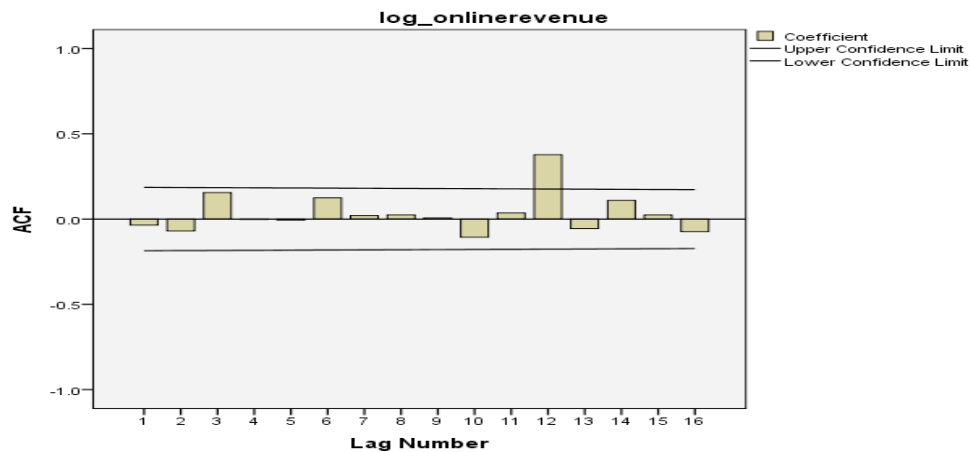
Figure F-4: Partial autocorrelation graph of online revenue after log transformation and differencing
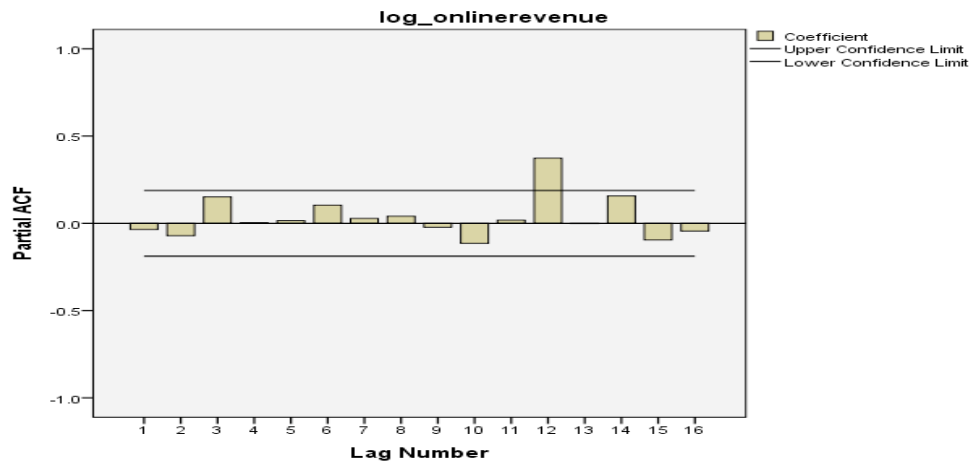


Figure F-5: The Residual Plots of Online Revenue as predicted by Content Topic Areas
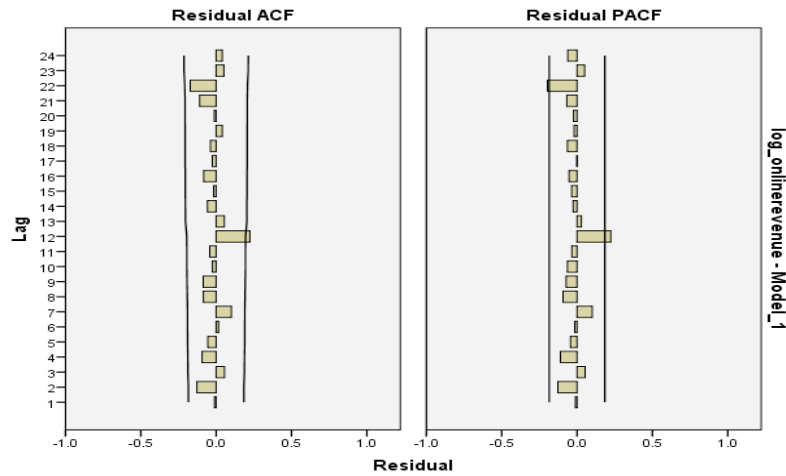


Figure F-6: The Fit Plot of Online Revenue after using Content Predictors by Topic Areas
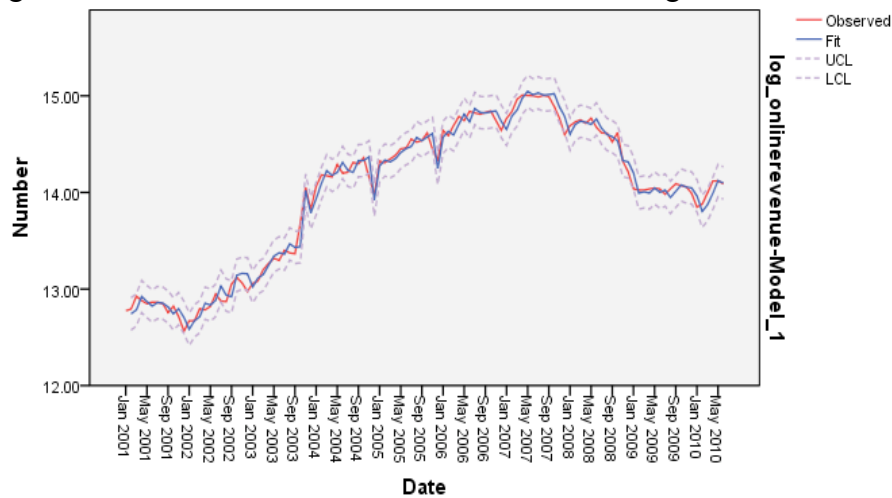
Figure F-7: The Residual Plots of Online Revenue as predicted by Content Geographic Focuses



Figure F-8: The Fit Plot of Online Revenue after using Content Predictors by Geographic Focuses
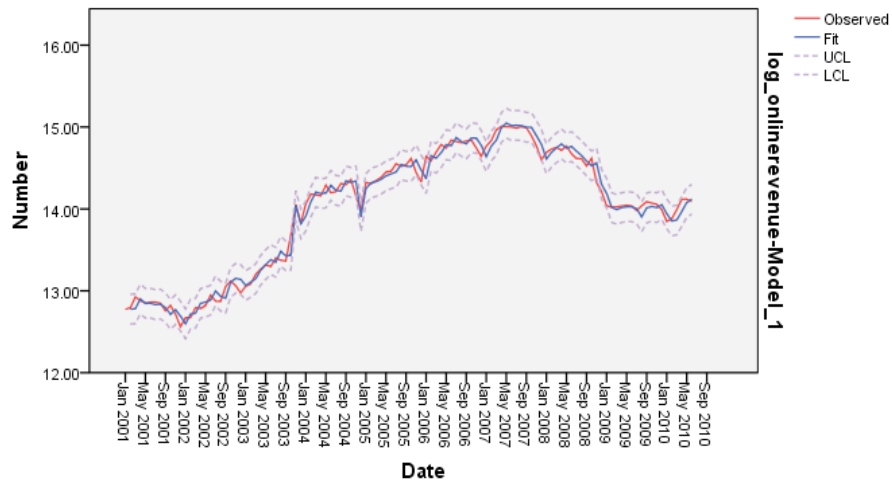


Figure F-9: The Residual Plots of Online Revenue as predicted by Content Authorship Origins

Figure F-10: The Fit Plot of Online Revenue after using Content Predictors by Authorship Origins
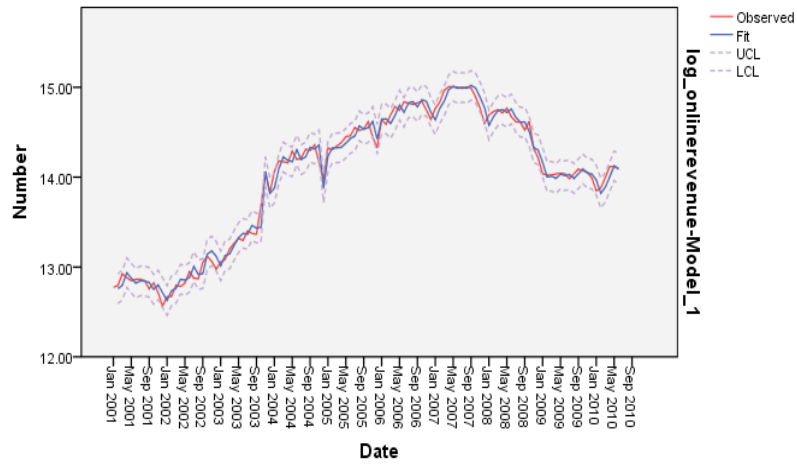


## G: Time Series Analysis of Online Revenue 2004-2010

Figure G-1: Sequence Plots of Online Revenue after Log Transformation



Figure G-2: Sequence Plots of Online Revenue after Log Transformation and one-term differencing

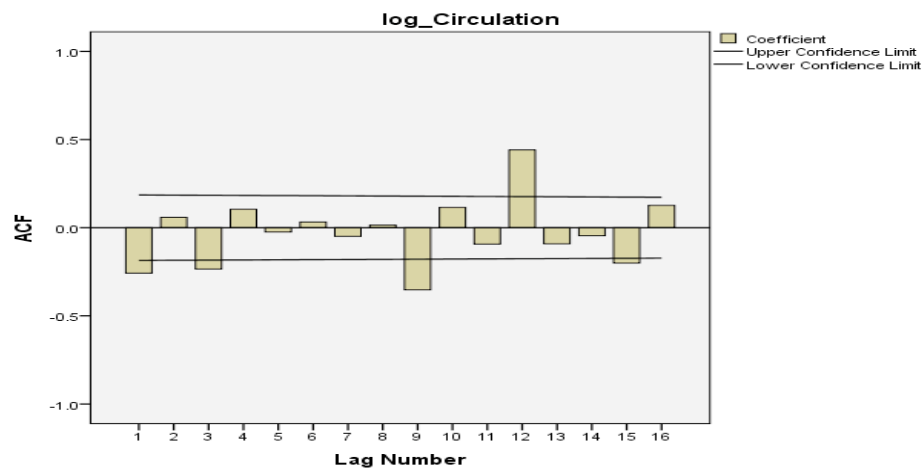Figure G-3: Autocorrelation graph of online revenue after log transformation and differencing



Figure G-4: Partial autocorrelation graph of online revenue after log transformation and differencing



Figure G-5: The Residual Plots of Online Revenue as predicted by Content Topic Areas

Figure G-6: The Fit Plot of Online Revenue after using Content Predictors by Topic Areas



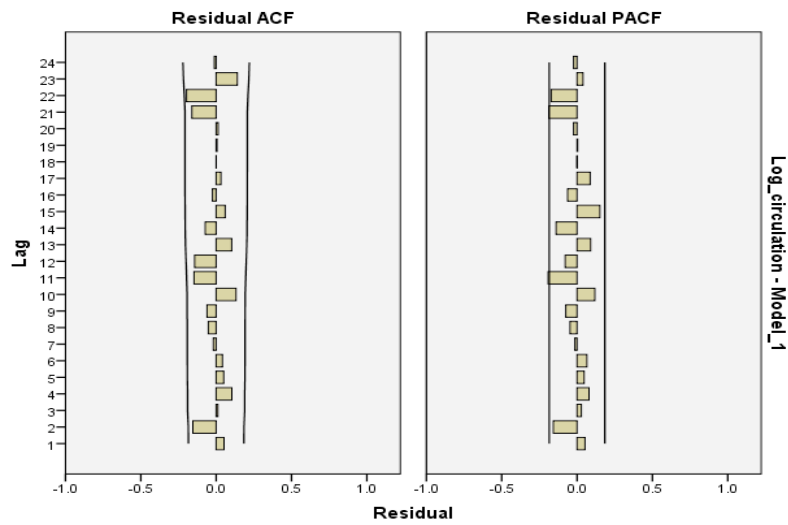Figure G-7: The Residual Plots of Online Revenue as predicted by Content Geographic Focuses



Figure G-8: The Fit Plot of Online Revenue after using Content Predictors by Geographic Focuses

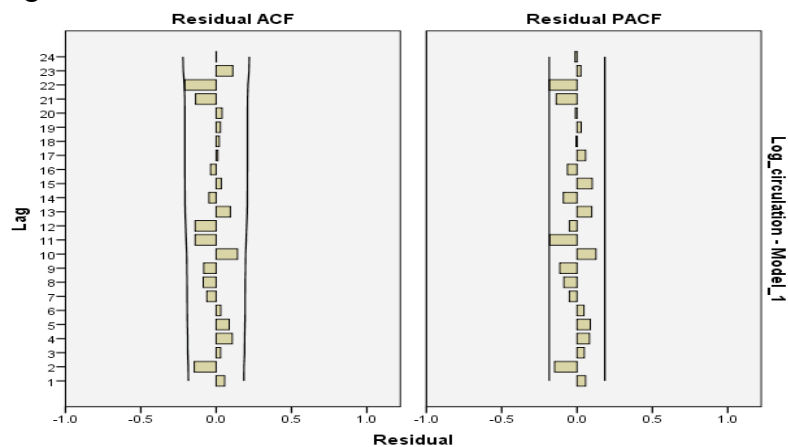Figure G-9: The Residual Plots of Online Revenue as predicted by Content Authorship Origins
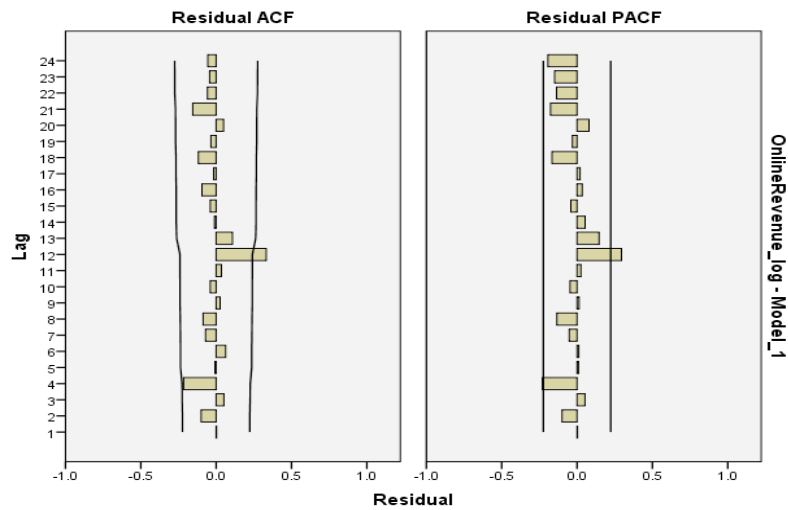


Figure G-10: The Fit Plot of Online Revenue after using Content Predictors by Authorship Origins

**Table E: Content Effect on Online Advertising Revenue**

| ARIMA Model Predictors | | Year 2001-Year 2010 | | | Year 2004-Year 2010 | | |
|---|---|---|---|---|---|---|---|
| | | (0,1,1)(0,0,0) | (0,1,1)(0,0,0) | (0,1,1)(0,0,0) | (1,1,0)(0,0,0) | (1,1,0)(0,0,0) | (1,1,0)(0,0,0) |
| Topic Areas | Stationary $R^2$ | .460 | | | .462 | | |
| | Ljung-Box Q | 15.577, df=17 | | | 20.283, df=17 | | |
| | MAE | .063 | | | .06 | | |
| | AR (1) | -- | | | .093 | | |
| | MA (1) | -.083 | | | -- | | |
| | News | .148* | | | .555* | | |
| | Entertainment | .007 | | | -.174 | | |
| | Opinion | .016 | | | -.053 | | |
| | Business | .005 | | | .018 | | |
| | Sports | -.042 | | | -.045 | | |
| Geographic Focus | Stationary $R^2$ | | .346 | | | .458 | |
| | Ljung-Box Q | | 22.239, df=17 | | | 20.916, df=17 | |
| | MAE | | .068 | | | .06 | |
| | AR (1) | | -- | | | .062 | |
| | MA (1) | | .041 | | | -- | |
| | Local | | .033 | | | -.079 | |
| | Regional | | -.082** | | | -.028 | |
| | National | | .102 | | | .140* | |
| | International | | .013 | | | .034 | |
| Authorship Origin | Stationary $R^2$ | | | .46 | | | .426 |
| | Ljung-Box Q | | | 16.708, df=17 | | | 20.667, df=17 |
| | MAE | | | .064 | | | .061 |
| | AR (1) | | | -- | | | .036 |
| | MA (1) | | | -.077 | | | -- |
| | Staff | | | .142 | | | .082 |
| | Non-staff | | | -.075 | | | -.002 |

***p<.01, **p<.05, *p<.1

**Appendix H: Time Series Analysis of Circulation 2001-2010**

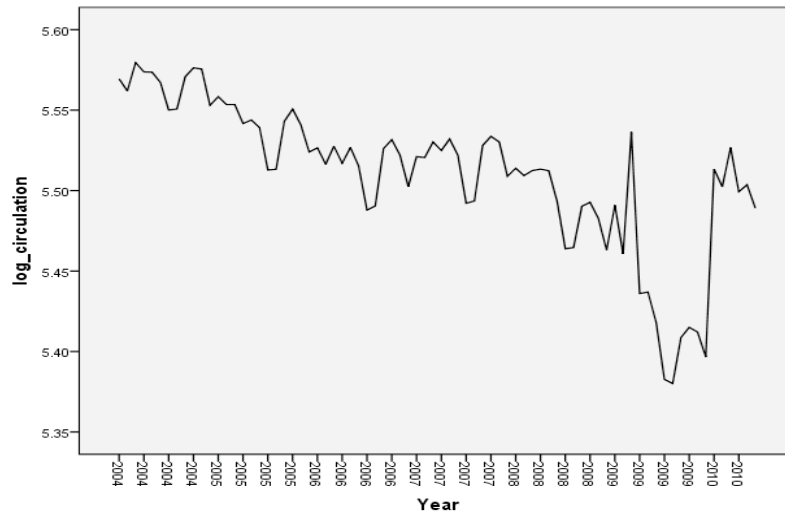Figure H-1: Sequence Plots of Circulation after Log Transformation



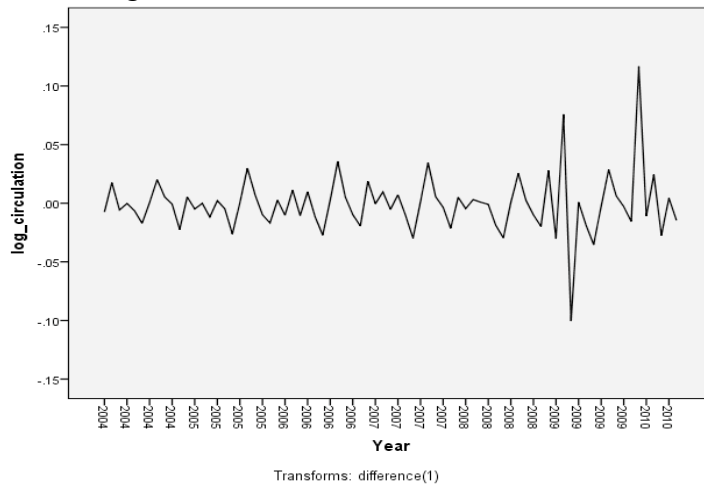Figure H-2: Sequence Plots of circulation after Log Transformation and one-term differencing



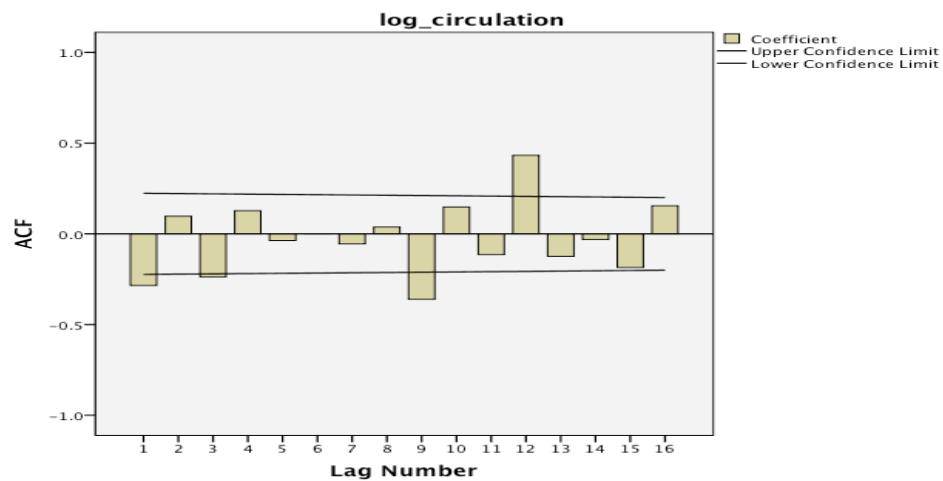Figure H-3: Autocorrelation graph of circulation after log transformation and differencing

Figure H-4: Partial autocorrelation graph of circulation after log transformation and differencing
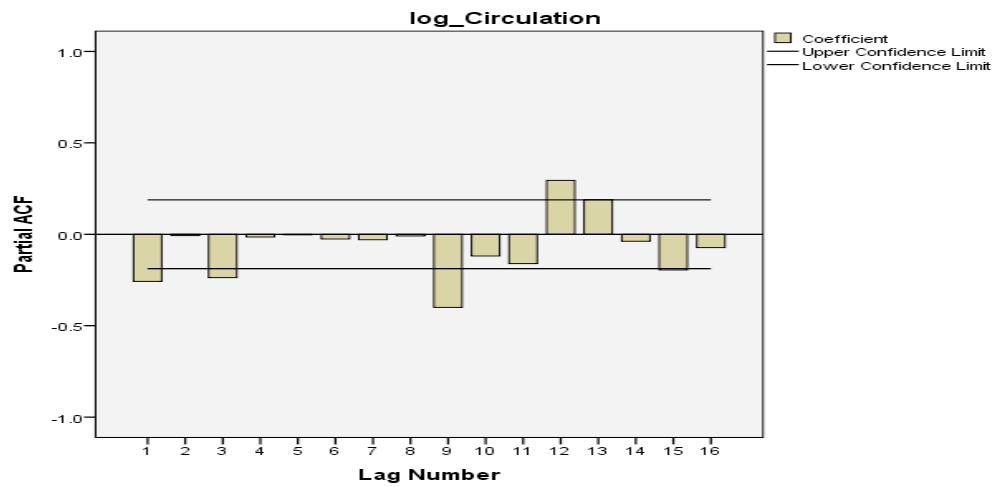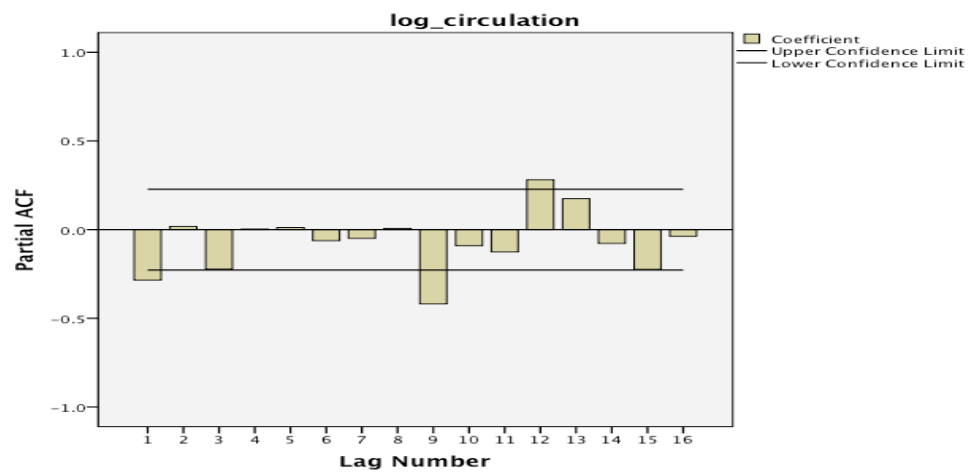


Figure H-5: The Residual Plots of Circulation as predicted by Content Topic Areas
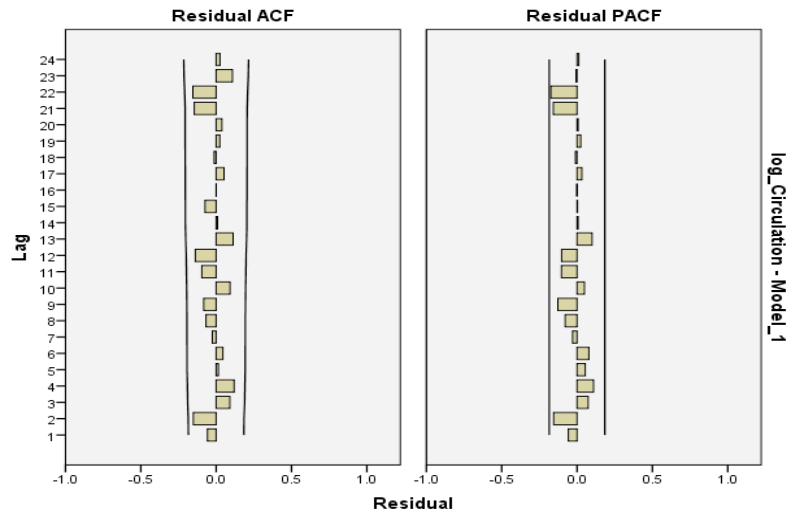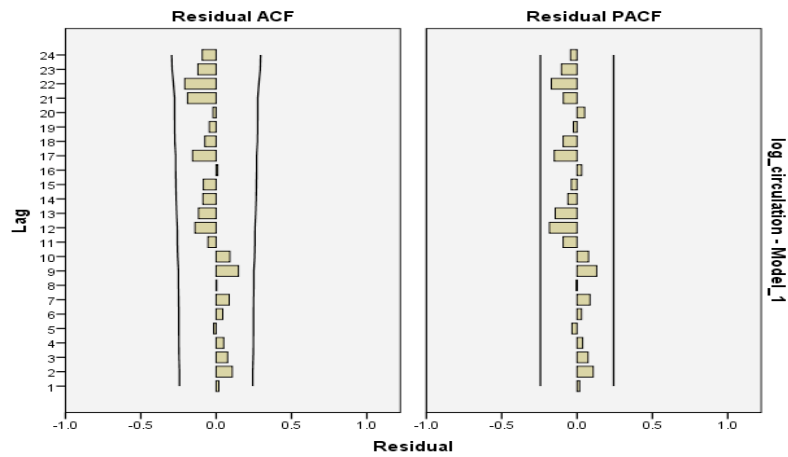


Figure H-6: The Fit Plot of circulation after using Content Predictors by Topic Areas
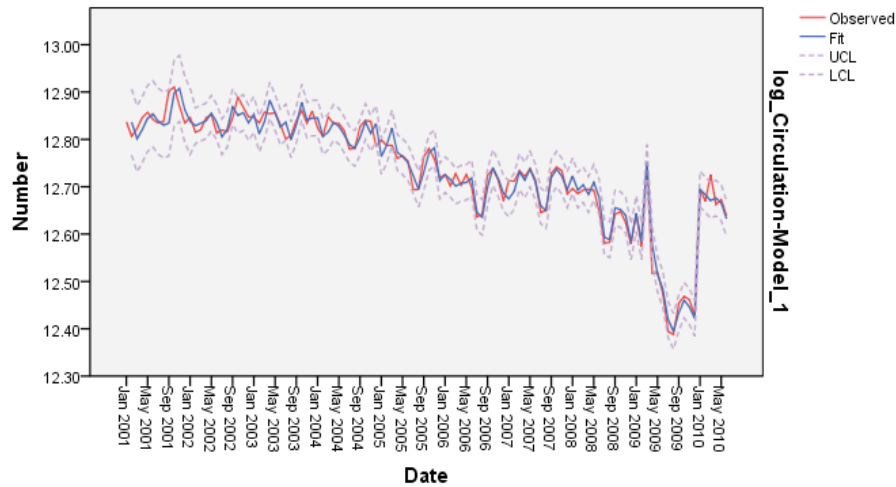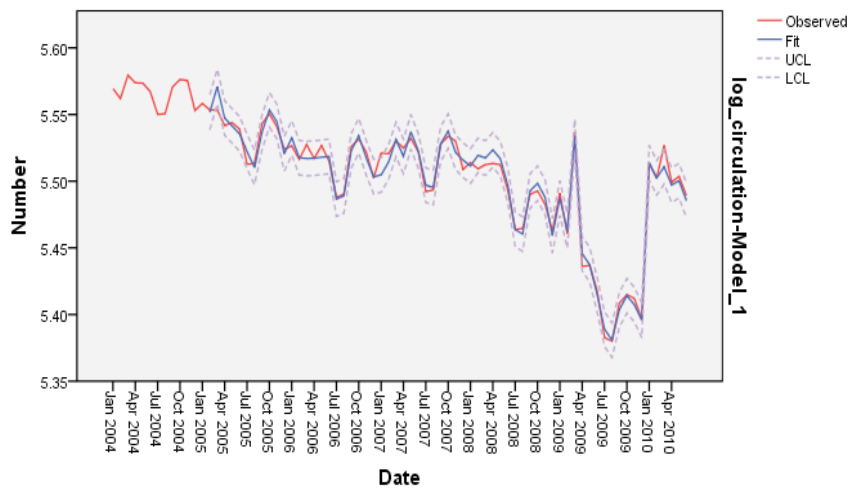
Figure H-7: The Residual Plots of circulation as predicted by Content Geographic Focuses
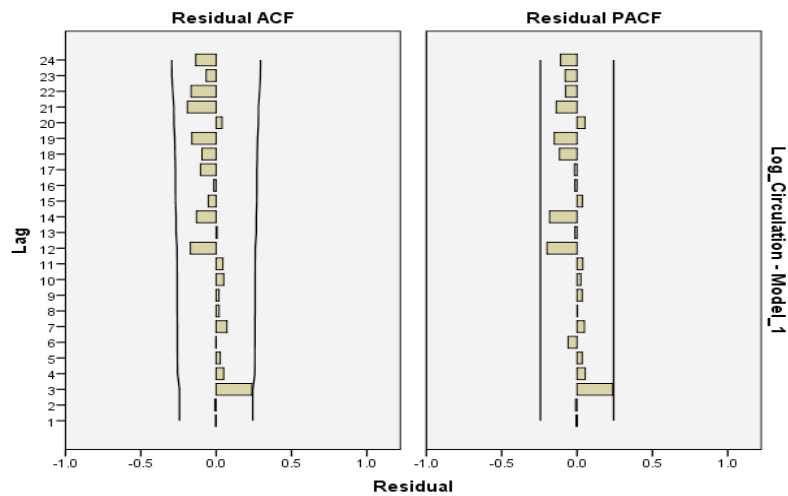


Figure H-8: The Fit Plot of Circulation after using Content Predictors by Geographic Focuses
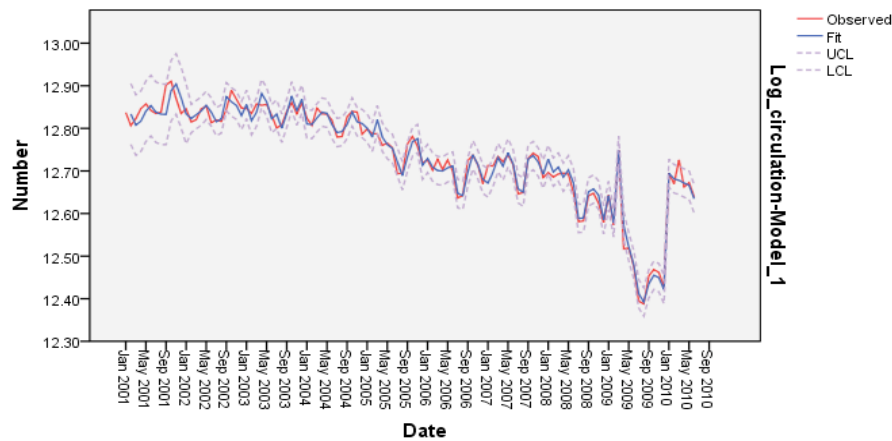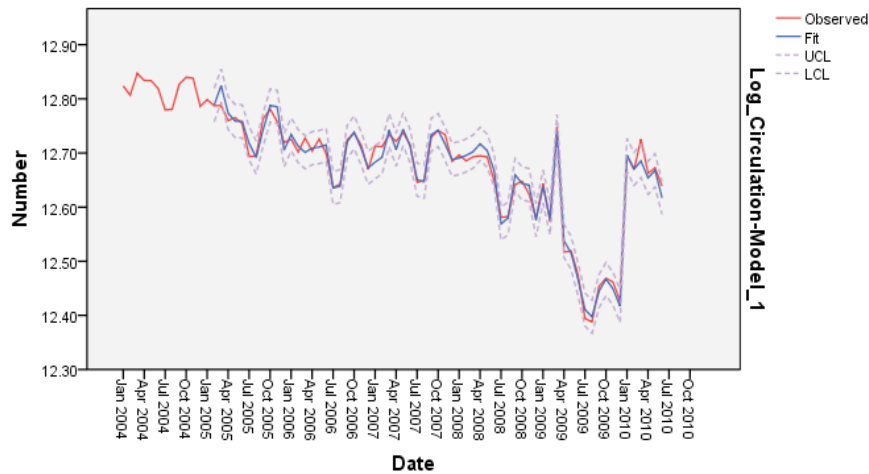


Figure H-9: The Residual Plots of Circulation as predicted by Content Authorship Origins

Figure H-10: The Fit Plot of Circulation after using Content Predictors by Authorship Origins
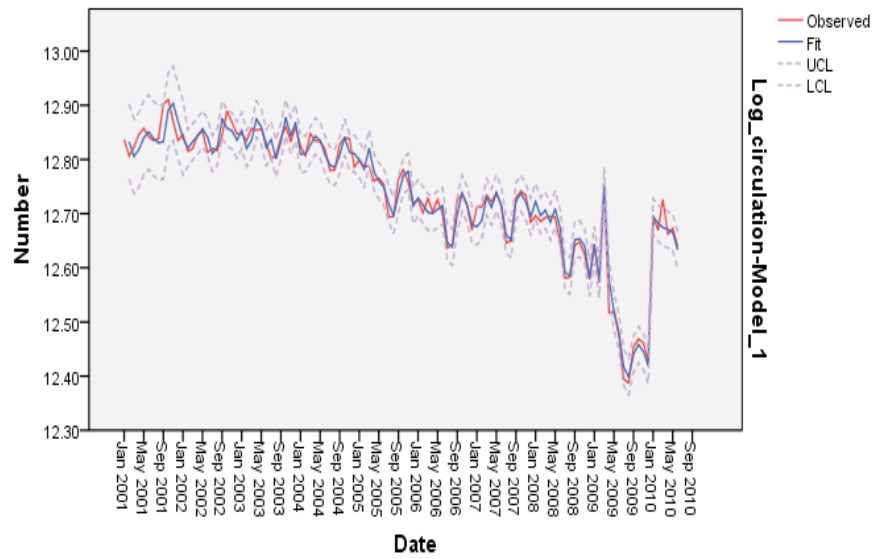


**Appendix I: Time Series Analysis of Circulation 2004-2010**

Figure I-1: Sequence Plots of Circulation after Log Transformation

Figure I-2: Sequence Plots of Circulation after Log Transformation and one-term differencing



Figure I-3: Autocorrelation graph of circulation after log transformation and differencing



Figure I-4: Partial autocorrelation graph of circulation after log transformation and differencing

Figure I-5: The Residual Plots of Circulation as predicted by Content Topic Areas



Figure I-6: The Fit Plot of Circulation after using Content Predictors by Topic Areas



Figure I-7: The Residual Plots of Circulation as predicted by Content Geographic Focuses

Figure I-8: The Fit Plot of Circulation after using Content Predictors by Geographic Focuses



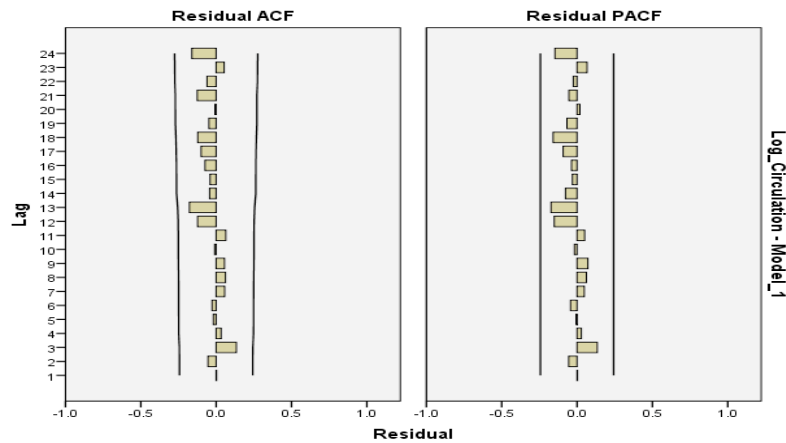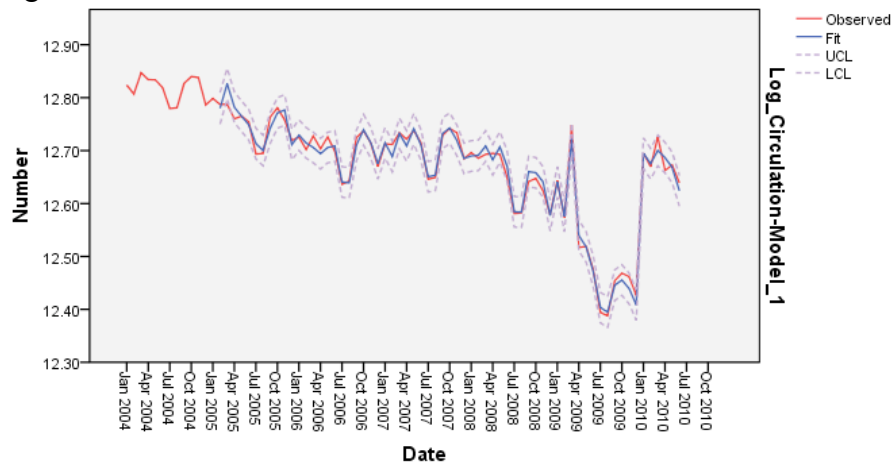Figure I-9: The Residual Plots of Circulation as predicted by Content Authorship Origins



Figure I-10: The Fit Plot of Circulation after using Content Predictors by Authorship Origins

**Table F: Content Effect on Circulation**

| ARIMA model / Predictors | | Year 2001-Year 2010 | | | Year 2004-Year 2010 | | |
|---|---|---|---|---|---|---|---|
| | | (0,1,0)(1,0,0) | (0,1,1)(1,0,0) | (0,1,1)(1,0,0) | (0,1,1)(0,1,0) | (0,1,1)(0,1,0) | (0,1,1)(0,1,0) |
| Topic Areas | Stationary $R^2$ | .843 | | | .937 | | |
| | Ljung-Box Q | 14.926, df=17 | | | 11.544, df=17 | | |
| | MAE | .015 | | | .004 | | |
| | AR (1) | .841*** | | | -- | | |
| | MA (1) | | | | -.174 | | |
| | News | -.023 | | | .063 | | |
| | Entertainment | .007 | | | -.017 | | |
| | Opinion | .002 | | | .020 | | |
| | Business | .004 | | | -.017 | | |
| | Sports | -.001 | | | -.010 | | |
| Geographic Focus | Stationary $R^2$ | | .869 | | | .933 | |
| | Ljung-Box Q | | 16.053, df=17 | | | 10.913, df=17 | |
| | MAE | | .013 | | | .011 | |
| | AR (1) | | .884*** | | | -- | |
| | seasonal MA (1) | | .112 | | | -.150 | |
| | Local | | .002 | | | -.020 | |
| | Regional | | .002 | | | .017* | |
| | National | | -.008 | | | .005 | |
| | International | | .007 | | | -.08 | |
| Authorship Origin | Stationary $R^2$ | | | .867 | | | .937 |
| | Ljung-Box Q | | | 16.917, df=16 | | | 9.674, df=17 |
| | MAE | | | .014 | | | .01 |
| | AR (1) | | | .873*** | | | -- |
| | seasonal MA (1) | | | .106 | | | .249* |
| | Staff | | | .009 | | | .004 |
| | Non-staff | | | -.006 | | | .002 |

***p<.01, **p<.05, *p<.1

**Appendix J: Time Series Analysis of Online Page View 2005-2010**

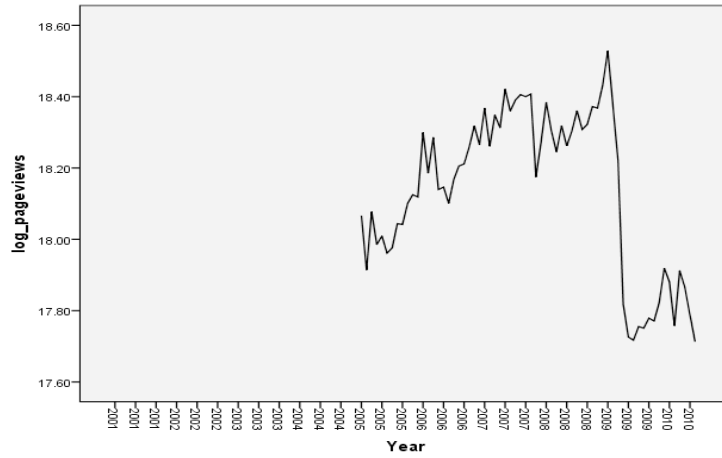Figure J-1: Sequence Plots of Online Page View after Log Transformation



Figure J-2: Sequence Plots of Online Page View after Log Transformation and one-term differencing
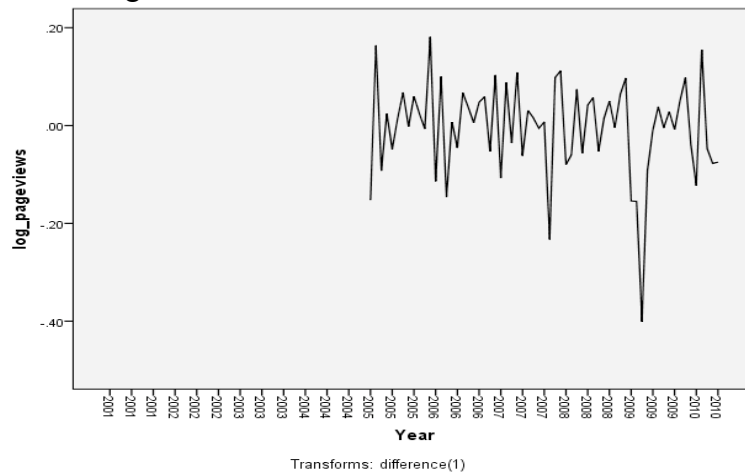


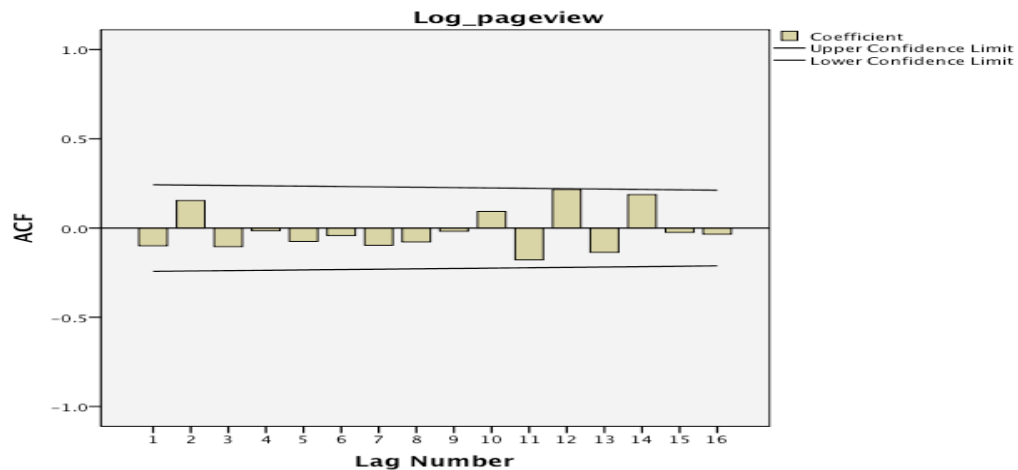Figure J-3: Autocorrelation graph of Online Page View after log transformation and differencing

Figure J-4: Partial autocorrelation graph of Online Page View after log transformation and differencing
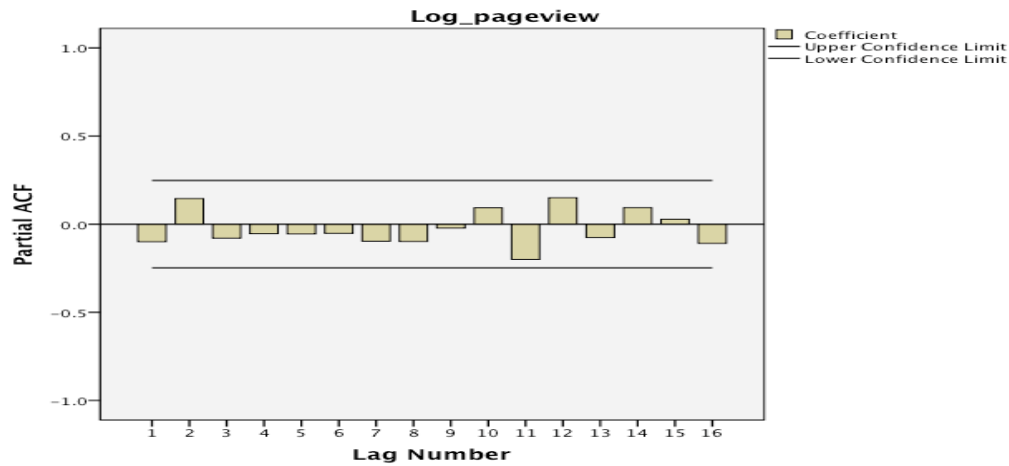


Figure J-5: The Residual Plots of Online Page View as predicted by Content Topic Areas
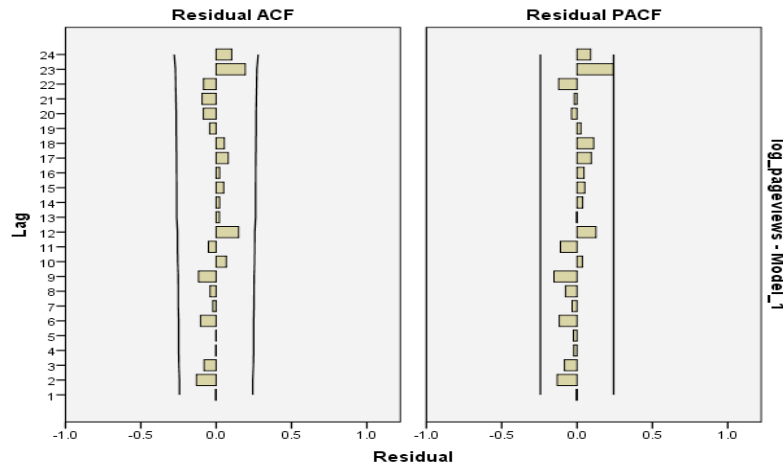


Figure J-6: The Fit Plot of Online Page View after using Content Predictors by Topic Areas
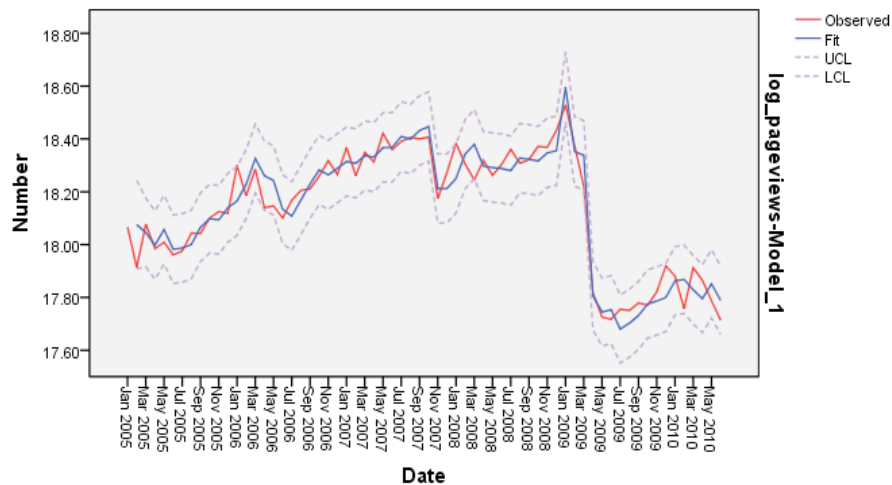
Figure J-7: The Residual Plots of Online Page View as predicted by Content Geographic
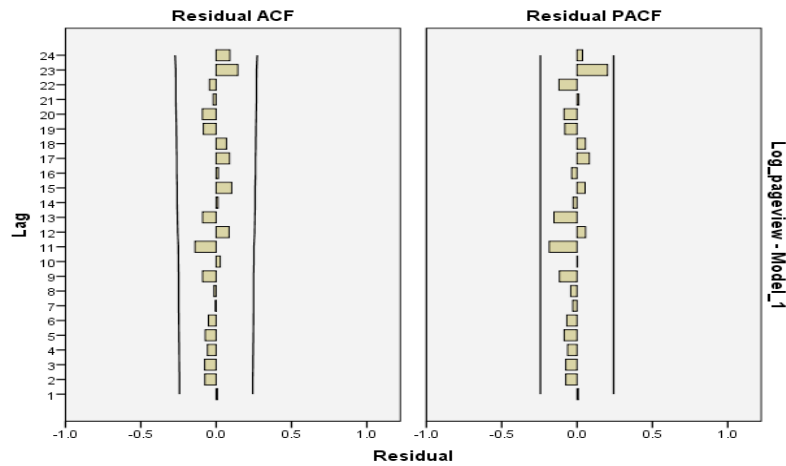Focuses



Figure J-8: The Fit Plot of Online Page View after using Content Predictors by
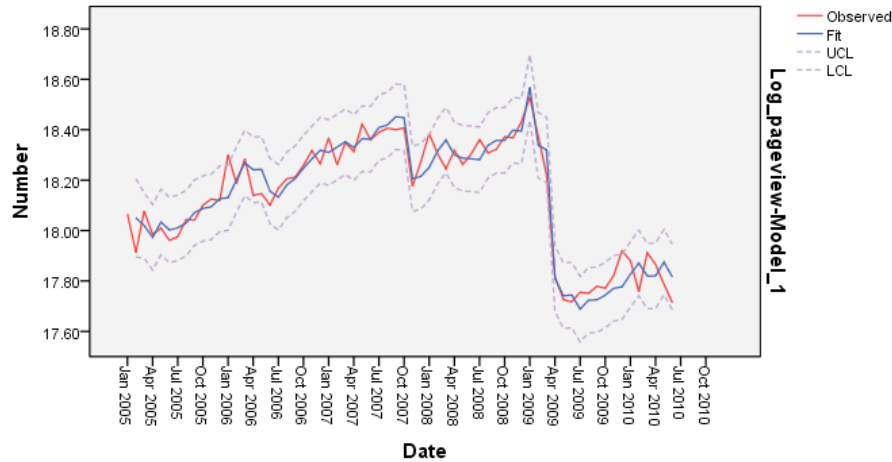Geographic Focuses



Figure J-9: The Residual Plots of Online Page View as predicted by Content Authorship
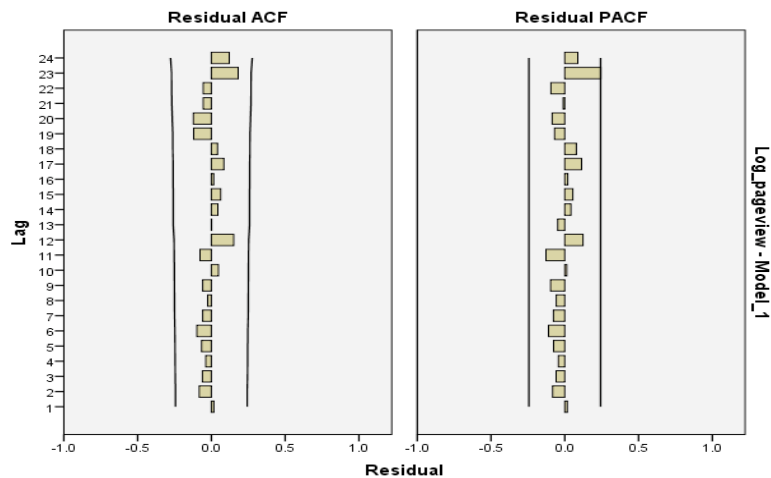Origins

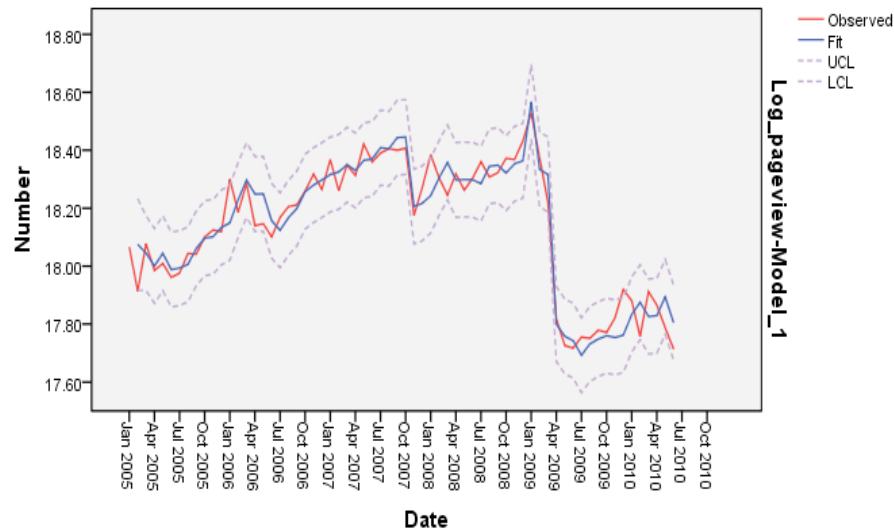Figure J-10: The Fit Plot of Online Page View after using Content Predictors by Authorship Origins



**Appendix K: Time Series Analysis of Online Visits 2005-2010**

Figure K-1: Sequence Plots of online visits after Log Transformation



Figure K-2: Sequence Plots of online visits after Log Transformation and one-term differencing



Transforms: difference(1)

180
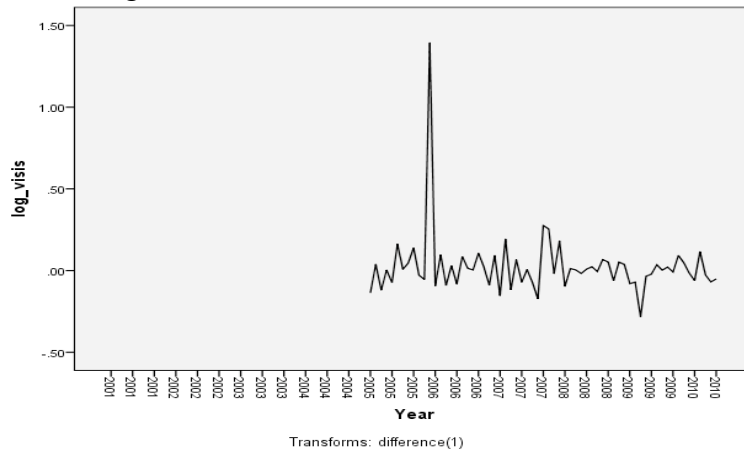
Figure K-3: Autocorrelation graph of online visits after log transformation and differencing
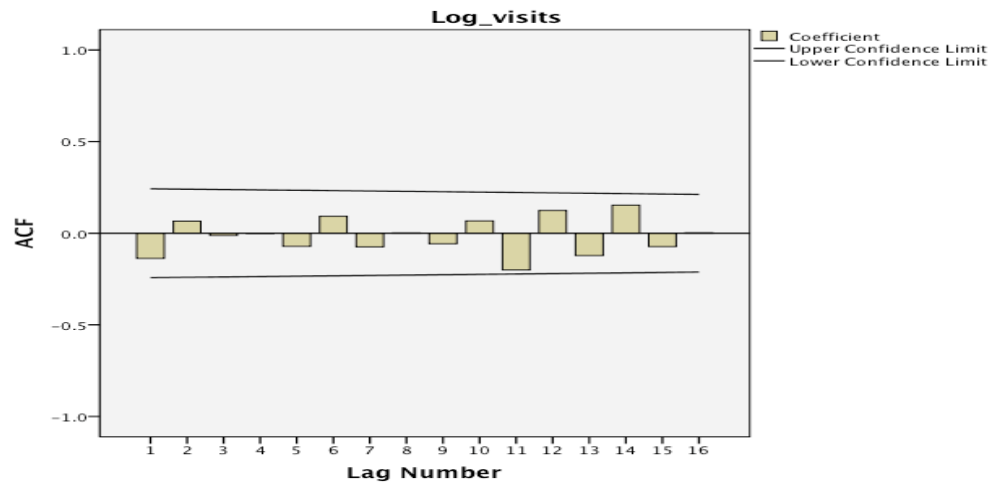


Figure K-4: Partial autocorrelation graph of online visits after log transformation and differencing
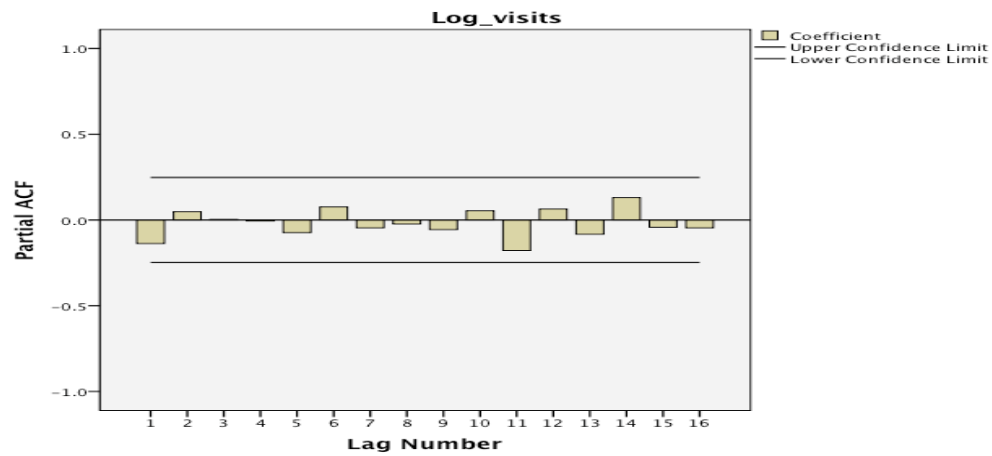


Figure K-5: The Residual Plots of Online visits as predicted by Content Topic Areas
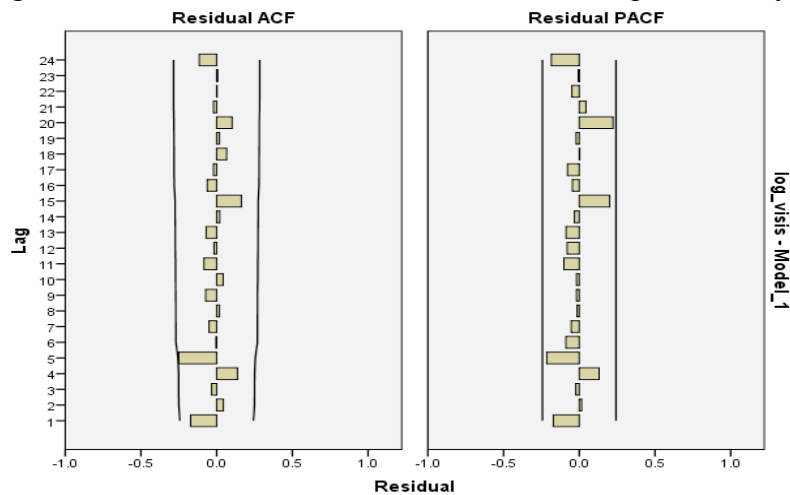
Figure K-6: The Fit Plot of online visits after using Content Predictors by Topic Areas
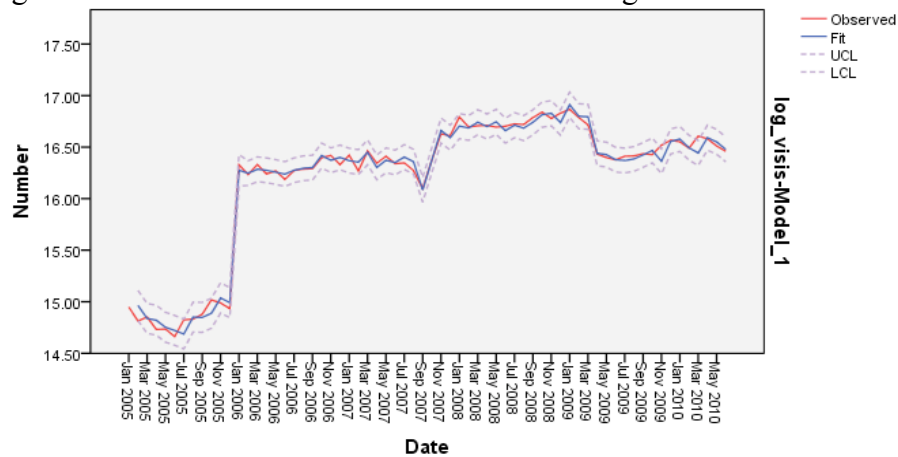


Figure K-7: The Residual Plots of online visits as predicted by Content Geographic Focuses



Figure K-8: The Fit Plot of Online visits after using Content Predictors by Geographic Focuses

Figure K-9: The Residual Plots of Online visits as predicted by Content Authorship Origins



Figure K-10: The Fit Plot of Online visits after using Content Predictors by Authorship Origins
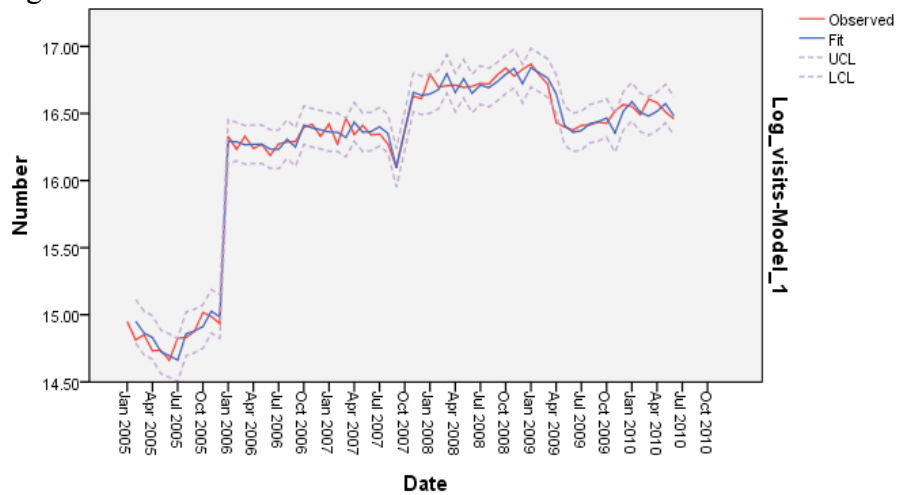
**Table G: Content Effect on Online Traffic (2005-2010)**

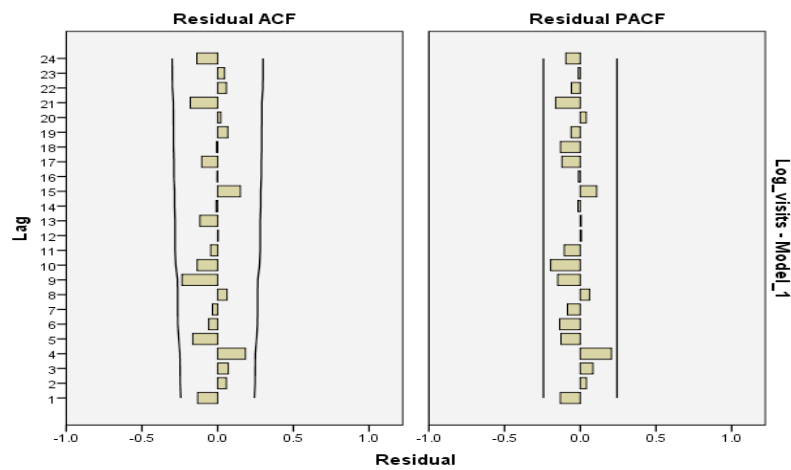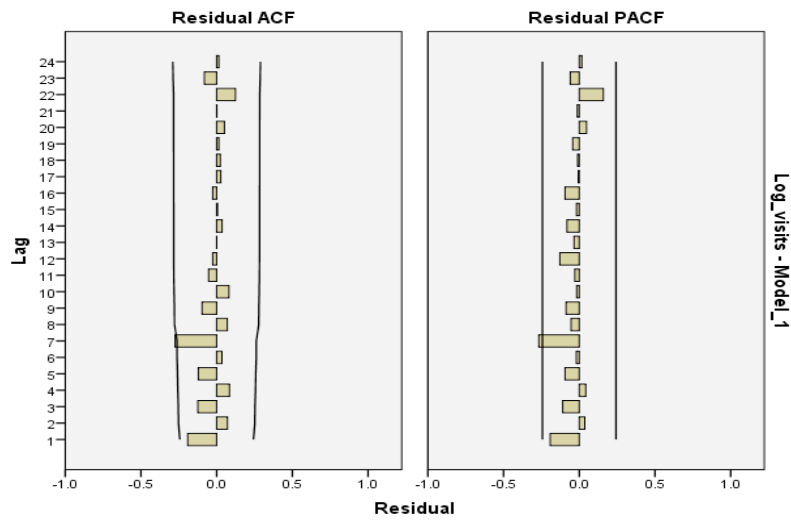| ARIMA Model | | Online Page View | | | Online Visits | | |
|---|---|---|---|---|---|---|---|
| Predictors | | (1,1,0)(0,0,0) | (1,1,0)(0,0,0) | (1,1,0)(0,0,0) | (0,1,0)(1,0,0) | (0,1,0)(1,0,0) | (0,1,0)(1,0,0) |
| Topic Areas | Stationary $R^2$ | .606 | | | .915 | | |
| | Ljung-Box Q | 7.277, DF=17 | | | 13.033, df=17 | | |
| | MAE | .048 | | | .043 | | |
| | AR (1) | -.63*** | | | -- | | |
| | AR (1) seasonal | -- | | | .615 | | |
| | MA (1) | -- | | | -- | | |
| | News | .004 | | | -.006 | | |
| | Entertainment | -.003 | | | .005 | | |
| | Opinion | .008 | | | .009 | | |
| | Business | -.006 | | | .001 | | |
| | Sports | .009 | | | .003 | | |
| Geographic Focus | Stationary $R^2$ | | .609 | | | .925 | |
| | Ljung-Box Q | | 7.297, df=17 | | | 16.789, df=17 | |
| | MAE | | .047 | | | .043 | |
| | AR (1) | | -.546*** | | | -- | |
| | AR (1) seasonal | | -- | | | .675*** | |
| | MA (1) | | -- | | | -- | |
| | Local | | .153*** | | | .126** | |
| | Regional | | .013 | | | .034 | |
| | National | | -.085 | | | -.145** | |
| | International | | 0 | | | .053* | |
| Authorship Origin | Stationary $R^2$ | | | .594 | | | .876 |
| | Ljung-Box Q | | | 6.34, df=17 | | | 13.411, df=17 |
| | MAE | | | .048 | | | 053 |
| | AR (1) | | | -.572*** | | | -- |
| | AR (1) seasonal | | | -- | | | .464*** |
| | MA (1) | | | -- | | | -- |
| | Staff | | | .158** | | | .283*** |
| | Non-staff | | | -.06 | | | -.144** |

***p<.01, **p<.05, *p<.1

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