
IS ONLINE NEWS AN INFERIOR GOOD? EXAMINING THE ECONOMIC NATURE OF ONLINE NEWS AMONG USERS

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The U.S. newspaper industry is transitioning from print to online, but users' response to online news has fallen short of expectations and thus raised questions about the economic viability of the new medium. This study explores the economic concept of "inferior goods" and its applicability to online news consumption. Analysis of Pew Research Center survey data shows that as income increases, consumption of online news decreases, other things being equal. Therefore, online news is an inferior good among users.

The U.S. newspaper industry is transitioning from print to online. In the information market, the number of people getting news online has been growing while print circulation keeps dropping, and many young readers have abandoned the print product.¹ In the advertising market, the revenue for newspapers' online sites soared between 2003 and 2008 while print revenue has been in decline.² As a result, many observers, especially those who work in the newspaper industry, seem to believe that the future of news is online.³

The Internet as a news platform was once considered to have great potential. However, after years of experimentation, print newspapers, despite circulation and revenue declines, still account for more than 90% of total newspaper revenue.⁴ In contrast, users' response to online news has fallen short of expectations, raising questions about the economic viability of this new medium.⁵ Empirical evidence suggests that users do not perceive online news favorably.⁶

To better understand the public's response to online news, this study goes beyond descriptive research and takes a theory-driven, interdisciplinary approach. The goal is to explore the economic concept of "inferior goods"⁷ and its applicability to the consumption of online news. At the theoretical level, this is a step toward investigating the economic nature of media products using the "theory of goods" framework in microeconomics. To test empirically the "online news is an inferior good" postulation,⁸ this study examines large-scale, random-sample survey data collected in the U.S. market.

Inferior Goods. In microeconomics, the theory of goods distinguishes inferior goods from normal goods. Inferior goods are defined as goods “for which an increase in income decreases consumption, *ceteris paribus* (i.e., everything else held constant).”⁹ In other words, when income increases, the demand for an inferior good decreases; when income decreases, the demand for an inferior good increases, other things being equal. In economic terms, whether a product is an inferior good is determined by the relationship between income and demand, not by the quality of the good.

“Normal goods,” on the other hand, are characterized by a positive relationship between income and demand. When income increases, the demand for normal goods also increases.¹⁰

To determine whether a good is an inferior/normal good, the relationship between income and demand must be measured by the income elasticity of demand, which is calculated as the percentage change in quantity demanded divided by the percentage change in income:¹¹

$$\epsilon_Y = \frac{(\% \text{ change in quantity})}{(\% \text{ change in income})} = \frac{\frac{\Delta Q}{Q}}{\frac{\Delta Y}{Y}}$$

When the income elasticity of demand for a good is negative (positive), the good is an inferior (normal) good.¹²

Although inferior goods are defined by income elasticity of demand, not by the quality of goods, examples of inferior goods usually include inexpensive items such as macaroni and cheese, Ramen noodles, potatoes, rice, and bus travel—things people tend to use when income decreases. Because “people might not like such goods or services as well as they like more expensive goods or services,”¹³ when their income rises, they purchase the more expensive items that are normal goods (e.g., steak, wine, air travel). In other words, people respond to inferior goods the way they do because functional alternatives exist. As income increases, bus travel decreases—presumably because alternatives (e.g., driving or air travel) exist. Therefore, inferior goods often are perceived as lesser quality when compared with alternatives that are normal goods.

The Economic Nature of Media Products. In communication research, no study has empirically used the inferior goods concept to examine media consumption. One rare example of inferior goods cited in a media economics textbook is the black-and-white TV set. In the early 1970s, an increase in income would have contributed to poor families replacing their black-and-white televisions with the color receiver, bringing a decline in demand for black-and-white TV sets.¹⁴

Most media products are assumed to be normal goods. A recent article in the *New York Times* discussed a 9% decline in DVD sales in the third quarter of 2008 in the context of the economic crisis negatively affecting consumer income. Future declines in movie tickets and premium cable channels also are expected.¹⁵ In communication research, the

Principle of Relative Constancy proposed by McCombs in the 1970s states that total media expenditures by consumers and advertisers will increase or decrease proportionally according to national income.¹⁶ This theory, despite its macro approach and mixed empirical support,¹⁷ assumes that aggregate income and media consumption are positively correlated.

The public's response to online news, however, seems to contradict general beliefs regarding the demand for normal goods. One example is the difficulty experienced by most newspaper Web sites in charging for online content. To provide a plausible explanation, Chyi proposed the idea that online news might be an inferior good.¹⁸ This study attempts to empirically test that hypothesis, which states: As income increases, the consumption of online news decreases, other things being equal.

**Related
Studies
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To enhance our understanding of online news as a media product, this study takes an interdisciplinary approach. But introducing an economic concept into media studies is challenging. First and foremost, a review of published studies found no research that examines media products within the "theory of goods" framework.

While very limited empirical research on the relationship between income and online news use exists, some research on online news consumption provides indirect evidence (or "hints") as the basis for problematizing the economic nature of online news and developing the "online news as inferior goods" hypothesis. The following section reviews relevant research findings in three areas: (1) the negligible cannibalization effect, (2) the lack of paying intent, and (3) the relatively negative attitude toward online news.

Cannibalization Effect Negligible. While most online newspapers and their print counterparts publish similar, if not identical, content,¹⁹ the cannibalization effect—once an industry concern that free online offerings may erode the print readership—turned out to be negligible for most newspapers.²⁰ A series of interviews with online newspaper professionals reported no significant cannibalization effects preventing newspapers from offering free content online.²¹

On the demand side, previous research suggested that readers of a particular newspaper's online edition are more—not less—likely to read that same newspaper's print edition.²² A recent study reported that two-thirds of online readers in the local market also read the same newspaper's print edition.²³ In other words, despite extensive content-sharing, the Web edition has not become an effective alternative to its print product even at the price of zero.²⁴

Lack of Paying Intent. Effective September 19, 2007, NYTimes.com dropped its fee-based program TimesSelect launched in 2005.²⁵ The *New York Times'* move away from the subscription model was interpreted by media critics as a final verdict stating that online content must be free. As Jeff Jarvis puts it, "TimesSelect is dead...With it goes any hope of charging for content online. Content is now and forever free."²⁶

But what lies behind the lesson that “online content must be free”? Why must online content be free while news in print still requires a fee?

Research on online newspapers’ revenue models provides insights on how users respond to online news differently. Unlike print newspapers, for which the industry-wide demand was generally inelastic relative to price historically and has become more so as local monopolies increase,²⁷ news sites have problems whenever they try to charge anything for online content.²⁸ A consumer survey in 2002 found 70% of online adults could not understand why anyone would pay for online content.²⁹ The sign-up rate for fee-based online newspapers was as low as 0.2% to 2.6% of the print circulation.³⁰

Similar patterns existed in other markets. Only 1% of the general public in Hong Kong subscribed to any of the six fee-based online news services available, and 78% of online news readers who were not subscribing to any paid services indicated it was either unlikely or very unlikely that they would pay for online news in the future, the primary reason being that free alternatives existed online and offline.³¹ Not paying for online news because free alternatives are readily available may seem natural. But the fact that most people are still willing to pay for the print edition, which usually carries similar content and costs more than its fee-based online counterpart, indicates that other factors are influencing consumer decisions.

The Hong Kong survey also measured users’ paying intent for online news versus other fee-based news media (i.e., cable news, magazines, and newspapers). When asked which paid news medium they would consume if they had extra income to spend, 38% of online news users said they would subscribe to cable television news, 27% would buy news magazines, 17% would buy newspapers, and only 12% would pay for online news.³²

These studies showed that users respond to fee-based online news services and fee-based print newspapers differently. Paying intent for traditional news media (including print newspapers) is much higher than that for online news.

Negative Attitude toward Online News. Some argue that the lack of paying intent is because online news is a public good. But research shows that online news is not perceived as equally desirable by users when compared with print newspapers.³³

A series of surveys systematically examined user preference for a print newspaper vs. its online edition on the other-things-being-equal basis by asking survey respondents the hypothetical question: “Imagine that you are provided with both print newspapers and online newspapers with the same news content and at the same price. Which would you prefer?” In Austin, Texas, 76% of Web users would prefer the print format over the online format.³⁴ A follow-up survey also reported that 72% of Web users preferred the print format.³⁵ In Hong Kong, 83% of online news users would prefer the print edition.³⁶ These studies consistently show that the print format was overwhelmingly preferred even among Web users or online news readers when compared with the online edition on the other-things-being-equal basis. Since the hypothetical “same content and same

price” scenario has eliminated content and price as plausible factors determining format preference, we may infer that something in the nature of the online medium makes online news unappealing.

Another line of research assessed the competitive advantage of online news compared with traditional news media. In 2004, the Online Publishers Association conducted a survey of 25,852 visitors to forty-one major news sites. These online users found online media to be “less satisfying, less likeable, and less enjoyable” than offline media.³⁷ Another study measured general liking of different news media by asking Internet users to indicate how much they like online news, newspapers, TV news, and radio news; online news turned out to be the least likable news format.³⁸ A survey of Dutch newspaper readers compared the usefulness of online newspapers with print newspapers and other media in several specific content areas—politics, finance, sports, theater/film/literature, crime, local news, and celebrities. Respondents found the print newspaper and television more useful than online newspapers in all these domains.³⁹ These studies documented users’ negative perception of online news.

Like a jigsaw puzzle, each of these studies provides a piece of evidence suggesting that the public does not respond to online news as enthusiastically as to print newspapers (despite continued growth in online usage⁴⁰ and decline in print circulation). If one considers that most online news services offer interactivity, convenience, immediacy, multimedia, a richer content, etc., the lukewarm response to the online format becomes even more difficult to interpret. Thus the “online news as inferior goods” hypothesis as a plausible explanation deserves an empirical examination.

To clarify the economic nature of online news, the analysis goes back to the economic definition of inferior goods, to examine the relationship between income and consumption on the other-things-being-equal basis. As previous studies found that Internet use is related to demographics,⁴¹ interest in politics,⁴² and traditional media use,⁴³ these factors should be treated as control variables as they presumably may influence Internet news use. Therefore, the effect of income on online news consumption is measured after controlling for demographics, news interest, and/or traditional news media use. Specifically, this study tests the following two hypotheses:

H1: When income increases, online news use decreases—controlling for demographics (gender, age, education) and news interest.

H2: When income increases, online news use decreases—controlling for demographics (gender, age, education), news interest, and other news media use (newspaper, TV news, and radio news).

Methods

Secondary Data Analysis. Data used in this study were collected by the Pew Research Center for the People and the Press, a U.S.-based

non-profit organization conducting regular national surveys on public use of and attitudes toward online and traditional news media. The Pew Research Center releases survey data six months after its reports are issued and makes the data available to scholars for research purposes. The dataset used in this study is from the Biennial Media Consumption Survey conducted from April 19 to May 12, 2004.

Sample. Sampling was based on standard list-assisted random digital dialing (RDD), ensuring an equal chance for every phone number to be included. The overall sample size is 3,000. A subset of respondents was asked the questions on form 1; the sample size for those questions (including time spent reading online news yesterday) is 1,493.

Up to 10 phone calls were made to reach every sampled number. The contact rate was 80%, the cooperation rate 45%, and the completion rate 94%. The overall response rate was 34%.⁴⁴

Measurement. The survey focused on use of and attitudes toward online and traditional news media, political knowledge, and demographic information.

Online news use was measured by asking *those who spent time reading news online yesterday* this question:

About how much time did you spend reading news online yesterday?

- (1) *Less than five minutes*
- (2) *Five to less than ten minutes*
- (3) *Ten to less than fifteen minutes*
- (4) *Fifteen to less than twenty minutes*
- (5) *Twenty to less than thirty minutes*
- (6) *Thirty minutes to less than one hour*
- (7) *One hour or more*
- (8) *Don't know/Refused*

Income was measured by pre-tax total family income from all sources (see Table 1 for response items). Control variables include gender, age, education, news interest,⁴⁵ and other news media use.⁴⁶

Data Analysis

Unit of Analysis. The Pew Center surveyed the general public, which includes users (23.7%) and nonusers (76.3%) of online news. Our analysis focuses on online news users only (weighted $N = 616$)⁴⁷ because nonusers include two types of individuals—those who have Internet access but choose not to read news online and those who do not have Internet access and therefore are not able to get news online. The way the Pew survey was designed does not allow separating out those who lack Internet access,⁴⁸ but the distinction is important for this study because those without Internet access are more likely to be in low-income groups. Therefore, including all nonusers in the analysis would jeopardize the validity of the study.⁴⁹

Weighting. To assure that the demographic characteristics of the sample closely match the demographic characteristics of the population, this study weighted the data using the “weight” variable provided by the Pew Research Center that was available in the data file.⁵⁰

Ordinal Logistic Regression. Because the dependent variable (online news use) in this study is measured discretely at the ordinal level, linear

regression analysis is not appropriate in that the continuous variable assumption is violated.⁵¹ Various models exist for analyzing discrete variables, including probit and logistic models. The logistic model suits the purpose of this study given that the odds ratio of each explanatory variable is more straightforward when interpreting each marginal effect on the other-things-being-equal basis. Therefore, ordinal logistic regression is utilized to examine the controlled effect of each explanatory variable.

Results

The first stage of the data analysis is to weight the sample using the “weight” variable provided by the Pew Research Center. The original sample size is 3,000 ($n=3,000$). After the dataset was weighted, N becomes 5,398, and the margin of error is $\pm 1.3\%$ at the 95% confidence level. Table 1 compares weighted and unweighted sample distributions to population parameters on gender, age, education, region, and race/ethnicity. The weighted sample is representative of the national population.

Online News Use. Among all respondents (weighted $N=5,398$) who were asked whether they got any news online through the Internet yesterday, 23.7% said they did. They tend to be male (55%), younger, better educated, and earn more income than the general population.

Of these online news users, about half (those assigned to form 1; weighted $N = 616$) were asked this follow-up question, “*About how much time did you spend reading news online yesterday?*” Almost 21% spent less than 10 minutes reading news online; about 49% spent ten to less than thirty minutes, and 31% of online news readers spent thirty minutes or more reading news online (Table 2). The following analysis is based on these participants’ responses to this question.⁵²

Hypothesis Testing. Two ordinal logistic regression models are established to test the hypotheses and both models are statistically significant.⁵³

H1 predicted that an increase in income would decrease online news consumption, controlling for demographics (gender, age, education) and news interest. Ordinal logistic regression analysis shows that income is a significant predictor of online news use ($\beta = -.082, p < .05$). The negative coefficient suggests a negative income elasticity of demand. Therefore, **H1** is supported. Other significant predictors include education ($\beta = .209, p < .001$) and news interest ($\beta = .324, p < .01$), both having a positive influence on online news use (Table 3).

H2 predicted that an increase in income would decrease online news consumption, controlling for demographics (gender, age, education), news interest, and other news media use (newspaper, TV news, and radio news). Analysis shows that income is a significant predictor of online news use ($\beta = -.126, p < .01$). The negative coefficient suggests a negative income elasticity of demand. Therefore, **H2** is also supported. Other significant predictors include education ($\beta = .208, p < .001$), news interest ($\beta = .288, p < .05$), and radio news use ($\beta = .226, p < .001$), all having a positive influence on online news use (Table 3).

TABLE 1
Demographic Statistics

	Population Parameter	Sample Unweighted	Sample Weighted	Online News Users
Gender				
Male	47.9	45.0	47.6	55.0
Female	52.1	55.0	52.4	45.0
Age				
18-24	12.6	10.6	12.4	14.6
25-34	18.2	14.5	17.7	21.3
35-44	20.7	19.7	19.8	23.9
45-54	19.1	19.4	19.1	20.5
55-64	13.1	14.9	13.2	12.5
65+	16.4	19.4	16.6	7.2
Education				
Less than HS Graduate	15.6	9.0	13.6	4.2
HS Graduate	35.8	31.8	36.3	22.8
Some College	23.3	25.0	23.5	28.1
College Graduate	25.3	33.6	26.2	44.9
Region				
Northeast	19.4	17.6	19.1	19.4
Midwest	23.1	25.6	23.5	23.6
South	35.8	35.9	35.9	33.9
West	21.6	20.8	21.5	23.2
Race/Ethnicity				
White/not Hispanic	71.9	78.2	72.3	73.2
Black/not Hispanic	10.7	9.4	10.7	6.9
Hispanic	11.8	6.9	10.6	11.6
Other/not Hispanic	5.5	4.4	5.3	8.4
Family Income				
Less than \$10,000	-	6.7	8.1	2.7
\$10,000 to under \$20,000	-	10.9	12.2	5.3
\$20,000 to under \$30,000	-	12.7	13.8	11.3
\$30,000 to under \$40,000	-	13.5	13.9	10.1
\$40,000 to under \$50,000	-	11.6	11.4	13.5
\$50,000 to under \$75,000	-	17.3	16.2	19.7
\$75,000 to under \$100,000	-	12.6	11.8	15.4
\$100,000 to under \$150,000	-	8.7	7.5	13.1
\$150,000 or more	-	6.0	5.0	8.8

Note: From "Biennial Media Consumption 2004," Pew Research Center for the People & the Press, 2004.

Cell entries are percentages.

Both hypotheses are supported, suggesting that online news is an inferior good. To move one step further, the analysis explored the relationship between income and print newspaper use—whether an increase in income would increase or decrease print newspaper use, other things being equal.

TABLE 2*About How Much Time Did You Spend Reading News Online Yesterday?*

	%
Less than five minutes	9.7
Five to less than ten minutes	11.1
Ten to less than fifteen minutes	18.4
Fifteen to less than twenty minutes	16.9
Twenty to less than thirty minutes	13.3
Thirty minutes to less than one hour	22.6
One hour or more	8.1
<hr/>	
Total	100.0

Note: Weighted $N = 616$.

Two ordinal regression models identified a positive relationship between income and newspaper use (Table 4). In other words, as income increases, the consumption of newspapers also increases, after controlling for demographics (gender, age, education), news interest, and/or other news media use (TV news and radio news). So the print newspaper is not an inferior good. It is a normal good.

Discussion

This analysis, based on data collected by the Pew Research Center in 2004, identified a negative relationship between income and online news consumption: When income increases, online news use decreases; when income decreases, online news use increases, other things (demographics, news interest, and/or other news media use) being equal—suggesting that online news is an inferior good among users. In contrast, the print newspaper is a normal good.

Such findings, at first glance, may surprise media scholars as well as online news professionals. After all, in communication research, no news products have been labeled as inferior goods before. In addition, major U.S. media companies have invested heavily in their online ventures, offering an array of interactive features and multimedia content—most of which are unattainable by print newspapers. It is therefore difficult to understand why online news could be an inferior good. Yet, from an economic perspective, “goods are what are thought of as goods.”⁵⁴ Any product’s economic nature is determined by consumer perception and response. Based on this particular data set, which consists of survey responses collected from a national sample of online news users by a major polling institution in 2004, online news is an inferior good among users.

The finding carries important theoretical and practical implications. First, when examining the relationship between traditional and new media offerings, media scholars should take into account the

TABLE 3
Ordinal Regression: Predictors of Online News Use

Predictors	Estimated Coefficient (SE)	
	Model 1	Model 2
Income	-.082* (.039)	-.126** (.040)
Gender (being Female)	-.111 (.154)	-.017 (.159)
Age	-.005 (.005)	-.010 (.005)
Education	.209*** (.054)	.208*** (.054)
News Interest	.324** (.109)	.288* (.112)
Newspaper Use		.073 (.057)
TV News Use		.037 (.046)
Radio News Use		.226*** (.051)
Weighted <i>N</i>	543.2	541.1
Model	$\chi^2(5, 543.2) = 23.9$ $p < .001$	$\chi^2(8, 541.1) = 46.8$ $p < .001$
R ² (Cox and Snell)	.04	.08

Note: * $p < .05$. ** $p < .01$. *** $p < .001$.

economic nature of individual products. Because many readers use the online and print versions of newspapers simultaneously, a number of scholars conclude that online and print newspapers are complementary goods.⁵⁵ But our finding suggests that they co-exist not as two normal goods but as a combination of an inferior good and a normal good. This may help explain why cannibalization has been negligible, why paying intent for online news has been so low, and why users perceive online news as less favorable—because news, when presented online, becomes an inferior good. Is the inferior good theory the best explanation? We do not know, but the relationship between online and print news products would be very difficult to interpret otherwise. While competing alternative arguments are lacking, this study provides one plausible explanation based on empirical data.

TABLE 4
Ordinal Regression: Predictors of Newspaper Use

Predictors	Estimated Coefficient (SE)	
	Model 1	Model 2
Income	.165*** (.023)	.161*** (.023)
Gender (being female)	-.565*** (.087)	-.579*** (.088)
Age	.035*** (.003)	.033*** (.003)
Education	.074* (.030)	.082** (.030)
News Interest	.582*** (.068)	.536*** (.071)
TV News Use		.068* (.027)
Radio News Use		-.005 (.028)
weighted N	2,268.7	2,247.8
Model	$\chi^2(5, 2268.7) = 454.3$ $p < .001$	$\chi^2(7, 2247.8) = 452.2$ $p < .001$
R ² (Cox and Snell)	.18	.18

Note: * $p < .05$. ** $p < .01$. *** $p < .001$.

The dependent variable (newspaper use) incorporates those who did not spend time reading a newspaper yesterday in the analysis (time spent = 0) because most people may access a newspaper if they choose to use it.⁶⁷

On the practical side, it is important that online news publishers rethink the economic nature of their product when developing much-needed business strategies. The fee vs. free debate, which has been going on for years and has intensified in 2009, is just one example. This study provides a different perspective, one that is free from the overoptimistic bias underlying earlier endeavors such as TimesSelect (i.e., overestimating users' willingness to pay for online news and charging a fee for content). The implementation and failure of the subscription model has proven to be expensive and time-consuming.

Another example involves adopting the Web-only model when the cost of printing and delivering the print newspaper is no longer justifiable. In early 2009, newspapers such as the *Christian Science Monitor*

and *Seattle Post-Intelligencer* ceased printing and became online-only publications. Making strategic moves as such, without considering the economic nature of online news, is risky to say the least. Since *Taloussanomata*, the Finnish financial daily, dropped its print edition in December 2007, it has achieved 52% cost savings, but its Web site has not seen a substantial increase in online traffic and its revenue has dropped 75%—indicating that the medium rather than the content determines readers' response to news.⁵⁶ Therefore, the medium is not neutral, and transitioning from print to online may not help newspapers achieve economic viability if publishers do not examine the nature of their products closely.

Yet, considering the possibility that online news is an inferior good does not suggest this is the end for it. Consider other "inferior good" examples such as fast food. People use inferior goods when they need to—that is, when normal goods are not as readily available or affordable. Contrary to what the term "inferior" often implies in everyday language, inferior goods offer functional and convenient alternatives. If one compares online news use with fast-food consumption, their similarities become self-evident. Visitors to newspaper sites do not stay around for long; in late 2007, a typical visitor to NYTimes.com, over the course of a month, browsed the site for a total of 34 minutes and 53 seconds—or 68 seconds per day.⁵⁷ One survey probed the reasons why some online news users preferred the online format over the print edition, and the vast majority of the respondents mentioned "convenience."⁵⁸ A 2006 Pew survey asked regular Internet news users what sets the Internet apart as a news medium, and the top-ranked response was "accessibility and convenience."⁵⁹ These studies suggest that the core value, or the competitive advantage, of online news lies in its convenience more than anything else (e.g., interactive features or multimedia content). Most users perceive online news as convenient, just as fast food is perceived as such compared with a balanced meal in a sit-down restaurant. It is important to note that Web portals, rather than major newspaper sites known for "quality news," dominate the list of most-frequented news sites. According to a recent Pew survey, 28% of Web news users mentioned Yahoo! as the most frequented news sites and 19% mentioned MSN/Microsoft; in contrast, only 4% mentioned NYTimes.com.⁶⁰ Portals aggregate news content and make it readily accessible when users perform other tasks (e.g., checking e-mail). It is not surprising that users take advantage of such content as an inferior good.

Relevant to the discussion about convenience over quality (or other factors) as the key determinant of online news use is Clayton Christensen's theory of disruptive technology. Disruptive technologies, which "perform far worse along one or two dimensions that are important to mainstream customers" and "look financially unattractive to established companies," eventually would threaten market leaders by redefining what is quality.⁶¹ Disruptive technologies that are inferior but "good enough" would fulfill the needs of those who find the mainstream product too difficult, too expensive, or "too good." Clark Gilbert suggests the Internet is a disruptive technology for newspaper companies.⁶²

That theory, although difficult to verify, provides another plausible explanation for the crisis facing the newspaper industry. The bottom line is, online and print news are different products, used by different people or by the same people under different circumstances. Research on the economic nature of news products should address such differences effectively.

Limitations of the Study

This study utilized the data set associated with the 2004 Biennial Media Consumption survey by the Pew Research Center. Although two more Biennial surveys were conducted in 2006 and 2008, they did not directly measure “online news usage” as the 2004 survey did. Instead of measuring time spent reading news online yesterday, the 2006 and 2008 surveys classified time spent on newspaper Web sites as part of overall newspaper use—therefore, the “precise minute count (for all online news) is not available.”⁶³ Therefore, these newer data sets are not useful for the purpose of this study. Although the 2004 data set is not as up-to-date as we would have hoped, it still is the most appropriate data set available. Additionally, the purpose of this study is to investigate the relationship between income and online news usage rather than describing time-sensitive trends on Internet news consumption. When more current data from multiple sources become available, the relationship between income and online news consumption should be re-examined.

The second limitation lies in the validity of self reports, a problem inherent in all survey research. Recent development in audience measurement technology has provided new tools for tracking online users’ behavior. Companies such as Nielsen NetRatings and comScore operate national panels and collect data from individual users by installing tracking software on their computers. But, to measure the use of multiple media products, survey research still is a legitimate, and probably the most effective, method.

Another limitation involves the conceptual definition of online news. This study, like most research based on national survey data, conceptualized online news as a “package” and examined how users respond to the entire package without addressing the multi-dimensional nature of online news. According to attribute theory, users derive utility not from the products themselves but from the attributes of the products.⁶⁴ In other words, any media product can be re-conceptualized as a combination of attributes. Defining online news as such would provide the opportunity to better understand how users interact with the various dimensions of online news. This is especially important because online news still is evolving and certain dimensions may redefine online news over time.

Suggestions for Future Research

Regarding future research, an immediate follow-up question is: What makes online news an inferior good? Is it because of the unpleasant experience associated with reading texts online, the cluttered design often seen on news sites, or simply because online news is free? Recent research in behavioral economics indicates that consumers perceive

products with a higher price tag as more enjoyable⁶⁵—suggesting product perception is not always rational.

From a broader perspective, the fundamental question becomes: What determines the value of news—online or offline—perceived by different groups of users? To address this question, future research should adopt a micro approach, taking into account the most subtle characteristics distinguishing a variety of news products utilized by a fragmented audience. On the other hand, news as a content category is losing its “attention share” as technology is making an unprecedented amount of information available to the public.⁶⁶ It is therefore equally important to take a macro approach, by thinking outside the box of news and considering how the availability of other types of information (e.g., entertainment) also determines the value of online news among users.

NOTES

1. Pew Research Center for the People & the Press, *Key News Audiences Now Blend Online and Traditional Sources: Audience Segments in a Changing News Environment*, August 17, 2008, <http://pewresearch.org/pubs/928/key-news-audiences-now-blend-online-and-traditional-sources> (accessed November 19, 2008); Newspaper Association of America, *Daily Readership Trends: By Total Population (1998-2006)*, October 2006, http://www.naa.org/docs/Research/Daily_National_Top50_1998-2006.pdf (accessed March 3, 2007); David T. Z. Mindich, *Tuned Out: Why Americans under 40 Don't Follow the News* (New York: Oxford University Press, 2005).

2. The continued growth of online advertising revenue stopped in the second quarter of 2008; see Stephanie Clifford, “Newspapers’ Web Revenue Is Stalling,” *New York Times*, October 12, 2008; Katherine Q. Seelye, “Drop in Ad Revenue Raises Tough Question for Newspapers,” *New York Times*, March 26, 2007.

3. Patrick Phillips, “Bill Keller: The New York Times Is Not Immutable,” *I Want Media*, July 16, 2007, <http://www.iwantmedia.com/people/people68.html> (accessed November 19, 2008).

4. Seelye, “Drop in Ad Revenue.”

5. Jennifer Saba, “Report: May Be Decades before Online Sustains Newspapers,” *Editor & Publisher*, October 25, 2006, <http://www.allbusiness.com/services/business-services-miscellaneous-business/4704409-1.html> (accessed August 20, 2007); Seelye, “Drop in Ad Revenue.”

6. For details, please see the “Related Studies on Internet News Consumption” section.

7. Michael L. Katz and Harvey S. Rosen, *Microeconomics* (Homewood, IL: Irwin, 1991), 72; Colin Hoskins, Stuart McFadyen, and Adam Finn, *Media Economics: Applying Economics to New and Traditional Media* (Thousand Oaks, CA: Sage, 2004), 45; William Boyes and Michael Melvin, *Microeconomics*, 7th ed. (Boston, MA: Houghton Mifflin, 2008), 52.

8. Hsiang Iris Chyi, “No One Would Pay for It? Web Content as

Inferior Goods" (paper presented at The Fifth World Media Economics Conference, Turku, Finland, 2002); Hsiang Iris Chyi, "No One Would Pay for It? Web Content as Inferior Goods," in *E-Merging Media: Communication and the Media Economy of the Future*, ed. Axel Zerdick, (Berlin: Springer-Verlag, 2005), 45.

9. Katz and Rosen, *Microeconomics*, 72; Boyes and Melvin, *Microeconomics*, 52.

10. Katz and Rosen, *Microeconomics*, 72; Boyes and Melvin, *Microeconomics*, 52; Hoskins, McFadyen, and Finn, *Media Economics*, 45.

11. Hoskins, McFadyen, and Finn, *Media Economics*, 46.

12. Boyes and Melvin, *Microeconomics*, 129.

13. Boyes and Melvin, *Microeconomics*, 52.

14. Hoskins, McFadyen, and Finn, *Media Economics*, 45.

15. Brooks Barnes, "For a Thrifty Audience, Buying DVDs Is So 2004," *New York Times*, November 22, 2008.

16. Maxwell E. McCombs, "Mass Media in the Marketplace," *Journalism Monographs* 24 (August 1972); Maxwell E. McCombs and Chaim H. Eyal, "Spending on Mass Media," *Journal of Communication* 30 (March 1980): 153-58.

17. Maxwell E. McCombs and Jinok Son, "Patterns of Economic Support for Mass Media During a Decade of Electronic Innovation" (paper presented at the annual meeting of AEJMC, Norman, OK, 1986); Ghee-Young Noh and August E. Grant, "Media Functionality and the Principle of Relative Constancy: An Explanation of the VCR Aberation," *Journal of Media Economics* 10 (July 1997): 17-31; Michel Dupagne and R. Jeffery Green, "Revisiting the Principle of Relative Constancy," *Communication Research* 23 (October 1996): 612-35.

18. Chyi, "No One Would Pay for It?"

19. Hsiang Iris Chyi and George Sylvie, "The Medium Is Global, the Content Is Not: The Role of Geography in Online Newspaper Markets," *Journal of Media Economics* 14 (January 2001): 231-48.

20. Online Publishers Association, *Multi-Channel Media Brands: Attitudinal and Usage Study*, February 2004, http://www.online-publishers.org/media/140_W_opa_multichannel_media_brand_study_nov03.pdf (accessed November 30, 2008).

21. Hsiang Iris Chyi and George Sylvie, "Online Newspapers in the U.S.: Perceptions of Markets, Products, Revenue, and Competition," *International Journal on Media Management* 2 (summer 2000): 13-21.

22. Hsiang Iris Chyi and Dominic L. Lasorsa, "An Exploratory Study on the Market Relation between Online and Print Newspapers," *Journal of Media Economics* 15 (April 2002): 91-106; Matthew Gentzkow, "Valuing New Goods in a Model with Complementarities: Online Newspapers," *American Economic Review* 97 (June 2007): 713-44.

23. Hsiang Iris Chyi, Mengchieh Jacie Yang, Seth C. Lewis, and Nan Zheng, "An Empirical Study of Online Newspaper Readership in Local Markets: Exploring Differences between Hybrid and Online-Only Users" (paper presented at the annual conference of the International Communication Association, Chicago, IL, 2009).

24. Most U.S. news Web sites offer content for free (a famous excep-

tion being the *Wall Street Journal's* Web edition). In a strict sense, online news is not totally free because Internet users need to pay for Internet access. But news content is free for all with Internet connections.

25. Vivian Schiller, *Letter to the Readers About TimesSelect*, <http://www.nytimes.com/ref/membercenter/lettertoreaders.html?ref=media> (accessed September 20, 2007).

26. Jeff Jarvis, *Times Deselected*, <http://www.buzzmachine.com/2007/09/17/times-deselected/> (accessed September 20, 2007).

27. Gerald L. Grotta, "Daily Newspaper Circulation Price Inelastic for 1970-75," *Journalism Quarterly* 54 (summer 1977): 379-82; Robert G. Picard, *Media Economics: Concepts and Issues* (Newbury Park, CA: Sage, 1989); Robert G. Picard, "Economics of the Daily Newspaper Industry," in *Media Economics: Theory and Practice*, ed. Alison Alexander, James Owers, and Rod Carveth (Hillsdale, NJ: Erlbaum, 1998).

28. Only a handful of niche publications such as the Interactive Edition of the *Wall Street Journal* rely on the subscription model.

29. Jupiter Media Metrix, *Bumpy Road from Free to Fee: Paid Online Content Revenues to Reach Only \$5.8 Billion by 2006, Reports Jupiter Media Metrix*, March 2002, http://banners.noticiasdot.com/termometro/boletines/docs/consultoras/jupiter/2002/jupiter_Paid_Online_Content_Revenues.pdf (accessed January 6, 2003).

30. Borrell & Associates, *The Free vs. Paid Debate: Newspapers Must Decide between Short-Term ROI and Long-Term Goals*, October 2001, <http://www.borrellassociates.com/research.html> (accessed March 3, 2002).

31. Hsiang Iris Chyi, "Willingness to Pay for Online News: An Empirical Study on the Viability of the Subscription Model," *Journal of Media Economics* 18 (April 2005): 131-42.

32. Hsiang Iris Chyi and Hao-Chieh Chang, "Examining the Use of and Preference for Online News in the Context of Intermedia Competition," in *Embedding into Our Lives: New Opportunities and Challenges of the Internet*, ed. Louis Leung, Anthony Fung, and Paul S.N. Lee (Hong Kong: Chinese University Press, 2009), 101-23.

33. Online Publishers Association, *Multi-Channel Media Brands*; Ester De Waal, Klaus Schoenbach, and Edmund Lauf, "Online Newspapers: A Substitute or Complement for Print Newspapers and Other Information Channels?" *Communications* 30 (January 2005): 55-72; Hsiang Iris Chyi and Dominic L. Lasorsa, "Access, Use and Preference for Online Newspapers," *Newspaper Research Journal* 20 (fall 1999): 2-13; Chyi and Lasorsa, "An Explorative Study"; Chyi and Chang, "Examining the Use of and Preference for Online News."

34. Chyi and Lasorsa, "Access, Use and Preference for Online Newspapers."

35. Chyi and Lasorsa, "An Explorative Study."

36. Chyi and Chang, "Examining the Use of and Preference for Online News."

37. Online Publishers Association, *Multi-Channel Media Brands*.

38. Respondents assigned a score ranging from 0 (don't like it at all) to 10 (like it very much) to each medium and the ratings were: Television

(7.1), Newspaper (6.5), radio news (6.1) and online news (5.5). See Chyi and Chang, "Examining the Use of and Preference for Online News."

39. De Waal, Schoenbach, and Lauf, "Online Newspapers."

40. Pew Research Center for the People & the Press, *Key News Audiences*.

41. Pew Internet & American Life Project, *America Online Pursuits*, December 22, 2003, http://www.pewinternet.org/pdfs/PIP_Online_Pursuits_Final.PDF (accessed May 3, 2004); Guido H. Stempel III and Thomas Hargrove, "Mass Media Audiences in a Changing Media Environment," *Journalism & Mass Communication Quarterly* 73 (autumn 1996): 549-58; Guido H. Stempel III, Thomas Hargrove, and Joseph P. Bernt, "Relation of Growth of Use of the Internet to Changes in Media Use from 1995 to 1999," *Journalism & Mass Communication Quarterly* 77 (spring 2000): 71-79.

42. Pew Research Center for the People & the Press, *Online Newcomers More Middle-Brow, Less Work-Oriented: The Internet News Audience Goes Ordinary*, January 14, 1999, <http://people.press.org/reports/display.php3?PageID=339> (accessed June 4, 2000).

43. Scott L. Althaus and David Tewksbury, "Patterns of Internet and Traditional News Media Use in a Networked Community," *Political Communication* 17 (January 2000): 21-45; John Dimmick, Yan Chen, and Zhan Li, "Competition between the Internet and Traditional News Media: The Gratification-Opportunities Niche Dimension," *Journal of Media Economics* 17 (January 2004): 19-33; Pew Research Center for the People & the Press, *Online Newcomers*; Stempel, Hargrove, and Bernt, "Relation of Growth of Use of the Internet."

44. Pew Research Center for the People & the Press, *Online News Audience Larger, More Diverse*, June 8, 2004, <http://people.press.org/reports/pdf/215.pdf> (accessed April 3, 2005).

45. News interest was measured by this question: "How much do you enjoy keeping up with the news—a lot, some, not much, or not at all?" (1) *A lot*, (2) *Some*, (3) *Not much*, (4) *Not at all*, (8) *Don't know/Refused*.

46. Newspaper/TV news/radio news use was measured the same way as online news use was.

47. Those who answered "About how much time did you spend reading news online yesterday?"

48. The only question related to Internet use asked, "Do you ever go online to access the Internet or World Wide Web or to send and receive e-mail?" This question is too general and therefore is not a good measure of Internet access.

49. If we include non-users who have ever gone online to access the Internet or World Wide Web or to send and receive e-mail in the ordinal regression analysis, the weighted sample size would inflate from 616 to 1,529 (of which 988 spent zero minutes reading news online yesterday) and the relationship between income and news consumption is not statistically significant. But the analysis has a logical flaw for reasons stated in the text.

50. The "weight" variable provided by the Pew Research Center was generated by comparing sample statistics to population parameters

obtained from an analysis of the Census Bureau's 2003 Annual Social and Economic Supplement (ASEC). The ASEC analysis included all households in the continental United States with a telephone. Sample Balancing, an iterative sample weighting program based on the Deming Algorithm, was used to simultaneously balance the distributions of all variables. This weighting method originally developed by Deming in 1943 prevents individual responses from having too much inadequate influence on the final results. For details, see Pew Research Center for the People & the Press, *Online News Audience Larger, More Diverse*.

51. Tim Futing Liao, *Interpreting Probability Models: Logit, Probit, and Other Generalized Linear Models* (Thousand Oaks, CA: Sage, 1994).

52. In other words, only online news users (yesterday) are included in the following analysis.

53. The first model accounts for 4% of variance and the second model accounts for 8% of variance in online news use, suggesting that we might have overlooked other predictors. But the purpose of this study is to examine the relationship between income and online news use as opposed to predicting time spent reading news online. Future research on Internet news usage may take into account other variables related to online news consumption.

54. Kelvin J. Lancaster, "A New Approach to Consumer Theory," *Journal of Political Economy* 74 (April 1966): 132-57.

55. Mohan J. Dutta-Bergman, "Complementarity in Consumption of Online News Types across Traditional and New Media," *Journal of Broadcasting & Electronic Media* 48 (March 2004): 41-60; Scott L. Althaus and David Tewksbury, "Patterns of Internet and Traditional News Media Use in a Networked Community," *Political Communication* 17 (January 2000): 21-45; David Tewksbury, "What Do Americans Really Want to Know? Tracking the Behavior of News Readers on the Internet," *Journal of Communication* 53 (December 2003): 694-710; An Nguyen and Mark Western, "The Complementary Relationship between the Internet and Traditional Mass Media: The Case of Online News and Information," *Information Research* 11 (April 2006): 259. But as suggested by Gentzkow in "Valuing New Goods," most studies concluding that online and print products complement each other did not measure consumer heterogeneity.

56. Neil Thurman and Merja Myllylahti, "Taking the Paper out of News," *Journalism Studies* 10 (April 2009).

57. Paul Farhi, "Online Salvation?" *American Journalism Review* 29 (December 2007/January 2008): 18-23.

58. Chyi and Chang, "Examining the Use of and Preference for Online News."

59. Pew Internet & American Life Project, *Online News: For Many Home Broadband Users, the Internet Is a Primary News Source*, March 22, 2006, http://www.pewinternet.org/pdfs/PIP_News.and.Broadband.pdf (accessed May 3, 2007).

60. Pew Research Center for the People & the Press, "Key News Audiences Now Blend Online and Traditional Sources: Audience Segments in a Changing News Environment," August 17, 2008,

<http://people-press.org/reports/pdf/444.pdf> (accessed October 8, 2009).

61. Joseph L. Bower and Clayton M. Christensen, "Disruptive Technologies: Catching the Wave," *Harvard Business Review* (January-February 1995): 43-53.

62. Sean Silverthorne, "Read All About It! Newspapers Lose Web War," *Working Knowledge*, Harvard Business School, January 28, 2002, <http://hbswk.hbs.edu/item/2738.html> (accessed December 12, 2008).

63. See the readme.txt file associated with the 2006 data set, available at <http://people-press.org/dataarchive/#2006> (accessed April 12, 2009).

64. Hoskins, McFadyen, and Finn, *Media Economics*, 74.

65. Hilke Plassmann, John O'Doherty, Baba Shiv, and Antonio Rangel, "Marketing Actions Can Modulate Neural Representations of Experienced Pleasantness," *Proceedings of the National Academy of Sciences* 105 (January 22, 2008): 1050-54.

66. Hsiang Iris Chyi, "Information Surplus in the Digital Age: Impact and Implications," in *Journalism and Citizenship: New Agendas*, ed. Zizi Papacharissi (New York: Taylor & Francis, 2009), 91-107.

67. If we exclude those who did not spend time reading a newspaper yesterday, the ordinal regression analysis found no relationship between income and newspaper use ($\beta = -.05, p = \text{n.s.}$), after controlling for demographics (gender, age, education), news interest, and other news media use (TV news and radio news).