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## THE VARIETY OF ONLINE AND PRINT NEWSPAPERS: ITALY\*\*

The aim of this short paper is to compare the level of content diversity between online and print newspapers in Italy, and to study its variation over time. Media economics and communication studies provide theoretical predictions regarding the variety of newspaper content. First, when the majority of revenue is derived from advertising, the degree of content diversity will be lower. Additional hypotheses are drawn from the very nature of online information services and from the readers' observed behaviour. Empirical observations of five major newspapers over two months showed that, as expected, the group of online editions presented less variety in content. On the other hand, online and print editions did not present significant differences in terms of content variation day by day. To our knowledge, this is the first attempt to directly measure the diversity across online and print newspapers.

*Keywords:* media, internet, print industry, product differentiation.

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## 1. Introduction

Content variety or diversity of media products has always produced heated debates in several disciplines. Since its very beginning, media economics has explored this theme. Steiner (1952) presented content variety as the main “problem” of broadcasting. Not surprisingly, this issue has been addressed and re-elaborated both theoretically and empirically (see, for example, Beebe 1977; Spence & Owen 1977; Waterman 1990; Mangani 2003; Gal-Or & Dukes 2004; Gabszewicz et al. 2004; Anderson & Coate 2005). The strong interest in content variety is easily understandable. Mass media transmit an incredible amount of information that can affect political and economic decisions. The pluralism of subjects and ideas in the media is essential in terms of respecting the natural heterogeneity of agents’ preferences.

The diversity of newspapers is considered particularly important due to their highly informative content, when compared to the entertainment nature of the television, radio and movie industries. This explains a number of recent studies on newspaper variety from different perspectives (Gabszewicz et al. 2001, 2002; George & Waldfoegel 2003; George 2007; Schoenbach et al. 2005a; Rathmann 2002). That said, analyzing newspaper variety is not simple. In fact, according to George (2007), newspaper variety depends on:

- 1) which news stories and issues are presented; for example, some newspapers have sports sections, others do not;
- 2) the space devoted to the same news;
- 3) the way of presenting and interpreting the same news (*viewpoint diversity*);
- 4) changes in the above three aspects over time.

This paper extends the analysis of content variety from print to online newspaper editions. Online versions of traditional newspapers were established at the end of the last century and attracted the attention of the economic literature, especially in terms of the apparent threat to print editions. Many papers have dealt with the substitutability between online and print media (Chyi & Lasorsa 2002; Filistrucchi 2005; Chyi 2005; Schoenbach et al. 2005b; Kaiser 2006; Gentzkow 2007; Simon & Kadi-

yaly 2007; Flavian & Gurrea 2007; George 2008). The patterns of substitution can be studied from the perspective of readers/consumers and of advertisers, given the “two-sided” nature of media markets.

These issues are of major significance in Italy, where a traditionally low circulation of print newspapers is associated with high Internet access to the free versions of online newspapers. In other words, Italians do not like reading print news but constantly update their information online, although the average Internet user does not spend much time reading the news on the web<sup>1</sup>. This amplifies the role of “headlines” in shaping the readers’ opinion about the most important topics, their variety and the (perceived) relative significance of each headline. In addition, competition based on variety is crucial on the web for two reasons: first, price competition is excluded because most Internet users still prefer free content; secondly, a comparison across online newspapers is easy, rapid and immediate, while it is difficult, slow and expensive in the traditional print market.

The objectives of this paper are:

- a) to compare the content diversity of online and print newspapers and
- b) to analyze its short-term variability.

Unlike George (2007) and others, we observed the variety of newspapers directly: empirical observations regard the contents of the most important stories reported in the online and print editions<sup>2</sup>. This complicates data collection and implies a certain degree of subjective evaluation; however, we have not addressed the complex issue of assessing the level of *viewpoint diversity*. In addition, an analysis of content diversity is not the same as characterizing the genuine content of each news item. In fact, although it is possible (but not easy) to distinguish between *different* news items,

<sup>1</sup> According to Nielsen/Net Ratings, the online editions of the major Italian newspapers had about 3 million dedicated visitors (e.g., people who did not read the paper editions) in March 2007, but the time devoted to consulting was, on average, 3 minutes for each one of the seven-eight accesses observed monthly.

<sup>2</sup> George (2007) uses newspaper-level information on the assignment of reporters and editors to different topics to infer the amount of content variety in US newspaper markets.

there are many that cannot be classified under one particular category, such as economics, politics, culture and so on.

The rest of the paper is organized as follows. The second section presents the theoretical hypotheses, based on the economics of media markets and communication studies. The third section describes the empirical methodology and the data sources, while the fourth presents the results. The last section draws some conclusions and discusses the limitations and the possible extensions of the analysis.

## 2. Theoretical Hypotheses

In the late 1990s the majority of the world's top newspapers created a companion website, displaying both articles drawn from the print edition and new content. After some time, readers were offered an online subscription to read all the content of the print edition. However, few consumers/Internet users have subscribed since then. In Italy, as well as in most other countries, readers prefer reading the news for free rather than paying a subscription. As a result, online editions are still heavily financed by advertising and resemble television or radio broadcasting where advertisers, all else being equal, are mostly concerned with the *size* of the audience, and their willingness to pay for ad spaces depends on the "eyeballs." Although the characteristics of the audience (age, sex, income, lifestyle, etc.) as well as the total amount of space may affect the price of the ads, higher audiences mean higher revenues for online editors.

Since the seminal contribution of Steiner (1952), it has been widely accepted that advertising affects the diversity of media products. When competition in attracting an "audience" prevails over competition with regard to price, the content will be less differentiated. This result was obtained using theoretical models that explicitly dealt with the market of newspapers. Gabszewicz et al. (2001, 2002, 2006) show that the more newspapers rely on advertising revenues, the less they will differentiate the content. While print newspapers rely both on advertising and on the price paid by readers, the free versions of companion websites only offer ad spaces to advertisers. Hence, in order to maximize revenues, website editors have to attract as many Internet users as possible by displaying what the majority wants to read. In other words, the optimal strategy

is to offer a bundle of contents that minimizes the “distance” from the heterogeneous preferences of readers<sup>3</sup>. This strategy reduces the level of content differentiation among online papers. Of course, an online newspaper may differentiate itself from competitors by also managing the space devoted to ads, the layout and graphics, supplementary materials, and so on. However, the incentive to concentrate simply on the number of Internet users remains relatively greater than in print markets, because the number of potential online readers is much higher. This leads to the first proposition.

*H1. The degree of content diversity among online newspapers is lower than in printed newspapers.*

The interest of online newspapers in the rapid delivery of new events may be associated with a higher rate of variation in news stories on a daily basis. Kaye & Johnson (2004) report that the main objective of Internet users is to read breaking news and search for the very latest information. On the other hand, “traditional” readers (i.e. those who prefer print papers) are less attracted by the continuous variation in content; rather, they prefer sections devoted to debate and comments on past events. As a result, online editions are expected to modify their homepage headlines relatively quicker, to take into account this type of reader behaviour. In fact, the rapid and constant variation in contents is seen as the key issue that most distinguishes print and online information services. However, online newspapers focus on the number of contacts to maximize advertising revenues. From this perspective, the “value” of the news can be ascertained over the period of a day, because the audience response is observable. Thus, online newspapers may decide to keep some “valuable” news stories and withdraw others by including fresh ones or “returning” to previously discarded headlines. These multiple available strategies may both accelerate and slow down the update of the homepage content. In addition, online newspapers may decide to refresh the current headlines, even with minor updates. Given the coexistence of contrasting effects

<sup>3</sup> Schoenbach et al. (2005b) discuss similar themes from a different perspective.

(new content versus updates of old content), we are forced to assume a null hypotheses.

*H2. Print and online newspapers are not significantly different in terms of content variation.*

### 3. Data and Methodology

From January 12 to March 12 2009 (60 days) we monitored five newspapers: *Il Corriere della Sera*, *La Repubblica*, *La Stampa*, *Il Giornale*, *Il Messaggero*. The first four are national newspapers while *Il Messaggero* is a regional newspaper with a large circulation. Although *Il Messaggero* devotes many pages to local and metropolitan events (e.g. regarding Rome), it is available in many provinces and regions and has a format comparable to that of major national papers. Table 1 shows the print circulation of these five newspapers.

*Table 1: Circulation of major Italian newspapers – December 2008*

<i>Newspaper</i>	<i>Circulation</i>
<i>Il Corriere della Sera</i>	787,447
<i>La Repubblica</i>	720,663
<i>La Stampa</i>	419,151
<i>Il Messaggero</i>	296,223
<i>Il Giornale</i>	293,805

Source: ADS.

The daily observations regarded both the print editions and their online counterparts. As to the first, we considered the “top five” headlines, ordered according to their size and position on the front page. Although this methodology involves a somewhat subjective evaluation, nevertheless the front page of the print editions typically contains from five to seven headlines with the content within the paper being proportional to the size of the headlines. We did the same for the online versions, where the news ordering is clearer because it is listed vertically on the home page. The

Italian public-private company (Audiweb), which measures the number of accesses to online newspapers, reports that the average time spent reading the news is around five minutes per visitor. In this short time, the reader observes the sequence of headlines and decides which ones to consult. Broadly speaking, we believe that five headlines are enough to characterize a newspaper in terms of its main content and relative variety.

The online observations were made at 09.30, 13.00 and 17.30. This timetable was chosen to match the beginning of the working day, its end, and the lunch break. Then we calculated the following variety indexes for the print and online samples:

- a) total number of different headlines:  $v_i \in [5, 25]$ ,  $i = o$  (online),  $p$  (print);
- b) total number of different major headlines:  $h_j \in [0, 5]$ ,  $j = o, p$ ;
- c) total number of headlines different from the previous observation:  $u_k \in [0, 25]$ ,  $k = o, p$ .

We define a *major headline* as the *top headline* in the online edition vertical list and the *largest* one (e.g. the most emphasized) in the print editions. With regard to point c), the change in online news was calculated with respect to the same hour as the previous day. We only analysed five newspapers, which prevented a cross section analysis on content variety regarding the effects of the characteristics of each newspaper (total circulation, space devoted to advertising, past financial performances, and so on). Finally, although the empirical observations may be interpreted as time series, we assume that they are independent, since anybody can access the homepage of an online newspaper, and the identity of visitors (which enables us to assess the number of repeated accesses and consultation of content) is not available. From this perspective, it is appropriate to measure the diversity between online and print content for each individual observation.

In the two months of monitoring, we collected about 180 online and 60 print observations of the indexes described, which amount, respectively, to 900 and 300 headlines defining the content variety of each newspaper edition. In order to test the hypotheses presented in the previous section, we conducted a simple t-test on the average indexes of print and online editions.

#### 4. Results

Collecting the data was quite difficult, because the online contents change incessantly; in addition, when the diversity of two or more headlines could not be easily ascertained, we had to analyse the content of each linked story. On the other hand, the statistical analysis is rather simple. Table 2 shows the summary statistics while Table 3 reports the results of a t-test conducted on the average values observed.

The first hypothesis was verified, using both aggregated and disaggregated observations. Notice that the difference between online and print variety increases during the daytime; this means that the diversity in online content tends to decrease from 09.30 to 17.30. We wondered whether the smaller degree of online variety depended on the convergence of web newspapers towards the same *major headline*. In fact, since online editions compete in terms of the speed with which they update their home page with "fresh" news (Schoenbach et al. 2005b; Tewksbury & Althaus 2000; Eveland et al. 2004), the prevalent criterion in choosing what to present as the most important news is the *newness* of events. Since the latest events are supposed, by their very nature, to be the same, online editors are expected to concentrate on the same major headline, at least in the short term. Traditional newspapers on the other hand, have more time (24 hours) to choose the main headline: the freshness of events is thus combined with other editorial considerations, which may differ across papers. However, Table 3 shows that this sub-hypothesis is not verified: the diversity in major headlines does not differ significantly between print and online versions. Probably, the independence of online operations from their print counterparts (Chyi & Silvie 2000) presumably does not regard the choice of the most important headline, that is, how to start the relationship with the reader.

The variation in headlines did not present significant differences between print and online editions, as suggested by hypothesis 2. Although our observations did not clarify which factors influence this result, the ease in changing online content is clearly contrasted by the demand to update current or past headlines.

Table 2: Summary of Statistics

indexes	mean	sd	obs.	Jarque-Bera test
$v_o$	11.03	1.71	180	1.48***
$v_p$	13.17	1.72	60	1.38***
$h_o$	2.26	0.87	180	1.92***
$h_p$	2.52	0.95	60	1.16***
$u_o$	8.45	1.76	177	1.18***
$u_p$	8.77	1.57	59	2.04***

\*\*\* significant at 1% level.

Table 3: Test of Hypotheses

<i>H1</i>	<i>observed t</i>	<i>online (print) obs.</i>
$v_o < v_p$	-5.21***	180(60)
$v_{o9.30} < v_p$	-1.86**	60(60)
$v_{o13.00} < v_p$	-4.65***	60(60)
$v_{o17.30} < v_p$	-7.66***	60(60)
<i>Sub-H1: major headlines</i>		
$h_o < h_p$	-1.22	180(60)
$h_{o9.30} < h_p$	-0.95	60(60)
$h_{o13.00} < h_p$	-0.98	60(60)
$h_{o17.30} < h_p$	-0.98	60(60)
<i>H2</i>		
$u_o = u_p$	-0.75***	177(59)
$u_{o9.30} = u_p$	-1.12***	59(59)
$u_{o13.00} = u_p$	0.64***	59(59)
$u_{o17.30} = u_p$	2.24***	59(59)

\*\*\*: significant at 1% level.

\*\*: significant at 5% level.

## 5. Discussion and Conclusions

This short paper has compared print newspapers with their online counterparts. The objective was to analyze the extent of content diversity, given the importance that economic and communication studies give to this aspect. Newspaper content diversity is an important issue in terms of the rapid diffusion of Internet usage and the supposed decline in print media. The innovative aspect of this paper is that it studied the variety of newspaper content *directly*. The results showed that online editions present a significantly lower diversity with respect to print editions, although this is not the case with the main headlines. On the other hand, the daily variation in content is quite similar in print and online editions. The lower diversity across online papers does not necessarily mean that a smaller amount of information is available to readers: unlike print products, the web allows for a rapid switch from one information provider to another and this creates, at least potentially, a wider range of accessible news stories<sup>4</sup>.

Our analysis has some limitations. The first concerns the time period under review. The time period was relatively short and the geographical scope of the research was limited. The readers' behaviour and online business models are still evolving and they will probably differ across countries in the long term.

Second, headlines are an imperfect indicator of content variety. Choosing only the top five headlines makes the comparison between print and online editions more homogeneous and focuses on the most important stories from the perspective of the editors, but, at the same time, ignores the "potential" online variety, which is much more larger than print variety, because the home page can contain more than five headlines which, in turn, can be linked to several web pages. These dimensions of newspapers variety will be explored in future studies.

Third, the analysis of content variety is not based on a specific inter coder reliability testing. This a serious limitation of the present study.

<sup>4</sup> This paper compares the *print diversity* with the *online diversity*. The study does not deal with the differences, in terms of variety, between a single print newspaper and its online counterpart, nor it compares distinct newspapers. Future research might investigate these interesting issues.

Although the content of headlines and the linked stories has been carefully examined to establish their uniformity or diversity, future research should include the choice of appropriate reliability testing methods to investigate the characteristics of online and print products.

Another possible objection regards the objects of the comparative analysis. Firstly, we ignored the free press, a natural competitor to online editions. However, the availability of free press is geographically limited, which prevents a comparison with online products, which can be accessed everywhere (at least potentially) via an Internet connection. Secondly, many papers analyze the substitutability between online and print products because it is assumed that the contents of both are almost the same. Undeniably, an organization such as a newspaper may employ the same factors of production on different information channels. In other words, print and online editions are typical examples of joint production and economies of scope, a circumstance that has led some to describe online newspapers in terms of "shovelware" production (Chyi & Silvie 2000). However, this "supply-side" consideration does not necessarily match the readers' attitude towards the new business models. Casual observations of the most accessed stories in the online editions (these data are frequently reported in the home pages) show that readers have a preference for news items regarding TV shows, celebrities and erotic/horrific/bizarre events and images.

Probably, readers visit the online editions of newspapers to find something different from what is available in the print products, as suggested by several authors (Chyi & Lasorsa 2002; Schoenbach et al. 2005b; Flavian & Gurrea 2007; George 2008). This raises a well known question: online newspapers are competing with a number of subjects which are different from their supposed rivals, given the abundance of websites offering a large assortment of informative content that complicates the definition of online competition (Chyi & Sylvie 2000). From this perspective, future research will probably consider an analysis of the potential "cannibalization" between print and online newspapers as being less worthwhile. On the other hand, the non alignment of readers' revealed preferences and traditional newspaper content, entirely or partially transferred on the Internet, shows that newspapers are gradually being modified while going online. At the same time, the print editions will have the opportunity

to adapt their coverage and depth of analysis in response to the broader diffusion of Internet information services (George 2008), although this cannot guarantee their endurance and survival in the long term.

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