

# **Internet Marketing the News : Leveraging Brand Equity from Market Place to Market Space**

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**Abstract**

*Can established newspapers leverage their offline brand equity to the online edition in order to create visits and page views? This question is key for publishers, as they are now facing a change only comparable to the advent of the printing press in the fifteenth century. In the present study, both a cross-sectional and a time-series analysis are applied to 12 Spanish newspapers. Our findings indicate that brand equity in the market place can be efficiently leveraged into the market space. On-line readership depends both on off-line popularity as on the profile fit between the typical Internet user and the typical off-line reader of the newspaper. The digital market dynamics are uncovered by persistence modeling of visits, page views and brand choice for each newspaper. First, the total number of visits initially evolves, but later stabilizes. In contrast, page views continue to evolve as usage depth increases over time. Finally, brand choice is stable and proportional to the brand equity borrowed from the printed newspaper. Our analysis yields specific recommendations for the three leading newspapers.*

*Keywords: brand equity transfer, online news, evolution, panel model*

## **1. Introduction**

Digital news recently emerged as an important Internet phenomenon, both from the demand as from the supply side. As for the former, panel data from the Wharton Virtual Test Market<sup>1</sup> show that 84% of Internet users have accessed news on-line in 1998, up from 24% in 1997. As for the latter, the number of newspapers available on the Internet has been steadily growing: from 2,700 in March 1998 to 4,280 in October 2000<sup>2</sup>. In most developed countries, the major newspapers either have an online presence or are currently in the process of implementing projects for doing so. One important reason for this phenomenon is the exponential growth of Internet availability to consumers. Editors are afraid that if they do not go online as soon as possible, they will lose their readers and advertisers to the competition. Advertising revenues for the total Internet medium reached \$4.62 billion in 1999<sup>3</sup> and are projected to reach \$11.5 billion in 2003, surpassing spending in traditional media<sup>4</sup>. Second, most newspapers can afford the initial investment required to set up a digital edition, since most of the cost has already been invested to create the printed version. Finally, the Internet offers a variety of revenue opportunities such as pay-per-use and advertising-per-exposure. However, the Internet also poses a major challenge, as the needs and expectations of digital news consumers may differ from the typical readership in the physical world. Because of consumers' reluctance to pay subscription or transaction fees, most newspapers depend on banner ads to generate revenue for their digital version<sup>5</sup>. In this advertising-based business model<sup>6</sup>, investments in fast content updates and interactive services are justified if they increase the number of visits and/or the number of page views<sup>7</sup>. As Coffin<sup>8</sup> points out, the higher the value of a web site to the visitor, the higher the value will be to the advertisers. At this moment, advertisers and publishers usually employ brand popularity and readers' profile as a basis for pricing<sup>9</sup>. But how do these elements of brand equity

transfer to the online environment? Both editors and advertisers have a keen interest in this question, which is the focus of our paper.

## **2. Conceptual background**

Recent marketing literature considers the Internet both as a major opportunity and as a major challenge for newspapers. A theoretic rationale is provided by Peterson et al.<sup>10</sup>, who develop a classification of products and services in the context of the Internet. News is a low outlay, frequently purchased good, with a value proposition of intangible or informational nature, and a high differentiation potential. These attributes make news ideal for online delivery. The challenge for newspapers is twofold: generating traffic for their digital version and turning this traffic into revenue streams<sup>6</sup>. For the advertising driven business model that most digital newspapers follow<sup>5</sup>, these two challenges consist of first generating and increasing traffic, and then using these results to convince advertisers to place banner ads. Banner ads indeed represent the major part of investments in online advertising placements<sup>3</sup>. Moreover, advertisers are interested in maximizing exposure to their banner ads, which directly depends on the number of pages read. Therefore, they are willing to pay more for ads on sites with a larger number of page views<sup>7</sup>. Finally, increases in page views may be persistent, allowing the brand to grow to market dominance at the expense of its competitors. Communicating such a position to advertisers could again increase advertising revenues.

In this paper, we analyze the size and dynamics of digital readership. First, we relate the popularity of the digital newspaper to the transfer of the offline brand equity, which combines the audience of the printed newspaper and its fit with the readership profile on the Net. Second, we decompose readership for the three leading brands in category incidence, brand choice and

usage depth. We apply persistence modeling to examine patterns of growth and evolution in these three components. These issues have profound implications for the competitive advantage of and challenges faced by these brands.

### **3. Hypotheses**

#### **3.1 Digital market dynamics**

In contrast to the mature and stable market for printed news, digital news is considered as an emerging market in Spain<sup>9,11</sup>. This characterization implies particular patterns for the over-time behavior of performance variables for the total market (total number of visits and page views) and for the newspaper brand (brand visits, page views and usage depth). In mature markets, virtually all performance variables are mean-reverting, i.e. they return to their mean or equilibrium level soon after a “shock” to the time series<sup>12</sup>. In emerging markets, evolution in the performance variables is likely during an initial period; before the market structure is established<sup>13</sup>. Evolving variables do not return to their historical mean, and shocks to these variables may have permanent effects on the time series of these variables. From a consumer behavioral perspective, learning is a necessary condition for evolution in performance variables: new consumers visit the digital newspaper and existing consumers learn more about its products and services<sup>14</sup>. After some time, saturation in consumer penetration and habit formation of existing consumers will lead to stationarity in performance variables<sup>15</sup>.

For the digital news market, we expect both pages and visits to evolve initially. Moreover, we postulate that these series co-evolve; i.e. they are in long-term equilibrium. After all, attracting users is a necessary condition for increasing the number of page views<sup>6</sup>. In a later stage however, the number of visits will stabilize. In contrast, page views will continue to evolve

because the existing visitors get more used to reading news on-line and learn more about the services of the digital newspaper<sup>16</sup>. We therefore postulate:

*H1: The total number of digital visits initially evolves, and then stabilizes.*

*H2: The total number of page views evolves.*

*H3: The total number of digital visits and page views initially co-evolve.*

### 3.2 Brand equity transfer

A common view on Internet marketing claims that the reduction of consumer search costs will lead to dwindling product differentiation and vanishing brand loyalty<sup>17</sup>. Brynjolfsson and Smith<sup>18</sup> find strong evidence against this assertion, and conclude that heterogeneity in consumer awareness and trust are at least as important in the digital as in the physical world. Retailers believe that besides “having a well-designed, easy to use site”, the most important success factors are “a strong company brand” and “selling well-known branded products”<sup>19</sup>. This popularity aspect of brand equity is captured by the newspaper’s audience; i.e. the estimated number of people actually reading the newspaper (in contrast to the number of people buying it).

*H4: The larger the audience of the printed newspaper, the more readers are attracted to its Internet edition.*

Although popularity in the real world may establish a baseline for awareness on the Net, newspapers know that Internet access is not universal yet. In fact, the demographic profile of the typical Internet user could be vastly different from the typical print customer. Consistent with the marketing concept, we expect newspapers with a closer profile to that of the Internet to get a higher number of readers in its Internet edition.

*H5: The higher the degree of similarity in demographic profile between newspaper's readers and Internet users, the more readers are attracted to its Internet edition.*

Both the audience for the printed version and its profile match with Internet users are stable factors in established news markets like Spain<sup>9</sup>. Moreover, the printed newspaper is the vehicle for virtually all promotion for the digital version in this market. Because of this dependence on the stable market structure for printed news, we postulate:

*H6: The share of digital visits is stationary for all newspapers.*

#### **4. Data and variable operationalization**

The present study analyzes data from 12 Spanish Internet newspapers audited by the OJD<sup>3</sup>. Table 1 describes our data in more detail. The examined newspapers include five national, four regional and three provincial papers. Ten of these newspapers have a general scope, whereas two specialize in respectively economic and sport news.

Our performance variables include the number of daily visits and page views for each digital newspaper. Based on this information, we create the variables 'total visits' (visits to all digital newspapers), 'total page views' (page views for all newspapers), visits share, page view share and usage depth (page views divided by visits for each brand). Additionally, the newspaper's offline brand equity and identity is captured by circulation (copies sold), audience<sup>4</sup> (actual readership), and by demographic profile<sup>5</sup>. This last variable is measured along four dimensions:

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<sup>3</sup> Oficina de Justificación de la Difusión; the Spanish equivalent of the Audit Bureau of Circulations. The data collection by OJD typically starts at least six months after the introduction of the online newspaper, as the period of these first online steps is plagued by tests and missing observations. As a result, our data period does not capture the very beginning of the online version.

<sup>4</sup> Data from AIMC (Asociación para la Investigación en Medios de Comunicación), which uses survey methods to estimate newspaper audience and media trends.

<sup>5</sup> Global proximities of demographic profiles are calculated using a Euclidean dissimilarity coefficient matrix.

age, gender, socioeconomic status (SES) and level of education, and is available both for the printed newspapers as for the general Internet audience.

## 5. Methodology

The first step in our analysis consists of unit root tests for all performance variables. This procedure allows a direct assessment of hypotheses 1, 2 and 6. The Augmented Dickey-Fuller test of equation 1 is performed for each series in several different versions, allowing for multiple lags ( $p$ ) and for a deterministic time trend  $t$ <sup>20</sup>. In each case, Schwartz's Bayesian Information Criterion (BIC) guides our choice for the appropriate version of the test. This criterion consistently estimates the lag structure by minimizing the sum of squared errors and model complexity<sup>21</sup>.

$$\Delta y_t = (\rho - 1) y_{t-1} + \sum_{i=1}^p \Delta y_{t-i} + c + t + \varepsilon_t \quad (1)$$

Rejection of the null hypothesis of a unit root ( $\rho = 1$  implies  $(\rho - 1) = 0$ ) provides evidence for stationarity, whereas failure to do so at the 5% level provides evidence for evolution.

Since strong seasonality effects (in our case, intra-week patterns) can obscure the long-term behavior of the time series<sup>22</sup>, we perform the unit root test for both the raw data and the deseasonalized data (using multiplicative seasonal indices for each day-of-week). Our findings are identical for each performance series. Finally, we construct rolling-windows of 182 daily observations (6 months) and perform the unit root test for each of these data windows<sup>23</sup>. This procedure provides another check on the stability of our test results and allows us to investigate whether the total number of visits has the tendency to become stationary after an initial period of evolution (Hypothesis 1).



Hypothesis 3 on the co-evolution of visits and page views is examined by means of the Johansen FIML cointegration test<sup>24</sup>. This test does not only assess whether cointegration exists, but also estimates the cointegration relation between the variables.

Our analysis of readership patterns (Hypotheses 4 and 5) uses a panel data model to exploit both the cross-sectional and the dynamic variation for weekly data of the 12 newspapers:

$$\text{Log} (Vis_{it}) = \mathbf{a} + \mathbf{b}_1 \text{Log} (Aud_i) + \mathbf{b}_2 Dem_i + \mathbf{b}_3 Vac_t + \mathbf{g}_i Gr_{it} + \mathbf{r} \text{Log} (Vis_{i,t-1}) + \mathbf{e}_{it} \quad (2)$$

The dependent variable is the number of visits ( $Vis_{it}$ ) of each newspaper. Independent variables are: the log of the printed newspapers' audience ( $Aud_i$ ), distance in demographic profile ( $Dem_i$ ), a linear trend for growth ( $Gr_{it}$ ), a dummy variable for vacation periods ( $Vac_t$ ) and the auto-regressive coefficient ( $Vis_{i,t-1}$ ). Except for Growth, coefficients are restricted to be common across units. The intercept is common ( $\mathbf{a}$ ) since the audience variable controls for size differences. Estimation by Seemingly Unrelated Regression (SUR) is preferred due to the presence of both heteroskedasticity (strong size differences among newspapers) and contemporaneous correlation (common shocks to all series).

## 6. Results

Table 2 presents the results of the unit root test for the raw and the deseasonalized data. First, we analyze the total market for digital news. Total visits are stationary, whereas total page views and usage depth are evolving. The ADF-test, in the version selected for the full data period, is also estimated for each of the two calendar years 1998 and 1999. For visits, evidence of evolution is present for 1998, but not for 1999. This finding supports Hypothesis 1: the total

number of visits initially evolves, but later stabilizes. In contrast, the tests for page views and usage depth show strong evidence for evolution throughout the full data period. These results support Hypothesis 2. Second, stationarity in all performance series is the rule for most newspapers in our data set. Evidence on evolution is found for El Mundo (pages, usage depth, visits share and pages share), La Vanguardia (pages, visits share and pages share) and Diario de Navarra (visits share and pages share). Results for the deseasonalized data mirror those for the raw data. We conclude that, in support of Hypothesis 6, visits shares tend to be stationary.

The co-evolution between visits and page views is examined for 1998, the period in which both are evolving. For both the raw and the deseasonalized data, the Johansen LR test finds evidence of cointegration (Likelihood Ratio = 26.03). The cointegrating equation teaches us that 7 pages per visit constitute the long-term equilibrium. Hypothesis 3 is supported.

The results for the panel model are presented in table 3. SUR-estimation of the first model, using the log of visits as the dependent variable, yields an  $R^2$  of 0.97. Significant effects are observed for audience, similarity in demographic profile, and vacation periods. The elasticity of the visits with respect to audience is .75. However, the introduction of profile distance yields a significantly higher model fit. Newspapers with demographic profiles close to that of the Internet consistently get a higher number of visits than expected in view of their audience (distance coefficient = -.07). Hypotheses 4 and 5 are supported.

## **7. Discussion and implications**

Overall, the results support our proposed hypotheses, as summarized in table 4. First, the emerging digital news market does experience evolution over time. Total page views and usage depth experience evolution over the full observation period, whereas the total number of visits

evolves in 1998, but stabilizes in 1999. Out of 12 newspapers, 3 experience evolution in visit and page shares, and only 2 in usage depth. Finally, cointegration between visits and page views is found for the first year of observation, but not for the second. Together, these results confirm the intuition that digital news represents both growth opportunities and challenges to editors. On the one hand, on-line presence enables editors to leverage offline brand equity and tap into new audiences and advertising revenues. On the other hand, competition in this market is intensified because of the consolidation in terms of total visits and the fact that only a few newspapers succeed in increasing usage depth. Our analysis yields different implications for newspapers with a weak versus a strong match between the demographic profile of their offline readership and that of the Internet user. We briefly discuss these implications for the specialized newspapers and for the three national, general papers.

The most striking results are obtained for the economic and the sports newspaper. The economic newspaper strongly benefits from its fit with the Internet public in all four measures: gender, SES, age and education level. The sports newspaper represents the other extreme: its printed version has the largest audience in Spain, whereas its digital version gets four times less visits than El País Digital. We observe a similar scenario for newspapers specializing in provincial news; their on-line readership does not live up to their off-line popularity. In summary, advertisers should carefully consider profile fit, and not only offline audience in their allocation decisions to digital newspapers. Specialized newspapers have an advantage to the extent that the Internet audience has a strong interest in their content. In the extreme case, the newspaper can start charging for online subscription (as the Wall Street Journal did) and thus become less dependent on advertising revenues. In sharp contrast, the sport newspaper and the provincial newspapers suffer from a large gap between the demographic profile of its offline

readership and that of the current Internet user. On the one hand, a consumer segmentation and targeting approach suggests that they should offer a different product to their digital versus their print readership. On the other hand, the costs of maintaining separate versions (and staff) and the potential dilution of their existing brand positioning, imply that they should adopt a more conservative strategy by maintaining a modest on-line presence for their existing audience. After all, as the Internet innovation diffuses in Spain, the typical on-line reader may soon resemble the typical off-line reader. In the United States, the Internet population is already starting to look like the general population<sup>1</sup>.

The competitive dynamics can be examined in more detail for the three national, general newspapers: El País, ABC and El Mundo. The similarity in content and scope of these newspapers makes such a competitive analysis meaningful. Moreover, these newspapers are likely to compete for the business of the same national advertisers. For this analysis, we define the total market for national, general news as the sum of the data for these three newspapers. Figures 1-3 in appendix show their market shares for respectively visits, page views and usage depth. As confirmed in the unit root tests in table 2, visits shares look like the prototypical examples of stationary series: shocks to the series disappear almost instantly. In contrast, page views are evolving for El Mundo: this newspaper structurally increases its share of pages read. The reason for this evolution is evident in the analysis of usage depth (figure 3): only El Mundo succeeds in structurally increasing the number of pages read per visit. Future research is needed to establish why El Mundo obtains this advantage. Both its high profile fit and the excellent interactive quality of its online version could be responsible. Our dynamic perspective on competitive advantage yields specific recommendations for the three newspapers.

First, market leader El País leverages its existing brand equity in the digital world in terms of visits, but is losing its leadership to El Mundo in usage depth, and therefore page views. Therefore, we recommend El País to better align its online version with the needs and expectations of the typical Internet user. Comparative analysis between the content and style of the 12 web sites, suggests that faster content updates and better communication services should help. In fact, El País did introduce a free headline-email service right after the observation period. A next step could be to customize these emails and to include direct links to website articles, which is a lot cheaper than customizing the site itself<sup>7</sup>. Very recently, in June 2000, El País shocked the whole press panorama by hiring, in a surprise operation, fifteen people from the online edition of El Mundo, in fact the majority of its staff.

Challenger El Mundo has fewer offline readers than El País, but offers a better fit and understanding of the needs of the typical Internet user. However, the total number of visits and visits share show no evolution. Traditional marketing wisdom dictates more attention to online and offline advertising in order to build awareness and attract new users. Cross-selling techniques appear especially efficient for a large newspaper like El Mundo. Recently, Spanish newspapers have begun to offer passwords for specialized digital sections in the printed newspapers. Finally, follower ABC obtains evolution in neither visits nor usage depth. Investments in content and style of its web site would be needed to bring the digital newspaper up to competition. Moreover, advertising can help increase trial by new users. However, ABC has to balance the costs of these investments with the expected returns: the demographic profile of its existing readership is different from that of the typical current Internet user. Simply keeping online presence may be more consistent with the brand's positioning. This strategy is

contingent on the current situation however, and should be reconsidered if Internet usage increases up to a point that the typical ABC reader is online.

## **8. Conclusion and suggestions for future research**

The present study offers new evidence and insight into the digital news market. First, the market for digital news shows evolution over time, but several newspapers do not share in the growth of visits and/or usage depth. Moreover, the total number of visits stabilizes, indicating usage depth as the more likely source for future growth in page views. Second, the popularity of the digital newspaper is influenced both by the audience of its printed edition, and by its profile fit with that of the typical Internet user. Finally, the usage depth of the digital newspaper evolves over time: the typical reader visits more pages. This phenomenon however depends on the profile fit between marketplace and marketspace readership. Most likely, digital newspapers are originally visited in a goal-oriented mode<sup>25</sup>, whereas the hedonic playing mode<sup>26</sup> develops as users learn the benefits of the digital newspaper. Given that most newspapers get funding from advertising<sup>5</sup>, editors of these newspapers should focus advertisers on the number of pages read (and thus opportunity to see the specific ad) instead of simple subscriber numbers. Our findings also have strong relevance for advertisers. First, they need to know the size and profile of the audience that visits the specific newspapers. Second, the growth differences for visitors and pages per visit provide insights into the future developments of their newspaper of choice.

Our study is limited to market level data for one country, and future research should tap into individual consumer behavior in different regions of the world. As the data collection period starts at least six months after the introduction of each newspaper, we were not able to analyze the very first steps of online readership. Moreover, we did not obtain sufficient marketing action

data to study the causal relationship between digital readership and changes in the digital news product, changes in the offered services, and advertising for the digital version. Future research should explore these relations in order to investigate the return of investment for these marketing actions. Finally, daily data on printed circulation would enable an investigation of the important cannibalization and complementarity issues between the printed and the digital version of the newspaper. As in other areas of E-commerce, where “click and mortar” dual distribution is replacing the “click” versus “brick and mortar” dichotomy, editors need to balance on-line and off-line investments.

Table 1: Descriptive data of the newspapers in the sample

| Name                      | Code | Ambit      | Type     | Audience* | Profile* | Visits** | Pages** | Data period   | Launch  |
|---------------------------|------|------------|----------|-----------|----------|----------|---------|---------------|---------|
| El País                   | EPA  | National   | General  | 1,572     | 55.7     | 42,109   | 300,320 | Jan 98-Aug 99 | May 96  |
| El Mundo                  | EMU  | National   | General  | 926       | 53.33    | 20,360   | 128,498 | Sep 97-Aug 99 | Feb 96  |
| ABC                       | ABC  | National   | General  | 952       | 62.1     | 8,951    | 38,200  | Dec 97-Aug 99 | Sep 95  |
| La Vanguardia             | LVA  | Regional   | General  | 640       | 61.68    | 3,799    | 22,632  | May 97-Aug 99 | June 95 |
| El Periódico de Catalunya | EPC  | Regional   | General  | 912       | 76.81    | 4,089    | 56,575  | Mar 98-Aug 99 | Oct 96  |
| Levante                   | LEV  | Regional   | General  | 349       | 76.05    | 878      | 13,851  | Jul 98-Aug 99 | May 98  |
| Avui                      | AVU  | Regional   | General  | 138       | 63.84    | 1,752    | 24,825  | Nov 98-Aug 99 | Dec 97  |
| Canarias 7                | CA7  | Provincial | General  | 166       | 90.36    | 582      | 2,214   | Jun 97-Aug 99 | Jan 97  |
| El Diario Vasco           | DVA  | Provincial | General  | 344       | 84.5     | 967      | 6,983   | Jul 97-Aug 99 | Dec 96  |
| Diario de Navarra         | NAV  | Provincial | General  | 228       | 89.33    | 715      | 4,403   | Dec 98-Aug 99 | Nov 97  |
| Expansión                 | XPA  | National   | Economic | 133       | 53.58    | 7,116    | 36,277  | Jun 98-Aug 99 | Mar 97  |
| Marca                     | MAR  | National   | Sports   | 2,440     | 81.77    | 11,428   | 87,274  | Jun 98-Aug 99 | Jan 96  |

\* Data from AIMC, audience data in thousands; profile data transformed: distance between demographic profile audience and Internet user

\*\* Data from OJD: average number of electronic visits, average number of electronic pages read

Table 2: Unit Root test results (absolute t-values for the Augmented Dickey-Fuller test)

| Series       | Visits | Pages | Usage depth | Visits share | Pages share | Deseasonalized visits | Deseasonalized pages |
|--------------|--------|-------|-------------|--------------|-------------|-----------------------|----------------------|
| Total Market | 5.63   | 1.55* | 1.08*       | NA           | NA          | 4.52                  | 1.24*                |
| Total 1998   | 2.96*  | 1.85* | 1.03*       | NA           | NA          | 2.62*                 | 1.61*                |
| Total 1999   | 3.97   | 2.08* | 1.26*       | NA           | NA          | 3.84                  | 1.97*                |
| EPA          | 6.51   | 5.01  | 3.83        | 3.87         | 4.64        | 5.27                  | 3.62                 |
| EMU          | 5.62   | 2.99* | 0.62*       | 2.41*        | 2.23*       | 4.97                  | 0.63*                |
| ABC          | 4.49   | 4.32  | 6.50        | 3.73         | 5.22        | 4.60                  | 6.73                 |
| LVA          | 7.52   | 4.08  | 1.58*       | 1.81*        | 1.70*       | 9.02                  | 4.31                 |
| EPC          | 5.51   | 4.76  | 7.30        | 5.35         | 6.22        | 5.98                  | 5.39                 |
| LEV          | 5.50   | 5.25  | 18.89       | 5.52         | 5.43        | 5.45                  | 5.13                 |
| AVU          | 3.53   | 4.92  | 10.95       | 11.39        | 11.18       | 3.64                  | 12.78                |
| CA7          | 6.21   | 7.69  | 6.82        | 3.16         | 3.74        | 8.61                  | 9.01                 |
| DVA          | 6.09   | 6.69  | 5.04        | 3.26         | 3.00        | 6.89                  | 7.39                 |
| NAV          | 3.88   | 3.95  | 5.00        | 2.37*        | 0.09*       | 3.92                  | 3.86                 |
| XPA          | 5.85   | 3.44  | 4.21        | 5.35         | 3.07        | 7.52                  | 4.04                 |
| MAR          | 4.34   | 3.79  | 4.49        | 3.11         | 4.21        | 5.02                  | 4.61                 |

\* Failure to reject the null hypothesis of a unit root at 5% significance level



Table 3: Results of the panel model (weekly data) \*

| Variable                  | Coefficient | t-Statistic | Probability |
|---------------------------|-------------|-------------|-------------|
| Constant                  | 10.30       | 17.68       | 0.0000      |
| Log (Audience)            | 0.75        | 10.45       | 0.0000      |
| Demographic profile       | -0.07       | -18.47      | 0.0000      |
| Vacation periods          | -0.30       | -8.63       | 0.0000      |
| Log (Vis <sub>t-1</sub> ) | 0.72        | 28.05       | 0.0000      |

|                     |      |
|---------------------|------|
| $R^2$               | 0.97 |
| Adjusted $R^2$      | 0.96 |
| S. E. of regression | 0.26 |
| Durbin-Watson       | 2.19 |

\* The individual newspapers' growth coefficients have been omitted.

Table 4: Summary of hypotheses and findings

| No. | Hypothesis                                    | Finding                                       | Supported? |
|-----|---|---|------------|
| H1  | Total visits initially evolve, then stabilize | Evolution in 1998, stationarity in 1999       | Yes        |
| H2  | Total page views evolve                       | Evolution over full data period               | Yes        |
| H3  | Visits and page views initially co-evolve     | Co-evolution for 1998                         | Yes        |
| H4  | Off-line audience increases digital visits    | SUR-estimation yields significant coefficient | Yes        |
| H5  | Profile match increases digital visits        | for audience and profile                      | Yes        |
| H6  | Visits share is stationary                    | Stationarity for all brands                   | Yes        |

Figure 1: Visit shares for the three national, general newspapers

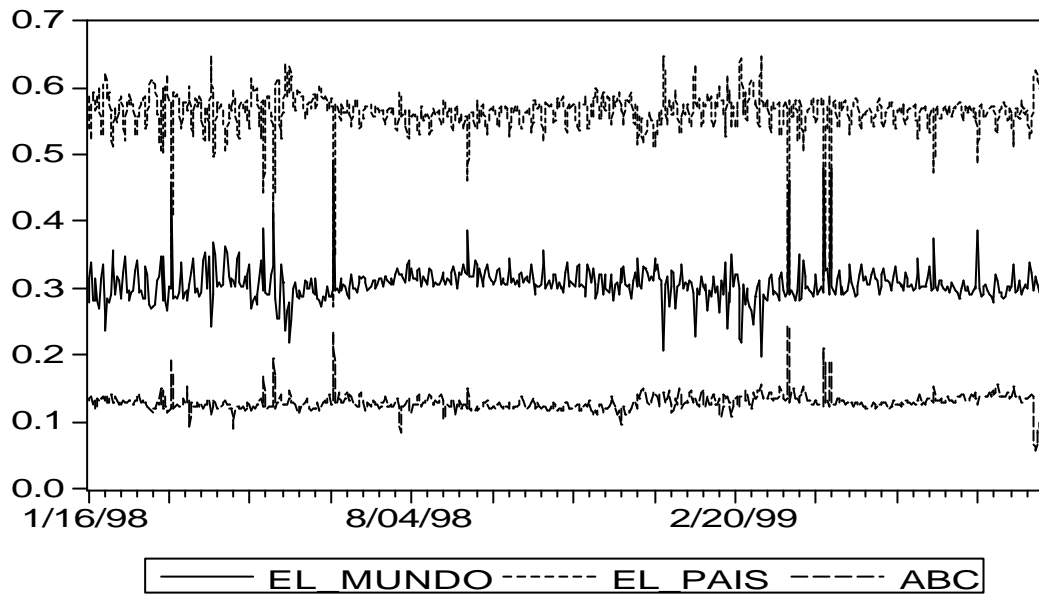


Figure 2: Page view share for the three national, general newspapers

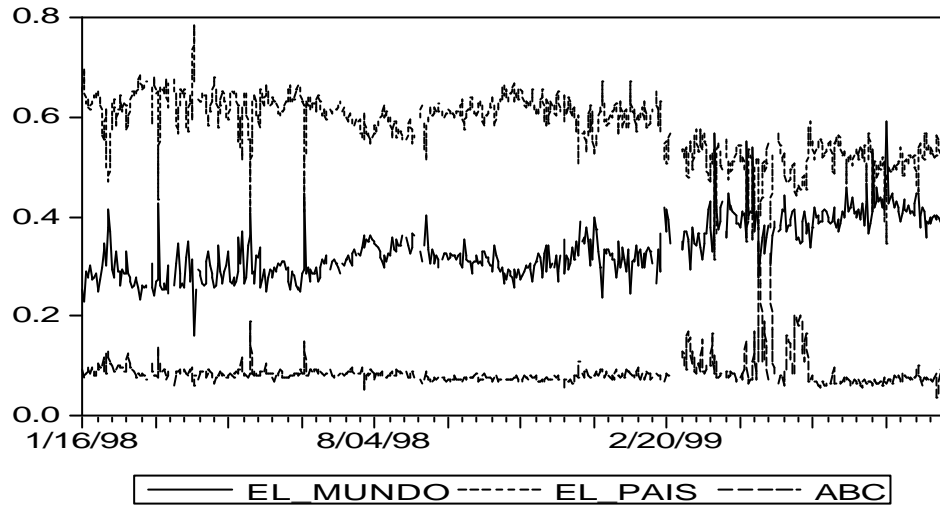
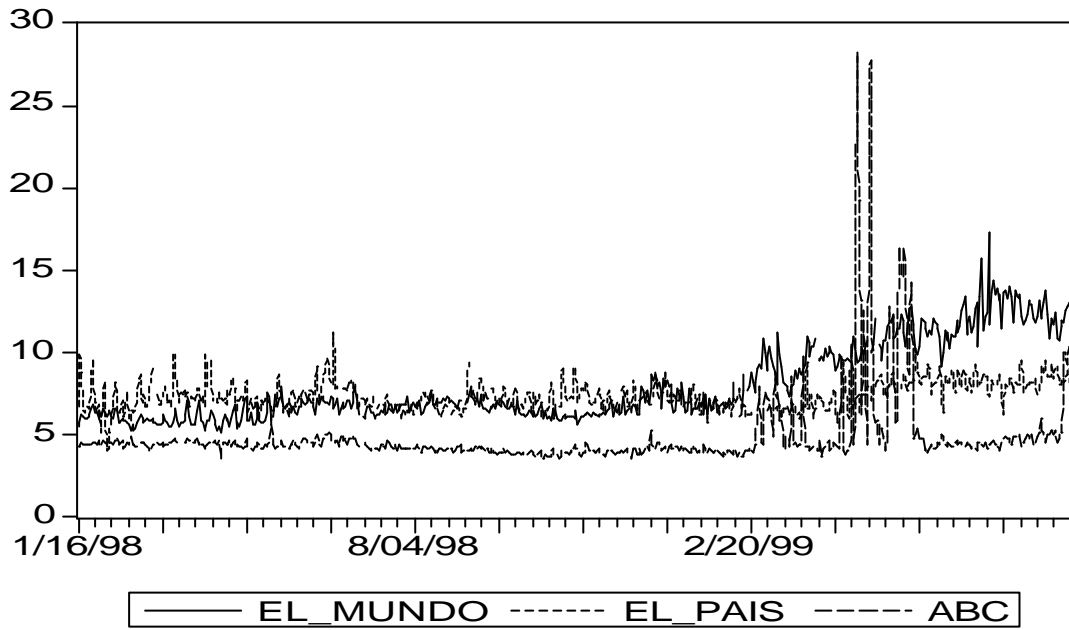


Figure 3: Usage depth for the three national, general newspapers



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