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A Network Analysis of Online Audience Behaviour: Towards a Better Comprehension of the Agenda Setting Process^{*}

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Abstract

By constructing the network of media audience, this study sheds light on the predominant modes of exposure to online political information in Spain. Novelty data from a panel of thirty thousand individuals is used for the research. The preliminary results bring evidences for reviewing the line of reasoning that advocates for the prevailing fragmentation of the public sphere. More notably, the results contribute to proving that a substantial level of audience concentration still remains in the web. The highest levels of audience overlapping are found in those media outlets that are driving the media agenda in the offline sphere. Therefore the study proffers evidence that the structure of the online public sphere might guarantee the necessary shared informational experiences for a deliberative democracy.

The implications of the current networked audience behaviour for the study of the agenda setting process are discussed along with the chances for a shared public agenda in Spanish society. Observational methods and content analysis have been used in the study of the agenda setting process so far. However, the current communication environment characterized by unlimited, decentralized and abundant sources of political information prompts the application of new analytical approaches. Networks are at the heart of online communication and network science allows for analyzing its structure. It provides the

* This brief of research is part of an ongoing broader project conducted with professors Ana S. Cardenal and Sandra González-Bailón. Jointly they are mapping the online media networks and audience flow in Spain. Additional acknowledgement to Joshua Becker from DiMeNet group at Annenberg Penn for useful input to this preliminary analysis

affordances to map and study audience aggregated behaviour when searching for political information. In doing in so, it also unveils the mechanisms that might still guarantee a public agenda in the digital age.

Keywords

online audience behaviour, Social Network Analysis, modes of exposure, fragmentation, agenda setting

Topic

political communication, political science

Análisis de red del comportamiento de la audiencia en Internet: hacia una mejor comprensión del proceso de agenda setting

Resumen

Este estudio construye la red de audiencias de los medios de comunicación en España con el objetivo de identificar los modos prevalentes de exposición a la información política en Internet. Para ello, se utilizan datos inéditos procedentes de un panel de treinta mil individuos. Los resultados preliminares que se obtienen aportan evidencias que sugieren una revisión de los argumentos a favor de que Internet fragmenta la esfera pública. Es más, los resultados muestran que todavía existe un nivel substancial de concentración de las audiencias en los medios de comunicación en Internet. Los niveles más altos de concentración se localizan en las webs de los medios que tienen un rol predominante en el proceso de agenda setting fuera de la red. En este sentido, el estudio presenta evidencias de que la estructura de la esfera pública en Internet podría garantizar los niveles necesarios de información compartida por los ciudadanos para el buen funcionamiento de una democracia deliberativa.

Asimismo, en este trabajo se analizan las consecuencias que puede tener el actual comportamiento de los individuos que consumen información política en la red, para el estudio del proceso de agenda setting. Además se discuten las posibilidades de que exista una agenda pública compartida a la luz de la estructura de la actual red de audiencias compartidas. Hasta el momento, los análisis de datos observacionales así como de contenido han sido los métodos predominantes en el estudio de la formación de la agenda pública. Sin embargo, el entorno actual de comunicación, caracterizado por la abundancia de fuentes de información descentralizadas y la ilimitada oferta de noticias políticas, apela a la utilización de nuevas metodologías. Sin lugar a dudas, las redes conforman la base de la comunicación en línea y por lo tanto, el análisis de redes ofrece las técnicas y herramientas necesarias para identificar el impacto de su estructura en el comportamiento de la audiencia. Esta metodología permite estudiar sus movimientos durante la búsqueda de información política y con ello, supone un avance para la identificación de los mecanismos y estructuras que pueden seguir garantizando una agenda pública en la era digital.

Palabras clave

comportamiento del público en internet, análisis de redes sociales, formas de exposición, fragmentación, agenda setting

Tema

comunicación política, ciencia política, análisis de redes

1. Audience behaviour and networked public sphere

Mapping the network of media audiences offers a useful lens in investigating to what extent there is a fragmented online public sphere. The aggregate behaviour of people consuming political information on the web is a proxy to know if citizens have a range of common informational experiences.

According to many prominent political and social theorist, democracy depends extensively on an informed citizenry regarding the most important problems in their societies (Converse, 1964; Habermas, 1994; Katz, 1996; Rawls, 2009). This requirement implies that political information is a vehicle for engagement in the democratic process and citizens should enjoy access to civic space for public affairs dialogue (Baum, 2012, p. 268).

Traditional media have been guaranteeing this shared public sphere until now by filtering the great amount of information available, producing political news and ultimately organizing the public debate through the agenda setting process (Lippmann, 1922; M. McCombs and Shaw, 1972; Norris, 2001). Their function has received many labels. Whereas Sunstein named it social glue (2009), Baum referred to it as a media commons (2012). Embedded in their reasoning is the claim that citizens tend to share media definition of what is important in a society as several recent investigations have proved (Arsenault and Castells, 2006; Chaques-Bonafont *et al.*, 2015; Maxwell McCombs, 2013; Palau and Davesa, 2013).

Now some of those scholars claim that in the place of a collective shared agenda fragmented and competing media agendas have emerged (Althaus and Tewksbury, 2002; Shaw and Hamm, 1997; Tewksbury, 2005) because everyday media experience is becoming more individualized (Chaffee and Metzger, 2009). People tend to not to consume similar media diets but instead they have a "Daily me". This is a term coined by Negroponte (1995) that many other scholars have echoed to warn against the trend towards a decline in common experiences and a system of individualized information filtering provided by the web. More recently, Pariser (2011) also proposed the concept "filter bubble" to define the power of the web to personalize information and tailoring people's media consumption. This scenario though might compromise two general constitutional ideals, deliberative democracy and public forum (Sunstein, 2009)

Nonetheless, evidences to prove that the Internet has caused a more fragmented public sphere have been theoretically ambiguous. Two lines of reasoning have discussed the potential consequences of the Internet for the public sphere so far. The earliest approaches to this debate contended that Internet would democratize the public sphere (Negroponte, 1995; Rheingold, 1994; Rogers, 2004) by increasing the number of issues considered in the public debate and bypassing the filtering function of the traditional media. On the contrary, a second line of reasoning have argued that filtering affordances brought by Internet as well as an unlimited number of sources of information prompt rising trend toward not only the end of mass audiences (Castells, 2009; Napoli, 2011) but unlimited audience fragmentation (Baum and Groeling, 2008; Baum, 2012; Joseph Turow, 1998). Such situation might be problematic for the functioning of the democracy because again, it potentially leaves people underinformed about central issues facing a nation (Katz, 1996; Tewksbury, 2005).

All those preceding views lay out contradictory scenarios and they have been feeding the aftermath theoretical research in this field. However, not until recently have a few researchers taken advantage of network analysis to bring empirical evidence to assess the feasibility of these theories (Ksiazek, 2011; Taneja and Wu, 2014; Webster and Ksiazek, 2012; González-Bailón, 2009). The key aspect of this research is that they do find a greater level of audience fragmentation on the web, but in coexistence with a predominant level of audience concentration. Their results, as Hindman posed, seemed more the model of winner take-all patterns where a small number of outlets dominate the web mirroring patterns found in the traditional media (2008, p. 273).

This study contributes to this latter line of research by providing novel empirical evidence based on the case of Spain, which certainly has not been studied before. Our preliminary results prove that audience concentration still remains on the web. More noteworthy, by mapping the aggregated audience behaviour and identifying traditional and new media outlets, the study brings evidence that those media driving the agenda-setting process offline are still at the core of the audience flow. The user control afforded by the new communication technology might not spell the end of a shared public sphere.

2. Data and Methods

To build the audience network of Spanish news media, this study uses data from comScore measurement tool, Media

Metrix. This company provides digital analytics for 43 worldwide countries and it is the official source of record for online measurement in Spain since 2011. In this country, they have an online panel of 30,000 individuals, representative of the Spanish population.¹ It is worth noting that comScore data is unique in several ways. Firstly, their data comes from electronic meter instead of self-report audience recall. They use biometric data to identify who is using the tracked device and avoid gathering data from people outside the panel. Secondly, this company has a unified digital measurement system consisting on a panel-centric hybrid solution that provides digital audience measurement by bridging panel and server based approaches (comScore, 2013). Furthermore, to account for the site's audience in the case of the news media industry, comScore combines the online data from its panelists with data from *Estudio General de Medios* in Spain (AIMC, 2014). Finally, data is reported monthly and includes socio-demographic information on the panelist. Unfortunately though, Media Metrix solution for Spain does not provide political leaning information of their panel members. Thus this study will not measure levels of cross-cutting exposure (Mutz and Martin, 2001) or exposure to dissimilar political views. That said, among the news media industry comScore is a widely renowned and used source of information for the audience measurement. Quite relevant, this is the first time that comScore data for Spain is used in for the study of modes of exposure to political information, at least to the best of our knowledge.

The total number of sites included in our sample is 113 and the data for this study was collected on December 2014. comScore requires a minimum of 16 panelists to visit a site within a given month in order for the basic statistics to be reported. To get the sample though, we have to take into consideration several additional conditions. On one hand, sites must provide political information either way: Producing that information or aggregating or curating information provided by other primary sources. Noteworthy is the fact that, we also consider within our sample social networks and infotainment (Brants, 1998), online media outlets. The frontiers between entertainment and information blur offline as well as online and infotainment outlets have a growing role in the media diets of citizens when seeking for political information (Bennett, 1992; Edelman, 1988; Thussu, 2008).

On the other hand, we know that the distribution of audiences in internet are shaped in the a form of a long tail (Albert *et al.*, 1999; Anderson, 2006; Elberse, 2008; Webster and Ksiazek, 2012). Consequently, if one just brings into the sample the head of the distribution, which equals to those media outlets that concentrate the majority of the audience, we would not capture, if they do exist, the levels of audience overlapping among all type of media outlets reporting about the Spanish public sphere. On the contrary, we might only see firstly, substantial levels of audience concentration corresponding to those traditional media that already have great levels of visibility offline; and secondly, few big audience hubs corresponding to those nodes of popular social networks. In this vein, and not surprisingly, previous analysis reveals that the richer the organization publishing a site is, the more people flock to it (González-Bailón, 2009; Napoli, 2011). Hence aiming to study audience overlapping among media outlets to evaluate the level of fragmentation of public sphere, we must get a sample that includes media located at the tail of the distribution too. To meet this purpose, we add to the sample top read media outlets categorized under the label "new media" by comScore (ie, niche news media sites, blogs and aggregators). Furthermore, we included traditional news media sites that reach a minimum of 0,5% of the total Internet audience in Spain² (Ksiazek, 2011; Webster and Ksiazek, 2012). As a result of these conditions, the sample studied largely represents the most widely visited traditional as well as new media sites.

However, to test the accuracy of comScore data in providing the ranking of the most visited media websites in Spain, we also used Alexa.com (Alexa Internet, 2015). Several researches have relied on Alexa data to obtain traffic rankings of different Internet properties by countries (see Ennew *et al.*, 2005; Price and Grann, 2012; Reay *et al.*, 2013; Wu and Ackland, 2014). Unfortunately, Alexa's open information is limited to the first 500 most visited entities per country. Among them, we found 44 media outlets and by running a correlation we compared their position in Alexa ranking with the one they occupy in comScore ranking. The calculation yields a pretty high score of 0.906, which means the two different sources provide almost identical audience measures. For those entities beyond the first 44 positions in the ranking of most visited media in Spain, we solely relied on the data provided from comScore.

1. Data is weighted using enumeration study data to ensure it is representative of the overall Spanish online population.
2. According to comScore Spanish Internet audience is 26.601.217 million people.

These previous criteria yield a final sample of 113 sites including traditional news media sites – television, radio, newspaper or news agency– along with new media sites –blogs, social networks, aggregators, online news media (see the Annex 1 for Table 1 to find the complete list of the media and their reach audience).

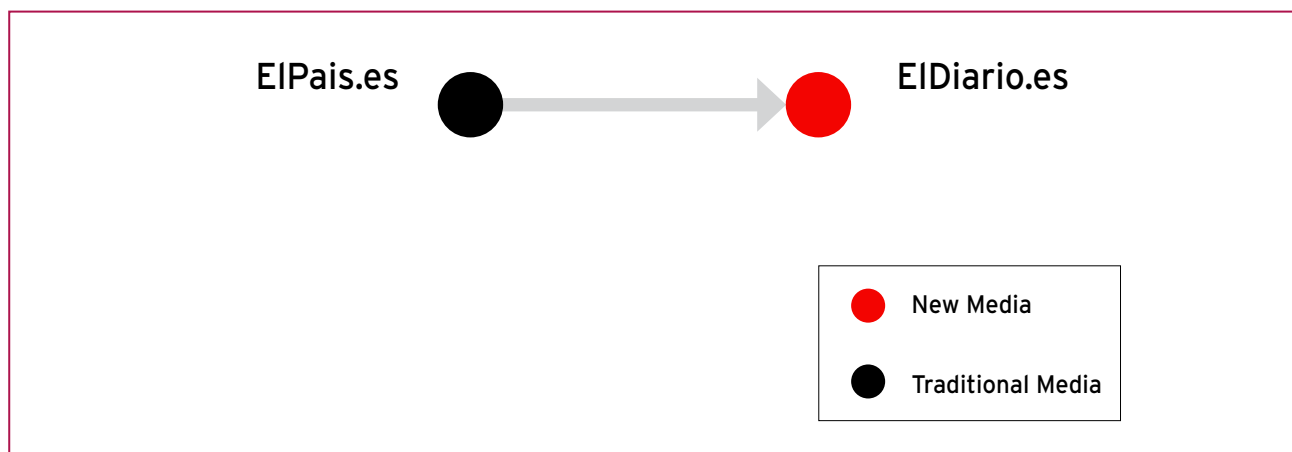
Building on the empirical framework from Ksiazek (2011) we apply a network analytical approach to understand online audience behaviour among the sites of our sample. Afterwards, we examine the structural characteristics of the network that audience forms. As said before, we argue that audience behaviour accounts for the attention that each media outlet receives and hence, it captures the informational experiences of people. Likewise, relaying on the abundant scientific evidences that started with the pioneering work by M. McCombs and Shaw (1972), we assume that the public agenda tends to match the media agenda (Arsenault and Castells, 2006; Bonafont and Palau, 2011; Chaques-Bonafont et al., 2015; Jones and Baumgartner, 2005). Thus, this analysis can shed light on the debate of whether or not there is a shared public agenda in the online sphere by assessing the audience behaviour -base on audience overlapping- and identifying, if it does exist, common informational experiences.³

Noteworthy that the nodes in this network are media sites and a link is defined when the observed audience duplication

between two outlets differs from the expected duplication between those two outlets. In that situation a tie is considered. To further illustrate, the matrix for this network is directed and binary. Thus 1 indicates the existence of a tie between two nodes. Consequently, a tie primarily shows that two media outlets share a portion of their audience. Besides, it defines that the audience of outlet *i* is likely to attend the audience of outlet *j* as compared with the overall audience. Figure 1 offers an example of this latest explanation. There, we can see that the audience of EIPais.es is also attending the information reported on Eldiario.es and hence a tie is send from the former to the latter.

To identify this relationship, we used the proposed measurement system by Ksiazek (2011), more precisely, the measure named Deviation-from-Random-Duplication (DfRD). This measure helps to rule non-significant connections out of our sample. As previous research has proved there is always room for random ties to arise and hence it is necessary to apply a method in order to preserve only those nodes that are significant. In this case, firstly, we use primary duplication between every pair of nodes within our sample. That is the percentage of the audience of outlet *i* that it is also exposed to outlet *j*. It is a weighted and directed measure that informs about the degree to which 2 media outlets share audience members. Secondly, we calculate the expected duplication among those media outlets using the reach percentage of each outlet in any given pair and

Fig. 3.1. Network relationship between media outlets



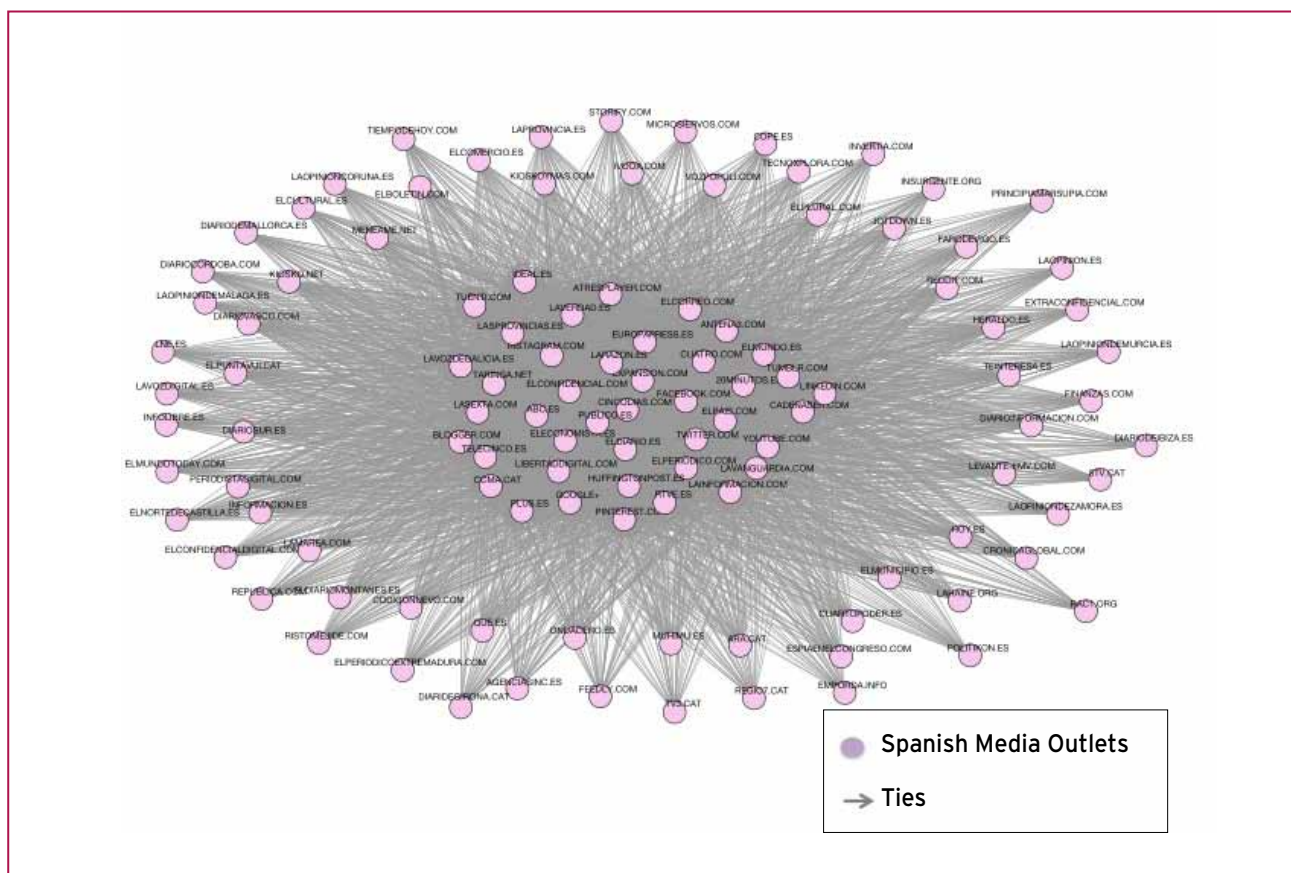
3. Internet is a large and rapidly growing portion of Spanish media diet. Currently 34% of the population uses it to find information about politics and society almost every day, according to data collected from Centro de Investigaciones Sociológica (see www.cis.es for more information). Yet, there is still a 52% of the population that never uses the web for political information purposes. Differences across ages and different levels of education are broader. Thus the evidences brought by this study apply to political interested citizens who get their media diet online.

computing the formula by Ksiazek (2011). Finally, we subtract the expected duplication from the observed.⁴ When the result yields a positive value, it indicates a non-random tendency to attend to a given outlet. Thus a tie is defined. On the contrary, a negative value is considered a tendency to avoid a given outlet. We worked out the DfRD for all 13,110 possible pairs within the sample and we obtained 4,570 significant connections. Finally, we dichotomized our matrix⁵ to map the network of audiences and compute the descriptive measures that we explain following.

3. Results

This research brief is part of an extensive study, currently underway. Results presented are therefore preliminary and solely focused on the structural characteristics of the Spanish online audience network. Assessing the structure of a network helps to reduce its complexity, thereby giving us primary properties that matter for understanding modes of exposure to political information.

Fig. 4.1. Spanish Audience Network



Notes: This is a directed network that represents the overlapping audience behaviour among 113 Spanish media outlets. A tie is defined as indicating a non-random tendency in the attendance of a given outlet. Nevertheless, there is no tie among a pair of media when the audience of *i* tend to avoid *j*. As a result 4,570 connections or ties are defined. We use the Fruchterman and Reingold layout method to visualize the graph. It is a *spring-embedder* method of graph drawing (Kolaczyk and Csárdi, 2014).

4. The logic behind subtracting expected from observed, is that when an observed value is much greater than the expected value (i.e. the duplication is much greater than expected by random chance), the calculation will yield a large, positive DfRD value. Conversely, when the observed is only slightly greater than the expected, it will result in yield a small value; and if the observed is less than the expected, it will produce a negative value (Ksiazek, 2011, p. 242)
5. Before dichotomizing the matrix, all loops have been removed to avoid ties in which both ends connect to a single node (Kolaczyk and Csárdi, 2014).

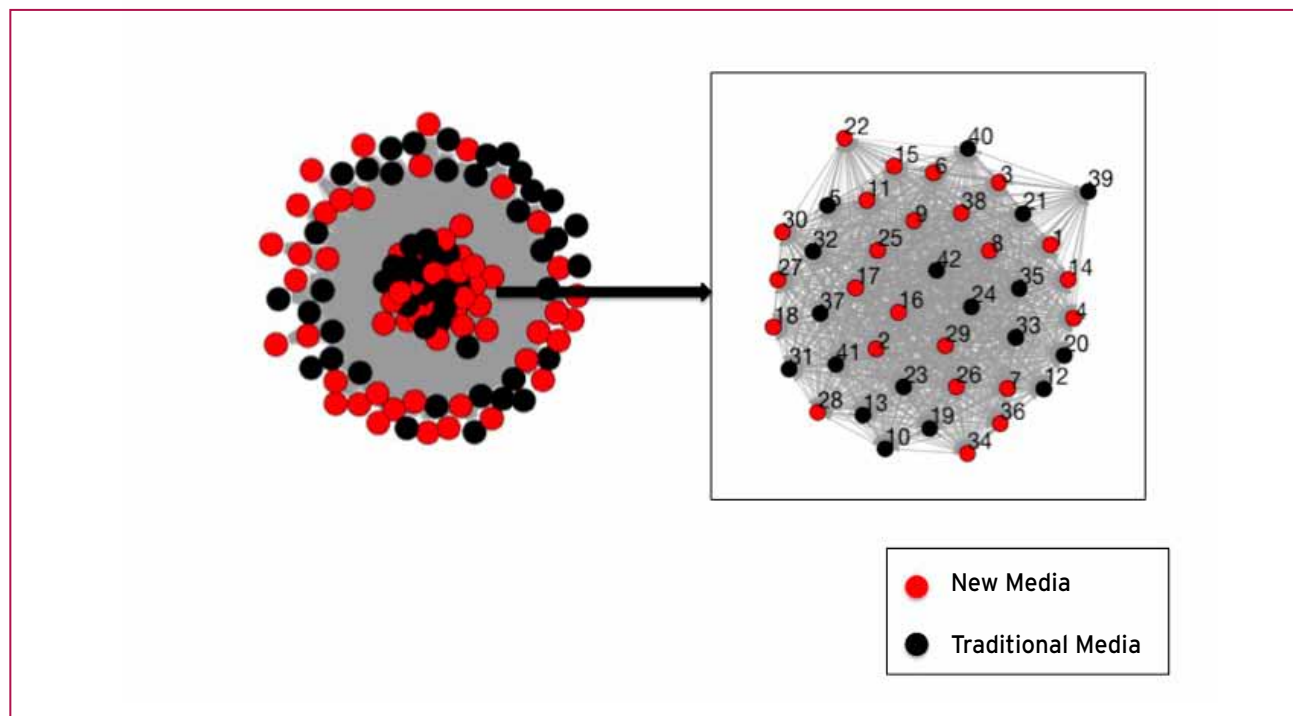
To this end, we construct the network of the Spanish media audience (see Figure 2) and examine its centralization degree. It is a general method for calculating a graph-level centrality score based on node-level centrality measure (Kolaczyk and Csárdi, 2014). According to Freeman's formula (1979), network centralization varies between 0 and 1. A network with a level of centralization 1 means that one node completely dominates the network (Freeman, 1979, p. 228). That node is connected to each one of the others, and it is also connected to all of the others. This is the most centralized and unequal type of network with a shape of a perfect "star"⁶ (Hanneman and Riddle, 2005).

In the case of our network though, its centralization degree measures the level of inequality or variance in the overlapping audience distribution between the media outlets. The degree of centralization of the audience network is 0.33. Not surprisingly, in a competitive media market as it is the case of Spain, there is not a system of perfect concentration of audiences –the star pattern network. But certainly, the degree of centralization of the network proves that there is a substantial level of audience concentration and it comes

from a few nodes situated at the core of the network. To further support this, we compute the in-degree and out-degree distributions of nodes (see the Annex 1 for Figure A1). The analysis supports this claim by showing that the network studied is bimodal. In short, a small group of media outlets ($n=42$) placed at the core of the network, receives the greatest levels of online audience attention. Consequently the largest number of ties leads to this small group of nodes.

Furthermore, we examine the cohesion of the network. This measure is extremely consequential in understanding the audience flow due to the fact that it identifies differences in the level of connectivity in a network. In our case, the small group of media receiving the greatest levels of online audience forms the strongly connected component of the network. The centralization degree of this strongly connected component is .003, which supports the claim that the levels of audience overlapping among its media outlets are extremely high (see on Figure 3 the numerical identification of the nodes in the main component and see for Annex 1 Table 2 for their label identification and the percentage of audience reach).

Fig. 4.2. New Media and Traditional Media in the Spanish Audience Network and main component



6. A star network has a level of centralization 1 and represents the maximum inequality in the degree distribution.

The analysis of connectivity also detects that the network is weakly connected.⁷ Thus audiences do not only duplicate among the nodes on the main component, but rather weak ties also facilitate overlapping audiences between nodes beyond this group. This type of ties bridge the gap between the most visited media and small or niche online media in the network (see them in the periphery of Figure 3) and in doing so reduce the level of fragmentation in the online public sphere (Prior, 2008) by providing more opportunities for shared informational experiences.

In congruence with previous research, by building the audience network and identifying its main component, we can see that several media outlets dominating the online audience flow are those which also receive the greatest levels of audience in the offline sphere (Napoli, 2011). This is the case of major newspapers such as *El País*, *El Mundo*, *ABC* or *La Vanguardia*. Noteworthy scholars have focused their attention on newspapers when assessing the agenda setting process. They play a leading role above all types of media outlets in organizing and prioritizing issues for the public debate (Baumgartner and Chaques-Bonafont, 2015; M. E. McCombs and Shaw, 1972; Palau and Davesa, 2013; Vargo *et al.*, 2014). In the case of Spain, *El País* and *El Mundo* are considered the main drivers of the agenda setting process by the most comprehensive study in the field⁸ and they are also at the core of audience flow in our audience network.

4. Discussion

This study is anchored in the open debate about the future of the public sphere in the digital age. The preliminary and descriptive results presented allow for debunking of claims that equate fragmentation of audiences with nonexistence of shared informational experiences and consequently with the demise of the public sphere. The evidences prove that concentration and fragmentation coexist in the online sphere. There are substantial levels of audience overlapping among media outlets. We have found a core of media that dominates the audience flow. Besides, the patterns of audience overlapping detected show that people simultaneously seek information on niche and small media. Equally important, we can find among the media outlets, receiving the greatest amount of audience flow and audience overlapping, the traditional media that play a major role in organizing the public agenda in the offline sphere.

Networks are used in many branches of science as a way of representing the connection patterns between the components of complex systems (Newman, 2012). Here we have applied this network analytical approach to the study of audience behaviour. However, we have limited the analysis to structural characteristics of the network. The existence of an online public sphere is not proven by the descriptive analysis reported here, of course, but the evidences presented are in line with the condition that must exist for common informational experiences to take place in a fragmented media environment. To further investigate our claims, we will apply additional analysis to disentangle the drivers of this network audience behaviour in our future research.

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7. For a directed graph, our case study, two variations of the notion connectedness are possible. A network is strongly connected when every node is reachable from every other by a direct tie. A network is weakly connected if the underlying graph (the result of stripping away the tail and the head of the ties) is connected (Kolaczyk and Csárdi, 2014).

8. Spanish Policy Agenda Project <<http://www.ub.edu/spanishpolicyagendas/>>.

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6. Appendix

TABLE A7.1. Reach of Spanish media sites studied

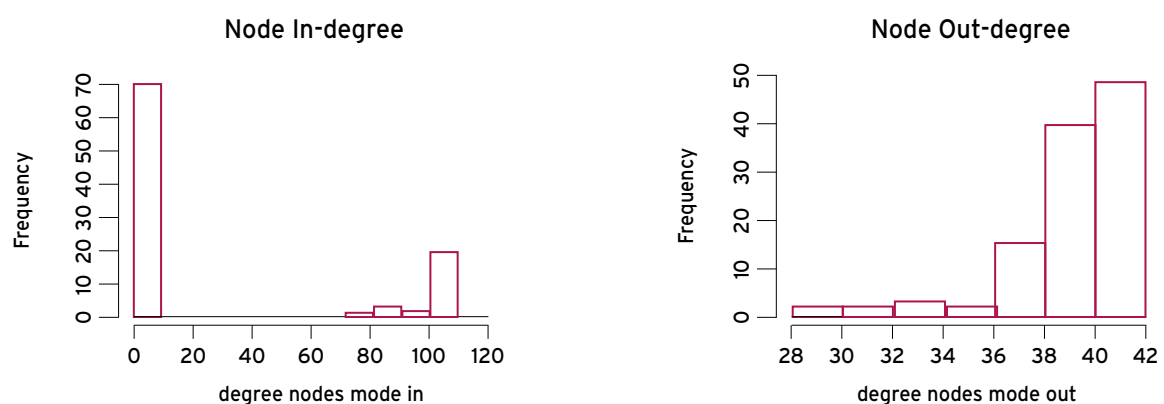
| Nodes Spanish Audience Network | | | | | | | |
|--------------------------------|----------------------------|-----------|---------|-----|-----------------------|----------|---------|
| #D | Name | Reach* | Reach % | #D | Name | Reach* | Reach % |
| 1 | 20MINUTOS.ES | 3371,538 | 12,674 | 58 | INSTAGRAM.COM | 3083,055 | 11,59 |
| 2 | 8TV.CAT | 50,041 | 0,188 | 59 | INSURGENTE.ORG | 33,669 | 0,127 |
| 3 | ABC.ES | 5354,317 | 20,128 | 60 | INVERTIA.COM | 543,653 | 2,044 |
| 4 | AGENCIASINC.ES | 55,896 | 0,21 | 61 | IVOOX.COM | 657,678 | 2,472 |
| 5 | ANTENA3.COM | 2504,44 | 9,415 | 62 | JOTDOWN.ES | 251,549 | 0,946 |
| 6 | ARA.CAT | 474,328 | 1,783 | 63 | KIOSKO.NET | 211,928 | 0,797 |
| 7 | ATRESPLAYER.COM | 2023,735 | 7,608 | 64 | KIOSKOYMAS.COM | 152,162 | 0,572 |
| 8 | BLOGGER.COM | 1788,377 | 6,723 | 65 | LAHAINE.ORG | 57,982 | 0,218 |
| 9 | CADENASER.COM | 950,946 | 3,575 | 66 | LA INFORMACION.COM | 1365,778 | 5,134 |
| 10 | CCMA.CAT | 1046,482 | 3,934 | 67 | LAMAREA.COM | 73,891 | 0,278 |
| 11 | CINCO DIAS.COM | 1442,231 | 5,422 | 68 | LAOPINION.ES | 80,116 | 0,301 |
| 12 | CODIGONUEVO.COM | 156,408 | 0,588 | 69 | LAOPINIONCORUNA.ES | 195,272 | 0,734 |
| 13 | COPE.ES | 298,865 | 1,123 | 70 | LAOPINIONDEMALAGA.ES | 176,662 | 0,664 |
| 14 | CRONICAGLOBAL.COM | 64,938 | 0,244 | 71 | LAOPINIONDEMURCIA.ES | 170,719 | 0,642 |
| 15 | CUARTOPODER.ES | 38,55 | 0,145 | 72 | LAOPINIONDEZAMORA.ES | 149,66 | 0,563 |
| 16 | CUATRO.COM | 2022,099 | 7,602 | 73 | LAPROVINCIA.ES | 225,032 | 0,846 |
| 17 | DIARDEGIRONA.CAT | 120,46 | 0,453 | 74 | LARAZON.ES | 1008,885 | 3,793 |
| 18 | DIARIOCORDOBA.COM | 199,013 | 0,748 | 75 | LASEXTA.COM | 908,111 | 3,414 |
| 19 | DIARIO DE BIZA.ES | 75,037 | 0,282 | 76 | LASPROVINCIA.ES | 948,188 | 3,564 |
| 20 | DIARIO DEMALLORCA.ES | 217,335 | 0,817 | 77 | LAVANGUARDIA.COM | 2849,771 | 10,713 |
| 21 | DIARIO INFORMACION.COM | 364,199 | 1,369 | 78 | LAVERDAD.ES | 994,884 | 3,74 |
| 22 | DIARIO SUR.ES | 549,808 | 2,067 | 79 | LAVOZDEGALICIA.ES | 1145,825 | 4,307 |
| 23 | DIARIOVASCO.COM | 536,509 | 2,017 | 80 | LAVOZDIGITALES | 143,265 | 0,539 |
| 24 | ELBOLETIN.COM | 99,149 | 0,373 | 81 | LEVANTE-EMV.COM | 460,208 | 1,73 |
| 25 | ELCOMERCIO.ES | 567,126 | 2,132 | 82 | LIBERTADDIGITAL.COM | 1371,024 | 5,154 |
| 26 | ELCONFIDENCIAL.COM | 3194,811 | 12,01 | 83 | LINKEDIN.COM | 4994,592 | 18,776 |
| 27 | ELCONFIDENCIALDIGITAL.COM | 490,445 | 1,844 | 84 | LINE.ES | 691,156 | 2,598 |
| 28 | ELCORREO.COM | 1054,091 | 3,963 | 85 | MENEAME.NET | 428,344 | 1,61 |
| 29 | ELCULTURALES | 154,755 | 0,582 | 86 | MICROSIERVOS.COM | 139,073 | 0,523 |
| 30 | ELDIARIO.ES | 1245,425 | 4,682 | 87 | MUHIMU.ES | 161,073 | 0,606 |
| 31 | ELDIARIOMONTANES.ES | 282,194 | 1,061 | 88 | ONDACERO.ES | 357,683 | 1,345 |
| 32 | ELECONOMISTA.ES | 2748,955 | 10,334 | 89 | PERIODISTADIGITAL.COM | 724,221 | 2,723 |
| 33 | ELMUNDO.ES | 6856,175 | 25,774 | 90 | PINTEREST.COM | 1739,583 | 6,539 |
| 34 | ELMUNDOTODAY.COM | 346,166 | 1,301 | 91 | PLUS.ES | 1142,437 | 4,295 |
| 35 | ELMUNICIPIO.ES | 42,099 | 0,158 | 92 | POLITIKON.ES | 22,384 | 0,084 |
| 36 | ELNORTEDECASTILLA.ES | 426,709 | 1,604 | 93 | PRINCIPIAMARSUPIA.COM | 47,777 | 0,18 |
| 37 | ELPAIS.COM | 6979,189 | 26,236 | 94 | PUBLICO.ES | 1414,673 | 5,318 |
| 38 | ELPERIODICO.COM | 1571,215 | 5,907 | 95 | QUE.ES | 769,484 | 2,893 |
| 39 | ELPERIODICOEXTREMADURA.COM | 154,263 | 0,58 | 96 | RAC1.ORG | 139,246 | 0,523 |
| 40 | ELPLURAL.COM | 566,478 | 2,13 | 97 | REDDIT.COM | 189,578 | 0,713 |
| 41 | ELPUNTAUVI.CAT | 249,303 | 0,937 | 98 | REGIO7.CAT | 84,091 | 0,316 |
| 42 | EMPORQA.INFO | 15,917 | 0,06 | 99 | REPUBLICA.COM | 94,675 | 0,356 |
| 43 | ESPAÑELCONGRESO.COM | 159,847 | 0,601 | 100 | RISTOMEJIDE.COM | 70,378 | 0,265 |
| 44 | EUROPAPRESS.ES | 1562,319 | 5,873 | 101 | RTVE.ES | 4070,273 | 15,301 |
| 45 | EXPANSION.COM | 2547,681 | 9,577 | 102 | STORYFY.COM | 79,76 | 0,3 |
| 46 | EXTRACONFIDENCIAL.COM | 45,376 | 0,171 | 103 | TARINGA.NET | 3854,561 | 14,49 |
| 47 | FACEBOOK.COM | 18123,891 | 68,132 | 104 | TECNOXPLORA.COM | 106,634 | 0,401 |
| 48 | FARODEVIGO.ES | 396,178 | 1,489 | 105 | TEINTERESA.ES | 463,84 | 1,744 |
| 49 | FEEDLY.COM | 27,344 | 0,103 | 106 | TELECINCO.ES | 3353,43 | 12,606 |
| 50 | FINANZAS.COM | 287,288 | 1,08 | 107 | TIEMPODEHOY.COM | 31,019 | 0,117 |
| 51 | GOOGLE+ | 5168,425 | 19,429 | 108 | TUENTI.COM | 1112,277 | 4,181 |
| 52 | HERALDO.ES | 522,268 | 1,963 | 109 | TUMBLR.COM | 2208,797 | 8,303 |
| 53 | HOY.ES | 404,828 | 1,522 | 110 | TV3.CAT | 215,533 | 0,81 |
| 54 | HUFFINGTONPOST.ES | 1524,183 | 5,73 | 111 | TWITTER.COM | 6372,407 | 23,955 |
| 55 | IDEAL.ES | 705,411 | 2,652 | 112 | VOZPOPULI.COM | 577,828 | 2,172 |
| 56 | INFOLIBRE.ES | 500,937 | 1,883 | 113 | YOUTUBE.COM | 15828,32 | 59,502 |
| 57 | INFORMACION.ES | 373,03 | 1,402 | | | | |
| Total Internet Audience | | 26.601,22 | | | | | |

* Reach= Total unique visitors [000]

TABLE A7.2. List and reach of Spanish media sites of network main component

| Nodes Main Component Spanish Audience Network | | | | | | | |
|---|---------------------|-----------|---------|-------------------------|-------------------|----------|---------|
| Type of Media | | | | | | | |
| New media sites | | | | Traditional Media Sites | | | |
| #ID | Name | Reach | Reach % | #ID | Name | Reach | Reach % |
| 5 | BLOGGER.COM | 1788,377 | 6,7 | 1 | 20MINUTOS.ES | 3371,538 | 12,7 |
| 10 | ELCONFIDENCIAL.COM | 3194,811 | 12,0 | 2 | ABC.ES | 5354,317 | 20,1 |
| 12 | ELDIARIO.ES | 1245,425 | 4,7 | 3 | ANTENA3.COM | 2504,440 | 9,4 |
| 13 | ELECONOMISTA.ES | 2748,955 | 10,3 | 4 | ATRESPLAYER.COM | 2023,735 | 7,6 |
| 19 | FACEBOOK.COM | 18123,891 | 68,1 | 6 | CADENASER.COM | 950,946 | 3,6 |
| 20 | GOOGLE+ | 5168,425 | 19,4 | 7 | CCMA.CAT | 1046,482 | 3,9 |
| 21 | HUFFINGTONPOST.ES | 1524,183 | 5,7 | 8 | CINCO DIAS.COM | 1442,231 | 5,4 |
| 23 | INSTAGRAM.COM | 3083,055 | 11,6 | 9 | CUATRO.COM | 2022,099 | 7,6 |
| 24 | LAINFORMACION.COM | 1365,778 | 5,1 | 11 | ELCORREO.COM | 1054,091 | 4,0 |
| 31 | LIBERTADDIGITAL.COM | 1371,024 | 5,2 | 14 | ELMUNDO.ES | 6856,175 | 25,8 |
| 32 | LINKEDIN.COM | 4994,592 | 18,8 | 15 | ELPAIS.COM | 6979,189 | 26,2 |
| 33 | PINTEREST.COM | 1739,583 | 6,5 | 16 | ELPERIODICO.COM | 1571,215 | 5,9 |
| 35 | PUBLICO.ES | 1414,673 | 5,3 | 17 | EUROPAPRESS.ES | 1562,319 | 5,9 |
| 37 | TARINGA.NET | 3854,561 | 14,5 | 18 | EXPANSION.COM | 2547,681 | 9,6 |
| 39 | TUENTI.COM | 1112,277 | 4,2 | 22 | IDEALES | 705,411 | 2,7 |
| 40 | TUMBLR.COM | 2208,797 | 8,3 | 25 | LARAZON.ES | 1008,885 | 3,8 |
| 41 | TWITTER.COM | 6372,407 | 24,0 | 26 | LASEXTA.COM | 908,111 | 3,4 |
| 42 | YOUTUBE.COM | 15828,32 | 59,5 | 27 | LASPROVINCIA.ES | 948,188 | 3,6 |
| | | | | 28 | LAVANGUARDIA.COM | 2849,771 | 10,7 |
| | | | | 29 | LAVERDAD.ES | 994,884 | 3,7 |
| | | | | 30 | LAVOZDEGALICIA.ES | 1145,825 | 4,3 |
| | | | | 34 | PLUS.ES | 1142,437 | 4,3 |
| | | | | 36 | RTVE.ES | 4070,273 | 15,3 |
| | | | | 38 | TELECINCO.ES | 3353,430 | 12,6 |
| | | | | | | | |
| Total Internet Audience: | | 26.601,22 | | | | | |
| Reach Total unique visitors(000) | | | | | | | |

Figure A1. In-degree and out-degree of the audience network



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