Digital intermediaries in the UK: implications for news plurality

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Abstract

Purpose – *Digital intermediaries such as Google and Facebook are seen as the new powerbrokers in online news, controlling access to consumers and with the potential even to suppress and target messages to individuals. Academics, publishers and policymakers have raised concerns about the implications of this new power, from the impact on media plurality to implications for democratic discourse, freedom of speech and control over public opinion formation. After reviewing academic literature that has raised this concern and public policy addressing it, this paper aims to examine the empirical foundations for these claims. Through secondary analysis of industry data on referrals of online news traffic, the authors find that intermediaries do have the potential to exert significant influence over distribution of online news. The authors however find that not all news that is filtered through intermediary services is subject to the same shaping and editorial forces, in part, because user agency is also an important factor. The role of intermediaries in news distribution is thus complex; headline numbers do not translate automatically into influence due to the complex interplay and exchange between user agency and the editorial influence of intermediaries.*

Design/methodology/approach – *This paper is based mainly on a secondary analysis of publicly available data on news referrals, and some data provided by news publishers along with re-analysis of regulatory data from Ofcom and previously unpublished data from the BBC and SimilarWeb. These data sources are combined for the first time to investigate claims regarding the current controversy about media plurality, algorithmic power and transparency.*

Findings – *The paper finds that evidence that intermediaries wield concentrated editorial power is mixed. While other, non-intermediated news distribution platforms such as TV and the press remain highly important, online is heading towards being the most important distribution platform, particularly for younger demographics. The authors found that intermediaries such as search and social control access to a significant proportion of online news content. Not all use of intermediaries is indicative of online gatekeeping however. User agency also determines how content is prioritised and thus consumed. The news consumed is therefore a product of a complex interplay between user agency and intermediary influence. In contrast to traditional discussions of media power and its regulation (for example the notion of mass media plurality); it is thus not possible to make inferences on influence simply by noting the market share of intermediaries. The role of intermediaries is much more subtle and opaque.*

Research limitations/implications – *This paper is mainly based on publicly available data. It is crucial to find out what is possible with such data as regulators with responsibility for monitoring and regulating media plurality are similarly limited to such data. The implications are that further research with a wide range of methods and data sources will be necessary to update research on media plurality and diversity.*

Practical implications – *The implications of these findings are that independent public authorities should have access to much more revealing data about public opinion formation processes, including referrals and other data currently held only by publishers. The three stage analytical framework will be of use to regulators and policymakers currently looking into these issues.*

Social implications – *Civil society and public debate about digital intermediaries is currently intensively discussed in policy debate. Taking these debates forward will depend on whether existing public policy frameworks (such as limits on news plurality) are able to accommodate the new challenges such as intermediary influence on news distribution and public opinion formation.*

Originality/value – *The recent special issue of* INFO*, including contributions from Mansell and Helberger, raised a range of similar issues with regard to media plurality and intermediaries. These*

papers did not seek empirically to examine in depth, using all available publicly relevant data, the implications for media pluralism and diversity in one particular media market. The paper is theoretically original, contains some previously unpublished data and an entirely new empirical and theoretical analysis. The models and tables are previously unpublished.

Keywords *Worldwide web, United Kingdom, Law, Social behaviour, Policy, Public policy*

Paper type *Research paper*

1. Introduction

Search providers, social networks, platforms and app stores are increasingly seen as the new power brokers, usurping dominance of multiple media markets, grabbing control of complex ecologies of advertising and personal information and potentially even undermining democracy (Epstein and Robertson, 2013; Mansell, 2014; Moore, 2014; Zittrain, 2014). These intermediaries appear to be building a new form of power over the dissemination of news and information (Rosen, 2011; Bell, 2014; Helberger, 2012, 2014a, 2014b; Brock, 2015).

This article aims to examine the empirical support for these claims, focusing on the role of intermediaries in relation to "news plurality". We use this catch-all phrase because "plurality" ("diversity" in the USA) is the relevant legal concept used to measure, and prevent abuse of, media power. Section 1 reviews the current policy and academic debate about the role of intermediaries in news distribution. Section 2 looks at the relevant theoretical frameworks through which to analyse intermediaries, with a focus on media pluralism. Section 3 examines the empirical evidence that intermediaries pose a threat to plurality by examining the influence that they have on news that people are exposed to. Section 4 offers some discussion points before concluding.

2. Academic, industry and policy concerns about digital intermediaries

There have been widespread calls to explore the democratic implications of new forms of influence over public opinion formation. Zittrain (2014) questions the Facebook voting experiment, which saw targeted messages increase turnout in local elections to illustrate how intermediaries could opaquely determine the outcome in elections. Rosen (2011, 2013) highlights the shadowy "deciders" that increasingly determine what content audiences see. Tufekci (2014) compares the allegedly "neutral" Twitter to filtered Facebook newsfeeds whose "algorithmic censorship" "edited out" updates on the disturbances in Ferguson, Missouri in 2014. Bell (2014) notes that journalistic values are increasingly being lost to algorithmic black boxes, which lack transparency and accountability, while Poell and van Dijck (2015a, 2015b) argue that the algorithmic mechanisms through which intermediaries mediate news threaten independent journalism and public debate.

Alongside these academic complaints about the ability of intermediaries to influence the process of opinion formation in society, news publishers have launched a more self-interested opposition to the intermediaries. Döpfner (2014), CEO of Axel Springer, claimed:

> Our business relationship is that of the Goliath of Google to the David of Axel Springer. When Google changed an algorithm, one of our subsidiaries lost 70 per cent of its traffic within a few days [. . .] we are afraid of Google Döpfner (2014).

When CEO of the Guardian Media Group Miller (2014), expressed concern about the influence of intermediaries on the media and the conflict between their desire to be agnostic platforms and their media funded business models. Meanwhile Facebook's excursion into public interest journalism (by driving more traffic to news publishers and hosting news content) (Marshall, 2013; Osofsky, 2013; Garrahan and Kuchler, 2015; Kacholia and Ji, 2013) has raised concerns amongst publishers. As Somaiya (2014) of the New York Times puts it:

> The social media company is increasingly becoming to the news business what Amazon is to book publishing – a behemoth that provides access to hundreds of millions of consumers and wields enormous power.

Wary of such algorithm changes which caused falls in Web traffic (Sullivan, 2014; Abbas, 2014), publishers are critical of the role of intermediaries in news distribution (Kafka, 2015). These concerns come during a time where there is widespread public policy pressure around Europe to ensure that intermediaries respect a range of public interest goals (Kohl, 2013; Mansell, 2014; Goodman, 2014; Napoli, 2014; Van Eijk, 2009) including the diversity of opinions and news in society. In France, the *Conseil d'Etat* (2014) has recommended a review of the liability of internet intermediaries and the establishment of a new legal category of internet platforms. The European Commission (2012, 2015a) has indicated that it wishes to review the liability limits for intermediaries that feature in the E-Commerce Directive and has launched a consultation on internet platforms. Following a House of Lords Inquiry (2014), the UK government (DCMS, 2014) asked the regulator Ofcom (2012, 2015) to develop a new measurement framework that takes into account intermediaries in the news distribution process and sets out public expectations for them.

It has long been accepted that serious competition issues arise from dominant positions of intermediaries in multi-sided markets, leading for example to the investigation of Google's vertical search and mobile operating system by the European Commission (2015b, 2015c) and ongoing investigations into Amazon's distribution of electronic books. Existing regulatory frameworks however are not designed to curtail the impact intermediaries may have on media plurality (Helberger *et al.*, 2015; Mansell, 2015b). For example, current rules preventing media concentration and control over opinion formation in the UK and Germany specifically prevent large newspaper companies from purchasing influential broadcasters[1], but would not prevent similar transactions between digital intermediaries and newspapers or broadcasters.

This raises fundamental questions about the legal framework on media plurality that protects democracies from concentrations of public opinion forming power. The role that intermediaries play in news distribution may be problematic for newspaper publishers. But it is only worthy of further public policy intervention if it also raises wider public policy concerns not addressed by current regulatory frameworks.

In traditional media regulation, there is an overlap between the regulatory framework for competition and wider public policy concerns. In particular, the sector-specific procedures for approving large media mergers typically include a "public interest" element that ensures that media mergers do not result in reductions in media plurality (Harcourt, 1996; Smith and Tambini, 2012). Some have argued that digital intermediaries require a similar regulatory approach including a sector-specific public interest element and, in particular, one that deals with the potential for intermediaries to have an impact on the diversity of news, information and commentary that circulates in society (House of Lords Select Committee on Communication, 2014a, 2014b; Wolter, 2014).

Some argue the ability to influence the flow of information entails new ethical responsibilities and requires new forms of regulation. Bracha and Pasquale (2008) suggest a need for direct regulatory intervention, "algorithm transparency" which would require intermediaries to disclose details of how their algorithms work. Given the legitimate needs for protection of intellectual property, this transparency would be qualified so that disclosure is only made to the relevant regulators (Pasquale, 2010). Sandvig *et al.* (2014, 2015), Gillespie (2014) and Ananny (2016) argue that researchers might need to equip themselves instead with the skills required to interrogate and audit the workings and ethics of algorithms. Diakopoulos (2014) suggests this interrogation could take the form of reverse engineering algorithms to understand the input–output relationship.

Volokh and Falk (2012), Benjamin (2013) and others (Brown and Davidson, 2013) on the other hand argue for a more *laissez-faire* approach. Volkoh views search engines as

exercising editorial judgement, similar to an editor of a newspaper and therefore enjoying similar freedom of speech rights. Wu (2013) disagrees with equating a search engine to a newspaper editor. He argues that while newspapers "own" their articles and exist to communicate persuasive opinions and ideas to consumers, search engines locate other people's information and operate at the service of the user. For Wu, the rule of thumb is as follows; if an algorithmic recommendation programme gives information to users that is merely a reflection of the users' pre-existing tastes then it should not be speech protected. If the programme tries to persuade or influence users in new areas or the software engineer inserts his or her opinion then it should be.

Intermediaries themselves deny editorial influence. Simon Milner, Facebook UK Public Policy Director, informed the House of Lords Select Committee on Communication that "[. . .] when it comes to editorial judgments about content, we only make a judgment about whether something is allowed or not allowed on Facebook". Newsfeed content "is determined by the individual user, what they are interested in and who is in their network". Similarly, Peter Barron, Google's UK Public Affairs Head, argued that the search engine operates no "daily process of editorial judgements" to determine the news content users see (House of Lords Select Committee on Communication, 2014a, pp. 374-375, 2014b). However, critics have claimed that whether or not they do so intentionally, they are exercising a new kind of "algorithmic power" (Bucher, 2012; Beer, 2009) by selecting, surfacing and filtering news and have called for greater transparency into how they do so (Ristow, 2013; Pasquale, 2010).

In short, the extent to which intermediaries' role in news distribution would justify new forms of monitoring or intervention to promote media plurality remains controversial, and the debate has not significantly shifted since Foster's (2012) report. On one hand, the intermediaries themselves such as Google and Facebook say that we live in a new age of crowdsourced plurality, and on the other hand, others are concerned that intermediaries reduce both content and exposure plurality (Helberger *et al.*, 2015; Napoli and Karppinen, 2013; Helberger, 2014a). The following section introduces a new analytical framework to help ascertain whether available evidence would require further regulatory action or monitoring of the activities of intermediaries.

3. Framework for analysis

3.1 Defining and measuring media plurality

The concept of media plurality is not merely an analytical concept: it is the key legal and policy construct in current regulatory frameworks that exist to limit gatekeeper power over opinion formation (Smith and Tambini, 2012; Valcke, 2012). It is imperative to examine intermediaries within this framework because if plurality is not an appropriate framework to measure, evaluate and regulate influence of media, including intermediaries, on democratic opinion formation, then new frameworks or a revised plurality framework may be needed.

Regulation to protect media plurality evolved during the twentieth century due to concern about newspapers and broadcasting (Smith and Tambini, 2012; Vīķe-Freiberga *et al.*, 2014; Valcke, 2011). Important interventions such as Foster (2012) and Helberger *et al.* (2015) that specifically address the issue of intermediaries and plurality stop short of investigating the available empirical evidence, in part because this is a new field with significant analytical problems, notably the complexity of the concept of media plurality itself (Napoli, 1999)[2].

Empirical research on media influence and plurality has focused on questions of ownership concentration (Noam, 2011; Napoli and Gillis, 2006), media effects (Gerbner *et al.*, 2002), agenda setting (McCombs and Shaw, 1972; Cohen, 1963) and information flow. The rise of online intermediaries raises questions about the extent to which they play a gatekeeping role in the selection, presentation and targeting of news. In this context, measures that

simply identify market share or audiences of various channels or publishers will not be a sufficient measure of media plurality (Mansell, 2015b).

We suggest a simplified approach: identifying whether intermediaries threaten media plurality by assessing their gatekeeping power and position in relation to overall news consumption. Some generic theories in the communications field are a useful first step: Helberger *et al.* (2015) cite Barzilai-Nahon's (2008) Network Gatekeeper Theory (NGT) which develops the idea of information gatekeeping for the digital world. For Barzilai–Nahon, gatekeeping involves controlling information for example by selection, addition, manipulation, shaping, deletion and localisation of information. The gatekeeper is the organisation, person or government with the discretion to control this process. The value of network gatekeeping theory is that it sensitises analysts to the wide range of ways that gatekeepers may have an effect on news flow. Public concern about intermediaries from academics and publishers relates closely to some of Barzilai–Nahon's types of information gatekeeping: selection (Pariser, 2011; Ristow, 2013), manipulation (Pasquale, 2010) and deletion (Wu, 2013), for instance. However, previous work has not focused on all theoretically possible forms of gatekeeping.

In the context of analysis of news plurality, intermediaries pose new questions. The analysis of their market share *per se*, or market concentration measures such as the Herfindahl–Hirschman Index (Noam, 2011) in the manner of traditional analysis of media plurality (Smith and Tambini, 2012) would not be sufficient, because analysts must also measure the full range of shaping and influence that such gatekeepers may exert on the flow of information.

Intermediaries do seem to fit Barzilai-Nahon's definition of a gatekeeper. Search engines and social media shape, prioritise and omit certain information on their results page. News aggregators personalise news snippets while app stores promote certain apps above others. Intermediaries (along with broader technological developments including the ability to email news articles) have also facilitated the rise of "secondary gatekeeping", giving online news consumers the ability to judge what is newsworthy and affect the news content that other readers see (Singer, 2014).

Laidlaw (2010) and other theorists commenting on intermediary control do not link the question of intermediary control to wider issues of media plurality and power, but work by Helberger *et al.* (2015) does attempt to look at the implications of intermediary power for media plurality. There has been little empirical evidence brought to bear so far on the question of the extent of intermediary influence over news distribution. As Foster (2012) pointed out, the debate on intermediaries and plurality has so far been a mainly theoretical one on the *potential* for intermediaries to control the news flow and the harm that might *potentially* arise as a result. Scholarly attention to date has largely focussed on the search for evidence of the "filter bubble" (Pariser, 2011) effect or selective exposure on intermediary platforms and the internet at large (Barberá *et al.*, 2015; Flaxman *et al.*, 2013; Bakshy *et al.*, 2015; Gentzkow and Shapiro, 2011; An *et al.*, 2012). While media reports have detailed the increasing reliance publishers now have on intermediaries for their traffic (Somaiya, 2014; Kuchler, 2015), there has been little interrogation of the implications of this increased reliance on media plurality and other public interest concerns. According to Helberger
et al. (2015, p. 59), "we still lack the necessary systematic, independent research to determine the impact of indirect editorial control exercised through ranking and personalisation features".

In the UK, traditional media plurality regulation was based on audience data such as BARB, RAJAR and ABC[3], and, as a result, decisions on mergers often rely on a relatively simple analysis of the size of a media company. (See section 58 in 1973 Fair Trading Act, prohibitions on newspaper mergers). As more news is consumed online, such traditional sources of information no longer provide sufficient insights and regulators face a paradox.

While much more is theoretically knowable about news distribution (due to "big" data held by intermediaries and publishers), regulators and the public have to rely on much less reliable survey techniques such as Ofcom's "Share of References" (Ofcom, 2012) because the more authoritative data are not accessible.

National regulatory authorities such as Ofcom have no specific powers to require intermediaries to provide proprietary data for the purposes of plurality assessment, and data held by publishers and intermediaries tends to be incomplete and jealously guarded. This paper therefore attempts, on the basis *of the limited data in the public domain*, to ascertain the degree and nature of intermediary control over news flows in the UK. As the data in the public domain are patchy, the picture that emerges will not be complete.

The paper argues that a future regulatory environment will require stronger powers for independent public authorities to require disclosure of data held by intermediaries, and a more coordinated approach to monitoring. We set out some of the types of data that would be required to provide an evidence base for public policymaking in this field. The data we review are largely drawn from publically available sources, although we also present some proprietary de-identified data from the BBC and SimilarWeb, a commercial analytics monitoring service. Given the early stage of empirical investigation in this field in both academic and regulatory terms, the aim is not for an exhaustive survey, but a best efforts dip into the available evidence.

3.2 What is a digital intermediary?

Foster (2012, p. 24) defines digital intermediaries as "organisations which bring news content from third party providers to consumers using a variety of digital software, channels and devices". While this definition captures the essence of what intermediaries do, it is unclear which types of organisations and content are in scope. We put forward a new definition:

> Digital intermediaries are software-based institutions that have the potential to influence the flow of online information between providers (publishers) and consumers.

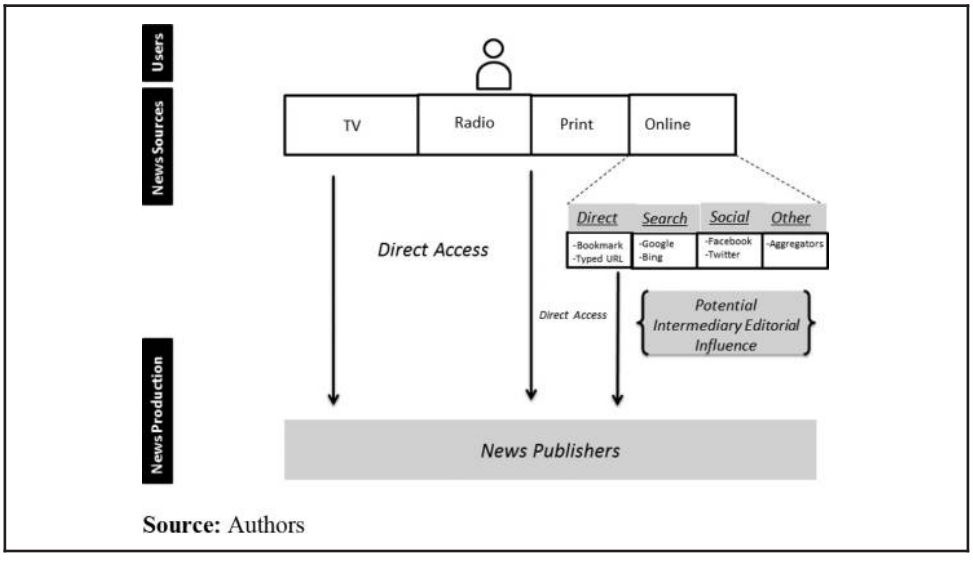
As this definition could theoretically include a very wide range of phenomena including small blogs and embedded search engines, we narrow our focus to identify whether a small subset of these institutions exercise a degree of influence and control in news markets that would justify sector-specific public interest regulation to protect media plurality[4].

Digital intermediaries in this narrower category could potentially include

- search engines such as Google and Bing;
- social networks such as Facebook and Twitter;
- news aggregators including Flipboard and Google News; and
- mobile App Stores such as the Apple app store or Google Play.

As Figure 1 highlights, the digital intermediary sits between the provider of information and the end user, adding a layer of potential editorial influence. By editorial influence, we mean the gatekeeping process of selecting, prioritising and filtering news content[5] before it is presented to the consumer. They are concerned with the general notion of altering the presentation of news content before it reaches the consumer. How news is presented is hugely significant because of information abundance online. The vast majority of consumers click and view the first few links of information presented to them when using search engines and social media sites (Bakshy *et al.*, 2015; Petrescu, 2014). Information consumed can therefore be significantly influenced by those who control these prominent slots. This is in contrast with TV or radio content where publishers are able to distribute their content directly to consumers or via electronic programme guides[6] (Cowie and Marsden, 1999; El-Husseini, 2013). It is important to note, however, that not all online news access is via an intermediary. Users also access news websites directly.

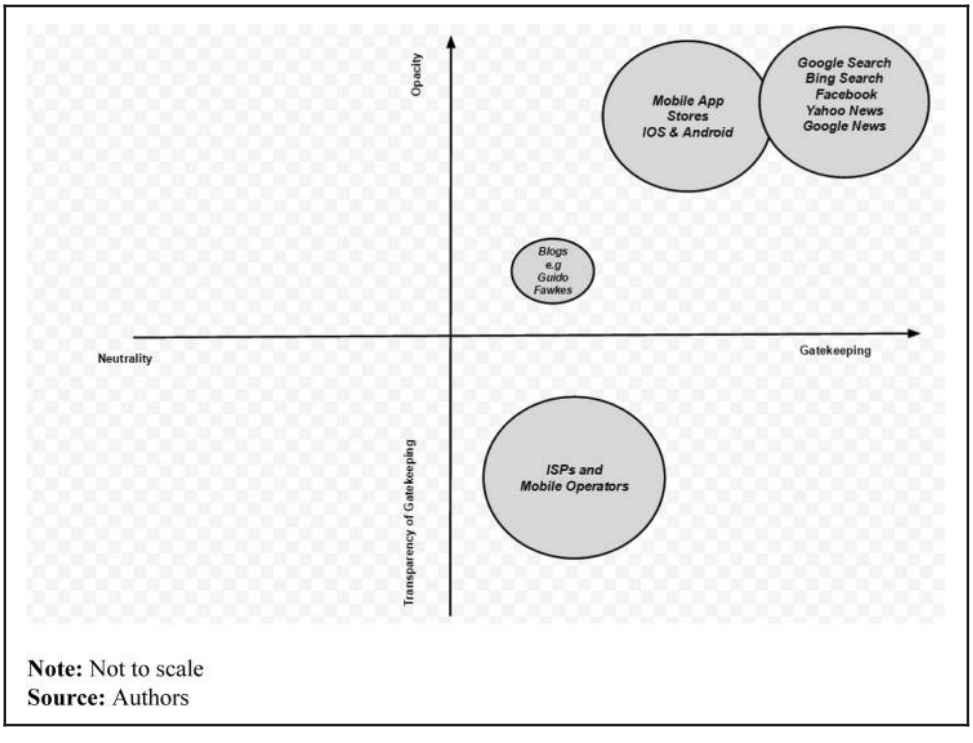
Figure 1 Digital intermediaries editorial influence



Source: Authors

As Figure 2 illustrates, the digital intermediaries in scope are those with the largest audience reach (illustrated by indicative circle size) that are carrying out gatekeeping processes within the news and current affairs category. Search engines and social media have algorithms which localise, prioritise and omit information before it reaches consumers. The workings of their algorithms are secret and their audience reach is large (Meyer, 2015). A political blog is a digital intermediary but outside the scope of this paper because their audience share is not generally significant enough to warrant public interest scrutiny. Similarly internet service providers (ISPs) and mobile operators are also digital

Figure 2 Conceptualising digital intermediaries (circle sizes suggests scale)



Note: Not to scale
Source: Authors

intermediaries because of their ability to zero rate or prioritise content in commercial partnerships with publishers (Goodman, 2014; Graef, 2015). For reasons of space, and because this topic has been dealt with at length elsewhere (Van Eijk, 2011; Krämer *et al.*, 2013), we will restrict our focus to search and social intermediaries.

Even within these categories there are distinctions to be made concerning the extent and nature of their editorial influence on content.

The popular social networks for consumption of news (Newman and Levy, 2015) present content in different ways. While Twitter is often considered to be the more "neutral" outlet because content is largely unfiltered on users timelines, Facebook's newsfeed actively prioritises content based on what it predicts users will find most engaging (Backstrom, 2013). In reality, both networks are involved in prioritising content. Both Twitter and Facebook use "trending topics" to suggest content to users based on what stories are currently popular. This is in contrast to other social networks used for consuming news like WhatsApp, where content is shared between users with little involvement from the platform provider. Search engines, on the other hand, are by their very nature involved in the ranking of content. While one could argue that there are differences between Google, Bing and Yahoo around the extent of personalisation and data capture to make ranking decisions, their unifying *raison d'être* is to provide users with the most relevant results which imply exercising editorial influence over presentation of content.

Figure 2 can also help with distinguishing within the search and social categories. By examining individual search engines and social networks along the lines of scale of use and extent and transparency of gatekeeping, it can help determine which intermediaries might represent more of a public interest concern. For example, Facebook might be more of a public interest concern than WhatsApp because of the extent of gatekeeping, while Google would be of greater interest than Yahoo because it attracts so many more users than the latter (Meyer, 2015).

3.3 Analytical framework, research questions, methodology and data

To investigate the extent and nature of digital intermediary influence over online news distribution in the UK, we use the following three stage analytical framework for analysis.

1. How prevalent is online news within consumers' media diets?
2. What proportion of online news flows through intermediaries?
3. How much editorial influence is exerted on the online news that flows through intermediaries?

This structure is designed to place the concern around intermediaries into the wider context of a consumer's media exposure or "diet". Media convergence has shifted consumers towards multi-device and multi-channel consumption. Concerns about intermediaries and news plurality might be premature if they represent a small share of an average media diet.

To address the first question, we rely on existing secondary research on news consumption platforms from Ofcom and The Office of National Statistics. For the second and third questions, which require data on website referrals, we obtained proprietary data from a commercial Web analytics monitoring company-SimilarWeb and the BBC news website. In addition, we also used secondary consumer research from the Reuters Digital News Report.

There are limitations to the data we present. We were unable to independently corroborate how statistically representative the proprietary data from SimilarWeb are of the UK internet population. We made multiple attempts to source other data sources from major publishers, a search engine and a magazine publisher group but were ultimately unsuccessful[7]. As a result, we make no comparative claims on the basis of these data. Our aim is to give an indicative view on the scale of intermediaries influence on digital news distribution in the UK

based on the information available to us (and to regulators such as Ofcom who have monitoring duties[8]) and prompt future empirical research with more comprehensive data sources.

4. The evidence

4.1 How prevalent is online news within the context of consumers' media diet?

According to consumer survey research from Ofcom (2014)[9], the internet has become the second most used platform for accessing news "nowadays" after TV and continues to show growth (up 9 per cent on 2013). Meanwhile, TV saw a 3 per cent year on year decline from 2013 to 2014. For younger demographics (16-34), the internet has already become their most used news platform; 60 per cent claim to access their news from any internet connected device compared with 56 per cent for TV (Figure 3). Similarly, data from the Office of National Statistics (2015) compliment this view of rising internet popularity with 62 per cent of UK adults reading news, newspapers and magazines online[10] in 2015, which represents a threefold increase from 2007, with higher usage reported in younger age groups (77 per cent of 25-34 year olds and 74 per cent of 35-44 year olds).

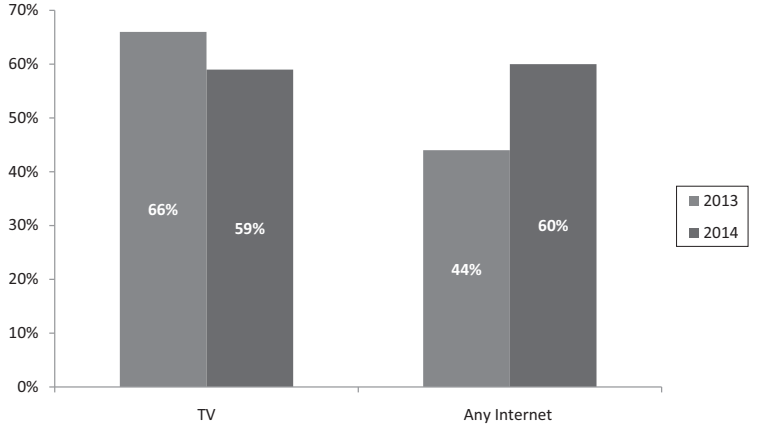
In summary, the data available to us confirm that the internet is an increasingly popular platform for accessing news. It plays a role in an average consumer's news exposure comparable to newspapers and for some younger demographics has already become their most used news source ahead of TV. This would suggest that there is a need to better understand the implications of these new consumption patterns for media plurality. To do so requires an understanding of two questions: how much of all online news flows through intermediaries, and what degree of editorial control they exert.

4.2 What proportion of online news flows through intermediaries?

Consumers can access online news sites in a number of ways such as by typing a Web address into a browser, via a search engine, social network or news aggregator. Web referral data which record where sites receive their traffic from can help quantify how much online news, intermediaries *are in a position* to potentially influence.

Most referral data are owned by publishers, ISPs or commercial data providers and as such is regarded as commercially sensitive. Answering this question comprehensively would require gaining access to data from a large intermediary, ISP or individually significant

Figure 3 Which of the following do you use for news nowadays?



Notes: (16-24) N = 2014: 2,731; 2013: 2,862; any internet is an aggregate of all internet devices
Source: Ofcom (2014)

publishers (In the UK, BBC, Guardian, Daily Mail, etc.) and collating. As detailed above efforts to do so were largely unsuccessful, so we relied on a commercial analytics provider, SimilarWeb which monitors digital browsing behaviour on the internet.

SimilarWeb[11] tracks traffic to websites by enlisting a panel of over 200 million internet users globally who agree to provide de-identified data on their browsing activity including which sites they visit and how they arrive at those sites (referrals). This primary source is supplemented through direct measurement from ISPs in and key websites.

Through data obtained from SimilarWeb, search engines[12] and social media were responsible for referring 48.6 per cent of *desktop* traffic to newspaper sites[13] in the UK in August 2015 (Figure 5). Looking at the broader category of news and media sites[14], which include some publishers whose output is not strictly limited to news and current affairs such as Yahoo, MSN and BBC, search and social contributes 39.8 per cent of their desktop traffic.

There are important limitations to bear in mind when interpreting these data. First, it only includes desktop traffic at a time of increasing mobile access. Second, we were unable to independently verify how statistically representative it is of the UK internet population. The company claimed it monitors between 4 and 7 per cent of the internet population in the UK and uses a number of measures[15] to ensure the data are statistically representative. We were however unable to gain access to demographic information (which the company does not collect) to independently verify this and unable to corroborate their claims above. Finally, we were only able to capture 1 month of data.

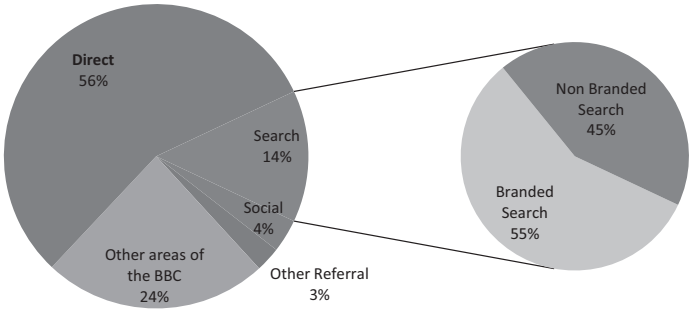
Nonetheless, it provides the most complete snapshot we have on the role of intermediaries in the news industry in the UK. Almost 50 per cent of readers consuming news on newspaper websites on non-mobile devices are referred by search engines or social networks (Figure 5).

In addition to data from SimilarWeb, we received proprietary data from the BBC news website. These data showed that 18 per cent of the total traffic referred was from search engines and social networks (Figure 4), although for an earlier period than the data above.

While there are limitations to the data available to us, from each angle, it shows a significant role for digital intermediaries. Almost 50 per cent of online newspaper traffic in the UK is referred by intermediaries. One of the most high profile news websites in the UK, the BBC, also shows a significant role for intermediaries with almost a fifth of its traffic coming from search and social media (Figure 5).

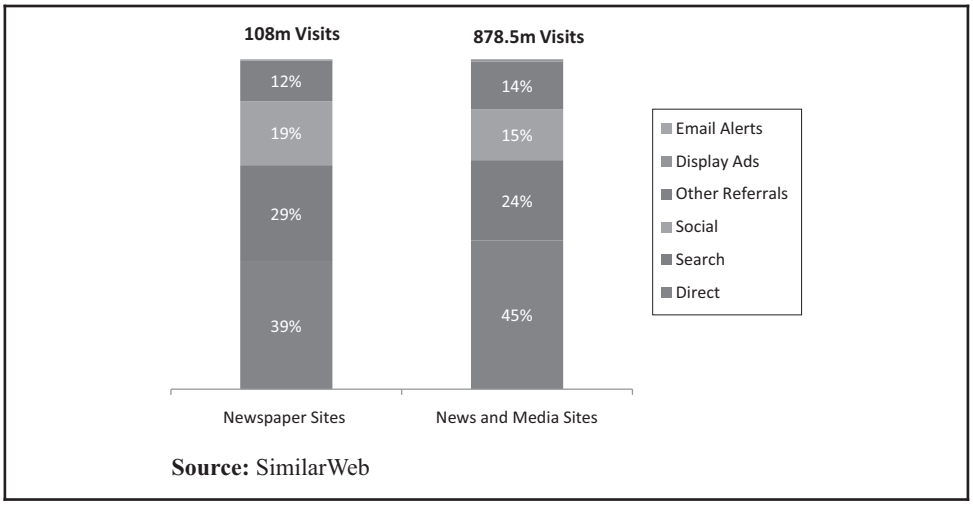
Claimed usage data from news consumers can also give an indicative view of the scale of intermediaries. When consumers were asked to specify how they accessed online news

Figure 4 Weekly average visits to BBC news online for period from December 2013 to February 2014



Source: Internal BBC data

Figure 5 Desktop referrals to newspaper and news and media sites in the UK. August 2015

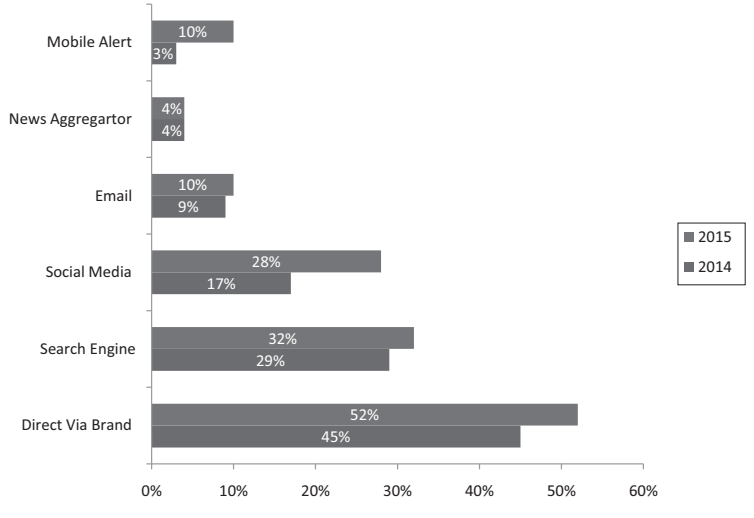


Source: SimilarWeb

last week, search engines (32 per cent) and social media (28 per cent) came out as the second and third most important referral routes (Newman and Levy, 2014, 2015) (Figure 6), although it is important to exercise caution when interpreting these results due to well-documented biases with self-reported new consumption (Prior, 2009). However, taken together with the referral data, it appears to corroborate the conclusion that intermediaries are referring significant share of news traffic online.

Within this section, our aim is not to definitively state the exact proportion of online news traffic that is referred by digital intermediaries in the UK. Due to the limitations in the data as detailed above, it is not possible to do so with certainty. What does emerge however is that digital intermediaries play a significant role in the distribution of news in what is a large

Figure 6 Which were the ways in which you came across news stories last week? (Please select all that apply)



Notes: UK 2014 = 2,082; 2015 = 2,149
Source: Newman and Levy (2014, 2015)

and growing share of consumer's news diets – online. While there are sure to be variations at a brand level and movement over time, at an aggregate level, we have seen that intermediaries are responsible for distributing a considerable share of news traffic.

4.3 How much editorial influence is exerted on the online news that flows through intermediaries? The Online Gatekeeping Continuum

On the basis of the limited data in the public domain and the data that we have been able to access from proprietary sources, it has been possible to establish two things. First, online news makes up a significant and growing proportion of consumers' overall media diet. Second, around half of all online news audience is referred via intermediaries. These findings suggest that digital intermediaries have the *potential* to influence a significant share of a consumers news diets. By influence, we mean the ability to affect the content consumers see through a process of filtering, omitting and prioritising certain types of information.

The potential to influence is of course *not* the same as exercising influence. As we have seen, intermediaries are quick to deny an editorial role (House of Lords Select Committee on Communication, 2014a, 2014b), and because of the lack of transparency in relevance algorithms, the nature of this influence remains a black box.

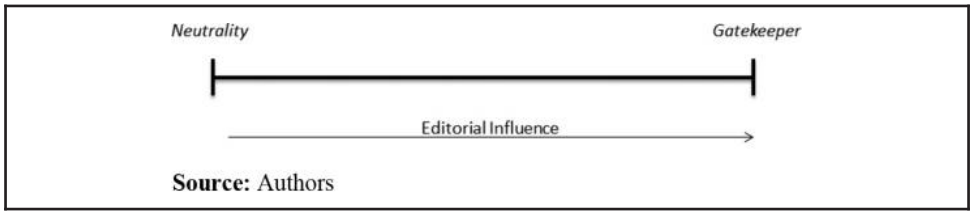
In theoretical terms, there is a continuum from neutrality at one end, to online gatekeeping at the other (Figure 7). User agency is an important determinant of what consumers see and read online. What keywords a user enters into a search engine or an app store, which news organisations or what friends they connect to on social media are important factors determining what news content is presented and consumed.

Establishing the degree of gatekeeping versus neutrality is the most difficult of our three questions. This is in part because of the oft-criticised algorithmic opacity (Diakopoulos, 2014) and, in part, because user agency and "learning" by algorithms lead to a high degree of tailoring and targeting of relevance for individual consumers.

While it is difficult to quantify user agency, data from search engines can offer some insights. When a user searches "BBC" or "Sun website", they are using search as a navigational rather than an editorial tool. Users could on the other hand trigger the intermediary to move further towards gatekeeping by searching for "election candidates". In this case, the user does not have a specific news publisher in mind and is reliant on the "judgement" of the search engine to give them a result. In the former case, they are substituting typing the full Web address into the browser with a quicker, easier option; in the latter, they delegate editorial judgement to the intermediary. Here is a subtle but important difference. It illustrates that while consumers may use search engines (or other intermediaries), not all instances are indicative of online gatekeeping. The editorial influence exerted by the intermediary varies according to user agency.

Both claimed survey data (Table 1) and internal data from the BBC (Figure 5) suggest that at least half of the search traffic directed to news websites in the UK comes from such "brand searches". The top 50 searched keywords to newspaper websites in the UK drove 32 per cent of the total search engine traffic in August 2015. Of this 32 per cent, more than half (18 per cent) were from keywords associated with news brands and publishers. The

Figure 7 Continuum of intermediaries editorial influence



Source: Authors

Table I Search gateways in detail: What were the ways in which you searched for online news last week?

	UK (%)
Branded Search	62
Generic Search	38

Note: UK = 2082
Source: Newman and Levy (2014)

top three keywords which represented 11 per cent of UK search to newspaper websites in August 2015 were for "guardian", "the guardian" and "telegraph"[16]. This traffic would sit closer to the neutrality[17] end of our continuum, whereas the non-branded search would sit closer to gatekeeping.

User agency is an important factor in other intermediary services. When a user logs into Facebook or Twitter, the news they consume comes from publishers they or their friends have chosen to connect to, not *just* the news content algorithms decide they should see. Researchers from Facebook (Bakshy *et al.*, 2015) attempted to separate out and quantify these effects on their social network using a sample of 10.1 million US Facebook users who have identified themselves as politically conservative or liberal. The study found that while Facebook's newsfeed algorithm is associated with reducing the cross-cutting content (news their political views are opposed to) that a user is exposed to, this is a smaller reduction than the effect of personal choices, i.e. what a user clicks on and which pages they choose to follow[18]. Using the example of users whose friends had shared at least one ideologically consistent and one cross-cutting article, they found that 99 per cent of this group had exposure to the ideologically consistent article and 96 per cent had exposure to the cross-cutting article due to the effects of Facebook's newsfeed algorithm, in essence a reduction of 3 per cent. However, only 54 per cent of users clicked on the ideologically cross-cutting article compared to 87 per cent who clicked on the ideologically consistent article, illustrating the bigger drop in exposure to diverse content arising from user behaviour. Similar results were found with another big data inquiry into 3.6 million Twitter users (Barberá *et al.*, 2015). Using the user's connections to identify their political preferences, the study finds that individuals are more likely to share information that corresponds with their ideological preferences.

The Facebook study has been criticised (Tufekci, 2015; Jurgenson, 2015; Hargittai, 2015; Sandvig, 2015) for its skewed sampling as well as the comparison of its algorithmic suppression effect to established research on individuals avoiding cross-cutting content. Notwithstanding these criticisms, these studies highlight that users do choose to read or share content that is aligned with their ideological preferences, and this is as true in the digital sphere as research has shown it to be in traditional media (Stroud, 2007; Klapper, 1960)[19].

Returning to the question of the nature and extent of influence that intermediaries exert on online news traffic, these studies show that consumers are not passive agents. They selectively expose themselves to certain types of news content over others. They have existing beliefs that affect what they click on or share with their friends. They have preferred websites or news brands which they intend to visit (or wish to hear from) and use the search engine or social media site as a conduit to enable them do so easily and quickly. However, intermediaries do determine which sites are prioritised when a user searches for generic news terms. They determine whether a publisher's posts will be included in their follower's newsfeeds or activity streams. This ability to influence visibility is a powerful determinant of which stories get read. Evidence suggests that only the most visible and prominent of content receives traffic (Bakshy *et al.*, 2015; Petrescu, 2014).

5. Discussion

We have established that intermediaries are responsible for distributing a significant share of online news traffic to digital publishers. However, not every use of an intermediary to access news is indicative of editorial influence. User agency also determines how content is prioritised, presented and consumed. This is relevant for policymakers. In contrast to traditional discussions of media power and its regulation (for example the notion of mass media plurality), it is not possible to make inferences on influence simply by observing the market share of intermediaries. Google's 90 per cent search engine market share in Europe (European Parliament, 2015c) and Facebook referring an increasing number of visitors (Ingram, 2015; Osofsky, 2013) to news publishers tell us about the *potential to influence* but not about the extent or nature of influence.

Media plurality has been seen as vital for a healthy democracy (Smith and Tambini, 2012) because it:

- gives citizens a spectrum of news and current affairs they need to make informed political choices; and
- reduces the potential for powerful media interests to wield undue influence over the political agenda.

The former has attracted a lot of attention. The debate about the extent to which intermediaries contribute to the filter bubble effect is ongoing and as yet inconclusive (Flaxman *et al.*, 2013; Bakshy *et al.*, 2015; Gentzkow and Shapiro, 2011; An *et al.*, 2012; Bakshy *et al.*, 2015). This paper argues that the latter is also a concern. In a converged media ecology, "media interests" are no longer restricted to publishers but include also those that have the ability to influence what news and current affairs may be consumed. As this ability to influence (in the case of intermediaries) is shrouded in secrecy, it is imperative that regulators and policymakers develop an adequate approach to defining and monitoring this power before taking steps to regulate it.

Given the current regulatory obligations to monitor and protect media plurality, policymakers will need to deepen their expertise in algorithm operation and user behaviour on these platforms to understand and separate out the influence of intermediaries from that of user agency. Undoubtedly, this will require co-operation from major intermediaries to release into the public domain de-identified data of the type used in the aforementioned Facebook study for independent researchers to analyse.

Future research on the nature and extent of intermediary impact on news plurality should include the requirements given in Table II.

In addition to these specific data points which can help shed light on the nature and extent of intermediary influence on news consumption, plurality researchers and regulators will need to better understand algorithm design. In response to scholars like Bracha and Pasquale (2008) who have argued for direct disclosure of algorithms to regulators, we argue that algorithm monitoring may impose a too heavy a cost burden on regulators. As Sandvig *et al.* (2015) highlight, algorithms are dependent on user input. The results one user might see may be very different to another. Having access to the design of an algorithm might not tell you very much about how that algorithm works, as the results are different dependent on who is using it.

In the media sphere, ethical self-regulation often precedes and sometimes prevents heavy-handed regulatory intervention. An alternative approach may thus be for intermediaries to voluntarily enter into a dialogue with an expert panel of academics, policymakers, regulators and industry professionals to explore the implications of algorithmic design on media plurality and other matters of public interest. Within this forum intermediaries might submit to a light touch voluntary audit, by making available employees that can explain the basis of algorithmic design in a context of respect for commercial confidentiality.

Table II Data requirements for news plurality monitoring: some examples

Research question	*Data required*	*Data source*
Are intermediaries sending consumers to a diverse or narrow set of news publishers?	A breakdown of all the news publishers (by traffic volume) that an intermediary sent traffic to in a given period compared with the distribution of news sites visited without the influence of intermediaries, e.g. Direct visits	Commercial analytics service, e.g. Comscore or Similarweb or browser data from Internet Explorer or Google Chrome
How many users rely on the editorial function of the search engine to guide them to relevant website compared to those that use search as a quick and easy route to their preferred websites?	Percentage of news traffic that comes from "brand" search queries, e.g. BBC compared to those from more generic search queries e.g. "general election news"	Search Engines e.g. Google, Bing. Commercial analytics service, e.g. Experian Hitwise
What proportion of news content delivered on social media is the result of a user directly following a news organisation versus that user's friends following the news organisation? This quantifies the news delivered due to algorithm influence or how much the social platform can extend reach for the publisher?	Looking at referrals from social media and consumption of news content on social platforms, what percentage of these are consumers who follow the new organisation versus those that do not and are shown this content because an algorithm thinks they might be interested in it	Social Media Platform: Facebook
How much of publishers content does not reach it's intended audience because of the impact of algorithms versus the impact of users choosing not to read. What percentage of posts:	A dataset of social media users who follow selected publishers showing which articles they saw, read and those they did not see but were eligible to see e.g. they were logged in during the period when they were published	Social Media Platform: Facebook
Are seen by its followers	A corresponding list of all the news posts the selected news publishers made in the period	
Are clicked through/read		
Are not shown at all because of algorithmic design		

They might describe what determines which sites are prioritised when a user searches for a generic news query for different sets of users (those logged in, personalisation enabled, personalisation disabled). Similarly, what factors determine whether a news story is presented into a user's newsfeed on social media. This group might then make recommendations to the regulator about certain features and their impact on the public interest. It might also request data from the intermediaries if the impact of a certain feature was unclear, ambiguous or disputed. To be sure the operational guidelines of such an expert panel would need to be well thought through to ensure it was effective, but did not result in any of the pitfalls direct regulatory intervention would bring (Foster, 2014).

6. Conclusion

Would it be a problem if 90 per cent of all news consumed was delivered to consumers as the result of a Google search for a news topic or person? If Facebook continues to displace the open Web, might it be justified to oblige the social network to disclose how, why and to what extent its proprietary algorithms may have the effect of promoting, blocking or demographically targeting news stories? The debate about "algorithmic power" is just beginning to raise these questions for public debate.

This paper has examined algorithmic power of intermediaries through the prism of the existing, agreed public policy objective of maintaining media plurality. Within that perspective, and on the basis of the limited evidence available, we have presented a conceptual framework for understanding the problem that may be useful to future researchers and regulators. Examining available evidence, we find that regulators will be unable to build a complete picture and therefore argue that new data and disclosure requirements are necessary.

We set out to examine the degree and nature of digital intermediary control over news distribution and consumption by asking how much of news consumption is online, how much of online news is mediated by intermediaries, and how much editorial control is exercised by those intermediaries. In relation to the first question, it is clear that while other, non-intermediated news distribution platforms such as TV and the press remain highly important, online is heading towards being the most important distribution platform, particularly for younger people. With regards to the second question, we found that intermediaries such as search and social media control access to a significant proportion of online news content. While the number varies according to the news brand, the data available to us indicate somewhere in the region of half of online news readers are referred by intermediaries in the UK.

On the third question which related to the nature and degree of the editorial influence, the available evidence is weakest due to the lack of transparency of relevance algorithms. However, we have outlined a crucial but important distinction. While algorithms influence the news content users see and subsequently read so also do users themselves. This insight is important for any regulatory intervention into intermediaries. Unlike TV and broadcasting, regulators cannot intervene solely on the basis of market share as this masks underlying nuances in how power is exercised.

This indicates promising avenues for further research. More empirical data are required primarily from intermediaries and major publishers to understand the nature of editorial influence and how this affects different groups. We have noted some of the data that are required and presented one way this might happen, an expert forum which would alleviate some of the confidentiality concerns of commercial groups and not present too heavy a burden on regulators.

Notes

1. In Germany, the Interstate Treaty on Broadcasting establishes a threshold whereby a company that controls 30 per cent of audience share is presumed to have a predominant power over opinion formation, and in the UK the Communications Act 2003 Schedule 14 prevents companies with more than a 20 per cent share in newspaper markets purchasing the operator of a Channel 3 TV licence.
2. The difficulty of defining media pluralism was noted by Philip Napoli who differentiated source, content and exposure diversity. More recently, Valcke (2012) developed a risk-based approach that attempts to capture the complexity in over 100 indicators. Most recently, the phenomenon of "filter bubbles" (Pariser, 2011) whereby recommendation algorithms have the collective effect of narrowing exposure diversity because they target based on previous preferences has been linked to media plurality, with the result that the concept is more difficult to define than ever.
3. Broadcast Audience Research Board (BARB); Radio Joint Audience Research; (RAJAR) Audit Bureau of Circulation (ABC).
4. This paper narrows the focus in its discussion of media plurality to focus on news markets as the most influential on news and the political system. This follows the practice in recent regulatory approaches for example House of Lords Select Committee On Communication and DCMS.
5. Not all these processes need to occur simultaneously. A search engine might shape content by prioritising a news website a user has previously visited which naturally involves demoting other websites. A social media side might prioritise news content that other users are finding engaging. See: www.google.co.uk/insidesearch/howsearchworks/algorithms.html and http://newsroom.fb.com/news/2014/02/news-feed-fyi-showing-stories-about-topics-you-like/ (accessed 28 September 2015).
6. Ofcom commissioned research analysed the impact of EPG prominence on audience in El-Husseini (2013) report. The reports authors found that it was a significant driver of audience.
7. Multiple data requests were made to individual publishers, the European Magazine Media Association and a Search Engine for access to proprietary industry data on traffic and referrals. These were refused on the basis of commercial sensitivity and data privacy:
   UK Editor of Buzzfeed contacted by email on 12 February 2015 – declined. Chief Data Officer of Financial Times contacted by email (twice) in February 2015 – did not respond. Email and phone correspondence with the Guardian Media Group Head of Public Policy during February and March

2015. While there was an initial willingness to supply data, this was eventually not acceded in internal discussions. Multiple email, phone and in person conversations with Microsoft Digital Policy team in Brussels through late 2014 and 2015 to share data from Bing and/or Internet Explorer toolbar. Email Correspondence with the European Magazine Media Association during May-September 2015 did not result in any data provided.

8. Under the 2003 Communications Act, Ofcom has a duty to monitor media plurality in the UK and advise on mergers. In response to Parliamentary and Government requests, monitoring was extended in 2015 to cover internet intermediaries (Ofcom, 2015).
9. The survey question is designed to only assess the relative popularity of news platforms by asking respondents to check all answers that apply. "Which of the following do you use for news nowadays ?" 74 per cent answered TV while 41 per cent claimed internet.
10. ONS survey question does not explicitly specific news and current affairs content only so is indicative.
11. Data Provider was SimilarWeb, a commercial Web analytics solution. Clickstream data are tracked through de-identified data collected from a panel of 200 million users globally who agree to install software that tracks their internet activity. These data are supplemented from local ISPs and direct tracking of key websites through collaboration with publishers. Panel is constructed from users who agree to download a diverse selection of free software in return for providing anonymised statistics on their desktop PC usage. Exact Panel Size in UK was not revealed to authors due to commercial sensitivities, but company said it covered between 4 and 7 per cent of internet population in the UK. Company does not monitor statistics on demographics, so authors were unable to verify whether the data were representative of average internet users in the UK; however, the company gave assurances that the sites users downloaded the tracking software from were random to avoid sampling bias. See more at www.similarweb.com/ourdata.
12. Traffic from News aggregators such as Google News, Bing News and Yahoo News are included within search engines.
13. See Appendix 1 for a list of the top 50 websites by visits in the newspaper category. August 2015 data covered 108 million visits. Please note that newspapers are manually categorised as sites who main content is news, e.g. Guardian, Telegraph while sites such as the Daily Mail and BBC are classed as News and Media sites as they contain non-news content. See Appendix 2.
14. See Appendix 2 for a list of the top 50 websites by visits in the news and media category. August 2015 – 878million visits.
15. Users downloading the tracking software are randomly selected to avoid sampling bias. Direct Measurement from ISPs and key websites are used as learning data sets to ensure panel data are representative and accurate. Additionally panel is continually "cleaned" for outliers, inactive and unrepresentative users. See more at www.similarweb.com/downloads/our-data-methodology.pdf.
16. See Appendix 3. Top 50 UK Desktop Search Traffic Keywords in August 2015.
17. Neutrality here is seen as when an intermediary delivers content with little or no editorial influence. Consider the Twitter user timeline (neutral) vs Facebook news feed (non-neutral). We make no normative assessments on the value of neutrality versus gatekeeping. The debate about intermediary editorial influence is concerned with the lack of transparency about how algorithms work rather than their existence. Without transparency it is difficult to assess whether these "relevance" algorithms are prioritising (and not suppressing) content and information that is in the public interest.
18. In reality, consumers do not consume news randomly. In general, they chose to consume news that confirms their ideological preferences (e.g. in choice of newspapers).
19. Some scholars dispute that there is a selective exposure in the media. See (Kinder, 2003).

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Appendix 1

Table AI Top 50 Newspaper websites in UK: August 2015 (Desktop Only)

Rank	*Domain*	*Main category*	*Sub category*
1	theguardian.com	News and media	Newspapers
2	telegraph.co.uk	News and media	Newspapers
3	nytimes.com	News and media	Newspapers
4	indiatimes.com	News and media	Newspapers
5	standard.co.uk	News and media	Newspapers
6	manchestereveningnews.co.uk	News and media	Newspapers
7	gazeta.pl	News and media	Newspapers
8	rt.com	News and media	Newspapers
9	repubblica.it	News and media	Newspapers
10	liverpoolecho.co.uk	News and media	Newspapers
11	dailyrecord.co.uk	News and media	Newspapers
12	thetimes.co.uk	News and media	Newspapers
13	washingtonpost.com	News and media	Newspapers
14	walesonline.co.uk	News and media	Newspapers
15	lemonde.fr	News and media	Newspapers
16	scotsman.com	News and media	Newspapers
17	corriere.it	News and media	Newspapers
18	elpais.com	News and media	Newspapers
19	birminghammail.co.uk	News and media	Newspapers
20	chroniclelive.co.uk	News and media	Newspapers
21	delfi.lv	News and media	Newspapers
22	tvnet.lv	News and media	Newspapers
23	hulldailymail.co.uk	News and media	Newspapers
24	expressandstar.com	News and media	Newspapers
25	index.hu	News and media	Newspapers
26	belfasttelegraph.co.uk	News and media	Newspapers
27	milliyet.com.tr	News and media	Newspapers
28	newstatesman.com	News and media	Newspapers
29	bristolpost.co.uk	News and media	Newspapers
30	jang.com.pk	News and media	Newspapers
31	rambler.ru	News and media	Newspapers
32	smh.com.au	News and media	Newspapers
33	independent.ie	News and media	Newspapers
34	nbcnews.com	News and media	Newspapers
35	nydailynews.com	News and media	Newspapers
36	kentonline.co.uk	News and media	Newspapers
37	in.gr	News and media	Newspapers
38	heraldscotland.com	News and media	Newspapers
39	dailyecho.co.uk	News and media	Newspapers
40	sfgate.com	News and media	Newspapers
41	nottinghampost.com	News and media	Newspapers
42	ilfattoquotidiano.it	News and media	Newspapers
43	southwales-eveningpost.co.uk	News and media	Newspapers
44	theboltonnews.co.uk	News and media	Newspapers
45	plymouthherald.co.uk	News and media	Newspapers
46	stokesentinel.co.uk	News and media	Newspapers
47	theweek.co.uk	News and media	Newspapers
48	latimes.com	News and media	Newspapers
49	mic.com	News and media	Newspapers
50	thesundaytimes.co.uk	News and media	Newspapers

Source: SimilarWeb

Appendix 2

Table AII Top 50 News and media websites in UK: August 2015 (Desktop only)

Rank	*Domain*	*Main category*	*Subcategory*
1	yahoo.com	News and media	
2	bbc.co.uk	News and media	
3	msn.com	News and media	
4	dailymail.co.uk	News and media	
5	theguardian.com	News and media	Newspapers
6	telegraph.co.uk	News and media	Newspapers
7	skysports.com	News and media	Sports news
8	newsnow.co.uk	News and media	
9	ibtimes.co.uk	News and media	
10	independent.co.uk	News and media	
11	mirror.co.uk	News and media	
12	buzzfeed.com	News and media	Magazines and E-Zines
13	cnet.com	News and media	Technology news
14	news.yahoo.com	News and media	
15	metoffice.gov.uk	News and media	Weather
16	onet.pl	News and media	
17	wp.pl	News and media	
18	bbc.com	News and media	
19	about.com	News and media	
20	sportinglife.com	News and media	Sports news
21	theladbible.com	News and media	
22	news.google.co.uk	News and media	
23	news.sky.com	News and media	
24	huffingtonpost.co.uk	News and media	
25	express.co.uk	News and media	
26	xe.com	News and media	Business news
27	metro.co.uk	News and media	
28	liveleak.com	News and media	
29	sports.yahoo.com	News and media	Sports news
30	techradar.com	News and media	Technology news
31	abv.bg	News and media	
32	forbes.com	News and media	Magazines and E-Zines
33	nytimes.com	News and media	Newspapers
34	timeout.com	News and media	Magazines and E-Zines
35	which.co.uk	News and media	
36	mashable.com	News and media	
37	interia.pl	News and media	
38	accuweather.com	News and media	Weather
39	espncricinfo.com	News and media	Sports news
40	bloomberg.com	News and media	Business news
41	cnn.com	News and media	
42	dailystar.co.uk	News and media	
43	ft.com	News and media	Business News
44	vice.com	News and media	Magazines and E-Zines
45	businessinsider.com	News and media	Business News
46	thesun.co.uk	News and media	Magazines and E-Zines
47	indiatimes.com	News and media	Newspapers
48	huffingtonpost.com	News and media	
49	standard.co.uk	News and media	Newspapers
50	edition.cnn.com	News and media	

Appendix 3

Table AIII Top 50 UK Desktop search traffic keywords in August 2015

Search terms	*% of traffic sent to category*
Guardian	6.006941751
Telegraph	2.939268668
The guardian	2.031305099
Arsenal	1.506108535
Jeremy corbyn	1.366783998
Tube strike	1.298398230
Daily telegraph	1.190109328
Manchester united	0.945735547
Cilla black	0.914421070
When was the first traffic light installed	0.794924716
Evening standard	0.691972800
Arsenal transfer news	0.691214190
The telegraph	0.662208702
Manchester evening news	0.656083024
Corbyn	0.597698012
Liverpool echo	0.548378879
Daily record	0.544460214
The times	0.380721918
Dismaland	0.368716481
Facebook	0.361088599
Birmingham mail	0.360830828
Liverpool	0.318398134
Men	0.309952101
Donald trump	0.308386575
Aston villa	0.291693564
Windows 10	0.288991024
Wales online	0.285119806
New york times	0.265285680
Express and star	0.264102196
Belfast telegraph	0.260599249
Iphone 7	0.258884725
La tomatina	0.252363363
Ashley madison	0.250581257
Hull daily mail	0.249221083
Celtic	0.237644326
Chelsea	0.230513600
Man utd transfer news	0.229785625
Manchester united transfer news	0.228527093
Eva carneiro	0.227250172
Lbc	0.224278532
News	0.213582394
Times	0.210746033
Tube strike august 2015	0.205709533
Scotsman	0.198563999
Google	0.196953136
Rt news	0.195100265
Tube strikes	0.193551749
Benzema	0.189831500
Mh370	0.188321736
Rangers	0.187769804

Source: SimilarWeb

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