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Attention to Rivalry among Online Platforms and Its Implications for Antitrust Analysis

David S. Evans

ATTENTION RIVALRY AMONG ONLINE PLATFORMS AND ITS IMPLICATIONS FOR ANTITRUST ANALYSIS

David S. Evans*

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Email: devans@globaleconomicsgroup.com

Abstract

Many online businesses, including most of the largest platforms, seek and provide attention. These online attention rivals provide products and features to obtain the attention of consumers and sell some of that attention, through other products and services, to merchants, developers and others who value it. The multi-sided business of seeking and providing attention is fluid with rivalries crossing boundaries defined by the features of the products and services. It is also dynamic. Rivals introduce new products and services, some involving drastic innovation, frequently. Online attention rivals impose competitive constraints on each other. Product differentiation tempers the significance of these constraints in particular situations. But the relevant differentiation mainly involves aspects of the attention that is procured and sold rather than, necessarily, particular features of the products and services used for acquiring and delivering that attention. Antitrust analysis should consider these competitive constraints in evaluating market definition, market power, and the potential for anticompetitive effects. Most importantly, antitrust analysis should focus on competition for seeking and providing attention rather than the particular products and services used for securing and delivering this attention. The existence of competition among attention rivals does not imply that antitrust should reduce the vigor with which it examines mergers and exclusionary practices among these platforms. It just needs to look for problems in the right places.

I. INTRODUCTION

Many online businesses attract consumers to their sites by offering them products and services, often for free.[1] The products and services are varied. They include search, social networking, e-commerce, news, videos, mobile games, and messaging. Novel ones appear regularly. Some of those attract significant traffic quickly. Existing ones frequently add new features to keep their viewers coming back and to attract new ones. Many of these businesses then sell merchants, developers, and others businesses access to some of the attention they have harvested. They make most, and sometimes all, of their revenue from supplying attention.[2] These "attention rivals" compete with each other for the limited time of consumers and for providing that limited time to merchants, developers, and others that want access to it.[3]

This Article argues that that "attention"—its acquisition and its delivery—is the relevant dimension for analyzing the competitive constraints these rivals impose on each other.[4] In practice, attention rivals frequently face more significant competition from purveyors of new products or services, that could divert consumer attention from them, than from the entry of close substitutes for their existing products or services. Ostensibly different attention rivals often substitute for each other from the standpoint of consumers and merchants. Product differentiation tempers the significance of these constraints. The differentiation that is relevant, however, mainly involves aspects of the attention that is procured and sold rather than particular features of the products and services used for acquiring and delivering that attention.

Antitrust analysis should therefore focus on competition for securing and delivering attention in considering market definition, market power, and competitive effects. Focusing on competition between specific products and services, rather than attention, could result in competition authorities and courts making either false-negative or false-positive errors in their

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[1] Online businesses for the purpose of this Article include websites as well as web-based and native applications for mobile devices.

[2] These online attention seekers may compete with offline attention seekers for attention and also for providing that attention to merchants and others who want access to it. This competition is increasingly important as the boundaries between on-line and off-line attention seeking blur as they do, for example, in the increasing competition between online versus cable and over-the-air distribution of television shows and movies. This Article focuses on examining competition among online attention seekers. It briefly discusses the implications for the broader analysis of competition among online and offline attention seekers but leaves the important topic of online and offline competition for future consideration.

[3] Attention rivals are multi-sided platforms; they are intermediaries between suppliers and demanders of attention. For a survey of multi-sided platforms including advertising-supported ones see David S. Evans and Richard Schmalensee (2012), "The Antitrust Analysis of Multi-Sided Platforms", in Roger Blair and Daniel Sokol (eds.), Oxford Handbook on International Antitrust Economics, forthcoming. Available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2185373.

[4] For the purposes of this Article, attention is the time that consumers spend focusing their minds on content. Attention rivals provide products and services to buyers, such as advertisers, who would like to get some of this attention. This attention is not necessarily fungible. Depending on the circumstances in which it is provided advertisers might have a chance of getting more attention or greater focused from consumers or might get attention in a context that makes that attention more valuable because they have a greater chance of persuading consumers to buy something.

decisions. False-negative errors could result from concluding that attention rivals do not compete because they offer dissimilar products or services. False positive errors could follow from ignoring competition among attention rivals that offer different products and services. Analyzing attention, which is the dimension on which these rivals compete in fact, reduces the likelihood of these errors. The precise contours of markets, market power, and impacts on competition will depend on the particular circumstances of the subjects of the antitrust analysis, the conduct under consideration, and the extent of differentiation among relevant attention rivals.

Some authors have argued that antitrust analysis should consider dynamic competition and, in particular, that firms are competing "for the market" rather than "in the market."[5] This Article shows, by contrast, that competition in the market appears much more important for attention seekers once the analysis is shifted from competition over providing particular products or services to competition for acquiring and delivering attention. When it comes to attention seeking, there are few winners that "take all" in practice. Likewise, there is little evidence that online markets tend to converge to monopoly because of network effects[6] once the analysis focuses on attention as the proper dimension for evaluating competition. Nevertheless, it turns out that competition for attention is highly dynamic with rivals introducing new products and services, some involving drastic innovation, frequently. There are high rates of churn—that is entry and exit—among attention rivals. Therefore, many of the points made in by authors concerning antitrust analysis in dynamically competitive industries apply to attention rivals.

This Article's most novel contribution comes in showing that many online businesses compete for a limited amount of attention from consumers and that features or products and services are basically tools, in competition with each other, for acquiring this attention. The next two sections develop these propositions in detail. Section II documents that a number of firms compete with each other online for the attention of consumers and face constant threats of entry by other firms that compete for that attention. Attention competition is the major competitive dynamic for a significant part of the digital economy. Section III then presents the core argument that there is a strong presumption that attention seekers compete for procuring attention regardless of the products and services they offer for doing this. Focusing on the narrow category of online advertising-supported attention seekers, this section argues that, as a first approximation, attention seekers are price takers in terms of what they pay to secure attention. It then examines the circumstances under which differentiation could limit this competition and thereby lead to segments in which online advertising-supported attention seekers could have significant market power.

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[5] David S. Evans and Richard Schmalensee (2002), "Some Economic Aspects of Antitrust Analysis in Dynamically Competitive Industries," in Adam B. Jaffe, Josh Lerner, and Scott Stern (eds.), Innovation Policy and the Economy, Volume 2, Cambridge: MIT Press, 1-50; Douglas H. Ginsburg and Joshua D. Wright (2012), "Dynamic Analysis and the Limits of Antitrust Institutions," Antitrust Law Journal, 78(1), 1-22; Gregory Sidak and David Teece (2009), "Dynamic Competition in Antitrust Law," Journal of Competition Law and Economics, 5(4), 581-631.

[6] Likewise, there is little evidence that online markets tend to converge to monopoly because of network effects once the analysis focuses on attention as the proper dimension for evaluating competition. For a survey of some of the arguments concerning "tipping to monopoly" in online network industries see Carl Shapiro and Hal Varian (1998), Information Rules: A Strategic Guide to the Network Economy.

The other novel contribution of this Article is to document that advertisers consider that the different sources of attention are substitutes.[7] This, of course, concerns the other side of these platforms. Section IV considers competition among attention rivals for delivering attention, focusing on the particular case of supplying attention to advertisers. It shows that most online advertisers use channel-attribution technologies that enable them to substitute different types of online advertising, in some case automatically through computerized decision rules, for each other based on rules for maximizing rates of return on investment in advertising spending.

As with any industry, differentiation can soften the degree of competition among rivals. Section V shows that the relevant sources of differentiation ultimately involve the returns advertisers can get from the attention. That could involve differences in the type of viewers that are acquired, their propensity to purchase, and aspects of how advertising is delivered to them. It does not necessarily involve—although it could—the particular products or services used to secure or deliver attention. Differentiation among platform rivals could result in significant market power at the platform level that could be sustained if strong differentiation was accompanied by substantial barriers to entry. This section also examines the implications of the analysis for online versus offline competition for attention. Whether businesses are online or offline they are competing for a relatively inelastic supply of attention from consumers and they are imposing competitive constraints on each other. Advertisers are also substituting online and offline advertising based on rate-of-return on investment decisions and in some cases are using channel attribution technologies to analyze opportunities for substitution. Of course, as with online attention rivals, product differentiation considerations could temper the degree of substitution between online and offline rivals for attention.

Section VI argues that by reflecting the business realities of how competition takes place among online attention seekers—the approach recommended by this Article—would tend to reduce both false positive and false negative errors in antitrust decisions. It then describes several recent merger and monopolization cases that illustrate the points made in this Article. The European Commission's decision to approve Microsoft's acquisition of Skype, for example, is based on many of the same considerations described in Section II involving dynamic competition and the substitution among seemingly different products and services.

Section VII describes how antitrust analysis should investigate competitive constraints among platform rivals and presents brief conclusions.

II.   SEEKING ATTENTION

Pinterest allows members to pin images, videos and other objects to their pinboards and to comment on what other members have pinned. In August 2012, about two years after its launch, it was the 47th most trafficked website in the United States. The 23.5 million visitors that came to

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[7] This section incorporates key contributions by Catherine Tucker who also pointed the author to the new channel attribution technologies discussed here. See Catherine Tucker, "The Implications of Improved Attribution and Measurability for Online Advertising Markets," mimeo, November 6, 2012.

Pinterest that month spent about 17.5 million hours on the site looking at others' pin boards or pinning things to their own pin board.[8]

People only have so much time. These 23.5 million users must have shifted their attention from something else to Pinterest. To participate in this new pinning site they either spent more time online or shifted their time from other things they were doing online. They probably did a bit of both. Those 17.5 million hours, though, came from somewhere.

As a result of Pinterest's explosive growth, other online attention seekers likely did less well. Some of the time that people were spending on them was diverted to pinning. Getting users to spend more time on their properties became harder because consumers had another activity they could do. Pinterest faces the same threats to its traffic going forward. New properties emerge and existing ones develop features that will attract users. As attention shifts among properties so do the opportunities for selling advertising.

The rivalry for attention is central to understanding competition among online businesses. This Section documents that rivalry on the web and notes how that rivalry has now extended to applications on mobile devices.

A.   GROWTH AND CHANGE ON THE WEB

The overall consumption of web services has grown dramatically as a result of technological change that has reduced the cost and increased the quality of consuming web-based services. The fraction of US households with broadband service in the home increased almost seven-fold from 10 percent in 2001 to 68 percent in 2010 while the speed of service for the typical household increased.[9] Over this same time period the amount of content and services that were available to consumers grew dramatically. As a result of better and more widely available technology for accessing web-based content and the increase in the amount of that content, the number of monthly visits to the web by American consumers increased from roughly 16 billion in September 2002 to 34 billion in September 2007 (a 113 percent increase over 5 years) to 55 billion in September 2012 (a 62 percent increase over 5 years).[10] The number of visits increased by 243 percent over the decade.

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[8] Compete.com, Traffic and Engagement Metrics, August 2012.

[9] National Telecommunications and Information Administration (2001), Households with Internet, available at http://www.ntia.doc.gov/files/ntia/publications/table_householdinternet2001.pdf, based on Bureau of the Census (2001), Current Population Survey, September 2001 Internet and Computer Use Supplement; National Telecommunications and Information Administration (2001), Household's Internet Connection Type, available at http://www.ntia.doc.gov/files/ntia/publications/table_householdinternetconnection2001.pdf, based on Bureau of the Census (2011), Current Population Survey, September 2001 Internet and Computer Use Supplement; National Telecommunications and Information Administration (2011), Households Using the Internet In and Outside the Home, available at http://www.ntia.doc.gov/files/ntia/data/CPS2010Tables/t11_2.txt, based on Bureau of the Census (2011), Current Population Survey, October 2011 School Enrollment and Internet Use Supplement.

[10] Compete.com, Traffic and Engagement Metrics, September 2002, September 2007, and September 2012. Compete.com collects real-time clickstream data from users who have installed its toolbar, and combines this with clickstream data licensed from ISPs. The combined panel contains over two million U.S. Internet users. Normalization is used to make the panel representative of the population of U.S. users of web browsers. For more details, see Compete.com, "Overview of Data Methodology and Practices," available at http://media.compete.com/site_media/upl/img/Compete_Data_Methodology_3.pdf. These data—and all of the other data on online use reported below—do not include mobile devices. Starting in the late 2000s mobile devices—smart

Over the past decade, the websites that receive the most attention—measured by the amount of attention spent on them—have changed dramatically. Table 1 lists the top fifty web domains in the US based on time spent on them in September 2002, September 2007, and September 2012.[11] Of the top fifty domains in September 2002, only 23 (46 percent) were still in the top fifty in September 2007, and only 13 (26 percent) were still in the top fifty in September 2012.[12] Within ten years, almost 37 of the top 50 websites in September 2002 had fallen out of the top 50 and 5 had fallen out of the 15,000 altogether. The correlation between the ranks of the top 15,000 websites across years is also revealing. The correlation in ranks of websites in September 2002 and September 2012, for domains ranked in both periods, was .41. The corresponding correlations were .58 for September 2007 and September 2012, and .56 for September 2002 and September 2007. These are relatively low levels of correlation between ranks given the short periods of time and therefore reflect considerable churning.

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phones and tablets—that could access the Internet were available to consumers. Applications for these devices could reside on the web in which case consumers access the application through their mobile phone browser or could reside on the mobile device itself and provide both online and offline services. See Fred Cavazza (2011), "Mobile Web App vs. Native App? It's Complicated," Forbes.com, September 27, 2011, available at http://www.forbes.com/sites/fredcavazza/2011/09/27/mobile-web-app-vs-native-app-its-complicated/.

[11] See, id., for a description of the data used for Table 1.

[12] Not all of these sites are attention rivals that buy and sell attention. Some, such as chase.com and paypal.com, are merchant websites that get attention but do not resell it to other businesses. However, since these merchant websites have tended to stay in the top 50 for the entire decade the evidence on exit from the top 50 would be even stronger if they had been excluded.

Table 1: Top 50 US Websites in September 2002, 2007, and 2012, Ranked by September 2002 Time Spent

Domain	Description	Rank Sept-2002	Rank Sept-2007	Rank Sept-2012
Yahoo.com	Portal	1	1	3
Msn.com	Portal	2	2	8
Ebay.com	Auctions	3	4	6
Untd.com	ISP	4	1,546	-
Google.com	Search	5	3	4
Go.com	Portal	6	8	13
Aol.com	Portal	7	7	9
Neopets.com	Children/Family	8	26	508
Pogo.com	Games	9	5	14
Sportsline.com	Sports	10	17	-
Amazon.com	Retail	11	11	15
Lycos.com	Search	12	91	1,346
Blackplanet.com	Social Networking	13	40	463
Microsoft.com	Software	14	19	48
Netscape.com	Software	15	276	2,164
Excite.com	Search	16	72	608
Nfl.com	Sports	17	18	33
Geocities.com	Web Hosting	18	163	12,628
Iwon.com	Portal	19	64	641
Monster.com	Jobs	20	33	131
Nytimes.com	News	21	56	77
Ezboard.com	Discussion	22	199	-
Match.com	Dating	23	22	52
Livejournal.com	Blogging	24	89	540
Cnn.com	News	25	13	34
Asianavenue.com	Social Networking	26	11,586	-
Passport.net	Login Credentials	27	359	4,544
Expedia.com	Travel	28	52	126
Ask.com	Search	29	29	44
Mapquest.com	Maps	30	15	54
Bankofamerica.com	Banking	31	12	23
Weather.com	Weather	32	45	55
Realtor.com	Real Estate	33	50	120
Cartoonnetwork.com	Entertainment	34	68	56
Com.com	Product Reviews	35	806	-
Autotrader.com	Autos	36	42	130
Travelocity.com	Travel	37	71	251
Adultfriendfinder.com	Social Networking	38	16	70
Voyeurweb.com	Porn	39	97	1,098
Paypal.com	Payments	40	23	64
Classmates.com	Social Networking	41	67	199
Altavista.com	Search	42	211	5,440
Msnbc.com	News	43	918	867
About.com	Reference	44	47	84
Literotica.com	Porn	45	37	72
Dell.com	Computers	46	59	294

Mail.com	Web Mail	47	133	331
Wellsfargo.com	Banking	48	5	24
Orbitz.com	Travel	49	113	281
Matchmaker.com	Dating	50	1,463	6,943
Careerbuilder.com	Jobs	57	28	97
Mlb.com	Sports	59	35	79
Fanfiction.net	Hobby/Interest	60	21	47
Usatoday.com	News	65	48	85
Ancestry.com	Hobby/Interest	68	54	38
Hotmail.com	Web Mail	72	20	-
Imdb.com	Movie Reference	90	44	107
Foxnews.com	News	92	46	39
Craigslist.org	Classifieds	103	6	5
Target.com	Retail	158	39	71
Walmart.com	Retail	169	24	27
Chase.com	Banking	196	27	22
Netflix.com	Video	209	31	10
Worldwinner.com	Games	234	36	100
Verizon.com	ISP	242	100	41
Comcast.net	ISP	257	14	11
Bellsouth.net	ISP	286	49	-
Att.com	ISP	305	34	49
Phoenix.edu	Education	396	43	68
Blogger.com	Blogging	500	30	578
Eharmony.com	Dating	536	38	322
Blogspot.com	Blogging	625	-	43
Univision.com	Entertainment	670	41	225
Runescape.com	Browser MMORPG	726	9	350
Charter.net	ISP	1,701	195	18
Foxsports.com	Sports	2,475	32	59
Wikipedia.org	Reference	6,761	10	17
Xnxx.com	Porn	10,212	3,769	29
Babylon.com	Translation Software	-	3,746	45
Cbssports.com	Sports	-	9,100	50
Facebook.com	Social Networking	-	-	1
Youtube.com	Video	-	-	2
Live.com	Portal	-	-	7
Bing.com	Search	-	-	12
Twitter.com	Social Networking	-	-	16
Xhamster.com	Porn	-	-	19
Pornhub.com	Porn	-	-	20
Centurylink.net	ISP	-	-	21
Pinterest.com	Online Pinboard	-	-	25
Mycenturylink.com	ISP	-	-	26
Huffingtonpost.com	News	-	-	28
Tumblr.com	Social Networking	-	-	30
Xvideos.com	Porn	-	-	31
Pandora.com	Music	-	-	32
Avg.com	Antivirus Software	-	-	35

Roblox.com	Games	-	-	36
Tagged.com	Social Networking	-	-	37
Nbcnews.com	News	-	-	40
Redtube.com	Porn	-	-	42
Youporn.com	Porn	-	-	46

Source: Compete.com, September 2002, September 2007, and September 2012

Grey shading indicates exit from the top 50 in either 2007 or 2012.

B.   COMPETITION FOR ATTENTION

While these data document massive growth and flux in the web business over the last decade they do not demonstrate that these web properties are competing for attention with each other. It is possible that when a new web property appears it gets people to spend additional time on the web rather than diverting time away from other properties. It is also possible that these new properties attract people who were not using the web before. However, as the percent of the population that uses the web approaches the saturation point, and people reach the upper limits of their available leisure time, these web properties compete for an increasingly limited amount of attention.

The time the average American spends online increased with the expansion of the web over much of the 2000s. Figure 1, which is based on the Digital Future Report by the USC Annenberg School's Center for the Digital Future, shows that the average number of hours per week for US Internet users increased from 9.4 hours in 2001 to 19.0 hours in 2009.

Figure 1: Hours Per Week Spent Online, US Residents Age 12+
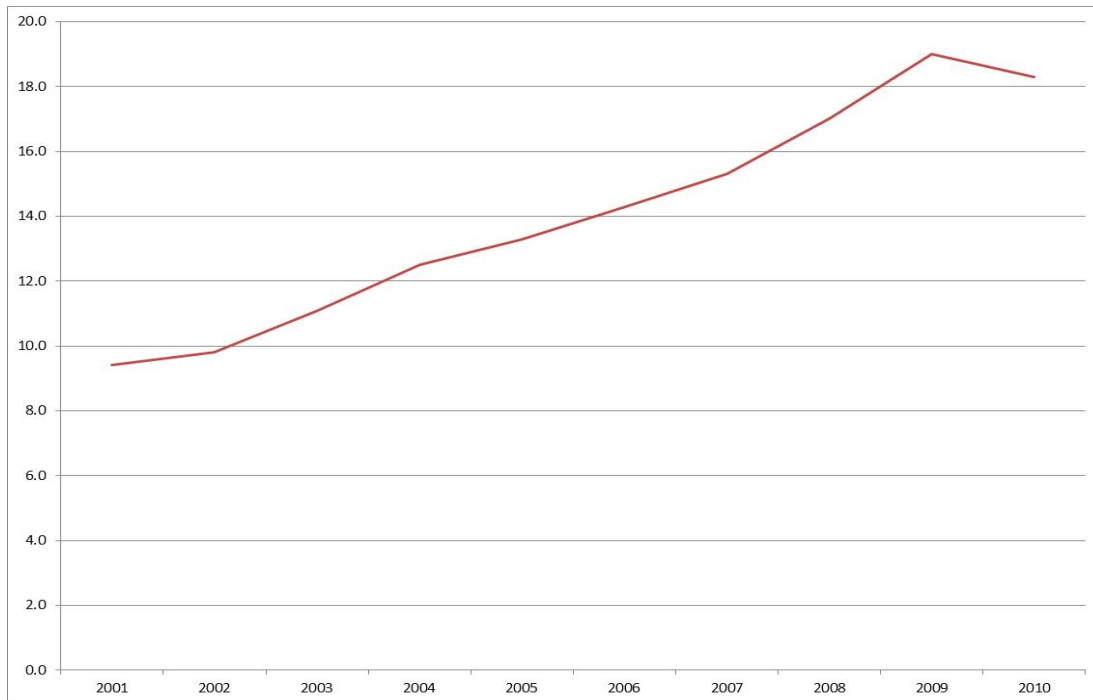
By the end of the decade the average amount of time spent online leveled off and in fact appears to have declined somewhat. The Annenberg Center reports that the time spent online by the average U.S. Internet user declined from 19.0 hours per week in 2009 to 18.3 hours per week in 2010.[13]

The total amount of time spent on line increased by 373 percent from 1.5 billion hours in September 2002 to 7.1 billion hours in September 2012.[14] This reflects the increase in the number of web users and the increase in the amount each of these users spends online. The number of attention seekers has grown faster than total amount of time spent online. Between 2001 and 2010, the number of distinct web servers increased by more than 601 percent, from less than 36 million to over 255 million.[15] Most likely, the amount of content increased even more. The more rapid growth of attention seeking compared to the growth of total time spent on line provided implies that existing websites lose attention to new ones.

Table 2 shows changes in total time spent among the top websites over the last decade.[16] Of the top 15,000 websites in September 2002, 12,775 (85 percent) had fewer hours spent by visitors in September 2012 than in September 2002. Furthermore, 14,036 (94 percent) increased the total time spent by less than the 373 percent increase in the overall time spent on websites, and therefore had declining shares of attention. Even with the total time spent on the web increasing by nearly a factor of five over this period, the 85 percent of websites in the top 15,000 in September 2002 which lost attention managed to lose a total of 460 million of hours by September 2012. These 460 million hours represent 30 percent of the total number of hours spent on all websites in September 2002. Notably, these data do not include mobile. Especially over the recent shorter time periods, attention is being diverted from websites viewed from personal computers to mobile applications including the use of mobile browsers for surfing the web

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[13] USC Annenberg School's Center for the Digital Future (2010, 2011), Digital Future Report, available at http://www.digitalcenter.org/pages/site_content.asp?intGlobalId=20. These figures do not include the use of mobile applications. The diversion of time from personal computers to mobile could explain a portion of the decline. However, it is unlikely that the use of mobile applications accounted for much of the drop during this time period. According to Nielsen data, 23 percent of mobile subscribers had smart phones in the first quarter of 2010. However, of this 23 percent, only 37 percent had Apple and Android phones which were the only smart phones with significant application use. Therefore only 8.5 percent (37 percent of 23 percent) of mobile phone users had smart phones that could entail significant application use.

[14] Based on an analysis of data from compete.com

[15] Netcraft Web Server Survey, available at http://news.netcraft.com/archives/category/web-server-survey/.

[16] Table 3 excludes websites that are not primarily attention-seekers, as well as cases where special circumstance can account for the changes in time spent at the site.

Table 2: Change in Time Spent at Selected US Websites

Website	Category	Sept-2002 to Sept 2012, Millions of Hours	Sept-2002 to Sept-2012, Percent change
Facebook.com	Social Networking	+872.0 million hours	N/A
Youtube.com	Video	+416.7 million hours	N/A
Google.com	Search	+199.3 million hours	+1066.9 percent
Craigslist.org	Classifieds	+133.3 million hours	+15,344.7 percent
Yahoo.com	Portal	+109.4 million hours	+54.9 percent
Live.com	Portal	+106.6 million hours	N/A
Aol.com	Portal	+67.1 million hours	+501.1 percent
Ebay.com	Auction	+66.6 million hours	+135.9 percent
Netflix.com	Video	+59.2 million hours	+11,746.3 percent
Comcast.net	ISP Portal	+58.2 million hours	+14,239.8 percent
Bing.com	Search	+55.4 million hours	N/A
Pogo.com	Games	+41.4 million hours	+517.9 percent
Amazon.com	Retail	+39.2 million hours	+604.9 percent
Go.com	Portal	+37.4 million hours	+245.2 percent
Twitter.com	Social Networking	+33.0 million hours	N/A
Wikipedia.org	Reference	+27.1 million hours	+269,034.5 percent
Livejournal.com	Blogging	-2.6 million hours	-75.5 percent
Passport.net	Login Credentials	-3.1 million hours	-97.6 percent
Asianavenue.com	Social Networking	-3.2 million hours	-100.0 percent
Ezboard.com	Discussion	-3.7 million hours	-100.0 percent
Iwon.com	Games	-3.9 million hours	-84.7 percent
Exite.com	Search	-4.6 million hours	-85.9 percent
Geocities.com	Web Hosting	-4.8 million hours	-99.8 percent
Blackplanet.com	Social Networking	-5.1 million hours	-84.1 percent
Netscape.com	Portal	-5.2 million hours	-96.5 percent
Lycos.com	Search	-6.1 million hours	-94.9 percent
Sportsline.com	Sports	-7.8 million hours	-100.0 percent
Neopets.com	Children/Family	-11.0 million hours	-92.4 percent
Untd.com	ISP Portal	-23.5 million hours	-100.0 percent
Msn.com	Portal	-59.4 million hours	-39.6 percent

Source: Compete.com, September 2002, September 2007, and September 2012. The Compete.com data does not include visits from mobile browsers.

The question remains whether these shifts in time allocation are limited to shifts between different websites that offer similar services, or whether consumers switch their browsing between distinct, broadly defined categories. If consumers switch between categories, it would imply that websites offering entirely different services are in direct competition for scarce attention. To answer this question, we examined the top 500 websites in the Compete.com data, determined whether they could be classified as attention rivals, and assigned each to a category. These 500 websites accounted for 60 percent of all time spent on the web in September 2012. For each category, we calculated the change in total time, and the change in the share of total time, spent at attention-seekers in that

category. Table 3 shows the results for September 2002 to September 2012.[17] Table 3 suggests that there were large shifts in traffic between different categories. The most striking results in the long-term are the rise of social networking and video relative relative toand the fall of search and portals.[18]

Table 3: Change in Time Spent Online in the US at Selected Website Categories, 2002-2012

Category	Share of Time Spent, 2002	Share of Time Spent, 2012	Change
Social Networking	2.4%	29.4%	27.0%
Video	0.0%	13.0%	13.0%
Porn	0.9%	4.4%	3.5%
Games	1.7%	4.1%	2.4%
Reference	1.2%	2.1%	0.9%
Hobby/Interest	1.1%	1.6%	0.5%
Deals/Rewards	0.1%	0.4%	0.3%
Music	0.2%	0.5%	0.3%
Retail	1.4%	1.6%	0.3%
Free Downloads	0.0%	0.3%	0.2%
Education	0.2%	0.4%	0.2%
File Sharing	0.0%	0.1%	0.1%
Photo	0.3%	0.3%	0.0%
Health	0.1%	0.2%	0.0%
Dating	1.2%	1.2%	0.0%
Local Information	0.2%	0.1%	0.0%
Blogging	0.6%	0.5%	-0.1%
Web Mail	0.5%	0.3%	-0.2%
Chat and Related Services	0.3%	0.0%	-0.3%
Jobs	1.1%	0.6%	-0.6%
Auction/Classified/Listings	9.4%	8.5%	-0.9%
Travel	1.5%	0.5%	-1.0%
News/Entertainment	2.7%	1.6%	-1.1%
Other	1.4%	0.1%	-1.3%
Virtual World	1.9%	0.5%	-1.4%
Web Hosting	1.5%	0.0%	-1.5%
Search/Portal	68.2%	27.7%	-40.4%

Source: Compete.com, September 2002, September 2007, and September 2012.

This analysis provides a presumption that attention seekers compete with each other, at least to some degree, across even broadly defined products and service categories. When one attention seeker gets more attention some other attention seeker is probably getting less. As Yahoo! observes, "[w]e also compete with social media and networking sites which are attracting a substantial and

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[17] Over this period some of the changes are the result of people shifting their attention from the use of PCs to mobile devices. For example, the shift in social networking likely reflects the use of Facebook using a PC to the use of Facebook from mobile devices.

[18] While these data are suggestive a more definitive analysis would require an analysis of diversion of traffic between sites and between categories. We lack the data to do that but it should be one of the central exercises in competition policy matters to properly assess market definition.

increasing share of users and users' online time, and may continue to attract an increasing share of online advertising dollars."[19]

C.   WHO ONLINE PROPERTIES IDENTIFY AS COMPETITORS

Attention seekers also say they compete against each other. To see which firms businesses say they compete with we have examined the 10-Ks for publicly traded online advertising-supported attention seekers that were in business in 2003, 2007, and 2011. The left hand column of Table 4 lists web-based companies that were publicly traded in one of those years and were among the top-50 web sites. The entries in the next three columns identify the firms they report as competitors.

Of particular note is the fact that portals, search engines, social networks, and content websites treat the category boundaries as fluid, often listing competitors from multiple categories. Reference website answers.com lists Facebook's Questions feature as a source of competition. Search engine ask.com, social network classmates.com, and product review website CNET.com all list portals AOL, MSN, and Yahoo! as competitors. LinkedIn.com sees itself as competing both with social networks like Facebook and with jobs websites like Monster.com, CareerBuilder.com, and Indeed.com. Local search website Yelp.com includes as competitors both traditional search engines like Google and Bing and social networks like Facebook. Yahoo! provides an interesting example of the evolution of competition. In 2003 it identified Time Warner (AOL), Microsoft (MSN), Ask Jevees, Google, Looksmart, Amazon, and eBay as competitors. Over time, the list of competitors grew to include Facebook and web ad companies like ad.com, valueclick.com, DoubleClick Ad Exchange, and Google Ad Sense.[20]

Table 4: Competition Identified by Publicly Traded Attention Seekers

Company	2003	2007	2011	Notes
Answers.com	-	Wikipedia, WebMD.com, TheFreeDictionary.com, Yahoo Answers, Askville, Answerbag, Search Engines	Yahoo Answers (Yahoo!), Quora, Yedda (AOL), Answerbag.com (Demand Media), Aardvark (Google), Wikia, Askville (Amazon), Ask.com (IAC), StrackOverflow, ChaCha, Mahalo Answers, Hunch, eHow (Demand Media), Seed.com (AOL), About.com (NYT), Dictionary.com (IAC), HowStuffWorks	

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[19] Yahoo 10-K for the fiscal year ending December 31, 2011, p. 14.
[20] Yahoo! Form 10-K, various years.

			(Discovery Communications), WikiHow, TheFreeDictionary.com, Wikipedia.org, Facebook Questions	
Ask.com	Time Warner (AOL), Google, MSN, Yahoo!, Looksmart	-	Google, Yahoo!, Bing	Acquired by IAC in 2005
Classmates.com	-	Online Social Networking – LinkedIn, Reunion.com, Military.com, Yahoo!, MSN, AOL, White Pages, US Search	Online Nostalgia Services – Facebook, Google+	Acquired by United Online in 2004
CNET	The New York Times, The Wall Street Journal, Fortune, Forbes, Business Week, PC Magazine, PC World, eWeek, IGN, GameSpy, Shopping.com, pricegrabber.com, BizRate.com, Amazon.com, eBay, BestBuy.com, Google, Yahoo!	ING Entertainment, WSJ.com, Forbes.com, AOL, MSN, Yahoo!, Google, Shopping.com, Amazon.com, eBay, Epicurious	-	Acquired by CBS in May 2008
Demand Media (eHow, Cracked, Livestrong)	-	-	Yahoo, AOL, WebMD, About.com, Jive Software, Lithium	
Facebook	-	-	Google, Microsoft, Twitter, Cyworld, Mixi, Orkut, vKontakte	
Google	-	Microsoft, Yahoo!	Yahoo!, Bing, Kayak, Monster, WebMD, Amazon, eBay	
InfoSpace	Google, Yahoo!, MSN	Google, Yahoo!	Google, Yahoo!, Bing,	Changed name to Blucora in 2012
iVillage.com	Oxygen.com, Lifetime.com, Women's Entertainment Network, Lifetime, AOL, MSN, Yahoo!, Amazon	-	-	Bought by NBC Universal in 2006
LinkedIn	-	-	Facebook, Google, Microsoft, Twitter, Xing, Viadeo, salesforce.com, Monster + Hotjobs, CareerBuilder, Indeed.com, Taleo, BranchOut,	

Yahoo!	Time Warner (AOL), Microsoft (MSN), Ask Jeves, Inc., Google Inc., Looksmart, Ltd., Amazon, eBay	Google Ad sense, Ad.com, Valueclick, Google, Microsoft, AOL, Facebook, News Corp, MySpace, Disney, CBS, and NBC	Facebook, Google, Microsoft, AOL, Google AdSense, DoubleClick Ad Exchange, AOL's Ad.com, Microsoft Media Network	
Yelp	-	-	Google, Yahoo!, Bing, Facebook, Microsoft	

It is an article of faith among competition policy practitioners that the markets that businesspeople talk do not necessarily correspond to the technical concept of the relevant antitrust market. While true in principle, the difference between the beliefs of businesspeople and the findings of antitrust analysis should raise concerns about the accuracy of the market definition analysis when the relevant antitrust market identifies very different competitive constraints than identified by the business people who are on the ground and engaged in competition.

D. COMPETITION FROM MOBILE

The analysis above severely understates the extent of competition faced by online attention seekers at the end of 2012. Web-based and native applications on mobile devices attract considerable attention from consumers.

In the late 2000s consumers started buying smart phones that provided mobile access to the web and a device that enabled them to consume web-based content, and engage in other web-based activities, using their mobile handsets. As of September 2012, 45 percent of Americans had a smart phone.[21] In early 2010, Apple introduced the first popular tablet and other companies have followed with similar products.[22] Consumers can access the web using Wi-Fi or wireless connections.

Contemporaneous with the spread of mobile devices was the development of sophisticated mobile operating systems. The Apple iOS, which is integrated into Apple mobile devices, and the Android OS, open source software that is available to multiple hardware makers, are the leading operating systems.[23] These operating systems make APIs available to developers and provide "application stores" that facilitate consumers obtaining free and paid applications for their mobile devices. As of mid 2012 there were 650,000 applications available from the Apple application store and 600,000 from the Android application store.[24] In October 2012 Microsoft introduced a new mobile operating system and has embarked on efforts, including encouraging developers to write

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[21]   Joanna   Brenner,   Pew   Internet: Mobile   Dec   4,   2012,   available   at: http://pewinternet.org/Commentary/2012/February/Pew-Internet-Mobile.aspx
[22]   *iPad   and   Tablet   Computers,   The   New   York   Times* updated: October   23,   2012 http://topics.nytimes.com/top/reference/timestopics/subjects/i/ipad/index.html
[23] See http://www.zdnet.com/comscore-apple-continues-to-gain-on-google-in-u-s-market-share-7000006826/
[24] *Engadget*. N.p., n.d. Web. 17 Dec. 2012 http://www.engadget.com/2012/06/27/google-play-hits-600000-apps/

applications for it, to increase its presence.[25]

There are two kinds of applications for mobile devices. Web-based applications are written using web-standard code (HTML 5, for example) and are accessed using a web browser. Native applications are written for the specific operating system and hardware configuration and therefore can use all of these features. Some of these applications are extensions of websites that people used to access primarily from personal computers. For example, a consumer can use OpenTable to make a reservation by going to its website from a personal computer, going to its website from a mobile device, or using the OpenTable application they downloaded for their mobile device. Others are substitutes for traditional web-based applications. For example, ShopKick provides rewards for going into certain stores but also helps consumers locate those stores.[26] That diverts attention from the many websites that help consumers locate retailers.

These hundreds of thousands of applications provide another way for people to spend their time and thereby divide their limited attention. Some of the developers of these applications also compete for selling that attention to merchants and others. For example, Shopkick provides the application to consumers for free. It makes money by selling the attention it gets from providing awards to the participating retailers who benefit from the additional store traffic.

Mobile applications are a direct source of competition with attention seekers that are ordinarily accessed using personal computers. The development of mobile devices and operating systems, however, creates a further source rivalry for attention. The mobile operating system providers are competing for attention with each other. They are vying to attract more applications that attract attention because these applications increase the desirability of mobile devices with their operating systems. They are also trying to attract more attention because they sell mobile advertising. In addition, the mobile operating system providers are competing for attention with businesses that have focused on securing attention from people who are surfing the web on their personal computers.

E.   ATTENTION RIVALRY

Competition among online businesses has primarily involved coming up with clever ways to get people's attention. That has resulted in continual entry of new firms and the development of new services by existing ones. Incumbent firms recognize that they are competing with these firms for the attention of consumers. That has a number of consequences for innovation, quality, and pricing.

It is widely understood among analysts and media that follow online competition, and discussed openly by the online companies themselves, that the grand rivalry online in 2012 is

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[25] Microsoft Unveils Windows Phone 8." *News Center*. Microsoft, 29 Oct. 2012. Available at: http://www.microsoft.com/en-us/news/press/2012/oct12/10-29windowsphone8pr.aspx

[26] The location-based application has a feature called "Find Lick" http://www.shopkick.com/about

between Amazon, Apple, Facebook, and Google.[27] Microsoft wants to be a serious rival here too. Yet Amazon is an ecommerce business, Apple is primarily in the business of making mobile devices and computers, Facebook is in social networking, Google is in search although it is also behind Android, and Microsoft primarily sells software platforms and productivity applications although it also has a search engine and advertising business. This rivalry is not similar to the competition among the big automobile makers, mobile network operators, supermarkets, banks, or many other typical businesses where the rivals provide similar products and services.

The continual upheaval also has implications for the business of selling attention to merchants, application developers, and others. The provision of more attention online puts pressure on the prices that attention providers can provide and also threatens to cut into the amount of attention that they are able to provide. To document this, the next section concentrates on competition on among advertising-supported online attention seekers.

III. COMPETITION AMONG ATTENTION SEEKERS

Attention rivals face significant competitive constraints in seeking time from consumers. The evidence presented below demonstrates that attention seekers cannot profitably raise price above zero, must improve the quality of their services through frequent introduction of new features to prevent users from switching to rivals, face constant threats of entry by new attention seekers that will divert traffic from them, face continual threats that new or existing attention seekers will develop a drastic innovation that diverts massive amounts of traffic from them, and operate in a business that has low barriers to entry and exit.

Differentiation among attention seekers tempers these competitive constraints. They could offer products and services that are particularly attractive to certain types of consumers or for attracting particular kinds of attention. That could result in some significant market power in procuring attention that could translate into some significant market power in providing attention. Nevertheless, once we shift the focus to the broader competition for attention it is apparent that attention seeking appears highly competitive. For the purposes of the discussion below, we ignore the competition between online and offline attention seekers. But it is clear that they do impose some competitive constraints on each other.

A.   SCARCITY OF ATTENTION

Consumers have a limited amount of time available for providing attention. Of course consumers can increase the amount of time they spend online by diverting time from activities they engage in online and offline. But since many of the activities they engage in offline are essential—such as sleeping, working, engaging in household chores—it becomes increasingly difficult to

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[27] Vascellaro, Jessica and Sherr, Ian "Apple Veers Away From Google Veers Away From" Wall Street Journal 12 June 2012; Kafka, Peter. "Eric Schmidt's 'Gang of Four' Doesn't have room for Microsoft." 31 May 2011. http://allthingsd.com/20110531/eric-schmidts-gang-of-four-doesnt-have-room-for-microsoft/

persuade consumers to substitute online time for offline time. This situation suggests that competition for attention is likely to result more in substitution between online activities—the intensive margin—rather than between online activities and everything else that people spend time on—the extensive margin.

B.   PRICING FOR SECURING ATTENTION

Attention seekers typically charge a zero price to consumers for receiving valuable products and services. It is well known that a zero price can be an equilibrium price for multi-sided platforms even when the provider is a monopoly. Therefore, a zero price does not necessarily say anything about the state of competition. However, several factors suggest that this price is dictated by competition and would not necessarily be chosen by a monopolist.

First, the price of zero applies to a wide range of attention seekers. In the physical world many media charge positive prices including most magazines, newspapers, and cable television providers.[28] Zero prices are common mainly for physical media such as radio and over-the-air television that have significant technical limitations in imposing charges. On the web, zero prices apply to search engines, online games, social networking, instant messaging, as well as news and entertainment.

Second, it is widely understood that new attention seekers, even with those that have developed a drastic innovation, could not develop sufficient traffic if they were to charge a positive price. They have to take a zero price. According to a digital marketing specialist "Subscriptions can only work with the super-premium end of a publisher's audience".[29] Consumers appear even more hostile to paying for content in the music and games sectors:

> Consumers won't pay for recorded music in the future…it surely isn't because people are listening to less music. It's simply because the old adage holds true: why pay for something that you can get for free?…There is a deluge of great (and legal!) sites providing free music — including Pandora, YouTube, Spotify, Grooveshark, MOG, Rdio, and other online destinations.[30]

> These same consumers are saving their money and playing free online games, listening to free music on Pandora, canceling basic cable and watching free video on Hulu, and killing their landlines in favor of Skype. It's a consumer's paradise: The Web has become the

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[28] In many cases these physical media charge consumers a price that is less than the marginal cost of production and distribution.

[29] Thurman, N. & Herbert, J. (2007). Paid content strategies for news websites: An
empirical study of British newspapers' online business models. Journalism Practice, 1(2), 208 - 226.
doi: 10.1080/17512780701275523 <http://dx.doi.org/10.1080/17512780701275523>

[30] Music for Nothing and the Fans for Free 28 October 2011 http://allthingsd.com/20111028/music-for-nothing-and-the-fans-for-free/

> biggest store in history and everything is 100% off.[31]

Third, attention seekers that have tried to charge positive prices have lost significant traffic and have reverted to a zero price. For example, Tencent tried charging for its instant messaging service, QQ, in China in 2002. After a loss of traffic it went back to offering the basic service for free in 2003.[32] Similarly, in the United States, The New York Post tried charging iPad users $6.99 a month to read the news that was free on the website, but reversed course after about a year.

> If you wanted to read the Post on your iPad, your only option was to install its iOS app and pay $6.99 a month for a subscription, or else use a browser other than Apple's pre-installed Safari. Almost exactly one year after slamming the gate shut, the Post has quietly rolled it back up, as NY Convergence noted. Opening nypost.com in Safari on the iPad now brings up a message inviting the user to download the Post's app, but click "Cancel" and you're free to browse the site just as you can on the web.[33]

There are only a few exceptions to this experience. They typically involve platforms that have particularly valuable content for some group of users. The *New York Times* has made unlimited access to its content available only to subscribers, as has the *Wall Street Journal*. Other newspapers have tried and abandoned this approach. In 2010, The Times of London lost almost 90 percent of its online readership after making registration mandatory.

> The huge drop matches the industry expectation before the Times instituted the paywall that traffic would fall off by 90%, which is the standard experience when a site moves to a paid-access model instead of free access.[34]

C.   FEATURE COMPETITION

Even successful web sites engage in constant feature competition to attract attention. Readers who use websites that seek attention are familiar with this. Those who use smart mobile phones are reminded of feature competition when they are asked to update their applications to new releases; these updates occur many times over the space of the year.

Firms introduce new features to persuade more consumers to visit these websites and to spend more time on those websites or, in other words, to secure more attention. For example, Facebook plans to add search features in order to reduce its customers need to use Google, gaining

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[31] Anderson, Chris. The Economics of Giving It Away; In a battered economy, free goods and services online are more attractive than ever. So how can the suppliers make a business model out of nothing? Wall Street Journal [31][TYPO?] Jan 2009 http://global.factiva.com/redir/default.aspx?P=sa&an=WSJO000020091008e51v006jn&cat=a&ep=ASE

[32] www.qq.com, http://www.shvoong.com/internet-and-technologies/websites/2298647-www-qq-com/

[33] Bercovici, Jeff New York Post Pivots on iPad Strategy, Dropping Paywall 19 June 2012 http://www.forbes.com/sites/jeffbercovici/2012/06/19/new-york-post-pivots-on-ipad-strategy-dropping-paywall/

[34] Halliday, Josh. "Times Loses Almost 90% of Online Readership." Guardian 21 July 2010: n. pag. Web.

a greater share of their attention. "Mark Zuckerberg," for example, "indicated that the social networking company would probably intensify its competition with Internet search giant Google, by giving its users more ways to search on its website."[35] Similarly, Monster, an online job board discussed in more detail in the next section, "…, is looking to capitalize on social networks. In June it launched an application, BeKnown, "that encourages Facebook users to refer friends for jobs, or see what contacts are connected to a company where they're seeking work."[36]

New features are introduced more frequently for web-based products than for other products including even software for personal computers. It is relatively inexpensive to program websites and add features. The hard part is coming up with innovations. Implementing them can be fast and cheap. For example, Facebook observes that "it's common to write code and have it running on the live site a few days later."[37]

D. ENTRY

There is frequent entry by advertising-supported online attention seekers. These range from small businesses such as blogs to ones that become large quickly such as Twitter. Each month, Compete.com reports the top 15,000 websites by unique visitors. Out of the top 15,000 websites in the January 2012 list, 3,954 (26 percent) were replaced by different websites on the July 2012 list, just six months later.[38] Many of these new entrants quickly grew to a substantial size. The largest 100 of them each had more than 150,000 hours of time, which would have placed them in the top sixth of the January 2012 list.[39] Over a longer time period, out of the 15,000 websites in the September 2002 list, 12,257 (82 percent) were replaced by different websites on the September 2012 list, a full ten years later.[40]

As a consequence of this growth, the number of very large websites is growing. Table 5 shows the growth in the number of websites with more than one million hours of attention per month.

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[35] Pathak, Mitra. "Zuckerberg: Facebook to intensify competiton with Google with more robust search engine." TopNews.in12 Sept 2012.

[36] Zieminiski, Nick and Koyitty, Bikoy. "Insight: Facebook, LinkedIn threaten to slay Monster.com" Reuters.com 24 Aug. 2011.

[37] "Careers at Facebook." Facebook. Web. 17 Dec. 2012.2012. https://www.facebook.com/careers/teams/engineering.

[38] Some of these new websites do not represent new businesses, but are rather new websites for existing businesses.

[39] Compete.com database, January 2012 and July 2012.

[40] Compete.com, September 2002 to September 2012.

Table 5: Growth in the Number of Websites Attracting Large Amounts of Time Spent

Threshold (Hours Per Month)	Number of Websites Exceeding Threshold		
	September 2002	September 2007	September 2012
1,000,000	95	224	453
2,000,000	37	101	231
5,000,000	16	38	89
10,000,000	8	17	44
20,000,000	4	9	21

Source: Compete.com, September 2002, September 2007, and September 2012.

These entrants reduced the amount of time obtained by existing websites. Table 6 shows how the share of time held by the top web sites in September 2002 changed over the course of the decade. As note above the total amount of time online roughly doubled over this time period. The share of time held by the top 10 websites in September 2002 fell from 32.2 percent to 12.9 percent in September 2012. Other measures of the top websites had similar declines in the share of time.

Table 6: Share of Time Spent at September 2002's Top Websites over Time

	Share of Time Spent			Change (Percentage Points)		
	Sept-2002	Sept-2007	Sept-2012	Sept-2002 to Sept-2007	Sept-2007 to Sept-2012	Sept-2002 to Sept-2012
Top 10 Websites in September 2002	32.2%	21.2%	12.9%	-11.0%	-8.2%	-19.3%
Top 50 Websites in September 2002	40.4%	25.1%	16.1%	-15.4%	-9.1%	-24.4%
Top 100 Websites in September 2002	44.6%	27.0%	17.4%	-17.6%	-9.5%	-27.1%
Top 500 Websites in September 2002	55.1%	34.5%	26.0%	-20.8%	-8.4%	-29.1%
Top 1000 Websites in September 2002	60.0%	37.6%	28.2%	-22.4%	-9.3%	-31.7%
Top 5000 Websites in September 2002	70.2%	43.2%	32.8%	-26.9%	-10.5%	-37.4%
Top 10,000 Websites in September 2002	73.1%	45.0%	34.3%	-28.1%	-10.7%	-38.8%
Top 15,000 Websites in September 2002	73.9%	45.4%	34.9%	-28.5%	-10.5%	-39.0%

Source: Compete.com, September 2002, September 2007, and September 2012.

E.   DRASTIC INNOVATION

Drastic innovations involving attention seeking have occurred frequently online in the last decade. These drastic innovations result in the provision of what appear to be very different products and services than anyone has offered before. Some of these have garnered very large audiences. Table 7 lists the top 25 websites by unique visitors in August 2012, identifies their entry dates, and describes their services.[41] Of these websites the author would consider 9 of them as having introduced a drastic innovation.

Table 7 does not include the most dramatic innovation in the digital economy in the last decade: smart mobile devices including smart phones and tablets. A massive amount of consumer attention is now focused on using these devices and the applications that are available for them. Some web-based attention seekers have lost significant attention to mobile-based attention seekers. Zynga, for example, has lost significant traffic to its games, which were typically played on personal computers, to mobile game providers.[42] It has therefore lost considerable advertising revenue as well.

The frequency of these drastic innovations means that the attention that websites have secured is constantly up for grabs as new properties come into being. This imposes significant competitive pressure to continue to innovate.

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[41] Top 25 websites in August 2012 based on unique visitors as reported by Compete.com. The list of the top 25 websites in August 2012 based on unique visitors as reported by comScore is similar. The most significant exceptions involve the fact that comScore aggregates different domains owned by the same firm. This affects many properties, including Google (google.com, youtube.com, blogspot.com); Microsoft (microsoft.com, bing.com, msn.com, live.com); Glam Media (more than 1500 lifestyle websites and blogs); Disney (disney.com, abcnews.com, cnet.com, espn.com, go.com); and AOL (aol.com; huffingtonpost.com).

[42] "Zynga has largely missed an opportunity to expand into mobile gaming because of its commitment to Facebook. Zynga's best-know games are in decline…" Blueshift Research, "Zynga's Dominance Threatened As Games Fade, EA Rises."   November   10,   2012 http://blueshiftideas.com/reports/111103ZyngasDominanceThreatenedAsGamesFadeEARises.pdf

Table 7: Drastic Innovations by Top Websites

Website	Entry Date	Services	Drastic Innovation?
google.com	September 4, 1998 (Incorporated)	Search	PageRank; Android
facebook.com	February 4, 2004 (Launched)	Social Networking	Social Graph; Business Pages
yahoo.com	March 1, 1995 (Incorporated)	Portal	First Successful Web Directory
youtube.com	February 14, 2005 (Launched)	Video	Easy-to-use, nearly universal video storage format
bing.com	June 1, 2009 (Preview Launch)	Search	
amazon.com	July 1995 (First Sale)	eCommerce	Recommendation System; Kindle
wikipedia.org	January 15, 2001 (Formal Launch)	Reference	World-Writable Encyclopedia
msn.com	August 24, 1995 (Launch)	News	
ask.com	1996 (Founded)	Search	
live.com	November 1, 2005 (Launched)	Portal	
ebay.com	September 3, 1995 (Founded)	eCommerce	Buyer feedback to promote trust in auctions; Integration with Paypal
blogspot.com	August 23, 1999 (Launched)	Blog Hosting	First Successful Blog Publishing Tool
walmart.com	January 2000 (Launched)	eCommerce	
microsoft.com	1994 (Public Launch)	Software	
go.com	January 9, 1998 (Launch)	Search	
ehow.com	March 1999 (Launched)	Reference	
craigslist.org	1996 (Web Launch)	Classifieds	Successful Displacement of Newspaper Classifieds
aol.com	May 9, 1995 (AOL adds web access, a browser, and a homepage to its service)	Portal	

F.   NUMBER OF COMPETITORS

Thousands of firms compete for consumer attention in this way on the Internet. Of the top 500 websites, 135 primarily gather attention and sell it to advertisers, defined narrowly. The HHI for these websites is 1345 based on time on site and assuming zero share for websites outside of the top 500; as a result of the zero share assumption this HHI is therefore overstated. The five largest sellers of attention have 67 percent of the attention garnered by these 135 websites. Defined slightly more broadly, 233 of the top 500 websites primarily gather attention and sell it to advertisers.[43] The HHI for these websites is 1088, again assuming a zero share for websites outside of the top 500. The five largest attention sellers have 60 percent of the attention garnered by these 233 websites. Attention seeking is not a winner-take-all business.

G.   OTHER ATTENTION SEEKERS

The analysis above may apply to online attention seekers more broadly. Most attention seekers do not charge consumers for using their sites and provide them with a variety of services for free. They may do that for the same reason advertising supported online attention seekers do—competition for attention is so intense that it prevents businesses from profitably raising prices. The other points concerning entry, turnover, feature competition, and drastic innovation hold as well. It is likely that there is intense competition for selling attention for platforms that do not rely on advertising.

Commerce-related online attention seekers compete not only with each other but also with advertising-supported online attention seekers as well as physical stores. Consumers, for example, can conduct searches on Google for products and then buy directly from merchant websites; can conduct searches for products on Amazon or eBay and buy directly from these ecommerce sites or their affiliated stores; or increasingly look for offers on Facebook and buy from Facebook merchant pages. These sites are competing for attention from consumers and providing that attention to merchants.

Moreover, the mobile-based applications that encourage people to shop at physical stores provide increasing competition for web-based commerce-related, as well as advertising-related, attention seekers. For example, FourSquare—a mobile-based application—connects users and

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[43] Under the narrower definition, a website counts as an advertising-supported attention seeker if 1) it is consumer-focused, and 2) its revenues come exclusively or almost exclusively from banner ads, search ads, or flat listing fees for items for sale. Under the broader definition, a website counts as an attention-seeker if 1) it is consumer focused, 2) it earns substantial revenue from banner ads, search ads, fees for items for sales (whether flat listing fees, commissions, revenue sharing, buyer fees, or sales lead fees), 3) its other revenue comes from advertising-related sources, such as consumer research, marketing campaign design, other marketing services, premium membership fees for consumers to avoid ads and/or receive additional services, and credits for virtual goods.

businesses. Rather than searching online for merchants, and purchasing either online or at a physical location, the application can suggest physical stores that are near an individual (using smart phone features that allow the detection of location). This application attracts attention from people and it provides a substitute for merchants with physical locations to obtain sales.

IV.   COMPETITION AMONG ATTENTION PROVIDERS

As of April 2012, LinkedIn had 150 million members who have professional profiles on its site and can connect, and then communicate, with other members who have agreed to a relationship. Over the last decade LinkedIn has added numerous products and services for its users that has helped attract this attention. [44] Its users get many of these products and services for free. It also lets software developers access certain features of the network for free by providing them with APIs and plugins.[45] Yet, despite offering most these products and services for free, LinkedIn had revenue of $522 million in 2011. Half of that revenue came from making its members available to companies and others that were looking into hiring people. In fact formal and informal job search is a main part of the LinkedIn business.[46] Another 30 percent came from selling space on pages viewed by members to advertisers. The remaining 20 percent came from selling premium packages; these mainly provided enhanced services for members to communicate with people outside of their networks.

A.   MULTI-SIDED ATTENTION RIVALS

Like LinkedIn many attention rivals earn revenue by selling attention to advertisers. Some of these attention rivals are similar to traditional advertising-supported media platforms such as newspapers, magazines, and television. They provide news and entertainment to attract viewers and then sell display-advertising spots on their pages. Because they are software-based media properties, however, attention rivals can engage in highly targeted advertising customized to the person viewing the advertisement. Others provide services that do not have widely used counterparts off of the web. Social networks provide a variety of services related to finding, organizing, and communication with personal or professional connections. They then sell access to the web pages related to the provision of these services to advertisers. Search engines enable users to find content on websites, display the results on search-results pages, and then sell advertisers spots on those pages.[47] Some

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[44] LinkedIn's produces and services include the following: LinkedIn Connections, Invitations, People You May Know, Addressbook Importer, LinkedIn Today, Personalization Platform, LinkedIn Alumni, Mobile, APIs, Widgets, LinkedIn Corporate, Solutions/Recruiter, LinkedIn Referral Engine, LinkedIn Recruitment Media, Job Seeker Basic, Job Seeker Plus, LinkedIn Ads, Display Ads, Custom Groups, Recommendation Ads, InMail, Profile Organizer, LinkedIn for Salesforce, LinkedIn, Inc., 2011 Form 10-K, at 4.
[45] See https://developer.linkedin.com/whydevelop
[46] Mikolaj Piskorski (2007), "LinkedIn (A)" Harvard Business School Case Study, 9-707-406.
[47] Search engines are similar to printed yellow page. The providers of these business directories sell advertising on the directory pages.

attention seekers also earn revenue from applications that run on their platforms. Social game providers, for example, have to pay a percentage of their revenues to Facebook.

Advertising-supported attention rivals help merchants by providing marketing messages that can lead to sales. Other attention rivals operate online shopping malls—or more generally ecommerce sites—where the possibility of shopping draws attention and the site enables the user to buy the product directly from the site or from a store that has a link to the site. In this case the consumer is allowed to shop and receive various services such as reviews and ratings for free and the attention-seeking platform makes money from charging manufacturers, if it is selling on its own account, or merchants, if it is using a shopping-mall model. Given that consumers have limited time as they surf the web they need to make decisions on whether to use a general or specialized search engine to look for products or go to an ecommerce site to search for products. Likewise merchants need to make decisions on the extent to which they should engage in search-based advertising versus transaction fees to ecommerce sites they engage in a different form of advertising.

Some attention rivals have more complex models as we saw with Apple earlier. Apple's mobile device platform, which is based on integrated software and hardware, connects consumers, mobile carriers, applications developers, content providers, and advertisers. Many of the applications that use its platform are advertising-supported attention-seeking platforms. By encouraging the development of applications for its phones Apple competes to get more attention for its platform than for competing platforms. It makes money from that by selling more phones, more content through iTunes, and more advertising.

B.   ADVERTISER'S PURSUIT OF ROI AND COMPETITION FOR SELLING ATTENTION

Online advertising-supported attention rivals sell many different kinds of advertising. These include search-based, social media, and display advertising. The advertisements themselves range from short text ads to image-heavy display ads to video ads. Some, primarily display ads, are sold based on the number of people who see the ads while others are sold based on whether individuals click on the ads. Most online advertising is targeted based on information, or educated guesses, about the person looking at the screen at a particular point in time.

Advertisers buy online advertising because they want to sell products and services to consumers—to obtain what are called "conversions". They therefore make decisions on how much to spend on advertising and how to allocate that spending across different advertising channels—offline as well as online—by comparing the rate of return on incremental investment across different channels. Historically, advertisers have faced challenges in making these decisions rigorously because of lack of data on the relationship between advertising spending and conversions. They have had to make them judgmentally based on a mixture of subjective and objective information.

In recent years, however, advertisers have started using sophisticated software—known as cross-channel attribution technologies—for determining the marginal return on investment of

expenditures on different channels.[48] These technologies collect data on who has seen various ads, match that data to information on whether there was a sale, assess the importance of different ads in generating that sale and in some cases make provide dynamic reallocations of advertising budgets across sales channels based ⋯ 77 percent of advertising agencies and ⋯

A study of 53 marke⋯ ⋯nologies.[51] Virtually all of them used it ⋯ ⋯(98 percent). Almost two thirds (64 perce⋯ ⋯ture interactive marketing strateg⋯ ⋯' They used these attribution technologi⋯ ⋯t of the markets said they considere⋯ ⋯ and email. More than a third also consi⋯ ⋯r, online video ads, and the brand's o⋯

The existence and w⋯ ⋯s that advertisers (or advertising a⋯ ⋯online channels as substitutes. Oth⋯ ⋯mparison of their marginal returns on⋯ ⋯chnologies also makes it likely that thes⋯ ⋯n. Advertisers compare them ⋯ ⋯campaigns depending on the rates of re⋯ ⋯ of 607 marketers and agencies discu⋯ ⋯gies changed their spending as r⋯ ⋯, responses

from 179 of those surveyed shows that they appeared to have substituted between both online media as well as between online and offline media.

C.   MARKET DEFINITION AND MARKET POWER FOR MULTI-SIDED PLATFORMS

It is now well established that the analysis of competitive constraints differs in material ways for multi-sided firms that serve as intermediaries between multiple, distinct and interdependent customer groups compared with single-sided firms that do not serve customers with interdependent

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[48] Catherine Tucker (2012), op. cit.

[49] According to marketing material for Visual IQ's IQ Intelligence Suite, which is one of the leading cross-channel attribution technologies, "Once your marketing performance data and customer data (and any other data you wish to include) has been collected, formatted, normalized and integrated during the software set-up process, IQ Insight presents it to you through its powerful, yet easy to use dashboard and reporting interface. This allows you the flexibility to view, report upon and compare the performance of every channel, campaign and marketing tactic side by side, and to analyze that performance by any criteria specific to your company, industry or business model. IQ Insight provides both executive overview and granular views of your marketing ecosystem using a common set of your own key performance indicators (KPIs)."http://www.visualiq.com/products/iq-intelligence-suite (Visited 9 November 2012).

[50] Econsultancy (2012). The data were collected from September 26-October 23, 2011; of 607 respondents, 44 percent were located in North America and 33 percent were in the United Kingdom.

[51] Forrester Interactive Attribution (2012)

demands.[52] As a result of these differences standard tools used in antitrust analysis for assessing market definition are not applicable, at least not without substantial modification, to multi-sided platforms.

The analysis of multi-sided market definition and market power will depend on the particular factual circumstances of the attention rivals considered. However, it is useful to make several points.

First, consumers on-line typically "surf" websites and therefore divide their limited attention across these sites.[53] They engage in multi-homing at least with respect to attention seekers generally. As a result, advertisers that want some attention from consumers have a number of choices—subject to the differentiation issues discussed below—to obtain that attention. Viewers are not a "competitive bottleneck" in the sense that term is used in the multi-sided platform literature.[54]

Second, although consumers multi-home they have limited attention. As a result of that there is intense competition for viewers as shown in the previous two sections. Attention seekers compete aggressively for viewers not because they have a monopoly on that time when they get it—the point of the competitive bottleneck argument based on single homing—but because there is only so much time to get. It is the scarcity of time, not single-homing, that appears to drive competition for viewers.

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[52] See Evans and Schmalensee (2012), op. cit., for a survey.

[53] See Athey, Susan, Emilio Calvano, and Joshua S. Gans (2012), *The Impact of the Internet on Advertising Markets for News Media*, Working Paper. These authors develop a model that assumes that some people use one platform while others stochastically search the web. They show that under this realistic assumption many of the results of earlier models that assumed single-homing are reversed.

[54] See Armstrong, Mark (2006), *Competition in Two-Sided Markets*, RAND Journal of Economics, 37:668-691.

Figure 2: Substitution between Advertising Channels

Number of respondents:179
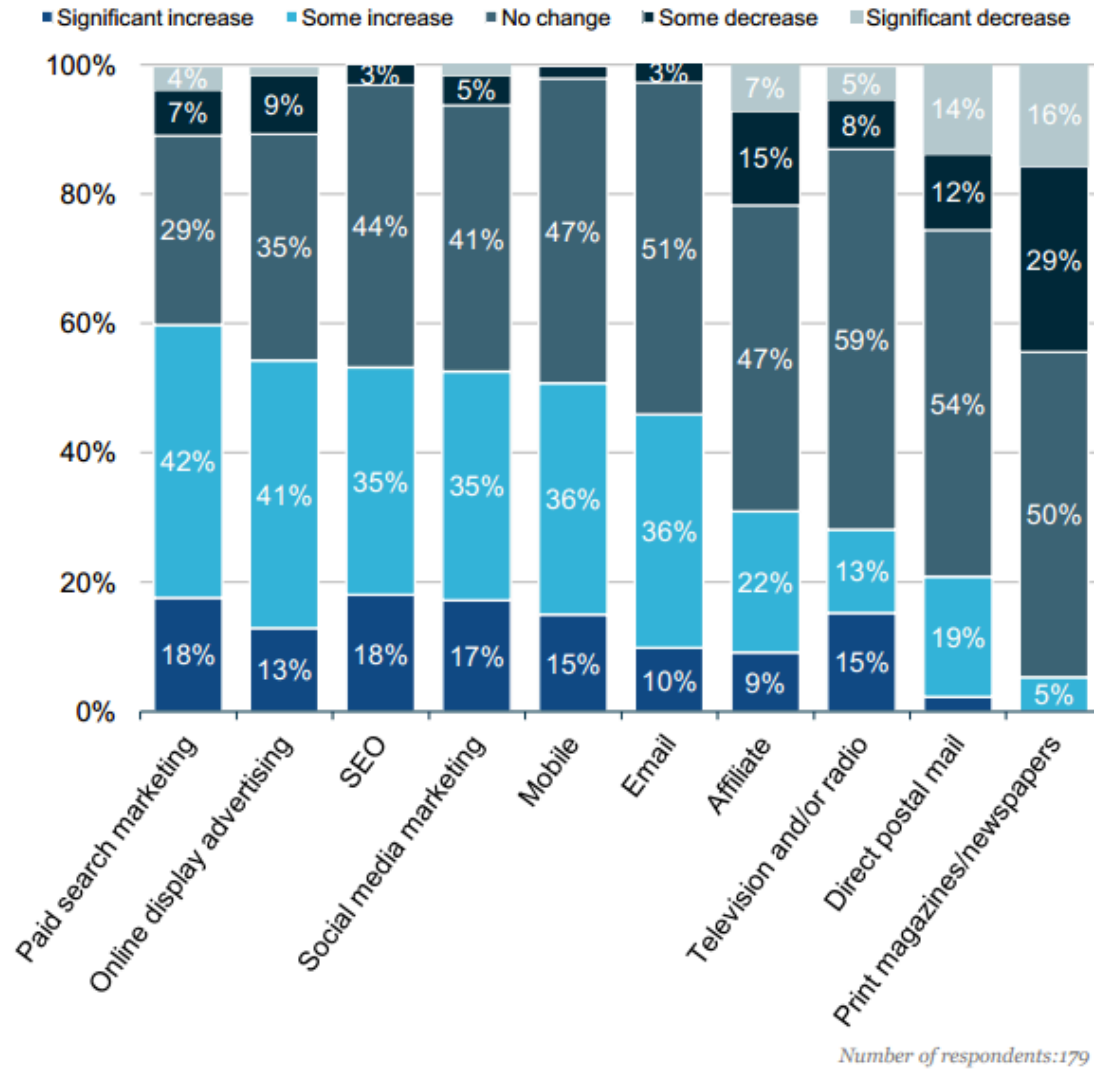
Third, a key source of differentiation among multi-sided platforms concerns the kinds of customers they make available to each side. In the case of advertising-supported media platforms some businesses specialize in securing particular kinds of customers—middle-age male professionals in the financial services industry or young Moms for example—that are valuable to customers on the other side—potential buyers of luxury cars or diapers.

V.   PRODUCT DIFFERENTION AND ATTENTION SEEKING

Attention rivals are obviously dramatically different from each other. Twitter provides a very different service to viewers (microblogging) than Yahoo (content curation). Twitter also provides a very different service to advertisers—tweets with short urls for links—than Yahoo—multi-color display ads. The point of this Article, though, is that those differences are not necessarily relevant for assessing competition among online platforms. These attention rivals are all competing aggressively with each other to secure attention. The emergence of Twitter likely took viewers away from Yahoo. And the fact that services like Twitter can become quickly established and grew explosively puts constant pressure on attention seekers. These attention rivals then compete for advertisers to buy access to some of that attention. But advertisers are constantly looking for ways to move the budgets between different channels to get what they often really want—a sale. They do not necessarily care whether that sale came from a tweet, a search, a social network ad, or a variety of other media.

This indifference to differences has limits though. It does not necessarily apply to other aspects of the attention that is procured and provided. There could be differences among the people providing attention. An advertiser seeking to sell an expensive automobile is interested in getting the attention of high-income people who are likely in the market for buying a car. The attention of a teenage game player is not a substitute. There could also be differences in the manner in which attention is generated which in turn reduces substitution possibilities. The value of messages that are delivered on a search results page, as a display advertisement on a web page, or as part of a web-based video could differ. There are differences in the formats that are dictated in part by the method of producing the attention. The context in which the attention is generated could also lead to differences in the value of attention to advertisers. Such product differentiation could result in some attention seekers, or some segments of attention seekers, having significant market power.[55]

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[55] Different sources of attention may have different values to advertisers because of differences in "how attentive" people are to advertisements on the property and the context in which they are seeing the advertisements. These differences between source of attention lead to differences in the likelihood that a view by a consumer will result in a "conversion"—that is a sale of a good—for the merchant. However, these differences do not necessarily lead to traditional product differentiation issues. For example, if property A leads to 10 percent of the conversions per person viewing an advertisement as property B, and that is the only difference, the price for showing an ad to a person on property B would be 10 percent of the price of the same advertisement on property B. At these prices the two properties would be close substitutes. For example, it is much "cheaper" per click to buy display ads on Facebook than to buy search ads on Google. But the Facebook ads result in much fewer conversions per click than do the Google ads. Larry Kim (2012), "Google Display Network vs. Facebook Advertising," Wordstream, May 15, 2012, available at http://www.wordstream.com/blog/ws/2012/05/15/ipo-facebook-vs-google-display-advertising; JCD Repair, "Google

Whether the heterogeneity for attention matters for antitrust analysis comes down to two critical issues. First, how substitutable are the different sources of attention? Second, how easily can attention providers move into different types of attention? Both of these issues need to be analyzed in the particular case at hand and it is therefore not possible to generalize. However, as we show below, while product differentiation is likely to be important in evaluating competitive constraints for attention rivals there are factors specific to online advertising that reduce the extent to which product differentiation can soften the competition among rivals.

A.   SUBSTITUTION FOR ATTENTION

We address the two dimensions of substitution identified above: substitution among the people providing attention and substitution among message delivery vehicles.

1.   *Differences across People Providing Attention*

Advertisers are interested in reaching consumers that are likely to be interested in buying their products. Media businesses help advertisers reach these likely buyers by fashioning content that will tend to attract the right audience. Different sections of newspapers appeal to different types of readers such as fashion for women and sports for men. Television networks program different types of shows sometimes tied to the time of day to attract different demographic groups such as moms or teenagers. Some media businesses develop properties that are designed to attract a particular audience that is valuable to a particular kind of advertiser. A magazine such as *Vogue* attracts women interested in fashion and businesses that have products that appeal to fashion-conscious women.

It may appear that it is not possible to substitute two media properties that have specialized in attracting a different audience. Neither readers nor advertisers could readily substitute *Fly Fisherman* for *Creative Knitting*. That does not mean, however, that these specialized magazines only face competition from similarly specialized magazines. An advertiser could reach individuals interested in knitting by buying space in more general publications ranging from magazines targeted towards older people to publications for a general audience.

For an advertiser, the issue of substitution comes down to determining the ROIs of alternative vehicles. Most physical publications charge a fee for placing an ad that is determined in part by the number of likely viewers of that ad. The average cost of reaching a relevant reader depends on the average cost of reaching all readers and the likelihood that those readers are relevant. The supply of attention by more general publications may constrain the prices charged by specialty publications depending upon their relative prices and reach of relevant viewers.

Physical properties typically show all users the same message. Everyone who watches the Super Bowl will see the same ads at half time and everyone who reads the metropolitan edition of

Adwords vs. Facebook Ads – It Was No Contest," June 19, 2012, available at http://www.jcdrepair.com/blog/google-adwords-vs-facebook-ads-it-was-no-contest/645.

the *New York Times* will see the same advertisement on the upper right-hand side of page 3.

Online properties, on the other hand, deliver messages in real time and can tailor the message to information that's available on the viewer. Typically, when an individual opens a web page the advertising technology will almost instantaneously make a decision on what messages to insert into the space reserved for advertising. For most properties, that decision is based in part on information—of varying degrees of reliability—concerning the person viewing the space. As a result advertisers that want to reach particular types of people can better evaluate the ROI of various alternatives. A supplier of knitting related goods could therefore place an ad in www.knittinguniverse.com, place search-based ads tied to search keywords related to knitting, place contextual ads tied to keywords related to knitting in content viewed by people, and place ads that are targeted to demographic groups that are likely to be interested in knitting.

As a result of online targeting it is possible that many very different types of media compete against each other for supplying attention even for very specialized advertisers. In fact, all of the online advertising considered by channel-attribution technologies, discussed above, provide for personal targeting and in some cases quite narrowly defined targeting.

2.   Differences across Delivery Vehicles for Attention

There are also differences across attention seekers in how the message is delivered to viewers.

One aspect concerns the differences in the format of the message. Some attention seekers only provide small ads that consist mainly of text, others larger ads often with pictures, and still others embed video ads. Advertisers would presumably design their ads to be most effective given the type of delivery vehicle they are using. Nevertheless, even after this optimization, it is possible that the impact of the message on the consumer, and therefore the ROI for the advertiser, could depend on the format.

Another aspect concerns differences in the context in which the message is presented. Social networks show ads on pages that typically organize information concerning personal and professional networks. Web portals show ads on pages that have content that people have chosen to see and that content may provide a proxy that enables the portal to deliver a relevant advertisement. People see search-based ads that are related to keywords they have entered. The context in which the message is delivered could affect the likelihood that an advertiser will either make a sale or improve its brand image and therefore affect the ROI for that message.

In fact, a basic craft of advertising involves assessing judgmentally, and increasingly through sophisticated models as discussed above, the relative ROI of alternative media and allocating budgets across the media to optimize the impact of advertising campaigns.

B.   ENTRY, PROLIFERATION AND REPOSITIONING

It is much easier for online attention seekers to enter, add new products and services, and reposition themselves than it is for physical attention seekers. The fixed costs of starting a web-based property are much lower as are the distribution costs. It costs little to add pages or sections to websites. As a result it is possible to add new products and services with an existing platform.

Finally, because the costs of entry, addition, and change are low it is cheaper for a web-based property to reposition itself.

Economists who consider models of product differentiation often assume that firms locate themselves in a particular place and that this location is permanent or at least cannot be changed in the short run. This assumption is not true for web businesses generally or attention seekers in particular.

C.   COMPETITION AMONG ONLINE ATTENTION SEEKERS

This Article does not presume to substitute for the fact-intensive investigation that is ordinarily required to assess competitive constraints and their implications for market definition and market power in actual cases. However, the analysis of online attention rivals above suggests that there is a presumption that seeking and providing attention is highly competitive even if we just focus on advertising-supported online attention rivals. More importantly, though, the analysis indicates that attention rivals compete with each other across boundaries that would be defined for narrowly construed products and services.

The key point is that the relevant metric for assessing competitive constraints is "attention"—the time that consumers focus their minds on content online and the portion of that time that advertisers (or others) obtain. The products and services that help secure that attention— the opportunity to tweet, to post a message to your friends, to conduct a search, to play a game on your mobile—are all in competition with each other to obtain that attention. They are substitutes. The products and services that made a portion of that time available to advertisers (or others)—a tweet, a small text ad on the side of the newsfeed, a small text ad on the side of organic search results, or a small ad at the bottom of the mobile phone screen—are all in competition with each other to provide a way for advertisers to make a sale.

That point does not imply that "attention rivals" are all in the same market or that any of them necessarily lacks market power. Those products and services may have an effect on the types of consumer attention that is acquired or the effectiveness in which it can generate sales for particular advertisers. Differentiation is still an important concept for antitrust analysis to consider in assessing market definition, market power, and competitive effects.

D.   EXTENSION TO OFFLINE ATTENTION SEEKERS

There are reasonable arguments for why different types of offline attention seekers do not compete with each other. Consider offline advertising-supported platforms. Historically advertisers did not have good data for comparing the effectiveness of television, radio and print advertising. Their budgeting and allocation decisions were therefore highly judgmental. These media were different from each other and therefore arguably served different advertising purposes. Entry and expansion was much harder than it is for online advertising. Television and radio required licenses and could only broadcast a fixed amount of time and to some extent in separate geographic areas. It would also be hard to argue that advertising-supported platforms were close substitutes for commerce platforms such as shopping malls if for no other reason than the time cost and

inconvenience of travel.

The emergence of online advertising and development of sophisticated technologies has changed this in several ways. The fact that it is possible to measure and determine incremental returns of investment for online attention seeking places pressure to consider the same issues for offline attention seeking. Knowing the ROI for online display advertising encourages advertisers to think through the likely ROI for offline advertising to make budgeting decisions. In addition, the development of computer technologies has made it increasingly possible to measure conversions physical advertising—such as using coupon codes in print advertising. As noted above, some of the cross-channel attribution technologies compare online with offline advertising channels. Figure 2 showed that this comparison has encouraged substitution particularly away from print and towards online. Goldfarb and Tucker have also found evidence of substitution between online and offline advertising.[56] The online and offline worlds for commerce are converging and this is likely to increase to degree of substitution. The use of mobile devices is bringing the online world into physical spaces. Advertisers and marketers are using increasingly mobile applications to drive physical commerce.[57]

VI.   APPLICATIONS TO ANTITRUST

The competition among attention rivals described above does not imply that antitrust should reduce the vigor with which it examines mergers and exclusionary practices among these platforms. It just needs to look for problems in the right places.

Market definition and market power analyses that focus on products and services that have similar observable characteristics but ignore constraints resulting from the broader static and dynamic competition for attention could result in false positive errors in decisions. Competition authorities and courts would tend to find anticompetitive effects when in fact the practices at issue would result in an increase in welfare. For example, consider a merger among similar media properties. The combination could increase positive feedback effects or scale economies and thereby benefit consumers and advertisers. Based on a constricted view of the relevant market, a competition authority could conclude that the merger would result in an increase in prices when in fact competition with other attention seekers in combination with potential entry would keep prices and quality from changing to the detriment of consumers.

Ignoring these competitive constraints, however, can also lead to false negative errors in decisions. That results from viewing attention seeking as consisting of many markets drawn

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[56] Goldfarb, Avi and Tucker, Catherine, Substitution between Offline and Online Advertising Markets (November 30, 2010). Available at SSRN: http://ssrn.com/abstract=1721001 or http://dx.doi.org/10.2139/ssrn.1721001

[57] E Chantal Tode, Macy's makes mobile integral part of Black Friday strategy to drive in-store sales. Mobile Commerce Daily, November 6, 2012   http://www.mobilecommercedaily.com/macy%E2%80%99s-enhances-mobile-app-to-facilitate-shopping-on-black-friday   Fairmont Hotels enhances foursquare check-ins with location-based offers http://www.mobilecommercedaily.com/fairmont-hotels-enhances-foursquare-check-ins-with-location-based-offers

narrowly based on products and services—including advertising formats—as similar. Competition authorities and courts could approve combinations, and fail to object to exclusionary practices, across those boundaries based on the erroneous conclusion that firms do not compete and therefore competition could not be harmed. For example, consider a merger of two attention seekers that have different ways of securing attention and of making that attention available to advertisers. The combination might not lead to any positive feedback effects or scale economies because of these differences. But under certain circumstances it could result in reduced feature competition for attention as well as higher advertising prices.

The key insight of this paper is that many online platforms are in the business of harvesting attention and then reselling it to merchants who use that attention to sell their own products. This way of looking at these platforms has significant implications for antitrust analysis. Ordinarily, antitrust analysis examines the products and services that businesses provide and focuses on substitution in demand and supply. The particular details of how those products and services are actually made—the details of the tools, machines, and human capital—is not a central focus of that inquiry. In the case of attention rivals, attention is the product that is being harvested, repackaged and sold. The things that are often thought of as the products and services—search engines, social graphs, tweets, ecommerce storefronts, and so forth—are really just the tools for harvesting, repackaging and selling attention. Sometimes those tools matter. But, as in antitrust generally, it is really the substitution possibilities for the underlying good—here attention—that matters.

The remainder of this section considers two decided merger matters and an exclusionary practices case to illustrate the application of the insights discussed above.

A.   MICROSOFT'S ACQUISITION OF SKYPE

The European Commission's decision approving Microsoft's acquisition of Skype echoes many of themes discussed above. Skype is an Internet-based company. It provides software that enables people to communicate over the Internet through instant messaging, voice calls, and video calls. Microsoft agreed to acquire Skype in 2011 for $8.5 billion. Among other things Microsoft also has an Internet-based communication service call "Windows Live Messenger" (WLM).[58] The combination would result in Microsoft having an 80-90 percent share of video calls in the European Economic Area (EEA). Yet the European Commission considered the merger and approved it without conditions.[59]

The Commission recognized the ease of entry into web-based businesses and how quickly these new businesses could grow:

> • "… the use of sites such as Facebook, Google+, LinkedIn and Twitter has more than doubled since January 2009."

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[58] Skype and Microsoft provide communication services to consumers and enterprises. For the sake of brevity this section just considers the merger issues relevant for the consumer services.
[59] [EC Microsoft Skype Decision] Case No. Comp/M.6281-Microsoft/Skype, 7/10/2011, p. 20.

- "The Commission observes several recent entries into the consumer communications services markets. The example of Viber Media … shows that it is possible even for a small company to enter the market and attract a significant number of users within a short period of time."
- "The Commission notes that IM is a dynamic market, as illustrated by the fast growth of Facebook that has become the leader for IM in less than three years with a market share of approximately 50%."
- " … smaller players have succeeded in rapidly entering, and gaining traction in the consumer communications sector with innovative products."

In addition, existing firms innovate and add new features constantly.

- "The innovation cycles in these markets are short. As a result, software and platforms are constantly being redeveloped. Innovators generally enjoy a short lead in the market."

This innovation is important because feature competition is important.

- "Since consumer communications services are mainly provided for free, consumers pay more attention to other features. Quality is therefore a significant parameter of competition."

- "Consumers are very sensitive to innovative services or products in consumer communications services. Providers … lose traction quickly if they are unable to offer users new and innovative functionality. For example, Skype's innovations over the last eight years highlight the critical role innovation players in its success…."

The Internet-based communication providers are also price takers

- "These markets, and this is also true for video calls, are currently free of charge. If a company were to charge for its service, competitors would switch to alternative providers offering their service free of charge. This is confirmed by internal documents of Skype showing that [>75%] of its users would switch to an alternative provider is Skype started charging for its free service (in particular for video calls)."

The Commission declined to define communication markets based on functionality given the ease with which consumers could switch between different services. And, while it also declined to define specific markets, its decision to approve the merger is clearly based on finding that ease of entry, feature competition, price-taking behavior, and rapid innovation defeated the exercise of market power. Despite finding that Microsoft would obtain a dominant position in video calling it approved the acquisition without conditions. In doing so it specifically relied on evidence that the

providers are price takers and would lose customers if they did not compete on feature innovation.

B.   MONSTER'S ACQUISITION OF HOT JOBS

Monster announced plans to acquire Hot Jobs in late 2001.[60]   The Federal Trade Commission undertook a lengthy review on the combination of these two online job boards. It appeared that it would block the transaction. Yahoo!, then the largest Internet portal, entered a competing bid and touted that it would pose less regulatory risk. Monster and HotJobs ended their plans to combine.[61] HotJobs accepted Yahoo!'s bid. The FTC approved the transaction after a short review. Monster offered to buy HotJobs from Yahoo! in 2010. Yahoo! accepted the offer. This time, but not after issuing a Second Request and going through an intense review, the FTC did not object to the acquisition or impose any conditions. The analysis of the proposed combination of these job boards highlights the breadth of competitive constraints for attention seekers as well as the role of product differentiation in narrowing the scope of relevant markets.

Job boards are websites that enable companies to advertise positions. They typically sell companies the ability to have a job posting which runs for a period of time such as a month. The posts are indexed according to the type of position, location, and other attributes. People looking for jobs can come to the website and search for a position. They are then typically directed to the advertiser's website to apply. Some job boards operate a resume database where job seekers can post a resume and employers can look for candidates. As with many advertisers, large employers can obtain annual volume-based contracts.

Job boards need to get people to pay attention to them. That is easier than it is for many attention-seekers since people who want jobs value relevant postings. However, often employers place a greater value on people who are not looking for a job. Poorer workers self-select into being active job lookers while better worker do not. Therefore, job boards also look into various ways of getting attention from what are termed passive job lookers—people who might be interested if the right opportunity presented itself.

Employers get workers from a variety of sources including recruiters, advertisements on their own websites, and advertisements in offline media. Large employers which account for a significant fraction of the revenue for job boards usually have human resources departments which manage the effort of securing applicants, deciding among them, and following the success of workers they have hired. Many of these large employers use sophisticated software that assesses the effectiveness—essentially an ROI—of various ways of recruiting workers.[62] That is similar to

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[60] Monster Worldwide, *TMP Worldwide Reaffirms Commitment to HotJobs Acquisition*, Dec. 12, 2001, available at http://www.about-monster.com/content/tmp-worldwide-reaffirms-commitment-hotjobs-acquisition.   At   the   time Monster was owned and operated by TMP, a global human resources firm, which started in 1967.
[61] "Federal Trade Commission Hints at Tough Position on Mergers between Online Competitors." *WilmerHale.*, 21 Mar. 2001.   Web.   17   Dec.   2012.   Available   at: http://www.wilmerhale.com/pages/publicationsandNewsDetail.aspx?NewsPubId=92779.
[62] For example, the popular HR software system, PeopleSoft Talent Management, has a tool that helps assess the ROI of different recruiting methods. "Oracle's talent management modules cover all phases of the talent lifecycle – planning,

traditional advertising and specifically to the cross-channel attribution technologies discussed above.

The online job boards started soon after the start of the commercial Internet in the mid 1990s. By 2001, the industry was dominated by three large companies Monster.com with 15 million resumes on file, HotJobs.com with 5 million, and CareerBuilder with 4.5 million.[63] The FTC made its initial view based on a snapshot of the roughly six-year old web economy. After that there was remarkable entry, growth, and upheaval among the online job boards. By 2008 CareerBuilder and Monster were about the same size, HotJobs had declined significantly, and hundreds of firms had started job boards.[64] Four years later, in 2012, it is apparent that in addition to these firms, social networking sites that were not necessarily perceived as job boards in the late 2000s compete with job boards as well. "Hiring solutions" accounted for $261 million (50 percent) of LinkedIn's $522 million revenue in 2011. That is more than a quarter of the roughly $1 billion of revenue that Monster Worldwide earned in that year.[65]

During the consideration of the Monster and Yahoo! offers in the early 2000s it is apparent that the FTC reached two conclusions. The first was that the consolidation of the two largest online job boards could result in a significant reduction of competition. The second was that the consolidation of second largest job board and the largest attention seeker of the time did not raise any competition concerns. The analysis in this Article suggests that the first conclusion was likely wrong and the second was perhaps too quick.

The worries over the combination of Monster and HotJobs apparently discounted the fact that entry on the web is easy and that growth can be rapid. At the time of the FTC's decision a common view—espoused by some economists who specialized in the field of network effects and adopted by many of the analysts following the web—was that by building traffic web properties would achieve network effects that would make it almost impossible for them to be displaced. Subsequent experience has in fact shown how fragile the positions of leaders on the web are as we saw earlier. There is no obvious reason why the combination of Monster and HotJobs in 2002 would have slowed the rise of the many alternatives that started or grew rapidly. At the same time there are indirect network effects for job boards and it is possible that the combination could have increased the efficiency of job matches.

The FTC apparently thought that letting Yahoo! acquire HotJobs was not an issue since they did different things. Yahoo! provided a spectrum of services designed to attract attention, which it then sold to advertisers. Around this time Yahoo! accounted for 13 percent of time spent on the web—and more if we focused on pure attention seekers.[66] If one is concerned about network

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recruiting, performance, learning, career development, succession planning, compensation, talent reviews and measuring and reporting." Oracle, http://www.oracle.com/us/products/applications/peoplesoft-enterprise/human-capital-management/talent-management/features/index.html

[63] Justin Pope (2002), "Online Job Sites Face Changed Landscape," Associated Press Newswires, February 21, 2002.

[64] Robin Goldwyn Blumenthal (2009), "Turning into a Monster of a Competitor," Barron's, September 21, 2009.

[65] There were reports in mid-2012 that Facebook had plans to start a job board as well. Joseph Walker, "Facebook to Launch Job Board," Wall Street Journal Online, July 6, 2012, available at http://online.wsj.com/article/SBB0001424052702304141204577510933875917766.html.

[66] Compete.com, September 2002.

effects, though, the combination of HotJobs and Yahoo! could have raised questions. Yahoo! could have used the traffic from HotJobs to increase the share of attention it got from users and sold that attention to advertisers other than those that look for employers. Likewise, with a large share of attention—especially from passive job seekers—it could have displaced specialized job seekers who lacked this different source of traffic. Developing a job-posting feature for its portal could also have been a plausible feature for it to develop to compete for attention seekers. While we do not believe, based on the analysis presented above, that there should have been serious competitive concerns given the intensity of static and dynamic competition among attention seekers, they do point to the potential for making false negative errors as a result of focusing on functional distinction and defining markets too narrowly.

In fact, HotJobs did not prosper with Yahoo! Its position eroded and Yahoo! started looking for buyers. Monster made an offer again. This time around one of the key issues before the FTC was whether the many job specialized job boards that had emerged competed with the three main large jobs that covered many different areas—Monster, Career Builder, and HotJobs.[67] This question was analogous to the issue one would raise for general advertising vehicles versus specialized ones. Employers—as with advertisers—are ultimately interested in transacting with an individual. Therefore, we would expect that employers would view the attention of people on specialty sites (say nursing) to be substitutable for the attention of people looking for jobs (say nursing) on a site that serves many different job areas. The large employers—as with advertisers—also have sophisticated software tools for comparing the value of alternative recruiting methods including the various online jobs board. It is easy—as with advertising generally—to move job postings between the many alternatives. In the end, the FTC, without explaining its basis for doing to publicly, decided not to attempt to block the acquisition or to impose any conditions on it. It therefore presumably accepted there was a broad market for job postings or, more generally, that there were sufficient competitive constraints to prevent employers and job seekers from being harmed.

C.   QIHOO'S EXCLUSIONARY PRACTICES CLAIMS AGAINST TENCENT

Tencent and Qihoo are Chinese attention rivals.

Tencent attracts users by providing a variety of free services including instant messaging, micro-blogging similar to Twitter, online games, online security, social networking, search and e-commerce. QQ, its free instant messaging service, had 399 million monthly active users as of February 2012.[68] Tencent makes money from selling advertising to companies that want to reach its users, from selling virtual products/items for its online gaming services, charging its users for

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[67] The author worked for HotJobs on this matter and made presentations to the FTC. This section, however, is based solely on public information.
[68] iResearch data on number of users per month (February 2012).

bundled SMS packages, mobile games, and charging for other mobile value-added services such as mobile books and mobile games.[69]

Qihoo attracts users by providing a variety of free services including online and mobile security such as anti-virus software, a web browser, and a game platform with games developed by third-party game developers.[70] Qihoo's Safety Guard, which is an Internet security product, had 366 million monthly active users in February 2012.[71] Qihoo makes money from selling advertising and providing web game services.

Qihoo filed an antitrust case against Tencent in October 2011. It claimed that Tencent had abused its dominant position in the instant messaging market as a result of two actions.[72] The first concerned Tencent bundling anti-virus software with other software. In September 2010, Tencent asked IM users that had its "Software Manager", which did not include anti-virus software, if they wanted to upgrade to "PC Manager" which did. Consumers did not have to upgrade and if they did they could run other anti-virus software instead of Tencent's anti-virus software. The second claim concerned alleged exclusionary practices. In November 3, 2010, Tencent required users to stop using Qihoo's anti-virus software it they wanted to continue to use Tencent's instant messaging software. Tencent's users could still use anti-virus software provided by providers other than Qihoo as well as Tencent's own anti-virus software. The next day, Tencent rescinded that decision following complaints from the Chinese government.[73]

A threshold question for considering these claims is whether instant messaging is the relevant antitrust market and whether Tencent has a dominant position in that market. One approach to this question would involve starting with Tencent's instant messaging product, considering substitutes, and determining the smallest set of products that could be profitably monopolized. That approach is wrong for two reasons.

First, it ignores the fact that instant messaging is part of a multi-sided platform. An increase in the price, or reduction in the quality of instant messaging, reduces the number of participants in the platform. That in turn, through positive feedback effects, reduces the demand by advertisers and the revenue received by the platform. An extensive literature now documents that it is incorrect to take a one-sided approach to market definition for multi-sided platforms.

Second, and the main thesis of this Article, is that it is wrong to focus on the competition among specific products offered by attention rivals because that ignores the fact that attention rivals are competing for attention by offering different products. This broader competition for attention imposes competitive constraints on the ability of any company to raise prices or reduce the quality of service.

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[69] See Tencent 2011 annual report, pp. 107.
[70] See Qihoo's Prospectus 2011.
[71] iResearch data on number of users per month (February 2012).
[72] Qihoo v. Tencent, The High People's Court of Guangdong Province, P.R. China.
[73] Multisectoral come forward to "call a timeout" intermission "3Q war" http://epaper.jinghua.cn/html/2010-11/05/content_600180.htm

Both of these points are empirically important for the competition between Tencent and Qihoo. They are both multi-sided platforms that connect viewers, advertisers, and developers. They compete with each other and many other Chinese companies for obtaining attention and for providing that attention to advertisers. As Sina, on the large Chinese web companies observes,

> The social media and networking sector is highly competitive in China. The major portals, including Tencent, Sohu and Netease, offer similar products that compete with us for users, traffic, and content and marketing resources. In addition, there are many websites that specialize in developing social media or social networking services, including Renren.com, Kaixin001.com, hainei.com, 51.com and 159.com.[74]

Table 8: Major Chinese Attention Seekers, November 2010

Ranking	Platform Type	Platform	Monthly Users (Millions)	Share in Major Players
1	Instant Messaging	Tencent QQ	340.13	11.16%
2	Search Engine	Baidu	335.45	11.01%
3	Integrated Portal	Sina Web Portal	275.61	9.05%
4	Antivirus	360 Security Guards	275.33	9.04%
5	Integrated Portal	Netease	233.38	7.66%
6	Online Shopping	Taobao	220.95	7.25%
7	Integrated Portal	Sohu	212.85	6.99%
8	Online Video	Youku	203.56	6.68%
9	Online Video	Tudou	175.60	5.76%
10	Search Engine	Google	175.21	5.75%
11	Community	Tianya	132.00	4.33%
12	Site Map	Home of Websites	123.09	4.04%
13	Online Video	Ku6	120.09	3.94%
14	Online Video	Thunder Video	118.81	3.90%
15	Integrated Portal	Phoenix	104.89	3.44%

Source: 2010 Internet Usage Statistics iResearchchina.com

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74 Form 20-F For the Fiscal Year Ending December 31, 2010, Sina Corporation http://www.sec.gov/Archives/edgar/data/1094005/000095012311055179/f59147e20vf.htm

To attract attention these platforms offer a variety of products and services some of which overlap between platforms and some of which do not. They provide similar advertising services. Table 8 provides a list of the major companies, their key products and services, and their sources of revenue.

The extent to which these platforms compete for obtaining and providing attention is an empirical question. The point of this Article, however, is that one has to consider the sources of competition for attention, rather than competition for narrow products and services, to correctly address market definition and dominance.

VII. CONCLUSIONS

People only have so much time. Businesses that are in the business of enticing people to give them a piece of that time push up against that constraint. The amount of content on the web has grown far more rapidly than the amount of time that people spend surfing the web. By the end of the 2000s the average amount of time that people spend per month using their personal computers to surf the web stopped increasing despite many more things to do. Some of that time shifted to mobile devices and the web-based and native applications that work with these devices.

In the digital economy, entrepreneurs are constantly coming up with new and creative ways to get people's attention. Their companies compete with each other at least in a broad sense. They compete to obtain scarce time and then they are competing to sell that time to advertisers and others who would like to have it. Importantly they are competing even if they are providing very different services to people. That's why Amazon, Facebook, Google, Yahoo!, Yelp and many similar firms consider each other rivals even though their primary lines of consumer services are different.

 Attention rivals impose competitive constraints on each other across boundaries defined by products and services they provide to consumers and advertisers. It is an empirical matter whether these constraints are strong enough to place particular attention rivals in the same relevant antitrust market and to significantly limit the market power of particular platforms. That will ultimately depend, in part, on the extent to which consumers and advertisers turn from one attention seeker to another as prices, quality, and features change. The standard tools of competition analysis—diversion analysis and econometric analysis of demand, adjusted for applicability to multi-sided platforms—can help analysts obtain the evidence necessary for a proper assessment.

This Article, however, shows that there is a strong presumption that it is wrong to define antitrust markets by looking purely at functional substitution among products. Moreover, it shows that indicators such as churning of firms and the demand elasticity of consumers point toward attention rivals generally facing high degrees of competitive constraints that would limit their ability to raise price, degrade quality or exclude competitors. Seeking and providing attention, especially online, looks like a rather competitive business.