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**An Antitrust Analysis of Google's Proposed Acquisition of
DoubleClick**

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By serving as a key revenue source for online content providers, online advertising has been instrumental in the development of innovative websites. Continued innovation among content providers, however, depends critically on the competitive provision of online advertising. Suppliers of online advertising provide three primary inputs—(1) advertiser tools, (2) intermediation services, and (3) publisher tools. Certain suppliers such as Google provide a platform that combines the inputs into one integrated service. In this paper, we focus on the overlapping products sold to advertisers by Google and DoubleClick—namely, the supply of advertiser tools. Because the supply of advertiser tools is highly concentrated, Google’s proposed acquisition of DoubleClick raises important questions for antitrust authorities. Proponents of this acquisition argue that Google and DoubleClick do not compete—that is, buyers of search-based or contextual-based advertising (the two advertising channels in which Google participates) do not perceive graphic-based advertising (the advertising channel in which DoubleClick participates) to be substitutes. Thus, they conclude that the proposed acquisition would not lead to higher prices.

In this paper, we examine economic evidence and legal precedent to help identify the relevant antitrust product market for Google’s proposed acquisition of DoubleClick. According to the Federal Trade Commission and Department of Justice Horizontal Merger Guidelines, product markets are defined by the response of buyers to relative changes in prices. To inform how buyers—in this case, online advertisers—would respond to relative changes in price across the three online advertising channels (search, contextual, and display), we analyze the results of a survey of online retailers. The survey suggests that (1) a significant share of online advertisers would substitute among the three channels in response to relative changes in prices, and (2) a significant share of DoubleClick customers would turn to Google before any other supplier in response to an increase in the price of DoubleClick’s advertiser tools. In particular, the survey indicates that a combined Google-DoubleClick would likely have a greater incentive to increase the price of DoubleClick’s advertiser tools relative to a stand-alone DoubleClick offering.

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I. INTRODUCTION

Online advertising has played a key role in the emergence of a vast amount of Internet content. In 2007, U.S. advertisers were expected for the first time to spend more on online advertising than on radio advertising.¹ Without the revenue that websites generate from posting advertising on their pages, countless applications and social networks such as WashingtonPost.com, Engadget, and MySpace would not likely have been economically viable. Advertisers bear the cost of webpage development through advertising fees; the alternative—charging consumers subscription fees—would result in a smaller online environment. This result follows from the fact that end users are generally more price-sensitive than advertisers.

Considering the rapid pace of consolidation among online advertising firms, Google’s planned acquisition of DoubleClick presents antitrust authorities with a much-needed opportunity to define the relevant antitrust product market for merger review. According to the U.S. Department of Justice and Federal Trade Commission *Horizontal Merger Guidelines* (“*Merger Guidelines*”), product markets are defined as the smallest group of services such that a hypothetical monopoly provider of those services could profitably raise prices above

1. Ben Macklin, *Radio Trends: On Air and Online*, EMARKETER, Aug. 2007, abstract available at http://www.emarketer.com/Reports/All/Emarketer_2000409.aspx?src=report_head_info_sitesearch (“By 2008, online advertising in the US is expected to surpass radio advertising spending.”). For 2007, eMarketer projects \$21.7 billion in spending on online advertising, versus \$20.4 billion for radio advertising.

competitive rates.² Fortunately, past efforts by the courts and other antitrust authorities provide boundaries within which the Federal Trade Commission (FTC) can define a relevant product market for the purpose of analyzing the competitive effects of the proposed acquisition. In the absence of data on how buyers have responded to relative changes in prices, survey data—such as the European Commission's pending survey of Google's customers—can be used to help define the relevant product market.³

The proposed acquisition has received much attention from the press and analysts. For example, Stiefel Nicolaus analysts have identified several antitrust concerns that they feel will have to be addressed before Google's proposed acquisition of DoubleClick can move forward. The first concern is that Google may accumulate so much consumer data—which can be used to more effectively target advertising—that it may reach a tipping point that limits new entrants into the online advertising market.⁴ This concern suggests that new entrants would not have comparable consumer information, and thus would begin at a significant competitive disadvantage to Google. The acquisition could also put existing rivals at a permanent competitive disadvantage, which could impair their ability to compete effectively. The analysts also note that consumer privacy may also be harmed by this acquisition. They point to the 2000 purchase of Abacus by DoubleClick, an event that sparked a privacy battle and, ultimately, a consent decree maintaining the separation between their consumer databases. We do not address the consumer privacy issues raised by the proposed acquisition here, which is not meant to suggest that the matter is trivial.

In this paper, we use economic analysis to help identify the relevant antitrust product market for Google's proposed acquisition of DoubleClick. Specifically, we examine the procompetitive hypothesis, offered by proponents of the acquisition, that Google and DoubleClick compete in distinct, separate product markets, as posited by Thomas M. Lenard and Paul H. Rubin in their August 21,

2. See Dep't of Justice & Fed. Trade Comm'n, Horizontal Merger Guidelines § 1.1 (1997). ("Absent price discrimination, the Agency will delineate the product market to be a product or group of products such that a hypothetical profit-maximizing firm that was the only present and future seller of those products ('monopolist') likely would impose at least a 'small but significant and nontransitory' increase in price.") [hereinafter *Merger Guidelines*].

3. *EU Questions Google Customers over DoubleClick*, REUTERS, Sept. 6, 2007, available at http://today.reuters.com/news/articlenews.aspx?type=technologyNews&storyid=2007-09-06T124843Z_01_BRU005921_RTRUKOC_0_US-GOOGLE-DOUBLECLICK-EU.xml ("The European Commission has taken the unusual step of sending questionnaires to Google customers before the company officially seeks permission to take over a rival, two business sources familiar with the situation said on Thursday.").

4. Blair Levin, Rebecca Arbogast & David Kaut, *Google-DoubleClick Merger Review – A Big Battle in a Bigger War*, STIEFEL NICOLAUS, Apr. 23, 2007, at 3 ("In the context of the competition analysis, opponents are concerned that the Google-DoubleClick combination will have access to so much consumer data...that there will effectively be a tipping point for targeting ads such that the current (and growing) market-share gap between Google and its competitors will become irreversible.").

2007 article in the *Wall Street Journal*.⁵ Lenard and Rubin contend that Google places ads “mainly” on its own search websites (“search-based ads”), whereas DoubleClick-supported ads use third-party websites such as CNN.com or NYTimes.com (“publisher-based ads”). As a result, they argue that “the two companies undertake activities that don’t overlap.”⁶ To test that hypothesis, we analyze new survey data, which reveals the degree to which buyers of online advertising perceive the three online ad channels—(1) search, (2) publisher-based contextual, and (3) publisher-based graphic—to be substitutes. As an alternative defense of the merger, Lenard and Rubin argue that online advertising competes with other forms of advertising, such as print and television.⁷ To assess the hypothesis that a hypothetical monopoly provider of online advertising would need to control the supply of other forms of media to raise prices above competitive rates, we examine regulatory precedent, empirical research, and court decisions relating to inter-media substitution.

Our analysis of market definition proceeds in two steps. We begin by analyzing which products should be included in the relevant market *within a given channel*. Suppliers of online advertising offer three inputs: (1) advertiser ad management tools (“advertiser tools”); (2) advertiser-publisher intermediation (“intermediation services”); and (3) publisher ad management tools (“publisher tools”). Advertiser tools and publisher tools are software packages that allow advertisers and publishers, respectively, to track, manage, and serve ads, and are provided by specialized software firms. Ad intermediation refers to the process of matching advertisers (buyers) to publishers (sellers) in an advertising marketplace, which can be done by publishers’ direct sales forces, specialized “ad networks” that resell publisher ad space, or “ad exchanges” that provide an online marketplace for advertisers and publishers. Intermediation provides access to publishers’ ad space, which may be provided by either search engines (Google.com or Yahoo!.com) or by third-party content web sites (for example, CNN.com). Google provides a platform that integrates each element into one offering for search and (third-party) contextual ads, whereas DoubleClick provides advertiser tools and publisher tools for firms using graphic (also known as “banner” or “display”) ads. Because our analysis focuses on the competitive effects on online *advertisers*, we do not include the supply of *publisher* tools in the product market.⁸ Because the two inputs sold to online advertisers—advertiser tools and intermediation service—are complements,⁹ basic economic

5. Thomas M. Lenard and Paul H. Rubin, *Googling “Monopoly”*, WALL ST. J., Aug. 21, 2007, at A14, available at <http://online.wsj.com/article/SB118765934437503661.html>.

6. *Id.*

7. Lenard & Rubin, *supra* note 5.

8. Our analysis focuses on the likely merger effects from the perspective of online advertisers. A similar analysis could be performed from the perspective of publishers, who serve as buyers on the other side of this market.

9. See DoubleClick Inc., DoubleClick Advertising Exchange, <http://www.doubleclick.com/us/products/adx> (last visited Sept. 19, 2007) (“Usage of the DART Suite of products is optional; you may use the DoubleClick Advertising Exchange service with other ad-serving products as well.”). This advertisement demonstrates that DoubleClick’s intermediation service (the DoubleClick Advertising Exchange) is complementary to DoubleClick’s advertiser tool products (the “DART Suite” generally and DART for

reasoning dictates that advertiser tools and intermediation services cannot be in the same product market. A product market consists of demand substitutes or supply substitutes.¹⁰ Applying the *Merger Guidelines*, a hypothetical monopoly provider of advertiser tools would not need to control 100 percent of the supply of intermediation services in order to profitably raise the price of advertiser tools above competitive rates.¹¹

Having determined that advertiser tools are distinct from intermediation services sold to advertisers, we next consider whether advertiser tools (or intermediation services) used in one channel (for example, contextual) belong in the same product market as advertiser tools used in another channel (for example, graphic). We address the issue of buyer substitution across channels by analyzing a survey of 200 online retailers, an important component of all online advertisers. According to Section 1.11 of the *Merger Guidelines*, product markets shall be defined based on, among other items, “evidence that buyers have shifted or *have considered shifting* purchases between products in response to relative changes in price or other competitive variables.”¹² In the absence of evidence that online advertisers have actually shifted purchases between search, contextual, and graphic segments in response to relative changes in price, the survey can inform whether buyers *have considered shifting*—at least when prompted by a survey—purchases between those segments in response to changes in relative prices. As a result, our survey (and surveys like it) represents a legitimate method by which antitrust authorities can define the product markets implicated by Google’s proposed acquisition of DoubleClick. Our survey indicates that online advertisers do in fact perceive the three channels of online advertising to be substitutes.

Having defined advertiser tools sold to support ads in search, contextual, and display channels as a relevant antitrust market, we next examine how concentrated that market is, and how much more concentrated the market will become if the parties are allowed to consummate the proposed transaction. We find that (1) the advertiser tools market is highly concentrated, and (2) the proposed acquisition would significantly increase concentration. A similar (static) analysis of the competitive effects in the market for intermediation services sold to advertisers would likely generate smaller competitive effects given the fact that DoubleClick only recently began to provide intermediation services. The two analyses presented here—market definition and market

Advertisers in particular) and to rival advertiser tools (such as ValueClick’s Mediaplex or aQuantive’s Atlas).

10. The definitive industrial organization textbook states that a “proper definition of the product market dimension of a market should include all those products that are close demand or supply substitutes.” See DENNIS W. CARLTON & JEFFREY M. PERLOFF, *MODERN INDUSTRIAL ORGANIZATION* 612 (3d ed. 2000). The authors explain that “Product B is a demand substitute for product A if an increase in the price of A causes consumers to use more B instead.” *Id.*

11. Market definition is primarily informed by demand-side evidence. *Merger Guidelines*, *supra* note 2, at §1.0 (“Market definition focuses solely on demand substitution factors—i.e., possible consumer responses. Supply substitution factors—i.e., possible production responses—are considered elsewhere in the Guidelines in the identification of firms that participate in the relevant market and the analysis of entry.”).

12. *Id.* at §1.11 (emphasis added). Buyer-side substitution is one of four considerations enumerated in this section.

concentration—track Section 1 of the *Merger Guidelines*. The FTC will also have to consider the potential adverse competitive effects of mergers (Section II of the *Merger Guidelines*), entry analysis (Section III), and merger-related efficiencies (Section IV). Analyses of Sections II, III and IV of the *Merger Guidelines* are beyond the scope of this paper. The remainder of this paper is organized as follows.

Part II examines the online advertising industry. We provide a way to categorize different segments of the industry, and we identify the largest suppliers within each segment. We demonstrate that Google currently operates in the search-based and contextual publisher-based ad segments. According to a 2007 analysis by Alan Rimm-Kaufman, a marketing consultant, Google accounted for 73 percent of the budgets of companies that advertise on search engines (versus 21 percent and 6 percent, respectively, for Yahoo! and Microsoft).¹³ The study also revealed that Google charged more for each click, owing to Google's "bigger network of advertisers and more competitive online auctions."¹⁴ In addition to search advertising, Google sells contextual advertising through an ad network by purchasing ad space from third parties such as Washingtonpost.com and then reselling that space to advertisers. Similarly, it sells search advertising on its own site, Google.com, directly to advertisers. In contrast, DoubleClick is the leading participant in the graphic publisher-based ad segment. DoubleClick distinguishes itself from Google or graphic ad firms (such as ValueClick and aQuantive) in the sense that DoubleClick does not purchase or resell advertising space. Instead, DoubleClick—at least until very recently (April 2007)—focused its activities on the sale of advertiser tools and publisher tools.

In Part III, we examine previous antitrust decisions to determine what regulatory authorities and courts have defined as the outer limits of a relevant product market relating to online advertising. Previous U.S. antitrust proceedings relating to online advertising—including *KinderStart.com LLC v. Google, Inc.*, *Prometheus Radio Project, et al v. F.C.C.*, and the FCC's 2002 *Biennial Regulatory Review*—have a direct bearing on the product market implicated by Google's proposed acquisition of DoubleClick. We supplement this legal and regulatory review with a review of the economic literature. A highly relevant article by Reid, King, Martin and Soh demonstrates based on empirical evidence that advertisers do not find online advertising to be a substitute for traditional advertising media, such as television, radio, and outdoor advertising.¹⁵ The legal and economic review suggests that search-based advertising is too narrow and all advertising is too broad.

In Part IV, we examine buyer substitution patterns using both anecdotal evidence and a survey of online advertisers. In particular, the survey provides evidence of how buyers—in this case, online advertisers—would react to a relative change in the price of the three major channels for online advertising. The survey offers many insights on market definition that should prove helpful to antitrust agencies:

13. *Google: Inside the Googleplex*, ECONOMIST, Aug. 30, 2007.

14. *Id.*

15. See Leonard N. Reid, Karen Whitehill King, Hugh J. Martin & Hyeonjin Soh, *Local Advertising Decision Makers' Perceptions of Media Effectiveness and Substitutability*, 18 J. MEDIA ECON. 1, 35-53 (2005).

- 67 percent (weighted by expenditures, 65 percent) of respondents indicated that they would increase their purchases of *contextual ads* in response to a hypothetical 10 percent increase in the price of *graphic ads*, indicating they view the two products as substitutes.
- 66 percent (weighted, 69 percent) indicated that they would increase their purchases of *search ads* in response to a 10 percent increase in the price of *graphic ads*, indicating they view the two types of online ads to be substitutes
- 69 percent of respondents (weighted, 70 percent) would decrease (but not necessarily eliminate) their use of DoubleClick's advertiser tools if the price of DoubleClick's advertiser tools increased by 10 percent; 41 percent (weighted, 26 percent) indicated that they would increase their purchases from a rival graphic ad firm; 19 percent (weighted, 24 percent) would increase their purchases from a contextual advertising firm; 9 percent (weighted, 19 percent) would increase their purchases from search advertisers.
 - Respondents who indicated they would purchase more contextual advertising were asked which firm they would first consider. A majority (62 percent unweighted, 52 percent weighted) indicated that they would use Google AdSense, compared to 19 percent each for Microsoft AdCenter (weighted, 13 percent) and the Yahoo! Publisher Network (weighted, 35 percent).
 - Respondents who indicated they would shift some expenditures to search-based advertising were asked which search-based provider they would first consider. Google.com was the most popular, with 67 percent of the relevant respondents (weighted, 58 percent). Yahoo.com and MSN.com each garnered 17 percent (weighted, 1 and 40 percent, respectively).
 - Thus, Google would retain almost 18 percent (equal to $0.62 * 0.19 + 0.67 * 0.09$) of the "marginal" DoubleClick customers—that is, DoubleClick's customers who substitute some portion of their spending to a rival supplier of advertiser tools.

Based on the evidence presented in Parts III and IV, we conclude that the relevant product market to analyze the competitive effects of Google's acquisition of DoubleClick is online advertiser tools, consisting of tools used to support both search-based and publisher-based advertisements. The implication of this result is that providers of search and contextual-based advertising compete with providers of graphic-based advertising. Stated differently, search and contextual-based advertising likely constrain the price of graphic advertising.

In Part V, we attempt to construct a meaningful measure of market concentration in the market for advertiser tools used in all three channels. Using the *Merger Guidelines* in combination with the survey results, one can make some inferences on the likely competitive effects of the acquisition. We estimate that the post-merger Herfindahl-Hirschman Index (HHI) using revenue shares would vastly exceed 1,800 and the change in HHI would vastly exceed 100—the

threshold established by the *Merger Guidelines* for creating a presumption that the transaction would likely create or enhance market power or facilitate its exercise. Our general findings about market concentration are not sensitive to changes in the way we treat advertiser expenditures that ultimately flow to the publishers. Based on the survey evidence of marginal DoubleClick customers who would substitute to Google, one can reasonably infer that a combined Google-DoubleClick would have greater incentive to increase the price of DoubleClick's advertiser tools relative to a standalone DoubleClick. Part VI concludes.

II. THE ONLINE ADVERTISING INDUSTRY

There are two basic types of online advertisements: (1) search-based advertisements generated by search engine results ("search ads"), and (2) publisher-based ads placed alongside content on third-party websites ("publisher-based ads").¹⁶ Search ads appear alongside search engine results, and are often labeled as "sponsored results." Publisher-based ads, which are also called "affiliate ads," are advertisements placed alongside content on third-party websites; examples include advertisements found on ESPN.com, NYTimes.com, and web journals ("blogs"). Publisher-based ads can be text-based ("contextual ads") or graphic display ("graphic ads"). These three segments together provide a reasonably complete representation of the online advertising industry. Table 1 displays the segments graphically. For each advertising segment, we list the leading providers.

16. Email and online classified advertising—a third potential segment—is distinct from search and publisher ads because email and classified ads are used primarily by individuals (and some small businesses), and are not effective for online advertisers who use search and publisher ads. For example, see Thomas Eisenmann, Presentation at the AEI-Brookings Joint Center: The Economics of Internet Advertising (July 18, 2007) [hereinafter *Eisenmann Presentation*]; David S. Evans, Presentation at the AEI-Brookings Joint Center: The Economic Structure of the Online Advertising Industry (July 18, 2007), at 2; Lorin Hitt, Presentation at the AEI-Brookings Joint Center: The Proposed Google-DoubleClick Acquisition (July 18, 2007) [hereinafter *Hitt Presentation*]; . The exclusion of email and online classified ads is implicit in Eisenmann's and Hitt's discussions, and explicit in Evans's diagram.

TABLE 1: SEGMENTS OF THE ONLINE ADVERTISING INDUSTRY
AND THE MAJOR PROVIDERS BY SEGMENT

Online Advertising		
Search-Based	Publisher-Based	
	Contextual	Graphic
<ul style="list-style-type: none"> •Google.com •Yahoo.com •MSN.com •AOL.com •Ask.com 	<ul style="list-style-type: none"> •Google AdSense •Yahoo Publisher Network •Quigo 	<ul style="list-style-type: none"> •DoubleClick •ValueClick •aQuantive •24/7 Real Media

Note: AOL.com and Ask.com use Google software to supply search-based advertisements.

As Table 1 shows, Google currently operates in the search and contextual publisher-based ad channels. Google sells contextual advertising through an ad network by purchasing ad space from third parties (such as Washingtonpost.com)¹⁷ and then reselling that space to advertisers. Similarly, Google sells search advertising on its own site, Google.com, directly to advertisers.

DoubleClick, a leading provider in the graphic publisher-based ad segment, is distinguishable from Google and other graphic ad firms (such as ValueClick and aQuantive) because it does not purchase or resell advertising space to any significant degree as of yet.¹⁸ Instead, DoubleClick provides an input—one type of software for advertisers (advertiser tools) and another type of software for publishers (publisher tools)—that allows advertisers and publishers to manage their advertising inventory and produce ads. Although other graphic ad firms provide competing software, such as aQuantive's Atlas and ValueClick's Mediaplex platforms, these competitors also offer ad space directly through their own ad networks. Although DoubleClick is not involved in the direct sale of ad space, it is still a significant participant in the graphic publisher-based ad segment. Unlike contextual and search ads, no one firm in the graphic segment provides all necessary inputs. Figure 1 illustrates the fragmented nature of the graphic ad market.

17. WashingtonPost.com has recently agreed to an extension of its contextual and search advertising agreement with Google. See Press Release, Google, Washingtonpost.Newsweek Interactive and Google Renew Multi-Year Advertising Agreement (July 18, 2007), available at http://www.google.com/intl/en/press/pressrel/20070718_adsense.html [hereinafter *WashingtonPost.com-Google Contract Extension*].

18. DoubleClick has entered the businesses of buying and selling online ad space with its April 2007 launch of a beta version of the DoubleClick Ad Exchange.

FIGURE 1: CONTEXTUAL AND GRAPHIC AD INPUT PROVIDERS

	Contextual	Graphic
Advertiser Tools	<ul style="list-style-type: none"> • Google AdSense • Yahoo Publisher Network 	<ul style="list-style-type: none"> • DoubleClick • aQuantive • ValueClick
Intermediation		<ul style="list-style-type: none"> • Direct Sales • ValueClick • aQuantive • 24/7 Real Media
Publisher Tools		<ul style="list-style-type: none"> • DoubleClick • 24/7 Real Media

Figure 1 shows that Google and Yahoo! provide integrated contextual platforms, whereas the fragmented nature of the graphic ad market requires more than one firm to provide inputs. However, DoubleClick has announced plans for its own intermediation service (the DoubleClick Advertising Exchange), which will allow it to offer end-to-end service for graphic ads.¹⁹

Online advertising revenues are increasing quickly, both in the United States and abroad. A May 2007 Interactive Advertising Bureau (IAB) report estimated U.S. online advertising revenues to be \$16.9 billion, an increase of 35 percent over 2005 revenues.²⁰ Of this amount, IAB estimated search and contextual ad spending to be \$6.8 billion, and “display-related” (graphic) ad spending to be \$5.4 billion.²¹ Internet advertising has grown abroad, as well. In Australia, for example, online advertising is poised to overtake radio in terms of advertising dollars, an increase from 88 percent of radio advertising revenue last year.²² In

19. DoubleClick Inc., DoubleClick Advertising Exchange, <http://www.doubleclick.com/us/products/adx/> (last visited Sept. 19, 2007)..

20. Interactive Advertising Bureau & PriceWaterhouseCoopers, *IAB Internet Advertising Revenue Report, 2006 Full Year Results*, May 2007, available at http://www.iab.net/resources/adrevenue/pdf/IAB_PwC_2006_Final.pdf, at 3 [hereinafter *IAB Internet Advertising Revenue Report*] (“Internet advertising revenues in the United States totaled \$16.9 billion for the full year 2006...”).

21. *Id.*, at 8 (“Search advertising revenues total \$6.8 billion for the full year 2006...Display-related advertising totaled \$5.4 billion...”). Note that their definition of search advertising includes contextual ads. *Id.* (“Search categories include:...Contextual search—paid links appear in an article based on the context of the content, instead of a user-submitted keyword.”).

22. Andrew Anagnostellis and Tim Plumbe, *Ad Market Overview*, DEUTSCHE BANK, Sept. 14, 2006, at 4. For Fiscal Year 2006 online advertising is listed at AUD 778 million

what follows, we describe the segments of the online advertising marketplace in more detail, and we present market shares for each segment. It bears emphasis that calculation of market shares for a given segment of the online advertising industry does not imply that that segment constitutes a relevant product market.

A. *The Search Segment*

Search advertising, the largest and fastest growing of the three online advertising segments, is a common search engine feature. In this system, advertisers bid for search terms; when a particular term is used in a search engine query, a given advertiser's paid (or "sponsored") search result appears above or alongside the non-paid (or "natural") search results. Search engines may receive their commissions in different ways, such as on a per-view, per-click, or per-sale basis.

Evidence from industry observers suggests that advertising revenue accrues disproportionately to the high-volume firms. For example, although research firm comScore estimates Google's share of search engine *traffic* to be 49.7 percent,²³ eMarketer projects Google to collect 76 percent of search ad *revenue* (a ratio of 0.66).²⁴ Second-place Yahoo! serviced 26.8 percent of total search engine *traffic*,²⁵ but realized only 16 percent of search ad *revenue* (a ratio of 1.64).²⁶ Yahoo!'s relatively high ratio of traffic-to-revenue is shared by the other major search engines—Microsoft's MSN, Ask.com, and Time Warner's AOL—which together account for most of the remaining 25 percent of search engine volume but less than 10 percent of search ad revenue.²⁷ Furthermore, a June 2007 analysis by DoubleClick's Performics division indicates that Google's dominant share of search revenue has been widening.²⁸

In contrast to eMarketer and IAB, which estimate search revenues in the United States only, we estimate worldwide search revenue shares. Because local advertisers could easily substitute advertiser tools produced in one country for

versus radio revenues of AUD 888 million. The Deutsche Bank forecast for FY 2007 projects online revenues of AUD 1.1 billion versus projected radio ad revenues of AUD 914 million.

23. *comScore Releases April U.S. Search Engine Rankings*, COMSCORE, May 25, 2007, available at <http://www.comscore.com/press/release.asp?press=1447> [hereinafter *comScore Search Engine Rankings*]

24. David Hallerman, *Search Marketing: Counting Dollars and Clicks*, EMARKETER, April 2007, available at http://www.emarketer.com/Reports/All/Emarketer_2000384.aspx [hereinafter *eMarketer Advertising Report*]

25. *comScore Search Engine Rankings*, *supra* note 23.

26. *eMarketer Advertising Report*, *supra* note 24. Based on a revenue share of 16.3 percent (rounded above for simplicity).

27. *Id.*; *comScore Search Engine Rankings*, *supra* note 23. comScore reports a 10.3 percent search volume share for Microsoft's MSN, a 5.1 percent share for Ask.com, and a 5.0 percent share for Time Warner's AOL. EMarketer reports that Google and Yahoo! together collect 91.9 percent of search advertising revenue (or "paid search"), leaving just 8.1 percent for MSN, Ask.com, AOL, and other lesser competitors.

28. *Q1 2007 Search Trend Report*, DOUBLECLICK PERFORMICS (2007), at 3-4 ("...search spend[ing] on Yahoo! campaigns was up only 33 percent in the first quarter of 2007 versus the same time period last year (compared to an increase of 124 percent year-over-year on Google).").

tools produced in another, the relevant geographic market for analyzing the merger is likely worldwide. To the extent that the U.S. revenue shares reported by eMarketer and IAB are not significantly different from the worldwide revenues that we calculate below, the choice of geographic market is not critical.

Our estimate of Google's revenue share is lower than some industry estimates.²⁹ For example, a widely reported analysis by Alan Rimm-Kaufman estimated Google's share of search revenue at about 70 percent.³⁰ There are three possible explanations for this difference. First, "Google Network" websites generate search revenue. For simplicity, we allocated all "Google Network" revenue to Google's contextual revenues. Thus, our estimate of Google's search revenues is likely understated. Second, Google provides some inputs for AOL and Ask.com search ads.³¹ To be conservative, we treated AOL and Ask.com as separate entities, which had the effect of decreasing Google's share. Third, Google's search-based revenues are growing faster than its competitors, which would result in higher revenue shares for 2007 (our shares are for 2006).³² Table 2 presents the reported search ad revenue shares for Google and Yahoo!, along with estimates for Microsoft's MSN, Time Warner's AOL, and Ask.com.

29. We understand that Google generates primarily, if not exclusively, search-based revenue from its "Google web sites." Yahoo!, MSN, and AOL provide content as well as search engine functions on their proprietary web sites, and accompany the content with non-search (primarily graphic) ads. Although we recognize this distinction, data were not available to disaggregate search and non-search revenues on proprietary websites. As a result, we chose to use all proprietary web site (for example, "Google web site" or "Yahoo! web site") revenues as a measure of search revenues. Similarly, despite the possible presence of search revenues in Google, Yahoo!, and Microsoft's "affiliate" revenues, we elected to allocate all "affiliate" revenues as contextual revenues. These distinctions do not affect our HHI analysis, which aggregates firm search, contextual, and graphic revenues into a top-line revenue number.

30. See *Inside the Googleplex*, *supra* note 13.

31. Google provides its AdWords search advertising platform for both AOL and Ask.com, and also provides the content (search engine results from Google.com) for AOL. Ask.com provides its own search engine. To ensure that Google's Ask.com and AOL revenues are not double-counted in our analysis, we remove the Ask.com and AOL revenues from Google's "affiliate" revenues in the contextual segment. Google reported \$4.16 billion in "affiliate" (contextual) revenues for 2006, but in Table 3 we report that number less Ask.com and AOL search revenues (\$3.052 billion).

32. For example, its "Google web site" revenues for the second quarter of 2007 accounted for 59 percent of search revenue for the top five search engines, as opposed to 49 percent for all of 2006. See Google Inc., Quarterly Report (Form 10-Q), at 20 (Aug. 8, 2007). See also Yahoo Inc., Microsoft Corp., Time Warner, and InterActive Corp. Quarterly Reports (Forms 10-Q).

TABLE 2: WORLDWIDE PROPRIETARY SITE (SEARCH)
SEGMENT REVENUE SHARES, 2006

Provider	Revenue (M)	Share
Google	6,333	49%
Yahoo!	3,245	25%
Microsoft	2,227	17%
AOL	564	4%
Ask.com	544	4%
TOTAL	12,913	100%

Sources: Company SEC filings.

As Table 2 shows, Yahoo! was the second largest provider with 25 percent of search revenue. Yahoo! and Microsoft's MSN.com also receive revenues from graphic and contextual ads placed on their own websites that are unrelated to search, such as Yahoo! Finance. Because we do not have an accurate way to distinguish those revenues, we treat all revenue derived from their websites as search revenues. Thus, search revenue for both Microsoft and Yahoo! may be overstated, which also has the effect of understating Google's actual share.

Table 2 revenues include "traffic acquisition costs" (TAC), which are payments made to content publishers in exchange for contextual ad space or the inclusion of a given firm's search tool on the publisher's web site. We included these revenues in Table 2 because we cannot properly apportion TAC charges between the search and contextual channels. In our HHI analysis, we remove TAC from the aggregated search and contextual revenues to be consistent with methods used by eMarketer³³ and IAB.³⁴

Network effects are a driving force behind Google's commanding dominance in the paid search segment. Google's search algorithm, like those of its competitors, relies heavily on consumer search and purchasing information to prioritize its search results and accompanying advertisements.³⁵ As a result, it has developed a reputation for highly relevant search terms and advertisements, which increases its ability to attract users and advertisers alike. In addition to generating highly relevant results, Google's status as the largest search engine gives it a size and reach not available to advertisers on competing search

33. See, e.g., Press Release, eMarketer, Google Expected to Pocket 25% of Online Ad Revenue in 2006 (Oct. 17, 2006), available at <http://www.emarketer.com/Article.aspx?id=1004217>.

34. See IAB *Internet Advertising Revenue Report*, supra note 20. We infer that IAB/PwC also removes TAC, since their 2006 full-year revenue estimate (\$16.9 billion) is consistent with eMarketer's 2006 full-year revenue estimate (\$16.879), which removes TAC. See Press Release, eMarketer, Yahoo! Languishes, While Google Keeps Pulling Ahead (July 17, 2007), available at <http://www.emarketer.com/Article.aspx?id=1005162>.

35. For example, Google founders Sergey Brin and Lawrence Page discuss how Google's Page Rank delivers the most relevant search results by tracking consumer page choices. As a result, Google's process is highly data-intensive. See Sergey Brin and Lawrence Page, *The Anatomy of a Large-Scale Hypertextual Web Search Engine*, PROCEEDINGS OF THE SEVENTH INTERNATIONAL CONFERENCE ON WORLD WIDE WEB 7 (1998), 107-117.

platforms. This increased size of the online audience is particularly important in an industry where much of the advertising space is devoted to audiences too small for conventional advertising. For example, Google's vast audience allows it to reach more members of a targeted audience (for example, water ski enthusiasts) at a lower cost than their search competitors or traditional outlets such as print, television, or radio advertisements.

The search ad segment is particularly favored by online retailers. For example, retailing giant eBay is the largest user of online search advertising, accounting for 4.1 percent of all "impressions" or advertisements, viewed in March 2007.³⁶ comScore notes that, "[t]he top ten paid search advertisers, generating 16 percent of all sponsored links, were all retail or comparison shopping sites."³⁷ Considering that 280,000 advertisers used Google services alone in 2004, and more than 600,000 are expected to use Google by 2008,³⁸ it is remarkable that the top ten advertisers managed 16 percent of all impressions.

B. The Publisher-Based Segment

Publisher-based ads represent a second major segment of the online advertising industry. These ads are generally distinguished by their visual presentation, and are often classified as either contextual ads or graphic ads. These ads are also differentiated by the use of audience targeting mechanisms, which advertisers use to limit the scope (and thus cost) of advertising campaigns to those consumers most likely to purchase their products. These differences are largely superficial, however, as both types of publisher-based ads appear above or alongside third-party content. Because they compete for publisher space and for advertising customers, contextual and graphic publisher-based ads are likely perceived as substitutes.

Publisher-based ads are ubiquitous on the Internet. These ads may appear next to online articles, journals ("blogs"), or various other forms of online content. For example, the advertisements that appear alongside NYTimes.com or ESPN.com articles would be considered publisher-based ads. Although some web properties can command significantly higher rates than others, publisher-based ads are commonplace throughout the universe of third-party content.

The distinction between contextual and graphic publisher-based ads is increasingly blurry. For example, Google notes that its contextual advertising tool AdSense, which scans a page's content and selects an appropriate (usually text-based) ad, can now deliver "text or image ads."³⁹ Similarly, Microsoft portrays its "content modules" as including "...text-only, text and graphic, or scrolling behavior."⁴⁰ These innovations have increasingly brought contextual

36. *E-Commerce Sites Dominate Paid Search Advertising*, COMSCORE, June 5, 2007, available at <http://www.comscore.com/press/release.asp?press=1461>.

37. *Id.*

38. Verne Kopytoff, *Google Forecasts Growth*, SAN FRANCISCO CHRON., Oct. 20, 2004, available at <http://sfgate.com/cgi-bin/article.cgi?file=/chronicle/archive/2004/10/20/BUG269CI1P1.DTL&type=business>. More recent figures were unavailable.

39. Google, Inc., Learn About AdSense, https://www.google.com/adsense/login/en_US/ (last visited July 6, 2007).

40. Microsoft Corp., Microsoft Digital Advertising Solutions, Content Module, <http://advertising.microsoft.com/Content-Module> (last visited July 6, 2007).

and graphic advertisers into direct competition, as well as making these products closer from the perspective of online advertisers.

1. Contextual Ads

Contextual advertising is very similar to search advertising; unsurprisingly, the major search engines also dominate this advertising segment. As the name suggests, this ad type appears as a set of “sponsored” or “featured” ad links. It is known as “contextual” advertising because the particular ad to be served is chosen to match the context of the content against which it is displayed. To do so, contextual publisher ad servers scan the webpage for keywords that identify what kind of content, and thus what demographic, the webpage or article relates to. The web server then matches the appropriate ad for that demographic. This process is similar to how search engines find pertinent query results.

Consider the example of a young men's clothing retailer. This firm might wish to advertise alongside sports content, under the assumption that such content is disproportionately used by young men. This retailer would bid on a particular keyword—such as “sports”—and supply a text ad to a contextual ad server, such as Google's AdSense. Google's bidding platform performs the intermediation function, whereas the retailer would generate the text ad using Google's advertiser tool. To target the desired demographic, a contextual advertisement would scan the content of a given webpage for keywords that indicate the site contains sports information (for example, “baseball”, “batting average” and other words might be used as indicators). If a site is identified as a sports website and assigned the keyword “sports”, the clothier's ad would be displayed by Google; if it is not, Google would display a different advertisement from a different client. Content information and ad serving would be provided by Google's publisher tools.

The largest participants in this market are Google's AdSense, Yahoo!'s Yahoo! Publisher Network, and Quigo Technologies' AdSonar. One estimate suggests that about 60 percent of the \$2 billion a year industry was claimed by Google's AdSense alone.⁴¹ Yahoo! is the second-most used of the major services by revenue. Table 3 presents estimated market shares as apportioned among these three segment leaders. As discussed in Section II. A., these revenues are based on a firm's reported “affiliate revenues,” and thus may include contextual revenue *and* search-based affiliate revenue. In addition, they include TAC payments as revenues, although these revenues are removed in the subsequent HHI analysis when search and contextual revenues are combined. To the extent that Yahoo!'s reported affiliate revenues contain more search revenue (as a percentage of total affiliate revenue) than Google's, our estimate may understate Google's contextual revenue share.

41. As estimated by eMarketer analyst David Hallerman. See Louise Story, *An Ad Upstart Challenges Google*, N.Y. TIMES, Feb. 26, 2007, available at <http://www.nytimes.com/2007/02/26/business/media/26adco.html>.

TABLE 3: WORLDWIDE “AFFILIATE” (CONTEXTUAL)
SEGMENT REVENUE SHARES, 2006

Provider	Revenue (M)	Share
Google	3,052	56%
Yahoo!	2,382	43%
Quigo*	60	1%
TOTAL	5,494	100%

Sources: Company SEC filings; * Brett Tabke, *Interview with Michael Yavonditte*, June 21, 2007.

In 2006, Google accounted for the majority (56 percent) of worldwide contextual advertising revenue.⁴² As was the case for the search segment, Yahoo! is the second-largest provider with 43 percent. Several recent start-ups have entered the contextual ad segment, of which Quigo is the largest.

2. Graphic Ads

In contrast to contextual ads, graphic (also called “non-contextual” or “display”) ads can take many forms. These advertisements include traditional banner graphic ads, video ads, and even some rudimentary text-based ads. Graphic ads are also the oldest of the three kinds of online advertising discussed here, with their origins dating back to the first technology boom of the mid- to late-1990s. As such, they enjoy prominent placement on many of the more established online properties, including the online outlets of major media concerns in television, radio, and newspaper.

Graphic publisher-based ads are also distinguished from contextual ads by audience targeting mechanisms, which are important to ensure that advertisers reach their intended audience. Advertisers often want to limit their exposure to those most willing to buy their product, as a way to limit costs and maximize potential revenues. To continue with the previous example, a young men’s clothing retailer might prefer to target only men aged 18 to 30; to do so, it might again decide that consumers of sports information are likely to be interested in their products. In contrast to contextual ads, graphic ads use electronic tags, or “cookies”, to track which sites an Internet user visits. If an Internet user often visits sports pages, a graphic ad server might select the clothier’s ad even if the user is currently viewing a soap opera website, under the assumption that the

42. 56 percent as in Table 3 above. Based on 2006 full-year contextual advertising revenue for each provider. See, Google Inc., Annual Report (Form 10-K), at 42 (Mar. 1, 2007). Revenues for Yahoo! are based on 2006 annual revenue as reported in Yahoo! Inc., Annual Report (Form 10-K), at 37 (Feb. 23, 2007); split between Yahoo! own site/affiliate site (contextual/search) revenues based on ratio of 58 percent “owned and operated sites” (search) and 42 percent “affiliate site” (contextual) revenue for the first six months of 2007 (comparable 2006 information was not available). See Yahoo! Inc., Quarterly Report (Form 10-Q), at 20 (Aug. 8, 2007). Quigo figures based on conservative estimate of \$60 million in 2006 annual revenue, based on CEO Michael Yavonditte’s statement that “traditional media” accounts for “a few” million dollars in annual revenue and represents about 5 percent of Quigo’s annual revenue. See Brett Tabke, *Interview with Michael Yavonditte*, June 21, 2007, available at <http://www.webmasterworld.com/advertising/3378548.htm>.

viewer is of the desired demographic despite his (or her) current viewing choice. Reflecting this focus, some advanced graphics servers are considered “behavioral” servers because they track individual viewing behavior rather than the content of the current webpage.⁴³

Although the contextual ad segment is dominated by the large search advertising firms, the graphic ad segment has until now been contested by firms focused primarily or exclusively on this market segment. DoubleClick, ValueClick, aQuantive, and 24/7 Real Media, along with many other independent firms, compete as input or final service providers for graphic advertising, whereas Google's AdSense and Yahoo!'s Yahoo Publisher Network serve the bulk of the contextual segment. Graphic ad intermediation is often provided by publishers' direct sales forces or through ad agencies. ValueClick, aQuantive, and 24/7 Real Media also provide affiliate networks that resell ad space provided by their affiliates. The current industry—characterized by separation between graphic ad firms and firms providing search and contextual ads—is likely to change dramatically with the proposed acquisition of DoubleClick by Google and aQuantive by Microsoft.⁴⁴

The revenues reported here have been assembled from company financial statements or, in the case of DoubleClick, as reported by the *Wall Street Journal* in April 2007.⁴⁵ Because some firms, such as ValueClick and aQuantive, combine graphic ad services and other advertising services such as advertising agencies or search advertising, we extracted the graphic ad revenue streams for each company. For example, we reported aQuantive's advertiser tools and publisher tools revenues from its “Digital Marketing Technologies” (which contains its Atlas software tool) division, but not from its “Digital Marketing Services” division (which includes its Avenue A | Razorfish advertising agency). We made similar adjustments for ValueClick (counting revenue from its “Technology” division) and for 24/7 Real Media (counting its tools-based “Technology” revenues). Given DoubleClick's exclusive focus on graphic ads, however, we retained all DoubleClick revenues.

For a given supplier, we compute the share of total expenditures on graphic ads as the sum of direct revenues (from advertiser and publisher tools) plus intermediation revenues plus “indirect revenues”—that is, revenues that were spent on graphic ads but not booked as revenues by suppliers in the graphic channel. We derived indirect revenues by apportioning worldwide 2006 graphic ad revenues based on each firm's share of direct graphic ad revenues (equal to

43. For example, some of Yahoo!'s graphic affiliate ads are served using “behavioral” models. See Brian Morrissey, *Yahoo Tests Behavior-Based Content Ads*, ADWEEK, June 22, 2005, available at http://www.adweek.com/aw/iq_interactive/article_display.jsp?vnu_content_id=1000966760.

44. 24/7 Real Media is also being purchased (by the WPP Group). Because WPP does not have a presence in this area, we do not examine the impact of this purchase in our discussion. We similarly do not cover Yahoo!'s acquisition of Right Media because of its small size. Yahoo!'s acquisition of Adtech AG is similarly omitted because it is primarily focused on the European market and thus is outside of the relevant geographic market examined here.

45. James B. Stewart, *Common Sense: Google's DoubleClick Play Still Makes It a Good Bet*, WALL ST. J., Apr. 18, 2007, at D3 (“DoubleClick had just \$300 million in revenue and \$50 million in profit last year.”).

the sum of revenues from advertiser tools and publisher tools). Intermediation revenues are not used to apportion indirect revenues.⁴⁶ DoubleClick's share of direct revenues (63 percent) is consistent with estimates reported in the *Financial Times*.⁴⁷

TABLE 4: WORLDWIDE GRAPHIC AD SEGMENT
EXPENDITURE SHARES, BY INPUT, 2006

Provider	Direct Revenues* (\$M)	Share	Intermediation (\$M)	Share	Share of Total Expenditures**
DoubleClick ¹	300	63%	0	0%	58%
aQuantive ²	122	26%	52	8%	24%
24/7 Real Media ²	29	6%	85	13%	7%
ValueClick ²	26	5%	495	78%	11%
TOTAL	477	100%	632	100%	100%

Sources: ¹ James B. Stewart, *Common Sense: Google's DoubleClick Play Still Makes It a Good Bet*, WALL ST. J., Apr. 18, 2007, at D3. ² Company SEC Filings.

Notes: * Revenues from advertiser tools and publisher tools. ** Equal to share of direct revenues plus intermediation revenues plus indirect revenues.

As Table 4 shows, DoubleClick controls the largest share of direct revenues. aQuantive is the next largest firm, with 26 percent of direct graphic ad expenditures.⁴⁸ According to our estimates, DoubleClick services are used to support roughly \$4.5 billion in worldwide graphic ad spending (58 percent). If one includes intermediation revenues as direct revenues for the purpose of

46. Intermediation revenues include payments ultimately made to publishers, while advertiser tools and publisher tools revenues do not. Thus, intermediation revenues account for the full amount of advertising expenditures associated with the use of those inputs, whereas advertiser tools and publisher tools revenues account *only* for that small percentage of an ad's total value that flows to the tool provider.

47. 24/7 Real Media CEO David Moore estimates that DoubleClick has a 75-80 percent share of the advertiser tools market, and 55-60 percent of publisher tools. We do not have the requisite information to apportion DoubleClick revenues across advertiser tools and publisher tools, but our reported 63 percent share is firmly within the range of 55 to 80 percent. See Abigail Roberts and Paulina Roguska, *Google-DoubleClick: The FTC Takes on the Deal*. FIN. TIMES, May 29, 2007, available at http://www.ft.com/cms/s/2/a6e96666-0df3-11dc-8219-000b5df10621,dwp_uuid=e8477cc4-c820-11db-b0dc-000b5df10621.html [hereinafter *FT Online Advertising Article*] (“[24/7 Real Media’s Moore] estimated that DoubleClick had a 75 to 80% market share in the advertising market, and a 55 to 60% market share in the publishing market. In advertising, aQuantive’s Atlas and ValueClick’s Mediaplex were DoubleClick’s two largest competitors. 24/7 Real Media, with a 30% market share, was DoubleClick’s largest competitor in the publishing arena.”) Since Atlas and Mediaplex are advertiser tools software, these shares appear to be specific to that input. Similarly, we interpret the publisher shares as referring to publisher tools revenue shares.

48. We understand that a significant portion of aQuantive’s revenue comes from Microsoft. As a result of Microsoft’s pending acquisition of aQuantive, these revenues will become internal transfers. Thus, our estimate may overstate aQuantive’s future revenue share.

allocating indirect revenues, DoubleClick services support roughly \$2.1 billion in worldwide graphic spending (27 percent).

III. PREVIOUS ATTEMPTS TO DEFINE THE RELEVANT PRODUCT MARKET FOR ADVERTISING INDUSTRIES

Although the Federal Trade Commission (FTC) review of Google's proposed acquisition of DoubleClick represents the first comprehensive attempt by an antitrust agency to examine online advertising, other antitrust proceedings provide boundaries within which a meaningful definition of an online advertising product market can be inferred. *KinderStart.com LLC v. Google, Inc.* (KinderStart.com"),⁴⁹ *Prometheus Radio Project, et al v. F.C.C.* ("Prometheus"),⁵⁰ and the FCC's *2002 Biennial Regulatory Review*⁵¹ provide valuable information by discussing what should *not* constitute the appropriate product market for online advertising. Thus, by understanding the boundaries beyond which a definition is too broad or too narrow, a range of options can be constructed that is consistent with the findings in past proceedings. In the following section, we review these past proceedings and develop a range of appropriate market definitions.

Previous antitrust proceedings relating to online advertising have a direct bearing on Google's proposed acquisition of DoubleClick. In their determination of the appropriate size of media market definitions, antitrust authorities have considered the consumer experience and audience type to be key metrics differentiating one type of media from another. Similarly, advertisers consider the consumer experience and audience when they formulate their ad campaigns and allocate funding among the potential media outlets. As such, definitions of what is—and is not—a distinct media product market similarly define the limits of the online advertising product market.

Regulatory precedent, empirical research, and court decisions suggest that a hypothetical monopoly provider of online advertising would not need to control other forms of media, such as television or print, to raise advertising prices above competitive levels. In the *2002 Biennial Regulatory Review*, the Commission recognized the Internet as a unique media market.⁵² Recent empirical findings support that view. Reid, King, Martin, and Soh find that Internet advertising is considered a very poor local advertising substitute for traditional media.⁵³ This delineation among media has also been upheld in subsequent court decisions, particularly in *Prometheus*.

49. *KinderStart.com LLC v. Google, Inc.*, Slip Copy, 2007 WL 831806 (N.D.Cal. 2007), 2007-1 Trade Cases 75643.

50. *Prometheus Radio Project, et al. v. F.C.C.*, 373 F.3d 372 (3d Cir. 2004).

51. See *2002 Biennial Regulatory Review—Review of the Commission's Broadcast Ownership Rules and Other Rules Adopted Pursuant to Section 202 of the Telecommunications Act of 1996*, Report and Order and Notice of Proposed Rulemaking, MB Dkt. No. 02-277, 18 FCC Rcd. 13,620, 2003 WL21511823 [hereinafter *2002 Biennial Review Order*].

52. This recognition was granted in its examination of how consumers get local news. See NEILSEN MEDIA RESEARCH, CONSUMER SURVEY ON MEDIA USAGE (MOWG STUDY NO. 8) (2002).

53. Reid, King, Martin & Soh, *supra* note 15.

A. *The FCC's 2002 Biennial Regulatory Review*

In its *2002 Biennial Regulatory Review*, the FCC attempted to alter—and to a large extent reduce—its extant media ownership rules. These rules, which provide limitations on the common ownership of any combination of more than one radio station, television channel, or newspaper in the same media market,⁵⁴ have been enacted over the previous decades to ensure a dispersion of media ownership and points of view. The availability of several independent local news sources is especially prominent within these regulations.⁵⁵ To justify its proposed relaxation of these restrictions, the FCC introduced a measure of media concentration patterned on the traditional Herfindahl-Hirschman Index (HHI).⁵⁶ The HHI is used by the FTC and Department of Justice (DOJ) to measure market concentration.⁵⁷ To construct its index, the FCC relied on a definition of the news media market that included radio, television, newspapers, and the Internet;⁵⁸ the Internet, it noted, is “an entirely new medium.”⁵⁹ The FCC suggested that product markets that are narrower than the Internet as a whole would continue to be defined for “competitive purposes.”⁶⁰

B. *Prometheus Radio Project, et al. v. F.C.C.*

The FCC's proposed rule changes in the *2002 Biennial Regulatory Review* were quickly contested in court, with *Prometheus Radio Project, et al. v. F.C.C.* an important test case. In *Prometheus*, the plaintiffs argued that the proposed rule changes relied on a faulty methodology, especially the construction of the FCC's media concentration index. At issue was the FCC's inclusion—and relatively large weight given to—the Internet as a local news source.⁶¹

The *Prometheus* proceedings examined and ultimately upheld the FCC's characterization of the Internet as a distinct media market. Because media and advertising markets overlap, the *Prometheus* decision also affirms the Internet as the largest possible definition of the relevant media market for competition analysis. Although the court took issue with the “independence” of the Internet as a news source,⁶² it continued to recognize the Internet as a distinct form of media. Furthermore, it did not challenge the FCC's more general concept that the media

54. See 47 C.F.R. §73.3555 (2005).

55. See *2002 Biennial Regulatory Review*, *supra* note 51, at 13,643-45, ¶¶ 73-79.

56. The FCC referred to their measure as the media “Diversity Index”.

57. For a discussion of HHI, see DENNIS W. CARLTON & JEFFREY M. PERLOFF, *MODERN INDUSTRIAL ORGANIZATION* 247 (3d ed. 2000).

58. See *Nielsen Media Research*, *supra* note 55, at 1.

59. *2002 Biennial Review Order*, *supra* note 51, at 13629 ¶ 111 (“The Internet, as an entirely new medium, composed of an amalgam of all the technologies that preceded it, completely transformed the way in which we communicate in unimaginable ways.”).

60. *Id.* at 13634 ¶ 129 (“...markets defined for competition purposes (*i.e.*, defined in terms of which entities compete with each other in economic terms) are generally more narrow than markets defined for diversity purposes (*i.e.*, defined in terms of which entities compete in the dissemination of ideas)...”).

61. See *Nielsen Media Research*, *supra* note 55, at 1 (“What sources, if any, have you used in the past 7 days for local news and current affairs?...Internet, 18.8%...”).

62. *Id.* at 408 (“On remand the Commission must either exclude the Internet from the media selected for inclusion in the Diversity Index or provide a better explanation for why it is included in light of the exclusion of cable.”).

market used to examine cross-media mergers is comprised of several distinct media product markets, or that the Internet is one of these product markets.

This concept has been supported empirically by evidence that advertisers do not find Internet advertising to be a substitute for traditional advertising media, such as television, radio, and outdoor advertising. Reid, King, Martin, and Soh find that local advertisers consider Internet advertising to be a very poor substitute for traditional media.⁶³ For example, survey respondents did not identify the Internet to be a top substitute for any of the five “most effective” media.⁶⁴ Indeed, the Internet was chosen as the seventh-most acceptable substitute for daily newspaper advertising (behind radio, cable television, the Yellow Pages, direct mail, magazines, and weekly newspapers).⁶⁵ Similarly, the Internet was not found to be among the top five substitutes for daily newspapers for any of the authors’ four types of businesses.⁶⁶ Thus, they conclude that advertisers do not perceive online advertising to be an acceptable substitute for local advertising in other media.⁶⁷ Based on previous research of national advertisers,⁶⁸ they conclude that advertising buyers “put media options in specific perceptual boxes when it comes to planning media schedules.”⁶⁹

Together, regulatory precedent, empirical research, and the *Prometheus* court decision provide a plausible upper bound—no larger than the Internet as a whole—regarding the scope of the product market that would encompass online advertising. This reading of online advertising is a reasonable extension of their definition of the Internet as a whole as the largest appropriate definition of the online media market. Because advertising is differentiated in the same way—by audience—as media has been, the appropriate online advertising product market definition may similarly be no larger than Internet advertising as a whole.

C. *KinderStart.com LLC v. Google, Inc.*

In *KinderStart.com LLC v. Google, Inc.*, the United States District Court for the Northern District of California sought a meaningful definition of the online advertising market. In an antitrust complaint regarding alleged search result

63. Reid, King, Martin & Soh, *supra* note 15, at 35-53.

64. *Id.* at 46, Table 2.

65. *Id.* at 46 (“Radio, the medium ranked the second most effective local advertising medium, was perceived as the most acceptable substitute (87%; 113) for daily newspapers. Cable TV was judged the second most acceptable substitute (68%; 88), although it was ranked the fifth most effective local medium. Yellow pages (47%; 61), the medium ranked fourth most effective, and direct mail (37%; 48), the medium ranked third most effective, were perceived as the third and fourth most acceptable substitutes, respectively. Magazines (33%; 43), weekly newspapers (27%; 35), and the Internet (23%; 30) followed as the fifth, sixth, and seventh most acceptable substitutes...”).

66. *Id.* at 48, Table 4.

67. *Id.* at 50 (“Of the 14 media options [which include Internet], only 5 other media [other than daily newspapers and radio] were considered first- or second-order substitutes for local advertising: cable TV, magazines, weekly newspapers, broadcast TV, and direct mail.”).

68. Leonard N. Reid & Karen Whitehill King, *A Demand-Side View of Media Substitutability in National Advertising: A Study of Advertiser Opinions about Traditional Media Options*, 77 JOURNALISM & MASS COMM. Q. 292-307 (2000).

69. Reid, King, Martin & Soh, *supra* note 15, at 51.

ranking abuses, the plaintiff argued that search advertising constituted the proper product market—that is, the relevant “grouping of sales whose sellers, if unified by a monopolist or a hypothetical cartel, would have market power in dealing with any group of buyers.”⁷⁰ However, the court found *KinderStart.com*’s definition to be too narrow, stating that, “there is no logical basis for distinguishing the Search Ad Market from the larger market for Internet advertising.”⁷¹ The court continued that, “[b]ecause a website may choose to advertise via search-based advertising or by posting advertisements independently of any search, search-based advertising is reasonably interchangeable with other forms of Internet advertising.”⁷² The court provided the same interpretation—of a product market larger than just search advertising—in a subsequent case, *Person v. Google Inc.*⁷³

The *KinderStart.com* court thus implied three things: (1) that the proper product market would be Internet advertising used by websites and other firms; (2) that the relevant customer base is advertisers, rather than viewers, and (3) that by selecting publisher-based ads—in spirit if not name—as an example of an “independent” online advertisement, that publisher-based ads would be in the same product market as search ads. The court subscribed to the product market test of product interchangeability, in this case contending that search ads and publisher-based ads were reasonably interchangeable. This reading suggests that the court, had they had occasion to uphold a definition of the online advertising market, would have affirmed a definition of the product market that includes, at the very least, both search ads and publisher-based ads.

Considering these boundaries together, the relevant product market for an antitrust review of the Google-DoubleClick merger would be somewhere inside a range of possible definitions that include search ads, but that are not larger than Internet advertising as a whole. As the *KinderStart.com* decision illustrates, antitrust authorities are unlikely to approve of a product market definition that is so narrow as to include only one type of online advertising, such as search ads. Furthermore, the 2002 *Biennial Regulatory Review* and *Prometheus* court have established that the Internet is one of several competitively distinct media—and by implication advertising—markets; as such the relevant online advertising product market definition cannot be larger than Internet advertising as a whole. Figure 2 visually presents this range.

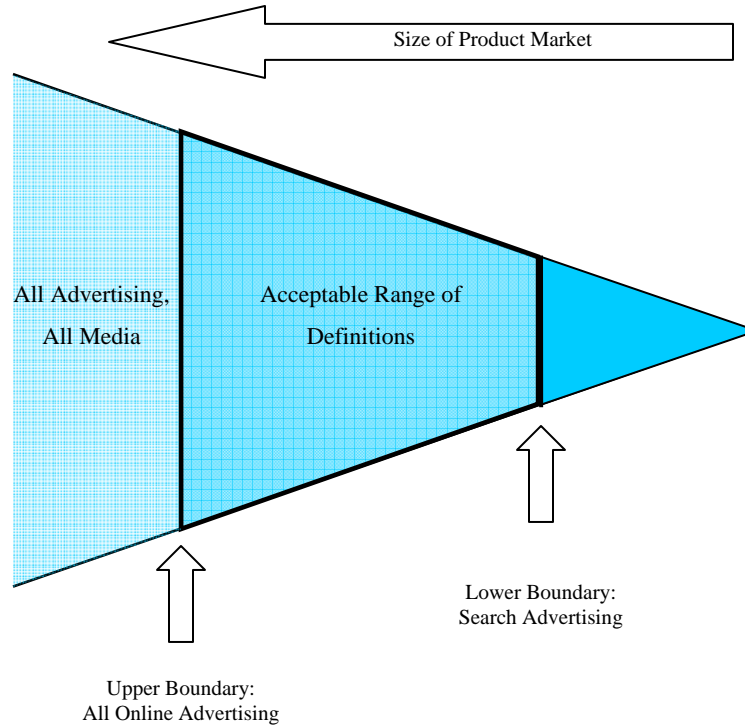
70. *Rebel Oil Co. v. Atlantic Richfield Co.*, 51 F.3d 1421, 1434 (9th Cir.1995). The *KinderStart.com* court referred in particular to the definition of the appropriate product market as defined in the *Rebel Oil Co.* decision.

71. *KinderStart.com*, *supra* note 52, at 75649.

72. *Id.* at 75649.

73. *Carl E. Person v. Google Inc.*, Slip Copy, 2007 WL1831111 (N.D.Cal. 2007), 2007-1 Trade Cases P 75,759.

FIGURE 2: RANGE OF POSSIBLE PRODUCT MARKET DEFINITIONS



IV. THE RELEVANT PRODUCT MARKET FOR ANALYZING THE COMPETITIVE EFFECTS OF GOOGLE'S PROPOSED ACQUISITION OF DOUBLECLICK

By evaluating economic information, and in particular the extent to which advertisers view different types of advertising as substitutes, we can select an appropriate product market definition from the range of possibilities established in Part III. We begin by providing anecdotal evidence and industry observers' impressions of the degree to which consumers can—and do—substitute between various forms of advertising. To perform a more thorough analysis, we also present evidence from a survey of online retailers demonstrating the degree of substitutability between search ads and publisher-based ads, and between graphic and contextual publisher-based ads. We find compelling evidence that advertisers view search ads and publisher-based ads as substitutes, a definition that fits neatly within the range established in Figure 2.

A. Market-Based Evidence of Substitution Patterns

In this section, we review evidence of buyer and seller substitution across the three online advertising channels

1. Demand-Side Evidence

Increasingly, contextual and graphic ads have competed directly on the same publisher website and for the same clientele. For example, a July 3, 2007 visit to the Business section of the *Washington Post's* website encountered a contextual advertisement, served by Google, for condominiums in the Washington, D.C. area.⁷⁴ A colorful graphic advertisement on a subsequent Post article's webpage, served by DoubleClick, promoted an apartment leasing website.⁷⁵

This example is illustrative of how contextual and graphic ads can serve as substitutes. One content publisher, the *Washington Post*, hosts both contextual and graphic ads from two different (for now) companies—Google and DoubleClick—advertising for the same type of client (in this case, real estate companies). This suggests that, at present, if a condominium developer found that Google's AdWords network had become prohibitively expensive, he could reasonably switch to a DoubleClick-served graphic ad. If Google and DoubleClick were to merge, however, they would potentially provide ad spaces or key inputs for all publisher-based ads on the Washington Post website. As a result, all advertisers currently using the Post would require Google services, and in the event of a Google service price increase would be forced to choose between the Post and a different website altogether. The recent extension of Google's contract with WashingtonPost.com suggests that Google may have pricing power for WashingtonPost.com ads for years to come.⁷⁶

2. Supply-Side Evidence

In limited circumstances, one can look to actions of sellers to inform market definition. Such "supply-side evidence" may be used as a proxy for the preferences of buyers, but only to the extent that "sellers base business decisions on the prospect of buyer substitution between products in response to relative changes in price or other competitive variables."⁷⁷ DoubleClick appears to be aware of the close interoperability among the various forms of online advertising. In particular, Dave Fall, Vice-President of Product Management, Search Technology at DoubleClick, noted at a May 2007 conference that one of DoubleClick's advertiser-oriented services, DART Search, now "[d]e-duplicates transactions across search and display."⁷⁸ The implication, is that DART Search users are likely to use both search and display advertising, and to want to view their expenditures on these types of ads side-by-side so as to compare—and

74. *Business News from The Washington Post*, WASH. POST, <http://www.washingtonpost.com/wp-dyn/content/business/index.html>. For example, the "Ads by Google" text box promoted "Stunning New DC Condos" (www.thebeauregard.com) and "Washington Dc Homes" (www.wcicomunities.com).

75. Alex Veiga, *KB Homes Swings to 2Q Loss on Charges*, WASH. POST, June 27, 2007, available at <http://www.washingtonpost.com/wp-dyn/content/article/2007/06/28/AR2007062800606.html>. The ad promotes Apartments.com.

76. See *WashingtonPost.com-Google Contract Extension*, *supra* note 17.

77. See *Merger Guidelines*, *supra* note 2, at §1.0

78. Dave Fall, Presentation at 2007 DoubleClick EMEA Insight Conference: Paid Placements vs. Organic Search (May 16, 2007), at 21. Mr. Fall further emphasizes this point by noting that the improvement "[d]e-duplicated transactions across display, paid search, and organic search traffic" (at 23), and again "de-duplicated transaction information across display, paid placement, organic search, and paid inclusion programs." (at 25).

adjust—their allocation between them. The new DART service apparently streamlines this effort. Such service suggests that, at the very least, DoubleClick views search ads and publisher-based ads as closely related, if not substitutes.

B. Survey Data

According to the *Merger Guidelines*, product markets shall be defined based on, among other items, “evidence that buyers have shifted or *have considered shifting* purchases between products in response to relative changes in price or other competitive variables.”⁷⁹ In the absence of evidence that online advertisers have actually shifted purchases between search, contextual, and graphic segments in response to relative changes in price, a survey can inform whether buyers *have considered shifting* purchases between those segments in response to changes in relative prices.

To analyze the potential buyer response to relative changes in prices for graphic ads, contextual ads, and search ads, we commissioned a survey of online retailers conducted by Shaw and Company Research (“Shaw”). Retailers represent the largest consumers of online advertisements; thus, our survey encompasses many of the most important consumers that would be affected by the proposed transaction. It would exclude, however, traditional firms that advertise online but do not sell their products directly online; this may exclude some food or services firms, such as McDonald’s, Coca-Cola, or Johnson & Johnson. We do not know how large this effect is, but we expect that online retailers purchase a significant share of online advertising.

Conducting a series of Internet interviews over the days August 7-8, 2007, Shaw polled 200 retail advertisement managers who had purchased publisher-based advertising within the last year. Shaw selected these respondents with the help of the GMI MR database, one of the largest panel dataset providers in the world. Prospective respondents received a notice by email, and from this selection Shaw received its 200 “opt-in” respondents.⁸⁰ Respondents answered as many as 21 questions related to their usage of online advertising, their substitution preferences, and their firm characteristics. According to Shaw, the poll had a margin of error of plus or minus 7 percent.⁸¹

The respondents provided substantial data on firm characteristic. Based on the simple averages for our sample, we estimate that the “representative” (that is, average) firm in the survey spent roughly \$2.4 million on online advertising in the last twelve months. We also estimate that the “representative” retailer surveyed had been in business for roughly 6.5 years, and had about 550 employees.⁸² Unfortunately, we do not know of any particular census of online

79. *Merger Guidelines*, *supra* note 2, at §1.11 (emphasis added).

80. The initial email notice thus constituted an effort to reach a representative subset of the universe of interest. Those who responded were akin to people agreeing to do a phone interview in a random-digit-dial design. The margin of error is calculated in the same manner as for traditional probability samples.

81. As reported by Shaw and Company for a sample size of 200.

82. This was more difficult to estimate than online ad expenditures, however, because our firm age ranges only went as high as a “more than 20 years” response. This loses much of the distinction between 21-year-old firms and 100-year-old firms. Estimates were generated by assigning the midpoint of each range to a given respondent,

retailers with which to compare these respondent characteristics. The respondents represented a wide range of industries, from the automotive industry to social networking. Nearly 15 percent of respondents cited “Financial services or insurance” as their industry sector. “Clothing apparel or shoes” and “Computer services, hardware, software” were the next most popular industry sectors. Each sector garnered 9 percent of all respondents.

In the absence of an industry census with which Shaw’s sample characteristics could be compared, Shaw took certain steps to provide as unbiased a sample as possible. Specifically, Shaw examined firm characteristic data for obvious under- or over-sampling. Geographically, Shaw found a reasonably even distribution of respondents.⁸³ Similarly, a review of firm age and industry sector revealed no particular sample bias.⁸⁴ Because variation between industries, firm sizes, firm geographic base, or firm ages were generally small, any firm segment under- or over-representation would have limited effects. In any event, Shaw’s target demographic—marketing personnel with knowledge of firm advertising spending—was unlikely to suffer from common “opt-in” survey selection biases. For example, although “opt-in” surveys may under-represent low-income and senior populations, our survey specifically targets marketing personnel (a group that is unlikely to be low-income or elderly). The survey data indicate that online advertisers view graphic ads as substitutes for both contextual and search ads. The responses also suggest that, if Google were to acquire DoubleClick, Google could be assured that many advertisers that use DoubleClick for ad management would switch to a Google search ad or a Google contextual ad in response to a price increase. For example, the results suggest that for a 10 percent increase in the price of DoubleClick’s advertiser tools, Google would retain almost 18 percent of the “marginal” DoubleClick customers—that is, DoubleClick’s customers who substitute some portion of their spending to a rival supplier of advertiser tools.

1. Do Advertisers View Graphic Ads as Substitutes for Contextual or Search Ads?

To measure the amount by which a change in the price of one form of advertising would affect the consumption of that good and other related goods, we asked all respondents how they would react to a 10 percent increase in the price of different forms of online advertising. Respondents could answer in such a way as to indicate that two forms of advertising were complements (a corresponding *decrease* in their purchase of other ad products), substitutes (a corresponding *increase* in their purchase of other ad products), or that

and the minimum number (for example, 21 years) to a firm in the highest range. This produces conservative estimates of spending, firm age, and firm size.

83. Midwesterners, however, represented only 16 percent of our survey sample, compared with 28.5, 28.5, and 27 for the Northeast, South, and West, respectively.

84. Of the 16 possible industry sectors, the top two (“financial services/insurance” and “other”) garnered a modest 14 percent each. Firm age similarly suggested that those firms that have been in operation from 5 to 10, 10 to 20, and more than 20 years were about equally represented (29.5, 30, and 29.5 percent, respectively), while firms in operation less than 5 years represented 10.5 percent of the survey sample. A variety of factors, such as limited funding or the end of the technology bubble, may explain why firms less than 5 years old are less prevalent.

consumption decisions were unrelated (no change in the purchase of other ad products). In addition, we asked respondents who suggested they would decrease their purchases of other products why they chose to do so. Thus, we were able to distinguish between advertisers who would decrease other ads because they faced a budget constraint and wished to maintain their existing level of one form of advertising (those who actually view the ads as substitutes) from those who considered the value of an ad type to fall as the price of other ad types rose (those who view the ads as complements). This process was conducted to measure the relationship between graphic advertising and both search and contextual advertising.

The majority of respondents surveyed indicated that they viewed graphic and contextual advertisements as substitutes. For example, respondents were asked how their purchases of contextual ads would change “in response to a 10 percent increase in the price of *graphic* ads placed on *all* publishers’ websites,” to which they could respond with “not at all”; increases of less than 5, 5 to 10, and more than 10 percent; decreases of less than 5, 5 to 10, or more than 10 percent; or “don’t know/refused/NA.”⁸⁵ Based on their responses, a full 68 percent of respondents indicated that they would increase their purchases of *contextual ads* in response to a hypothetical increase in the price of *graphic ads*—that is, they view the two products as substitutes.⁸⁶ This compares to 13 percent that indicated they would decrease purchases of *contextual ads* in response to a hypothetical increase in the price of *graphic ads*, implying that those customers perceive graphic and contextual ads to be complements. 56 percent of all respondents (83 percent of those who indicated an increase in contextual ad purchases) indicated they would increase their purchases of contextual ads by at least 5 percent.⁸⁷ This suggests a relatively high sensitivity to graphic ad price changes—that is, a relatively high cross-price elasticity of demand. Table 5 presents these results.

85. See text of Question 6.

86. This statistic actually understates substitution. 73.2 percent of “valid” responses, which are those that did not answer “Don’t Know”/Refused/NA, suggested that they would increase their purchases of contextual ads in response to an increase in graphic ad prices. In weighted terms—which account for differences in advertiser spending power—respondents representing 65 percent of all respondents’ Internet ad spending indicated that they would increase their purchases of *contextual ads* in response to a hypothetical 10 percent increase in the price of *graphic ads*.

87. As above, this actually understates substitution. Removing “Don’t Know/Refused/NA,” 60.7 percent indicated an increase of at least 5 percent.

TABLE 5: ADVERTISER CHANGE IN CONTEXTUAL AD PURCHASES IN RESPONSE TO 10 PERCENT INCREASE IN GRAPHIC AD PRICES

	<i>Amount</i>	<i>Percent</i>
	Not At	12%
	All	
Increase	< 5%	12%
	5-10%	31%
	> 10%	25%
Subtotal		68%
Decrease	< 5%	5%
	5-10%	6%
	> 10%	2%
Subtotal		13%
Don't Know/Refused/NA		9%

Source: Shaw and Company Research, *U.S. National Survey of Online Advertisers*, Question 6 in Appendix B.

Note: Numbers may not sum to 100 percent due to rounding.

We also found significant evidence that substitution between graphic and contextual ads was understated. As Table 6 shows, of those who answered that they would decrease their purchases of contextual ads, we found that the majority (56 percent) did so “[b]ecause of budget constraints and the higher cost of graphic ads.”⁸⁸ The remainder (44 percent) answered that they “perceived the value of text-based ads to fall.”⁸⁹ Given the choice between the two, we expect that respondents will choose the effect that predominates in this particular instance—that is, even if respondents may find both to be true, we expect that their response will accurately reflect the *net* effect (either contextual is a net substitute or it is a net complement). Thus, these respondents (who said they would decrease expenditures on contextual ads due to budget constraints) do not likely decrease their purchases of contextual ads because they view them as less valuable given an increase in graphic ad prices; instead, they try to maintain their presence in graphic ads by reducing their expenditures elsewhere. This explanation is more consistent with a perception of substitutes rather than complements,⁹⁰ as the advertiser is willing to *decrease* expenditures on one good while *increasing* expenditures on the substitute.

This willingness to reduce contextual ad expenditures and increase graphic ad expenditures suggests that an additional 14 respondents (7 percent of all respondents, and 56 percent of 13 percent who said they would decrease purchases of contextual ads) actually view graphic and contextual ads as substitutes. Thus, overall, 74 percent of all respondents consider graphic and contextual ads to be substitutes.⁹¹

88. See text of question 7.

89. *See id.*

90. This explanation is consistent with Hicks-compensated demand, which isolates the substitution effect from income effects related to the change in a given product’s price.

91. Excluding non-responses, 80.9 percent indicated substitution between graphic and contextual ads. In weighted terms, respondents representing 73 percent of all ad spending view graphic and contextual ads as substitutes.

TABLE 6: ADVERTISER REASON FOR DECREASING PURCHASES OF CONTEXTUAL ADS

	<i>Percent</i>
Budget constraints and higher cost of graphic ads would force a decrease in the purchases of text-based ads	56%
Because of increased cost of graphic ads, perceive the value of text-based ads to fall	44%
Confused by logic of question – not sure how the two are linked	0%
Total	100%

Source: Shaw and Company Research, *U.S. National Survey of Online Advertisers*, Question 7 in Appendix B.

Examining the relationship between graphic ads and search ads in a similar fashion, we found that graphic and search ads are also usually seen as substitutes. The majority of respondents (68 percent) indicated that they would increase their purchases of *search ads* in response to a 10 percent increase in the price of *graphic ads*—as above, indicating those customers perceive the two types of online ads to be substitutes. Furthermore, this option was much preferred to the option of *decreasing* search ads, as more than ten times as many respondents preferred increasing search-based expenditures to decreasing them. 54 percent indicated that they would increase search ads by more than 5 percent; this again suggests a high level of sensitivity to price changes of graphic ads, or a relatively high cross-price elasticity of demand.⁹² Table 7 presents these results.

TABLE 7: ADVERTISER CHANGE IN SEARCH-BASED AD PURCHASES IN RESPONSE TO 10 PERCENT INCREASE IN GRAPHIC AD PRICES

	<i>Amount</i>	<i>Percent</i>
	Not At All	18%
Increase	< 5%	14%
	5-10%	28%
	> 10%	26%
Subtotal		68%
Decrease	< 5%	4%
	5-10%	2%
	> 10%	1%
Subtotal		7%
Don't Know/Refused/NA		10%

Source: Shaw and Company Research, *U.S. National Survey of Online Advertisers*, Question 8 in Appendix B.

Note: Numbers may not sum to 100 percent due to rounding.

92. In weighted terms, respondents representing 69 percent of all respondents' Internet ad spending indicated that they would increase their purchases of *search ads* in response to a hypothetical 10 percent increase in the price of *graphic ads*.

As was the case with contextual ads, the number of respondents who view graphic and search-based ads as complements—although small—appears to be overstated. As Table 8 indicates, of those who indicated they would decrease search-based ads in response to a graphic ad price increase, two-thirds suggested that “[b]ecause of budget constraints and the higher cost of graphic ads, I would be forced to decrease my purchases of search-based ads.”⁹³ Again considering the *net* effect, it appears that many respondents who initially indicated that they viewed the graphic and search-based ads as complements did so because they faced budget constraints. As with contextual ads, this budget-constraint rationale suggests that these respondents actually view graphic and search ads as substitutes. As such, it is more reasonable to say that roughly 71 percent of all respondents view graphic and search ads as substitutes.⁹⁴

TABLE 8: ADVERTISER REASON FOR DECREASING PURCHASES OF TEXT-BASED ADS

	<i>Percent</i>
Budget constraints and higher cost of graphic ads would force a decrease in the purchases of search-based ads	67%
Because of increased cost of graphic ads, perceive the value of search-based ads to fall	33%
Confused by logic of question – not sure how the two are linked	0%
Total	100%

Source: Shaw and Company Research, *U.S. National Survey of Online Advertisers*, Question 9 in Appendix B.

2. How Would Current DoubleClick Customers React to a Price Increase?

To fully examine the effects of the proposed Google-DoubleClick acquisition, however, it is necessary to move beyond market share analysis and towards a more elaborate examination that accounts for customer substitution preferences. Specifically, it is important to examine how customers would react to an increase in service prices as a result of the acquisition, and how the proposed acquisition would affect advertisers’ abilities to substitute between competing advertising services. To evaluate the impact of the proposed acquisition, we analyze two scenarios: (1) the DoubleClick offering as a stand-alone entity; and (2) the DoubleClick offering as part of a combined Google-DoubleClick.

Pursuant to its merger review, the FTC will likely conduct analyses to determine whether Google could profitably increase the price of DoubleClick’s inputs as a result of the proposed transaction. We do not perform that analysis here. For example, we do not have data on the pre-merger margins of Google and

93. See text of question 9.

94. 78.3 percent of “valid” responses. In weighted terms, respondents representing 83 percent of all ad spending view graphic ads and search ads as substitutes. Table 9 summarizes their (unweighted) responses.

DoubleClick. Our analysis is meant instead as an exploratory step to determine the necessity of a more comprehensive FTC review.

In response to an increase in the price of DoubleClick's advertiser tools, Google could capture a significant share of the "marginal" customers that use DoubleClick inputs for graphic ads. With the coming deployment of the DoubleClick Advertising Exchange, DoubleClick will also be able to offer a platform of all input services similar to current Google and Yahoo! services. Google will thus also be able to capture "marginal" customers from DoubleClick's integrated graphic service. Thus, the proposed acquisition could allow Google to internalize this substitution by, in effect, moving customers from one Google-DoubleClick product to another (for example, from graphic ads that use DoubleClick advertiser tools, DoubleClick's forthcoming "DoubleClick Advertising Exchange" intermediation service, and DoubleClick's publisher tools to contextual ads using Google AdSense). The effect of this internalization would likely be to increase the price of DoubleClick's advertiser tools.

First, consider the situation of a stand-alone DoubleClick (the status quo). Our survey results indicate that, given a 10 percent increase in the price of DoubleClick's inputs, DoubleClick would lose a significant number of clients to other graphic ad firms, contextual firms, and search ad firms. As the results presented in Table 9 below indicate, 69 percent of respondents⁹⁵ would decrease their use of DoubleClick's advertiser tools if prices increased by 10 percent. (This is not to say that DoubleClick's revenues would fall by 67 percent in response to a 10 percent price increase.) 41 percent of all respondents indicated that they would increase their input purchases from a rival graphic ad firm. An additional 19 percent would increase their ad purchases from a contextual advertising firm, perhaps in part to maintain a presence on the same publisher sites, whereas 9 percent of respondents would increase their ad purchases from search advertisers.⁹⁶

95. Including the 41.2 percent that would "Purchase Same Amount of Graphics Ads Through a Rival," 19.1 percent that would "Purchase Fewer DoubleClick Graphic Ads and More Contextual Ads," and 8.8 percent that would "Purchase Fewer DoubleClick Graphic Ads and More Search-Based Ads." If the one "don't know" response is excluded, 69.6 percent of valid respondents would decrease their use of DoubleClick services.

96. In weighted terms, respondents representing 70 percent of total DoubleClick ad spending would substitute some portion of their DoubleClick ad spending on a competing graphic, contextual, or search-based ad provider.

TABLE 9: IDENTIFYING DOUBLECLICK'S MARGINAL CUSTOMERS
(BUYER RESPONSES TO A 10 PERCENT PRICE INCREASE)

	<i>Percent</i>
Purchase Same Amount of Graphics Ads Through DoubleClick	30%
Purchase Same Amount of Graphics Ads Through Rival Firm	41%
Purchase Fewer DoubleClick Graphic Ads and More Contextual Ads	19%
Purchase Fewer DoubleClick Graphic Ads and More Search-Based Ads	9%
Don't Know/Refused/NA	1%

Source: Shaw and Company Research, *U.S. National Survey of Online Advertisers*, Question 10 in Appendix B.

Note: Marginal customers are highlighted.

Respondents representing 26 percent of DoubleClick ad spending would purchase ad inputs through a rival graphic ad firm, respondents representing 24 percent of DoubleClick ad spending would substitute contextual ads, and respondents representing 19 percent of DoubleClick ad spending would substitute search-based ads.

Next, we asked those respondents who indicated they would switch to another ad product which firm they would likely use. In this way, we sought to measure the number of current DoubleClick customers who would reallocate some portion of their current spending to Google products. These customers represent the “marginal” customers who would be lost by a stand-alone DoubleClick but would be retained (and thus contribute to firm revenue and profit) by a combined Google-DoubleClick.

We first examined those DoubleClick customers that would substitute contextual ad spending for some portion of their current DoubleClick graphic ad spending. There were 26 respondents who indicated they would substitute with contextual spending, representing 19 percent of all surveyed DoubleClick customers. Of the group that would substitute contextual ad services, a majority (62 percent) indicated that they would use Google AdSense, compared to 19 percent each for Microsoft AdCenter and the Yahoo! Publisher Network.⁹⁷ These results are reproduced in Table 10 below.

97. In weighted terms, we also found that Google AdSense would be the substitute of choice for a majority of those respondents who indicated that they would increase contextual ad spending in response to an increase in DoubleClick prices. Google was the first choice for respondents representing 52 percent of ad spending, followed by Yahoo (35 percent) and Microsoft (13 percent).

TABLE 10: TOP CHOICE OF CONTEXTUAL PROVIDER FOR MARGINAL DOUBLECLICK CUSTOMERS

	<i>Percent</i>
Google AdSense	62%
Microsoft AdCenter	19%
Yahoo! Publishers' Network	19%
Total	100%

Source: Shaw and Company Research, *U.S. National Survey of Online Advertisers*, Question 11 in Appendix B.

We asked DoubleClick customers who indicated they would reallocate some portion of their spending to the search channel which search provider they would first consider. As Table 9 indicates, there were 12 DoubleClick customers in our survey (9 percent of total DoubleClick customers) who indicated they would substitute some portion of their DoubleClick graphic ad spending for search ad spending. We found that Google.com was the most popular potential search ad provider, with 67 percent of the relevant respondents. Yahoo.com and MSN.com each garnered 17 percent.⁹⁸ Table 11 reports these results.

TABLE 11: TOP CHOICE OF SEARCH-BASED PROVIDER FOR MARGINAL DOUBLECLICK CUSTOMERS

	<i>Percent</i>
Google.com	67%
MSN.com	17%
Yahoo.com	16%
Total	100%

Source: Shaw and Company Research, *U.S. National Survey of Online Advertisers*, Question 12 in Appendix B.

Together, Tables 10 and 11 suggest that, for a 10 percent increase in the price of DoubleClick's advertiser tools, a combined Google-DoubleClick would retain almost 18 percent (equal to $0.62 \times 0.19 + 0.67 \times 0.09$) of DoubleClick's marginal customers. Although this analysis does not measure the *amount* (in dollar terms) of substitution away from DoubleClick, it does measure the number of additional *customers* that a combined Google-DoubleClick would be able to retain in full (and thus more potential ad revenue) than a stand-alone DoubleClick.

98. Examining these responses in terms of their importance to DoubleClick (that is, in DoubleClick ad spending-weighted terms), we find that Google's service is again the most popular search-based substitute to graphic ads that use DoubleClick services. Google.com was the top choice for respondents representing 58 percent of DoubleClick ad spending (among those that answered that they would substitute search ads for some DoubleClick ads; that is, for the 9% of respondents in Table 10). One large DoubleClick customer preferred MSN.com, which garnered a spending-weighted 40 percent. Yahoo.com was the top choice for respondents representing just 1 percent of the sub-sample's DoubleClick ad spending.

C. *Advertiser Tools Used in the Production of Search Ads and Publisher-Based Ads Constitute a Relevant Product Market*

Our market definition proceeds in two steps. We begin by determining which inputs should be included in a product market within a given advertising channel. Because input services are *not* demand substitutes (for example, an advertiser could not substitute intermediation services for advertiser tools software), it is reasonable to consider each input to be a separate product market. This is consistent with the *Merger Guidelines* approach, which explains that the proper product market definition includes the *narrowest* group of products such that a hypothetical monopolist could profitably impose “at least a ‘small but significant and nontransitory’ increase in price.”⁹⁹ Because intermediation services and advertiser tools are not demand substitutes, a hypothetical monopoly provider of advertiser tools could profitably raise the price of advertiser tools above competitive levels without having to control 100 percent of the supply of intermediation services. Thus, there are likely three relevant product markets that would be affected by Google’s proposed acquisition of DoubleClick: (1) advertiser tools, (2) intermediation, and (3) publisher tools.

Having determined that advertiser tools are distinct from intermediation services sold to advertisers, we next consider whether advertiser tools (or intermediation services) used in one channel (for example, contextual) belong in the same product market as advertiser tools used in another channel (for example, graphic). According to our survey, a large majority of advertisers view search-based, contextual (text-based publisher), and graphic ads to be close substitutes. Thus, to the extent that other forms of media advertising do not significantly constrain the price of online advertising, advertiser tools used in the production of search ads and publisher-based ads constitute a relevant product market (“advertiser tools market”). In the following section, we focus on the competitive effects of Google’s proposed acquisition of DoubleClick in the advertiser tools market.

V. IMPLICATIONS FOR GOOGLE’S PROPOSED ACQUISITION OF DOUBLECLICK

Because we have no way to disaggregate search and contextual revenues across the three relevant product markets—advertiser tools, publisher tools, and intermediation services—we rely on shares of all online advertising expenditures to serve as a proxy for the shares within advertiser tools. We estimate that a combined entity would provide services for just over 50 percent of worldwide online ad expenditures (equal to Google’s 30 percent share plus DoubleClick’s 22 percent share). This estimate is consistent with an analysis in the *Financial Times*, which concluded that a combined Google-DoubleClick would “control”

99. *Merger Guidelines, supra* note 2, at § 1.11 (“...the Agency will begin with each product (narrowly defined) produced or sold by each merging firm and ask what would happen if a hypothetical monopolist of that product imposed at least a ‘small but significant and nontransitory’ increase in price, but the terms of sale of all other products remained constant.”).

between 40 and 50 percent of all online advertising expenditures.¹⁰⁰ After presenting our HHI analysis, we provide a preliminary analysis of the likely competitive effects of the transaction.

A. Concentration Analysis

To assist the interpretation of market share data, the *Merger Guidelines* advocate the use of the Herfindahl-Hirschman Index (“HHI”) of market concentration.¹⁰¹ In “highly concentrated” industries (post-merger HHI above 1800), mergers that result in large changes in the HHI (over 100) are presumed to “create or enhance market power or facilitate its exercise.”¹⁰² Put another way, mergers in a concentrated industry that generate a significant change in HHI are presumed to have anticompetitive effects. Following our product market definition developed in Part IV, we seek to calculate the pre- and post-acquisition market concentration levels in the markets for advertiser tools and publisher tools. We compute shares for *all* online advertising expenditures—including advertiser tools, publisher tools, and intermediation services—used to produce search, contextual and graphic ads.

Table 12 presents pre- and post-acquisition shares of online advertising expenditures. The *Merger Guidelines* counsel the use of the “best indicator of firms’ *future* competitive significance” when calculating market shares.¹⁰³ We used shares of expenditures reported in Tables 2, 3, and 4. Consistent with the approach used by IAB and eMarketer, we removed TAC from the revenues of Google, Yahoo!, and Microsoft. For graphic firms, we use share of total expenditures rather than direct revenues. The graphic channel is currently highly fragmented. As providers in that channel become more vertically integrated over time—as search and contextual suppliers currently are—they will likely control a larger share of the total expenditure in the graphic channel. Moreover, to the extent that advertiser and publisher tools (the two sources of direct revenues) constitute essential inputs in the production process for a graphic ad, the share of total expenditures represents the best indicator of the competitive significance of graphic ad firms.

100. *FT Online Advertising Article*, *supra* note 47. (“If Google was to acquire DoubleClick, Google would then control 40 to 50% of online advertising dollars, one industry analyst estimated.”)

101. *Merger Guidelines*, *supra* note 2, at § 1.5. The HHI is calculated by summing the squares of the individual market shares of all the participants.

102. *Id.* at § 1.51(c).

103. *Id.* at § 1.41 (emphasis added).

TABLE 12: SHARE OF ONLINE ADVERTISING EXPENDITURES
(GOOGLE-DOUBLECLICK ACQUISITION ONLY), 2006

Provider	Pre-Acquisition			Post-Acquisition		
	Expenditures (\$M)	Share	HHI	Expenditures (\$M)	Share	HHI
Google*	6,085	30%		10,603	52%	
DoubleClick	4,517	22%				
Yahoo!*	3,761	19%		3,761	19%	
aQuantive	1,895	9%		1,895	9%	
Microsoft*	1,488	7%		1,488	7%	
ValueClick	882	4%		882	4%	
AOL	564	3%		564	3%	
Ask.com	544	3%		544	3%	
24/7 Real Media	524	3%		524	3%	
Quigo	60	0%		60	0%	
Total	20,321	100%	1,914	20,321	100%	3,246
Change in HHI			1,331			

Sources: Tables 2, 3, and 4.

Note: * Revenues less TAC.

As Table 12 shows, the post-acquisition HHI would be 3,246 and the change in HHI is 1,331.

An alternative approach is to examine the effects of the Google-DoubleClick acquisition within the broader context of changes in other participants' market shares. In practice, this requires the consolidation of aQuantive into Microsoft. Table 13 presents the relevant data for this scenario.

TABLE 13: SHARE OF ONLINE ADVERTISING EXPENDITURES
(ALL PROPOSED ACQUISITIONS)

Provider	Pre-Acquisition			Post-Acquisition		
	Expenditures (\$M)	Share	HHI	Expenditures (\$M)	Share	HHI
Google*	6,085	30%		10,603	52%	
DoubleClick	4,517	22%				
Yahoo!*	3,761	19%		3,761	19%	
Microsoft*	3,384	17%		3,384	17%	
aQuantive						
ValueClick	882	4%		882	4%	
AOL	564	3%		564	3%	
Ask.com	544	3%		544	3%	
24/7 Real Media	524	3%		524	3%	
Quigo	60	0%		60	0%	
Total	20,321	100%	2,051	20,321	100%	3,382
Change in HHI			1,331			

Sources: Tables 2, 3, and 4.

Note: * Revenues less TAC.

As Table 13 shows, Google's proposed acquisition of DoubleClick represents a significant increase in the concentration of this particular product market. In fact, this combination of the top two firms—Google and DoubleClick—increases the HHI by roughly 1,300. The post-merger HHI, including the Microsoft-aQuantive transaction, is 3,382.

Given these post-merger market shares and the change in HHI, the proposed Google-DoubleClick acquisition would likely “create or enhance market power or facilitate its exercise” in the advertiser tool market according to Section 1.5 of the *Merger Guidelines*.¹⁰⁴ The post-merger HHI would exceed the “highly concentrated” benchmark of 1,800, and the change in HHI would exceed 100. Our results are robust to inclusion of TAC in the revenues of search and contextual providers. As demonstrated in Appendix A, the post-merger HHI and the change in HHI using this approach are not significantly different than those reported in Tables 12 and 13. Moreover, the presumption of an increase in market power is not affected by how we allocate indirect graphic revenues to graphic providers. In particular, when intermediation revenues are counted as direct revenues for the purposes of allocating indirect revenues in the graphic channel (which has the effect of decreasing DoubleClick's expenditure share to 10 percent), the post-merger HHI is 2,418 and the change in HHI is 623. Finally, if indirect revenues are excluded from graphic suppliers' expenditure shares (which has the effect of decreasing DoubleClick's expenditure share to 2

104. *Merger Guidelines*, *supra* note 2, at §1.51 (“Where the post-merger HHI exceeds 1800, it will be presumed that mergers producing an increase in the HHI of more than 100 points are likely to create or enhance market power or facilitate its exercise.”).

percent), the post-merger HHI is 3,133 and the change in HHI is 197. See Appendix A for complete results.

To be sure, direct evidence of market power, such as the ability to raise price significantly above competitive levels or the ability to exclude rivals, is preferable to indirect evidence based on an HHI analysis. In the absence of direct evidence, however, the HHI analysis creates a presumption that the combined firm would possess market power. Although our HHI analysis is only a starting point for a more comprehensive analysis—data on ease and timeliness of entry or merger-specific efficiencies could mitigate the predicted adverse effects—our analysis suggests that the proposed Google-DoubleClick acquisition should be carefully and comprehensively reviewed for potential anticompetitive behavior.

B. Potential Harm to Advertisers

In what follows, we suggest a roadmap for the FTC when implementing Sections 2, 3, and 4 of the *Merger Guidelines*. Our discussion is *not* intended to serve as a substitute for a more detailed analysis.

In the market for advertiser tools used to support search ads and publisher-based ads, Google’s proposed acquisition of DoubleClick threatens to lessen competition through “unilateral effects” of the merged firm. As our survey results indicate, online advertisers primarily view search ads and publisher-based ads as substitutes, thus affirming regulators’ prior notions. As such, horizontal consolidation of advertiser tools—particularly in such a concentrated market—could have an immediate impact on the competitive environment. In particular, the acquisition would likely induce Google to increase the price of DoubleClick’s advertiser tools or its forthcoming integrated platform, recognizing that a significant portion of DoubleClick’s marginal customers would select a Google offering, either in the search segment or in the contextual ad segment.

1. Higher Prices for Advertiser Tools

Following the transaction, if Google were to raise the price of DoubleClick’s advertiser tools, Google would retain *both* those clients that maintain their expenditures at DoubleClick (the infra-marginal customers) *and* the departing customers that would increase their expenditures of Google-provided contextual or search ads (the marginal customers). Our survey indicates Google would capture roughly 18 percent of DoubleClick’s marginal customers. Depending on the relative margins earned by Google and DoubleClick, this increase in customer (and revenue) retention implies that a combined Google-DoubleClick would have a greater incentive to increase the price of DoubleClick’s advertising tools. Stated differently, the profit-maximizing price of DoubleClick’s advertiser tools for a combined firm (that chooses two prices to maximize the sum of profits from DoubleClick’s and Google’s offerings) would likely exceed the profit-maximizing price for DoubleClick alone.¹⁰⁵ A similar unilateral effects analysis

105. The merged firm maximizes the profit function $(p_i - c_i) Q_i(p) + (p_j - c_j) Q_j(p)$ with respect to the price for each product, where p is the price of each product, c is the marginal cost of each product, and $Q(p)$ is the quantity demand for each product. Under

Bertrand differentiated product competition, the pricing rule for product i is $p_i = \frac{c_i \varepsilon_{ii}}{\varepsilon_{ii} - 1}$,

(using different data than that presented here) could be performed in the market for intermediation services or publisher tools.

2. Other Potential Harms to Advertisers

Google's acquisition of DoubleClick would provide Google with access to vast consumer behavior data, which it would likely use to further bolster its dominance vis-à-vis other suppliers of online advertising. As several industry observers have noted, data is a key input in the online advertising industry,¹⁰⁶ providing information on consumers that can be used to better target consumers that might be interested in a given product. As targeting improves, so does the likelihood of a sale; this makes advertising more lucrative to both advertiser (in the form of higher sales) and to the ad server (in the form of more revenue per ad). The end result, of course, is that Google would continue to extend its lead in revenue per ad and revenue per search. If consumer data generates increasing returns to scale, as some academics have asserted,¹⁰⁷ Google would extend their lead in search ads and possibly also their new position in graphic ads. Google's acquisition of more data would also increase the barrier to entry faced by new entrants, as well as putting current competitors at an even greater competitive disadvantage. To the extent that Google's rivals are impaired in their ability to compete effectively, the price of online advertising could increase further.

In addition, an extension of Google's third-party access policies to the vast network of websites that rely on DoubleClick's tools could curtail an advertiser's ability to substitute a combined Google-DoubleClick's services for a rival's. Google Group Product Manager Alex Kinnier has noted on the company's official blog, when explaining its purchase of DoubleClick, that, "[h]istorically, we've not allowed third parties to serve into Google's AdSense network, which has made it hard for advertisers to get performance metrics."¹⁰⁸ Google would likely extend this prohibition to current DoubleClick members because DoubleClick Performics—DoubleClick's performance metrics unit—would become a Google-DoubleClick service. A combined firm's control over

where ε_{ii} is the own-price elasticity of demand for firm i . For the merged firm, the post-

merger pricing rule for product i is
$$\frac{p_i - c_i}{p_i} = \frac{1}{\varepsilon_{ii}} \left[-s_i(p) - s_j(p) \varepsilon_{ji} \frac{p_j - c_j}{p_j} \right] \frac{1}{s_i},$$

where ε_{ji} is the cross-price elasticity of demand for product j with respect to the price of product i , and s_i is the revenue share of firm i .

106. See, e.g., Hitt Presentation, *supra* note 16, at 5.

107. Eisenmann Presentation, *supra* note 16, at 4, 9. Eisenmann presents evidence of increasing returns to scale for the RPS curve (at 4).. At 9, he suggests that more data will increase the slope of the Revenue Per Search ("RPS") curve for search advertisers (thus further increasing Google's competitive advantage), and may increase the slope of the Revenue Per Eyeball ("RPE") curve for graphical (in his words, "display") advertisers.

108. Alex Kinnier, *Why We're Buying DoubleClick*, THE OFFICIAL GOOGLE BLOG, June 26, 2007, available at <http://googleblog.blogspot.com/2007/06/why-were-buying-doubleclick.html>.

performance information would leave advertisers without the information necessary to judge the effectiveness of Google products vis-à-vis possible substitutes, and would create another barrier to substituting away from Google or DoubleClick products.

VI. CONCLUSION

This paper represents the first attempt to empirically estimate the degree to which buyers of online advertisements perceive the three primary channels over which they can reach online users—search, contextual, and graphic ads—to be substitutes. Proponents of Google’s proposed acquisition of DoubleClick argue that Google does not compete with DoubleClick. Our survey data appears to undermine that hypothesis. In particular, the data show that a large percentage of search and contextual advertising customers would substitute to graphic ads in response to a relative change in prices, indicating that consumers perceive those alternative online advertising channels to be substitutes.

Google’s proposed acquisition of DoubleClick would enhance Google’s market power in the market for search and publisher-based advertising tools. Our initial estimate suggests that the post-merger HHI would significantly exceed 1,800 and the change in HHI would significantly exceed 100. Furthermore, our HHI estimates affirm a presumption that the acquisition will enhance Google’s market power. This presumption is also bolstered by survey evidence that DoubleClick customers perceive Google’s offerings to be the next-best alternative. The implication of such a finding is that a combined Google-DoubleClick would likely have an incentive to increase the price of DoubleClick’s offering relative to a stand-alone DoubleClick, thereby harming online advertisers.

APPENDIX A: ALTERNATIVE HHI ANALYSES

We also performed the HHI analysis by (1) maintaining traffic acquisition costs in search-based and contextual advertising revenues (Tables A.1 and A.2), (2) allocating indirect graphic revenue on the basis of combined direct and intermediation revenues (Tables A.3 and A.4), and (3) using only reported direct publisher tools, advertiser tools, and intermediation revenue for graphic ad firms (A.5 and A.6).

TABLE A.1: SHARE OF ONLINE ADVERTISING EXPENDITURES
(GOOGLE-DOUBLECLICK ACQUISITION ONLY), 2006

Provider	Pre-Acquisition			Post-Acquisition		
	Expenditures (\$M)	Share	HHI	Expenditures (\$M)	Share	HHI
Google ^{1*}	9,385	36%		13,903	53%	
DoubleClick ²	4,517	17%				
Yahoo! ^{1*}	5,627	21%		5,627	21%	
Microsoft ^{1*}	2,227	8%		2,227	8%	
aQuantive ²	1,895	7%		1,895	7%	
ValueClick ²	882	3%		882	3%	
AOL ¹	564	2%		564	2%	
Ask.com ¹	544	2%		544	2%	
24/7 Real Media ²	524	2%		524	2%	
Quigo ²	60	0%		60	0%	
Total	26,226	100%	2,186	26,226	100%	3,419
Change in HHI			1,233			

Sources: ¹ Company financial statements. ² Tables 3 and 4.

Note: Includes traffic acquisition costs.

TABLE A.2: SHARE OF ONLINE ADVERTISING EXPENDITURES
(ALL PROPOSED ACQUISITIONS)

Provider	Pre-Acquisition			Post-Acquisition		
	Expenditures (\$M)	Share	HHI	Expenditures (\$M)	Share	HHI
Google ^{1*}	9,385	36%		13,903	53%	
DoubleClick ²	4,517	17%				
Yahoo! ^{1*}	5,627	21%		5,627	21%	
Microsoft ^{1*}	4,122	16%		4,122	16%	
aQuantive ²						
ValueClick ²	882	3%		882	3%	
AOL ¹	564	2%		564	2%	
Ask.com ¹	544	2%		544	2%	
24/7 Real Media ²	524	2%		524	2%	
Quigo ²	60	0%		60	0%	
Total	26,226	100%	2,309	26,226	100%	3,542
Change in HHI			1,233			

Sources: ¹ Company financial statements. ² Tables 3 and 4.

Note: Includes traffic acquisition costs.

TABLE A.3: SHARE OF ONLINE ADVERTISING EXPENDITURES
(GOOGLE-DOUBLECLICK ACQUISITION ONLY), 2006

Provider	Pre-Acquisition			Post-Acquisition		
	Expenditures (\$M)	Share	HHI	Expenditures (\$M)	Share	HHI
Google ¹	6,085	30%		8,200	40%	
DoubleClick ²	2,115	10%				
Yahoo! ¹	3,761	19%		3,761	19%	
Microsoft ¹	1,227	6%		1,227	6%	
aQuantive ²	1,488	7%		1,488	7%	
ValueClick ²	3,673	18%		3,673	18%	
AOL ¹	564	3%		564	3%	
Ask.com ¹	544	3%		544	3%	
24/7 Real Media ²	803	4%		803	4%	
Quigo ²	60	0%		60	0%	
Total	20,320	100%	1,795	20,320	100%	2,418
Change in HHI			623			

Sources: ¹ Company financial statements. ² Tables 3 and 4.

TABLE A.4: SHARE OF ONLINE ADVERTISING EXPENDITURES
(ALL PROPOSED ACQUISITIONS)

Provider	Pre-Acquisition			Post-Acquisition		
	Expenditures (\$M)	Share	HHI	Expenditures (\$M)	Share	HHI
Google ¹	6,085	30%		8,200	40%	
DoubleClick ²	2,115	10%				
Yahoo! ¹	3,761	19%		3,761	19%	
Microsoft ¹	2,715	13%		2,715	13%	
aQuantive ²						
ValueClick ²	3,673	18%		3,673	18%	
AOL ¹	564	3%		564	3%	
Ask.com ¹	544	3%		544	3%	
24/7 Real Media ²	803	4%		803	4%	
Quigo ²	60	0%		60	0%	
Total	20,320	100%	1,883	20,320	100%	2,507
Change in HHI			623			

Sources: ¹ Company financial statements. ² Tables 3 and 4.

TABLE A.5: SHARE OF ONLINE ADVERTISING EXPENDITURES
(GOOGLE-DOUBLECLICK ACQUISITION ONLY), 2006

Provider	Pre-Acquisition			Post-Acquisition		
	Expenditures (\$M)	Share	HHI	Expenditures (\$M)	Share	HHI
Google ¹	6,085	45%		6,385	47%	
DoubleClick ²	300	2%				
Yahoo! ¹	3,761	28%		3,761	28%	
Microsoft ¹	1,488	11%		1,488	11%	
aQuantive ²	174			174		
ValueClick ²	521	4%		521	4%	
AOL ¹	564	4%		564	4%	
Ask.com ¹	544	4%		544	4%	
24/7 Real Media ²	114	1%		114	1%	
Quigo ²	60	0%		60	0%	
Total	13,611	100%	2,935	13,611	100%	3,132
Change in HHI			197			

Sources: ¹ Company financial statements. ² Tables 3 and 4.

TABLE A.6: SHARE OF ONLINE ADVERTISING EXPENDITURES
(ALL PROPOSED ACQUISITIONS)

Provider	Pre-Acquisition			Post-Acquisition		
	Expenditures (\$M)	Share	HHI	Expenditures (\$M)	Share	HHI
Google ¹	6,085	45%		6,385	47%	
DoubleClick ²	300	2%				
Yahoo! ¹	3,761	28%		3,761	28%	
Microsoft ¹	1,662	12%		1,662	12%	
aQuantive ²						
ValueClick ²	521	4%		521	4%	
AOL ¹	564	4%		564	4%	
Ask.com ¹	544	4%		544	4%	
24/7 Real Media ²	114	1%		114	1%	
Quigo ²	60	0%		60	0%	
Total	13,611	100%	2,965	13,611	100%	3,162
Change in HHI			197			

Sources: ¹ Company financial statements. ² Tables 3 and 4.

APPENDIX B: SURVEY QUESTIONNAIRE

U.S. National Survey of Online Advertisers

August 2, 2007

N=200 ONLINE RETAILERS

This survey is being conducted on behalf of Shaw and Company Research. We would like to include your responses to this survey, which will be kept confidential, with the responses of several hundred other people like yourself.

First, may I ask:

QA. Do you work for a company that purchases Internet advertising?

- 1. Yes [CONTINUE].*
- 2. No [THANK AND TERMINATE].*

QB. Do you purchase or have knowledge about these advertising purchases?

- 1. Yes [CONTINUE].*
- 2. No [THANK AND TERMINATE].*

QC. Has your company purchased Internet advertising that ran on a publisher's website, such as NYTIMES.COM or ESPN.COM?

- 1. Yes [CONTINUE].*
- 2. No [THANK AND TERMINATE].*

Q1. How much did you spend on advertising across all media outlets – including print, radio, television, and Internet – over the past year?

1. Less than \$5000
2. \$5,000 to \$25,000
3. \$25,000 to \$100,000
4. \$100,000 to \$500,000
5. \$500,000 to \$1 million
6. \$1 million to \$5 million
7. \$5 million to \$10 million
8. \$10 million to \$50 million
9. Greater than \$50 million
10. Unsure
99. Don't Know / Refused / NA.

Q2. Now, how much did you spend on Internet advertising in the past year?

1. Less than \$5000
2. \$5,000 to \$25,000
3. \$25,000 to \$100,000
4. \$100,000 to \$500,000
5. \$500,000 to \$1 million
6. \$1 million to \$5 million
7. \$5 million to \$10 million
8. \$10 million to \$50 million
9. Greater than \$50 million
10. Unsure
99. Don't Know / Refused / NA.

Q3. In thinking about ads placed on a publisher's website such as NYTIMES.COM or ESPN.COM, were those ads graphic ads or text-based ads, or both?

1. Graphic.
2. Text-based. [GO TO Q15].
3. Both.
4. Don't Know / Refused / NA. [THANK AND TERMINATE].

Q4. Were the graphic ads that you placed on publishers' websites purchased as part of an advertising portfolio through an agency or broker?

1. Yes.
2. No.
99. Don't Know / Refused / NA.

Q5. In the past year, have you used DoubleClick services – including ad management or DART exchange software – to produce a graphic ad?

1. Yes.
2. No. [CONTINUE TO Q6 through Q9, THEN SKIP TO Q13].
3. Don't Know / Refused / NA. [CONTINUE TO Q6 through Q9, THEN SKIP TO Q13].

Q6. Suppose the price of **graphic ads** placed on all publishers' websites increased by 10 percent. How would your purchases of **text-based ads** placed on publishers' websites change?

1. Not at all. [GO TO Q8].
2. Increase by 5 percent or less. [GO TO Q8].
3. Increase between 5 and 10 percent. [GO TO Q8].
4. Increase by 10 percent or more. [GO TO Q8].
5. Decrease by 5 percent or less. [GO TO Q7].
6. Decrease between 5 and 10 percent. [GO TO 7].
7. Decrease by 10 percent or more. [GO TO Q7].
99. Don't Know / Refused / NA. [GO TO Q8].

Q7. Why would you choose to decrease your purchases of **text-based ads**?

1. Because of budget constraints and the higher cost of **graphic ads**, I would be forced to decrease my purchases of **text-based ads**.
2. Because of an increase in the cost of **graphic ads**, I would perceive the value of **text-based ads** to fall.
3. I'm confused by the logic of this question – I'm not sure how the costs of **graphic ads** and **text-based ads** are linked.

Q8. Suppose the price of **graphic ads** placed on all publishers' websites increased by 10 percent. How would your purchases of **search-based ads** placed on publishers' websites change?

1. Not at all. [GO TO Q10].
2. Increase by 5 percent or less. [GO TO Q10].
3. Increase between 5 and 10 percent. [GO TO Q10].
4. Increase by 10 percent or more. [GO TO Q10].
5. Decrease by 5 percent or less. [GO TO Q9].
6. Decrease between 5 and 10 percent. [GO TO Q9].
7. Decrease by 10 percent or more. [GO TO Q9].
99. Don't Know / Refused / NA. [GO TO Q10].

Q9. Why would you choose to decrease your purchases of **search-based ads**?

1. Because of budget constraints and the higher cost of **graphic ads**, I would be forced to decrease my purchases of **search-based ads**.
2. Because of an increase in the cost of **graphic ads**, I would perceive the value of **search-based ads** to fall.
3. I'm confused by the logic of this question – I'm not sure how the costs of **graphic ads** and **search-based ads** are linked.

Q10. [ASK FOR ONLY THOSE WHO ANSWER '1. YES' TO Q5] Now suppose that the price of DoubleClick's graphic ads services – including ad management or exchange software – increases by 10 percent. Would you:

1. Purchase the same amount of graphic ads through DoubleClick. [GO TO Q13].
2. Purchase the same amount of graphic ads through another firm (such as ValueClick, aQuantive, or 24/7 Real Media). [GO TO Q13].
3. Purchase fewer graphic ads through DoubleClick and increase the amount of text-based ads you purchase on the publisher's website. [GO TO Q11]

4. Purchase fewer graphic ads through DoubleClick and increase the amount of search-based ads you purchase. [GO TO Q12].
5. Keep everything the same. [GO TO Q13].
99. Don't Know / Refused / NA. [GO TO Q13].

Q11. To which supplier of text-based ads – such as those found on ESPN.COM or NYTIMES.COM – would you first turn?

1. Microsoft AdCenter. [GO TO Q13].
2. Yahoo Publishers' Network. [GO TO Q13].
3. Google AdSense. [GO TO Q13].
4. Quigo. [GO TO Q13].
5. other. [GO TO Q13].
99. Don't Know / Refused / NA. [GO TO Q13].

Q12. To which supplier of search-based ads would you first turn?

1. Google.com
2. Yahoo.com
3. MSN.com
4. Ask.com
5. AOL.com
6. other
99. Don't Know / Refused / NA.

Q13. For every \$1,000 you spend on online ads, please allocate your expenditures across the following three groups:

- | | |
|-------------------------------------|--------------|
| 1. Search-based ads | { text box } |
| 2. Text-based ads on publisher site | { text box } |
| 3. Graphic ads on publisher site | { text box } |

Q14. [ASK ONLY IF VALUE FOR Q13, OPTION 3 IS GREATER THAN \$0] For every \$1,000 you spend on graphic ads on publisher sites, please allocate your expenditures across the following providers:

- | | |
|--------------------|--------------|
| 1. DoubleClick | { text box } |
| 2. ValueClick | { text box } |
| 3. aQuantive | { text box } |
| 4. 24/7 Real Media | { text box } |
| 5. other | { text box } |

Q15. [ASK IF VALUE FOR Q13, OPTION 2 IS GREATER THAN \$0, OR IF REDIRECTED FROM Q3, ANSWER 2] For every \$1,000 you spend on text-based ads on publisher sites, please allocate your expenditures across the following providers:

- | | |
|-----------------------------|--------------|
| 1. Google AdSense | { text box } |
| 2. Yahoo Publisher' Network | { text box } |
| 3. Microsoft AdCenter | { text box } |
| 4. Quigo | { text box } |
| 5. other | { text box } |

Q16. For every \$1,000 you spend on search ads, please allocate your expenditures across the following providers:

1. Google.com {text box}
2. Yahoo.com {text box}
3. MSN.com {text box}
4. Ask.com {text box}
5. AOL.com {text box}
6. other {text box}
7. Not Applicable – I do not purchase search ads {checkbox}

Q17. How many employees does your firm have?

1. Less than 50.
2. 50 to 100.
3. 100 to 200.
4. 200 to 500.
5. 500 to 1,000.
6. 1,000 to 2,500
7. 2,500 to 5,000
8. Greater than 5,000
9. Unsure
99. Don't Know / Refused / NA.

Q18. What state is your business located in?

{drop down menu with 50 states + DC listed}

Q19. What is your firm's retail sector?

1. Arts, entertainment, recreation
2. Automotive
3. Clothing, apparel, shoes
4. Computer services, hardware, software
5. Consumer electronics (including household appliances)
6. Education
7. Financial services / insurance
8. Food / beverage
9. Healthcare and pharmaceuticals
10. Office equipment, supplies
11. Real Estate
12. Social networking (dating, people searches, employment)
13. Travel / tourism
14. Video services / telecommunications (including wireline and wireless)
15. Combination of above
16. other
99. Don't Know / Refused / NA.

Q20. What was the value of your sales, shipments, or receipts for the calendar year 2006? Please place a dollar amount in the text box.

{text box}

Q21. For how many years has your business been in existence?

1. Fewer than 5 years
2. 5 to 10 years
3. 10 to 20 years

- 4. More than 20 years
- 5. Unsure
- 99. Don't Know / Refused / NA.

Thank you very much for your cooperation and patience. Have a good day.