Three other estimates of price changes were also discussed in the court opinions. First, an economic expert for Apple testified that the average price of all ebooks declined after April 2010 without distinguishing between two possibilities: that the prices of specific books generally declined, or that the prices of specific books generally rose while the mix of books sold shifted toward lower-priced products. Second, a figure included in the district court's opinion shows that over 2010, average ebook prices at Amazon increased more for some publishers than others, without controlling for the mix of books sold. Third, an appellate judge referenced testimony that indicated that the weighted average ebook price rose nearly 24%. This estimate appears to come from a government expert's analysis of weighted average prices for ebooks that were sold through Amazon between February 2010 and February 2011. That analysis did not control for changes in the mix of book titles sold or factors other than the conspiracy over the 13-month period that was studied.

REFERENCES

Jonathan B. Baker and Judith A. Chevalier. 2013. "The Competitive Consequences of Most-Favored-Nation Provisions." *Antitrust* 27 (2): 20–26.

Jonathan B. Baker. 2015. "Taking the Error Out of 'Error Cost' Analysis: What's Wrong with Antitrust's Right." *Antitrust Law Journal* 80: 1–38.

James C. Cooper, Luke M. Froeb, Dan O'Brien, and Michael G. Vita. 2005. "Vertical Antitrust Policy as a Problem of Inference." *International Journal of Industrial Organization* 23: 639—664.

Barbur De los Santos and Matthijs R. Wildenbeest. 2017. "E-book Pricing and Vertical Restraints." *Quantitative Marketing and Economics* http://www.kelley.iu.edu/mwildenb/ebooks.pdf.

Richard Gilbert. 2015. "E-books: A Tale of Digital Disruption." *Journal of Economic Perspectives* 29: 165–83.

Lina M. Khan. 2017. "Amazon's Antitrust Paradox." *Yale Law Journal* 126: 710–805.

John B. Kirkwood. 2014. "Collusion to Control a Powerful Customer: Amazon, E-Books, and Antitrust Policy." *University of Miami Law Review* 69: 1–63.

Benjamin Klein. 2017. "The Apple E-Books Case: When is a Vertical Contract a Hub in a Hub-and-Spoke Conspiracy?" *Journal of Competition Law & Economics.*

Francine Lafontaine and Margaret Slade. 2008. "Exclusive Contracts and Vertical Restraints: Empirical Evidence and Public Policy." In *Handbook of Antitrust Economics*, edited by Paolo Buccirossi, 391–414. Cambridge: MIT Press.

Imke Reimers and Joel Waldfogel. 2017. "Throwing the Books at Them: Amazon's Puzzling Long Run Pricing Strategy." *Southern Economic Journal* http://ssrn.com/abstract=2442747.

CASE 21

The U.S. Federal Trade Commission Investigation of *Google Search* (2013)

Richard J. Gilbert*

INTRODUCTION

The internet is the cornerstone of the information economy, and no name is more closely identified with the internet than Google. Now organized as a subsidiary of Alphabet, Google's search engine connects persons who seek information with content publishers (websites) and advertisers. Google operates a two-sided platform that allows internet users to query billions of web pages at no charge,[1] while advertisers pay to place their ads on the search engine results page (SERP) or on the pages of other web publishers.

Google interacts with advertisers through its AdWords and AdSense services. AdWords allows advertisers to bid on keywords to win placement on the SERP. Advertisers pay Google only if users click on their ads. AdSense extends AdWords to display ads on relevant websites. AdWords accounts for most of Google's revenues, while AdSense allows more flexible content with text, images, and video displays.

Website publishers such as Yelp, TripAdvisor, Nextag, and Kayak provide "vertical" search-related services that are confined to more narrowly focused categories of information. Verticals include maps, news, images, flight and hotel listings, and product comparisons. Google launched Google Images in 2001 and a comparison shopping service that

*The author was a consultant to the Federal Trade Commission during its investigation of Google Search. This chapter does not rely on any confidential information and does not reflect the views of the Federal Trade Commission. I am grateful to Jonathan Baker, John Kwoka, Ben Labow, James Ratliff, and Lawrence White for helpful comments.

[1] Although internet search engine users face a nominal price of zero, their queries provide valuable data for which they are not compensated.

was called Froogle at the end on 2002, which it re-branded as Google Product Search and later as Google Shopping. Google launched Google Maps in 2004 and an online flight search and booking service that was branded as Google Flights in 2011. Advertisers commonly pay for placement in these vertical properties.

In the early years of internet search, Google and other general-purpose search engines responded to a desktop query with a list on the first page of the SERP of unsponsored "organic" search results and a separate list of sponsored advertisements. Google (and other search engines) transitioned from this "ten blue links" model for organic search results to displays that incorporate varied media and sometimes offer direct answers to queries. Google introduced "Universal Search" in 2007. Universal Search blends and prominently displays sponsored data from verticals and gives particular prominence to Google's products. Third-party sponsors of verticals protest that Universal Search occupies prime real estate on the SERP and that Google pushes links to the third-party websites further down on the SERP, where they are less likely to attract the attention of users.

The U.S. Senate Subcommittee on Antitrust, Competition Policy and Consumer Rights convened a hearing on September 21, 2011, to "examine how the world's dominant internet search engine, namely Google, presents its search results to consumers and treats the businesses it competes with." Chairman Herb Kohl explained that "Our inquiry centers on whether Google biases these results in its favor, as its critics charge, or whether Google simply does its best to present results in a manner which best serves its consumers, as it claims."[2] Chairman Kohl and Ranking Member Mike Lee followed the hearing with a letter to Federal Trade Commission (FTC) Chair Jonathan Liebowitz on December 19, 2011, which urged the Commission "to investigate the issues raised at our Subcommittee hearing to determine whether Google's actions violate antitrust law or substantially harm consumers or competition in this vital industry."[3]

The FTC opened its investigation of Google's search-related practices in the first half of 2012. The Commission conducted its investigation under the authority of Section 5 of the Federal Trade Commission Act. Section 5 prohibits monopolization or attempted monopolization that is actionable under Section 2 of the Sherman Act and may apply more broadly to unfair methods of competition if the conduct causes, or is likely to cause, harm to competition or the competitive process, taking into account any associated cognizable efficiencies and business justifications.

[2] Opening statement of Hon. Herb Kohl, "The Power of Google: Serving Consumers or Threatening Competition?" Hearing Before the Subcommittee on Antitrust, Competition Policy and Consumer Rights of the Committee on the Judiciary, United States Senate. One Hundred Twelfth Congress, First Session, September 21, 2011.

[3] Letter from Senators Herb Kohl and Mike Lee to Jonathan D. Liebowitz, December 19, 2011, at p. 5, available at http://searchengineland.com/figz/wp-content/seloads/2011/12/kohl-lee-ftc-letter.pdf, accessed November 1, 2017.

The FTC investigation focused on three categories of allegations:

(i) Google gives preferential placement on its search engine results page to its own properties and sometimes demotes competing properties.

(ii) Google uses data that are obtained without compensation from third-party websites for its proprietary products.

(iii) Google imposes contractual restrictions in the licensing of its application interface information for AdWords that make it more difficult for advertisers to develop keyword-based advertising programs for other search engines.

Google supplies an integrated product (Universal Search results) and an input to competitors (suppliers of vertical services that utilize responses to search queries). The first allegation is that Google favors its own properties and demotes competing products to raise the costs of its rivals. Cases that allege raising rivals' costs involve complicated tradeoffs because product integration often has consumer benefits (consumers expect cars to be sold with tires and radios and expect search engines to display a wide range of information in various media),[4] but can harm and in extreme cases can foreclose competition (Rey and Tirole, 2007).

The second allegation is that Google populated content in its Universal Search results by unfairly "scraping" data from the websites of competing verticals without compensation and threatened to remove websites from its organic search results if their publishers complained. Search engines use robotic algorithms to "crawl" websites and snatch snippets of information, which then appear on the search engine results page or in verticals, or both. Web crawling benefits websites by allowing them to be identified on the SERP; but by scraping their content, Google can free-ride on data that have been collected by the publishers of these websites, such as customer product reviews that are incorporated in Google Shopping.

The third allegation is that Google harmed competing general-purpose search engines by imposing restrictions on services that manage clients' search-based advertising programs. Google's standard licensing terms and conditions for its AdWords application programming interface limited the use of tools to manage multiple keyword advertising campaigns. The restriction prevented an advertiser from using software that was developed or used by a third party (but not the advertiser itself) to "multi-home" by commingling data and porting its software to manage ad campaigns for Google and also for other search engines, such as Bing or Yahoo!. This was not an obstacle for large advertisers that managed their own campaigns, and it was irrelevant for advertisers that were content to limit their keyword

[4] For products that are sold at prices that exceed incremental production costs, integration can also reduce prices by avoiding the "double marginalization" that can occur if separate firms sell complementary products (Spengler, 1950).

advertising campaigns to the Google platform. However, it was an impediment for some advertisers that were forced either to develop campaigns for alternative platforms themselves or to contract with third parties to customize campaigns on their behalf.

An evaluation of these allegations hinges on numerous factors: For the investigation of search bias these include the definition and measurement of biased search; Google's ability and incentive profitably to bias search results; the threshold requirements for anticompetitive harm; and the business justifications for Google's product changes. The key question is whether Google uses its control of Google search to exclude competition from vertical services without offsetting consumer benefits. At a general level, the antitrust issue is the exercise of market power in one market (general-purpose search and advertising) to harm competition in a related market (vertical services). More specifically, Google allegedly harms rival providers of vertical services by providing them access to an important input (general-purpose search and advertising) on less favorable terms than it provides for its own vertical services. Confusingly, this is also called a vertical case in antitrust terms.

The allegation that Google harms competition by refusing to allow third parties to port their AdWords programs to other search engines is also a vertical antitrust case. The question is whether restrictions on the use of an input for search advertising (programs to manage AdWord campaigns) affects a sufficiently large amount of commerce to harm competition in search and online advertising. The scraping allegation implicates the doctrine of fair use of copyrighted information, but it also has a vertical antitrust dimension. The concern is that free-riding may reduce incentives for web publishers to innovate and improve the quality of their content.

The FTC took no action in response to allegations of display bias. Google made unilateral commitments to eliminate restrictions on porting management programs for AdWords and to allow websites to opt out of scraping without being penalized or demoted in Google's search results.

The focus in this chapter is on the FTC's evaluation of alleged display bias. Google's most vocal critics were sponsors of vertical services that competed for attention on its search engine results page. Intervention in the design and display of the Google SERP was also the action with the greatest consequences for the internet community more generally.[5] This chapter also briefly reviews the investigation of Google's search-related practices at the European Commission, which reached a different conclusion.

[5] I do not address other allegations against Google, such as those that relate to the Android mobile ecosystem or the protection of privacy.

MEASURING AND REGULATING SEARCH BIAS

The FTC investigation addressed whether Google's search-related design choices and its display of search results were guided by consumer preferences for useful information or instead were attempts by Google to disadvantage providers of specialized search services and gain a competitive advantage in the provision of these services. A purported baseline to evaluate Google's search design is "display neutrality"—whereby websites are ranked according to some objective criteria of relevance to a search query. However, that baseline is ill-defined because objective criteria do not exist for many types of queries.

Google and other search engines generate results that are based on numerous complex and evolving qualitative as well as quantitative factors. Queries that are not straightforward requests for information such as "current time in Oslo" can require search engines to deduce the state of mind of the user and may be informed by the user's past search activity. In addition, search engines employ complex algorithms and sometimes subjective judgment to deliver relevant results when web publishers engage in "search optimization" strategies to improve their standings on the SERP (sometimes called "Google bombing" or "spamdexing" when the strategies give high placement to websites with little or no relevance to queries).

The order of search results that best conveys information to an internet user is a decision about how to allocate scarce "real estate" on the SERP, along with a guess about the user's preferences. For example, suppose that a user types the query "flights from San Francisco to Denver" and the websites that convey the best information are, in this order: Travelocity.com and Expedia.com for flights; Hotels.com for hotels; and TripAdvisor.com for local restaurants and sights in Denver. Suppose further that the user concentrates her attention on the first three links that are displayed on the first search engine results page and that the content on Travelocity.com is almost identical to the content on Expedia.com. If the first link is to Expedia .com, the user might obtain more information if the next two links are to Hotels.com and TripAdvisor.com, because Travelocity.com provides little additional information given that the SERP already displays Expedia.com.

This example illustrates the complexity of defining metrics to measure the accuracy of search results even in the context of an unambiguous query. Such metrics are particularly vexing to evaluate search quality for vertical services that mainly point users to other websites rather than provide original content of their own. In response to a query about running shoes a user may value a link to a comparison shopping service that directs the user to sellers of running shoes. But the incremental value of a second link that offers a similar service may be quite low. Furthermore, a link to a comparison shopping service may be unnecessary if the search engine displays a sufficient number of relevant organic or paid links to vendors of running shoes.

More generally, the accuracy of a response to a search query depends on the information that the user wants to obtain; the relevance of search results to the query; the relative information content of similar websites; the extent to which results that appear higher on a SERP are close substitutes for results that appear lower on the SERP; a user's preferences for related but different information sources; and the user's willingness to explore the hierarchy of search results. Even if a search engine could rank websites precisely according to some information criterion, the ranking is unlikely to be the same for every user because users often seek different types of information when they enter a search query.[6] It is therefore not surprising that empirical studies of the extent of search bias reach conflicting conclusions.[7]

Labeling content as proprietary or sponsored is a plausible response to allegations of display bias that avoids the difficulty of measuring and monitoring search neutrality.[8] If a user does not wish to be misled by search results that are financially connected with the search engine, the user is free to disregard these results and focus on content that is not proprietary or sponsored. Most consumers can appreciate that paid advertisements do not convey the same level of objectivity as product reviews in sources such as *Consumer Reports* that do not accept advertising.

However, labeling lacks consensus as a remedy for display bias. There is evidence that search engine users are more likely to react to SERP position than to labels (Hyman and Franklyn, 2015). If the alleged conduct is the demotion of rival content rather than the promotion of proprietary or sponsored content, labeling does not address allegations that Google may design its search algorithm to rank websites with content that competes with Google's proprietary services so low that they are unlikely to be viewed by internet users.

A search engine could be designed to display and rank content without regard to its affiliation or financial connection to the firm that operates the search platform. Such display neutrality offers a level playing field for content providers and advertisers, but can inhibit innovation by the search provider that the promotion of a new service can facilitate. Lafontaine and Slade (2007) review the evidence of procompetitive benefits from vertical integration—some of which may involve conduct that favors products or

[6] "[E]ven the scores that are generated by modern algorithms (or by the more sophisticated ones that will emerge in the future) are proxies for, rather than direct measures of, the quality of the match between a site and a query" (Salinger and Levinson, 2015, p. 34).

[7] Compare, for example, Edelman and Lockwood (2011) with Wright (2011).

[8] The FTC sent letters to Google and other search companies in 2013 that updated guidance that emphasizes the need for visual cues, labels, or other techniques to distinguish advertisements effectively, in order to avoid misleading consumers. (FTC Press Release, "FTC Consumer Protection Staff Updates Agency's Guidance to Search Engine Industry on the Need to Distinguish between Advertisements and Search Results," June 25, 2013, available at https://www.ftc.gov/news-events/press-releases/2013/06/ftc-consumer-protection-staff-updates-agencys-guidance-search, accessed November 1, 2017.)

services that are supplied by the vertically integrated firm.[9] A fundamental question is whether Google has a legal obligation to supply unbiased search results, for which the law does not provide a definitive answer.

There is precedent for enforcing display neutrality in a regulated context. Years before Google became part of the vernacular, the U.S. Department of Justice (DOJ) and industry regulators addressed the issue of display bias in the context of computer reservation systems (CRS), which airlines developed as automated replacements for the Official Airline Guide: a listing of flight routes and prices. There were complaints that the airlines' proprietary systems generated displays that ranked their owners' itineraries above similar routes that were serviced by competitors. In addition, airlines complained that CRS vendors charged competing airlines higher prices for booking services and engaged in other conduct that raised their rivals' costs, such as delayed recording of competing schedule and fare information (Guerin-Calvert, 1989). The U.S. Civil Aeronautics Board responded by promulgating rules that prohibited the use of any carrier-specific factor for ordering screen displays and imposed restrictions on other practices (Alexander and Lee, 2004).

Allegations of CRS display bias mirror the concerns that were raised with regard to Google's conduct in search. Notwithstanding these similarities, computer reservation systems do not provide a particularly useful model for enforcement of internet search neutrality. A regulatory apparatus (the Civil Aeronautics Board and the U.S. Department of Transportation) was in place to audit complaints and develop rules for computer reservation systems and to monitor and enforce compliance. There is no existing agency or enforcement body with the authority and specialized expertise to evaluate internet display bias. Furthermore, it is easier to assess the accuracy of airline schedules and prices than the accuracy of responses to many internet queries.

In the largely unregulated internet economy, it devolves to antitrust policy to determine the circumstances under which Google's product designs and related conduct may be unlawful. The next section considers the factors that should be considered to assess allegations that Google has market power in the two-sided market for internet search and harms competition by favoring services in which it has a financial interest.

MARKET POWER AND THE INCENTIVES FOR SEARCH NEUTRALITY

Central questions that should be addressed to evaluate allegations of anticompetitive effects from search bias are: (i) Can Google profitably exercise market power by biasing search results to favor services in which it has a

[9] Chipty (2001) found that vertically integrated cable companies tend to exclude rival program services but also generate efficiency benefits for consumers.

financial interest? (ii) Are there separate markets for vertical services that are distinct from general-purpose search? and (iii) Is the effect of Google search bias sufficient to harm competition in markets for vertical services?

Can Google profitably exercise market power by biasing search results to favor services in which it has a financial interest?

Market power is the ability to maintain prices that are above competitive levels or exclude competition. Although consumers face a nominal price of zero for internet search, the "effective price" depends on the quality of search results. A reduction in the accuracy of responses to search queries corresponds to an increase in the effective price of search for internet users. The question is whether Google can increase revenues from advertisers or more directly from its proprietary products by biasing search results to favor its proprietary products and in this way raise the effective price of search by reducing its quality.

Market definition is a common first step to evaluate the potential to exercise market power. A high share of a properly defined market is necessary, but not sufficient, for a firm to have the ability profitably to maintain prices that are above the levels that are offered by its competitors or to supply a product that has a lower price-adjusted quality compared to those that are offered by its competitors or to exclude competition. Complicating market definition to evaluate allegations of search bias is the fact that general-purpose search engines and vertical services operate two-sided (and arguably multi-sided) platform markets.

Firms that operate a two-sided platform typically choose different prices on each side of the platform in order to maximize platform revenues (Rochet and Tirole, 2006). Google generates revenues by charging advertisers for ads that are placed on its SERP and other properties, while allowing consumers to access the links (and thus to search the internet) for free. Two-sided markets also generally have substantial network effects. The value of advertising on a search platform or the website of a vertical service depends on the number of consumers that may visit those sites with a potential interest in the advertiser's products. Indirect network effects for advertisers flow from the number of participants on the search side of the two-sided market (Ratliff and Rubinfeld, 2010). In addition, search has economies of scale that affect the accuracy and therefore the quality of responses to search queries. Search quality affects advertisers because the number of potential customers that view their ads depends on whether responses to search queries are relevant to their advertisements.

Evans and Noel (2005) and Emch and Thomson (2006) describe price concepts for two-sided markets that account for both sides of the market. Although only one side of Google's search platform pays a positive price,

an analysis of market power for search must account for the interdependent nature of the demand for search advertising, the demand for search queries, and the quality of search results. Although this chapter discusses search queries and online advertising separately, they are clearly complementary, and competitive effects in either activity cannot be analyzed in isolation without regard to the other activity.[10]

Google accounts for a high share of search queries,[11] but that does not imply that Google can profitably distort search results to favor its own services if competition is "only a click away"[12] or if competition on the advertising side of the two-sided market for internet search limits Google's ability profitably to degrade search results.[13] The advertising side of the two-sided market for internet search can discipline Google's search quality if advertising revenues are sufficiently responsive to a reduction in the accuracy of responses to queries.

Google's ability to affect adversely the price or quality of advertising—and conversely the ability of advertisers to discipline Google search quality—depend on Google's market power on the advertising side of the two-sided market for search. Google's advertising market power depends on whether online advertising is a substitute for other advertising media and whether there may be narrow markets for some types of online advertising.[14] The website eMarketer.com forecasts that Google will account for roughly 78% of U.S. internet search ad revenue in 2017, but only 12.5% of internet display ad revenue.[15]

The FTC acknowledged that Google's Universal Search display could cause some of Google's rivals to lose traffic, but the Commission did not

[10] Indirect network effects further complicate empirical estimation of market power in two-sided markets. See, e.g., Argentesi and Filistrucchi (2007).

[11] Query shares vary according to device (fixed or mobile), location, and how they are measured. ComScore reported that Google accounted for 64 percent of direct search queries by U.S. users in February 2016 ("comScore Releases February 2016 U.S. Desktop Search Engine Rankings," March 16, 2016, available at https://www.comscore.com/Insights/Rankings/comScore-Releases-February-2016-US-Desktop-Search-Engine-Rankings, accessed November 1, 2017), while Stat Counter reported that Google's share was above 85 percent (StatCounter Global Stats, available at http://gs.statcounter.com/search-engine-market-share/all/united-states-of-america, accessed November 1, 2017).

[12] "If you do not like the answer that Google search provides you can switch to another engine with literally one click . . . ,"Testimony of Eric Schmidt, Executive Chairman, Google Inc. Before the Senate Committee on the Judiciary, Subcommittee on Antitrust, Competition Policy and Consumer Rights, September 21, 2011, p. 6.

[13] See, e.g., Ratliff and Rubinfeld (2014) and Manne and Wright (2011).

[14] In a 2007 opinion, the Commission found insufficient competition between online search and display advertising to place them in the same market. Statement of Federal Trade Commission Concerning Google/DoubleClick, FTC File No. 071-0170, available at https://www.ftc.gov/system/files/documents/public_statements/418081/071220googledc-commstmt.pdf,accessed November 1, 2017. It is unclear whether the Commission would reach a similar conclusion today.

[15] eMarketer, "Google, Facebook Increase Their Grip on Digital Ad Market," March 14, 2017, available at https://www.emarketer.com/Article/Google-Facebook-Increase-Their-Grip-on-Digital-Ad-Market/1015417, accessed November 1, 2017.

quantify the extent to which Google could profitably bias its SERP to favor its own properties or identify the services that are at particular risk from display bias. In particular, the Commission did not quantify the extent to which competition on the advertising side of the two-sided market for internet search limits Google's ability profitably to degrade search results.

Are there separate markets for vertical services that are distinct from general-purpose search?

The FTC also did not publicly identify whether one or more vertical services should be treated as separate markets that are distinct from general search. The DOJ addressed this question in its investigation of Google's acquisition of ITA Software in 2011 (Topper et al., 2013). ITA was the leading independent provider of software for airline pricing and shopping systems. The acquisition facilitated Google's rollout of a new vertical service—Google Flights—which Google displays prominently on its SERP in response to a flight-related query.

The DOJ defined a market for "comparative flight search services" that included "meta-search engines" such as Kayak, TripAdvisor, and Bing Travel and online travel agents such as Expedia, Orbitz, and Travelocity. ITA's software powered flight search for the major travel meta-search engines and for three of the major online travel agencies. As defined, the market excluded airline websites and reservation lines and brick-and-mortar travel agents.[16]

The DOJ's actions in the ITA Software case suggest, but do not establish, the existence of separate antitrust markets for some specialized vertical services. A necessary condition for an alleged vertical service to be a separate market is sufficient differentiation from general-purpose search engines. It is unclear whether online comparison shopping services such as Nextag or Shopzilla are sufficiently differentiated from general-purpose search engines to meet this condition—particularly with the evolution of Universal Search displays that blur the distinction between general-purpose search results and specialized vertical services.

Is the effect of Google search bias sufficient to harm competition in markets for vertical services?

Google does not have to be a monopolist in a market for internet search to affect adversely the vertical services that compete for attention on the search engine results page. If vertical services are separate markets, there

[16] Complaint in *U.S. v. Google and ITA Software*, Case 1:11-cv00688, April 8, 2011. The defined market also excluded general-purpose search (Topper et al., 2013).

is a risk that Google would have a dangerous probability of monopolizing one or more of these markets if they are critically dependent on traffic from Google and if Google has enough market power profitably to distort search results to favor its own properties. In contrast, if vertical services are not separate markets, search bias that disadvantages a narrow subset of rivals would have to be evaluated in the broader market for general-purpose search. Search bias would be less likely to have a significant impact on competition if the affected services are not significantly differentiated from other responses to internet queries.

While search bias may cause some rival services to lose sales, that is unlikely to harm competition in vertical services if the firms that sponsor these services have cost-effective ways to connect with potential consumers and advertisers that can substitute for organic or paid listings on the Google SERP. They can compete for display ads on third-party websites. They can make their presence known by advertising on alternative media such as social network sites, radio, and television, and then rely on name recognition to encourage users to navigate directly to their websites. It is an empirical question whether these alternatives can compensate for lost traffic from biased search results, and it is unlikely that there is one answer that applies to all vertical services.

Is competition only a click away?

Although the subjective nature of internet search confounds attempts to create objective measures of search bias, some claim that this imprecision is irrelevant because Google has no scope to deliver poor search results without losing internet users and advertisers. They argue that "competition is only a click away". If an internet user is dissatisfied with the performance of Google search, she can easily query another search engine, such as Microsoft's Bing, Yahoo!, or DuckDuckGo.

Furthermore, many internet queries do not require a general-purpose search engine. Consumers who are looking for products often navigate directly to Amazon.com. If a consumer is looking for prices and schedules for flights from San Francisco to Denver and goes directly to Kayak.com, the existence of the Google Flight vertical service does not affect either the consumer, Kayak.com, or competition more generally for flight search services. Consumers are also increasingly using mobile apps to access services directly without first entering search terms in a search engine. The dramatic rise of social media suggests that sites such as Facebook will become preferred gateways to the internet.

However, Google is the preferred starting point for billions of queries, and proponents of the argument that market forces prevent Google from degrading search quality overlook the advantages that Google has from its

scale and experience and the information asymmetries that are inherent in search results.[17] Large numbers of similar queries allow designers of search engines to refine the algorithms that return search results—particularly for less common "tail" search queries.

A counter-argument is that search engines can improve their results by using better technologies. Yahoo! was the leading internet search engine when Google launched in 1996. Google's PageRank system—which uses the number and quality of links to a web page to estimate its importance—was a technological advance that allowed Google to leapfrog the competition.

But holding technology constant, scale and experience allow Google to deliver more accurate responses to many types of queries compared to other general-purpose search engines. Scale, as measured by the number of users of the search platform, also has indirect network effects that improve the economics of search. Advertisers benefit from having more users that are potential customers (Langford, 2013; Stucke and Ezrachi, 2016).

Although internet users can easily take different search engines for "test drives" by merely clicking on their websites, search quality is difficult to assess objectively. Internet search has aspects of a "credence" good whose quality cannot be accurately ascertained even after it is consumed (Darby and Karni, 1973; Pasquale, 2010; Patterson, 2013). An internet searcher does not know the most accurate response to a search query and may not be able fully to evaluate the quality of the response after it is received.

Furthermore, public reputation information about search quality can be difficult for internet users to evaluate because search engines can differ in many dimensions. Superior performance in a particular dimension (e.g., travel, or retrieval of images and video) may be especially valuable for some users but not for others. Moreover, if all search engines design their SERPs similarly to maximize their profits rather than the welfare of internet searchers, there may be no economic incentive for users to switch to alternative search engines in response to a search engine's perceived display bias (Salinger and Levinson, 2015).

Google's quality differential from scale and experience and consumers' information limitations give Google some latitude to vary search quality without causing massive defection to other search engines or alternative information sources. But that latitude is limited. Internet users would defect if Google repeatedly delivered unsatisfactory results.

Some also argue that the two-sided market for search implies that Google has no economic incentive to reduce the quality of its organic search results even if it could do so without causing many users to switch to other services.[18] Advertisers want to place their ads where those ads

[17] The DOJ cited the benefits of scale in its decision to close its investigation of the agreement between Microsoft and Yahoo! to combine their back-end search and paid search advertising technology (U.S. Department of Justice, 2010).

[18] See, e.g., Bork and Sidak (2012) and Ratliff and Rubinfeld (2014).

are most likely to generate sales. They are willing to pay more if Google designs its search results to best match the advertisers to potential customers. Greater accuracy attracts more search queries, which generate data that allow search algorithms to deliver better results, which in turn allow the search engine to deliver better information to advertisers about likely customers. This is a virtuous circle that benefits consumers of search results as well as advertisers. Hence Google should have a financial incentive to display accurate organic search results even if competition is not "only a click away."

A flaw in this argument is that the organic search results that are most attractive to advertisers are not necessarily the search results that provide users with the best information (Stucke and Ezrachi, 2016). A user that enters the query "backpacking" may be more interested in websites with information about trails in National Parks than in ads for backpacks. But if a search engine earns more revenue from advertisers that sell recreational equipment, it could have a financial incentive to bias organic search results to make them more attractive for advertisers that bid for the keyword "backpacking."

Furthermore, organic search results and sponsored ads may be substitutes from a user's perspective, but they are not substitutes for Google or its advertisers. Google earns revenues from clicks on advertisements and from third-party websites that consumers visit after clicking on Google's own proprietary properties. Google earns no revenues when users merely click on organic links. The fact that Google earns revenues from clicks on sponsored sites can motivate conduct to bias search results. For example, in response to the query "hotels in Denver", a SERP may include both a paid ad and an organic result for Hotels.com. By demoting the organic search result, the search engine can make it more likely that users will click on the paid advertisement and generate revenue for the search engine.[19]

With specific regard to Google's Universal Search, an argument is that Google has no financial incentive to give prominent placement to its vertical results on its SERP because Google incurs a large opportunity cost if it replaces advertised websites with its own properties. Google's AdWords and AdSense advertising platforms are the cash cows for Google and its parent: Alphabet. In 2016, Alphabet's total revenue was about $90 billion, of which revenues from Google's AdWords and AdSense accounted for about 88 percent—most of which came from AdWords. However, notwithstanding the very large revenues that Google earns from its AdWords program, this argument is flawed if, as a consequence of eliminating competition by demoting rival services, Google is better able to monetize revenues from its own vertical services than it can from auctioning keywords to competitors.

[19] Edelman and Lai (2016) find evidence that the introduction of Google Flights resulted in users' substituting from organic to paid listings.

THE FEDERAL TRADE COMMISSION VERDICT, AND THE ROLE OF INNOVATION

The FTC investigated Google's search-related practices over a period of more than 18 months. In particular, the Commission evaluated Google's introduction of Universal Search to determine whether Google used that product to reduce or eliminate a nascent competitive threat. The Commission also focused on the allegation that Google altered its search algorithms to demote certain vertical websites in an effort to harm competition (U.S. Federal Trade Commission, 2013a).

Commission staff reviewed over nine million pages of documents, interviewed numerous industry participants, and considered numerous white papers and presentations from interested parties. Staff economists conducted empirical analyses to investigate the impact of Google's design changes on search engine traffic and user click-through behavior. The Commission worked closely with five state attorneys general, who conducted parallel investigations into Google's search practices.

The Commission voted unanimously to close its Google search investigation on January 3, 2013. The Commission took no action with regard to alleged search display bias. With regard to web scraping, Google agreed to allow websites to opt out of appearing in its vertical properties without being penalized or demoted in its organic search results. With regard to restrictions on the porting of AdWords management programs, Google agreed to modify the terms and conditions that were related to its AdWords application programming interface to allow multi-homing (U.S. Federal Trade Commission, 2013b).

The Federal Trade Commission acknowledged that Google's design choices could cause some providers of rival services to lose sales. In its closing statement, the Commission stated:

> We . . . recognize that some of Google's algorithm and design changes resulted in the demotion of websites that could, collectively, be considered threats to Google's search business. For example, for shopping queries, Google demoted all but one or two comparison shopping properties from the first page of Google's search results to a later page. Demoting comparison shopping properties had the effect of elevating to page one certain merchant and other websites. These changes resulted in significant traffic loss to the demoted comparison shopping properties, arguably weakening those websites as rivals to Google's own shopping vertical.

However, the Commission also noted that "[T]hese changes to Google's search algorithm could reasonably be viewed as improving the overall quality of Google's search results because the first search page now presented the user with a greater diversity of websites." The Commission found evidence that Google carefully considered the effect of its vertical

content on the quality of its search results and would demote its own content to a less prominent location if a higher ranking adversely affected the user experience. The Commission also reported that analysis of user responses indicated that consumers benefited from Google's design changes.

The Commission focused on the pro-competitive effects from Google's design changes. In its closing statement, the Commission stated:

> Product design is an important dimension of competition and condemning legitimate product improvements risks harming consumers. Reasonable minds may differ as to the best way to design a search results page and the best way to allocate space among organic links, paid advertisements, and other features. And reasonable search algorithms may differ as to how best to rank any given website. Challenging Google's product design decisions in this case would require the Commission—or a court—to second-guess a firm's product design decisions where plausible procompetitive justifications have been offered, and where those justifications are supported by ample evidence.

Overall, the Commission concluded that adverse effects on Google's rivals were largely incidental consequences of Google's decisions to improve its products:

> The totality of the evidence indicates that, in the main, Google adopted the design changes that the Commission investigated to improve the quality of its search results, and that any negative impact on actual or potential competitors was incidental to that purpose. While some of Google's rivals may have lost sales due to an improvement in Google's product, these types of adverse effects on particular competitors from vigorous rivalry are a common byproduct of "competition on the merits" and the competitive process that the law encourages.

The Commission's decision reflects the long-standing reluctance of antitrust enforcers to interfere with firms' product design choices. Many courts have held that firms are free to design their products as they see fit—even if their designs inhibit competition—provided that they do not coerce consumers to choose their new designs or engage in otherwise prohibited practices (Gilbert, 2015). The Commission's decision is also consistent with the DOJ's actions in Google-ITA Software. The DOJ approved that acquisition with only modest conditions, notwithstanding the potential for harm in a narrowly defined market for online comparative flight search services.

Unsurprisingly, some observers applauded the Commission's vote to end the Google investigation with only modest conditions, while others complained that the Commission did either too little or too much. Some of the criticism came from within the Commission itself. A memorandum that was leaked to the *Wall Street Journal* revealed that the Commission's legal staff urged stronger enforcement for some of Google's conduct, but the

memo did not recommend bringing a case against Google for promoting its own vertical services.[20] "Leak" is an appropriate description, not only because the memorandum was confidential, but also because the release included only the even-numbered pages of the memorandum. The odd-numbered pages remain cloistered at the FTC as of this writing.

Two Commissioners took issue with the majority decision to allow websites to prevent Google from accessing their content without being excluded entirely from Google's search results and to end restrictions on multi-homing of AdWords management programs. They found no basis for antitrust enforcement premised on the scraping conduct or the terms and conditions that were related to Google's AdWords application programming interface. One Commissioner saw no evidence that complaining parties suffered a decline in traffic from scraping or that scraping caused the parties to reduce innovation. With regard to multi-homing, she found no evidence that Google's terms and conditions increased costs or reduced traffic for rival search platforms.[21]

The other Commissioner concluded that there was no basis to find that scraping is an exclusionary practice that is actionable under the antitrust laws or that scraping caused any injury to consumers. He also expressed concern that the FTC does not have either the expertise or the capacity to enforce limits on website scraping and should instead defer to copyright law. With regard to multi-homing, he concluded that the restrictions were limited, were not exclusionary, and were justified by unique features of AdWords. He was also concerned that requiring Google to support multi-homing creates a precedent that would chill innovation if firms generally were obligated to share data with their rivals. Notwithstanding these reservations, he also objected on procedural grounds to the outcome in which Google made a unilateral pledge not to revive the challenged practices instead of entering into a formal consent decree that can be enforced by contempt proceedings.[22]

The FTC's Statement Regarding Google's Search Practices (2013a) did not conclude that alleged search bias is beyond the reach of the U.S. antitrust laws. A case could be made for harm to competition if Google relegates a competing web publisher to the remote hinterlands of its search

[20] The Commission and its legal staff agreed that Google's restrictions on the porting of keyword management programs and its scraping of information from websites for use with its own verticals raised competition concerns. In addition, legal staff recommended enforcement against Google for entering into anticompetitive exclusionary agreements with websites for syndicated search and search advertising services. Internet search syndication refers to advertisements that appear on third-party websites that use services such as Google's AdSense program. The Commission took no action on this issue. U.S. Federal Trade Commission, Memorandum regarding Google Inc., File No. 111-0163, August 8, 2012, partial copy available at https://graphics.wsj.com/google-ftc-report/img/ftc-ocr-watermark.pdf, accessed November 1, 2017.

[21] Statement of Commissioner Maureen K. Ohlhausen, *In the Matter of Google Inc.*, FTC File No. 111-0163.

[22] Concurring and Dissenting Statement of Commissioner Thomas J. Rosch Regarding Google's Search Practices, *In the Matter of Google, Inc.*, FTC File No. 111-0163, January 3, 2012.

results without a valid business justification (Crane, 2014). Such a case would have to demonstrate harm to existing competition—and not merely to a competitor—or demonstrate a dangerous probability of monopolization. In addition, the case would have to consider possible procompetitive justifications for the demotion. For example, demotion could be ancillary to the introduction of a product that has consumer benefits. If there are both actual or likely harm to competition and also procompetitive justifications, a court would have to consider and possibly strike a balance between the harms and the benefits.[23]

A case that alleges display bias should consider available remedies if Google were held liable for unlawful conduct. An injunction could be crafted to end unlawful conduct that is identified with specificity—such as the demotion of a particular website to obscurity without a valid business justification—but that would not address a more general allegation of display bias. Therein lies a challenge, because remedies are difficult to craft that both correct alleged unlawful conduct and would be practical to administer without deterring innovation in search technology.

Academics, commentators, and interested parties have proposed a number of alternative "remedies" for alleged screen bias. These include: applying the same algorithms to Google properties that Google applies to other websites for its organic search results (ICOMP, 2013); prohibiting Google from reducing the ranking of any site because it competes with a Google site (FairSearch, 2011); a "Federal Search Commission" that would have the responsibility to oversee Google's conduct (Bracha and Pasquale, 2008); a requirement to present users with a menu of alternative search engine choices (Edelman, 2011); and separating the general search and paid search business from vertical services (FairSearch, 2011). The latter would require Google to present the "10 blue links" of organic search results as it did in the past or to partner with other companies' specialized services to offer Universal Search (Ammori and Pelican, 2012).

Several of these proposals advocate a rule that Google should rank organic search results in a manner that does not discriminate according to ownership or Google's financial interest in the reported websites. These proposals do not explain why this obligation is consistent with U.S. competition policy or identify the source of expertise that would be required to resolve disputed website rankings. Instead, they are based either on a claim that Google markets its search engine as a neutral platform (Crane, 2012) or on an assumption—either explicit or implicit—that Google controls the gateway to the internet and therefore is an essential facility that should operate in a nondiscriminatory manner—much as a regulated common carrier (Bracha and Pasquale, 2008). Furthermore, they do not acknowledge the potential procompetitive benefits from allowing a firm to offer and promote its own integrated products.

[23] See, e.g., *U.S. v. Microsoft Corporation*, 253 F.3d 34, 58–59 (D.C. Cir. 2001).

Several parties continued to press the case against Google in other venues. The most visible case is the proceeding at the European Commission, which I briefly review in the next section.

THE EUROPEAN COMMISSION INVESTIGATION OF GOOGLE SEARCH

The European Commission (EC) initiated a formal antitrust investigation of Google search on November 30, 2010; the EC was spurred by complaints from Foundem—a website that provides vertical search and comparison shopping services—and others.[24] About 18 months later, Joaquín Almunia—the Vice President of the European Commission who was responsible for Competition Policy—publicly identified four concerns where Google's business practices may be considered as abuses of dominance under European Community antitrust law: (i) preferential treatment of Google's own vertical services compared to its treatment of competing services; (ii) the way that Google copies content from competing vertical search services and uses it in its own offerings; (iii) agreements that oblige third-party web sites to obtain all or most of their online search advertisements from Google; and (iv) restrictions on the portability of online search advertising campaigns from Google's AdWords platform to the platforms of competitors.[25] Commissioner Almunia expressed a desire to resolve these concerns without having to engage in adversarial proceedings and invited Google to propose remedies.

Google and the Commission tentatively agreed to a list of commitments to resolve these concerns on April 3, 2013: a few months after the FTC concluded its investigation of Google's search-related practices. With regard to preferential treatment of Google's vertical services, Google agreed to label clearly and segregate links to its own proprietary services and to display three links to rival websites (if at least three websites meet minimal qualifications) that Google would select from a pool of eligible rival vertical search sites. Rivals could bid to be included in the vertical pools and selected links would pay a fixed price per click that would be determined in a sealed bid auction for each pool.[26]

Standard practice at the EC is to "market test" proposed commitments by inviting comments from market players and complainants. Concerns

[24] European Commission, Case *COMP/C-3/39.740—Google versus Foundem and others.*

[25] European Commission, Statement of VP Almunia on the Google antitrust investigation, May 21, 2012, available at http://europa.eu/rapid/press-release_SPEECH-12-372_en.htm?locale=en, accessed November 1, 2017.

[26] European Commission, Commitments in Case COMP/C-3/39.740—Foundem and others, April 3, 2013, available at http://ec.europa.eu/competition/antitrust/cases/dec_docs/39740/39740_8608_5.pdf, accessed November 1, 2017.

were raised during the market test procedure that the proposed display commitments did not address the underlying practices that favor Google's own specialized search services. In particular, Google's critics complained that the proposal would allow Google to profit from the display of rival links by auctioning placement and assessing a price for each click instead of displaying these links as free organic search results. Critics also complained that the procedure to select websites from the vertical pools was vague and potentially discriminatory.[27]

The Commission determined that the proposed commitments were not adequate to address the identified competition concerns. Google responded with a second proposal that replaced Google's discretion to choose rival links from each vertical pool with an auction mechanism to select the three links. That, too, was rejected. Google then amended the second proposal to retain the auction mechanism and present rival links in ways that are comparable to its own links—including pictures and videos, if applicable.[28] Although Google and Commissioner Almunia were initially hopeful that the revised commitments would mollify competitors' concerns, those concerns were not mollified; and Commissioner Almunia ended his term without resolving the EC's Google search investigation.

Margrethe Vestager replaced Almunia as the new Commissioner of Competition in November 2014. Under her leadership the Commission focused its concerns on sponsored product listings and particularly on the perception that Google favored its Google Shopping service over rival comparison shopping services. In April of 2015 the EC issued a Statement of Objections that "takes the preliminary view that . . . Google should treat its own comparison shopping service and those of rivals in the same way. This would not interfere with either the algorithms that Google applies or how it designs its search results pages. It would, however, mean that when Google shows comparison shopping services in response to a user's query, the most relevant service or services would be selected to appear in Google's search results pages."[29] The Commission subsequently issued a Supplementary Statement of Objections that reinforced its preliminary conclusions with regard to comparison shopping services and a Statement of Objections with respect to the restrictions that Google placed in its AdSense agreements on

[27] See, e.g., Adam Raff & Shivaun Raff, Foundem: An Initial Analysis of Google's Proposals, May 14, 2013, available at http://www.foundem.co.uk/Foundem_Analysis_Google_Proposals.pdf, accessed November 1, 2017, and Initiative for a Competitive Online Marketplace, "ICOMP Responses to the Remedies Proposed by Google, Inc. in Case COMP/C-3/39.740," 31 May, 2013, available at http://i-comp.org/wp-content/uploads/2013/09/ICOMPMarketTestSubmission310513.pdf, accessed November 1, 2017.

[28] European Commission, Commitments in Case COMP/C-3/39.740—Foundem and others, January 31, 2014, available at http://docs.dpaq.de/6448-google_commitments_full.pdf, accessed November 1, 2017.

[29] European Commission Fact-Sheet, Antitrust: Commission sends Statement of Objections to Google on comparison shopping service (Apr. 15, 2015), available at http://europa.eu/rapid/press-release_MEMO-15-4781_en.htm, accessed November 1, 2017.

the ability of certain third-party websites to display search advertisements from its competitors. The Press Release also indicated that the Commission would continue to investigate concerns with regard to copying of rivals' web content and undue restrictions on advertisers.[30]

In June 2017—seven years after the European Commission opened its investigation into Google's search-related practices—the Commission ordered Google to pay a fine of 2.42 billion euros ($2.7 billion at the prevailing exchange rate) for abusing its dominant position in search by giving illegal advantage to its own comparison shopping service.[31] The fine is the largest antitrust penalty that has ever been imposed by the EC, but does not threaten Google's financial viability. Google had cash reserves of $86 billion in 2016.

Of greater concern is the EC's order that "Google must stop its illegal practices concerning its own comparison shopping service within 90 days, and refrain from any measure that has the same or an equivalent object or effect." If the Commission were to decide that Google had failed to comply with its obligations under the decision, it would be subject to a daily penalty payment of up to 5% of the average daily worldwide turnover of Alphabet (Google's parent)—with any payment backdated to when the non-compliance started. In addition, the EC could conclude that Google has abused its dominant position by favoring other proprietary services, and the EC's decision could expose Google to lawsuits by other enforcement agencies and private parties.

A central difficulty with the EC order is that the Commission did not explain what Google must do to end its illegal practices and provided only limited insight into the analytical methodology that led the Commission to conclude that Google had abused its dominant position. The lack of direction from the EC is particularly troubling, given that past efforts to reach an agreement with the Commission were rejected after opposition from Google's critics.

In its Decision, the Commission noted that market dominance, as such, is not illegal under European Union antitrust rules. Furthermore, the Commission did not object to the design of Google's generic search algorithms or to demotions as such, nor to the way that Google displays or organizes its search engine results pages. However, the EC concluded that Google abused its market dominance in general internet search by giving Google Shopping an illegal advantage in a separate market for comparison shopping—in particular, by displaying Google Shopping prominently in response to a search query while demoting rival comparison shopping services.

[30] European Commission Press Release, Antitrust: Commission takes further steps in investigations alleging Google's comparison shopping and advertising-related practices breach EU rules (July 14, 2016), available at http://europa.eu/rapid/press-release_IP-16-2532_en.htm, accessed November 1, 2017.

[31] European Commission Press Release, Antitrust: Commission fines Google €2.42 billion for abusing dominance as search engine by giving illegal advantage to own comparison shopping service—Factsheet, Brussels, 27 June 2017, available at http://europa.eu/rapid/press-release_MEMO-17-1785_en.htm, accessed November 1, 2017.

The EC Decision instructs that Google has to respect the "simple" principle of equal treatment in its search results for its own comparison shopping product and rival comparison shopping products by applying the same processes and methods to position and display rival comparison shopping services in Google's search results pages as it gives to its own comparison shopping service. However, the principle of equal treatment is far from simple. Foundem and others object to Google's practice of demoting vertical services on its organic SERP while also promoting its own vertical services. They want equal—and favorable—placement on the free organic SERP, not an equal opportunity to participate in a costly auction.

Google responded to the Commission's order with another proposal that focuses on paid listings for comparison shopping services. Although the details were not public at the time of this writing, under this new proposal Google would establish a separate business unit for Google Shopping and there would be no reserved space on the search engine results page for Google Shopping listings. Google Shopping would have to bid for placement on the SERP: in principle, in an arm's length auction in competition with other comparison shopping services.[32]

Google's proposal to create a new entity that will compete with other services in auctions for product listings may satisfy the EC's demand that Google "treat its own comparison shopping service and those of rivals in the same way." However, its most recent proposal is unlikely to cool the tempers of Google's critics—for whom competition for paid listings with revenues that accrue to Google is not a substitute for equal (and favorable) treatment on the organic search engine results page.

Google also challenged the authority of the Commission's order. On October 30, 2017, Google filed a formal appeal with the European Union General Court to annul the Commission decision or, in the alternative, annul or reduce the Commission's fine. In its appeal Google argued that it launched grouped product results to improve quality, and not to drive traffic to a Google comparison shopping service. Furthermore, Google argued that the Commission did not examine actual market developments and in particular did not account for the competitive constraint that is exercised by merchant platforms—such as direct navigation to sites such as Amazon.com.[33]

The European Union's General Court does not have a reputation for responding to appeals in a timely manner. It is likely that we have seen only the first chapter in the saga of the European Commission's challenges to Google's search-related practices.

[32] See, e.g., Daniel Boffey, "Google price comparison site to compete with rivals for top search slot," *The Guardian*, September 27, 2017, available at https://www.theguardian.com/technology/2017/sep/27/google-shopping-to-compete-with-other-retailers-for-top-search-slot, accessed November 1, 2017.

[33] Official Journal of the European Union, Action brought on 11 September 2017—*Google and Alphabet v. Commission* (Case T-612/17) (2017/C 369/51), filed October 30, 2017.

CONCLUDING REMARKS

At the heart of the investigation into Google search is an existential debate about the merits of a level playing field and its implications for innovation incentives. Advocates for increased oversight of Google's conduct allege that Google is exercising market power to distort competition on the merits by favoring its own properties and demoting competing services. They allege that this will allow Google to extend its monopoly to vertical services and suppress innovation in emerging search-related services. Others argue that a firm, even a dominant firm such as Google, should be free to improve its product, even if its improvements may impose some harm on its competitors.

With regard to the contentious issue of display bias, the U.S. Federal Trade Commission came down on the side of protecting Google's incentives for product improvement. In its closing statement, the FTC noted that Google's prominent display of its own vertical search results on its search engine results page had the incidental effect in some cases of suppressing other relevant results, but explained its decision not to take enforcement action by citing evidence that Google introduced Universal Search to serve consumers better by providing directly relevant information.

In choosing to protect Google's incentives to innovate, the FTC balanced the benefits of innovation by Google against the disincentives for innovation by Google's rivals. The Commission implicitly concluded that a possible reduction of innovation incentives for websites that may have lost traffic from lower placement on the Universal Search results page was less significant than the possible harm to innovation from policing the design of Google's search engine. It is also likely that the Commission was sensitive to the difficulty of administering a conduct remedy in a complex and rapidly changing technology and concerned that a "remedy" would open a rent-seeking channel for actual and potential rivals that would ultimately do more harm than good.

The European Commission enforces antitrust laws that differ from the antitrust laws that govern conduct in the U.S.—in particular for the obligations of a dominant firm to accommodate its rivals (Vickers, 2005). Consequently, it is not entirely unexpected that the EC and the FTC would reach different conclusions with regard to Google's obligations to act as a neutral platform for the display of sponsored advertisements and organic search results.

Nonetheless, competition is not promoted by penalizing conduct without clearly explaining how the offending conduct may be corrected. Vague notions of liability raise costs and harm innovation by creating uncertainty and facilitate self-serving interventions by a company's rivals. The EC ultimately decided to involve itself in the business of regulating internet search. The consequences from that decision remain to be seen.

REFERENCES

Alexander, Cindy R. and Yoon-Ho Alex Lee (2004), "The Economics of Regulatory Reform: Termination of Airline Computer Reservation System Rules," *Yale Journal on Regulation*, Vol. 21 (Summer), pp. 369–439.

Ammori, Marvin and Luke Pelican (2012), "Proposed Remedies for Search Bias: 'Search Neutrality' and Other Proposals in the Google Inquiry" (May 14, 2012). Working Paper available at SSRN: https://ssrn.com/abstract=2058159.

Argentesi, Elena and Lapo Filistrucchi (2007), "Estimating Market Power in a Two-Sided Market: The Case of Newspapers," *Journal of Applied Econometrics*, Vol. 22, pp. 1247–1266.

Bork, Robert H. and J. Gregory Sidak (2012), "What Does the Chicago School Teach about Internet Search and the Antitrust Treatment of Google?" *Journal of Competition Law and Economics*, Vol. 8, pp. 663–700.

Bracha, Oren and Frank Pasquale (2008), "Federal Search Commission? Access, Fairness and Accountability in the Law of Search," *Cornell Law Review*, Vol. 93, pp. 1149–1209.

Chipty, Tasneem (2001), "Vertical Integration, Market Foreclosure, and Consumer Welfare in the Cable Television Industry," *American Economic Review*, Vol. 91, pp. 428–453.

Crane, Daniel A. (2012), "Search Neutrality as an Antitrust Principle," *George Mason Law Review*, Vol. 19, pp. 1199–1209.

Crane, Daniel A. (2014), "After Search Neutrality: Drawing a Line between Promotion and Demotion," *I/S Journal of Policy*, Vol. 9, pp. 397–406.

Darby, Michael R. and Edi Karni Free (1973), "Competition and the Optimal Amount of Fraud," *Journal of Law and Economics*, Vol. 16, pp. 67–88

Edelman, Benjamin (2011), "Bias in Search Results? Diagnosis and Response," *Indian Journal of Law and Technology*, Vol. 7, pp. 16–32.

Edelman, Benjamin and Benjamin Lockwood (2011), "Measuring Bias in "Organic" Web Search, January 19, 2011. Available at http://www.benedelman.org/searchbias/ (accessed November 1, 2017).

Edelman, Benjamin and Zhenyu Lai (2016), "Design of Search Engine Services: Channel Interdependence in Search Engine Results," *Journal of Marketing Research*, Vol. 53, pp. 881–900.

Emch, Eric and T. Scott Thompson (2006), "Market Definition and Market Power in Payment Card Networks," *Review of Network Economics*, Vol. 5, pp. 45–50.

Evans, David S. and Michael Noel (2005), "Defining Antitrust Markets When Firms Operate Two-Sided Platforms," *Columbia Business Law Review*, pp. 699–02.

FairSearch (2011), "Google's Transformation from Gateway to Gate Keeper: How Google's Exclusionary and Anticompetitive Conduct Restricts Innovation and Deceives Consumers," available at www.fairsearch.org/wp-content/uploads/2011/11/Googles-Transformation-from-Gateway-to-Gatekeeper-Edited.pdf, accessed November 1, 2017.

Gilbert, Richard J. (2015), "Not Another Drug! Antitrust for Drug and Other Innovations," *Antitrust*, Vol. 30, No. 1, pp. 38–45.

Guerin-Calvert, Margaret E. (1989), "Vertical Integration as a Threat to Competition: Airline Computer Reservation Systems," in *The Antitrust Revolution* (John E. Kwoka and Lawrence White, eds.), Second Edition, Oxford University Press.

Hyman, David A. and David J. Franklyn (2015), "Search Bias and the Limits of Antitrust: An Empirical Perspective on Remedies," *Jurimetrics*, Vol. 55, pp. 339–380.

ICOMP (2013), "ICOMP Response to the European Commission's RFI in Relation to Google's Revised Proposed Commitments—text of 21 October 2013," available at http://i-comp.org/fr/wp-content/uploads/sites/6/2013/12/ICOMP_rfi.pdf, accessed November 1, 2017.

Lafontaine, Francine and Margaret Slade (2007), "Vertical Integration and Firm Boundaries: The Evidence," *Journal of Economic Literature*, Vol. 45, pp. 629–685.

Langford, Andrew (2013), "gMonopoly: Does Search Bias Warrant Antitrust or Regulatory Intervention?" *Indiana Law Journal*, Vol. 88, pp. 1559–1592.

Manne, Geoffrey A. and Joshua D. Wright (2011), "Google and the Limits of Antitrust: The Case against the Case against Google," *Harvard Journal of Law and Public Policy*, Vol. 34, pp. 1–74.

Pasquale, Frank (2010), "Beyond Innovation and Competition: The Need for Qualified Transparency in internet Intermediaries," *Northwestern University Law Review*, Vol. 104, pp. 105–173.

Patterson, Mark R. (2013), "Google and Search-Engine Market Power," *Harvard Journal of Law and Technology*, Occasional Paper Series, pp. 1 – 24, July 2013.

Ratliff, James D. and Daniel L. Rubinfeld (2010), "Online Advertising: Defining Relevant Markets," *Journal of Competition Law and Economics*, Vol. 6, pp. 653–686.

Ratliff, James D. and Daniel L. Rubinfeld (2014), "Is There a Market for Organic Search Engine Results and Can Their Manipulation Give Rise to Antitrust Liability?" *Journal of Competition Law and Economics*, Vol. 10, pp. 517–541.

Rey, Patrick and Jean Tirole (2007), "A Primer on Foreclosure," *Handbook of Industrial Organization*, Vol. 3 (M. Armstrong and M. Porter, eds.), Elsevier B.V.

Rochet, Jean-Charles and Jean Tirole (2006), "Two-Sided Markets: A Progress Report," *RAND Journal of Economics*, Vol. 37, pp. 645–667.

Salinger, Michael A. and Robert J. Levinson (2015), "Economics and the FTC's Google Investigation," *Review of Industrial Organization*, Vol. 46, pp. 25–57.

Spengler, Joseph J. (1950), "Vertical Integration and Antitrust Policy," *Journal of Political Economy*, Vol. 50, pp. 347–352.

Stucke, Maurice E. and Ariel Ezrachi (2016), "When Competition Fails to Optimize Quality: A Look at Search Engines," *Yale Journal of Law and Technology*, Vol. 18, pp. 70–110.

Topper, Michael D., Stanley Watt and Jingming "Marshall" Yan (2013), "Google–ITA: Creating a New Flight Search Competitor (2011)," in *The Antitrust Revolution* (John E. Kwoka Jr. and Lawrence J. White, eds.), Sixth Edition, Oxford University Press.

U.S. Department of Justice (2010), "Statement of the Department of Justice Antitrust Division on Its Decision to Close Its Investigation of the internet Search and Paid Search Advertising Agreement Between Microsoft Corporation and Yahoo! Inc.," available at https://www.justice.gov/opa/pr/statement-department-justice-antitrust-division-its-decision-close-its-investigation-internet, accessed November 1, 2017.

U.S. Federal Trade Commission (2013a), Statement of the Federal Trade Commission Regarding Google's Search Practices, In the Matter of Google Inc., FTC File Number 111-0163, January 3, 2013.

U.S. Federal Trade Commission (2013b), Google Press Conference Opening Remarks of Federal Trade Commission Chairman Jon Leibowitz as Prepared for Delivery, January 3, 2013.

U.S. Federal Trade Commission (2013c), Concurring and Dissenting Statement of Commissioner J. Thomas Rosch Regarding Google's Search Practices, In the Matter of Google Inc., FTC File Number 111-0163, January 3, 2013.

U.S. Federal Trade Commission (2013d), Statement of Commissioner Maureen K. Ohlhausen, In the Matter of Google Inc., FTC File Number 111-0163, January 3, 2013.

Vickers, John (2005), "Abuse of Market Power," *Economic Journal*, Vol. 115, pp. F244–F261.

Wright, Joshua D. (2011), "Defining and Measuring Search Bias: Some Preliminary Evidence," George Mason University Law and Economics Research Paper Series, 12-14, November 3, 2011. Available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2004649, accessed November 1, 2017.