THE
CRITERION
JOURNAL ON INNOVATION

VOL. 2 2017

Protecting Competition Versus Protecting Competitors: Assessing the Antitrust Complaints Against Google

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A fundamental challenge—arguably *the* fundamental challenge—in making antitrust enforcement economically sound is to distinguish protecting competition from protecting competitors. The emergence of highly successful Internet companies has brought this issue to the fore internationally. Although not unique in this regard, Google is one example of a highly successful company that has been the subject of investigations by competition authorities. In particular, it has had to answer complaints in many jurisdictions, including India,[1] that alleged bias in its algorithms toward its own "properties" violates competition statutes. In this article, we evaluate these allegations. Although we do discuss market conditions in the Indian Internet sector and use examples from India to illustrate our points, the points we make are not specific to India. One of us (Salinger) has made similar points with respect to the investigation by the U.S. Federal Trade Commission (FTC)[2] into Google's search practices,[3] and we believe that the same points apply to any of the jurisdictions that have undertaken or are in the midst

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1 *See, e.g.*, Deepali Gupta, *CCI Charges Google with Rigging Search Results; Flipkart, Facebook Corroborate Complaints*, ECON. TIMES (Aug. 31, 2015), http://articles.economictimes.indiatimes.com/2015-08-31/news/66070945_1_google-finance-chairman-ashok-chawla-search.

2 Statement of the Federal Trade Commission Regarding Google's Search Practices, In the Matter of Google Inc., File No. 111-0163 (F.T.C. Jan. 3, 2013) [hereinafter FTC Google Closing Statement], https://www.ftc.gov/system/files/documents/public_statements/295971/130103googlesearchstmtofcomm.pdf.

3 *See* Michael A. Salinger & Robert J. Levinson, *Economics and the FTC's Google Investigation*, 46 REV. INDUS. ORG. 25 (2015); Robert J. Levinson & Michael A. Salinger, *Economic Considerations Raised by the FTC's Investigation of Google's Search Practices*, 10 COMPETITION POL'Y INT'L 103 (2014).

of similar investigations. Moreover, although our analysis does rely heavily on the nature of Internet search and search competition, it contains more general lessons for evaluating unilateral conduct in high technology industries.

The apparently universal acceptance of the principle that antitrust laws protect competition and not competitors masks disagreement about what the principle means. To seek to implement the principle, virtually all competition authorities follow a discipline for evaluating allegations of anticompetitive conduct. Such investigations entail four key steps: (1) categorization of the conduct, (2) market definition, (3) assessment of dominance or market power, and (4) analysis of competitive effects. Ultimately, the last step is the one that matters most, as the objective of competition laws is to condemn anticompetitive behavior. Done correctly, the first three steps are tools that clarify the analysis of the fourth step. The pitfall to avoid is a completely mechanical approach to the first three steps that fails to recognize the ultimate goal of analyzing competitive effects correctly and that ends up obscuring rather than clarifying the effects analysis. Our primary point is the importance of maintaining the broader perspective of the fourth step throughout the analysis.

To make this point, we analyze (in Part II) the last step before we analyze the first three. That is, we ask whether the behaviors at issue in the allegations of Google "bias" are competitive or anticompetitive. If they are anticompetitive or abusive, then labeling them as such promotes competition. If, however, the challenged behaviors are competitive, then treating them as violations of competition statutes protects competitors from the effects of competition but harms competition itself. We then go back (in Part III) through the first three steps to describe the potential errors from an overly mechanistic approach.

Before presenting our competition analysis, we provide the necessary factual background. In particular, analyzing the allegations against Google requires understanding the features of Google search results that its critics are complaining about and placing them in the context of competition in Internet search innovation.

I. The History of Internet Search

The Internet gives people access to a trove of information; but for that access to be useful, people need to be able to locate the information they want. Libraries contain a trove of information as well, and traditional card catalogs were a tool for locating them. There were electronic records and databases that preceded the Internet, and tools were developed to help people locate

them. Search engines have roots in these earlier forms of information search.[4] But locating relevant information on the Internet poses special problems. The scale of the information available, the speed with which it changes, and the variety of forms it takes all complicate Internet search. As a result, the tools for locating information on the Internet constantly evolve. How people would be finding the information they want on the Internet in 2018 was not obvious in, say, 1995; and how they will do so in 2025 (and perhaps even 2019), is not completely obvious today.

Despite significant improvements to Internet search over the last twenty years, Internet search is in its infancy. The annals of business history are littered with the names of companies that were successful at the early stages of an industry but failed to innovate as the market evolved. Some of those names appear in the brief history of Internet search below.

A. Early Internet Search

The first major online service in the United States was CompuServe.[5] As it preceded by more than a decade the development of the World Wide Web, the concept of web browsing was not relevant in the earliest days of public access to the Internet. CompuServe provided owners of personal computers with Internet access and information services for businesses to reach those users. It is an important case to consider because CompuServe appeared in the 1980s to dominate its market. Today, many people have never heard of it. As a *Geekwire* article explains, "The company just lost its innovative spark in the 1990s, failing to reinvent itself for a new era."[6]

The company that displaced (and ultimately purchased) CompuServe was America Online, now known as AOL. Like CompuServe, AOL achieved what might have appeared to some to be a dominant market position in the 1990s. Although one could measure its position by users, revenue, and profitability, a more tangible piece of evidence about its importance in the 1990s is the 1998 American film, *You've Got Mail*, a romantic comedy starring Tom Hanks and Meg Ryan. The title refers to the notification AOL users received when they logged on and had received an email since their previous login. That reference in the title to a major motion picture intended for wide (and international) appeal is evidence that AOL's success at that time was comparable to the current success of companies like Google, Facebook, Amazon,

[4] *See* Amit Singhal, *Modern Information Retrieval: A Brief Overview*, 24 IEEE Data Engineering Bull., Dec. 2001, at 35.

[5] CompuServe started as a division of an insurance company in 1969. It was spun off as a separate company offering computer time sharing services in 1975. It was highly successful throughout the 1980s and early 1990s. *See CompuServe*, Wikipedia, https://en.wikipedia.org/wiki/CompuServe.

[6] John Cook, *The Lesson of CompuServe: Never Take Your Foot off the Innovation Accelerator*, GeekWire (May 5, 2015), http://www.geekwire.com/2015/the-lesson-of-compuserve-never-take-your-foot-off-the-innovation-accelerator/.

Apple, Twitter, and Microsoft. Like CompuServe, however, AOL failed to reinvent itself for a new era.[7] It still exists, but mainly as a web portal whose value largely reflects properties it purchased.

When it started, AOL created a relatively closed environment in which users obtained information from its own site rather than from the entire web. It did give its users the ability to navigate out to the web, but it did not provide them tools to search the web broadly.[8] One of the first services that did so was Yahoo!, which launched in 1994. At first, Yahoo offered a catalog of websites where people could click on different themes.[9] Examples were "News," "Sports," and "Entertainment." Each theme contained subthemes. For example, an Indian version (had it existed) would have contained subsections on cricket and football (soccer) under "Sports," and both would have included a link to Khel.com, the website created in 1995 for cricket and football. A fundamental problem with that approach was that it required human beings to catalog the available information. As the amount of information available on the Internet grew, Yahoo's cataloging approach became impractical. In 1996 (before Google launched), Yahoo added search capability and was briefly the leading search engine. Although its market presence has not faded nearly as much as CompuServe's and AOL's, it has struggled for many years to attract more users and increase sales and sometimes to make a profit. It is another of many examples of companies that failed to continue to innovate successfully after its early success.

B. First Generation General Search Engines

As noted above, a search engine is software that allows a user to enter a query and provides a response to that query. Initially, the response to a query was a set of websites that might provide the information that the person issuing the query might want. The development of a search engine requires a means to gather and index the information available on the web. Remarkably, Google and other search engines frequently crawl and index nearly the entire web.

Another essential component of an Internet search engine is the technology to assign to each webpage a score reflecting the expected relevance of the page to a particular query. The ranking of websites in search engine results reflects sorting webpages by the score the search engine's algorithm assigns

[7] Another piece of evidence of AOL's one-time dominance is that in 2001, it acquired Time-Warner, one of the largest and most storied U.S. media companies.

[8] AOL is an example of the market punishing excessive reliance on a firm's own content.

[9] Vindu Goel, *When Yahoo Ruled the Valley: Stories of the Original "Surfers,"* N.Y. Times (July 16, 2016), http://www.nytimes.com/2016/07/17/technology/when-yahoo-ruled-the-valley-stories-of-the-original-surfers.html. This article is notable not only because it describes Yahoo's first approach to providing users information about was available on the Web, but also because it describes how a firm that was at one point very successful faltered by failing to innovate. *See also* Jack Nicas, *Yahoo's Tale is One of Missed Chances*, Wall St. J., July 26, 2016, at B1.

to the page for that query. That is, the first webpage listed is the one receiving the highest score, the second one listed is the one receiving the second-highest score, and so on. Google was not the first Web-browsing search engine.[10] World Wide Web Worm (WWWW) was.[11] Lycos and WebCrawler launched in 1994. AltaVista launched in 1995 and was initially quite successful. Several other general search engines started in the mid-1990s.[12]

Google started in 1997. Its PageRank algorithm implemented the insight that the number and quality of external links to a webpage are a signal of quality.[13] It gained wide acceptance from the start because, as a result of PageRank, searchers found its results to be far more useful than the results generated by Yahoo, AltaVista, and the other general search engines available at the time.[14]

As important as PageRank was, it is primitive by modern standards. As is well understood, the innovation cycle on Internet technologies is short so that the gap between when a technology is cutting-edge and when it is primitive is short. CompuServe was cutting-edge in the 1980s. It was a virtual museum piece by the late 1990s.

Of the ways in which the original version of Google was primitive, three are worth noting. First, its search results page only provided links to other webpages or, as Google has come to describe its early results, "ten blue links."[15] On one level, of course, being able to locate a website that provides the information a searcher wants is a valuable service. It is, however, an inherently indirect approach for people who are searching to find a specific piece of information (as distinct from people seeking a website or a specific document).[16] Second, it was not very sophisticated in handling the inherent ambiguity of search terms or considering the variety of reasons why someone

[10] The first search engine was Archie, which Alan Emtage created in 1990. *See* Aaron Wall, *History of Search Engines: From 1945 to Today*, Search Engine History, http://www.searchenginehistory.com/.

[11] Sergey Brin & Lawrence Page, The Anatomy of a Large-Scale Hypertextual Web Search Engine, Paper Presented at the Seventh International World-Wide Web Conference (Apr. 14–18, 1998), http://infolab.stanford.edu/-backrub/google.html.

[12] For a discussion of early Internet search sites, see Danny Sullivan, *Where Are They Now? Search Engines We've Known & Loved*, Search Engine Watch (May 3, 2003), http://searchenginewatch.com/article/2064954/Where-Are-They-Now-Search-Engines-Weve-Known-Loved.

[13] *See* Brin & Page, *supra* note 11.

[14] The potential use of links between pages was one fundamental way in which the Internet provided opportunities for information retrieval that had not been available in other applications of computerized information retrieval. Another, which Google's founders were not the first to realize, is that the volume of queries on the Internet is so great that many users issue the same query. As a result, a search engine can track user responses to a query and then use that data to modify its subsequent responses to the same query.

[15] Barbara Starr, *From 10 Blue Links to Entity SERPS: Is Your Website Ready?*, Search Engine Land (Jan. 30, 2014), https://searchengineland.com/10-blue-links-entity-serps-website-ready-182628.

[16] The intent of some searches is to find a website or a specific document on the web. In a so-called "navigational search," a searcher types the name of a website as a search query as an alternative to typing the website's URL into the address bar of a web browser. In such cases, a blue link is the best response. But if one wants to know the distance between Mumbai and Kolkata, simply getting the answer (1959 kilometers) avoids the time needed to go to another site.

might search.[17] Third, it was far better suited to textual content than it was to audio and visual content, whether it be still images or video.

Ironically, Google's product development to overcome the first and second of these limitations proved to be the source of complaints against it.

C. Vertical Search Sites

A fundamental challenge for search engines is that queries are inherently ambiguous. For example, some people entering a query for Narendra Modi might be seeking a recent news article whereas others issuing the same query might be seeking biographical information. Another example concerns the September 11, 2001 attacks on the World Trade Center buildings in New York City. On that day, many people entered a query for "World Trade Center" into Google and received results that had nothing to do with the attacks (meaning that Google did not provide the information its users were hoping to get). As reasonable and useful as those responses might have been on September 10, 2001, they revealed a deep flaw in Google results the following day.

A substantial fraction of searches falls within categories such as shopping, travel, news, sports, "local," and directions, maps, or location; and knowledge of the broad class of search is highly relevant information for ascertaining user intent and generating useful results. If a search engine "knows" that someone is looking for news, it can return results just from news sites (rather than the entire web), and the ranking algorithm can place a relatively high value on how recently the information was posted. If a search engine "knows" that someone is looking for images, it can return only images.

To take advantage of this principle, some sites—sometimes referred to as "vertical search sites"—specialize in particular classes of search.[18] An early premise behind such sites is that their narrower focus helps generate a better set of results than general search engines provide. As a result, the possibility that a general search engine could provide results that are as good (or even nearly as good) creates competition for vertical search sites.

The development of vertical search sites preceded the founding of Google. Travelocity and Expedia, which were two of the top three specialized Web travel sites before they merged in 2015, launched in 1996.[19] Amazon.com, which has become the starting point for a large number of shopping searches, started in 1995, albeit in the more limited role of an online book

[17] For example, someone entering a query for "Delhi to Mumbai" might be looking to book an airline reservation whereas someone else entering the same query might be seeking directions to make the trip by car. See also the discussion below of a query for "Narendra Modi."

[18] A better term would be "thematic." The term "vertical" seems to suggest "narrow" in the sense of being focused on a particular set of queries.

[19] The third is Orbitz, which five of the six major airlines launched in 2001. Expedia merged with Orbitz in 2015.

retailer. MapQuest, an early Internet mapping service that AOL acquired in 2000, launched in 1996. CitySearch, the first online source devoted to providing information about local merchants and locally available services, also launched in 1996.

Like Google, the vast majority of vertical search sites are advertising-supported and require traffic. As the "local"[20] search site Yelp explained in its 2014 annual report filed with the U.S. Securities and Exchange Commission, "Traffic to our platform determines the number of ads we are able to show, affects the value of those ads to businesses and influences the content creation that drives further traffic; as a result, our ability to grow our business depends on our ability to increase traffic on our platform."[21]

Vertical search sites have a variety of strategies for attracting traffic. Some devote substantial resources to traditional forms of advertising, including radio and television campaigns, which seek to convince users to navigate directly to their sites without using a general search engine at all. Some invest in Search Engine Marketing (SEM) by purchasing search ads in the ad spaces of other search engines. Other types of online ads available to vertical search sites include banner and display advertisements, as well as mobile advertisements.

Yet another form of promotion that the development of search engines has created is Search Engine Optimization (SEO). In contrast to SEM, which entails bidding for (and ultimately buying) paid links in search engines' advertising space, SEO seeks to attain frequent and prominent placement in organic (unpaid) search results. Some vertical search sites have chosen to make SEO their predominant way of generating traffic. As Yelp explained in its Prospectus filed prior to the initial public offering of its stock, "[W]e have been able to attract a large audience of consumers with almost no traffic acquisition costs."[22]

The relationship between vertical search sites and general search sites is complex. They compete with respect to how people search. In broad terms, one can see three types of search episodes. One is that a searcher starts at a general search engine and gets what he wants from that search engine. Another is that the searcher goes directly to the relevant vertical search engine for particular classes of search. Yet another is that the searcher starts at a general search engine and then follows a link (which can be either organic or paid) to a vertical search site.[23] It is advantageous for vertical search sites

[20] Local vertical search sites seek to help users find local businesses and information (such as user reviews) about them.

[21] Yelp Inc., Annual Report for the Period Ending December 31, 2014 (SEC Form 10-K), at 42 (filed Feb. 27, 2015).

[22] Yelp Inc., Prospectus (SEC Form 424B4), at 6 (filed Mar. 2, 2012).

[23] A surprisingly large fraction of queries to general search engines are "navigational queries." *See supra* note 16 and accompanying text. Including navigational searches as part of Google's share of any set of

if users rely on the second or third methods of searching. As we discuss in more detail below, general search services such as Google, Bing, and Yahoo increasingly try to provide answers to users as quickly and efficiently as possible. This approach might be detrimental for vertical search sites that have traditionally "been able to attract a large audience of consumers with almost no traffic acquisition costs," but the important question is whether it is detrimental to users.

The complexity of the relationship arises because, in addition to competing with general search sites, vertical search sites see general search engines as one of their sources of traffic. Although vertical search sites might view Google as a supplier, vertical search sites are not *paying* customers with respect to their appearance in organic search results. In fact, they are not customers at all.[24]

D. Google Today

Of the many changes to Google's search results since its introduction, two are of particular note.

Figure 1 illustrates one of these changes. It shows the results from a search for Narendra Modi.[25] The right-hand side of the page, which is where Google used to place paid advertisements for many searches,[26] contains a Google "Knowledge Graph" about Narendra Modi. Google generates this type of result for some queries within particular categories (including famous people, places, and institutions). Although generally brief, the information Google provides in the Knowledge Graph would be sufficient for some searchers (such as people outside India who do not know that Narendra Modi is the Prime Minister of India in 2018, or what he looks like). Many people querying Google for Narendra Modi no doubt want more information than Google provides in its Knowledge Graph, and the rest of Google's results for this search provide links to sites where a searcher can find more information. Still, the Knowledge Graph represents a fundamental advance in Google's results. Rather than acting, in effect, as a card catalogue (or reference librarian) for the web in directing searches to sites that can provide the information they

searches is just one of many ways in which estimates of Google's share of searches is misleading. Entering "Flipkart" in the Google search bar should count as a Flipkart search rather than a Google search.

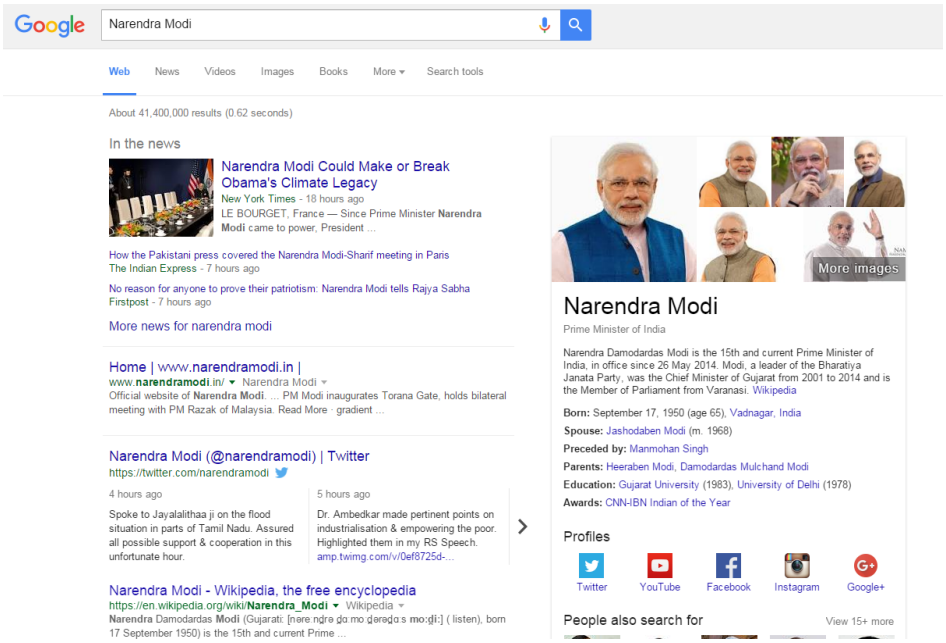
[24] But searchers are not paying customers either, so whether or not vertical search sites pay for placement in organic search results does not resolve the issue. We will return to the issue of whether vertical search sites are Google's customers in Part II.C, which discusses multi-sided business platforms.

[25] The results of Google searches naturally vary by when they occur; and, to some extent, Google's search algorithms tailor results to the location and indeed the individual searcher.

[26] Google recently phased out text ads on the right-hand side. *See* Ginny Marvin, *FAQ: All About the Changes to Google's Ad Layout on Desktop Search Results: A Look at What Is Changing and What Is Not on Google Desktop Search Results*, Search Engine Land (Feb. 22, 2016), http://searchengineland.com/google-no-ads-right-side-of-desktop-search-results-242997.

want, the Knowledge Graph provides users information directly and without the need to navigate to another site.

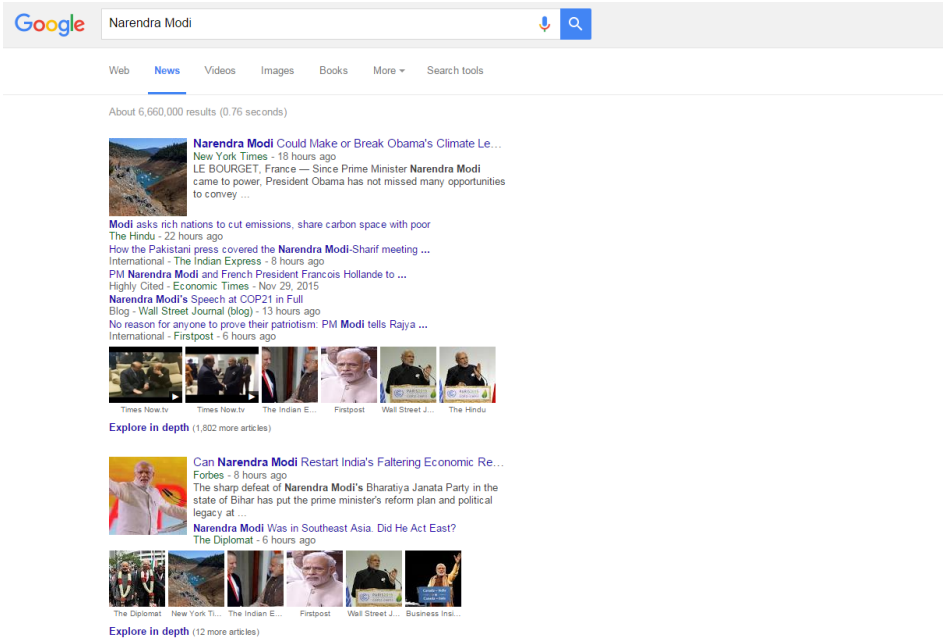
Figure 1. Google Search for "Narendra Modi"



Two other related aspects of Figure 1 merit mention. The first is a ribbon between the navigation bar[27] and the search results on the left-hand side of the page. It reads, "Web News Videos Images Books More." Each word is a link to a set of search results focused on that type of information. For example, clicking on "News" displays news results for a search about Narendra Modi, as Figure 2 shows. This set of links gives the user an opportunity to refine his search by identifying the broad class of information that he wants.

27 The navigation bar is the white space next to the Google logo near the top of the page that has "Narendra Modi" on the left side and a picture of a microphone on the right side.

Figure 2. News for "Narendra Modi "

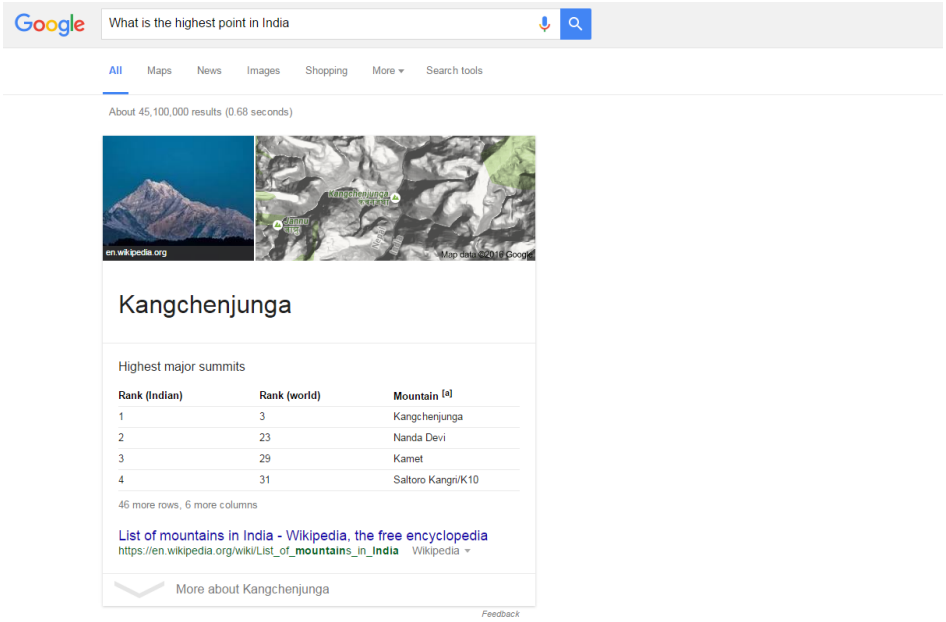


The second feature to notice is the first set of left-hand side results, which are labeled "In the news." That set of results contains links to three news articles as well as a link, labeled "More news for narendra modi [sic]," that leads to the same results as in Figure 2. The set of three "In the news" results in Figure 1 is an example of the sort of "Universal" search result that was the subject of the FTC inquiry (and that we discuss in more detail in Part I.E below).

The second development of note is that Google provides direct answers to some questions. When they contain exactly the information the searcher wants, these answers save the searcher the time needed to navigate to another webpage. This feature in Google is called a "OneBox." Initially, Google provided OneBoxes for a limited set of queries, such as arithmetic problems.[28] Over time, it has increased the range of questions for which it can provide direct answers. As an example, Figure 3 shows Google's responses to "What is the highest point in India."

28 For example, if one queries Google for "12 / 3," the top result is a calculator that has "12 / 3 =" in the top line and, in larger type, the answer "4" on the next line.

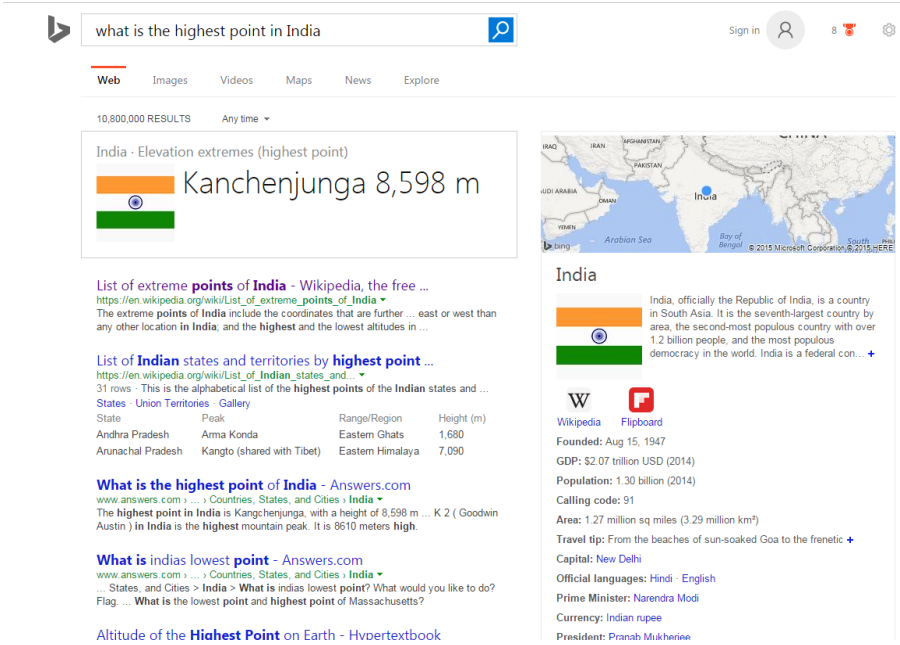
Figure 3. Google Results for "What is the Highest Point in India"



Microsoft and Yahoo believe that users benefit from direct answers to questions as well. Figure 4 shows the results from a Bing search for "What is the highest point in India." Note that Figure 4 not only includes a Bing "Instant Answer," which is the Bing version of a OneBox, but the information on the right-hand side of the page is similar to Google's Knowledge Graph feature. If Internet users did not find these features desirable and useful, then it is hard to understand why Microsoft would incorporate a design feature that so closely resembles a Google feature. Another company with this broad vision for search is Apple. Its advertisements for Siri, which integrates search, a variety of other functions (such as email and entertaining preprogrammed answers to commonly asked questions), and voice recognition, paint a vision for search of questioning a general search engine and getting an answer.[29]

[29] For two such commercials, see ZenTube, *Zooey Deschanel iPhone 4S Siri Commercial*, YouTube (Jan. 3, 2013), https://www.youtube.com/watch?v=fbEjCvdGaZU; majdoub, *Apple—Introducing Siri. (Official Commercial HD)*, YouTube (Oct. 4, 2011), https://www.youtube.com/watch?v=8ciagGASr00. Cortana, which Microsoft has made available for Windows, Android, and iOS mobile devices and for Windows 10, is similar to Siri and reflects a similar vision for search.

Figure 4. Bing Results for "What is the Highest Point in India"



E. The Path to the Modern Google: Universals

Google's efforts to overcome the limitations described in Part I.B above and that have resulted in the features described in Part III.D did not occur in a single step. The "Universal" search results that were the subject of the FTC inquiry were an intermediate step between the early and modern versions of Google.

To accomplish the vision of getting users the information they want as quickly as possible, either by providing the answer directly or referring people to external sites that will provide the answer, Google had (and has) to solve the fundamental problem of assessing user intent despite the inherent ambiguity of search terms. Google is a "general search engine," but that term does not mean that it is designed to respond to "general searches" or searches for "general information." There is no such thing as a "general search." Every search has a specific intent behind it.

What makes Google a "general" search engine is that it is designed to handle any query, not just queries that fall within one specific class of queries, and it is designed to locate all types of information available on the searchable web.

In assessing the allegations about "bias" in Google search, a key point is that specialized search algorithms are crucial components of a modern general search engine. For each query that it handles, Google runs multiple search algorithms, including thematic search algorithms in parallel. That is, for each query, it runs "local" search, a video search, and so on.

In 2007, with Universal Search, Google created a unified ranking system across its blue links and OneBoxes, which were then renamed Universals. When Google's algorithms detected a significant probability that a search fit with the results of one of its thematic search categories, one of the slots of the general search engine results page (SERP) could include the top results from the relevant thematic search as well as a link to the more complete set of results. Figuring out when, where, and how to blend the results from a thematic search into the general SERP was a significant software engineering task.

The term "Universal" search refers to this development of showing the results from Google's thematic search on its general SERP. One aspect of the blending was to determine which links to provide, but another key feature was how Google presented the results. Google grouped several links from a thematic search result together in a block and also provided a link to a page with more links from the same thematic search result.

In addition to the development of specialized search algorithms, another element of Google's product innovation was that it incorporated some of its own content (such as Google Maps) and licensed content that it could use to provide direct answers to common types of queries. In so doing, it competed with content providers that would have preferred that Google refer its users to them rather than provide the answers directly.

II. Harm to Competition Versus Harm to Competitors

The complaints about alleged "bias" in Google search are that the changes described in Parts I.D to I.F have reduced the traffic Google directs to vertical search sites when, according to the allegations, users would prefer that Google direct them to those sites more frequently. By their very nature, Google results prioritize the information that Google suggests to its users. Giving some websites or forms of information more prominence necessarily entails giving other websites less. As a result, whether or not the specific websites that have complained about bias in Google's algorithms have been harmed, every search engine, including Google, necessarily makes some decisions that reduce the traffic it directs to some sites. The key question to address is whether (or when) such product design decisions are anticompetitive or abusive.

A. Distinguishing Between Competitive and Anticompetitive Product Design Innovation

To answer this question, one must first be clear about how to distinguish competitive from anticompetitive or abusive behavior. For conduct to be abusive, it must harm competitors by reducing their ability to compete. Because developing a better product also harms competitors, however, establishing harm to competitors is not sufficient for distinguishing competitive behavior from anticompetitive behavior. The FTC made precisely this point in its statement explaining why it closed its investigation into Google search:

> 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.[30]

What does distinguish competitive from anticompetitive conduct is the intended effect on customers and the innovating company. A company behaves competitively when it redesigns its product in a way that it believes its customers prefer. It also behaves competitively when its product redesign lowers its costs so as to be able to provide its customers with a more cost-effective offering. When a company brings out a product that it knows its customers do not prefer[31] and that limits a competitor's ability to compete, it behaves anticompetitively.[32]

The FTC used this approach to distinguish whether Google's behavior was competitive or anticompetitive. As it wrote, "[T]he evidence suggests that Google's primary goal in introducing the content was to quickly answer, and better satisfy, its users' search queries by providing directly relevant information. Notably, the documents, testimony and quantitative evidence the Commission examined are largely consistent with the conclusion that Google likely benefited consumers."[33]

As simple as this distinction might be conceptually, implementing it in practice can be challenging. One general issue is the relative weight to give to actual and intended effects. Another, which is related, is that both types of effects can be difficult to ascertain.

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30 FTC Google Closing Statement, *supra* note 2, at 2.

31 Here, customer preferences must take account of price. When a company lowers the quality of its product because the cost savings allow it to reduce its price enough so that its customers prefer the lower-quality alternative at a lower price to the higher-quality alternative at a higher price, its product innovation is superior from the perspective of consumer welfare even if it is technically inferior.

32 An important and widely recognized feature of Google's business is that it has a "two-sided" business model. We discuss this point generally and its implications for what constitutes abusive conduct in Part II.C.

33 FTC Google Closing Statement, *supra* note 2, at 2.

1. Imperfect Evidence

A product design is not abusive when the company's intent is to provide its customers with a product they prefer. But intent can be difficult to ascertain. As a result, agencies and courts might consider it also relevant to ascertain whether, in fact, a product design benefited consumers. Determining whether customers benefit from a product design is sometimes relatively straightforward, such as when the product design lowers costs while holding other product features constant. Other examples of product features that would unambiguously benefit consumers are a reduction in failure rates, increased battery lives for computers or mobile phones, and increased fuel efficiency for cars.

Because the quality of search results is harder to measure than, for example, battery life, determining definitively whether search results benefit consumers is not straightforward. The information that Google has made public about its search design process reveals some of the complications. Of particular interest is a video of a 2011 session in which noted search commentator Danny Sullivan posed questions to Matt Cutts, Ben Gomes, and Amit Singhal, three senior members of Google's search design team at the time.[34] In it, Singhal discusses Google's systematic, data-intensive approach for proposing and considering design changes.[35] Although he stresses the scientific nature of the process, the science he describes is behavioral science, not natural science. No one, including Google, can measure search quality the way inches of mercury measure temperature. As a result, as Cutts observes, "there has to be room for intuition and experience."[36]

Recognizing the role of "intuition and experience" is important for assessing studies that purport to demonstrate Google's results do not generate as much "searcher welfare" as a feasible alternative.[37] As is virtually always the case with empirical analyses, one must pay careful attention to details.[38]

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[34] Google, *Inside Google's Search Office (Hosted by the Churchill Club)*, YouTube (Aug. 5, 2011), https://www.youtube.com/watch?v=pt6qj5-5kVA [hereinafter Inside Google's Search Office].

[35] *Id.* 15:30.

[36] *Id.* 21:30. A phenomenon that illustrates the need for judgment is so-called "Google bombs," which are instances when people exploited imperfections in Google's algorithms to cause Google to give results that were humorous (to some) or embarrassing to someone else. *See* Patrick Langridge, *The 11 Most Infamous Google Bombs in History*, Screaming Frog (Oct. 18, 2012), http://www.screamingfrog.co.uk/google-bombs/. For further evidence of the relative role of judgment and objective measures, see Google, *How Google Makes Improvements to Its Search Algorithm*, YouTube (Aug. 24, 2011), https://www.youtube.com/watch?v=J5RZOU6vK4Q; Google, *Search Quality Meeting: Spelling for Long Queries (Annotated)*, YouTube (Mar. 12, 2012), https://www.youtube.com/watch?v=JtRJXnXgE-A.

[37] Michael Luca, Timothy Wu, Sebastion Couvidat, Daniel Frank & William Selzer, *Does Google Content Degrade Google Search? Experimental Evidence* (Harv. Bus. Sch. NOM Unit, Working Paper No. 1616-035, 2016), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2667143.

[38] For example, Luca, Wu, Coudivat, Frank, and Selzer compare Google's results with results that Google could not legally generate. *Id.* So, even if they had successfully demonstrated that consumers considered the alternative they considered to be superior to Google's results, which they did not, their finding would have had no obvious policy implications.

More fundamentally, however, such studies suffer from the fundamental logical defect of resting on a specific measure of consumer benefit that is necessarily flawed precisely because there is no single objective measure of consumer benefit. Any finding that Google's search does not maximize user welfare as measured in a study is as much (and indeed more) a result about the measure underlying the study as it is about Google search.[39]

In its closing statement on Google's search practices, the FTC acknowledges the difficulty of proving consumer benefit: "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 might 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."[40]

2. *Decisions by Other Competitors*

Given the difficulty of measuring consumer effects directly, a competition authority might rely on indirect evidence to assess intended effects. A potentially powerful class of evidence is the extent to which competitors adopted identical or at least similar features. Abuse of dominance cannot explain their motive (because they are not leading in their space). As a result, there has to be a strong presumption that they view the design feature as a product improvement.

In addition to its assessment of Google's intent, the FTC relied on this sort of evidence, noting that other search sites had incorporated design features similar to the Google features that were being challenged. As it wrote, "[w]e also note that other competing general search engines adopted many similar design changes, suggesting that these changes are a quality improvement with no necessary connection to the anticompetitive exclusion of rivals."[41]

The converse of this principle is not true. If a market-leading firm offers a feature that its rivals do not offer, one cannot infer that the feature is anticompetitive. Such an inference would provide a disincentive for successful

[39] Hypothetically, one might imagine a researcher coming up with a superior measure of search result quality and using it to find that Google's results are not as good for users as they might be. Indeed, PageRank was a superior measure of search result quality than those used by other search engines at the time that Sergey Brin and Larry Page developed it. Developing a better measure of search quality than Google's could provide a foundation for competing with Google, but not for establishing that Google had committed an abuse.

[40] FTC Google Closing Statement, *supra* note 2, at 3.

[41] *Id.* at 2.

firms to develop and introduce product improvements that its rivals either cannot imitate or simply choose not to imitate.

B. Is the Challenged Behavior "Vertical Foreclosure?"

As we have argued, the behavior at issue in the investigations into alleged "bias" in Google search is innovation in product design. Since the barriers to labeling innovation as anticompetitive are high, Google's critics have sought to frame its behavior as a form of vertical foreclosure. According to such theories, Google has "leveraged" its (alleged) dominance in the (alleged) market for general search to gain strategic advantage in the (alleged) vertical search market. These leveraging allegations do not, however, withstand rigorous scrutiny.[42]

In general, concerns about vertical foreclosure can arise in cases with two vertically related or complementary[43] stages when a firm operating in one—call it the "Red Stage"—integrates into the other stage (the "Blue Stage"). The integration can be through direct investment, merger, or contract.[44] The concern that can arise is that independent Blue Stage producers will be foreclosed from competing to supply the integrating firm's Red Stage customers. To take a common class of examples, if a manufacturer integrates into retailing, the concern is that it will be unwilling to supply its manufactured goods to independent retailers or will do so only on commercially unattractive terms.[45] Alternatively, integration by a retailer into manufacturing the goods it retails can raise the concern that it will be unwilling to carry the goods of

[42] The strong appeal of leveraging in antitrust allegations by dominant enterprises is observed in several young competition authorities. For instance, the Mcx Stock Exch. v. Nat'l Stock Exch. of India, Case No. 13/2009, ¶ 10.82 (Competition Comm'n of India, June 3, 2011) Majority Order was among the early cases pertaining to horizontal foreclosure by a dominant enterprises "to enter or protect . . . other relevant market" (citing The Competition Act, 2002, No. 12, § 4(2)(e), Acts of Parliament, 2003 (India)). The Order emphasized historical expansive behavior of dominant firms in cornering licenses in unrelated economic activities. The Minority or Dissent Order saw no rationale for foreclosure or leveraging in a two-sided market.

[43] The term "vertical" tends to be used in cases when there is a clear pattern in which firms operating at one stage sell to final consumers after purchasing the output of the other stage as an input. In such cases, the firms that sell to final consumers are "downstream" and the firms that sell the intermediate input are "upstream." For example, cement is generally considered upstream and concrete is considered downstream. But the sequencing is not always clear, and the underlying economics merely require that the stages be complementary. *See* Michael A. Salinger, *The Meaning of "Upstream" and "Downstream" and the Implications for Modeling Vertical Mergers*, 37 J. Indus. Econ. 373 (1989); Augustin Cournot, Researches into the Mathematical Principles of the Theory of Wealth ch. 9 (Nathaniel T. Bacon trans., Macmillan 1897).

[44] For example, an exclusive dealing arrangement between companies at adjacent stages might have effects similar to integrating the two activities within a single firm. Of the different forms of integration, direct investment is rarely if ever an antitrust violation by itself, but certain behavior (such as a refusal to deal) that follows direct integration can violate antitrust law under some (limited) circumstances.

[45] This concern is sometimes labeled "input foreclosure" because the retailer cannot obtain the inputs it needs to offer its retailing services.

competing manufacturers.[46] A merger between a manufacturer and a retailer can give rise to both sets of concerns. If customers buy directly from the two complementary stages, then foreclosure concerns can arise if the integrating firm offers the output of the two stages only in combination through tying.

There is extensive law and economics literature about the coherence of these claims. So-called "Chicago school" scholars criticized foreclosure doctrine as being economically incoherent.[47] Subsequent scholarship demonstrated that concerns about foreclosure can be economically coherent under some circumstances, but this so-called "post-Chicago"[48] literature is not cause for dismissing the Chicago school insights entirely. Rather, there are (at least) two skeptical questions that must be asked about foreclosure claims in general.

First, any foreclosure claim logically rests on the assertion that there are two distinct stages of activity. In this case, the allegations rest on the assertion that general search and vertical search are two distinct stages, which is incorrect for two reasons. First, vertical search sites are stand-alone products. They do not need general search sites to compete.[49] Second, vertical search sites are not an input into general search any more than any other external website that might appear in search results is an input. The fact that the vertical search sites rest on search algorithms that might resemble in some way the specialized algorithms that are components of modern general search engines does not make a link to those sites an input or feasible component of Google's own search algorithms. Google's Universals are part of Google's search results—not distinct products. Many sites would like better placement on Google and might argue that they objectively merit such placement. Suppose, hypothetically, that Booking.com alleged that Google's results are biased against it and toward its competitor Hotels.com. Even if Booking.com could substantiate its allegation, it would merely establish an imperfection in Google search, not an antitrust violation. In effect, allegations that Google's results are biased toward its Universals are allegations that Google search results are biased toward Google search results, which is logically absurd.

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[46] A term used for such cases is "customer foreclosure," meaning that independent manufacturers are foreclosed from competing for the integrated firm's retail customers.

[47] An important work that lays out Chicago-school arguments is Robert Bork, The Antitrust Paradox: A Policy at War with Itself (Basic Books 1978), but the Chicago tradition dates back at least to the 1950s. *See, e.g.*, Ward S. Bowman, *Tying Arrangements and the Leverage Problem*, 67 Yale L.J. 19 (1957).

[48] The so-called "post-Chicago" literature started in the 1980s. *See, e.g.*, Thomas G. Krattenmaker & Steven Salop, *Anticompetitive Exclusion: Raising Rivals' Costs to Achieve Power Over Price*, 96 Yale L.J. 209 (1986) [hereinafter Krattenmaker & Salop, *Anticompetitive Exclusion*]; Michael A. Salinger, *Vertical Mergers and Market Foreclosure*, 103 Q.J. Econ. 345 (1988). For a more recent discussion, see Einer Elhauge, *Tying, Bundling, and the Death of the Single Monopoly Profit Theory*, 123 Harv. L. Rev. 397 (2009).

[49] Vertical search sites argue that they "need" placement in Google search results to get distribution. As we discuss in more detail below, the choice by a vertical search site to rely almost exclusively on successful SEO to gain distribution does not mean that SEO was the only distribution strategy available to it.

Second, to make any economic sense, foreclosure claims rest on the assumption that the allegedly foreclosing entity is the only alternative (or the only economically practical alternative) to provide it with the necessary inputs. To draw on the manufacturer-retailer analogy, if independent manufacturers have alternative retailers to sell through, then they are not foreclosed from competing for customers. SEO is one marketing strategy for many websites, including vertical search sites. However, websites use other marketing strategies to make people aware of their sites (just as Google and Bing do). In considering the alternatives available to websites to make their products known, it is important to focus on the websites that users want to find. The relevant question is whether a popular site like Flipkart has alternative ways to attract consumers that would make it futile for Google to try to exclude it (if, in fact, Google had any reason to do so). The difficulty that low-quality sites might have in successfully promoting themselves through channels other than free placement in Google's organic search results can reflect their poor quality rather than the availability of alternative marketing channels.

C. Vertical Web Sites: Competitors or Customers?

As we have just argued, Google's business is an example of a two-sided business model, meaning that it has two distinct sets of customers (users and advertisers). One might ask, however, whether its business model is in fact three-sided, with websites seeking placement in Google search results (including vertical search sites) being a third side of the business. The answer is arguably important for assessing the antitrust allegations against Google. If websites that might appear in Google search results were a third side of Google's business (meaning that they are a third set of customers), then harm to them would be customer harm.

One of the challenges in answering this question is that the definition of a multi-sided business remains unsettled. Jean-Charles Rochet and Jean Tirole offer what they characterize as a rough definition; but in characterizing the definition as "rough," they acknowledge that the term does not have a precise definition. Indeed, as they observe, "[T]he recent literature has been mostly industry specific and has had much of a 'You know a two-sided market when you see it' flavor."[50]

The key to whether or not webpages are customers for the purposes of addressing the antitrust complaints against Google lie in the second part of

[50] Jean-Charles Rochet & Jean Tirole, *Two-Sided Markets: A Progress Report*, 37 RAND J. ECON. 645, 645–46 (2006); *see also id.* at 645 ("Two-sided (or more generally multi-sided) markets are roughly defined as markets in which one or several platforms enable interactions between end-users, and try to get the two (or multiple) sides 'on board' by appropriately charging each side. That is, platforms court each side while attempting to make, or at least not lose, money overall.").

Rochet and Tirole's "rough" definition. As they observe, two-sided businesses "court each side." To this, we would add that in evaluating competition issues, the two-sided nature of the business only matters to the extent that there are interrelationships in the courting of each side.

Google "courts" searchers. That is the objective of its innovation in product design. It courts advertisers, which are the paying side of the business. Google's efforts to attract the two sides are interrelated because its success in courting searchers affects its ability to court advertisers. Indeed, courting viewers is how Google courts advertisers. To the extent that Google viewers get value when they click on (the right) paid links, Google's ability to attract (the right) advertisers helps it court searchers. The interaction between Google's efforts to attract searchers and efforts to attract advertisers is essential to the economics of Google's business model and is why it, like advertising-supported broadcasters, is a two-sided business.

The relationship between Google and sites that want to appear in its organic results is fundamentally different from its relationship with advertisers and searchers. As a technical matter, websites can deny access to Google's Web crawlers. As a purely hypothetical matter, therefore, one might imagine that search engines did have to compete for access to websites to index and that search sites might differentiate themselves based on what websites they can list in their organic results. This theoretical concern is of no practical import, however. Search engines do not compete in any meaningful way for access to sites to index and potentially list; and none of the allegations against Google suggests a possible reduction in such competition.

In assessing who Google's customers are, newspapers provide a good analogy. The customers of *Dainik Baskar* and the *Times of India* are their readers and their advertisers. Narendra Modi and other Indian politicians might like more (and more sympathetic) coverage by them, but they are not customers. Similarly, *Outlook* has published a list of the top 100 engineering colleges in India.[51] Those colleges are not customers of *Outlook* by virtue of being included in the list.[52]

Vertical search sites are, however, competitors. Indeed, their complaints could not possibly be antitrust violations unless they were competitors. Absent competitor status, a vertical website's complaint against Google would be like any website that is unhappy with its placement on Google relative to one of its competitors.

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[51] *The Top 100 Engineering Colleges in India*, Outlook, July 17, 2006, http://www.outlookindia.com/magazine/story/top-100-engineering-colleges-in-india/231883.

[52] They become customers if they buy copies of the magazine or, more important, take out advertisements. However, attaining such customer status does not give them legal standing to complain about their inclusion or ranking in the list.

D. Reprise

An unusual feature of Google's business that plays a role in the allegations against it is that Google has provided and continues to provide a substantial amount of free traffic to its competitors.

It should come as no surprise that some websites would like competition authorities to intervene to preserve the extent of the free promotion they receive from Google. To the extent that such intervention hinders Google from providing its users with better search results, such sites receive the double benefit of less strenuous competition from Google.

Neither should it come as a surprise that websites try to (inappropriately) frame the reduction in free traffic they receive from Google as a form of "raising rivals' costs."[53] But there is no sound principle of competition policy under which Google has an obligation under antitrust laws to provide free promotion to its rivals, and attempts to use the antitrust laws to impose such an obligation create a distinct risk that bringing an action against Google will protect competitors and harm competition.

III. The First Three Steps

As we noted in the introduction, the four key steps in an investigation into an abuse of dominance are categorizing the nature of the complaint, market definition, assessment of dominance, and effects. In the previous part, we completed the fourth step, arguing that the challenged behavior is competitive. Our discussion did get into the characterization of the behavior (step 1), but did not explicitly refer to market definition or an assessment of dominance/market power. Strictly speaking, errors in one or more of the first three steps do not inevitably result in flawed analysis in step 4. For example, a competition authority might conclude (incorrectly, in our view) that general search is a relevant market that Google dominates and still find that its innovation is competitive. Still, done properly, clear analysis of the first three steps clarifies the analysis in the last step. In this part, we present our analysis of the first three steps and also point out the potential errors from an overly mechanistic approach.[54]

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[53] *See* Steven C. Salop & David T. Scheffman, *Raising Rivals' Costs*, 73 Am. Econ. Rev. 267 (1983); Krattenmaker & Salop, *Anticompetitive Exclusion*, *supra* note 48.

[54] Our point about the interrelationship among the different steps is related to an important and (relatively) recent development in U.S. antitrust enforcement. In 2010, the U.S. Department of Justice and the FTC revised the Horizontal Merger Guidelines. Previous U.S. merger guidelines had described a sequential analysis that began with market definition, then went to the measurement of concentration and the change in concentration from the merger, and then an assessment of merger effects. The most important point about the revised guidelines is that the steps are interrelated and not sequential. *See* U.S. Department of Justice & Federal Trade Commission, Horizontal Merger Guidelines (2010), https://www.ftc.gov/sites/default/files/attachments/merger-review/100819hmg.pdf.

A. The Nature of Google's Behavior

The categorization of behavior can affect the outcome of an antitrust proceeding because presumptions and standards of proof vary by class of conduct. Some types of conduct, such as price cuts, are so essential to the normal workings of competition that, to be economically sound, competition policy must reflect caution about so-called "false positives."[55] Innovation in product design is another such example, which is why Google's critics have sought to characterize the behavior as a form of vertical foreclosure.

The risk inherent in an overly mechanical approach to the first step is that the vertical foreclosure characterization is superficially plausible. In assessing this characterization, one needs to ask critically (as we did in Part II) whether, as a matter of economics, vertical (meaning thematic) search sites have a vertical (meaning supplier/customer) relationship with general search engines. They do not.

The flaws with the vertical foreclosure characterization of the behavior are not limited to those we discussed in Part II. To allege that Google is leveraging dominance in an alleged general search stage into a vertical search stage, one needs to delineate where the general search stage ends and the vertical search stage begins. In Figure 2, for example, suppose the user clicks on the first link on the left-hand side of the page. That is just a link that Google has returned in response to a query. How is that any different from any other Google search result? Even if one clicks on "In the news" to get the full set of Google news results, does the additional mouse click delineate a separate product? If so, does going to the second page of results or responding to any of the other cues Google provides to clarify the intent of search constitute "consuming" a second unit of search?[56]

Mischaracterizing the behaviors as vertical foreclosure would be problematic enough with economically sound legal doctrine toward vertical foreclosure. In many jurisdictions, however, the legal treatment of some forms of vertical foreclosure, such as tying, do not adequately reflect the competitively valid reasons that companies might engage in the practice. Thus, if superficial analysis places the behavior in a category to which antitrust doctrine is overly hostile, it can result in a false inference about effects.

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[55] In this case, a "false positive" means labeling competitive conduct as anticompetitive. The term derives from statistical decision theory. *See* Keith N. Hylton & Michael A. Salinger, *Tying Law and Policy: A Decision Theoretic Approach*, 69 Antitrust L.J. 469 (2001).

[56] The area of antitrust law in which the issue of what constitutes separate products has been most important concerns tying. In the United States, a separate products test is part of the *Jefferson Parish* standard for what constitutes an illegal tie. *See* Jefferson Par. Hosp. Dist. No. 2 v. Hyde, 466 U.S. 2 (1984). As Justice O'Connor explained the need for a separate products test, "[a]ll but the simplest products can be broken down into two or more components that are 'tied together' in the final sale. Unless it is to be illegal to sell cars with engines or cameras with lenses, this analysis must be guided by some limiting principle." *Id.* at 39 (O'Connor, J., concurring). The suggestion that every click in an episode of search constitutes a separate product would seem to reflect no such limiting principle.

B. Market Definition

From the perspective of trading off the risk of different types of errors, market definition plays a key role. Competition reduces any incentive a company might have not to meet customer needs, and competitive alternatives protect consumers from the harm they might suffer when companies fail to meet their needs. The flip side of this point is that when a company faces only limited competition, it might have a greater scope for behaving anticompetitively and the harm to society and consumers can be greater if it does.

The basis for asserting that Google is dominant is straightforward. It starts with the assertion that there is a relevant market for general search in which the only competitors of any importance currently operating in India are Google, Bing, and Yahoo.[57] The next step is then to compute Google's search volume as a fraction of total search volume on Google, Bing, and Yahoo.

Google, Bing, and Yahoo do share a feature—generality—that makes them in some respects more similar to each other than they are to other Web sites. But relying exclusively on feature similarity to define a market is precisely the sort of mechanical approach to the four steps that we caution against. Feature similarity can be a relevant consideration for market definition because sometimes products with similar features are the main competitive constraint a company faces. In other cases, however, products with different features provide significant competitive constraints and, when they do, they must be included in the market. To the extent that Google faces substantial competition from sites other than general search engines, then general search is not a relevant market.

People decide whether to use Google on a query-by-query basis. Google is not like a computer operating system in which most people choose one for all their computing needs. Most people have Windows or Mac or Linux (not all three) and use the same operating system for all their applications. Because the costs of switching between search engines for different (or even the same) search are negligible, people can easily choose Google for some searches and Bing for others. More important, the available strategies to find a particular piece of information are not limited to starting at a general search engine. Not only is starting directly at a thematic search site an option for many searches (including, presumably, all the searches for which thematic search sites would like to appear in Google results), but social media such as Facebook are as well. Someone looking for a good Szechuan Chinese restaurant in Mumbai might do a query in Google or on burpp.com, but she might

[57] If, as is highly plausible, Baidu enters the Indian market, it will likely be a significant competitor as well.

also go to Facebook and post "Can anyone recommend a good Szechuan Chinese restaurant in Mumbai?" In addition, Facebook has search capability and entering a query for Szechuan Chinese restaurants in Mumbai yields information about Szechuan Chinese restaurants in Mumbai.[58]

Which companies compete with Google on particular searches depends on the nature of the search. If one is looking to make an airline reservation, alternatives to Google include Makemytrip, Kayak, Expedia, and so on. Neither Flipkart, Snapdeal, nor Amazon would be a sensible alternative. On the other hand, if one were looking to purchase a pair of men's running shoes, Flipkart, Snapdeal, and Amazon (as well as Myntra) would be viable alternatives whereas travel sites would not. The fact that Makemytrip would not be a sensible starting point for a search for men's running shoes does not prevent it from being a viable substitute for Google for travel searches; and the fact that Flipkart would not be a sensible starting point for a travel search does not prevent it from being a viable alternative to Google to look for men's running shoes (or a very wide range of other items).

The point that the relevant markets are for classes of search is particularly relevant in India and specifically with respect to Shopping search. Online shopping is blossoming in India.[59] In contrast to the United States, where Google's biggest competitor is arguably Amazon, the largest Internet shopping sites in India are relatively new entrants: Flipkart (founded in 2007) and Snapdeal (founded in 2010). As we argued in Part II.B above, the success of these companies is overwhelming evidence that Google is neither dominant in shopping search in India nor capable of standing in the way of Web sites that provide users the opportunity to find items they want to purchase online.

Another important feature of the Internet sector in India that is relevant for market definition with respect to the allegations against Google is the relative importance of wired and wireless access to the Internet. In 2015, Prime Minister Modi announced the Digital India initiative, which includes substantial investment to expand India's Internet infrastructure.[60] India

[58] *See* Cotton Delo, *Facebook Unveils Search Tool That Could Supply Intent Data for Ad Targeting*, Advert. Age (Jan. 15, 2013), http://adage.com/article/digital/facebook-unveils-search-tool-supply-intent-data-ad-targeting/239200/; Wesley Young, *6 Things to Know Before Using Facebook for Local Search, and 6 Reasons FB Search Can Dominate*, Search Engine Land (Nov. 9, 2015), http://searchengineland.com/6-things-need-know-using-facebook-local-search-6-reasons-fb-search-can-dominate-234909.

[59] *See* Gaurav Sikka, *India—The World's Fastest Growing Startup Ecosystem*, TNW News (July 5, 2015), thenextweb.com/in/2015/07/05/india-the-worlds-fastest-growing-startup-ecosystem/; *The Great Race*, Economist, Mar. 5, 2016, at 19. Both articles detail the investment major international financial institutions have been willing to invest in Indian Web start-ups. Gaurav Sikka explains the factors giving rise to the growth in the Indian Internet sector. His list of three factors that tend to inhibit start-ups notably does not include bias in Google search algorithms.

[60] The Digital India program is an initiative by the government of India to transform India into a digitally empowered society and knowledge economy. *See About Digital India*, Digital India, http://www.digitalindia.gov.in/content/about-programme.

needs such investment because its existing Internet infrastructure is underdeveloped relative to what it needs to achieve its economic aspirations. One consequence of this relatively underdeveloped wired Internet infrastructure is that Indians rely heavily on mobile wireless access. Over time, India has promoted the development of its wireless Internet by auctioning off broadband spectrum, first to implement 2G technology and subsequently to implement 3G and now 4G technology. About two-thirds of Indians who access the Internet do so on mobile devices.

Wireless access to the Internet is relevant for understanding the competition that Google faces and, therefore, market definition for evaluating the claims against Google because users of mobile devices are much more likely to rely on apps to access websites than to navigate to websites from a web browser. Estimates of Google's share of search do not include the use of search apps as part of the relevant market.

Economically sound market definition can be essential to sound effects analysis because proper market definition requires understanding the competitive environment in which a firm operates. The failure to understand the competitive environment can result in a failure to understand the intended and actual competitive effects of a company's behavior.

C. Assessing Dominance

A purely mechanical approach to dominance analysis relies entirely on market shares. Market shares in well-defined markets can be relevant; but it is important not to rely on estimated market shares entirely and instead maintain the perspective of what the dominance analysis implies about competitive effects.

One problem with relying exclusively on estimated market shares to assess dominance is that the estimates rely on a market definition that might be flawed.[61] Performing each step separately without regard for how errors in one step might have implications for a subsequent step is the sort of mechanical approach that we caution against.

Another problem with inferring dominance from high market shares is that if a firm holds a high market share due to superior performance, then the firm is not dominant as that term applies in antitrust.[62] Dominance requires the ability to maintain a high market share without superior performance.[63]

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[61] An additional technical point is that standard estimates of search shares are based on mischaracterizations of navigational queries. *See supra* note 23.

[62] Because he won the championship nine years out of ten, Rafael Nadal was dominant (using the common meaning of the word) in the French Open in men's tennis from 2005 to 2014. But to the extent that Nadal could win only through superior performance, he was not dominant in an antitrust sense.

[63] Another way of stating this point is that to be dominant, a firm must be able to exclude a more efficient (or at least equally efficient) rival.

In many markets, high output requires a high level of capacity that takes time to build. When a firm has a high share of industry capacity in addition to a high share of output, its risk of being supplanted when its relative performance drops off is lower than is the case with web businesses. Again, the rise and fall of companies like CompuServe and AOL illustrate the point.[64]

Whatever one makes of market share in a well-defined market, Google's share of general search defined as total Google searches divided by the sum of total searches on Google, Bing, and Yahoo cannot prove dominance because it is not a share of a relevant market.

Conclusion

The fundamental issue raised by the investigations into whether "bias" in Google search toward Google "properties" violates competition statutes is when innovation in product design is harmful to competition. The challenge created by such cases is that innovation is the most important dimension of competition in this sector. As a result, falsely labeling a beneficial innovation as an antitrust violation would protect competitors but harm competition; and the mere risk of such a mischaracterization can limit the incentive to innovate. The FTC recognized this point when it wrote:

> Product design is an important dimension of competition and condemning legitimate product improvements risks harming consumers . . . . 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.[65]

Those who have urged competition authorities in many jurisdictions to intervene in the design of Google search on antitrust grounds have proposed mechanical and ultimately unconvincing approaches to the first three steps to try to obscure clear analysis in the fourth and most crucial step. They characterize the behavior at issue as vertical foreclosure rather than innovation. That mischaracterization of the behavior in turn rests on a mischaracterization of the economic relationship between general search engines and thematic search engines. They also proposed a superficial market definition

[64] The United States is not the only jurisdiction that recognizes this point. In particular, in *Qihoo 360 v. Tencent QQ*, the first abuse of dominance case to reach the Supreme Court of China, the Court ruled that Tencent QQ was not dominant in instant messaging despite an estimated market share of above 80 percent. As it explained, "the market share is only one relatively rough and possibly misleading index to determine the market dominant position. When the market is easy to enter or the high market share is originated from higher market efficiency or better products are provided, the market dominant position could not be determined from the high market share." *See* Qihoo 360 v. Tencent QQ, 2013 Civ. Judg. (Sup. People's Ct. Oct. 8, 2014) (China).

[65] FTC Google Closing Statement, *supra* note 2, at 3.

that ignores the most important competitive constraints that Google faces and that compel Google to continue to improve the results it provides its users to induce them to return. They then go on to assert that intervention by the competition authorities will lead to searches that consumers prefer.

Of the many competition authorities and courts that have examined complaints about Google's search practices, the vast majority have seen through these arguments. In addition to the United States,[66] jurisdictions that have dismissed similar allegations include Germany,[67] Brazil,[68] Taiwan,[69] the United Kingdom,[70] and Canada.[71]

If anything, conditions in the Indian Internet sector reinforce our points. The success of Indian Internet start-ups such as Flipkart and Snapdeal reveal how misguided the concerns that Google can stifle competition on the Internet in India are. Indian consumers are far more likely to realize the full promise of the Digital India initiative[72] and Indian Internet businesses with sound business models are more likely to flourish if India allows competition to proceed unfettered than if it seeks to regulate it through antitrust intervention. The Internet sector in India is in the midst of impressive and, indeed, explosive growth. Of the three barriers to growth cited by Gaurav Sikka,[73] the solution to one of them is government policies that increase the "ease of doing business." The outcome of India's investigation into Google search will have important implications for whether the business community both inside and outside India perceives the government's commitment to increasing the "ease of doing business."

As we noted in the introduction, the issues in assessing the antitrust complaints against Google extend beyond Internet search. The ambitions

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66 A *Wall Street Journal* article about a leaked FTC staff memo might have created the impression that FTC staff concluded that Google search bias violated U.S. competition law. *See* Brody Mullins, Rolfe Winkler & Brent Kendall, *Inside the U.S. Antitrust Probe of Google*, Wall St. J. (Mar. 19, 2015), http://www.wsj.com/articles/inside-the-u-s-antitrust-probe-of-google-1426793274. As the article points out (albeit near the end), the economics staff memo recommended against any complaint against Google and the legal staff recommended against a complaint on the key issue of search bias. The Commission's vote to close the investigation into Google search bias was unanimous; and, as we discuss in more detail below, the reasons it gave did not suggest that they viewed the decision as a close call.

67 Landgericht Hamburg [Regional Court of Hamburg] Apr. 4, 2013, 408 HKO 36/13, http://www.taylorwessing.com/fileadmin/files/docs/pdf-german/Google__Wetter-InBox_-_Beschluss_LG_Hamburg_2013-04-04.pdf.

68 18a Vara Cível de São Paulo [18th Civil Court of the State of São Paulo] No. 583.00.2012.131957-7, 05.09.2012 (Braz.), http://www.scribd.com/doc/105502055/BUSCAPE-vs-Google-Summary-Judgment-ruling#scribd (unofficial English translation).

69 *See* Debra Mao & Brian Womack, *Taiwan Fair Trade Agency Closes Investigations Into Google*, Bloomberg (Aug. 6, 2015), http://www.bloomberg.com/news/articles/2015-08-06/taiwan-fair-trade-agency-closes-investigations-into-google.

70 Streetmap v. Google [2016] EWHC (Ch) 253 [84] (Eng.).

71 Press Release, Competition Bureau of Canada, Competition Bureau Statement Regarding its Investigation Into Alleged Anti-Competitive Conduct by Google (Apr. 19, 2016), http://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/04066.html.

72 *See supra* note 60 and accompanying text.

73 *See supra* note 60 and accompanying text.

of the Indian entrepreneurs starting businesses today are to attain success that rivals the success of the current "tech" icons. If Google's competitive behavior gets punished as an abuse, Indian entrepreneurs and those interested in financing them will take notice. This is not to suggest that competition authorities should never intervene in the technology sector. Technology companies can have market power and behavior by such companies can be anticompetitive or abusive. But, to properly reach such a conclusion, it is important not to fall into an overly mechanistic or technocratic approach to the four key steps. Rather, the analysis at each stage must be guided by recognition that the ultimate goal is distinguishing competitive from anticompetitive behavior and that the failure to do so will result in competition policy that protects competitors from competition rather than competition itself.