Google and Search-Engine Market Power

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To Columbia workshop readers: As you will see, this paper is a preliminary draft, and somewhat out-of-date now, because although I wrote it some months ago, I have worked little on it since. The approach that I propose for measuring Google’s power is interesting, I think, but I believe the greater value of the paper is in its identification of some difficult and important problems in the antitrust analysis of information products. I look forward to your comments.

I. INTRODUCTION

Allegations of anticompetitive conduct by Google have prompted investigations by antitrust agencies on both sides of the Atlantic,1 as well as several unsuccessful private suits. Although the allegations are of several kinds, the primary allegation is that Google has manipulated its search results—either its so-called “organic”2 search results or the results provided by its AdWords sponsored-advertising program—in order to disadvantage competitors. Generally speaking, the claims are that Google has artificially pushed competitors down in its search results,3 making it more difficult for them to reach searchers seeking the sorts of services that they provide. That is, the claims are that Google does not deliver the results that it would best serve consumers, but alters those results to serve its own competitive interests.

With respect to the organic results, the allegations are that the manipulation disadvantaged two kinds of competitors: web sites like Yelp that compete with Google’s non-search engine products like Google Places and Zagat,4 and so-called vertical search engines that

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2 Google uses “organic” to describe its main search results, i.e., the list of results that are not sponsored advertising. See Schmidt Testimony, supra note 10, at 5 (“Google was one of the first search engines to clearly distinguish advertisements from our organic search results.”).

3 For AdWords, the effectively equivalent claim is that Google artificially charges its competitors more for placement in the AdWords results.

4 Testimony of Jeremy Stoppelman, Cofounder and CEO, Yelp! Inc., Hearing on “The Power of Google: Serving Consumers or Threatening Competition?”, Subcommittee on Antitrust, Competition Policy and Consumer
compete or potentially compete with Google’s search engine. With respect to AdWords, the allegation is that Google manipulated the pricing of its AdWords ads to disadvantage vertical search engine competition.

“Vertical search engines” are search engines that are aimed at those seeking particular sorts of information, such as medical information or information about the prices of consumer electronics goods. It may be feasible to develop a successful search engine in a limited area at relatively low cost, and if a vertical search engine gained a foothold in a particular area, it could pose a competitive threat to Google and other general search engines, at the very least taking away advertising revenue for searches in that area.

The theory of an antitrust claim against Google would be that the manipulation of search results denies competitors—vertical search engines, say—the means of competing to serve users of Google. Foreclosure from access to those users, even if only through being pushed down in Google’s results, could effectively exclude competitors from the search market. Moreover, this sort of exclusion would also harm consumers if consumers value the services that those vertical search engines provide, and would prefer that they be included, or appear higher in Google’s results. The antitrust statute applicable to such a claim would be Sherman Act § 2, under which a monopolization violation can be established by proof of two elements: possession of monopoly power, and willful acquisition or maintenance of that power.

A significant and growing body of commentary considers whether possible manipulation of search results by Google could satisfy the second, conduct-focused element of monopolization. Some argue that deviations from some “objective” or “unbiased” standard for providing search results can constitute exclusionary and anticompetitive conduct. Others argue that such conduct should not be the basis for an antitrust violation, either because Google and other search engines should be free to provide whatever results they like or because it is too difficult to distinguish procompetitive from anticompetitive conduct in this area.

Surprisingly, though, little serious attention has been paid to whether Google satisfies the power element of a monopolization claim. Under Sherman Act § 2 (or its European analogue,
Article 102 TFEU), a plaintiff, whether private party or government, must show that the defendant possesses monopoly power (or, in Europe, dominance), which is a large degree of market power. Those who favor antitrust scrutiny of Google generally cite its large market share, from which they infer or assume its power.\(^9\) Those who are skeptical of competition law’s role in regulating search, on the other hand, usually cite Google’s “competition is only a click away” mantra to suggest that Google’s market position is precarious.\(^10\) In fact, the issue of Google’s power is more complicated and interesting than either of these approaches suggests.

A fundamental problem is that for information intermediaries like Google, the most commonly used measure of power, market share, is not a very suitable measure.\(^11\) To that extent, the “competition is a click away” story is an accurate one. Consumers can indeed easily find and switch to alternatives. But the ease of clicking to another search site does not mean that Google has no power. For the ease of clicking away to constrain Google, it must also be the case both that users do not suffer other costs in switching and that they can determine just when it is advantageous to click away. That is, it is important that both switching costs and information costs are low. Although some of Google’s practices seem designed to increase switching costs,\(^12\) such costs probably do remain low.\(^13\) Information costs, however, can be significant. This essay argues that it could be quite difficult for search engine users to determine whether the results they are receiving from a particular search engine justify switching to another.


\(^10\) Miguel Helft, Google Makes a Case That It Isn’t So Big, N.Y. Times, June 28, 2009 (quoting Dana Wagner, Google senior competition counsel, as saying “Competition is a click away”); Testimony of Eric Schmidt, Executive Chairman, Google Inc., Hearing on “The Power of Google: Serving Consumers or Threatening Competition?” Subcommittee on Antitrust, Competition Policy and Consumer Rights, Committee on the Judiciary, U.S. Senate, Sept. 21, 2011, at 7 (“[I]f consumers don’t like what one website is providing them, they can switch to another website with just one click.”) [hereinafter Schmidt Testimony], available at http://www.judiciary.senate.gov/pdf/11-9-21SchmidtTestimony.pdf.

\(^11\) See infra part II.A.

\(^12\) These practices will be discussed in an expanded version of this paper.

\(^13\) That is true at least for those who use a search engine’s home page. For search through other pages, Google has paid considerable sums to be the default search engine, suggesting a belief that there is value in being the first search engine users see and that users will not necessarily switch to the engine that serves them best. See Kara Swisher, Google Will Pay Mozilla Almost $300M Per Year in Search Deal, Besting Microsoft and Yahoo, Dec. 22, 2011, http://allthingsd.com/20111222/google-will-pay-mozilla-almost-300m-per-year-in-search-deal-besting-microsoft-and-yahoo/; see also Matthew Panzarino, The FTC subpoena of Apple could spell the end of Google’s default search status on the iPhone, Mar. 13, 2012, http://thenextweb.com/apple/2012/03/13/the-ftc-subpoena-of-apple-could-spell-the-end-of-googles-default-search-status-on-the-iphone/.
The analysis of power for Google or other information providers is also complicated by the multifaceted role played by information. The commentary on Google has not focused on information as a product and generally has not considered the ways in which it differs from other products. A key feature of information is described by Arrow’s paradox regarding information: “its value for the purchaser is not known until he knows the information, but then he has in effect acquired it without cost.” In many instances of search (though of course not all), a consumer will be seeking information in circumstances in which she will be unable to evaluate the quality of the information she receives. As will be discussed in more detail below, this lack of transparency in quality can give an information provider market power, just as can an absence of transparency in price for other products. The significance of this effect, however, is difficult to evaluate.

This paper proceeds in several steps. It begins in Part II with a brief discussion of factors that make assessment of Google’s power more difficult than for many other sellers. In this context, Part II discusses the particular problems posed by two-sided markets and information products; Google’s search business implicates both topics, and each contributes to making market share a poor measure of power. Part III then focuses more specifically on the task of measuring Google’s market power, tentatively suggesting an approach that uses pricing of Google’s paid AdWords placements as a means of measuring power. Part IV then discusses a particular informational issue, the objectivity of Google’s search results, and its implications for market power. Part V concludes.

II. SEARCH ENGINE MARKETS

A. The Irrelevance of Market Share

In cases under Sherman Act § 2 and Article 102 TFEU, the usual measure of market power is market share. Competition law uses market share as proxy for power because it often reflects the ability of a firm to act without regard to competition. Generally speaking, if a firm with a large market share seeks to act anticompetitively, smaller competitors will be unable to compensate for the anticompetitive acts by meeting the unmet demand themselves, because their response will be limited by their relatively smaller size. Although antitrust typically uses sales to measure market share, it is actually capacity that is the relevant measure. That is so because it is unused or expanded capacity that allows competitors to respond to anticompetitive demand by a monopolist, not current sales. In most instances, at least in traditional product markets, capacity and sales are closely related, so the distinction is unimportant.

Where the product is information, however, firms may be able quickly to expand output. Consider a search engine that competes with Google, for example. If Google were to act anticompetitively, its competitor would easily be able to “produce” products to meet the demand of those who were unhappy with Google’s products. After all, the products at issue are search results, and the algorithm for producing them is already available, so the only obstacle to

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15 See, e.g., United States v. Aluminum Corp. of America, 148 F.2d 416 (2d Cir. 1945); Case 85/76, Hoffmann-La Roche & Co. AG v Commission, [1979] ECR 461, ¶ 39 (“The existence of a dominant position may derive from several factors which, taken separately, are not necessarily determinative but among these factors a highly important one is the existence of very large market shares.”).
producing more of them is the installation of more server capacity to deliver the results to
customers. Although expanding server capacity imposes some costs and takes some time, those
limitations are small compared with, say, expansion of capacity in the production of the
archetypal widget. Hence, market share is a relatively poor proxy for power when the product at
issue is information.\textsuperscript{16}

It should be emphasized, however, that the focus on capacity here is a narrow one,
referring only to the capacity to deliver search results to users. There is another, perhaps more
important element related to the volume of search results delivered, and that is the advantage a
search engine gains from the information gathered from searches. A search engine delivering a
larger volume of search results gains valuable information from its users’ searches and thus is
likely to deliver better search results. This effect is akin to learning effects, and could be viewed
as lowering the cost of delivering high-quality results. It is not, however, so much an effect of
current market share as one of cumulative number of searches delivered, so that it does not
support using current market share as a measure of power. It is better treated, perhaps, as
privileged access to a valuable input, in the sense that prior searches are the raw material from
which search results are in part derived.\textsuperscript{17} The focus of this paper is on demand-side effects, but
supply-side effects such as this one will be considered in an expanded version of the paper.

B. Two-Sided Markets

A further complication is that Google operates in a two-sided market, a market with two
different customer groups that provide each other with network benefits. As Rochet and Tirole
describe, in two-sided markets, the platforms, like Google, “enable interactions between end-
users, and try to get the two (or multiple) sides ‘on board’ by appropriately charging each side.”\textsuperscript{18}
In Google’s case, its two customer classes are searchers and advertisers.\textsuperscript{19} As in other two-sided
markets, the price, quality, and output relationships for the two sides are interrelated, which may
make it inappropriate to consider the two markets in isolation in assessing Google’s power.\textsuperscript{20} For
example, in such a market the platform might be charging high prices to one user group, but if
the prices are below cost to the other, it is not clear that the platform should be viewed as
exercising market power.\textsuperscript{21} Conversely, if the platform is providing a service to one user group
for free, as Google does, it might be doing so in order to enable it to charge a higher price to the
other, so that the zero price does not show that the platform lacks power.

\textsuperscript{16} The value of approaches focused on market definition and market share is a subject of current debate. \textit{Cf.}
(Feb. 13, 2012).

\textsuperscript{17} It has been argued that this raw material should be shared among search engines.

\textsuperscript{18} Jean-Charles Rochet & Jean Tirole, Two-Sided Markets: An Overview, http://faculty.haas.berkeley.edu/

\textsuperscript{19} In fact, one could count web sites as a third customer class of Google, though the web sites in the
“organic” search results will often overlap with advertisers.

\textsuperscript{20} David S. Evans & Richard Schmalensee, The Industrial Organization of Markets with Two-Sided
Platforms, 3 Competition Policy International 151, 173-75 (2007); David S. Evans, Two-Sided Market Definition,

\textsuperscript{21} Nor is it clear, however, that it should not be.
It is not clear, however, that we should never consider price-quality relationships on one side of the market in isolation. After all, if the price to advertisers is high, it is no less high because the price to searchers is low. Advertisers receive benefits from lower prices to searchers, because the resulting greater quantity of searchers effectively makes Google a higher-quality provider for advertisers, but it is not clear that the quality benefits compensate for the higher costs. This is not an economic question so much as it is a legal one: even if competition among providers in a two-sided market dissipates supracompetitive profits, the law might take the position that one side of the market should not be made to subsidize the other.

In fact, of course, Google provides its search results for free. Applying the principle just discussed, the law could focus on the search market and, despite the two-sided nature of a search engine, determine that Google is exercising market power in the search market. For example, suppose, referring to the allegations against Google, that Google chooses to downgrade in its search results other information providers that it perceives as posing competitive threats. In that case, Google would be deliberately providing less valuable information to its users. Should that be viewed as an exercise of power? Or, considering the two-sided market perspective, should the answer to that question depend on whether and how Google’s advertisers, the other side of the market, respond? Are we confident that the advertisers would respond at all, especially given that searchers might not even be aware of the distortion of search results? For competition-law purposes, the answers to these questions turn on decisions that have not yet been made regarding how competition law should treat two-sided markets.

C. Information Markets

The task of assessing Google’s power is also complicated because the product it provides to its customers on one side of the market, searchers, is information. Even if we consider that side of the market alone, it is not easy to assess power. Because search information is provided for free, an assessment of power must focus on the quality of the product provided. But of course there is no established baseline for comparison. If there were some clear measure of the quality of search information that should be provided for free, then perhaps we could say that providing search information of lower quality would be an exercise of power. In fact, as will be discussed below, Google has at times claimed that it provides un-manipulated search results, so that could be a standard applied to assess its power. It is not clear, however, that this is a proper

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22 Actually, one could take the view that in making searches on a search engine, users provide that search engine with valuable information for which they are not paid. See supra text following note 16.

23 Of course, even if Google were not exercising power in the market, it could still possess power in the market. For both Sherman Act § 2 and Article 102 TFEU, it is possession of monopoly power or dominance that is the element of the offense. For neither provision is the relationship of the conduct element of the offense to its power element well defined.

24 See David S. Evans & Richard Schmalensee, The Industrial Organization of Markets with Two-Sided Platforms, 3 Competition Policy International 151, 177 (2007) (“As a consequence, the two-sided platform may impose requirements on side A that do not benefit them directly and which customers on that side might even reject after comparing private benefits and costs.”). The authors continue with some added complications: “But such requirements may benefit side B. And if the demand increases on side B, these requirements may increase the value placed on the platform on side A—and in fact could increase value so much that the feature provides a net benefit to side A.” Id. at 177-78.

25 See infra part IV.
standard. For example, should a finding of power turn on whether a search engine states or denies that it manipulates its search results?

Moreover, the informational issues are complicated if we consider the two-sided nature of the market. The usual definition of market power adopted in competition law is that of pricing above the competitive level.\(^26\) In a market like that for search results, where information is provided for free, we might adapt this definition to say that a seller has market power when it provides lower-quality information than would be provided for free in a competitive market. But in two-sided markets, where competition takes place in both markets simultaneously, determining the “competitive” level of information quality could require determining its effects not just on searchers but also on advertisers. Suppose, for example, that Google provided low-quality organic search results in order to make its paid results relatively more attractive. If that caused more traffic to go to those paid results, prices per click might be lower for advertisers,\(^27\) which could be viewed as a benefit that should be considered.

D. *Distortion as Abuse and Power*

In the preceding discussion, Google’s ability to provide less-than-optimal search results was suggested as evidence of market power. But the distortion of search results is also the anticompetitive conduct of which Google is accused. Thus, the same evidence shows both power and conduct. This is theoretically reasonable. If a firm is able to engage in anticompetitive conduct, that ability alone is evidence that the firm possesses market power; otherwise, its lack of power would constrain its ability to act anticompetitively. Indeed, there is a movement in competition law toward looking directly to conduct to determine the existence *vel non* of market power.

But this approach is problematic in competition law evaluation of unilateral conduct. For a firm’s unilateral conduct to be illegal, a firm must possess not just market power but a large degree of market power. It seems reasonable to treat the ability to distort search results as showing some degree of power, but does it show sufficient power to bring into play Sherman Act § 2 or Article 102 TFEU? For those provisions, courts have appropriately been much less willing to use conduct as evidence of power, because to do so would effectively collapse the two elements of the violation—power and conduct—into one.\(^28\) For that reason, it is important in considering Google’s power to seek a method of assessing its power that is independent of the challenged conduct of search-result distortion.\(^29\)

\(^26\) U.S. Dep’t of Justice & Federal Trade Comm’n, Horizontal Merger Guidelines § 0.1 (Apr. 2, 1992, revised Apr. 8, 1997) (defining market power as “the ability profitably to maintain prices above competitive levels for a significant period of time”).

\(^27\) They might also be higher, of course. The point is that the markets are interdependent.

\(^28\) *But see* Re/Max International, Inc. v. Realty One, Inc., 173 F.3d 1995 (6th Cir. 1999) (“If the evidence that the retailers received less service at greater cost was credited by the district court, it ‘lends strong support to plaintiff’s contention that [the defendant] possesses monopoly power.’”) (quoting lower court). In contrast, when it is Sherman Act § 1 or Article 101 TFEU that is at issue, a plaintiff must establish the additional element of an agreement, and the finding of a violation condemns only the agreement on the conduct, not the conduct itself.

\(^29\) That is, it is problematic, particularly in the single-firm context, to collapse the issues of market power and competitive effects. *Cf.* U.S. Dep’t of Justice & Federal Trade Comm’n, Horizontal Merger Guidelines § 4 (Aug. 19, 2010) (“Evidence of competitive effects can inform market definition, just as market definition can be informative regarding competitive effects.”).
III. SEARCH-RESULT QUALITY AND INFORMATION COSTS

As stated above, although there are several potential sources of market power for Google,30 this paper will focus on only one: information costs. The key question is whether, if Google were to act anticompetitively, users could determine whether there is a sufficient benefit to justify switching to another search engine. Or, to put the question another way, could Google provide low-quality search results without causing users to switch to other search engines? If so, then there would be at least some reason to say that Google has market power.

The issue can be illustrated by reference to George Stigler’s classic description of the problem of price dispersion in the market for consumer purchase of automobiles:

Price dispersion is a manifestation—and, indeed, it is the measure—of ignorance in the market. Dispersion is a biased measure of ignorance because there is never absolute homogeneity in the commodity if we include the terms of sale within the concept of the commodity. Thus, some automobile dealers might perform more service, or carry a larger range of varieties in stock, and a portion of the observed dispersion is presumably attributable to such differences. But it would be metaphysical, and fruitless, to assert that all dispersion is due to heterogeneity.31

In the case of Google, it is search quality dispersion that is at issue. Price is homogeneous because search engines provide search results for free (though there could be other factors, like search response time and ease of use of web sites, that are heterogeneous).

Quality dispersion in search engines is more complicated than price dispersion in automobiles, however, because consumers are likely to have different preferences regarding search results, whereas all consumers presumably want prices to be as low as possible. One might argue, then, that quality differences among search engines could be the result not of ignorance but of different preferences. That would be a much more plausible story if there were some evidence that certain defined classes of searchers prefer Google and others prefer Bing, or that for some purposes searchers prefer Google and for others Bing. There is, however, little evidence of systematic preferences of this kind.32

30 See supra text accompanying note 12 and following note 16.
32 Moreover, if there were different search preferences of this kind, that itself would suggest that Google has market power. If search engines were differentiated, Google could not necessarily exploit those that preferred a Bing-type search engine, but it could exploit the subset of consumers that preferred a Google-type search engine. In other words, the Google-type search engine could be a submarket, and Google could have power in that submarket.
Joshua Wright has pointed to product differentiation as an explanation for different search results among different search engines. He quite reasonably objects to those who do not consider the possibility of competitive product differentiation, pointing particularly to work by Benjamin Edelman and Benjamin Lockwood comparing search results. But despite his advocacy of “evidence-based” assessment, Wright offers no evidence that would suggest that the differences among search engines are the product of consumer preferences. Instead, he merely states that “Google users likely prefer Google content,” and he offers some exceedingly strained explanations of evidence offered by Edelman and Lockwood that suggests the opposite.

A. Evaluating Search Results

If the quality of Google’s search results can be assessed by searchers, then Google will be unable to exploit those users by providing low-quality results. But there are obstacles that probably prevent searchers from making that assessment accurately. Most notably, searchers often will have no reference point against which to compare search results. Even where such information is in theory available, the cost to searchers of obtaining it may be greater than the benefits of doing so.

1. Evaluating Information

Economists divide products into three types of goods with respect to the means by which consumers can evaluate the quality of the goods. Search goods are those whose quality can be evaluated before the good is purchased, often through searching for evaluations of the product. Experience goods are those which are difficult to evaluate before purchase, but which can be evaluated as they are used. Finally, credence goods are those which are difficult for consumers to evaluate even after they are used. As examples, a painting would likely be a search good, a restaurant meal is typically an experience good, and a vitamin supplement may be a credence good.

In which of these categories are search results? It depends on the nature of the search. Rarely will a search be a classic search good, in that generally one will not often be able to find, before searching, information about the quality of particular searches. There are many searches, however, which one can be confident will produce good results, even before the search is conducted. A search for a word’s definition, for example, or for a recent sports score, is almost certain to produce the result sought.

34 Id.
35 Id. at 13.
36 Id. at 18. Edelman and Lockwood show that although Google provides a link to its own Gmail first in its results and a link to Yahoo Mail second, 29% of clicks go to Gmail while 54% go to Yahoo. Wright says that “any number of other benign reasons could explain this anomalous ranking; for example, users might realize after running this search that they know of a more efficient way of accessing Gmail, or they may simply have clicked on Yahoo Mail first, immediately returned to the search page, and subsequently clicked on Gmail. Id. (citing Danny Sullivan, Study: Google “Favors” Itself Only 19% of the Time (Jan. 19, 2011, 5:22 PM), http://searchengineland.com/survey-google-favors-itself-only-19-of-the-time-61675).
Other search results are experience goods. For example, if one searches not for a fact, but for more complex information, like an explanation of a natural phenomenon, one will probably not know before conducting the search what will be the quality of the results, but it is likely that they can be evaluated once received. Or if one seeks information about a person, such as a long-lost friend, one cannot be sure of finding that information, but it will probably be possible to tell whether the information provided is about the person sought.

Finally, for some searches, and these are the ones of most interest here, one may not know even after performing the search whether the quality of the results was high. For example, if one searches with the keywords “best price iPhone 5” or “nice inexpensive New York hotels,” it will be difficult to evaluate the quality of the results. Even after reviewing the search results, one often will have no way of knowing whether the search engine performed well. For example, even if one receives a web site with what one thinks is a good price on an iPhone 5, one will not whether better prices are available. And a user who searches for “nice inexpensive New York hotels” cannot know whether the results are in fact nice inexpensive New York hotels, let alone the nicest or most inexpensive New York hotels, or if better results might have been available. Even if the user ran the search on another search engine and obtained different search results, it would not be clear which results were better. In that sense, search results can be credence goods.

It is significant that the particular competitors against which Google is alleged to have discriminated compete against Google in providing exactly this sort of credence information. Those competitors have primarily been vertical search engines that claim to provide consumers with product information in particular areas. In seeking such product information, consumers are unlikely to know, if a search engine (like TradeComet, a vertical search engine at issue in one case against Google) includes a particular seller in its results, whether that result is valuable, or more valuable than alternatives. Similarly, if the vertical search engine (like Foundem, one of the complainants in the EU case) provides a particular price for a given consumer product, the consumer may not know whether that is a good price, or if better ones are available.

The difficulty of evaluating search results makes it less likely that Google, or any other search engine, will be constrained by competition. Some searchers, when they receive unsatisfactory search results, might go to Bing, for example, but searchers might also believe that Bing will do no better and thus remain with Google. If so, Google will not be greatly constrained by the presence of Bing or other search engines. Google is not, of course, completely unconstrained—it cannot regularly produce poor results—but it likely has some freedom to provide less-than-optimal results, particularly if it does so only in certain areas and not routinely.

2. Search Engines and Other Information Providers

The difficulties of evaluating search results can be seen by comparing them with the difficulties of evaluating other information sources. Wikipedia, for example, is a commonly used

37 Although the issue is surely contestable, the history of search engines does not appear to demonstrate that better algorithms alone determine success or cause consumers to switch search engines. The web site Search Engine History states that AltaVista lost its position as market leader “[d]ue to poor mismanagement, a fear of result manipulation, and portal related clutter.” Search Engine History.com, http://www.searchenginehistory.com/. Inktomi “failed to develop a profitable business model.” Id. Overture (now Yahoo) “had two major downfalls which prevented them from taking Google's market position:” it chose not to become a search destination itself, but instead was distributed through partners; and it did not have as profitable an advertising model as Google. Id. Although the reference to result manipulation as one cause of AltaVista’s troubles suggests that quality can be important, this web site, at least, represents business issues as playing a greater role.
information source, despite the fact that it is known to contain inaccuracies. The accuracy of Wikipedia is fairly easy to assess, though, because in many cases there are alternative sources, like print encyclopedias, of the information it provides. For search engines, there usually are not such alternative sources, except other search engines. The fact that Wikipedia is widely used despite its inaccuracies, combined with the fact that search engines are more difficult to evaluate than is Wikipedia, suggests that competition is not likely to serve as a strong constraint on search-engine quality.

An alternative comparison is that of magazines and web sites that provide reviews of consumer products. The reviews that these organizations provide are in some respects search goods, because they include information like product features, and the value of this information is immediately apparent. Reviews often provide more qualitative information like “ease of use,” however, which is probably best thought of as an experience good, in that not every consumer will view “ease of use” in the same way. Once the reviewed product is purchased, though, the value of the review is likely apparent, so the product itself serves as the benchmark against which the review is compared, just as print encyclopedias can for Wikipedia. As noted above, though, there may be no such outside benchmark for search engines, even after search results are obtained.

3. **Google’s Responses to Competition**

Although the preceding paragraphs suggest that Google and other search engines may be able to operate with some degree of freedom from competition, that freedom is not complete. For example, Google recently changed its algorithm to make its search results more timely, and it did so, reportedly, in response to competition. More specifically, it was reported that Google’s motivation was the more timely nature of search on Twitter. In certain circumstances, then, Google and other search engines will be required to respond to competition.

The very particular nature of the competitive threat of Twitter, though, is unusual and confined to a particular problem. That is, although Twitter provided a competitive benchmark for search engines, it did so only with respect to a very specific dimension, timeliness. The specificity of that constraint only emphasizes that there is no such benchmark for search results more generally. The upshot is that it seems reasonable to suspect that search engines have some

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38 Moreover, Wikipedia articles often cite external sources, which makes checking the accuracy of the articles easier. There are no such external sources for comparison in the case of search engines.

39 Claire Cain Miller, Google Changes Search Algorithm, Trying to Make Results More Timely, N.Y. Times, Nov. 3, 2011 (“The new algorithm is recognition that Google, whose dominance depends on providing the most useful results, is being increasingly challenged by services like Twitter and Facebook, which have trained people to expect constant updates with seconds-old news.”) available at http://bits.blogs.nytimes.com/2011/11/03/google-changes-search-algorithm-trying-to-make-results-more-timely/.

40 *Id.*

41 The issue is complicated also because there are no doubt skilled users, or users who are skilled in certain types of searches, and search engines might have to respond to those users. But it is likely the larger quantity of unskilled users that provide advertising profits. Therefore, even if skilled users were to switch to another search engine from Google, it is possible that Google would be able to lure them back, perhaps with improvements to its algorithms, before the profitable unskilled users, who probably lag behind the skilled ones, also leave Google. If this is true, and if other search engines know that it is true, competition will be weakened. I will explore this issue more fully in an expanded version of this paper, and I am grateful for discussions on this topic with Fabrizio Dell’Acqua, a student in the master’s program of the Department of Economics at Bocconi University.
degree of market power, even if these comparisons provide little to show the magnitude of that power.

It is also important to realize that this conclusion is not altered by the fact that the limited evidence that search engines exhibit bias or manipulation is not limited to Google. Joshua Wright argues that the widespread incidence of search engines favoring their own content shows that “‘bias’ is not a function of market power, but an effective strategy that has arisen as a result of serious competition and innovation between and by search engines.” Wright is quite emphatic: “that both this percentage and the absolute level of own content inclusion is similar across engines indicates that this practice is not derivative of one’s misuse of its market power, but an industry standard.”

Wright’s chain of reasoning is unclear, however. It appears to rely on the fact that search engines with significantly smaller shares than Google also discriminate, from which he claims that we can infer that any discrimination is not the product of power. This conclusion follows, however, only if it is true that market share is a good measure of power, which means that the argument effectively assumes its conclusion. If power in this information market is a product not of market share, but of the inability of consumers to assess the quality of the products they are receiving, then there is no reason to think that small search engines could not exercise such power.42

The sort of information-based power on which Google could rely does not depend on market share, as discussed above. Instead, it is similar to the power possessed by sellers in markets in which price information is unavailable or suppressed. In such markets, it has been shown that prices can be higher, and that can be the case even if sellers are small.43 Consequently, Wright’s evidence, though suggestive, falls short of establishing the conclusion he claims.

B. The Power to Manipulate Search Results

The difficulties of assessing the magnitude of search-engine power directly in a general way suggest the need for an alternative approach. The one suggested here is focused on a more specific question: To what extent can individual search results be manipulated without causing users to go elsewhere? This does not provide a general measure of power, of course, but it does provide some sense of the magnitude of the kind of power most relevant to the allegations against Google. However, it must be emphasized that the suggestions offered here for measuring this sort of power are very tentative.

42 There is also no reason to think that small search engines would have the ability and incentive to constrain the power of larger ones. First, competing search engines are likely to have the same problems as do consumers in evaluating the results provided by other search engines. Second, as the Supreme Court observed in *Kodak*, competitors with similar sources of market power may choose to “live and let live,” rather than engage in competition that could make all of them worse off.

1. **Search Engine Optimization**

There is an active market for search engine optimization (SEO), the “optimization” of web sites to improve their position in search results.44 To some extent, the very existence of SEO demonstrates the power of search engines, particularly if, as Google claims, some SEO lessens the quality of search results.45 Searchers continue to use Google and other search engines with little concern regarding the effects of SEO, which suggests that search-result quality can be degraded with little market effect. To be sure, Google seeks to adjust its algorithm to minimize the negative effects of SEO. Still, given the amount of money spent on SEO, the effects likely are significant.

It might not be possible to derive any implications regarding search engine power if SEO affected all search engines equally. In that case, the degradation of Google’s results would be accompanied by similar degradation of Bing’s results and those of other search engines, and competitive positions would be unchanged.46 But the primary target of SEO is Google.47 Consequently, it is likely that SEO disproportionately affects Google’s search results. If so—that is, if the quality of Google’s results is lessened more than those of its competitors—yet Google suffers little or no market effect, then it must be that Google’s power is significant.

Google’s ability to maintain its position despite SEO could derive from at least three effects. First, it could be that SEO has little effect, but as suggested above that seems unlikely, given both the amount of money spent on it and the significance of the efforts of Google and other search engines to respond to it. Second, it could be that Google’s pre-SEO quality is sufficiently greater than that of other search engines that the quality can be reduced by SEO and still remain higher. Third, it could be that Google’s quality is thought to be high by searchers, regardless of the effect of SEO, so that Google’s market position is unaffected. Either effect would be evidence of market power.48

Of course, the more significant consequence of the possibility that minor degradations in search-result quality do not cause significant losses in user share is not the ability of SEO to degrade quality but the ability of Google to do so. Just as SEO providers can profit from manipulating search results, so too could Google. Indeed, given that Google knows its own algorithm, its capacity to manipulate results, unlike that of the SEO providers, is not limited by trade secrecy but only by its willingness to risk detection.

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44 The market is active enough to justify a web site that ranks the top providers. *See* Best: Top 50 Search Engine Optimization Companies, March 2012, http://www.topseos.com/rankings-of-best-seo-companies.

45 There are two kinds of SEO, so-called “black hat” SEO, which distorts search results, at least in the view of search engines, and “white hat” SEO, which more “accurately” presents a site to search engines’ algorithms, thus improving search results.

46 In theory, all search engines could find their competitive positions worsened if users ceased or lessened their use of search engines. It is not clear, however, what could serve as a substitute for a search engine, at least for a user seeking a web site. A user seeking the answer to a particular factual question could turn to other information sources, though.

47 Sharon Nelson and John Simek, Making Your Web Site Visible: How to Find A Good Seo Company, Law Practice, vol. 36, no. 3, at 24, May/June 2010 (“Despite the existence of other search engines like Yahoo, Bing and Ask, Google remains the indisputable king, with over 65 percent of market share at present. That’s why most search engine optimization (SEO) is done primarily with Google in mind.”).

48 Note here that the existence of market power does not suggest that either the power or the method of obtaining it was anticompetitive.
The general view is that Google would not engage in this sort of manipulation because of potential reputational effects, and that view is plausible. The reputational effects of manipulation are of course significant for Google in a way that they are not for SEO providers. But on several occasions Google has been found to have acted in ways that were inconsistent with its previous statements, and it is not clear that its reputation has suffered as a result. Of course that is not evidence that Google has engaged in manipulation on other occasions, but it does suggest that the reputational threat may not be as great as is sometimes stated. If that is true, then the constraint that reputation imposes on Google may not be great.

2. **Significant Market Power**

Returning to the earlier discussion, competition law has an independent power requirement for unilateral violations in part to protect against overdeterrence. That is, competition law will only intervene in the unilateral business decisions of firms if those firms are dominant, because only for such firms is the potential competitive harm sufficient to justify the intrusion. Therefore, even if we are convinced that SEO shows that Google has *some* ability to manipulate search results, that merely leads to further questions: Does it have enough such power to establish dominance? How we could assess the magnitude of a search engine’s power?

One possible way to make this assessment would be to consider whether moving a site up or down in search results without a significant consumer response would show significant market power. Or, to put it another way, does moving a site down several spots in the results constitute a significant lowering of quality that in the absence of market power would cause a search engine to lose customers? If so, given that price stays the same at zero, the ability to lower quality significantly could be viewed as evidence of market power. This method of assessing power then requires some means of quantifying the loss in quality of moving sites in search results.

One way to do this, offered tentatively here, is to use the prices paid for placement in Google’s AdWords results. Because the value of search positions in the organic results is not quantified, but AdWords positions are, we can use AdWords as a proxy for the organic results.\(^{49}\) Indeed, if the price difference between positions in the AdWords results differs significantly, one would expect the difference in value between similar positions in the “organic” results to be even greater. That is so at least if, as seems likely to be the case, consumers value more highly the unpaid-for organic results than they do the paid-for AdWords results.

Suppose, then, that the price for placement as the first AdWords result were 20% greater than that for placement as the second result. The question then would be whether that 20% price difference is an indicator of significant market power. Recall that we are assuming that Google can manipulate its results to move a party from the first to the second position. Assuming that quality is reflected in price, the change in value from first to second position should reflect the price difference between those positions.\(^{50}\) The key question, then, is what level of price

\(^{49}\) Actually, some of the allegations against Google concern AdWords, not the organic results, so that the results in the text could be applied directly in that context.

\(^{50}\) One type of allegation against Google is that it uses AdWords “Quality Scores” to raise prices charged its competitors, or potential competitors. See infra text accompanying note 53. If a web site that formerly paid $X for placement in the first position is subsequently forced, without a legitimate justification, to pay the same price for the second position, then it seems reasonable to view the power provided by the ability to force such a change in position as reflected in the price difference. Of course, Google argues that it has legitimate justifications for such moves, and that might be true; the purpose of this test is not to prejudge Google’s conduct, but to assess its power.
difference would establish a level of power sufficient to establish dominance. The U.S. Merger Guidelines states that a price increase of 5%-10% is evidence of “a significant loss of competition,” but the merger context does not require a showing of dominance. For dominance, a greater price increase would presumably have to be shown.

Although actual prices for AdWords are not easy to obtain, one can use Google’s own “Traffic Estimator” to estimate some figures. For example, using the keyword phrase “kitchen faucet,” the Traffic Estimator provides the following numbers for different specified maximum costs per click (“CPC”).

<table>
<thead>
<tr>
<th>maximum CPC (specified)</th>
<th>estimated average CPC</th>
<th>estimated ad position</th>
<th>estimated daily clicks</th>
<th>estimated daily cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>$2.50</td>
<td>$1.26</td>
<td>1.49</td>
<td>404.08</td>
<td>$510.90</td>
</tr>
<tr>
<td>$2.00</td>
<td>$1.11</td>
<td>1.71</td>
<td>379.86</td>
<td>$421.63</td>
</tr>
<tr>
<td>$1.50</td>
<td>$0.92</td>
<td>2.14</td>
<td>338.75</td>
<td>$312.35</td>
</tr>
<tr>
<td>$1.00</td>
<td>$0.70</td>
<td>3.00</td>
<td>264.30</td>
<td>$184.10</td>
</tr>
<tr>
<td>$0.50</td>
<td>$0.44</td>
<td>5.83</td>
<td>119.69</td>
<td>$52.16</td>
</tr>
</tbody>
</table>

As can be seen in the table, the price difference between ad position 2 and 3 in these estimates is greater than $(0.92 – 0.70) / 0.92 = 23.9\%$. The difference between positions 1 and 2 is greater than $(1.26 – 0.92) / 1.26 = 27.0\%$. For this keyword phrase, then, if Google could move a site from position 3 to position 2 or from position 2 to position 1, it would be decreasing the value of its placement by approximately 25\%. The ability to lower quality by that amount would, following the U.S. Merger Guidelines test, show the existence of market power and, because 25\% is significantly greater than 10\%, perhaps also monopoly power.

Admittedly, this approach is rife with problems. It is not offered here so much as a precise means of assessing market power as an example of the kind of approach that could be used. One of the apparent problems, though, is not a real one, at least in certain circumstances. It might be thought that since the price paid goes down as the site’s position is lowered in the results, there is in fact no exercise of power, but only a simultaneous reduction in quality and price. This is not true, at least according to some of the allegations against Google. Google assigns a Quality Score to sites that use AdWords, and the effect of the quality score is to adjust the price paid. Consequently, although the prices shown in the table above present an unadjusted price that goes down with position in the results, Google in fact can selectively charge higher prices than the unadjusted ones. As a result, Google could charge a particular web site the same price for position 3 as it charges others for position 2, simply by adjusting the Quality Score. (Again, this article takes no position on whether Google actually does this. The point here is that it could do so, and that if it can, it could show market power.)

[Succeeding paragraphs need more thought.]

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52 This experiment was conducted on March 3, 2012.

A more fundamental problem is that this method really shows market power over advertisers, not over searchers. Power over advertisers is relevant, but if searchers are not injured by the manipulation of the position of web sites, then the significance of such manipulation is less clear. For example, suppose there are several similar web sites, and Google disadvantages, or is able to disadvantage, only one. In that case, searchers might not be injured. But this scenario seems implausible. There is no reason to think that Google would treat its potential competitors differently, and there is no reason to think that its power over competitors would be limited in such a way as to present this issue.

Moreover, it seems likely that we can view injury to advertisers as a proxy for injury to consumers. It is generally accepted that advertising serves not only an informational role but a signaling one. That is, the investment of money in advertising is an indication that the advertiser expects to receive a return on that investment, and that return will come from consumers’ purchases from that advertiser. Hence, the willingness to spend on advertising is an indicator of the value of the advertiser’s products to consumers as well.

IV. THE OBJECTIVITY BASELINE

[This section needs more thought.]

Although this paper does not aim to cover all the issues that are relevant to Google’s market power, one final issue is worth considering, if only briefly. Google’s statements regarding the objectivity of its search results have evolved in recent years. In 2007, it said “Our search results are generated completely objectively and are independent of the beliefs and preferences of those who work at Google.” More recently, it has said that in its documentation “we tried to clarify where possible that although we employ algorithms in our rankings, ultimately we consider our search results to be our opinion.” And Google, if it chose, could simply say, “We’ll provide the search results that we want to provide.”

Does objectivity have any implications for the assessment of Google’s market power? Suppose that Google does in fact manipulate search results. On the one hand, we can ask if either its power to do so or the anticompetitiveness of its conduct would be less if it clearly stated that it manipulated results, or reserved the right to do so. On the other, we can ask if its power would be greater or its conduct worse if Google maintained that its results were entirely objective. The analogous issues rarely arise in the context of non-informational products, perhaps because in

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54 Another problem is that it is not clear to what extent one can extrapolate from the results for particular AdWords results to Google’s market power generally. But the idea underlying this technique is that the prices are not so much for particular searches but for particular positions in search results, and it seems reasonable to think that the value of those positions will be similar over searches generally.

55 Google drops nuke on 'objective' search engine utopia • The Register, http://www.theregister.co.uk/2010/12/16/google_algorithms_are_google_opinions/.


that context the competitive effect of conduct is more apparent, or at least less dependent on consumer perceptions.

Statements and perceptions about objectivity can have implications for consumer acceptance of information, but whether these effects should be relevant for competition law is less clear. Information costs have been recognized as a factor that can create or maintain market power for competition-law purposes, and it seems that statements about information provided could play three possible roles. First, if no statement is made, then there is presumably no change in information costs. There is then presumably no effect on market power, and the failure to make any statement is not likely to be viewed as anticompetitive. Second, an information provider might publicly state that the information is provides is manipulated. In that case, the statement probably reduces the provider’s market power, and of course making the statement would be procompetitive, or at least not anticompetitive (though the manipulation would remain anticompetitive).

The third possibility is that while providing biased information the provider states that it is not biasing the information. Although this would be a misrepresentation, it is not entirely clear that it should be viewed as raising information costs for competition purposes, though it certainly would not lower them. If the default understanding of consumers is that information is unbiased, then the misrepresentation would not change their perceptions, though it might make them less willing to reconsider them. Moreover, competition law is generally distinct from the law of false advertising, and it is not clear where the boundary lies. Perhaps a statement that applies to all of an information provider’s products, like a statement by a search engine about the objectivity of its results, is a competition issue, while a statement about a particular product, like a statement that a food product is “organic,” is false advertising. Because competition law does not have a well-developed approach to information products, this issue is unclear.

A statement about objectivity could also have significance in the context of two-sided markets. As noted before, one of the difficulties posed by two-sided markets is the interrelationship between pricing and output on the two sides. That interrelationship means that exploitation of one side of the market is not necessarily an indicator of market power, because both sides must be considered. A supracompetitive price on one side of the market, if balanced by an infracompetitive price on the other, might not be proof of power. In some sense, though, if Google makes representations about the search side of its market, that could be viewed as isolating that side of the market for competition purposes. The idea would be that any statement that defines the price-quality relationship for a product, as a representation of objectivity in the context of zero price would, sets a baseline against which competition analysis could be performed. No longer could the provider argue that its conduct must be measured by its effect on both sides of the market, because it has chosen to limit its options on one side.

Finally, the relevant statements need not be specifically about “objectivity.” Google’s current representation is that “Google’s search results are ultimately a scientific opinion as to what information users will find most useful.” Although it is not entirely clear what would be required to

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59 In effect, the provider would have unilaterally assumed the obligation to act competitive on one side of the market. As suggested in part II.B supra, competition law might choose to impose that obligation in any case.
prove that this statement is a misrepresentation (which may be no accident), if misrepresentation could be shown, the implications would presumably be the same as those for any other misrepresentation. It could be, though, that the competitive impact of statements that information is “useful” would be different from that of statements that it is “objective.” As with questions of informational market power, those regarding the competitive effects of conduct involving information are largely unanswered.

V. CONCLUSION

The purpose of this paper is to take some first steps toward developing methods of assessing the market power of information providers like Google. As information products come to constitute a larger proportion of the market, and a larger proportion of allegations regarding anticompetitive conduct, competition law must develop techniques for addressing the special problems posed by information. The value of information is often difficult to determine, in part because it is often used in the production of other products, rather than for direct consumption. Relatedly, information is often provided for free in order to sell other products, so that information providers often operate in two-sided markets characterized by the interaction of two sets of consumers.

These problems are well illustrated by Google. Like many information providers in both the old and new media, Google provides its search results to consumers for free in order to sell advertising. In one important respect, though, Google differs from other information providers: there is no clear benchmark against which to evaluate the quality of the search results it provides. Consequently, the price-quality-cost relationship that determines market power is difficult to evaluate. The paper tentatively offers an indirect means of making that evaluation and offers some general observations regarding the treatment of information products in two-sided markets.