



**Why Google's Economic Impact Reports Lack Credibility and
Mislead the Public, Policy Makers, and News Media:
*A Critical Economic Analysis***

By

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Executive Summary

Google's 2009 and 2010 *Economic Impact* reports, which claimed that the company generated \$54 and \$64 billion, respectively, in economic activity for American businesses, website publishers and nonprofits, received widespread favorable news coverage for the company, but have never been subject to independent scrutiny. This paper is the first comprehensive analysis, by an independent economist, of the credibility of Google's claims and the extent to which they reflect economic reality.¹

Main Findings and Conclusions

- **Google's claims about its contribution to the U.S. economy are grossly exaggerated;** can deceive policy makers, news media, and the public; and should not be trusted.
- **Google's overestimate was at least 100 times the value of the actual contribution of its search engine.** Google takes credit for economic activity that is mostly generated by other economic agents. In reality, the contribution of Google's search engine to the economy is very small, amounting to at most only 1% of the overestimated economic contribution claimed by Google in its reports.
- **Google's net impact on the economy could well be negative after accounting for the impacts of its dominance and market power.** Google has consistently generated percent net (profit) margins that are between 4 and 8 times the U.S. corporate average, indicating that advertisers' costs are likely higher than they would be in a competitive market environment.
- **Google's misleading claims were largely the result of fatally flawed, inaccurate assumptions.** Google's analysis contradicted economic logic, did not take into account obvious costs of doing business, ignored the results of previous empirical economic studies, and failed to consider negative economic impacts of the company's market dominance.

Unusually High Profits, Search Engine Dominance, and Market Power

It may well be that Google's overall economic impact is negative and that the potential to harness search engines to drive down economic costs is largely being wasted due to Google's dominance and market power. The study found that Google not only dominates search engine clicks (75%) and search engine ad revenues (76%) but also has enjoyed profit margins that far exceed those of competitors, the average Internet firm, and the average U.S. corporation.

¹This economic analysis was commissioned by FairSearch.org. The author, Allen Rosenfeld, Ph.D. and Senior Vice President at M+R Strategic Services, retained complete editorial control over his research findings and conclusions, and the opinions expressed are his own.

	2007			2008			2009		
	%ROE	%PTOM	%NM	%ROE	%PTOM	%NM	%ROE	%PTOM	%NM
Google	18.5	35.5	25.3	18.8	36	24.3	18.1	27.6	40.4
Yahoo	5.8	20.5	9.1	5.8	20.5	9.1	4.8	17.0	9.4
Internet Cos.	12.3	NA	12.0	12.0	NA	6.5	12.5	NA	12.5
Avg. US Corp.	9.9	NA	3.1	15.2	NA	3.4	10.1	NA	10.3

Source: Stern School of Business, New York University; compiled from Value Line.

(ROE = net annual income divided by the book value of equity. PTOM = revenue minus expenses excluding taxes and interest all divided by revenue. NM = net income divided by revenue.)

The report describes in detail Google's claims, the method Google used to arrive at its claims, and the explicit and implicit assumptions made by Google to compute the contributions of paid and nonpaid listings on its search engine to the U.S. economy. Google's methodology and each of the underlying assumptions are then investigated from the perspective of economic logic, previous economic studies of advertising and search engines, and basic Internet search realities. Those underlying assumptions are replaced in the report by credible, conservative alternatives based on previous economic research. Claims by Google about the contribution of its AdSense Program for website ads and its donations to nonprofit groups are similarly analyzed. The company's economic contribution is also viewed in the report through the lens of the company's profit margins and its dominance of the U.S. search engine arena.

Google's Fundamentally Flawed Assumptions about the Impact of Its Search Engine

For virtually all of the six key assumptions underlying Google's economic model, the company offered no research evidence to substantiate those assumptions, which were simply stated or incorporated into Google's model without discussion or justification. Google's flawed assumptions about its search engine, with revisions, in brackets, derived from previous research conducted by other economists, included:

- Search engine advertisers have zero fixed costs associated with their advertising [fixed costs are estimated to equal 10% of revenues];
- There is a 5-to-1 relationship between unpaid clicks and paid clicks [the ratio was adjusted to 2.33 to 1];
- The conversion rate of clicks into sales for organic links is 70% of the conversion rate for paid ads [the conversion rate for organic clicks was found to be only 51% of the conversion rate for paid clicks];

- Sales from free clicks result in just as much revenue as sales from paid clicks [sales from free clicks result in 15% of the revenue obtained from sales from paid clicks];
- Online businesses incur zero costs for optimizing organic search links [the cost of search engine optimization for organic clicks is equal to 25% of paid ad spending];
- All \$2 of sales revenue associated with each \$1 of spending by advertisers to purchase AdWords ads can be attributed to Google [the ratio is 1.3-to-1, not 2-to-1].

These revisions led to the finding that the economic contribution of paid and nonpaid links on Google's search engine results pages was, in fact, valued at most, at only (0.08 X paid link advertising spending), rather than the (8.0 X paid link advertising spending) claimed by Google. Google's (over)estimate of the value of economic activity generated by its search engine, therefore, was at least 100 times as large as the actual value.

Additional Overestimates by Google

Google's reports claimed that the company's AdSense Program accounted for roughly 10% of its overall economic contribution. The revised analysis, in the current report, found that Google's (over)estimate of the impact of the AdSense program was ten times the value of its actual economic contribution. Google's inclusion of donations from nonprofits (less than 1% of Google's estimated total contribution) was unjustified since those donations represent redistributions of some of Google's profit margins and do not reflect additional economic activity.

Introduction

In May of this year, Google announced that the company was responsible for creating \$64 billion in U.S. economic activity during 2010. The year before, Google's first economic impact report received overwhelmingly favorable coverage nationwide in traditional and Internet media outlets and can only be characterized as a public relations triumph. When it released that report, Google stated: "we're announcing that in 2009 we generated a total of \$54 billion of economic activity for American businesses, website publishers and non-profits."²

The purpose of this paper is to examine the credibility of Google's claims and determine the extent to which they reflect economic reality. Surprisingly, the company's claims about its economic contributions have largely been taken at face value and have not been subjected to a comprehensive analysis. This analysis attempts to begin to fill that gap.³

The main conclusion of the comprehensive analysis of Google's claims is that Google's economic impact reports are based on multiple inaccurate assumptions, are inconsistent with common sense, economic theory and previous economic research findings, and fail to consider critical factors that affect the company's contribution to the U.S. economy. These shortcomings lead to massive overestimates of the company's economic benefits. In particular, a conservative analysis found the company's inflated estimate of the economic contribution of its search engine to be at least 100 times as great as the actual value. Additionally, the company's dominance and market power in the search engine arena, which Google fails to consider, could well mean that its overall net impact on the economy is negative. Regardless of the exact level of benefit, however, the more-important, inescapable conclusions of this paper are that Google's economic impact reports cannot be trusted and have grossly misled the public, policy makers, advertisers, and news media about the company's economic contribution.

Roadmap for the Report

The overall approach used by Google in its economic impact reports is described in the next section. Then, fundamental flaws in Google's methodology related to the company's inappropriate attempt to take credit for all revenues associated with search engine clicks are revealed and their implications are examined. Four subsequent sections examine the validity of each of the explicit assumptions built into Google's economic impact model. A key implicit assumption of the model regarding the relationship between advertising

² <http://googleblog.blogspot.com/2010/05/googles-us-economic-impact.html>

³ This economic analysis was commissioned by FairSearch.org. The author, Allen Rosenfeld, Ph.D. and Senior Vice President at M+R Strategic Services, retained complete editorial control over his research findings and conclusions, and the opinions expressed are his own.

spending and economic activity is also scrutinized and compared with findings in the economic literature.

Based on revisions to numerous critical assumptions embodied in Google's approach, the company's own model is used to assess the credibility of its estimate of the economic benefits of its search engine and its AdSense program. Also examined is the potential impact on the bottom lines of online advertisers resulting from the company's price discrimination practices and dominance of the U.S. search engine market. In addition, publicly available financial data illustrating the company's super-normal financial performance are presented.

Google's Overall Approach to Estimating the Company's Economic Contribution

Google's estimates are derived from its consideration of four types of company activities:

1) advertisers' sales revenues associated with paid ads⁴ that appear on search engine results pages (SERPs) via Google's AdWords program; 2) sales revenues of advertising companies associated with free links⁵ produced for consumers on Google's SERPs; 3) payments made by Google to website publishers for paid ads placed by Google on those websites next to their content; and 4) financial contributions made by Google to U.S. nonprofit organizations.

Paid Search Engine Advertisements

When a consumer types in search terms and receives search results from Google, a significant portion of the screen is comprised of a list of ads and hyperlinks that will take the searcher to the web sites of companies that have paid for advertisements on the search engine as part of Google's AdWords program. The order in which the paid ads appear on the page is determined by the bids entered by prospective advertisers for those search terms in a 'blind' auction⁶ and the expected likelihood that each bidder's ad will generate a positive response from the consumer in the form of a click through to advertisers' web sites. In its reports, Google offers estimates of the benefits that clicks on these ads offer paid advertisers.

⁴ Paid ads are also known as "sponsored" ads.

⁵ Free links are also known as "nonsponsored," "organic," "algorithmic," or "unpaid" links.

⁶ In the economic literature, these methods are described as variants of generalized second price auctions. An advertiser that Google places at the top of the list – the most desirable spot on the page – pays a slight increment above the bid of the second place-finishing advertiser for those search terms. This type of auction supplanted earlier non-blind approaches used by the major search engines, resulting in greater stability for the search engines. (See, for example: Edelman, Benjamin, M. Ostrovsky and Schwarz, M. "Internet Advertising and the Generalized Second Price Auction: Selling Billions of Dollars of Keywords," October, 2005. <http://faculty-gsb.stanford.edu/ostrovsky/papers/gsp.pdf>)

Nonsponsored Search Engine Links

In addition to the clicks obtained by paying advertisers via the AdWords program, firms listed in the nonsponsored sections on the left-hand half of the SERP also receive free clicks to their websites. In its reports, Google offers its estimates of the value of clicks on its advertisers' nonsponsored links that appear on Google's SERPs. According to Google, the bulk of the benefits to online businesses from its search engine are the result of these free clicks.

AdSense Payments to Google Network Members

Google included in its economic impact calculations the amount of money that it distributed to entities that are part of its website network from advertising revenues generated by Google's AdSense program. Advertisers pay fees to Google to arrange for placement of their ads on network members' websites. Google returns just over half of those fees to network members. In 2009 and 2010, Google paid network members \$5.3 billion and \$6.2 billion respectively.⁷

Contributions to Nonprofits

Google also included the company's annual contributions to nonprofit organizations in its calculations of economic impacts. This is, by far, the smallest portion of the total impacts derived by Google. Although Google does not report a national total for these contributions, examination of the state data reported by Google indicate that these contributions are a miniscule proportion of the total economic impact estimated by the company. For example, in Connecticut, California (Google's home state), Florida and Wisconsin, the contributions to nonprofits were equal to 0.2%, 0.2%, 0.1%, and 0.1%, respectively, of the sum of Google's estimates of the impact of AdWords, AdSense distributions, and clicks on nonsponsored search engine links.

Google's Search Engine Impact Is the Main Focus of This Study

According to Google's economic impact reports, roughly 90% of the economic impacts claimed by Google originate from clicks on paid and organic links on its SERPs. The rest of the impacts identified by Google represent the amount of AdSense revenue distributions to network partners and donations to select nonprofit organizations. This study is focused primarily on analyzing Google's model and estimates of the total economic contribution of its search engine. The outcomes of that analysis are also applied to the company's claims about the economic benefits of its AdSense program.

⁷ Google 2010 Annual Report. <http://biz.yahoo.com/e/110211/goog10-k.html>

Introduction to a Fundamental Flaw in Google's Approach: *Taking Credit for Far More than Its Share of Economic Activity*

Google's Approach

The cornerstone of Google's approach is the assumption that the company can take credit for all sales revenue associated with clicks on paid and organic links on its SERP. In this section of this paper, the overall validity of that assumption is called into question, leading to a conclusion that Google has taken credit for economic activity that was largely not of its own making.

In its economic impacts model, Google starts with the assumption that it can take full credit for all of the \$2 in sales revenue that it believes is generated from a \$1 AdWords expenditure by an advertiser. Google also used that same assumption to estimate the economic benefits of clicks on nonsponsored links for which it could take credit. (See the box in the next section of this study for details about Google's model and its assumptions.)⁸ In both instances, Google attributes all revenues and surpluses generated by the ads, for Internet businesses, to its search engine. The upshot of this claim is that no other factors or economic actors are assumed to contribute to the completion of the sales transaction.

Application of Common Sense and Economic Logic

But how much of the revenue from each sale that is associated with a click on a Google SERP can reasonably be attributed directly to Google?⁹ Common sense and economic logic suggest strongly that Google is just one cog in a multi-layered, national sales-generating machine and can therefore take credit for only a small portion of the sales revenue associated with clicks on its SERPs.

First of all, by the time consumers come to a search engine and click on links for a particular product or products, they are already far down the road toward making a purchase. Search engines are often the last step in the process of connecting consumers with products and services and, ultimately, with the particular providers of those products and services. Consumers who come to Google, Yahoo, or Bing, for example, in search of information about products or services that eventually leads to clicks on commercial

⁸ According to Google's formula, the benefits provided by Google to an AdWords advertiser equal the advertiser's revenue from the click-generated sale minus the cost to the advertiser of placing the ads via AdWords. In Google's equation, this equals $((2)(\text{spending}) - (1)(\text{spending}))$. For nonsponsored clicks that result in a sale, Google stated that the economic benefits attributable to the company are equal to 3.5 times the value of the spending for paid ads. In this case, according to Google, $(3.5)(\text{spending}) = (0.7)(5)(\text{spending})$, where 5 equals the ratio of organic to paid clicks and 0.7 is a coefficient used to capture the fact that the value of each organic click is less than the value of each click on a paid ad.

⁹ As is shown in a subsequent section, Google merely states this assumption without justifying it.

website links, are already fairly far down the road toward an eventual purchase.¹⁰ As a result, search engines are mostly about determining which businesses' products or service will be purchased from among a wide array of competing products and services.

In short, paid ads and organic links on SERPs are mostly not about increasing the consumer spending pie or the sales revenues that are available to online advertisers. Rather, they determine how the consumer-spending pie, which has already largely been determined, will be divided among competing online businesses whose paid and/or organic links appears on SERPs. With or without Google, virtually the same amount of economic activity would occur.¹¹

Viewed another way, Google is just one of many economic actors and activities that determine the level of online sales associated with SERP clicks. Large online businesses, for example, expend substantial resources to set the stage for capturing their share of the online retail market via paid and organic clicks on search engines. Among other things, online businesses have: 1) invested heavily in the research and development of product and service quality characteristics that will appeal to consumers that visit Google's search engine; 2) developed strong brands that attract Google visitors to their paid ads; 3) laid the groundwork for Google-facilitated sales transactions through long-and short-term advertising campaigns for their specific products and services via other advertising media; 4) invested in or hired sophisticated delivery systems to ensure that products get to customers in a timely and cost-effective fashion, often offering shipping discounts; 5) invested heavily in interactive websites that enable Internet sales transactions to be consummated; and 6) hired consultants and staff to ensure that they get the biggest bang for their AdWords buck and optimize consumers' organic searches.

Thanks to these actions by Google's search engine advertisers, many customers come to Google ready to make a transaction and having a good idea of what they'd like to buy. They are then able to be drawn to one competing online business versus another as a result of paid and organic search engine links. Given these realities, common sense and economic logic dictate that all of the sales revenue associated with paid and nonsponsored clicks on Google's SERPs cannot be credibly attributed to just one of the economic actors in the economic drama – in this case, Google.

¹⁰ Paid search advertising.....is purely responsive. Search-based advertising simply seeks to match buyers and sellers....." Paid Search Advertising: How Google Changes the Economics of Marketing," Sales Analytic Ltd. 2004.

¹¹ See the section below on Google's sixth assumption for further discussion and the use of the empirical economic literature to quantify the relationship between advertising spending and consumption in the U.S.

A Potential for a Significant Impact That Is Unlikely to Be Realized

Google could, however, make a valid claim that its search engine deserves credit for online sales revenues associated with clicks on its SERPs, if its unique services reduced the cost of advertising for businesses, allowing them to either increase their margins or reduce the prices of their products. The potential cost reductions and any sales increases associated with resulting retail product and service price reductions made possible by those increases in efficiency would be attributed to Google's presence in the search engine market.

Two factors, however, suggest that the real-world efficiency enhancement impacts are likely to be very small relative to Google's economic impact claims. First, cost reductions will be only a small percentage of the price of the product and any sales increases that result from advertisers' product price cuts will also be small relative to the sales baseline. Price cuts may not even occur if advertisers' surpluses are small due to price discrimination used in search engine ad auctions. Second, if Google's dominance means its market power is wielded in the interest of extracting more of the advertisers' surplus than would occur in a more-competitive market, potential cost-savings from technical efficiencies associated with search engines would likely be reduced greatly or eliminated altogether.¹²

Analysis of the Assumptions Underlying Google's Estimates

The next six sections of this study examine the explicit and implicit assumptions underlying Google's economic impact model of its search engine business to determine the extent to which Google's estimates conform to economic reality. The analysis shows that the incorrect assumptions about the values of parameters and variables in Google's economic model lead to enormous overestimates of economic benefits. Improved assumptions are incorporated here into Google's model, resulting in estimates of the contribution of its search engine that are only minute percentages of the values of the estimates released by Google.

The analysis begins with the four explicit assumptions made by Google in its analysis of the economic impacts of sponsored and nonsponsored clicks. These assumptions are available on Google's economic impacts website and are presented verbatim in the box below.

¹² See the next to last section of the paper for a more-detailed look at the question of Google's market power.

Explicit Assumptions Made by Google in Estimating the Economic Benefits of Its Search Engine Results Pages

1. “Businesses generally make an average of \$2 in revenue for every \$1 they spend on AdWords—that’s \$1 profit.”

2. “Businesses overall receive an average of 5 clicks on their search results for every 1 click on their ads.”

3. “If search clicks brought in as much revenue for businesses as ad clicks, these two assumptions would imply that businesses receive \$11 in profit for every \$1 they spend on AdWords.”

(“This is because, if advertisers receive 2 times as much value from AdWords as they spend on AdWords, and they receive 5 times as much value from Google Search as they do from AdWords, then the total profit they receive is 11 times what they spend or $2(\text{spend}) + 5 \times 2(\text{spend}) - (\text{spend}) = 11(\text{spend})$.”)

4. “Clicks through search results may not be as commercially valuable as ad clicks, so we want to be conservative: we estimate that search clicks are about 70% as valuable as ad clicks. This means advertisers overall receive 8 times the profit that they spend on AdWords, or $2(\text{spend}) + .7 \times 5 \times 2(\text{spend}) - (\text{spend}) = 8(\text{spend})$.”

Source: Google 2009 Economic Impact/Where We Get the Numbers.

<http://www.google.com/economicimpact/methodology.html>

Explicit Assumption 1: AdWords Creates \$1 Profit for Every \$1 Spending

Profit vs. Surplus

Google states that, “businesses make an average of \$2 in revenue for every \$1 they spend on AdWords – that’s \$1 profit.” This initial assumption overstates the difference between the revenues generated by clicks and the total cost to an advertiser of using AdWords.

Google’s own chief economist wrote in a 2009 journal article, that the difference between revenue and ad cost (i.e., “surplus”) is significantly greater than profit.¹³

Advertisers can incur substantial costs to engage in search engine advertising, including: hiring staff and/or consultants to manage the effort; the cost of designing the ads; purchases of software to assist in the auctions; and accounting for part of the cost of designing, producing and managing the website, to which searchers on Google’s website will be driven. Costs will vary, depending on the level of engagement by the advertiser.

¹³ See: Varian, Hal. “Online Ad Auctions,” American Economic Review: Papers and Proceedings 2009: 99:2, pp. 430-434. (Varian: “We call this expression ‘surplus’ rather than “profit” since profit would generally include fixed costs.”)

A study that compared online and brick and mortar book companies discovered that for online book companies spending on product and website development averaged 10% of sales and general administrative costs averaged 5% of sales.¹⁴ Although all companies that advertise on the Internet are not purely Internet-based companies, this data for online-only companies provides a working estimate of fixed costs for companies purchasing search engine ads. Since some of these fixed costs should be allocated to non-search engine online advertising, for the purposes of this paper, it is assumed that fixed costs for paid search ads are equal to 10% of sales revenues, rather than the 15% found in the study of online book retailers. That is the equivalent of 20 cents in fixed costs for every \$2 of sales revenue from paid search clicks. As a result, the advertiser's surplus in Google's formula would be reduced from the \$1, claimed by Google, to 80 cents for every \$2 of sales.¹⁵

The 2-for-1 Relationship between AdWords Spending and Sales Revenue

Since Google determined the relationship between the average revenue per click and cost of a click on AdWords from proprietary data (i.e., \$2 revenue for each \$1 spent on AdWords), that assumption cannot be examined.¹⁶ This is unfortunate and troubling since the \$2-revenue-per-\$1 spending relationship is used by Google throughout its calculations of the economic impacts of sponsored and nonsponsored search engine clicks. Any slight change in that relationship will have substantial impacts on the outcome of the calculations made by Google. At a minimum, Google should have provided the data underlying its assumption to a credible, independent source for verification. Given the high stakes and the way the company is using its report to try to enhance its image, this 'trust, but don't verify' approach is questionable at best.¹⁷

Explicit Assumption 2: For Every Paid Ad Click, 5 Clicks on Unpaid Links Occur

In its economic impact reports, Google assumed that for every one sponsored click, Google's search engine generates 5 times that number of free clicks. Google based this ratio on the findings reported in a 2009 journal article that studied customer click-through behavior for a 2006 sample of searches on the Dogpile search engine website.¹⁸ One

¹⁴ Matcovich, Simon and Howard Smith. "Pricing, Sunk Costs and Market Structure Online: Evidence from Book Retailing," *Oxford Review of Economic Policy*. Vol. 17, No. 2, 2002.

¹⁵ Eighty cents is derived from (\$2-\$1.20), in contrast to the (\$2-\$1) calculation made by Google in the absence of fixed costs..

¹⁶ Although Google refers to a journal article by its economist, Hal Varian, as a source of information about the 2-for-1 relationship, the article reveals precious little about how that ratio was determined.

¹⁷ The credibility of this 2-for-1 relationship is questioned on separate grounds in the section below on "Google's Implicit, Unjustified Assumption...". At this stage of the study, however, Google's lack of transparency prevents this explicit assumption from being examined in detail.

¹⁸ Jansen, Bernard and Spink, Amanda. "Investigating Customer Click Through Behavior with Integrated Sponsored and Nonsponsored Results," *International Journal of Internet Marketing and Advertising*. Vol. 5, Nos. 1/2, 2009.

problem with Google's reliance on the 2009 paper is that the use of Dogpile, which compiles and reports search results from multiple search engines, is likely to produce an overestimate of the consumer bias in favor of organic listings and against clicks on paid listings.¹⁹

The authors of the 2009 paper, Jansen and Spink, recognized in their article that their finding of the bias in favor of nonsponsored clicks was nearly twice as large as the 7-to-3 bias²⁰ for search engines reported in previous studies, including one by Jansen, and the trade press. That difference can be explained in large part by the difference between the SERPs of Google and Dogpile.

Unlike Google, Dogpile reports both free and paid links in a single long list on its SERPs. As a result, paid listings do not enjoy the same prominence on Dogpile's search reports as they do on Google's SERPs. Rather than be assigned a space in a separate, highly visible location on the right-hand side of the search report, they are buried within the list of 'nonsponsored' websites and are forced into lower positions on the page than they would be if they were reported on Google SERPs.

The location of the links on SERPs matters and is valued accordingly. Higher slots command more-expensive the costs-per-click on Google's site. Consequently, this dispersion of paid ads pages will reduce the likelihood of a Dogpile paid ads being clicked relative to the placement of the ad in a nonintegrated Google SERPs.²¹

In the final analysis, the fact that the top search engines featuring paid ads have not adopted Dogpile's model is compelling evidence of the relative bias against sponsored ads that results from Dogpile's integrated approach. The upshot is that research based on clicks observed on Dogpile, such as 2009 study by Jansen and Spinks, will produce an overestimate of the ratio of nonsponsored clicks to sponsored clicks that actually occur on Google.

¹⁹ The stated objective of the 2009 paper referenced by Google was to: "Investigate the click through rate of searchers when the combined sponsored and nonsponsored links are presented in a single listing on the SERP" [italics added for emphasis].

²⁰ Jansen also found, in a previous study, a weaker bias against sponsored links. Study participants clicked on the organics links 70% of the time. Jansen, Bernard and Resnick, M. "An examination of searchers' perceptions of non-sponsored and sponsored links during ecommerce Web searching," *Journal of the American Society of Information Science and Technology*. Vol. 57, 2006.

²¹ Jansen and Spink, noted that a previous study done in 2004 showed that, "The higher the link's placement in the results listing, the more likely a web searcher is to select that link. The study reported similar results with nonsponsored listings. Generally, the difference between the first position and the tenth position is a 20%–30% drop in click through (*i.e.*, customers visiting the website by clicking on a link on the SERP) for the listing. In a related study, Brooks (2004b) reported that the conversion rate (*i.e.*, customers that actually bought something) dropped nearly 90% between the first and tenth position. There appears to be an intrinsic trust value associated with the rank of a listing as presented by the web search engine."

To account for the overestimate of the clicking bias against paid search ads, Google's estimate of the economic impact of its SERPs should be adjusted downward to reflect the reduction in the organic-to-paid-ad click ratio from 5-to-1 to 2.33-to-1.²² The actual ratio is likely to be smaller than 2.33-to-1 since the Jansen and Spink study was based on a sample of Dogpile searches conducted in 2006. During the last couple of years, however, paid links have taken up an increasing percentage of the space on the front page of the SERPs, pushing nonsponsored links to lower-impact pages of the SERPs. The 2.33-to-1 ratio, therefore, should represent a very conservative estimate.

Explicit Assumption 3: *Unpaid Search Clicks Lead to Sales 70% as Often as Paid Clicks*

In its report, Google tried to account for the fact that clicks on free links may not lead to as many actual purchases from websites as clicks on paid links, stating that "clicks through search [i.e., free] results may not be as commercially valuable as ad clicks." To cover that possibility, Google multiplied expected revenues from unpaid search engine links by 70%. However, in the report, Google never justified the choice of the 70% multiplier for adjusting downward the expected frequency with which organic clicks would lead to sales. It simply declared that it was reducing expected sales from organic search clicks by 70% in the interest of providing a conservative estimate.

As it turns out, Google's choice of the 70% multiplier appears to be far from conservative. Results from a 2008 New York University (NYU) study of Google search engine activity call this choice into question.²³ In that study, the researchers determined conversion rates (i.e., the percent of clicks on links that resulted in sales) for both organic links and paid ads on SERPs. They found that the conversion rate of clicks into sales for organic links was only 51% of the conversion rate for paid ads, not 70%. Application of that finding to Google's economic benefits equation results in an additional reduction of the value of organic search clicks to businesses by about 30%.

Explicit Assumption 4:

Sales from Free Clicks Bring in As Much Revenue as Sales from Paid Clicks

Google, in its reports, assumed that clicks on unpaid links on its SERPs generated the same amount of revenue as clicks on paid ads without providing any justification for that assumption. The NYU study calls into question Google's assumption about the relative revenue-generating power of paid and organic clicks. They found that, "....the mean order

²² The 2.33 multiplier replaces 5.00 since it reflects the 70% bias toward organic search discussed above. A 70%-to-30% ratio is equivalent to a 7-to-3 ratio, which is the same as a 2.33-to-1 ratio.

²³ Ghose, Anindya and Yang, S. "Comparing Performance Metrics in Organic Search with Sponsored Search Advertising," *Proceedings of the 2nd International Workshop on Data Mining and Audience Intelligence for Advertising*. 2008.

value and profit from paid search advertisements was much higher than that from natural [i.e., organic] search listings.”²⁴ Order values for organic searches, in terms of average product prices, were only 15% as large as order values from clicks on sponsored links.²⁵ This empirical finding contrasts sharply with Google’s assumption that revenues from sales associated with clicks on organic links are 100% as large as revenues from sales associated with clicks on sponsored links.

Google’s Unstated Assumption of Zero Costs for Organic Search to Online Companies

Google’s economic impact model includes both the revenues and costs associated with *sponsored* ads.²⁶ The portion of its formula that captures the impact of organic searches on companies with unsponsored links, however, ignores the costs of such searches to those companies.

These costs are not inconsequential. One study of spending for search engine marketing estimated that spending for organic search engine optimization (SEO), which is designed to maximize the impact of companies’ organic search links, represented 18% of total spending on search engine marketing.²⁷ Since SEO expenses and the cost of paid search ads represent nearly all of search engine marketing expenditures, SEO expenses will equal roughly 25% of paid search ad expenditures.

Google’s Assumption about Advertising’s Contribution to Online Sales: *A Revision Based on a Recent Empirical Economic Study*

Background

In the section above on the “Fundamental Flaw in Google’s Approach,” a case was made that, based on economic logic, Google should not take credit for most of the revenue associated with clicks on its SERPs. The current section of this paper advances that argument by incorporating into the analysis the economic literature on the relationship between advertising spending and consumption in the U.S. and providing a revised estimate of the empirical relationship between AdWords spending and advertisers’ sales revenues.

For the past three decades, economists have debated both the extent to which advertising, *ceteris paribus*, affects national consumption and economic growth as well as the direction of causality in the relationship between advertising and the economy. While a significant

²⁴ Ghose, Anindya and Yang, S. 2008

²⁵ The NYU study reported that the “logs of order values” for organic and paid searches were equal to 0.37 and 1.18, respectively or 2.34 and 15.14 when converted out of log form.

²⁶ From the box above, Google attempts to capture the advertiser’s surplus in terms of: $(2)(\text{spend}) - (\text{spend})$, where spend represents the direct cost to the advertiser

²⁷ Ghose, Anindya and Yang, S. 2008

body of research has shown that advertising expenditures and economic activity tend to move together, numerous researchers, based on economic theory and their empirical research findings, have found that economic growth drives increases in advertising expenditure rather than vice versa, implying that the impact of advertising is quite small.²⁸

It is widely recognized in the economic literature that advertising is one of a number of factors that can affect consumption of goods and services at both the household and aggregate levels. Some of the other factors that have been incorporated into empirical and theoretical models include income, wealth, credit, price levels, and expectations about the future. To separate the contribution of search engine advertising spending to online sales from the impacts of those other explanatory variables, findings from a 2009 economic study are applied to the current analysis.

The study, which used a time series model of the U.S. economy, determined that consumption in the U.S. is 8.2% higher as a result of advertising than it would be if U.S. firms did not advertise their products.²⁹ In 2009, the federal government reported that total retail and food service sales equaled \$4.09 trillion.³⁰ Based on the results of the study, advertising would account for 8.2% of that total, or \$336 billion in sales. Total U.S. spending on advertising in 2009 was estimated to be \$257 billion.³¹ According to the results of the 2009 study, then, the ratio of consumption to advertising would be (336/257) or 1.30-to-1.

Based on the discussion in the section about Google's claim of far more than its share of the credit for sales revenues, this 1.30-to-1 ratio is likely to be an overestimate of the impact of Google's search engine on sales revenues. The economic study upon which that estimate was based, included all advertising, which is likely to have a somewhat greater impact on

²⁸ For a succinct summary of that debate, see Picard, Robert, R. van der Wurff and P. Bakker. "Economic Growth and Advertising Expenditures in Different Media in Different Countries," *Journal of Media Economics*. 21:28, 2008.

²⁹ "Advertising, Labor Supply and the Aggregate Economy," *Working Papers*. 10.09, Universidad Pablo de Olavide, Department of Economics. November, 2009.

³⁰ Retail consumption data was drawn from: U.S. Census Bureau. "Estimated Annual Sales of U.S. Retail and Food Services Firms by Kind of Business: 1998 Through 2009." <http://www2.census.gov/retail/releases/current/arts/sales.pdf>

³¹ Kirchhoff, Suzanne. *Advertising Industry in the Digital Age*; November 9, 2009. "U.S. Advertising Expenditure Data." <http://purplemotes.net/2008/09/14/us-advertising-expenditure-data/>; "Nielsen Reports U.S. 2008 Ad Spend Down 2.6%," *Nielsen Wire*. March 2009. <http://blog.nielsen.com/nielsenwire/consumer/nielsen-reports-2008-us-ad-spend-down-26/>; "U.S. Ad Spend Falls Nine Percent in 2010," Nielsen says," *Nielsen Wire*. February 2010. <http://blog.nielsen.com/nielsenwire/consumer/u-s-ad-spend-falls-nine-percent-in-2009-nielsen-says/>; Hoffman, Katie. "U.S. Advertising Rose 6.5% in 2010 Group Says," March 2011. <http://www.bloomberg.com/news/2011-03-17/u-s-advertising-spending-rose-6-5-in-2010-led-by-television-internet.html>; The Nielsen Company. "Global Advertising Rebounded 10.6% in 2010," Press Release. April 2011. <http://www.nielsen.com/us/en/insights/press-room/2011/global-advertising-rebound-2010.html>

consumption than only search engine ads. To take a conservative approach to Google's Economic Impact report, however, the 1.30-to-1 ratio is applied to Google's model. In 2009, therefore, for every \$1 in advertising spending, only \$1.30 in sales revenue would be generated, rather than the \$2.00 assumed by Google in its reports.³²

A Revised Model of the Economic Impact of Google's Search Engine

A new, basic model can be developed that reflects the revisions of Google's assumptions made in the previous sections. The new equation reflects the following adjustments:

- Explicit Assumption 1 – the advertisers' surplus is less than \$1 for every \$1 spent on AdWords since the cost of search advertising must also account for fixed costs, resulting in costs equal to (1.20)(spending), rather than (1)(spending) assumed by Google;
- Explicit Assumption 2 – for every 3 clicks on paid ads, businesses get 7 clicks on unpaid links, rather than 5 unpaid clicks for each paid click as assumed by Google;
- Explicit Assumption 3 – the conversion rate of clicks into sales for organic links is only 51% of the conversion rate for paid ads, not 70% as assumed by Google; and
- Explicit Assumption 4 – sales from free clicks result in only 15% as much revenue as sales from paid clicks, rather than the same revenue as assumed by Google;
- Implicit Assumption 1 – a cost to businesses, for optimizing organic search links, of 25 cents for every dollar spent on paid search ads replaces the zero cost assumed by Google.
- Implicit Assumption 2- the contribution of search engine advertising to revenue is estimated to be \$1.30 per \$1.00 of ad spending, rather than \$2 for each dollar of ad spending as assumed by Google.

These revised assumptions can be used to produce an adjusted model that will indicate the extent to which Google has overestimated the economic contribution of its search engine.

In the adjusted model, based on the revised assumptions, the economic impact of Google's search engine =

AdWords sales revenue attributable to Google – (AdWords payments to Google + retailer fixed costs associated for search advertising) + (Organic search revenue attributable to Google – organic search costs).

³² In 2010, advertising spending rose to \$272 billion and retail spending increased to \$4.36 trillion, yielding a consumption-to-advertising ratio of 1.32-to-1.

Inserting values of those variables that reflect the corrected assumptions yields the following equation:

economic impact of Google's search engine =

$$(1.3)(\text{AdWords spending}) - (1.2)(\text{AdWords spending}) + \\ (1.3)(2.33)(.51)(.15)(\text{AdWords spending})^{33} - (.25)(\text{AdWords spending}) = \\ (.08)(\text{AdWords spending}).$$

The corrected outcome of the economic impact equation is (.08)(AdWords spending), not the (8.0)(spending) outcome used by Google to estimate the economic impacts of its search engine. In other words, the real economic contribution of Google's search engine is only 1% of the contribution estimated by Google.

The results of the revised model of Google's economic impact indicate that Google's analysis of the company's contributions to the U.S. economy cannot be trusted. Once the arbitrary and inaccurate assumptions made by Google to arrive at estimates of its economic contribution are revised, the actual total economic contribution of the company is reduced dramatically to a level that is consistent with common sense, economic logic and the results of research on search engine and Internet markets. As the equation above indicates, Google's inflated estimate of its search engine's economic impact is about 100 times as large as the impact generated by the model that includes the revised assumptions.

Google's Failure to Account for the Impacts of Its Market Dominance

In an earlier section of this paper, the technical potential for search engines to reduce advertising costs was discussed as a means of providing real economic benefits to advertisers for which companies like Google can take credit. The extent to which that technical potential is translated into an economic reality will depend, among other things, on the extent to which competitive forces drive the search engine marketplace. Viewed another way, for Google to provide real benefits to its advertisers and search engine users, it must leave advertisers with a significant share of the economic surplus that is divided between the buyer and the seller of advertising.

This is not a theoretical issue since Google clearly dominates the search engine arena and its advertising market. In May, 65.5% of all searches were conducted through Google's search engine, compared with Yahoo's 15.9% and Microsoft Bing's 14.1%.³⁴ Google's

³³ For this portion of the equation, which captures the economic impact of organic clicks, 2.33, .51 and .15 represent weights used to calculate the value of organic clicks relative to the value of paid ad clicks.

³⁴ "comScore Releases May 2011 Search Engine Rankings," Press Release. June 10, 2011.

[http://www.comscore.com/Press Events/Press Releases/2011/6/comScore Releases May 2011 U.S. Search Engine Rankings](http://www.comscore.com/Press%20Events/Press%20Releases/2011/6/comScore%20Releases%20May%202011%20U.S.%20Search%20Engine%20Rankings)

dominance of spending on search engine advertising is even greater. In the second quarter of 2010, the most-recent period for which data were available, Google accounted for 75.6% of search engine ad spending and 74.9% of search engine clicks.³⁵

A recent large survey of companies that buy paid search ads “highlights Google’s dominance as a search engine, with 97% of companies paying to advertise on Google AdWords. Nearly three-quarters of companies (71%) pay to advertise on the Google search network... In comparison, half of responding companies (50%) use Yahoo! Search. This percentage has dropped from 68% in 2009 and 86% in 2008.”³⁶

Google’s market dominance opens the door for a presumption that the firm can exercise market power at the expense of its advertisers and, ultimately, consumers. If the firm has the power to price its advertising high enough, it can extract virtually all the surplus from its advertisers, leaving them with little of the economic benefits that would be expected to prevail in a highly competitive search engine environment. To shed light on the distribution of surplus among Google and its advertisers, in the sections below, price discrimination in search engine advertising auctions is examined and relevant data on Google’s financial performance, including its margins, are presented.

Advertisers’ Surplus in a Non-Competitive, Price Discriminating Market

As described in a footnote in the introduction section of this paper, search engine advertisement pricing is determined through an auction that sets separate prices for each of the advertisers that bid for locations on SERPs. Instead of charging a single cost-per-click for all advertisers on the page, the cost-per-click of ad slots declines as advertisers’ ads are placed closer to the bottom of the page, leading to a refined form of price discrimination.

Economists now recognize that price discrimination can be practiced by firms under a wide range of market structures, from competitive markets to monopolized industries.³⁷ Competition in markets with price discriminating sellers is expected to result in lower prices and larger surpluses for buyers (e.g., advertisers) than would be available from a price-discriminating monopolist. A 2004 study of price discrimination in yellow pages advertising markets, for example, found that “directories that face more competition offer lower price levels than do less competitive directories.” The addition of the equivalent of

³⁵ Efficient Frontier. *U.S. Search Engine Performance Report: Quarter 2, 2010*.

³⁶ EConsultancy and SEMPCO. *State of Search Engine Marketing Report 2010*. April, 2010
<http://www.sempo.org/resource/resmgr/Docs/State-of-Search-Engine-Marke.pdf>

³⁷ See, for example: Levine, Michael. “Price Discrimination without Market Power,” *Harvard Law School Law-Econ Discussion Paper No. 276*. June 2001.
http://www.law.harvard.edu/programs/olin_center/papers/pdf/276.pdf

one additional competitor resulted in a 6% to 12% reduction in ad prices.³⁸ According to one search engine industry commentary, in an efficient, competitive market, “auctions should result in all players settling for market-normal margins.”³⁹ At the other extreme, a monopoly seller has the ability to use price discrimination to convert all the buyers’ (i.e., consumer) surplus into producer surplus and garner super-normal profits in the process.⁴⁰

Google has the potential to leverage its unique position of dominance in the search engine market, through ad auctions, to extract the highest possible bids from advertisers. The company’s dominance arises due to the fact that the vast majority of searchers – roughly two thirds -- rely on its engine. Advertisers simply cannot afford to miss the opportunity to bid successfully for slots on Google’s search report page. As a result, they are under pressure to bid higher for available AdWords slots than they would have to bid if Google were not such a dominant force in the search engine market. More competition in this marketplace, then, would result in lower auction bids by advertisers, lower average costs per click, higher margins for advertisers, lower prices on products and services for consumers, and a higher level of economic benefits that can be attributed to Google.⁴¹

The difference in average cost per click experienced by Google and Yahoo! advertisers is instructive. In 2009, for example, the four-quarter simple average of Google’s cost per click was roughly 25% higher than the four-quarter simple average cost per click paid to Yahoo!⁴² Given the size of the overall market and Google’s market share, in the aggregate, the higher average price per click paid to Google by its advertisers amounts to billions of dollars in additional annual revenue for Google.

Although the level of competition in the search engine market is not the only factor that can generate a difference in the average cost per click, it is likely to have an important influence. Some commentators observe that Google is more efficient than its competitors as a result of learning effects and economies of scale associated with its sheer volume of

³⁸ Busse, Meghan and Rysman, Marc. “Competition and Price Discrimination in Yellow Pages Advertising,” *Rand Journal of Economics*. Vol. 36, 2005.

http://faculty.haas.berkeley.edu/meghan/Papers/YPPD_March2004.pdf

³⁹ Sales Analytics, Ltd., 2004.

⁴⁰ Price discrimination by a monopolist can result in the same amount of output as a perfectly competitive market without price discrimination. As such, aggregate economic welfare of the society is not reduced as a result of the monopoly since the distribution of surplus among economic stakeholders is not evaluated in that context. In Google’s economic impact reports, however, that distribution of surplus is at the heart of the matter and is affected by the degree of competition in the search engine market.

⁴¹ Depending on the degree of competition among online businesses, lower AdWords prices could translate, in part, into lower retail prices for advertised goods and services.

⁴² Efficient Frontier. *U.S. Search Engine Performance Report: Quarter 1, 2010*.

<http://www.efrontier.com/research/search-engine-report/>

searches and advertisements.⁴³ In a competitive search engine market, however, those efficiencies should result in lower costs for advertisers and lower prices for consumers, rather than super-normal profits for Google. The large size of the cost per click gap, therefore, is difficult to explain without reference to Google's market dominance.

In summary, Google's dominance of the search engine market gives it the potential to leverage price discrimination in a manner that resembles monopoly pricing more than pricing in a competitive market. That dominance enhances the likelihood that each advertiser will purchase ads to the full extent of its willingness to pay, thereby driving its margins down, pushing Google's margins up to super-normal levels, and depriving consumers of much of the economic fruits of its technical efficiency.

Indicators of Google's Profitability and Surplus Extraction

The argument that Google will gain more of a share of available revenues than would occur in a competitive market is not simply a theoretical exercise. Data regarding the company's returns and margins suggest strongly that Google is capitalizing on its dominant market position. Table 1 below presents three years of annual data for Google, Yahoo!, a bundle of Internet companies, and U.S. industry regarding returns on equity (ROE), pre-tax operating margins (PTOM), and net margins (NM).⁴⁴

Table 1. Google's Margins Are Far above Competitors and U.S. Averages

	2007			2008			2009		
	%ROE	%PTOM	%NM	%ROE	%PTOM	%NM	%ROE	%PTOM	%NM
Google	18.5	35.5	25.3	18.8	36	24.3	18.1	27.6	40.4
Yahoo	5.8	20.5	9.1	5.8	20.5	9.1	4.8	17.0	9.4
Internet Cos.	12.3	NA	12.0	12.0	NA	6.5	12.5	NA	12.5
All U.S.	9.9	NA	3.1	15.2	NA	3.4	10.1	NA	10.3

⁴³See, for example: Fern, M. "Will Competition in Search Echo the Browser Wars?" March 5, 2011.

<http://fernstrategy.com/2011/03/05/will-competition-in-search-echo-the-browser-wars/>

⁴⁴ ROE = net annual income divided by the book value of equity. PTOM = revenue minus expenses excluding taxes and interest all divided by revenue. NM = net income divided by revenue. Sources of data: Stern School of Business, New York University; compiled from Value Line.

http://pages.stern.nyu.edu/~adamodar/New_Home_Page/data.html

As the table indicates, Google's returns and margins have far-exceeded those of the competition, the Internet industry average, and the U.S. industry average.⁴⁵ An extremely high market share, when combined with these statistics, points toward a lack of competition. The upshot of these very high margins is likely to be a reduction in the margins of Google's advertisers below what would prevail in a competitive search engine market. To the extent those higher costs are passed on in the form of higher retail prices, the squeeze on advertisers' margins would come at the expense of U.S. consumers.

Google's Inappropriate Use of AdSense Payouts and Donations to Nonprofits

The focus of this report has been primarily on Google's estimate of the economic contribution of its search engine. Although that estimate comprises the overwhelming share of the company's claimed contribution, Google's inclusion of the full value of the company's AdSense payouts and donations to nonprofit organizations as economic contributions also warrants a critical assessment.

Google's estimate of the economic contribution of its AdSense program is vulnerable to the same type of critique that was used to evaluate the validity of Google's claims about the economic impacts of its search engine. In estimating the benefits of AdSense payouts, Google counted the 51% of AdSense spending by advertisers – the amount distributed to its web network partners—as part of Google's economic contribution.

This approach is premised on a gross overestimate of the share of online businesses' sales revenue that can be attributed to Google. Like its AdWords program, the economic contribution of AdSense is only a very small portion of advertisers' spending. To see this, recall that the economic contribution of AdWords was equal to (1.3-1.25)(spending by advertisers) or (0.05)(spending by advertisers). If we assume that the same relationships hold for AdSense advertising, then the economic contribution of Google's AdSense program is only (.05)(spending), rather than the (0.51)(spending by advertisers) claimed by Google.⁴⁶ The claim by Google, therefore, amounts to about a tenfold overestimate of the actual economic contribution of AdSense ads.

⁴⁵Note also that the company maintained its supra-normal financial performance throughout the recent deep recession. For 2010, Google's return on equity was 18.4%, which is consistent with the three previous years result. Google 2010 Annual Report. <http://investor.google.com/proxy.html>

⁴⁶ There is no reason to believe that the economic contribution of AdSense ads would be any greater than AdWords ads. The 1.3 multiplier, for example, reflects primarily the contribution to advertisers' sales revenues from traditional advertising. AdSense advertising is closer to traditional advertising than AdWords advertising.

In addition, donations made by Google to nonprofits do not qualify as a net contribution by Google to the economy. In reality, those donations do not reflect additions to economic activity. They are merely part of the surplus revenues that were absorbed from advertisers, accumulated by Google as super-normal margins, and then redistributed to nonprofit organizations. As such, they should not be included in an estimate of Google's economic impact.

Summary and Conclusions

This study found that Google's economic impact reports for 2009 and 2010 have grossly overestimated the contribution made by the company to the U.S. economy. Google's failure to provide anything close to accurate estimates is largely the result of numerous unjustifiable assumptions regarding key variables in Google's model of the economic contributions made by its search engine.

Those underlying assumptions were reviewed and replaced by alternative, more-credible revisions that are based on economic logic and previous economic research. For virtually all of the six key assumptions underlying Google's economic model, the company offered no research evidence to substantiate those assumptions. Instead, the assumptions were simply stated or incorporated into Google's model without discussion or justification.

Google's inaccurate assumptions, with revisions in parentheses, included:

- Search engine advertisers have zero fixed costs associated with their advertising (fixed costs are estimated to equal 10% of revenues);
- There is a 5-to-1 relationship between unpaid clicks and paid clicks (the ratio was adjusted to 2.33 to 1);
- The conversion rate of clicks into sales for organic links is 70% of the conversion rate for paid ads (the conversion rate for organic clicks was found to be only 51% of the conversion rate for paid clicks);
- Sales from free clicks result in just as much revenue as sales from paid clicks (sales from free clicks result in 15% of the revenue obtained from sales from paid clicks);
- Online businesses incur zero costs for optimizing organic search links (the cost of search engine optimization for organic clicks is equal to 25% of paid ad spending); and
- All \$2 of sales revenue associated with each \$1 of spending by advertisers to purchase AdWords ads can be attributed to Google (the ratio is 1.3-to-1, not 2-to-1).

Reviews of literature concerning search engine markets and the economics of advertising demonstrated that, in each instance, Google's assumptions could not be substantiated and that they lead to enormous overestimates of the economic impact of the company's search engine. Google's estimate of the economic contribution of its search engine is particularly eye-opening since that incorrect estimate was found by the study to be 100 times as large as the value estimated in this report.

In addition, this report found that inaccurate assumptions made by Google about company's AdSense program also contributed to the company's gross overestimate of its economic impact. According to the analysis, Google's estimate of the impact of the AdSense program was ten times the actual economic contribution of the program.

Google's inclusion of donations to nonprofits were unjustified since they are merely redistributions of portions of Google's margins and do not contribute to additional economic activity.

The inevitable conclusion from Google's enormous overestimate of the company's economic impact, and its failure to consider the potential negative impacts on advertisers of the market dominance of its search engine, is that Google's reports suffer from a severe lack of credibility and can only mislead key audiences, such as policy-makers, advertisers, industry analysts, news media, and the general public.

Although search engines and Internet advertisements provide a service by facilitating connections between prospective buyers and sellers, the economic realities of the search engine market minimize the magnitude of the benefits to online businesses that can be attributed to Google. It may well be discovered, when empirical estimates of the cost to advertisers of Google's market dominance and pricing power become available, that the company's overall economic impact is negative and that the potential to harness search engines to drive down economic costs is largely being wasted.