Does Antitrust Have A Role to Play in Regulating Big Data?

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The collection of user data online has seen enormous growth in recent years. Consumers have benefitted from the growth through an increase in free or heavily subsidized services, better quality offerings, and rapid innovation. At the same time, the debate about Big Data, and what it really means for consumers and competition, has grown louder. Many have focused on whether Big Data even presents an antitrust issue, and whether and how harms resulting from Big Data should be analyzed and remedied under the antitrust laws. The academic literature, however, has somewhat lagged behind the debate, and a closer inspection of existing scholarly works reveals a dearth of thorough study of the issue. Commentators generally split into two camps: one in favor of more proactive antitrust enforcement in the Big Data realm, and one opposing such intervention, considering antitrust inappropriate for regulation of Big Data. The academic case for the former has not, as yet, been fully developed, and is relatively light at present. Meanwhile, policy-focused work by academics practitioners in this arena suggests that antitrust intervention in Big Data would be premature and misguided, especially considering the myriad pro-competitive benefits offered by Big Data.

In this chapter, we review the scholarly work on the implications of Big Data on competition, and consider the potential role of antitrust in the regulation of Big Data. Part I provides an overview of current, scarce, academic literature specifically addressing the role of antitrust in Big Data issues. Parts II and III delve into the policy issues surrounding Big Data and whether it poses a risk to competition that warrants antitrust intervention. Part II details the ways in which Big Data may prove pro-competitive while Part III reviews and critiques the suggested potential harms to competition from Big Data. Part IV discusses the suitability of antitrust as the institutional choice for Big Data issues, and Part V concludes that, at present, antitrust is ill suited as the institutional choice. This conclusion is further born by the fact that thus far there have been no cases in the United States or Europe that have found Big Data itself to be a basis for a theory of harm on antitrust grounds for mergers or conduct cases. Further, the scholarly case for such harm has not yet been adequately established.

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1.   **Existing Academic Literature**

A review of the academic literature addressing the intersection of Big Data and antitrust law reveals relatively few articles on the topic.[3] Scholars have yet to conduct an in-depth analysis of *why* Big Data issues are antitrust issues, and if so, *how* they may be best addressed by the antitrust laws as opposed to the consumer protection laws.[4] Work to-date suggests instead that while antitrust and consumer protection laws are complementary, they still comprise distinct areas of law, and consumer protection remains the correct institutional choice to address potential Big Data harms.

Arguably the most comprehensive contribution to the academic debate on the topic of Big Data and competition is the work by Ohlhausen and Okuliar (2015). Ohlhausen and Okuliar present a three-part framework for analyzing Big Data concerns. First, they focus on the character of the harm – whether it is commercial, personal or otherwise. They conclude that where there is harm to consumer welfare on the whole or to economic efficiency, antitrust should prevail over consumer protection law as a matter of institutional choice. Second, they examine the nature of the relationship between the user and the data collector, and determine that issues arising from the bargain between a firm and an individual consumer are more likely to fall within the realm of consumer protection law than antitrust. Third, they consider the nature of available remedies and their presumed efficiency in resolving particular violations. Ultimately, the authors advise that trying to fit consumer protection concerns within the antitrust framework is "unnecessary," "could lead to confusion and doctrinal issues in antitrust," and would not afford "true gains to consumer protection." (Ohlhausen and Okuliar 2015 at p. 138) Ohlhausen and Okuliar also note four important features of Big Data that caution against an antitrust application over consumer protection law, which are explored in more detail in Part IV below. First, Big Data creates efficiency gains. Second, an antitrust institutional choice would increase subjectivity into antitrust analysis. Third, using antitrust would create opportunities for strategic gaming by firms of the legal system. Finally, Ohlhausen and Okuliar warn that using an antitrust lens may threaten innovation for new products and services.

James Cooper (2013) echoes that antitrust law is an inappropriate tool to regulate Big Data. He writes:

> [E]ven if one were to accept the analogy between enhanced personal
> data collection and prices (or equivalently, lower quality) at face value,
> there is nothing in the antitrust laws to prevent a firm from unilaterally
> engaging in this conduct. Antitrust's longstanding aversion to price

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[3] On online markets generally, see Goldfarb and Tucker (2011); Evans (2009). Much of the two sided online market work traces back to Rochet and Tirole (2002).

[4] For an overall analysis of how economics can better explain empirics in the age of Big Data, see Varian (2014).

> regulation means that a legal monopolist is free to charge whatever
> price the market will bear.

Cooper also suggests that privacy in Big Data as an antitrust concern would raise certain First Amendment issues, as well as muddle the goal of enforcement, thereby introducing unnecessary subjectivity into the analysis, lending itself to Virginia School styled rent seeking in antitrust.

Andres Lerner (2014) argues that claims of Big Data presenting competitive concerns are unsupported by real world evidence. In particular, Lerner argues that in practice the oft-cited "feedback loops" do not have the strong effects with which they are commonly credited. Lerner discusses the procompetitive rationales for collection and use of consumer data online, including the potential for improved services, and the ability of firms to monetize effectively on the paid side so as to provide better services at lower prices or for free. He dismisses the idea that firms' may have the incentive or ability to use data to entrench their dominant position (e.g., user data is non-rivalrous and no one firm controls a significant share of data) citing similar attributes of data as Ohlhausen and Okuliar. Lerner maintains that there is a complete lack of evidence that online markets have "tipped" to dominant firms, due in most part to the differentiated nature of online offerings. He concludes that without strong real-world evidence of anticompetitive effects, aggressive antitrust enforcement would hamper competition and chill innovation, injuring consumer welfare in the process.

Although policy makers have dipped their toe into the antitrust in Big Data debate,[5] antitrust agencies and the courts have not found a Big Data competition problem. In fact, that the FTC and DG Competition have thoroughly considered Big Data as an antitrust problem and completely dismissed it. The agencies in the United States and Europe have moved cautiously so far, which is not only proper, but also serves as a reminder that the distinct issues addressed by antitrust and consumer protection law, and the solutions that may be applied by each set of laws to prohibited behavior, are distinct for good reason, and are complements rather than substitutes (Muris and Zepeda 2012; Averitt and Lande 1997).

2.   **Can Big Data Lead to Pro-Competitive Benefits?**

Unprecedented consumer benefits have already been realized through the use of Big Data, chief among them free user services (as a number of the merger cases have noted), improved quality, and a rapid increase in innovation. Furthermore, fears surrounding Big Data and its use by large online firms are unwarranted, as the economic traits of Big Data ameliorate concerns that such data can be manipulated for anticompetitive gains.

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[5] Preliminary Opinion of the European Data Protection Supervisor, Privacy and competitiveness in the age of big data: The interplay between data protection, competition law and consumer protection in the Digital Economy, March 2014, available at https://secure.edps.europa.eu/EDPSWEB/webdav/shared/Documents/Consultation/Opinions/2014/14-03- 26_competitition_law_big_data_EN.pdf; Feinstein (2015), Ramirez (2015).

(a)   *Monetization of Data Subsidizes Free Products for Consumers*

Perhaps the most obvious and pervasive benefit to be realized in the Big Data era has been the ability of firms to offer heavily subsidized, often free, services to consumers as consumers give those firms permission to monetize consumer data on the other side of their business (Evans and Schmalensee 2014). In a competition law regime where lower prices for consumers are deemed highly desirable, this is undoubtedly a benefit to consumers.

The monetization of the data in the form of targeted advertising sales for antitrust purposes is not suspect or harmful, but rather "economically-rational, profit-maximizing behavior," that results in obvious consumer benefit (Lerner 2015). Were online platforms prevented or restricted from collecting and monetizing consumer data, competition for users would be inhibited, and harm to consumers would result, in the form of higher prices for services. Indeed switching costs are low regarding data and search (Edlin and Harris 2013).[6]

Some criticize the provision of free services, claiming that this makes it more difficult for rivals that cannot initially monetize as effectively to compete with established rivals (Newman 2014), but cases show that. This argument misses the point of antitrust completely – the ability to offer high-quality services to consumers for free is a procompetitive effect of Big Data monetization, not an anticompetitive harm (Evans and Schmalensee 2014). Also, the point is simply untrue – it is not more difficult for new entrants to compete with established rivals.[7]

(b)   *Improved Quality and Enhanced Innovation*

As an input, online firms use data to improve and refine products and services in a number of ways, and to develop brand new innovative product offerings. For example, search engines, both general and niche, can use data to deliver more relevant, high quality search results. By learning from user search queries and clicks, search engines can identify what are the most relevant results for a particular query. "Click-and-query" data, as it is known, is a highly valuable input in delivering high quality search results (Salinger and Levinson 2015). Outside of just relevant results, search engines can use data to provide additional "value-added" services to users. Travel search engines, for instance, can use data to forecast price trends on flights for specific routes. Amazon and multiple other e-commerce sites use past purchase information and browsing history to make personalized shopping recommendations for users (Goldfarb 2012). Social networking platforms use data collected from users to suggest friends, celebrity or business pages, or articles that customers might be interested in. Online media outlets use browsing history and personal information to recommend other articles that a reader may be interested in.

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[6] See also Case COMP/M.7217, Facebook/WhatsApp, which noted data sets should not have an impact in a market for online advertising because there are so many different sources of user data available on the web.

[7] Id.

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(c) *Economic Characteristics of Big Data Protect Against Competitive Harm*

In addition to the affirmative pro-competitive benefits of Big Data expounded above, the economics of how Big Data works, as described below, damages claims that it should be feared, or reined in by antitrust. Additionally, the unique economic characteristics of data mean that its accumulation does not, by itself, create a barrier to entry, and does not automatically endow a firm with either the incentive or the ability to foreclose rivals, expand or sustain its own monopoly, or harm competition in other ways (Lambert and Tucker 2015). Lambrecht and Tucker explain that "For there to be a sustainable competitive advantage, the firm's rivals must be unable to realistically duplicate the benefits of the strategy or input." As we suggest below, both theory and actual cases support a finding that the characteristics of data are such that rivals cannot be foreclosed from replicating the benefits of Big Data enjoyed by larger online firms, and Big Data in the hands of large firms does not necessarily pose a significant antitrust risk.

(i) Low Barriers to Entry

Data driven markets are typically characterized by low entry barriers, as evidenced by innovative challengers emerging rapidly and displacing established firms with much greater data resources than themselves (Tucker and Welford 2014). While the existence or lack thereof of barriers to entry can, and will, differ from market to market, and a blanket determination cannot be made in the abstract, the history of the digital economy offers many examples, like Slack, Facebook, Snapchat, and Tinder, where a simple insight into customer needs enabled entry and rapid success despite established network effects.

The data requirements of new competitors are far more modest and qualitatively different than that of more established firms. Little, if any, user data is required as a starting point for most online services. Instead, firms may enter with innovative new products that skillfully address customer needs, and quickly collect data from users, which can then be used towards further product improvement and success. As such, new entrants are unlikely to be at a significant competitive disadvantage relative to incumbents in terms of data collection or analysis (Tucker and Welford 2014).

And, while a firm that has been operational for ten years may have a larger data store, lack of asset equivalence has never been a sufficient basis to define a barrier to entry in any cases as of yet. In brick and mortar retail, a new entrant may have a smaller showroom than an established competitor, but this does not render the need for a physical store location an insurmountable barrier to entry. Indeed, an established bricks and mortar store could have much more data on local customer preferences, but that has never been viewed as prohibitive to entry.

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(ii)   Data is Ubiquitous, Inexpensive, and Easy to Collect

Data is ubiquitous, inexpensive, and easy to collect (Tucker 2013). Users are constantly creating data – increased internet and smartphone usage means customers are continuously leaving behind traces of their needs and preferences (Lambrecht and Tucker 2015). Data can be easily and quickly collected from consumers upon launch, and both data and the tools needed to store and analyze it are readily available from numerous third party sources. Big Data has near-zero marginal costs of production and distribution (Shapiro and Varian 1999). There are many alternative sources of data available to firms, reflecting the extent to which customers leave multiple digital footprints on the internet (Lambrecht and Tucker 2015). The fact that data can, therefore, be acquired from third party sources, means that even on the first day of product launch, before any user has interacted with the platform, a provider can already have benefitted from insights into consumer preferences, and designed a platform that can act quickly act as data is collected and processed.

While some argue that the resources and effort expended by companies in pursuit of data is evidence enough that data collection and processing is both "costly" and "time-consuming," (Stucke and Grunes 2015a) it is important to distinguish between the collection of raw data, and the analysis any given firm puts the data through, which is what makes the data valuable. This is the firm's "secret sauce." It is also, incidentally, the part of a firm's Big Data usage that requires the most resources. There is also plenty of off-the-shelf and open source analytics software that could give small firms a head start.

(iii)   Data is Non-Exclusive and Non-Rivalrous

Data is non-exclusive and non-rivalrous. No one firm can, or does, control all of the world's data. Collection of a piece of data by one firm does not occur at the expense of another firm. "Multi-homing" is the norm among internet users – users can, and do, spread their data around the internet, using multiple different providers for multiple different services, or sometimes the same service. While multi-homing, a user shares data with multiple providers.

Big Data has been likened to other inputs as it becomes an increasingly important asset. However, Big Data's non-rivalrous and non-exclusive nature sets it apart from other key inputs. If one provider has a piece of data, another provider is not prevented from collecting that very same piece of data. Similarly, while conceivably one provider could at least theoretically hold all of the world's oil resources, for example, no one provider can amass all available data. Furthermore, incumbent online providers do not have explicit or de facto exclusivity over user data. There are no exclusivity clauses in terms of service with users, and there are no structures (pricing or otherwise) that lock users into sharing their data with only one provider.

(iv)   Data's Value is Short-Lived

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Data has a limited lifespan – old data is not nearly as valuable as new data – and the value of data lessens considerably over time. Additionally, the returns on scale diminish over time. Therefore, any competitive advantage that data provides is fleeting, and entrants are unlikely to be significantly disadvantaged relative to incumbents in terms of data collection and analysis (Chiou and Tucker 2014). The need for fresh, differentiated data means that a firm with a large volume of stale or generalized data does not, necessarily, benefit the holder and disadvantage a potential challenger. Potential competitors do not need to create a data store equivalent to the size of the incumbent; they rather need to devise a strategy to accumulate highly relevant and timely data (Shepp and Wambach 2015).

(v)   Data Alone is Not Enough

Data does not typically provide value on a standalone basis. Mere possession of data alone therefore, even in large volume, does not secure competitive success – that can only be achieved through engineering talent, quality of service, speed of innovation, and attention to consumer needs. As such, the firm with the most data does not necessarily win. Take the online dating application, Tinder, initially launched in September 2012, as an example. Data is of particular value in industries where personalized experience is important, such as online dating. When Tinder launched, it had no access to user data, but nevertheless it became the market leader within a couple of years. Lambrecht and Tucker (2015) explain that even in this highly data driven industry, Tinder succeeded not through reliance on Big Data, but due to the strength of its underlying solution. A simple user interface and a precise attention to consumer needs resulted in massive gains for the new entrant. Similarly, despite facing competition from long established incumbents with access to huge volumes of data, amassed over years of customer service, WhatsApp was able to take on more established messaging and social networks because of its low cost and easy-to-use interface. Examination of these industries leads Lambrecht and Tucker to conclude that to build a sustainable competitive advantage from Big Data, a firm needs to focus on developing both the managerial toolkit and organizational competence that allows them to turn Big Data into value to consumers in previously impossible ways, rather than simply amassing tremendous amounts of data.

(vi)   Highly Differentiated Platforms Need Highly Differentiated Data

Online platforms are highly differentiated, even in the provision of the same type of service, and as each entrant carves out a niche, the most useful data to them differs more and more from the data most useful to their rivals. Consumers are moving towards meeting more precise, niche consumer needs. A consumer looking to book a flight could use Kayak, Expedia, Orbitz, or a multitude of other travel-dedicated search engines. The same is true in internet shopping, online dating, social networking, product and service reviews, and a host of other online markets. In today's online environment, successful firms must carve out their own niche, and increasingly, data that is useful (even crucial) to one firm may not be useful to its competitors (Schepp and Wamback 2015). An astute and innovative entrant will identify a niche where the incumbent does not have requisite data, and can very quickly "catch up" to the incumbent in terms of valuable data amassed.

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3.   **Does Big Data Pose Harm to Competition?**

Although data as a potential antitrust concern is not a particularly new issue, what has changed dramatically in recent years is the size and scope of the data that firms collect, store, and use (Feinstein 2015). With the growth in the amount of data, and the advent of Big Data, the importance of that data as an input in online platforms has also increased. The growing importance of Big Data as an input, and the consistent increase in the 4 Vs of data – volume, velocity, variety, and value (OECD 2013; Executive Office of the President 2014) – has meant that companies are now more than ever undertaking data-driven strategies to gain operational efficiencies (Lambrecht and Tucker 2015), and some argue, to gain and sustain an unfair competitive advantage (Grunes and Stucke 2015a).

This section describes a number of ways in which some have argued that Big Data can be used to perpetuate an unfair competitive advantage and consequently distort competition and harm consumers. These commentators argue that Big Data arms online providers with the incentive and ability to erect barriers to entry and maintain dominance by limiting their competitors' access to data, preventing others from sharing the data, and opposing data-portability policies that threaten data-related competitive advantages (Stucke and Ezrachi 2015; Newman 2015). The resulting harm, according to such critics, is not necessarily higher prices (considering most of these services are provided for free), but rather a loss of quality, innovation, or privacy.

To properly assess the antitrust implications of Big Data, we must understand fully the ways in which online platforms use Big Data and the nature of competition among them. A crucial starting point in this endeavor is a solid understanding of two-sided platforms. A two-sided platform exists when one provider caters to two different customers groups on different sides of the same platform (Evans and Schmalensee 2014). For example, social media platforms give users free access to social networking services on one side of the platform and rely on the provision of advertising services to businesses on the other side of the platform for revenue. A proper antitrust assessment of any two-sided platform must take into account competition on each side of the platform. It is important to recognize that certain actions may cause procompetitive effects for the platform as a whole, while initially appearing anticompetitive on one side of the platform. A comprehensive antitrust analysis cannot look at one side of the platform in a vacuum – it must weigh the benefits and harm to the platform as a whole (Salinger and Levinson 2015).

(a)   *Loss of Quality and Innovation*

While firms with access to troves of Big Data can use it to improve the quality of their products in several ways, a number of practitioners have argued that misuse of Big Data may result in a loss of quality. While the exact parameters of this proposition are open to debate, scale in data is, indisputably, important in improving the quality of online services.

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Smaller firms, the argument goes, often cannot adequately compete with larger firms because they lack access to the same volume of data as the larger firm. As the data gap, and consequently the quality gap, widens between the dominant firm and a smaller rival, the competitive constraint the rival poses to the dominant firm in terms of quality and innovation is diminished. The larger firm, in this scenario, is not driven to innovate or to maximize quality for the consumer.

Stucke and Ezrachi (2015) argue that inequality in access to data can lead to the potential degradation of quality for consumers in search engines in particular. They claim that large search engines have the incentive and ability to prioritize paid advertising over more relevant, better quality, organic search results. On a search engine, more advertisements, displayed more prominently, benefit both the advertiser and the search provider. More ads increase the opportunities for user clicks. This in turn means a greater likelihood of a pay-per-click conversion for the platform provider and a better chance of a product sale for the advertiser. Where this becomes an antitrust problem, Stucke and Ezrachi suggest, is where Big Data has widened the gap between large and small providers to the extent that a smaller provider cannot provide adequate quality competition to prevent its larger rival from sacrificing some degree of search quality in favor of expanding profits on the paid side. The fact that a large search engine has access to so much data, and therefore the ability to improve quality to such a high degree, means it can afford to sacrifice a higher level of search quality than a smaller search engine (who is already struggling on quality due to lower data levels) could. Additionally, the disparity in data volume means that users are generally unable to detect small degradations in quality - they "just know that Google is giving a better result than Bing," but not *how much* better.

In addition to the lack of real world supporting evidence, this theory of harm also begs the question whether incremental degradation in quality by a search provider whose quality is still superior to rivals is an antitrust concern. Does a firm have an obligation to provide the absolute best quality product it can, even if not profit maximizing? No court or antitrust regulator has ever imposed such a requirement. And, in this example, how does a regulator measure the "best quality search results," since quality is relative and users are said to not be able to accurately assess quality?

These questions aside, this loss of quality theory also overlooks the importance of analyzing both sides of the two-sided platform. While no ads at all would certainly improve search quality, it would clearly be very detrimental to advertisers. Increasing ad space might be beneficial to advertisers, but could admittedly lead to search quality degradation for users. Antitrust analysis requires a balancing act and an understanding of the inherent tradeoffs between both sides of the platform. A holistic approach to the economic efficiency of the conduct is required, as opposed to delegating to antitrust the responsibility (instead of properly assigned to the market itself) to police whether search quality dips below "levels that consumers prefer," as Stucke and Ezrachi claim.

In addition to the alleged degradation in quality that can occur, Big Data can also, some allege, stifle innovation. Where a firm's value proposition is built on collecting and monetizing user data, if that firm collects so much user data that it becomes entrenched, it may gain both the ability and the incentive to use that data in a number of ways to eliminate potential challengers (Stucke and Grunes 2015a). As this happens, smaller rivals are prevented from accessing necessary data, and the incentive for these firms to innovate and to compete with larger dominant firms is reduced. For example, a dominant firm with access to Big Data could conceivably look to trends in data to identify potential challengers and devise strategies to quickly stamp out any rising competition by limiting or preventing their access to necessary data, or by acquiring them. Where market leaders with deep pockets acquire potential or actual new entrants, a source of innovation is removed, and competition suffers. Of course, such a discernment of trends may also be beneficial to competition where it forces a market leader to further invest in innovation itself, as antitrust law fundamentals contemplate. It is also worth bearing in mind that acquiring a smaller rival is not, without proof that such acquisition is likely to substantially lessen competition, prohibited under the antitrust laws. Indeed, the potential for such acquisitions incentivizes entry.

(b)   *Harm to Privacy*

Proponents of antitrust involvement in Big Data suggest that consumers feel they do not have control over how their data is collected and used by online platform providers (Stucke and Grunes 2015a; Jones Harbor and Koslov 2010). As users create more and more data, and firms continue to collect it, the safeguards protecting its collection and use may well become more important and more vulnerable to attack. The economics literature shows that in fact the collection of data may provide improved services (Acquisti and Varian 2005), product recommendations (Bennett and Lanning 2007), or provide free content (Goldfarb and Tucker 2010).

Privacy protections can be considered a form of non-price competition, which is especially important in industries where the service itself is offered for free (Ohlhausen and Okuliar 2015). Firms may compete by offering tighter or more transparent privacy policies (Evans 2009; Savage and Waldman 2015). Yet Jones Harbour and Koslov (2010) argue that consumers can be harmed when a dominant firm has no incentive to invest in privacy protections. Acquisti (2014) offers a literature review that provides a more nuanced view of the different ways of how consumers value privacy. It is important to note however that harm to privacy does not, without more, equal harm to competition. And, as discussed in more detail below, antitrust is ill-equipped to solve consumer law problems.

(c)   *Data-Driven Mergers and Data Driven Defenses*

The number of Big Data related merger cases has increased over time. In this context, further potential harms could, it is argued, arise from data-driven mergers where the transaction rationale rests on the acquirer gaining access to the underlying data set of the target undertaking (Graef 2015). Some suggest that where privacy constitutes an important

dimension of competition in a given market, or represents an important element of transaction rationale, antitrust agencies should closely examine transactions to determine whether the combination is likely to reduce incentives to compete in providing privacy protections to consumers. An early example of this argument can be found in then-Commissioner Harbour's dissenting statement in the investigation of Google's acquisition of DoubleClick, which suggested that privacy could be "'cognizable' under the antitrust laws," and should have been considered by the Commission "as part of its antitrust analysis of the transaction."[8] The former Commissioner's statement cited a possible theory that network effects could lead to fewer search engines, reducing "incentives of search firms to compete based on privacy protections or related non-price dimensions."[9]

These concerns have not been born out yet by any actual cases. In the U.S., the antitrust agencies have had occasion to consider the role of Big Data in a number high profile mergers, and merging parties have increasingly put forth data driven efficiencies in defense of mergers, with varying degrees of success.[10] For example, with respect to ratings and reviews platform provider Bazaarvoice's 2012 acquisition of rival PowerReviews, both the Department of Justice and the trial court rejected the parties' efficiencies claims, citing a lack of evidence that the transaction had resulted in data gains, leading to an improved product, lower prices, or greater innovation.[11] On the other hand, during the Department of Justice's 2010 investigation into a search-related partnership between Microsoft and Yahoo!, the Justice Department did accept the parties' data driven efficiency argument, suggesting that the transaction might be pro-competitive where increased access to data enablable more rapid improvements in Microsoft's search offering, thereby creating a more viable competitive alternative to Google.[12] In Europe, although the Commission did not ultimately opine on this particular issue, the parties to the *TomTom/TeleAtlas* merger argued that customer feedback data would allow the combined firm to produce better maps at a faster pace.[13] The *Telefonica/Vodafone/Everything Everywhere* joint venture found no Big Data problem with

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[8] Pamela Jones Harbour, Dissenting Statement, Google/DoubleClick, FTC File No. 071-0170, at 10 (2007), http://www ftc.gov/sites/default/files/documents/public_statements/statement-mattergoogle/doubleclick/071220harbour_0.pdf.

[9] Id.

[10] Rather than being a concern for a court/regulator, Big Data combinations may be viewed as a potential justification for the mergers.

[11] United States v. Bazaarvoice, Inc., Case No. 13-cv-00133-WHO, 2014 WL 203966, at *62–64 (N.D. Cal. Jan. 8, 2014).

[12] Press Release, U.S. Dep't of Justice, Statement of the Department of Justice Antitrust Division on its Decision to Close Its Investigation of the Internet Search and Paid Search Advertising Agreement Between Microsoft Corporation and Yahoo! Inc. (Feb. 18, 2010), available at http://www.justice.gov/opa/pr/statement-department-justice-antitrust-division-its-decision-close-its-investigation-internet.

[13] Case COMP/M.4854—TomTom/Tele Atlas, Comm'n Decision, 2008 O.J. (C 237) 53–54, ¶¶ 245–250.

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regard to the data analytics services[14] nor did *Publicis/Omnicom*, where the Commission noted competition from alternative providers of big data analytics.[15]

<p style="text-align:center">(d)   *The Perceived Strength of Scale, Network Effects, and Barriers to Entry*</p>

Many, if not all, of the theories of harm attributed to Big Data rest on the perceived strength of the "feedback loop" and the consequential network effects enjoyed by large firms with access to tremendous amounts of data (Graef 2015). Big Data can give rise to network effects, and certainly, network effects can play a significant role in a sound antitrust analysis. However, agencies, policy makers, and scholars must resist any foregone conclusion that the presence of network effects in Big Data automatically results in anticompetitive harm.

Big Data can lead to economies of scale via the alleged "feedback loop." In search, some argue, "the availability of data on previous search queries is crucial" to competitive success (Graef 2015). There are two ways scale can be accomplished through the "feedback loop." The "user feedback loop" presumes that as a platform gains more users, it can collect more user data, leading to better insights into consumers and their needs, which can be used to improve quality, attracting even more users. The "monetization feedback loop" claims that as a platform gains more users and collects more user data, it is better able to target ads and therefore sell ads, and so is better able to monetize its platform, gaining revenues which can be invested in improving quality of service, thereby attracting more users.

Alongside these feedback loops, a number of distinct network effects come into play in online platforms that collect and use Big Data. Direct network effects occur when a product or service becomes more valuable to an individual user as more people use that particular product or service. In a modern context, social networking platforms, photo sharing platforms and chat applications may enjoy significant direct network effects. Indirect network effects occur when more users make the use of a product or service better or more attractive to consumers, though not because of direct interaction between users. Search engines benefit from indirect network effects as more users allow the search engine to essentially gain insight into what users want from user clicks, essentially learning by trial and error, and therefore improving the quality of search results.

Some argue that network effects are particularly strong in two-sided platforms. A firm operating a two-sided platform can, it is argued, benefit from not only from traditional network effects, but also from cross platform network effects, where more users on one side of the platform makes the platform more attractive to users on the other side of the market (Graef 2015; Stucke and Grunes 2015a). While entry barriers naturally vary from industry to industry, and indeed change over time, these practitioners suggest that the economies of scale

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[14] Case COMP/M.6314—Telefónica UK/Vodafone UK/Everything Everywhere/JV, Comm'n Decision (Sept. 4, 2012).

[15] Case No COMP/M.7023—Publicis/Omnicom (Jan. 9, 2014).

and network effects that characterize data-driven markets lead to a "winner takes all" result, and present insurmountable barriers to entry.

In reality, the strength of the feedback loop may be grossly overstated. The feedback loop theory assumes smaller rivals and challengers will not be able to compete effectively as they lack comparable amounts of users, and therefore data, inhibiting their ability to improve quality and attract more users. As Lerner (2015) points out, however, these assumptions are unsupported by real-world evidence. The economics characteristics of Big Data weaken the claimed strength of the feedback loop. Chief among these characteristics is the fact that online providers can gain scale in users in ways that do not involve user data, and that access to data alone is not enough to improve quality and gain scale in users. Additionally, firms can gather data from other sources than users (e.g. data brokers), and can gain scale in data in alternative ways, such as entering into strategic distribution arrangements.

As to network effects, even in classic cases of direct network effects such as social networking and communications applications, innovation can be strong enough to upend the market, and network effects have time and time again proven insufficient to prevent incumbents from disrupting established market leaders. In social networking for example, Friendster, the original "market leader" was replaced quickly by MySpace, which has now been rendered almost completely obsolete by Facebook. An innovative product is enough to cause users to switch, notwithstanding any network effect enjoyed by the incumbent.

Among advertisers, network effects are diminished by the pricing structures employed by most online platforms, by advertiser multi-homing due to the low cost in advertising on multiple platforms, and by advertiser "congestion." The pay-per-click model means that while advertising on a "busier" platform may result in better conversion rates for an advertiser, it also involves proportionally higher costs, and more clicks means the advertiser has to pay more. As such, it may actually not be as economically advantageous for an advertiser to choose a larger online platform over a smaller one (contrary to real world platforms that are priced differently). Additionally, since fixed costs to advertise on any particular platform are low, advertisers may be incentivized to advertise on multiple different platforms as opposed to putting all their eggs in one basket. Finally, while more users on a platform might be good for advertisers, more advertisers on the platform can actually be detrimental. Limited available space for online ads and competition for users' attention means that advertisers may be better off on smaller platforms with less congestion (Lerner 2015).

Perhaps most importantly, cross platform network effects are also commonly overstated, and are actually one-sided. While advertisers certainly may flock to a search engine (or other online platform) with a strong user base with the hope of more impressions and hopefully more conversions, users, on the other hand, do not choose a search engine based on a greater number of advertisements. This weakening of the cross platform network effects argument in turn weakens the potential for a strong "feedback loop" that locks users and advertisers into a dominant platform. If a smaller entrant offers a better product or

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service to users, users will switch, uninhibited by network effects, and advertisers will soon follow (Lerner 2015).

The above discussion demonstrates how the feedback loop is not as effective as suggested in gaining scale, but the importance of scale is also misjudged by many. Big Data industries typically experience diminishing returns of scale. Statistically, as Lerner (2015) illustrates, the value of user data in returning relevant results to user search queries is subject to quickly diminishing returns, as the advantages of scale weaken or disappear at a low level. While returns are greater for less frequent queries (known as "tail" queries), both large and small search providers are faced with queries they have never seen before on daily basis, where both small and large platforms are at an equal disadvantage in delivering relevant results. Because of these rapidly diminishing returns, a larger provider may gain zero marginal value from incremental data after a certain point, and a smaller player may glean greater value from incremental data, incentivizing it to compete in attracting users at the margin by investing in quality and innovation.

Even if scale is crucial to competitive success, smaller rivals do maintain both the ability and the incentive to compete. As to *ability*, many online players are well-funded, or at least have access to additional funding from investors, with which they can improve quality and performance of their platform. Furthermore, all online players have access to stores of data from third parties, which is readily available and affordable, and can be deftly used to increase quality. As to *incentive*, economics tells us that investment incentive is based on marginal, not average effects. An investment in quality by a smaller firm will attract more incremental users than a similar investment by a larger firm. As such, the smaller firm's incentives to invest in quality may actually be greater than that of its larger rival.

4.   **Is Antitrust Enforcement the Right Way to Regulate Big Data?**

In order to consider whether antitrust is the most appropriate forum within which to explore, and potentially address, Big Data concerns, one should consider how antitrust case law has treated Big Data issues to date, how Big Data might fit within existing antitrust analysis framework or remedies, what legal or practical dangers might result from applying antitrust to Big Data, and whether an alternative framework is better suited to these issues.

(a)   *Case Law Does Not Support the Contention that Big Data Is an Antitrust Problem*

A thorough search of case law and agency actions does not reveal case law nor have the antitrust agency consents ever affirmatively concluded that consumer data constitutes a barrier to entry, and available precedent does not counsel in favor of using antitrust as a tool

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to right Big Data "wrongs."[16] While competition agencies and courts have concluded that data-related entry barriers *may* exist for the sale of data that cannot be sourced from consumers or big data marketplaces, they have yet to come to the same conclusion regarding data collected from consumers over the internet. Over the last five to ten years, antitrust agencies, and to a lesser extent the courts, have considered a number of mergers and instances of conduct involving potential theories of harm built around Big Data. One of the earliest examples of this was Google's acquisition of DoubleClick in 2007. At the time, both parties were large players in the market for search advertising – Google was a large online advertising intermediary, and DoubleClick was a leading online ad server. Both parties had vast stores of data relating to user search and browsing history.

Similarly, both the FTC and the European Commission examined Facebook's 2014 acquisition of web-based messaging platform WhatsApp. Upon announcement of the transaction, several consumer groups complained to the FTC that the transaction would bolster Facebook's access to data which could be monetized through advertising, contradicting prior statements by WhatsApp.[17] The FTC cleared the transaction within two months, and sent a clear indication that the issues raised rested squarely within consumer protection law. The FTC, upon clearing the transaction, sent a letter to the parties from the Director of the Bureau of Consumer Protection reminding them of their continuing obligations under privacy law.[18]

The European Commission also reviewed the *Facebook/WhatsApp* merger, in doing it provided an analytical framework for exclusionary behavior in Big Data industries, and ultimately cleared the transaction without conditions.[19] While the Commission acknowledged that network effects could sometimes pose a barrier to entry in communications markets, it concluded that this particular transaction was not likely to raise barriers to entry, noting "consumers can and do use multiple apps at the same time and can easily switch from one to another,"[20] and adding that "there are currently a significant number of market participants that collect user data alongside Facebook," including Google, Apple, Amazon, eBay, Microsoft, AOL, Yahoo, Twitter, IAC, LinkedIn, Adobe and Yelp.[21]

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[16] We can distinguish cases where data itself is the issue as a key input

[17] *See generally* Complaint, Request for Investigation, Injunction, and Other Relief, Elec. Privacy Info. Ctr. & Ctr. for Digital Democracy, In re WhatsApp, Inc. (Mar. 6, 2014), available at http://www.centerfordigitaldemocracy.org/sites/default/files/WhatsApp%20Complaint.pdf.

[18] Letter from Jessica L. Rich, Dir., Bureau of Consumer Protection, Fed. Trade Comm'n, to Erin Egan, Chief Privacy Officer, Facebook, Inc. & Anne Hoge, Gen. Counsel, WhatsApp Inc. (Apr. 10, 2014), available at https://www.ftc.gov/system/files/documents/public_statements/297701/140410facebookwhatappltr.pdf.

[19] See Case COMP/M.7217—Facebook/WhatsApp, Comm'n Decision, 2014 O.J. (C 7239) 24–25, ¶ 134

[20] Press Release, Eur. Comm'n, Mergers: Commission Approves Acquisition of WhatsApp by Facebook (Oct. 3, 2014), http://europa.eu/rapid/press-release_IP-14-1088_en.pdf;

[21] Darren Tucker & Hill Welford, *Big Mistakes Regarding Big Data*, ANTITRUST SOURCE (Dec 2014), at 8; Case COMP/M.7217—Facebook/WhatsApp, Comm'n Decision, ¶ 188 (Mar. 10, 2014).

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That investigation was significant as it recognized the factual inexistence of network effects as a barrier to entry in such a fast moving online market. The basis for this conclusion was due to: (i) the Commission finding that messaging apps were a "fast-moving sector"[22] with low switching costs; therefore, "any leading market position even if assisted by network effects is unlikely to be incontestable."; (ii) the finding that usage of one particular messaging app did not "exclude the use of competing [messaging] apps by the same user;" in this context, multi-homing was common and facilitated by the "ease of downloading a consumer communications app;"[23] and (iii) acknowledgment that users of messaging apps "are not locked-in" to a given network.[24] The Commission found that even in Facebook were to begin collecting data from WhatsApp users, competitive harm would not result, as "there will continue to be a large amount of Internet user data that are valuable for advertising purposes and that are not within Facebook's exclusive control."[25] The Commission's decision also explicitly rejected the idea of considering a potential market for personal data in this case, citing the fact that the parties were not actually engaged in the sale of data to third parties.[26] In the US, there is a similar outcome with regard to *Nielson/Arbitron*, where the data was merely an input.[27] Such cases where data is merely an input are different from cases where data is a market that is sold to consumers (Tucker and Welford 2015).

Outside the merger context, the Federal Trade Commission's 2011-2012 investigation of Google centered at least partially on the competitive significance of data. In a recent statement responding to the inadvertently release of portions of the FTC's Bureau of Competition Staff Report, Chairwoman Ramirez, and Commissioners Brill and Ohlhausen noted that the Commission's "exhaustive" investigation into Google's internet search practices, including agreements for syndicated search and advertising services were not, "on balance, demonstrably anticompetitive."[28]

(a)   *Big Data as Its Own Product Market*

Market definition and market power still form the backbone of antitrust analysis under the current law. Some practitioners have suggested that data collection should form its own product market for the purpose of antitrust analysis (Jones Harbour and Koslov 2010). The precise contours of such a market would be difficult, if not impossible, to define. In both

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[22] *Id.* at ¶132

[23] *Id.* at ¶133

[24] *Id.* at ¶134

[25] Case COMP/M.7217—Facebook/WhatsApp, Comm'n Decision, ¶ 189 (Mar. 10, 2014).

[26] Case No COMP/M.7217 – Facebook/WhatsApp, 3 October 2014, par. 72.

[27] In the Matter of Nielsen Holdings N.V. and Arbitron Inc., FTC File No. 131 0058 (September 20, 2013).

[28] Statement of Chairwoman Edith Ramirez, and Commissioners Julie Brill and Maureen K. Ohlhausen regarding the Google Investigation, March 25, 2015, https://www.ftc.gov/news-events/press-releases/2015/03/statementchairwoman-edith-ramirez-commissioners-julie-brill.

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the U.S. and Europe, substitution, via the hypothetical monopolist test, is an essential prerequisite to defining a market. The primary goal of defining a market is to measures a firm's ability to exercise market power and the relevant market determines goods or services that potentially compete, to the exclusion of those that do not. Data itself is not a relevant product in the sale of online advertising. Advertising services are the relevant product. Data is used (for the most part) by online providers as an *input* in their service, as opposed to actually being sold as a product to consumers. There is, therefore, no competition between providers for the actual sale of data, and no substitution. As such, under current antitrust law, no relevant market can be defined for the collection of consumer data. In reviewing the *Facebook/Whatsapp* acquisition, the European Commission overtly declined to define a market for Big Data since neither party was active in the provision of data to third parties.[29]

(b)   *Consumer Protection Should Address Big Data Issues*

The laws of consumer protection and antitrust serve different goals, protect consumers from different harms, and operate via different spheres of the same agency (Feinstein 2015). A review of the economics of privacy notes complexity as to how to regulate privacy (Acquisti, Taylor, and Wagman 2015). However, this recent review does not find a strand of academic literature in which on a theoretical basis or empirical basis antitrust should be used as a policy tool to address privacy concerns.

Such a finding is not surprising. Consider for a moment though other product elements such as product safety and efficacy that also constitute forms of non-price competition. Those elements, though potentially affected by competition, are not primarily policed by the antitrust agencies but through consumer/data protection law (Schepp and Wamback 2015; Ohlhausen and Okuliar 2015). The antitrust laws are not designed to address harm to privacy – an efficient market, bolstered by the consumer protection laws, provides adequate protection from those harms.

Suggested safeguards intended to prevent the misuse of Big Data by a dominant firm such as enabling the consumer to more easily select privacy preferences or to identify providers that match their privacy preferences, sit squarely within the remit of the consumer protection agencies (Stucke and Grunes 2015b). Where an imbalance of power between users and online firms leads to diminished data portability, individual consumers or competitors might suffer but the mechanics of data collection is not for the antitrust laws to govern. Antitrust law is only a suitable choice where there is harm to competition. Antitrust's role is not to fill gaps in the privacy laws.

(c)   *Are Antitrust Remedies Appropriate?*

Some have suggested that antitrust remedies may be appropriate where a dominant firm has misused Big Data to gain or sustain an improper competitive advantage. The

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[29] Case COMP/M.7217—Facebook/WhatsApp, Comm'n Decision, ¶ 72 (Mar. 10, 2014).

imposition of such remedies presents obvious problems. From an antitrust perspective, forced sharing of information with rivals infers the essential facilities doctrine, and such forced dealing with competitors in the Big Data environment is far beyond the limits of what a duty to deal would require. If Big Data were deemed an essential facility and a duty to deal imposed, the competitive dynamics of the market would be dramatically altered. Such an extreme and far-reaching remedy is out of line with current antitrust policy (Orbach and Avraham 2014).

Practically speaking, requiring affirmative user consent before data is collected may detract from the user experience and lessen quality; prohibiting or restricting data collection may stifle innovation and present users with lower quality services; and divestiture or separation of distinct product lines may also stifle innovation and hinder a firm's ability to offer personalized services (Tucker and Welford 2014).

Antitrust remedies haphazardly applied to the collection and use of consumer data may not only harm competition, but also may in fact raise separate, legitimate, privacy issues (Goldfarb and Tucker 2012). Antitrust remedies may also create privacy concerns as they would require data to be shared with rival firms even though consumers have not consented to their data being used in this way. Likewise, a forced sharing of data could violate a company's already existing consent decrees with the FTC (Tucker and Welford 2014).

The FTC, in the Closing Statement from its investigation into the Google/DoubleClick merger, the Commission rejected the notion that antitrust remedies should be imposed to address privacy harms:

> [T]he sole purpose of federal antitrust review of mergers and acquisitions is to identify and remedy transactions that harm competition. Not only does the Commission lack legal authority to require conditions to this merger that do not relate to antitrust, regulating the privacy requirements of just one company could itself pose a serious detriment to competition in this vast and rapidly evolving industry.[30]

(d)   *Practical and Legal Dangers of Antitrust Intervention*

Using antitrust as a sword to address Big Data concerns risks reducing competition and innovation from new products (Ohlhausen and Okuliar 2015). Antitrust enforcement agencies are well advised to proceed cautiously in areas of rapid innovation, in order to avoid stifling competition, and the natural unfolding of the marketplace. While an industry is in its relative infancy, it can be difficult to distinguish between procompetitive innovation and changes that are designed to (or actually do) stifle competition. Even in established markets, antitrust should never be used as a replacement for sound business judgment. As the FTC's

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[30] Statement of Federal Trade Commission Concerning Google/DoubleClick, FTC File No. 071-0170, at 2 (Dec. 20, 2007).

closing statement in Google investigation explained, "Challenging Google's product design decisions in this case would require the Commission—or a court—to second-guess a firm's product design decisions where plausible procompetitive justifications have been offered, and where those justifications are supported by ample evidence."[31]

Consumer welfare is enhanced most dramatically by "leapfrog" competition, as opposed to incremental improvements. It is crucial that the antitrust laws cultivate and maintain an environment in which robust and rapid innovation is not only possible, but also incentivized. A paternalistic approach to Big Data will neither cultivate nor maintain such an environment, and may instead lead to stagnation and fear among platform providers.

5.   **Conclusion**

This literature review suggests that antitrust law is ill-suited to police Big Data and its use by online firms. The empirical case regarding Big Data as an antitrust concern is still lacking. Further, from a theoretical perspective, not enough work has yet been done to thoughtfully study and analyze how antitrust could, or should, be applied to specific issues involving Big Data. In fact, the lack of empirical evidence, robust theories or indeed legal precedent suggests that there is no cause for concern in this arena. All that is available at present are general theories of exclusion applied to this new area. Until theories of harm can be matched with specific factual circumstances and negative economic competitive harm can be shown, the antitrust case against Big Data is a weak one. The existing theories of harm conflict with the realities of Big Data (e.g., non-rivalrous, ubiquitous, low barriers to entry noted above) and consumer online behavior (e.g., multi-homing, Salinger and Levinson 2015). And while the case is weak, and the theories uncertain, antitrust authorities should proceed with caution. Antitrust intervention over market forces threatens consumer welfare, especially is fast moving markets, and proposed remedies, such as limiting the collection and use of Big Data or forcing large firms to share with rivals, are likely to harm competition and innovation, and in fact may raise privacy concerns.

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