

PLATFORM MARKET POWER

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ABSTRACT

The rise of the platform economy has been the subject of celebration and critique. Platform companies like Uber, Airbnb, and Postmates have been rightfully celebrated as positively disruptive, introducing much-needed competition in industries that have been otherwise over-mature and stagnant. However, some of the leading new platforms have had such meteoric success that their growing market dominance and technical capacity raise questions about new forms of anticompetitive practices, and negative impacts on consumer and employee welfare.

In this Essay, we develop a framework for considering the market power of platform companies that use digital technology to connect a multisided network of individual users. Specifically, we use the example of Uber as a lens to identify eight questions that are important for assessing platform power. These questions address the way a range of issues play out in the platform context, including more traditional competition concerns around innovation, regulatory arbitrage, barriers to entry, and price setting through platforms' use of the network form to coordinate transactions, the use of digital pricing, and the use of pricing bots. These questions also focus on new concerns about power derived from data collection and use; the use of data to expand into other markets; and the implications of market power for consumer choice about personal privacy.

Together, these questions provide policymakers a framework to consider whether and how questions of market power (and competition more generally) may pose complexity or require analytic adjustments—and how the development of platforms implicates both new opportunities for, and challenges to, consumer and employee welfare in the digital context.

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TABLE OF CONTENTS

I.	INTRODUCTION	1052
II.	A FRAMEWORK FOR EVALUATING PLATFORM MARKET POWER	1054
A.	QUESTION ONE: IS PLATFORM SUCCESS ATTRIBUTABLE TO MARKET INNOVATION OR UNDESIRABLE REGULATORY ARBITRAGE?.....	1055
B.	QUESTION TWO: DO BARRIERS TO ENTRY IN THE PLATFORM MARKET STIFLE COMPETITION?	1062
1.	<i>First-Mover Advantages and Switching Costs</i>	1065
2.	<i>Network Effects</i>	1067
C.	QUESTION THREE: DOES THE PLATFORM’S USE OF THE NETWORK FORM TO COORDINATE TRANSACTIONS CONSTITUTE PRICE FIXING?.....	1071
D.	QUESTION FOUR: IS THE PLATFORM’S USE OF DIGITAL PRICING ANTICOMPETITIVE?.....	1075
1.	<i>Does a Digital Platform’s Use of Pricing Bots Constitute Illicit Tacit Collusion, and Create Additional Barriers to Competition on Price?</i>	1076
2.	<i>Does Digital Pricing Permit Unfair Price Discrimination?</i>	1079
E.	QUESTION FIVE: DOES THE PLATFORM’S BUSINESS MODEL INVOLVE PREDATORY PRICING?.....	1081
F.	QUESTION SIX: DOES THE PLATFORM’S COLLECTION AND USE OF DATA RAISE OR EXACERBATE ANTICOMPETITIVE CONCERNS?.....	1083
G.	QUESTION SEVEN: IS THE PLATFORM LEVERAGING ITS MARKET POWER UNFAIRLY TO ESTABLISH A DOMINANT POSITION IN OTHER MARKETS?.....	1087
H.	QUESTION EIGHT: DOES THE PLATFORM’S MARKET POWER INAPPROPRIATELY RESTRICT CONSUMER CHOICE ABOUT PERSONAL PRIVACY?.....	1089
III.	CONCLUSION	1092

I. INTRODUCTION

In the past decade, hundreds of new digital companies have changed the ways we consume and share goods, services, and information. The rise of the platform economy has been the subject of celebration and critique. Much of both the praise and the concerns expressed by commentators

surrounds the question of whether new business models such as Uber, Airbnb, and Postmasters are enhancing or decreasing market competition. In many ways platform companies have been rightfully celebrated as positively disruptive, introducing much needed new competition in industries that have been otherwise over-mature and stagnant. And yet, some of the leading new platforms have had such meteoric success that their growing market dominance and technical capabilities raises questions about new forms of anticompetitive practices and negative impacts on consumer and employee welfare.

Notable among these new platform companies is the transportation network company Uber, which already faces several antitrust lawsuits claiming that it engages in anticompetitive practices including price fixing and collusion among its providers. Beyond these lawsuits, there are claims that Uber's pricing scheme is predatory in its intention to drive competition out of the market with below-market prices. Finally—and perhaps most concerning—is the worry that Uber and other platform companies like Airbnb will use their digital power to extract data and information about users in ways that harm consumers and unfairly constrain choices about their privacy. At the same time, Uber itself has launched antitrust lawsuits, claiming that the taxi industries in some localities rely on city regulators to impede competition.

In this Essay, we use the example of Uber as a lens to develop a framework for considering the market power of platform companies that use digital technology to connect a multisided network of individual users. Examining a discrete example provides a concrete perspective for thinking about both positive and negative implications of platforms for innovation and markets, and for consumers and employees.

Looking at Uber also illuminates the important reality that platform companies can be very different from each other in terms of the markets they serve, the type and degree of the power that they exercise within respective markets, and the relative effects of their activities on competition. Newer platform companies such as Uber and Airbnb share characteristics with (relatively) older platforms such as Amazon, eBay, Facebook and Google, in that they use the power and networking capacity of online technology and data analytics to create multisided markets that can quickly scale and achieve market dominance.

But the newer platforms differ from their predecessors in that they are transforming service industries. If Web 1.0 focused on access to information and search, Web 2.0 formed online marketplaces such as Amazon, eBay,

and Craigslist, which focused on the retail industry. The latest platform generation, “Web 3.0,” focuses on the service economy and enabling offline interactions by connecting users online. Unlike intangible search engines like Google and Yahoo!, social network platforms like Facebook and LinkedIn, and previous-generation retail platform giants like Amazon and eBay, sharing economy platforms that focus on the service industries have a more physical grounding in local markets. The physical nature of sharing economy platforms has disruptive implications for local incumbents and existing methods of business organization, employment, and pricing.¹ Thus while Uber can provide a lens for examining platform market power generally, it also suggests ways that these differences may have implications for an analysis of pro- or anti-competitive behavior in by Web 3.0 platforms specifically.

II. A FRAMEWORK FOR EVALUATING PLATFORM MARKET POWER

The goals of this Essay are preliminary. In setting forth a framework of questions for considering the different ways that platform market power operates, we do not seek to resolve the questions of whether these market power dynamics, in any particular context, promote or hinder competition or otherwise generate net social harms or benefits. Nor do we advocate particular legal or doctrinal outcomes. Rather, we use the lens of the Uber case to identify eight questions that are important to assessing platform market power. The first two questions ask broadly about market power and consumer harm arising from the specifics of the platform markets: Question One enquires whether the success of the platform under consideration arises from innovation or from undesirable regulatory arbitrage, and Question Two asks when barriers to entry in platform markets stifle competition.

Further, Questions Three, Four, and Five consider implications of platform power on price: specifically, whether a platform’s use of the network form to coordinate transactions constitutes price fixing; whether a platform’s use of digital pricing is anticompetitive because its use of pricing bots constitutes either illicit tacit collusion or unfair first-order price discrimination; and whether the platform’s business model engages in predatory pricing.

1. See Vanessa Katz, *Regulating the Sharing Economy*, 30 BERKELEY TECH. L.J. 1067, 1069, 1092 (2015) (describing the disruptive effects of sharing economy platforms on traditional markets).

Finally, Questions Six, Seven, and Eight address issues arising out of the digital nature of platform markets, including when a platform's collection and use of data might raise anticompetitive concerns; when data-related and other elements of the platform market might permit platforms to leverage their power to expand into other markets; and when platform market power might inappropriately restrict consumer choice about personal privacy.

Together, these questions provide policymakers a framework to consider whether and how questions of market power (and competition more generally) may pose complexity or require analytic adjustments. This Essay thus sheds light on how the development of platforms implicates both new opportunities for and challenges to consumer welfare in the digital platform context.

A. QUESTION ONE: IS PLATFORM SUCCESS ATTRIBUTABLE TO MARKET INNOVATION OR UNDESIRABLE REGULATORY ARBITRAGE?

The first question—currently being played out in the courts and political debate—asks whether a platform's operation outside of traditional industry regulations constitutes pro-competitive behavior and substantive economic innovation, or whether its market advantage simply arises from avoiding the costs of consumer and employee protections imposed on its competitors.² Online platforms have introduced new business models and innovative technology that alter many of the ways companies provide services and individuals consume and interact.³ In so doing, they have unleashed a whirlwind of products and services that have the potential to transform most aspects of market consumption, professional engagement, and social interactions.⁴ Advances in technology—as well as new business models and changes in lifestyle—combine in the platform in ways that challenge existing, stagnant industries and pushes these industries to change as well.⁵ By design, the startup costs to operate a digital platform are low: an app

2. See, e.g., Robert L. Redfearn III, *Sharing Economy Misclassification: Employees and Independent Contractors in Transportation Network Companies*, 31 BERKELEY TECH. L.J. 1023, 1024 (2016) (using examples of Uber and Lyft to examine innovation in context of avoiding traditional regulatory frameworks).

3. See, e.g., Virginia E. Scholtes, *The Lexmark Test for False Advertising Standing: When Two Prongs Don't Make a Right*, 30 BERKELEY TECH. L.J. 1023, 1051 (2015) (explaining how “sharing economy businesses” have forced consumer protection law to “stretch to fit changes modern technology has triggered in the economy”).

4. Redfearn, *supra* note 2, at 1024.

5. See Katz, *supra* note 1, at 1070.

serves as a marketplace.⁶ And yet, the very question of operation costs is endogenous to the question of regulation. No doubt some of the savings (though certainly not all or even most) that make platform companies so attractive relate to regulatory arbitrage, choosing business models that avoid regulatory costs, and exploiting the gap between the substance of the deal and its legal treatment.⁷

When it comes to the question of market power and regulation, Uber—the most iconic of the new wave of digital service platforms—is a good place to start. Like Google, Uber has become a verb. Even wedding invitations might suggest “Ubering to the venue” because parking is limited.⁸ After years of taxi cab dominance, Uber is becoming for many the preferred way of ride hailing.⁹ The idea for Uber was first pitched in 2008.¹⁰ Two years later, in 2010, Uber was tested in New York City and launched in San Francisco.¹¹ Within a year, Uber expanded to numerous other cities in the United States and had launched internationally.¹² By 2015, Uber provided about 41% of all paid car rides in the United States, taking a significant portion of the market share from taxicab drivers and car rental companies who were down to 20% and 39% of the market share, respectively.¹³ By 2017, Uber expanded to 737 cities in eighty-four countries.¹⁴ The only major competitor Uber has in the United States as of

6. *See id.* at 1073.

7. Victor Fleischer, *Regulatory Arbitrage*, 89 TEX. L. REV. 227, 229 (2010).

8. *Travel and Transportation*, THEKNOT (Nov. 2017), <https://www.theknot.com/us/zakiya-keys-and-bao-nguyen-nov-2017/details/> (“We are strongly suggesting carpooling and/or Ubering to the venue. It will save you the trouble of driving in circles looking for parking, and you can enjoy your night without being worried about your car.”).

9. Sara Swann, *Despite Its Controversies, Uber Was More Popular than Taxis During the 2016 Election*, OPENSECRETS (June 23, 2017), www.opensecrets.org/news/2017/06/uber-more-popular-than-taxis-during-2016/.

10. Julian Chokkattu & Jordan Crook, *A Brief History of Uber*, TECHCRUNCH (Aug. 14, 2014), <https://techcrunch.com/gallery/a-brief-history-of-uber/>.

11. *Id.*

12. *Id.*

13. Press Release, Certify Inc., Certify Releases its Third Annual SpendSmart™ Report on Current Business Travel Spending Trends (Jan. 21, 2015), www.certify.com/PR-2016-01-20-Certify-Releases-its-Third-Annual-SpendSmart-Report-on-Current-Business-Travel-Spending-Trends.

14. *Uber Cities*, UBER, <http://uberestimator.com/cities> (last visited Nov. 3, 2017) (“This Uber map shows you Ubers activity around the world, you can click on each of the 84 active countries for a list of supported cities. Check all the fare rates, cars and popular destinations in more than 737 Uber cities.”).

late 2017 is Lyft.¹⁵ Lyft has grown quickly throughout 2016 and 2017, stating that in March 2016 it had provided eleven million rides in the United States.¹⁶ Uber, by comparison, provided about fifty million rides in the same month.¹⁷

The dominance of the taxi industry relied heavily on regulation. Taxis are governed not only through medallion licensing requirements, which are expensive and limited, but also by regulations controlling the rates taxis may charge passengers.¹⁸ Taxi companies thus traditionally enjoyed barriers to entry, which explains in part Uber's success in piercing through these barriers. From this perspective, the strength of Uber's platform is that it operates in a new market segment but competes directly with existing segments. Uber's senior vice president of policy and strategy self-described this dynamic by saying that "[w]e are a technology company, and we're not regulated as a transportation company anywhere in the world."¹⁹ This of course means an inevitable clash between the old guard and the new platforms.

Other commentators seem to share the sentiment that services like Uber are shaking up long-entrenched cartels. That sense is captured in a recent article in Forbes:

In the States, for far too long for-hire vehicle transport has been heavily regulated to the point of suppressed competition. This lack of competition, driven by taxi companies' donations to local politicians, led to a noticeable decline in taxis' customer service.

15. Eric Newcomer, *Lyft is Gaining on Uber as it It Spends Big on Growth*, S.F. GATE (Apr. 15, 2016, 6:39 PM), <http://www.sfgate.com/business/article/Lyft-gaining-on-Uber-as-it-spends-big-on-growth-7251625.php/>.

16. *Id.*

17. *Id.*

18. Rafi Mohammed, *Regulation Is Hurting Cabs and Helping Uber*, HARV. BUS. REV. (July 9, 2014), <https://hbr.org/2014/07/regulation-is-hurting-cabs-and-helping-uber> ("Local governments need to understand that consumers view ride sharing services like Uber as close substitutes to taxis. Regulators are doing its residents an injustice by regulating taxi prices (consumers would benefit from a taxi vs. Uber price war) — and in the process unwittingly fueling Uber's growth and enriching its stockholders.").

19. Faith Hung, *Uber to Go It Alone as It Expands into Southeast Asia*, REUTERS (Nov. 4, 2015, 3:25 AM), <http://www.reuters.com/article/us-uber-asia/uber-to-go-it-alone-as-it-expands-into-southeast-asia-idUSKBN12Z15K>

Increased competition fuelled [sic] by ridesharing's growth has even forced taxis to improve their service.²⁰

The Washington Post echoed:

In many cities today, Uber and other ride-sharing businesses are challenging the mutually remunerative alliances between elected officials and taxi cartels. The result is a riot of rentseeking as entrenched interests construe judicial passivity as permission to stifle competition.²¹

Framing Uber's success as the result of overcoming anticompetitive regulation suggests that Uber provides a model capable of creating significant social benefits. Permitting, licensing, and regulatory price controls have long served as barriers to new entry to all types of vocations.²² Compared to only a few decades ago, the number of occupations that require a license is stunningly high: nearly one-third of jobs.²³ In July 2015, the White House issued a report warning that while some licensing requirements were designed to provide safety and professionalism, "the current licensing regime in the United States also creates substantial costs, and often the requirements for obtaining a license are not in sync with the skills needed for the job."²⁴ In one amicus brief, a group of antitrust scholars further described contemporary licensing as having been "abused by incumbent market participants to exclude rivals, often in unreasonable

20. Jared Meyer, *Uber Is Not (and Will Never Be) a Monopoly*, FORBES (Feb. 15, 2016, 7:45 AM), <https://www.forbes.com/sites/jaredmeyer/2016/02/15/uber-guardian-not-monopoly-ridesharing/>.

21. George F. Will, *A Strike Against Rent-Seeking*, WASH. POST (Dec. 31, 2014) www.washingtonpost.com/opinions/george-will-a-strike-against-rent-seeking/2014/12/31/ba5a1686-9109-11e4-ba53-a477d66580ed_story.html.

22. U.S. DEP'T OF THE TREASURY ET AL., OCCUPATIONAL LICENSING: A FRAMEWORK FOR POLICYMAKERS 7 (2015), https://obamawhitehouse.archives.gov/sites/default/files/docs/licensing_report_final_nonembargo.pdf.

23. Brad Hershbein, David Boddy & Melissa S. Kearney, *Nearly 30 Percent of Workers in the U.S. Need a License to Perform Their Job: It Is Time to Examine Occupational Licensing Practices*, BROOKINGS INSTITUTION (Jan. 27, 2015), <https://www.brookings.edu/blog/up-front/2015/01/27/nearly-30-percent-of-workers-in-the-u-s-need-a-license-to-perform-their-job-it-is-time-to-examine-occupational-licensing-practices/>.

24. U.S. DEP'T OF THE TREASURY ET AL., *supra* note 22, at 3.

ways, and to raise prices. This disturbing trend already costs consumers billions of dollars every year and impedes job growth”²⁵

Critics of Uber, on the other hand, have charged that the platform’s model “threatens local democracy”²⁶ by enabling Uber to benefit at the expense of both consumers and drivers through subversion of important regulatory requirements. With respect to consumers, these regulatory requirements deal with auto safety, driver qualifications, and insurance thresholds, while drivers are protected by regulations governing working standards and compensation levels.²⁷ In this vein, the taxi industry has claimed that Uber is gaining an unfair advantage by evading the regulatory requirements that have long been imposed on taxis, and class actions have been filed alleging that the company undermined other important legal rights, such as lawsuits by drivers who claim that Uber has misclassified them as independent contractors when they are in fact Uber employees.²⁸ In a suit filed against Uber, the Philadelphia Taxi Association claimed that Uber, through its reliance on independent drivers and their vehicles, sidestepped the strict city regulations that the taxi associations are required to follow.²⁹ The plaintiffs claimed that Uber thereby created an unfair marketplace, causing taxi services to lose substantial amounts of business since 2014,³⁰ and accordingly alleged violations of Section 2 of the Sherman Act.³¹ The federal district court dismissed the suit on the grounds that the plaintiffs failed to establish antitrust injury, which requires an allegation of injury to competition.³² While taxi companies—Uber’s competitors—“have

25. Brief of Antitrust Scholars as Amici Curiae in Support of Respondent at 2, N.C. State Bd. of Dental Exam’rs v. FTC, 135 S. Ct. 1101 (2014) (No. 13-534), 2014 WL 3908427.

26. Nathan Newman, *Uber: When Big Data Threatens Local Democracy*, DATA JUST. BLOG (July 17, 2015, 10:55 AM), <http://www.datajustice.org/blog/uber-when-big-data-threatens-local-democracy>.

27. See Brishen Rogers, *The Social Costs of Uber*, 82 U. CHI. L. REV. DIALOGUE 85 (2015) (describing six dimensions of criticism against Uber).

28. Second Amended Class Action Complaint and Jury Demand, O’Connor v. Uber Techs., Inc., 201 F. Supp. 3d 1110, 1113 (N.D. Cal. 2016) (No. CV 13-3826-EMC), 2014 WL 7912596.

29. Phila. Taxi Ass’n, Inc. v. Uber Techs., Inc., 218 F. Supp. 3d 389, 391 (E.D. Pa. 2016).

30. *Id.* at 392.

31. *Id.* at 390.

32. *Id.* at 392.

undoubtedly suffered injury since Uber began operating in Philadelphia,” the court concluded, “competition has not.”³³

The antitrust lawsuits against Uber extend beyond the United States. The South African Meter Taxi Association and eight regional taxi companies filed suit against Uber in South Africa in May of 2016.³⁴ These allegations, much like those in the United States, assert that Uber’s practices are contrary to the South African Competition Commission’s requirements, as Uber floods the market with below-cost drivers but does not comply with regulations.³⁵

Some cities have responded by imposing new regulations targeting the market that the digital company is replacing or the new digital company itself. In countries throughout Europe, for example, Uber is now banned or subject to serious restrictions.³⁶ Chicago, Austin, and several other cities have taken the approach of imposing new restrictions on Uber itself.³⁷ Chicago proposed imposing fingerprinting and background checks on Uber drivers in the hopes of regulating and making Uber safer and holding it to the same standards imposed on taxicab companies.³⁸ Similarly, in February 2015, the city of Orlando passed an ordinance requiring ridesharing companies to charge the same rate as taxis: \$2.40 per mile.³⁹ In contrast,

33. *Id.* at 393. A similar lawsuit brought in Maryland alleged that Uber participated in anti-competitive price fixing and predatory pricing, in violation of Maryland Antitrust Act. *See Yellow Cab Co. et al. v. Uber Techs., Inc. et al*, No. RDB-14-2764, 2015 WL 4987653 (D. Md. Aug. 19, 2015) (remanding to state court).

34. *South African Taxis Lose Bid to Declare Uber Anti-Competitive*, MYBROADBAND (Oct. 20, 2016), <http://mybroadband.co.za/news/motoring/183688-south-african-taxis-lose-bid-to-declare-uber-anti-competitive.html>.

35. *Id.*

36. Damien Geradin, *Should Uber be Allowed to Compete in Europe? And If So How?*, COMPETITION POL’Y INT’L (June 2015), <https://www.competitionpolicyinternational.com/assets/Europe-Column-New-Format.pdf> (noting that Uber is strictly regulated in Belgium, France, Germany, Italy, and Spain).

37. John Byrne, *Ride-Share Companies Threaten to Leave Chicago if Tougher Regulations Pass*, CHI. TRIB. (May 26, 2016, 7:26 AM), www.chicagotribune.com/news/local/politics/ct-emanuel-rideshare-debt-collection-met-20160525-story.html; *Uber Regulation: US Cities That Have Successfully Stood Up to Uber*, WHO’S DRIVING YOU? (July 19, 2015), <http://www.whosdrivingyou.org/blog/us-cities-stood-up-regulate-uber>; Madlin Mekelburg, *Across Texas, Uber Puts Cities in Tough Spot*, TEX. TRIB. (Feb. 3, 2016, 6:00 AM), <https://www.texastribune.org/2016/02/03/ride-share-giant-uber-puts-texas-cities-tough-spot/>.

38. Byrne, *supra* note 37.

39. Stephen Hudak, *Uber Vows to Pay Drivers’ Fines as Orlando Regulations Kick In*, ORLANDO SENTINEL (Feb. 2, 2015, 6:36 PM), www.orlandosentinel.com/news/

some cities chose to enhance competition by deregulating taxi companies instead.⁴⁰

In response to heightened regulation, Uber and other ridesharing providers have pushed back in a variety of ways. In cities where regulation seemed too severe, both Uber and Lyft have simply chosen to leave rather than to fight or comply.⁴¹ For example, in 2016 Uber left Austin and Lyft left Houston after new restrictions regarding background checks for drivers were imposed in each city.⁴² Uber has also sought to use antitrust litigation to resist regulation by local agencies, arguing that local rules are decreasing fair competition. In Saint Louis, Uber fought with the St. Louis Metropolitan Taxicab Commission (MTC) which eventually voted in 2015 to allow Uber to operate, but only after drivers were fingerprinted, had a background check, and submitted to other potential regulations.⁴³ Unsatisfied with those regulations, Uber subsequently filed suit against the MTC, its commissioners, and various St. Louis taxi companies, asserting that the defendants had stifled competition over the ridesharing industry.⁴⁴ While the federal judge presiding over the case subsequently dismissed the suit, it was refiled in state court.⁴⁵ In Seattle, a city ordinance which sets a framework for collective bargaining and rate setting for drivers in the transportation service industry, including both taxis and Uber, has also been challenged on antitrust grounds.⁴⁶

breaking-news/os-uber-orlando-fight-20150202-story.html (noting that Uber has said that it will pay fines of drivers in Orlando).

40. Caitlin Clark, *Bryan City Council OKs First Reading of Uber Regulations*, EAGLE (Mar. 24, 2016), http://www.theeagle.com/news/local/bryan-city-council-oks-first-reading-of-uber-regulations/article_78af4e94-12cb-5f0a-8916-d4a929858c96.html.

41. *See id.*

42. *Id.*

43. Sarah Fenske, *Uber Launches in St. Louis Today, Defying — and Suing — Taxi Commission*, RIVERFRONT TIMES (Sept. 18, 2015, 10:00 AM), www.riverfronttimes.com/newsblog/2015/09/18/uber-launches-in-st-louis-today-defying-and-suing-taxi-commission.

44. *Wallen v. St. Louis Metro. Taxicab Comm'n*, No. 4:15-cv-1432, 2016 WL 5846825 (E.D. Mo. Oct. 6, 2016); THOMAS A. DICKERSON, TRAVEL LAW § 2.11 (2017).

45. *See* Kevin Killeen, *Federal Judge Sends Uber Lawsuit to State Court*, CBS ST. LOUIS (Aug. 8, 2016, 4:16 PM), <http://stlouis.cbslocal.com/2016/08/08/federal-judge-sends-uber-lawsuit-to-state-court/>.

46. *Chamber of Commerce v. City of Seattle*, No. C16-0322RSL, 2016 WL 4595981 (W.D. Wash. Aug. 9, 2016) (dismissing suit for lack of standing); *see also* Kate Andrias, *The New Labor Law*, 126 YALE L.J. 2, 92 n.485 (2016) (“Assuming the drivers are independent contractors who do not qualify for the labor exemption, a likely issue will be

Understanding the net impact of digital platforms, then, requires careful inquiry into both gains generated as platforms disrupt barriers to entry into mature industries, and concomitant threats to regulatory protections at all levels of government—especially because of the ways that Web 3.0 platforms interact with local markets. This means that antitrust law alone, and its traditional categories of analysis, has so far proven an awkward home for considering questions of regulatory balance in a comprehensive way. Both price setting and the creation of other mandates regarding consumer and labor protection “often turn[] on political decisions about levels of service and the rate of return to capital needed to provide those services.”⁴⁷ This reality suggests a theme throughout each of the questions set forth for considering the challenges raised by platform market power: answers will likely require a range of regulatory analyses and, importantly, better integration between traditional antitrust law approaches and other regulatory fields.

B. QUESTION TWO: DO BARRIERS TO ENTRY IN THE PLATFORM MARKET STIFLE COMPETITION?

The fundamental task of defining market power, and even more basically, identifying the relevant market of a platform, presents new challenges to regulators. The Sherman Act was originally drafted with the idea of preventing steel and large manufacturing monopolies. The same law that was drafted to assess car manufacturing competition might not be well-situated to prevent car sharing applications from forming monopolies. While the Sherman Act makes it illegal to “monopolize, or attempt to monopolize . . . any part of the trade or commerce,” it does not define monopoly power.⁴⁸ In determining whether a competitor possesses monopoly power in a relevant market, courts typically begin by looking at the firm’s market share.⁴⁹ Although the courts have not set a precise market

whether the ordinance qualifies for *Parker* immunity, which allows states to enact anticompetitive regulation when acting in their sovereign capacities.”).

47. Dennis W. Carlton & Randal C. Picker, *Antitrust and Regulation*, in *ECONOMIC REGULATION AND ITS REFORM* 25 (Nancy L. Rose ed., 2014).

48. 15 U.S.C. § 2 (2012).

49. *See, e.g.*, U.S. Anchor Mfg., Inc. v. Rule Indus., Inc., 7 F.3d 986, 999 (11th Cir. 1993) (“The principal measure of actual monopoly power is market share”); *Movie 1 & 2 v. United Artists Commc’ns, Inc.*, 909 F.2d 1245, 1254 (9th Cir. 1990) (“[A]lthough market share does not alone determine monopoly power, market share is perhaps the most important factor to consider in determining the presence or absence of monopoly power”);

share percentile for inferring monopoly power, they have so far demanded a dominant market share.⁵⁰ Discussions of the requisite market share for monopoly power commonly begin with Judge Hand's statement in *United States v. Aluminum Co. of America* that a market share of ninety percent "is enough to constitute a monopoly; it is doubtful whether sixty or sixty-four percent would be enough; and certainly thirty-three per cent is not."⁵¹ The Supreme Court soon endorsed Judge Hand's approach in *American Tobacco Co. v. United States*.⁵²

If dominant market share alone were enough, then most courts would likely consider Uber to be a monopoly either today or in the very near future, given Uber's projected growth.⁵³ Uber's ability to scale rapidly cannot be overstated. A graphic of Uber's growth within the business community in a matter of just thirty months illustrates its growing popularity in domestic markets.⁵⁴ Figure 1 reflects the growth in corporate use alone—general adoption by the ride hailing public is even more impressive: Uber has recently reported to a selective group of shareholders that it owns 83–87% of the U.S. market share.⁵⁵

Weiss v. York Hosp., 745 F.2d 786, 827 (3d Cir. 1984) ("A primary criterion used to assess the existence of monopoly power is the defendant's market share.").

50. See JEFF MILES, PRINCIPLES OF ANTITRUST LAW 13 (2016), https://www.americanbar.org/content/dam/aba/administrative/healthlaw/01_antitrust_primer_01.authcheckdam.pdf ("No magic market share, by itself, proves market power, because other factors affect the degree of a firm's market power. Many courts, however, suggest that 30% is a minimum threshold requirement.").

51. *United States v. Aluminum Co. of Am.*, 148 F.2d 416, 424 (2d Cir. 1945).

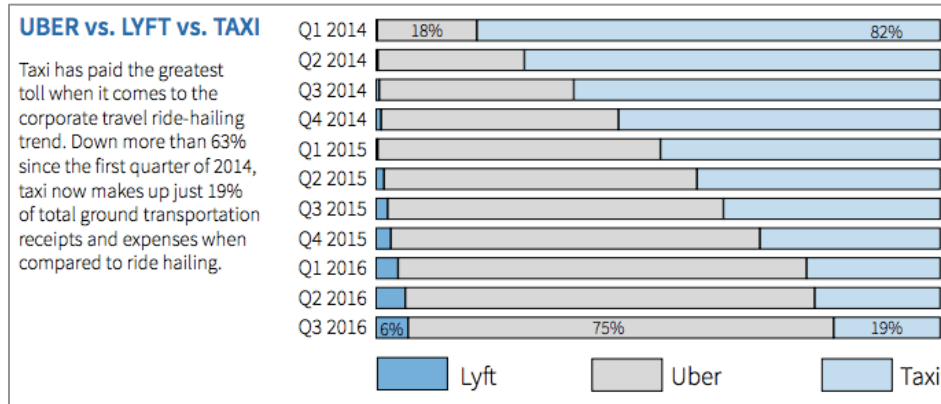
52. *See Am. Tobacco Co. v. United States*, 328 U.S. 781, 813 (1946).

53. *See id.*

54. Ken Yeung, *Uber and Lyft Made Up 52% of Business Travel Transportation Expenses in Q3*, VENTUREBEAT (Oct. 20, 2016, 12:00 AM), <http://venturebeat.com/2016/10/20/uber-and-lyft-made-up-52-of-business-travel-transportation-expenses-in-q3>.

55. Avery Hartmans, *Uber Says It Has Over 80% of the Ride-Hailing Market in the U.S.*, BUS. INSIDER (Aug. 25, 2016, 9:43 AM), <http://www.businessinsider.com/uber-majority-ride-hailing-market-share-lyft-us-2016-8/>.

Figure 1: Uber's Relative Share of the Corporate Travel Market, 2014–2016



In this respect, Uber's performance mirrors the success of a range of online platforms. Citing Amazon's share of the print and electronic book markets, Alibaba's share of the e-commerce market, Facebook's domination of social networks, and Google's share of online search, one commentator has noted that in the online platform context, "capturing a significant, even dominant share of the world market more or less straight out of the box is clearly possible Something about the internet clearly favours such mushrooming quasi-monopolies."⁵⁶ Others have argued that platforms are inherently prone to a "winner-takes-all" scenario, whereby "only one or two platforms will dominate an industry as the market matures" because of network effects, since "platforms' margins increase as their networks grow."⁵⁷

Yet recent federal circuit courts have held that, under antitrust analysis, dominant market share alone is not sufficient to establish monopoly power. Instead, "a firm cannot possess monopoly power in a market unless that market is also protected by significant barriers to entry."⁵⁸ Accordingly,

56. *Everybody Wants to Rule the World*, ECONOMIST (Nov. 27, 2014), <http://www.economist.com/news/briefing/21635077-online-businesses-can-grow-very-large-very-fast-it-what-makes-them-exciting-does-it-also-make/>.

57. ALEX MOAZED & NICHOLAS L. JOHNSON, MODERN MONOPOLIES: WHAT IT TAKES TO DOMINATE THE 21ST CENTURY ECONOMY 95 (2016).

58. *United States v. Microsoft Corp.*, 253 F.3d 34, 82 (D.C. Cir. 2001) (en banc) (per curiam); see also *Harrison Aire, Inc. v. Aerostar Int'l, Inc.*, 423 F.3d 374, 381 (3d Cir. 2005) ("In a typical section 2 case, monopoly power is 'inferred from a firm's possession of a dominant share of a relevant market that is protected by entry barriers.'" (quoting *Microsoft*, 253 F.3d at 51)).

courts have adopted the lens of entry potential, because even when no current rival exists, an attempt to increase price above the competitive level may lead to an influx of competitors sufficient to make that price increase unprofitable.⁵⁹ The question of whether platform market power stifles competition, therefore, requires an inquiry into the extent to which the characteristics of such markets create barriers to entry.

1. *First-Mover Advantages and Switching Costs*

Traditional inquiries into barriers that may prevent the emergence of new competitors focus on the relative disadvantage of being a later entrant into a market, and the extent to which the attributes of that market make later entry prohibitive.⁶⁰ Early entry into a field may give an entity substantial competitive advantage through technology leadership, control of

59. See, e.g., PHILLIP E. AREEDA & HERBERT HOVENKAMP, FUNDAMENTALS OF ANTITRUST LAW § 5.01 at 5–7 (4th ed. 2011) (“In spite of its literal imprecision, the standard formulation is essentially correct in asking whether the defendant can price monopolistically without prompt erosion from rivals’ entry or expansion.”).

60. While the importance of a “first mover” advantage is heatedly debated among economists, Fernando Suarez & Gianvito Lanzolla, *The Half-Truth of First-Mover Advantage*, HARV. BUS. REV. (Apr. 2005), <https://hbr.org/2005/04/the-half-truth-of-first-mover-advantage/>, as has the importance of being literally the “first,” entrant into a platform market, DAVID S. EVANS & RICHARD SCHMALENSEE, MATCHMAKERS: THE NEW ECONOMICS OF MULTISIDED PLATFORMS 27–28 (calling the first-mover advantage and winner-takes-all theories “shaky at best” in the network context, and citing numerous instances in which the first mover did not succeed), the broader question is whether later entrants are at a critical disadvantage in reaching the critical mass necessary to success because of the characteristics of the platform market, *id.* at 69 (“Multisided platforms must secure critical mass, or else”). See also Pamela Samuelson, *Functionality and Expression in Computer Programs: Refining the Tests for Software Copyright Infringement*, 31 BERKELEY TECH. L.J. 1215, 1292 (2017) (“A recent empirical study demonstrates that software entrepreneurs consider first mover advantages the most important way to attain advantage.”); Misa K. Eiritz, *Should Intellectual Property Owners Just Do It? An Examination into the Effects of Nike’s Covenant Not to Sue*, 29 BERKELEY TECH. L.J. 837, 857–58 (2014); Oren Bracha & Talha Syed, *Beyond Efficiency: Consequence-Sensitive Theories of Copyright*, 29 BERKELEY TECH. L.J. 229, 238 n.25 (2014) (“[F]irst-mover advantages or contractual arrangements may guarantee sufficient incentives to create even in the absence of copyright.”); Wei Wang, *Non-Practicing Complainants at the ITC: Domestic Industry or Not?*, 27 BERKELEY TECH. L.J. 409, 427 (2012); J. Jonas Anderson, *Secret Inventions*, 26 BERKELEY TECH. L.J. 917, 967 (2011); Jonathan M. Barnett, *The Illusion of the Commons*, 25 BERKELEY TECH. L.J. 1751, 1763–64 (2010); Jane K. Winn, *Are “Better” Security Breach Notification Laws Possible?*, 24 BERKELEY TECH. L.J. 1133, 1152 & n.85 (2009).

resources, and “lock-in” resulting from switching costs.⁶¹ Such consumer lock-in effects hamper market entry by competitors seeking to attract existing customers—especially in markets characterized by network effects, discussed below in Section II.B.⁶²

In certain respects, barriers to entry for Web 3.0 competitors are low. On the technological side, a basic platform app may be relatively easy to mimic,⁶³ and the low startup costs for an internet-based company with little overhead is likely to encourage competition.⁶⁴ Moreover, unlike, for example, Amazon—which has acquired vast warehouses which may make it difficult for new competitors to enter the online retail market on a similar scale⁶⁵—similar investments in physical space have not characterized newer platforms.⁶⁶ In practice, numerous apps pop up daily in the hopes of competing with companies like Uber, suggesting that the technological advantage and resource control may not significantly impede market entry.

The question of switching costs is more complicated. Consumers can be locked-in to initial brand choices by the direct costs of switching, the time required to learn and ramp up new systems,⁶⁷ brand loyalty enhanced by a reluctance to switch away from a trusted network,⁶⁸ and even “buyers’ choice under uncertainty”—the rational decision to stick with a known

61. Marvin B. Lieberman & David B. Montgomery, *First-Mover Advantages*, 9 STRATEGIC MGMT. J. 41, 41 (1988).

62. Joseph Farrell & Paul Klempner, *Coordination and Lock-In: Competition with Switching Costs and Network Effects*, in 3 HANDBOOK OF INDUSTRIAL ORGANIZATION 1970, 1974 (Mark Armstrong & Robert H. Porter eds., 2007).

63. See MOAZED & JOHNSON, *supra* note 57, at 78 (discussing low technical barriers to entry).

64. See Deborah R. Ettington & Hal P. Kirkwood, Jr., *First-Mover Advantage*, REFERENCE FOR BUS., <http://www.referenceforbusiness.com/management/Ex-Gov/First-Mover-Advantage.html> (last visited Mar 16, 2017); Richard J. Gilbert & David M. G. Newbery, *Preemptive Patenting and the Persistence of Monopoly*, 72 AM. ECON. REV. 514, 517 (1982).

65. Rani Molla, *Amazon Takes Up a Lot of Space*, BLOOMBERG (Feb. 4, 2016, 6:45 AM), <https://www.bloomberg.com/gadfly/articles/2016-02-04/amazon-takes-up-space-as-a-delivery-giant/>.

66. See generally *What Is Web 3.0? A Brief Introduction and Its Benefits*, 1STWEBDESIGNER (Sept. 30, 2016), <https://1stwebdesigner.com/what-is-web-3-0/> (describing data and intelligent systems as the focus of Web 3.0).

67. See Aaron S. Edlin & Robert G. Harris, *The Role of Switching Costs in Antitrust Analysis: A Comparison of Microsoft and Google*, 15 YALE J.L. & TECH. 169, 176 (2013).

68. Lieberman & Montgomery, *supra* note 61, at 46.

brand that performs satisfactorily.⁶⁹ Yet while these lock-in issues were found salient in the technology context in the 1998 Microsoft case,⁷⁰ similar phenomena have not been determinative in cases involving online platform context. For example, in 2013, the Federal Trade Commission (FTC) decided not to bring suit against Google Search after Google agreed to change its business practices to resolve competition concerns.⁷¹ The major concern involved reports that Google Search was biased in favor of its own information and search results.⁷² The FTC's concerns were primarily resolved by the lack of user lock-in and the low costs of switching to use a different search engine, because most search engines are relatively comparable.⁷³

Several emergent characteristics of various platform business, however, suggest that this calculus may function differently as platforms evolve, and will require a context-specific assessment by regulators. Factors that may “lock” users into an incumbent platform include the extent to which a market precludes “multihoming”—the ability for an individual to use multiple platforms to access similar services (i.e. to use both Uber and Lyft equally effectively), technical and contractual barriers to the portability of content developed on one platform to that of a competitor, the collection of data about things like past user behavior that a platform might use to refine services (discussed later in Section II.F), and the system of rating and reviews often integral to the design and value of the Web 3.0 platform model, which creates a system of “strangers trust.”⁷⁴ The review system means that customers will be more inclined to stay with the service since they have built rapport, and may even receive better service because of their prior dealings.

2. Network Effects

The barriers to entry posed by switching costs are particularly powerful in contexts with strong network effects. Metcalfe's Law proposes that the value of a network is proportional to the square of the number of connected

69. Richard L. Schmalensee, *Product Differentiation Advantages of Pioneering Brands*, 72 AM. ECON. REV. 349, 350 (1982).

70. Elin & Harris, *supra* note 67, at 171.

71. *Id.*

72. *Id.* at 172.

73. *Id.* at 172–73.

74. Orly Lobel, *The Law of the Platform*, 101 MINN. L. REV. 87, 146 (2016).

users of the system.⁷⁵ Discussions of network effects have traditionally focused on “direct” effects, by which increases in usage directly increase the value of the network. A classic example is the fax technology: a single fax machine is useless, but the value of every fax machine increases with the total number of fax machines in the network, because the total number of people with whom each user may send and receive documents increases.⁷⁶ Network effects raise potential antitrust issues as entities with larger networks can entrench their dominance and thereby decrease competition.⁷⁷

By contrast, *indirect* network effects traditionally occur when product usage “spawns the production of increasingly valuable complementary goods, and this results in an increase in the value of the original product.”⁷⁸ In the context of two-sided markets, indirect network effects appear as “cross-side” effects, whereby “the value delivered to each user in one user group (say, consumers) increases as the number of users in another interdependent group (producers) grows.”⁷⁹ And until a new entrant can amass a critical mass of users on both sides of a new network, it cannot grow and develop into a thriving platform—even if it employs a similarly good, or even better, technology.⁸⁰

In such a fashion, network effects can compound the potential for switching costs to create harmful consumer lock-in. Network effects and

75. CARL SHAPIRO & HAL R. VARIAN, *INFORMATION RULES: A STRATEGIC GUIDE TO THE NETWORK ECONOMY* (1999).

76. Rahul Tongia & Ernest J. Wilson III, *The Flip Side of Metcalfe’s Law: Multiple and Growing Costs of Network Exclusion*, 5 INT’L J. COMM. 665, 669 (2011).

77. Ronald A. Cass, *Antitrust for High-Tech and Low: Regulation, Innovation, and Risk*, 9 J.L. ECON. & POL’Y 169, 175–76 (2013).

78. Eric Jorgenson, *The Power of Network Effects: Why They Make Such Valuable Companies, and How to Harness Them*, MEDIUM (June 21, 2015), <https://medium.com/evergreen-business-weekly/the-power-of-network-effects-why-they-make-such-valuable-companies-and-how-to-harness-them-5d3fbc3659f8>. For example, an indirect network effect occurs with the app stores for smartphones: as a smartphone increases in popularity, an increasing number of software engineers will design applications for its specific platform, thus indirectly increasing the value of the smartphone. See Maurice E. Stucke & Ariel Ezrachi, *How Digital Assistants Can Harm Our Economy, Privacy, and Democracy*, 32 BERKELEY TECH. L.J. (forthcoming 2017).

79. MOAZED & JOHNSON, *supra* note 57, at 168.

80. See, e.g., Steve Denning, *Five Reasons Why Google+ Died*, FORBES (Apr. 17, 2015, 11:58 AM), <https://www.forbes.com/sites/stevedenning/2015/04/17/five-reasons-why-google-died/> (describing how the innovative Google+ network “died” because it could not generate a critical mass of users sufficient to challenge Facebook).

switching costs reinforce each other to create lock-in because consumers must collectively coordinate a costly switch to benefit from a competitor's network.⁸¹ This can lead to substantial collective inertia that gives a dominant firm the opportunity to increase prices, results consumer deadweight loss, and potentially decreases innovation and consumer choice.⁸²

Platforms like Uber and Airbnb are two-sided markets coordinated by a digital provider: networks where the customers and providers interact between an intermediary platform. Thus, they rely on network effects which involve two distinct groups that ultimately benefit each other.⁸³ Scale is critical to the peer-to-peer platform model: for the most part, the greater the number of users in each of the markets, the more valuable the service becomes to the community.⁸⁴ Because these platforms utilize individual service providers to bring their product directly to the market, it is easy for the platforms to offer their product on a large scale with decreasing costs as their operations spread. Uber is incentivized to offer their services to any area that wants them because as they increase the number of riders, they can diffuse their fixed costs of developing and maintaining software, and in turn can charge a lower price than anybody else in the market.⁸⁵ Moreover, because indirect network effects are particularly powerful when they are localized geographically,⁸⁶ Uber can achieve a dominant market position in any of the metropolitan areas in which it operates independent of its market share elsewhere.

81. Switching costs discourage large scale entry by a competitor because the pre-existing network of consumers have switching costs. Network effects discourage small scale entry because a network must achieve critical mass to offer value to users. *See* Farrell & Klemperer, *supra* note 62, at 2045.

82. *See id.*; Paul Klemperer, *Competition When Consumers Have Switching Costs: An Overview with Applications to Industrial Organization, Macroeconomics, International Trade*, 62 REV. ECON. STUD. 515, 536 (1995).

83. Jean-Charles Rochet & Jean Tirole, *Platform Competition in Two-Sided Markets*, 1 J. EUR. ECON. ASS'N. 990, 990 (2003); Jorgenson, *supra* note 78.

84. Jorgenson, *supra* note 78.

85. Eric Posner, *Why Uber Will—and Should—Be Regulated*, SLATE (Jan. 5, 2015, 2:49 PM), www.slate.com/articles/news_and_politics/view_from_chicago/2015/01/uber_surge_pricing_federal_regulation_over_taxis_and_car_ride_services.single.html; Christian Chessman, *A “Source” of Error: Computer Code, Criminal Defendants, and the Constitution*, 105 CALIF. L. REV. 179, 191 (2017) (describing the high costs of maintaining and updating software).

86. MOAZED & JOHNSON, *supra* note 57, at 170.

The particular characteristics of network effects in such a two-sided market can create particularly high barriers to entry, because they require would-be competitors to scale on both sides of the market in order to succeed. Economist David Evans describes these indirect network effects as follows:

Multi-sided platforms face a chicken-and-egg problem when they start as a result of what they are trying to accomplish. Consider a platform that is in the business of getting Type As together with Type Bs. Type As may not want to consider the platform unless they know it has attracted Type Bs, but Type Bs may not want to consider the platform unless they know it has attracted Type As. The platform has to figure out a way to get both types of participants on board, in sufficient numbers, to provide value to either.⁸⁷

As dominant platforms continue to gain users, then, the value of their network increases, making it harder to compete with them. As their value increases, moreover, the early mover's existing network makes it more difficult for new entrants to attract venture capital funds.⁸⁸ This advantage, then, explains why companies are willing to lose hundreds of millions of dollars—even billions—to scale quickly, outlast their competitors, and create the most powerful network in their respective industry.⁸⁹ Uber has already risen meteorically in market valuation and share while one of its two foremost platform competitors, Sidecar, declared bankruptcy. Sidecar's failure can largely be explained by the network effects, which may be especially pronounced in the ridesharing industry where speed and safety are key.⁹⁰

87. David Evans, *Multisided Platforms, Dynamic Competition, and the Assessment of Market Power for Internet-Based Firms* (Univ. of Ch. Coase-Sandor Inst. for Law & Econ., Res. Paper No. 753, 2016), http://chicagounbound.uchicago.edu/law_and_economics/799.

88. *How Unicorns Grow*, HARV. BUS. REV., Jan.–Feb. 2016, <https://hbr.org/2016/01/how-unicorns-grow>.

89. Olivia Zaleski & Lulu Yilun Chen, *Airbnb Said in Talks to Buy China Home-Rental Rival Xiaozhu*, BLOOMBERG (Nov. 23, 2016, 7:40 AM), www.bloomberg.com/news/articles/2016-11-23/airbnb-said-in-talks-to-buy-chinese-home-rental-rival-xiaozhu; see also Eric Newcomer, *Uber's Loss Exceeds \$800 Million in Third Quarter on \$1.7 Billion in Net Revenue*, BLOOMBERG (Dec. 19, 2016, 4:07 PM), www.bloomberg.com/news/articles/2016-12-20/uber-s-loss-exceeds-800-million-in-third-quarter-on-1-7-billion-in-net-revenue.

90. John Ince, *Why Did Sidecar Fail?*, RIDESHARE GUY (Feb. 10, 2016), <http://therideshareguy.com/why-did-sidecar-fail/>.

An assessment of whether a platform market is constrained by competition, then, must consider the particularities of lock-in in the context of network effects, including the interdependencies in demand by the participants on both sides of the market. Such interdependencies may indicate pro-competitive constraints, including limiting the price increases or service reductions on one side of the market, lest it affect the service offered to the other; or spurring incremental innovation intended to attract or retain participants on multiple sides in the face of new rivals.⁹¹ Yet they may on the other hand suggest high barriers to entry because new competitors must mobilize two markets.⁹²

C. QUESTION THREE: DOES THE PLATFORM'S USE OF THE NETWORK FORM TO COORDINATE TRANSACTIONS CONSTITUTE PRICE FIXING?

Uber's business model involves matching consumers who request rides on a mobile app with individual drivers (some of whom might belong to a larger fleet) willing to provide transport. Uber's model is distinct from the traditional taxi or car-service markets in several ways; optimization algorithms coordinate the matching function, Uber takes a charge for each ride, and the payment is made to the individual driver through the Uber app.⁹³ The question of the drivers' employment status raises an important vulnerability with regards to antitrust law. In maintaining its position that drivers are independent contractors rather than employees, Uber has opened itself up to the challenge that it has engaged in illegal price fixing by coordinating between millions of independent entrepreneurs to set the same prices, and prohibiting them from competing with one another.

In *Meyer v. Kalanik*, filed in federal district court in New York in 2016, the plaintiff alleged that Uber and its CEO Travis Kalanik violated antitrust law⁹⁴ by (1) designing the Uber app, (2) attracting drivers, (3) capturing a significant portion of the market, and (4) mandating ride prices based on "surge pricing"—an algorithm-based variable pricing model based on

91. *See id.*

92. Evans, *supra* note 87.

93. Tim Hwang & Madeleine Clare Elish, *The Mirage of the Marketplace*, SLATE (July 27, 2015, 6:00 AM), www.slate.com/articles/technology/future_tense/2015/07/uber_s_algorithm_and_the_mirage_of_the_marketplace.html.

94. The plaintiffs specifically allege that Uber engaged in an illegal scheme to fix prices and thereby injure customers in violation of Section 1 of the Sherman Antitrust Act and Section 340 of New York General Business Law. First Amended Complaint ¶ 1, *Meyer v. Kalanick*, 174 F. Supp. 3d 817 (S.D.N.Y. 2016) (No. 1:15 Civ. 9796 (JSR)), 2016 WL 950376.

proprietary technology that measures supply and demand at the moment a ride is requested.⁹⁵ The lawsuit claims that Uber drivers, unable to opt in or out of surge pricing, are not bidding with each other for the price of a ride. If they were, prices would be driven down.⁹⁶ In early 2016, the lawsuit survived a motion to dismiss brought by the defendants.⁹⁷ U.S. District Judge Jed Rakoff, presiding over the case, explained that “the fact that Uber goes to such great lengths to portray itself—one might even say disguise itself—as the mere purveyor of an ‘app’ cannot shield it from the consequences of its operating as much more.”⁹⁸

Section 1 of the Sherman Antitrust Act prohibits “[e]very contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several States.”⁹⁹ To establish a prima facie case for an illegal restraint of trade, a plaintiff must allege 1) some form of concerted action by 2) two or more persons that 3) unreasonably restrains interstate commerce.¹⁰⁰ An illegal restraint of trade can be illegal per se or illegal under the rule of reason.¹⁰¹ Conduct is per se illegal when the “defendant’s actions are so plainly harmful to competition and so obviously lacking in any redeeming pro-competitive values that they are ‘conclusively presumed illegal without further examination.’”¹⁰² Horizontal price fixing, a restraint agreed upon by direct competitors, is generally deemed illegal per se.¹⁰³

95. *Id.* ¶ 2–5.

96. Erik Larson & Patricia Hurtado, *Uber Surge-Pricing Antitrust Suit Green-Lighted by Judge*, BLOOMBERG TECH. (Mar. 31, 2016, 3:20 PM), www.bloomberg.com/amp/news/articles/2016-03-31/uber-antitrust-lawsuit-over-pricing-green-lighted-by-judge

97. Jacob Gershman, *Uber Antitrust Lawsuit Clears Court Hurdle in New York*, WALL ST. J. (Apr. 1, 2016, 8:20 PM), <http://blogs.wsj.com/law/2016/04/01/uber-antitrust-lawsuit-clears-court-hurdle-in-new-york/>.

98. *Meyer v. Kalanick*, 174 F. Supp. 3d 817, 826 (S.D.N.Y. 2016).

99. 15 U.S.C. § 1 (2012); Zachary C. Flood, *Antitrust Enforcement in the Developing E-Book Market: Apple, Amazon, and the Future of the Publishing Industry*, 31 BERKELEY TECH. L.J. 879, 880–81 (2016).

100. *In re NASDAQ Market-Makers Antitrust Litig.*, 894 F. Supp. 703, 710 (S.D.N.Y. 1995); see also Kristelia A. García, *Facilitating Competition by Remedial Regulation*, 31 BERKELEY TECH. L.J. 183, 230 (2016).

101. *Capital Imaging Assocs., P.C. v. Mohawk Valley Med. Assocs., Inc.*, 996 F.2d 537, 542 (2d Cir. 1993).

102. *Id.*

103. *Id.*; *Leegin Creative Leather Prods., Inc. v. PSKS, Inc.*, 551 U.S. 877, 886 (2007) (“Restraints that are per se unlawful include horizontal agreements among competitors to fix prices.”).

In the alternative, a plaintiff can prove that illegal conduct led to antitrust injury under the rule of reason.¹⁰⁴ Under the rule of reason, the factfinder must balance the benefits of the practice against the harms to consumers.¹⁰⁵ The standard thus examines the actual adverse effect of the alleged anticompetitive behavior on the market as a whole, requiring proof of market injury, and weighs it against the procompetitive ‘redeeming virtues’ created by the combination of actors, after which the plaintiff can rebut with evidence that the same ends could be achieved with less restrictive means.¹⁰⁶ Most antitrust harms are evaluated using the rule of reason, as most alleged illegal antitrust conduct falls outside of the narrowly prescribed categories that exist for per se violations.¹⁰⁷ Vertical price fixing, in which a principle and a number of subordinate contracting parties agree to an identical restraint that has the effect of price-fixing, is evaluated using the rule of reason.¹⁰⁸

Uber’s method of pricing and fee adjustment makes it vulnerable to both horizontal and vertical price fixing claims, which is what the plaintiffs in *Meyer v. Kalanik* have seized upon. In the preliminary proceedings, the court determined the plaintiff sufficiently alleged both methods of price fixing against Uber.¹⁰⁹ According to the lawsuit, the horizontal price fixing begins when Uber drivers agree to start driving for the service.¹¹⁰ Uber drivers must sign a written agreement, accept riders using the Uber app, and use the app to collect fees that are determined by Uber’s pricing algorithm.¹¹¹ Adherence to a universal model of pricing acts as a guarantee that other Uber drivers cannot undercut each other or the company.¹¹² During “surge times,” Uber raises prices because driver supply is lower than rider demand, resulting in up to ten times the fare price.¹¹³ By disallowing drivers from setting their own rates, the plaintiffs allege Uber causes supracompetitive pricing.¹¹⁴ The plaintiffs further claim that Uber drivers and executives have met at different points to negotiate the increases in

104. *Capital Imaging*, 996 F.2d at 543.

105. *Id.*

106. *See id.*

107. *Id.*

108. *Meyer v. Kalanick*, 174 F. Supp. 3d 817, 822 (S.D.N.Y. 2016).

109. *Id.* at 822, 825.

110. *Id.* at 824.

111. *Id.*

112. *Id.*

113. *Id.*

114. *Id.*

fares, these increases were to the obvious benefit of Uber and its drivers, and that the increases imply a “common motive to conspire.”¹¹⁵

In the preliminary hearings, the court was unpersuaded by Uber’s argument that contracts between drivers and Uber could not evince a horizontal antitrust conspiracy because each contract was between an individual driver and Uber, and drivers made the decision to join the platform because it was individually in their best interests to do so.¹¹⁶ The court recognized that “[a]cceptance by competitors, without previous agreement, of an invitation to participate in a plan, the necessary consequence of which . . . is restraint of interstate commerce, is sufficient to establish an unlawful conspiracy under the Sherman Act.”¹¹⁷ Thus, the court found that plaintiffs had met their pleading burden on the claim of horizontal price fixing.¹¹⁸

In addition to the claims regarding horizontal price fixing, the *Meyer* plaintiffs alleged that Uber is engaging in vertical price fixing. As described above, while a horizontal price fixing conspiracy is per se illegal under the Sherman Act, vertical price fixing arrangements must be evaluated using the rule of reason.¹¹⁹ For this claim to defeat a motion to dismiss, the plaintiff must identify a particular market and allege a particular effect on the market by the defendant’s conduct.¹²⁰ The *Meyer* plaintiffs were specific and narrow in delineating the market: “the mobile app-generated ride-share service market,” of which Uber controls eighty percent—which was sufficient for pleading purposes.¹²¹ The court assessed that effect on the

115. *Id.*

116. *See id.*

117. *Interstate Circuit v. United States*, 306 U.S. 208, 227 (1939); *see also* *United States v. Apple, Inc.*, 791 F.3d 290, 314 (2d Cir. 2015) (“[C]ourts have long recognized the existence of ‘hub-and-spoke’ conspiracies in which an entity at one level of the market structure, the ‘hub,’ coordinates an agreement among competitors at a different level, the ‘spokes.’”); *Laumann v. Nat’l Hockey League*, 907 F. Supp. 2d 465, 486–87 (S.D.N.Y. 2012) (“[W]here parties to vertical agreements have knowledge that other market participants are bound by identical agreements, and their participation is contingent upon that knowledge, they may be considered participants in a horizontal agreement in restraint of trade.”).

118. *See Meyer*, 174 F. Supp. at 822.

119. *Id.*

120. *See Capital Imaging Associates*, 996 F.2d at 543.

121. *Meyer*, 174 F. Supp. 3d at 821. It is very possible this point will be one of heavy contention as litigation continues—why should the ridesharing market be separated from traditional taxis and car services? Though the court accepted the plaintiffs’ contention that the identified market is distinct from the larger market because of the additional amenities

market was sufficiently pled as well.¹²² Uber's market position is alleged to have forced Sidecar—an Uber competitor that folded in late 2015—out of the rideshare market, and Uber's dominance is alleged to have prevented new market entrants from emerging.¹²³

The fact that the platform model's success involves the use of networks rather than more traditional hierarchical forms of organization, then, implicates the question of whether it might run afoul of traditional antitrust prohibitions on price fixing. More broadly, it has implications for whether application of those principles to this context might correctly be understood as curbing anticompetitive conduct, or whether such an understanding hinders desirable innovation in market organization.

D. QUESTION FOUR: IS THE PLATFORM'S USE OF DIGITAL PRICING ANTICOMPETITIVE?

Digital pricing has been hailed as “the future.”¹²⁴ More and more companies are using digital algorithms to set prices.¹²⁵ In a range of industries, companies use algorithm-based programs to determine what prices should be implemented.¹²⁶ Pricing bots are far more accurate and require much less manpower to comprehend current market demands.¹²⁷ Given the structure of the platform as a multisided peer network, which means that both supply and demand are highly elastic, dynamic pricing can

(lack of need for cash or card, ability to rate drivers, ability to summon drivers by pressing a button on the app) these differences are, in our estimation, superficial because the identified market provides services that satisfy the purpose of the larger market, the differences are only that of degree rather than kind. The plaintiffs also claimed that Uber is different because traditional cars for hire must be scheduled in advance—this is less true with changes in product offerings by Uber. *Id.* In spite of this potential deficiency in argument, Uber has captured between fifty and seventy percent of business customers in “all types of rides” across all markets, which in and of itself supports an antitrust claim. *See* Thomas M. Jorde & David J. Teece, *Innovation, Cooperation & Antitrust*, 4 BERKELEY TECH. L.J. 1, 45–46 n.118 (1989) (collecting cases where majority market share across all markets supported an antitrust claim).

122. *Meyer*, 174 F. Supp. 3d at 828.

123. *Id.* at 821.

124. James Surowiecki, *In Praise of Efficient Price Gouging*, MIT TECH. REV. (Aug. 19, 2014), <http://www.technologyreview.com/review/529961/in-praise-of-efficient-price-gouging/>.

125. *See* Dylan I. Ballard & Amar S. Naik, *Algorithms, Artificial Intelligence, and Joint Conduct*, COMPETITION POLICY INT'L 2–3 (May 15, 2017), <https://www.competitionpolicyinternational.com/wp-content/uploads/2017/05/CPI-Ballard-Naik.pdf>.

126. *See id.* at 2.

127. *See id.*

not only match supply and demand, but also operates to increase supply when demand is high: drivers turn on their Uber app when they see that the rates have increased.¹²⁸ One recent study has claimed that Uber's pricing algorithm based on demand elasticity generated \$6.8 billion of consumer surplus in 2015 alone, suggesting its tremendous pro-competitive capacity.¹²⁹ Yet the use of digital algorithms in this fashion also raises two concerns: whether the coordination between pricing bots constitutes tacit collusion that eliminates incentives to compete on price, as well as concerns about platforms' capacity to engage in practices approaching "first-order," or "perfect," price discrimination,¹³⁰ by which a firm personalizes prices to reflect the maximum an individual is willing to pay.¹³¹

1. *Does a Digital Platform's Use of Pricing Bots Constitute Illicit Tacit Collusion, and Create Additional Barriers to Competition on Price?*

Uber's reliance on digital algorithms for pricing has been met with litigation as well as broader public hostility. And scholars have begun to identify ways that pricing bots used by marketplace platforms can have significant anticompetitive effects.¹³² As Ariel Ezrachi and Maurice Stucke explain:

Uber drivers don't compete among themselves over price . . . Uber's algorithm determines your base fare and when, where, and for how long to impose a surcharge. This by itself is legal. But as the platform's market power increases, this cluster of similar

128. See Bill Gurley, *A Deeper Look at Uber's Dynamic Pricing Model*, ABOVE THE CROWD (Mar. 11, 2014), <http://abovethecrowd.com/2014/03/11/a-deeper-look-at-ubers-dynamic-pricing-model/>.

129. Peter Cohen et al., *Using Big Data to Estimate Consumer Surplus: The Case of Uber 5* (Nat'l Bureau of Econ. Research, Working Paper No. 22627, 2016), <http://www.nber.org/papers/w22627>.

130. Ariel Ezrachi & Maurice E. Stucke, *Artificial Intelligence & Collusion: When Computers Inhibit Competition*, 2017 U. ILL. L. REV. 1775, 1807 (2017); Stucke & Ezrachi, *supra* note 78.

131. See generally Benjamin Reed Shiller, *First-Degree Price Discrimination Using Big Data* (Apr. 25, 2014) (unpublished manuscript), https://www.gsb.columbia.edu/faculty-research/sites/faculty-research/files/finance/Industrial/Ben%20Shiller%20--%20Nov%202014_0.pdf (describing the potential for use of big data to engage in such price discrimination).

132. See, e.g., *id.*; Maurice E. Stucke & Ariel Ezrachi, *How Pricing Bots Could Form Cartels and Make Things More Expensive*, HARV. BUS. REV. (Oct. 27, 2016), <https://hbr.org/2016/10/how-pricing-bots-could-form-cartels-and-make-things-more-expensive>.

vertical agreements may beget a classic hub-and-spoke conspiracy, whereby the algorithm developer, as the hub, helps orchestrate industry-wide collusion, leading to higher prices With each algorithm sharing a common interest (profits) and common inputs (similar data), the industry-wide use of algorithms may lead to durable tacit collusion among many competitors.¹³³

Similarly, the plaintiffs in *Meyer* contend that Uber’s pricing algorithm “artificially manipulates supply and demand by imposing . . . surge pricing on drivers who would otherwise compete against one another on price.” All of Uber’s partner drivers agree to charge the fare determined by Uber’s pricing algorithm. The plaintiffs thereby allege that the drivers entered into horizontal agreements to charge the same prices, and that this horizontal agreement is coordinated vertically by Uber.¹³⁴

While it may appear that algorithms could enhance consumer welfare by causing competitive price reductions at a faster rate, Ezrachi and Stucke demonstrate the way that the speed of algorithmic information-sharing can reduce incentives for competition altogether.¹³⁵ Stucke points to the example of a German software app that tracks gas-station prices. Because the algorithm detects price cuts immediately, competitors are able to match the lower price before consumers have time to patronize the discounter, eliminating any motivation for competition on price.¹³⁶ When data gets so comprehensive, and analytics so precise, they can accord incumbent competitors what Ezrachi and Stucke call the “God View” of the state of the market at a particular time (adopting Uber’s term for the company’s tool

133. *Id.*

134. *Meyer v. Kalanick*, 174 F. Supp. 3d 817, 824 (S.D.N.Y. 2016). A separate lawsuit against Uber was filed in 2016 in Texas, in which the plaintiff alleged that Uber “concocted a plan to fix prices among Uber drivers and then take a percentage of these fares paid by Plaintiff” Plaintiff’s Original Complaint ¶ 1, *Swink v. Uber Techs., Inc.*, No. 4:16-cv-01092, 2016 WL 1620432 (S.D. Tex. Apr. 22, 2016). The plaintiff alleged that the price fixing scheme violated federal antitrust laws as well as Texas antitrust laws. This lawsuit similarly alleged that through the pricing algorithm and its surge pricing component, Uber artificially set the fares for its drivers. The case was resolved when the plaintiff filed a notice of non-suit, and the complaint was dismissed without prejudice. *Swink v. Uber Techs., Inc.*, No. 4:16-cv-01092 (S.D. Tex. July 25, 2016).

135. See ARIEL EZRACHI & MAURICE E. STUCKE, *VIRTUAL COMPETITION: THE PROMISE AND PERILS OF THE ALGORITHM-DRIVEN ECONOMY* 72–73 (2016); see also David J. Lynch, *Policing the Digital Cartels*, *FIN. TIMES* (Jan. 8, 2017), www.ft.com/content/9de9fb80-cd23-11e6-864f-20dcb35cede2 (interviewing Stucke).

136. See Lynch, *supra* note 135.

permitting it to view the location of all of its drivers and riders).¹³⁷ At that point, “computers can anticipate and react to competitive threats well before any pricing change.”¹³⁸ At this point, ironically, the very market transparency that previously would have fostered competitive behavior would permit algorithms to share price information so quickly that consumers would not be aware of the competition in the first place.¹³⁹

In the case of Uber, then, pricing bots might not just preclude competition on price between individual drivers. The effect of algorithmically-driven price setting could reduce the incentive for competitors to the platform itself—both those already in the market, or those seeking entry—from competing on price altogether. A platform’s use of digital pricing thus presents a variety of new challenges for existing antitrust law frameworks, and for policymakers seeking to assess the dimensions of platform market power. Antitrust, especially in assessing a claim of collusion, assumes a human actor, including “[c]oncepts of intent, fear, and ‘meeting of the minds’ [which] presuppose quintessentially human mental states; they may prove less useful in dealing with computer software and hardware,”¹⁴⁰ and the form of tacit collusion that pricing bots can produce.

Moreover, the traditional inquiry into whether, even if “collusion” might be attributed to bot-driven pricing determinations, “they may nonetheless be so efficient that their benefits outweigh their harms”¹⁴¹ may be insufficient to capture digital pricing’s broader effects on the ability to compete on price in an era of big data and powerful algorithms.

Under current frameworks, regulators would have to assess whether the business model of the platform, including reliance on a pricing bot, “reduce[s] marginal cost even while they make tacit collusion and pricing to consumers above marginal cost more likely; the problem becomes a question of weighing the expected value of positive and negative effects.”¹⁴²

137. EZRACHI & STUCKE, *supra* note 135, at 72.

138. *Id.* at 73.

139. *See* Lynch, *supra* note 135.

140. Salil K. Mehra, *Antitrust and the Robo-Seller: Competition in the Time of Algorithms*, 100 MINN. L. REV. 1323, 1352 (2016); *see also* Lynch, *supra* note 135 (“Particularly in the case of artificial intelligence, there is no legal basis to attribute liability to a computer engineer for having programmed a machine that eventually ‘self-learned’ to co-ordinate prices with other machines.”).

141. Mehra, *supra* note 140, at 1373.

142. *Id.*

Yet a move towards “perfect” markets suggests caution in the face of uncertainty. One commentator, discussing concerns about the potential for anticompetitive effects in Google’s behavior, noted:

Economic complexity and ambiguity, coupled with an insufficiently deferential approach to innovative technology and pricing practices in the most relevant case law, portend a potentially erroneous—and costly—result. . . . The point is not that we *know* that Google’s conduct is procompetitive, but rather that the very uncertainty surrounding it counsels caution, not aggression.¹⁴³

In short, the relevant market dynamics are developing as the platforms—and their underlying technologies—also do so. In recognition of that reality, regulators should be attentive both to the benefits of regulation, and to the potential for unduly stifling beneficial innovation.

2. *Does Digital Pricing Permit Unfair Price Discrimination?*

Beyond claims that pricing bots can enable collusion, Uber’s surge pricing model has been criticized as exploitative of consumer’s willingness to pay more in times of bad weather or increased demand.¹⁴⁴ A consistent argument against the introduction of surge pricing by Uber has been the consumer confusion around the actual pricing scheme.¹⁴⁵ Uber has attempted to address this concern. In June 2016, it announced that it is switching from the murky pop ups on the app that tell consumers about surge fares with a multiplier calculation—for example “2.1x” the normal rate—to detailing the dollar amount that will be charged for the ride.¹⁴⁶ “No math and no surprises,” as Uber reps stated about the change.¹⁴⁷

143. Geoffrey A. Manne & Joshua D. Wright, *Google and the Limits of Antitrust: The Case Against the Case Against Google*, 34 HARV. J.L. & PUB. POL’Y 171, 172 (2011).

144. See Sanjukta Basu, *Surge Pricing Is Unfair, Unethical and Unconstitutional*, HUFFINGTON POST (July 15, 2016, 8:26 AM), http://www.huffingtonpost.in/sanjukta-basu/surge-pricing-is-unfair-u_b_9739132.html.

145. See Utpal M. Dholakia, *Everyone Hates Uber’s Surge Pricing – Here’s How to Fix It*, HARV. BUS. REV. (Dec. 21, 2015), <https://hbr.org/2015/12/everyone-hates-ubers-surge-pricing-heres-how-to-fix-it>.

146. See Sarah Buhr, *Uber Switches Out Surge for Price Transparency*, TECHCRUNCH (June 23, 2016), <https://techcrunch.com/2016/06/23/surgepurge/>.

147. *Id.*

Yet, even with these changes, the lack of transparency in algorithmic pricing regimes may mask far more serious anticompetitive effects.¹⁴⁸ Commentators have recently described a nightmarish scenario in which algorithmic pricing, used by a platform with market dominance and the capacity to amass significant personal data about individual consumers, could engage in behavior that could approach perfect price discrimination: person-specific pricing, that charges each user their “exact reservation price”—the maximum they would pay.¹⁴⁹

Until now, concern for broad-based first-order price discrimination¹⁵⁰ has largely been theoretical because information about an individuals’ reservation prices was unobtainable as a practical matter.¹⁵¹ Yet the advent of big data and analytics offers firms the ability to collect much more precise information on individuals’ willingness to pay, raising concerns among policymakers at the highest levels of the Obama White House regarding the implications of increasingly-perfect price discrimination for both fairness and consumer protection.¹⁵²

In contrast to most businesses, platforms now have access to massive amounts of personally-identifiable relevant information. Uber, for example, is in possession of information about a consumer’s home (and how much it is worth), place of employment, and schedule (and whether one is later in taking a repeated ride than usual). Uber also has data on patterned behavior regarding which ride offers were previously accepted and which were not, as well as information about a specific destination which may reveal the urgency of the trip.

Indeed, the anti-competitive implications of personalized pricing can become significant as both a platform’s market dominance and its access to additional granular personal increases. By discriminating on price in such a way that reflects granular knowledge of individual users’ reservation

148. See Ryan Cooper, *How Uber Could Become a Nightmarish Monopoly*, WEEK (Feb. 9, 2017), <http://theweek.com/articles/675434/how-uber-could-become-nightmarish-monopoly>.

149. See Cooper, *supra* note 148; Shiller, *supra* note 131.

150. Bracha & Syed, *supra* note 60, at 239 (“Perfect price discrimination is the ability to charge each consumer exactly the price s/he is willing and able to pay for the relevant good.”).

151. See Shiller, *supra* note 131.

152. EXEC. OFFICE OF THE PRESIDENT, BIG DATA AND DIFFERENTIAL PRICING (2015), https://obamawhitehouse.archives.gov/sites/default/files/whitehouse_files/docs/Big_Data_Report_Nonembargo_v2.pdf

values, a firm gains the capacity to capture all available consumer surplus for itself.

Existing competition law provides little guidance for considering the desirability of this behavior. The Robinson–Patman Act of 1936,¹⁵³ which deals with price discrimination, applies only to the sale of identical goods—essentially, commodities.¹⁵⁴ Moreover, proposals to expand limits on price discrimination have been rejected on the grounds that such measures would artificially maintain prices above the market level, undercut competition on price, and create barriers to new market entrants.¹⁵⁵ As platforms’ digital pricing technology both charges rates that approach individual consumers reservation price and limits the viability of competition on price, policymakers will have to identify new legal frameworks—within and outside traditional antitrust frameworks—to assess the implications for market power and consumer welfare, and address resulting concerns.

E. QUESTION FIVE: DOES THE PLATFORM’S BUSINESS MODEL INVOLVE PREDATORY PRICING?

The benefits accrued by achieving early dominance in a platform market make it crucial that policymakers address the issue of as to whether firms adopted legitimate pricing schemes to fuel network growth, or whether they engaged in anticompetitive predation. A firm engaged in predatory pricing first lowers its price until it is below the average cost of its competitors.¹⁵⁶ Weaker rivals are then forced to sell at a loss, and ultimately leave the market. In the absence of competition, then, the predatory firm raises its price, recouping its loss, and earning monopoly profits thereafter.

Concerns about predatory pricing have been raised frequently in the platform context. The “growth first, revenue later” strategy articulated by Jeff Bezos has successfully fueled Amazon’s legendary expansion across markets, supported by venture capital funding in the absence of profits. Consistent with this model, although Uber’s user network has grown dramatically, it is not yet profitable. In fact, in the first three quarters of

153. Pub. L. No. 74-692, 49 Stat. 1526 (codified at 15 U.S.C. § 13 (2012)).

154. See Cooper, *supra* note 148 (noting that such behavior would not run afoul of the Robinson–Patman Act, which governs only commodities).

155. AM. BAR ASS’N SECTION ON ANTITRUST LAW, 1 THE ROBINSON-PATMAN ACT: POLICY AND LAW 27–31 (Paul H. LaRue et al. eds., 1980).

156. See David S. Evans, *Governing Bad Behavior by Users of Multi-Sided Platforms*, 27 BERKELEY TECH. L.J. 1201, 1244 (2012) (describing the process of predatory pricing as applied by courts).

2016, Uber lost more than \$2.2 billion. And just as Amazon was criticized for engaging in a combination of below–marginal–cost sales and new infusions of venture funding as a means of achieving scale and market power at the expense of competitors, Uber’s lack of profitability has raised claims of predatory pricing.¹⁵⁷

Current legal standards governing predation claims suggest ambivalence about the cause of action,¹⁵⁸ and raise a high bar for success. The Supreme Court has expressed doubt as to the frequency of engagement in predatory practices, and its belief in the irrationality of pursuing such a strategy.¹⁵⁹ Reflecting these understandings, the Court, in the 1993 case of *Brooke Group v. Brown & Williamson Tobacco*,¹⁶⁰ required plaintiffs pursuing predation claims not only (1) to establish that the below–cost pricing was capable of “producing the intended effects on the firm’s rivals,” but also (2) to demonstrate “a likelihood that the predatory scheme alleged would cause a rise in prices above a competitive level that would be sufficient” to allow the defendant to recoup its losses.¹⁶¹ Under this high evidentiary threshold, the Federal Trade Commission has not successfully brought a predatory pricing case since that year.

Policymakers assessing platform market power will accordingly face an important decision regarding how to view predatory pricing in a two–sided digital market. In particular, they will increasingly need to consider whether the interaction between a platform’s below–cost pricing and other attributes of platform markets that have shaped the competition landscape counsel a more lenient standard for claims that predatory pricing injured competition. This Essay has explored the suggestion, discussed above, that achieving a “critical mass” of users on both sides of a platform’s market quickly is necessary to become one of the entrenched incumbents, and to enjoy the power of network effects in strengthening the resulting market dominance. In a context with such robust advantages for incumbents, prioritizing growth over profits and the resort to below–cost pricing to achieve

157. *See supra* note 33.

158. *See* Christopher J. Leslie, *Predatory Pricing and Recoupment*, 113 COLUM. L. REV. 1695, 1698 (2013) (“Predatory pricing has long been a controversial cause of action in antitrust.”); Evans, *supra* note 156, at 1244.

159. *See* *Brooke Grp. v. Brown & Williamson Tobacco*, 509 U.S. 209 (1993); *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574, 589 (1986) (“[P]redatory pricing schemes are rarely tried, and even more rarely successful.”).

160. 509 U.S. 209 (1993).

161. *Brooke Grp.*, 509 U.S. at 226.

substantial market share quickly may be much more rational than the Court's precedents would suggest.¹⁶² This fact might prompt policymakers to consider whether, in light of the characteristics of a particular platform's market model, anticompetitive concerns are exacerbated or whether strong network effects in a two-sided markets counsel more stringent standards regarding competitive injury. Policymakers should also consider whether predation might occur even when a firm does not operate below costs, but instead relies on an asymmetric pricing scheme that lowers prices significantly on one side of the market to promote user growth. Such a scheme could create network effects that raise switching costs, and the ability to charge higher prices, on the other side of the market.¹⁶³

F. QUESTION SIX: DOES THE PLATFORM'S COLLECTION AND USE OF DATA RAISE OR EXACERBATE ANTICOMPETITIVE CONCERNS?

Companies across all industries are increasingly using information collected about customer interactions in order to improve their operations. This is especially true on the digital platform, where consumer data is easily collectible and the technology to mine this information is rapidly advancing.¹⁶⁴ As we have seen throughout the inquiries regarding platform market power, big data and analytics are core elements of the platform business model.¹⁶⁵ At the same time, the massive amounts of information that can be collected and used about users on the platform raises concerns about potential new anticompetitive practices. In 2015, the Federal Trade Commission created the Office of Technology Research and Investigation designed in part to investigate these questions.¹⁶⁶ Specifically, the Commission is examining "the ways that firms compete using big data as a product, an input, or a tool for making competitively significant

162. Lina M. Khan, *Amazon's Antitrust Paradox*, 126 YALE L.J. 564, 564 (2017).

163. Amelia Fletcher, *Predatory Pricing in Two-Sided Markets: A Brief Comment*, 3 COMPETITION POLICY INT'L 221 (2007); see also MAURICE E. STUCKE & ALLEN P. GRUNES, *BIG DATA AND COMPETITION POLICY* 189 (2016) (discussing the "spill-over" network effects from one side of a market to another).

164. *Id.*

165. *Id.*

166. Jessica Rich, *BCP's Office of Technology Research and Investigation: The Next Generation in Consumer Protection*, FED. TRADE COMM'N (Mar 23, 2015, 2:01 AM), <https://www.ftc.gov/news-events/blogs/business-blog/2015/03/bcps-office-technology-research-investigation-next/>.

decisions.”¹⁶⁷ The major antitrust concerns surround the control of data by a small number of concentrated companies and the lack of transparency about their collection and usage.¹⁶⁸

Scholars and regulators are engaged in ongoing debates over the relationship between big data and competitiveness. Some maintain that the collection and possession of big data does not offer a firm a comparative competitive advantage.¹⁶⁹ These scholars argue that data is both imitable and nonrivalrous, and thus new market entrants face low barriers to replicating it.¹⁷⁰

Yet the view among both regulators and many scholars is that the data held by a platform—especially one with a large market share—can both be used to limit competition and to harm consumers. For example, in 2014 the European Commission considered the effect on competition in the online advertising market of combining user data, in reviewing Facebook’s acquisition of WhatsApp.¹⁷¹ The Commission ultimately permitted the merger, citing the existence of numerous competitors possessing their own collections of user data, but the inquiry recognized the danger.¹⁷² Subsequently, EU competition commissioner Margrethe Vestager explained that the Commission would frown upon businesses that restrict others’ access to “unique” data, explaining:

We shouldn’t be suspicious of every company which holds a valuable set of data. But we do need to keep a close eye on whether companies control unique data, which no one else can get hold of, and can use it to shut their rivals out of the market. That could

167. Shepard Goldfein & James A. Keyte, *Antitrust and ‘Big Data’: New Terrain for Inquiry?*, N.Y. L.J. (Mar. 7, 2016), www.newyorklawjournal.com/id=1202751429490/Antitrust-and-Big-Data-New-Terrain-for-Inquiry.

168. Rich, *supra* note 166.

169. See Anja Lambrecht & Catherine E. Tucker, *Can Big Data Protect a Firm from Competition?* (Dec. 18, 2015) (unpublished manuscript), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2705530.

170. See STUCKE & GRUNES, *supra*, note 163, at 42 (responding to such claims as set forth in Darren S. Tucker & Hill B. Wellford, *Big Mistakes Regarding Big Data*, ANTITRUST SOURCE 7 (Dec. 2014), https://www.americanbar.org/content/dam/aba/publishing/antitrust_source/dec14_tucker_12_16f.authcheckdam.pdf).

171. Press Release, European Comm’n, *Mergers: Commission approves acquisition of WhatsApp by Facebook* (Oct. 3, 2014), http://europa.eu/rapid/press-release_IP-14-1088_en.htm.

172. *Id.*

mean, for example, data that's been collected through a monopoly.¹⁷³

Indeed, OECD recently concurred with the notion data-driven markets “can lead to a ‘winner takes all’ result where concentration is a likely outcome of market success.”¹⁷⁴ The result of platform-winner-takes-all is further supported by a recent study in the Harvard Business School. In the study, researchers scored companies seeking venture capital funding on the basis of whether they were attempting to create entirely new categories of products or services, and whether they are “cultivating large and active developer ecosystems, among other criteria.”¹⁷⁵ The study concluded that:

the vast majority of post-IPO value creation comes from companies call[ed] “category kings,” which are carving out entirely new niches; think of Facebook, LinkedIn, and Tableau. Those niches are largely “winner take all”—the category kings capture 76% of the market.¹⁷⁶

Uber collects a massive amount of data, including both personal information and the information about traffic, travel times, and market demand that power its algorithms. It has recently announced its intention to make some of that data—information about traffic and transit times—available to urban planners and the public through a new website, Uber Movement.¹⁷⁷ Yet, as previously mentioned, the type of data that it does not intend to share—including the personal consumer data, as well as ranking and review information—has an impact on a range of competition issues. These include enabling the possibility of anticompetitive price discrimination, and exacerbated lock-in effects by personalizing the platform experience, enhancing the value of review systems, and targeting services. More generally, Uber's scale and market position suggests that it

173. Margrethe Vestager, Comm'r on the European Comm'n, Making Data Work for Us (Sept. 9, 2016), https://ec.europa.eu/commission/commissioners/2014-2019/vestager/announcements/making-data-work-us_en

174. Maurice E. Stucke & Allen P. Grunes, *Debunking the Myths Over Big Data and Antitrust* (Univ. of Tenn. Legal Studies, Research Paper No. 276, 2015), <http://ssrn.com/abstract=2612562>.

175. HARV. BUS. REV., *supra* note 88.

176. *Id.*

177. *Uber Movement FAQs*, UBER, <https://movement.uber.com/faqs?lang=en-US> (last visited Nov. 8, 2017); *see also* Dom Galeon, *Uber Releases a Staggering 2 Billion Trips-Worth of Traffic Data*, FUTURISM (Jan. 11, 2017), <https://futurism.com/uber-releases-a-staggering-2-billion-trips-worth-of-traffic-data/>.

would be difficult for new entrants to gather the amount of data Uber has already collected and which shapes Uber's algorithms. And as suggested below, the possession of "big data" can facilitate the leveraging of market dominance to new markets.

There may be wide-ranging ways that Uber and other two-sided platforms can abuse their market power by taking advantage of the massive data they collect, to the detriment of both sides of the market.¹⁷⁸ Because of its role as intermediary, Uber has access to significant data unavailable to both drivers and riders, and a capacity to monitor which is not reciprocally available to either group. By means of this information asymmetry, the platform can leverage "access to information about users and their control over the user experience to mislead, coerce, or otherwise disadvantage sharing economy participants"—a claim reflected in the revelation of Uber's manipulation of drivers to increase supply during times that would benefit the platform.¹⁷⁹

Additionally, in the digital context, "increased market usage and share" can correlate with "increased quality"¹⁸⁰—what Maurice Stucke and Allen Grunes call "learning-by-doing" network effects. They argue that "as more people use the search engine and the more searches they run, the more trials the search engine's algorithm has in predicting consumer preferences, the more feedback the search engine receives of any errors, and the quicker the search engine can respond with recalibrating its offerings."¹⁸¹ Thus, platform related lock-in effects may have certain socially beneficial outcomes that regulators should consider alongside the risks to competition.

Regulators have already begun to consider the ways that collection of the data shared by with platforms by users can foreclose competition. Recognizing that big data will be a lasting force in competition analysis, the OECD's Competition Committee offered several salient approaches that policymakers might use when engaging in this inquiry.¹⁸²

178. Ryan Calo & Alex Rosenblat, *The Taking Economy: Uber, Information, and Power*, 117 COLUM. L. REV. 1623, 1624 (2017).

179. Noam Scheiber, *How Uber Uses Psychological Tricks to Push Its Drivers' Buttons*, N.Y. TIMES (Apr. 2, 2017), www.nytimes.com/interactive/2017/04/02/technology/uber-drivers-psychological-tricks.html.

180. STUCKE & GRUNES, *supra* note 163, at 174.

181. *Id.* at 175.

182. ORG. FOR ECON. COOPERATION & DEV., SUMMARY OF DISCUSSION OF THE HEARING ON BIG DATA (2016), [https://one.oecd.org/document/DAF/COMP/M\(2016\)2/ANN2/FINAL/en/pdf](https://one.oecd.org/document/DAF/COMP/M(2016)2/ANN2/FINAL/en/pdf).

First, the Committee recognized that a platform’s possession of users’ data can create lock-in effects by increasing switching costs, and raising barriers to entry. Accordingly, they proposed that “[c]ompetition authorities should then carefully examine on a case-by-case basis to what extent business performance depends on the ability to collect data; evaluate the degree of substitutability between different datasets; and identify the amount of data required for an entrant to compete.”¹⁸³

Second, the Committee offered two ways for thinking about data, and how current legal analysis might respond to the big data challenge. Their discussion suggested on the one hand “that it may be enough to adapt existing tools” when considering big data as corporate asset in a competition analysis. On the other hand, “there is more work to do in order to incorporate data as a quality/performance issue into competitive analysis,” involving questions like lock-in.¹⁸⁴ Policymakers should bear both of these considerations in mind when fashioning oversight for platforms.

G. QUESTION SEVEN: IS THE PLATFORM LEVERAGING ITS MARKET POWER UNFAIRLY TO ESTABLISH A DOMINANT POSITION IN OTHER MARKETS?

In 2017, *Vanity Fair* combined its two lists of the “New Establishment”—“The Disrupters,” dedicated to Silicon Valley upstarts, and “The Powers That Be,” dedicated to the financial and entertainment moguls of New York and Los Angeles. The magazine explained that combining the list fits with what competition looks like today:

On some level, everyone is now in the technology business Jeff Bezos may have started out wanting to sell books, but now Amazon is contending with Hollywood, FedEx, and Apple in the entertainment, logistics, and streaming businesses. Kalanick may have initially wanted to make it easier to find a cab, but now Uber is competing in the self-driving-car industry against not only G.M., Chrysler, and Ford but also Tesla and Google, among many others. Spiegel started Snapchat to facilitate the act of sending risqué messages. Four years later his company is a legitimate threat to the entire future of television.¹⁸⁵

The expansion of market-dominant companies into new markets can offer significant pro-competitive advantages. By moving into new

183. *Id.* at 5.

184. *Id.* at 8.

185. *Id.*

technological spaces and new markets, powerful, well-funded players can offer new sources of disruption and innovation, whether through internal technological innovation and development of capacity to enter new markets, creating market partnerships, or—as is often the case—acquisition of other firms engaged in innovation.

Further, leveraging market power to compete in other markets is often at the very core of the platform business model. In the words of Reid Hoffman, the founder of LinkedIn, the world's largest online professional network platform, “[i]t’s about building the next big platform.”¹⁸⁶ Indeed, “[o]nce it has gained a foothold . . . the firm raises venture capital and tries to enter bigger markets and grow as quickly as possible.”¹⁸⁷

Uber has been similarly transparent about its goal to leverage its market dominance in the ride-coordination market to pioneer the self-driving automobile market.¹⁸⁸ In a matter of months, it has purchased Otto, a startup that retrofits existing trucks with self-driving technology,¹⁸⁹ and artificial intelligence startup Geometric Intelligence,¹⁹⁰ as well as announced the establishment of Uber AI Labs, a research arm dedicated to artificial intelligence and machine learning.¹⁹¹ Uber is now the leading player in the driverless car market specifically because of the elements of its market power in the ride-coordination market—notably, its scale, its data, and its access to capital in the absence of profits.¹⁹² Indeed, some have suggested that the only company that can compete in this new market is another platform dominant in adjacent markets—Google.¹⁹³

186. ECONOMIST, *supra* note 56.

187. *Id.*

188. Elizabeth Weise & Marco della Cava, *Uber’s Self-Driving Car Ambitions Live Another Day*, USA TODAY (May 4, 2017, 2:12 PM), www.usatoday.com/story/tech/news/2017/05/03/uber-waymo-still-battling-over-details-critical-self-driving-car-tech-suit/101244568/.

189. Romaine Dillet, *Uber Acquires Otto to Lead Uber’s Self-Driving Car Effort*, TECHCRUNCH (Aug. 18, 2016), <https://techcrunch.com/2016/08/18/uber-acquires-otto-to-lead-ubers-self-driving-car-effort-report-says/>.

190. Polina Marinova, *Uber Just Bought a Startup You’ve Never Heard Of. Here’s Why That’s Important*, FORTUNE (Dec. 5, 2016), <http://fortune.com/2016/12/05/uber-artificial-intelligence-acquisition/>

191. *Id.*

192. See Daniel Matthews, *Big Data on Wheels: Google vs. Uber in the Driverless Revolution*, SMARTDATACOLLECTIVE (Dec. 23, 2016), www.smartdatacollective.com/daniel-matthews/458204/big-data-wheels-google-vs-uber-driverless-revolution.

193. See, e.g., Jason Abbruzzese, *Uber and Google Do Battle Over Self Driving Car Tech*, MASHABLE (May 20, 2017), <http://mashable.com/2017/05/20/uber-vs-google->

Only time will reveal whether Uber, Google, or other innovators will demonstrate the capacity to excel in the driverless transportation market; yet this scenario raises the possibility of a capacity for platforms, with their technological and data-based foundations, to leverage their power into adjacent markets.¹⁹⁴ Antitrust and competition law has long recognized that, in certain limited instances, such leveraging might be anti-competitive.¹⁹⁵ Especially in data-driven platform markets characterized by strong network and lock-in effects—and in new technological contexts that might otherwise be ripe for competitive innovation—policymakers should look hard at whether the aspects of a platform’s power combine in a way that threatens to compound losses to consumer welfare.

H. QUESTION EIGHT: DOES THE PLATFORM’S MARKET POWER INAPPROPRIATELY RESTRICT CONSUMER CHOICE ABOUT PERSONAL PRIVACY?

Finally, policymakers must ask whether a platform can exploit market power to unfairly limit consumer choice regarding privacy protections. Remember that network effects and switching costs can constrain competition by locking consumers into using a single platform even when a competitor might compete favorably on product or price. In this context, a competitive offering would need to be substantially more attractive to lure consumers away from the dominant player. Similarly, lock in could eliminate competitive pressure on platforms to improve quality along the privacy-protective dimension—and even offer them substantial leeway to

waymo-self-driving-car-wars-get-nasty/ (describing litigation between Google and Uber over driverless car innovation).

194. Lothar Determann & Bruce Perens, *Open Cars*, 32 BERKELEY TECH. L.J. 913, 919 (2017) (“Social media companies may push for a socially connected car—the next platform after the personal computer, smartphone, and virtual reality headset. Companies with strong content portfolios may view the car as a platform to distribute for video and audio material.”).

195. See generally *Int’l Salt Co. v. United States*, 322 U.S. 392, 396 (1947) (tying the use of patented products to the use of unpatented products is a per se antitrust violation); Dennis W. Carlton & Michael Waldman, *The Strategic Use of Tying to Preserve and Create Market Power in Evolving Industries*, 33 RAND J. ECON. 194 (2002); Benjamin Edelman, *Does Google Leverage Market Power Through Tying and Bundling?*, 11 J. COMPETITION L. & ECON. 365 (2015). When the Justice Department sued Microsoft Corp in 1998 the lawsuit was aimed at stopping it from using its dominance of the operating system market to also dominate browser software. *United States v. Microsoft Corp.*, 253 F.3d 34, 45 (D.C. Cir. 2001).

adopt significantly less privacy-protective practices without market pushback.

Given the account of Uber's development as a data-driven firm, constraints along this dimension could have significant impact for data protection. Indeed, in the words of one analyst, "we are going to see the transformation of Uber into a big data company cut from the same cloth as Google, Facebook and Visa - using the wealth of information they know about me and you to deliver new services and generate revenue by selling this data to others."¹⁹⁶

While exploration of the relationship between antitrust and privacy concerns has not fully matured, regulators have begun to address the concern that network effects in platform markets can unfairly constrain consumer privacy choices. In the United States, former FTC Chairman Pamela Jones Harbour first made this case, raising the issue of whether network effects resulting from the two companies' data would deprive consumers of meaningful privacy choices in her dissent to the Commission's 2007 decision to clear the Google/DoubleClick merger.¹⁹⁷ In later writings, Chairman Harbour advocated that privacy should be explicitly integrated into antitrust analysis, by asking in single-firm conduct investigations whether "achieving a dominant market position might change the firm's incentives to compete on privacy dimensions" or reduce incentives to innovate new technologies that would protect consumer privacy.¹⁹⁸ The FTC has since indicated that proposed mergers can be assessed in terms of impact on non-price competition, including competition on privacy protection.¹⁹⁹

196. Ron Hirson, *Uber: The Big Data Company*, FORBES (Mar. 23, 2015, 9:15 AM), <https://www.forbes.com/sites/ronhirson/2015/03/23/uber-the-big-data-company/>.

197. *In re Google/DoubleClick*, FTC File No. 071-0170, at 5, 9-12 (Dec. 20, 2007) (Harbour, Comm'r, dissenting), https://www.ftc.gov/sites/default/files/documents/public_statements/statement-matter-google/doubleclick/071220harbour_0.pdf; see also James C. Cooper, *Privacy and Antitrust: Underpants Gnomes, The First Amendment, and Subjectivity*, 20 GEO. MASON L. REV. 1129, 1131 (2013) (summarizing Chairperson Harbour's writings on the subject).

198. Pamela Jones Harbour & Tara Isa Koslov, *Section 2 in a Web 2.0 World: An Expanded Vision of Relevant Product Markets*, 76 ANTITRUST L.J. 769, 794 (2010).

199. Debbie Feinstein, *The Not-So-Big News About Big Data*, FED. TRADE COMMISSION (June 16, 2015, 11:30 AM), <https://www.ftc.gov/news-events/blogs/competition-matters/2015/06/not-so-big-news-about-big-data> ("[T]he FTC has explicitly recognized that privacy can be a non-price dimension of competition.").

EU regulators have articulated the case even more comprehensively. In 2014, former European Data Protection Supervisor Peter Hustinx, published an Opinion calling for a “holistic approach” to the regulation of data protection, competition and consumer protection laws.²⁰⁰ His successor, current EDPS Giovanni Buttarelli, has called for the establishment of a “digital clearinghouse”²⁰¹ to bring together agencies from the areas of competition as well as consumer and data protection to develop guidelines that articulate “theories of harm relevant to merger control cases and to cases of exploitative abuse” that also reflect both principles of data protection and consumer protection.²⁰² And in March, 2016 the German Federal Cartel Office announced²⁰³ that it had launched an investigation into whether Facebook may have committed an infringement of Article 102 of the Treaty on the Functioning of the European Union.²⁰⁴ The allegation is that Facebook has abused its dominant market position by requiring its users to sign up to unfair terms regarding its use of their personal data.²⁰⁵

Just as lock-in effects might prevent consumers from adopting more efficient alternatives, in a platform era such competition-constraining consequences might prevent consumers from other choices guaranteed to them, and must be considered in any examination of a platform’s market power.

200. EUROPEAN DATA PROT. SUPERVISOR, PRIVACY AND COMPETITIVENESS IN THE AGE OF BIG DATA: THE INTERPLAY BETWEEN DATA PROTECTION, COMPETITION LAW AND CONSUMER PROTECTION IN THE DIGITAL ECONOMY (2014), https://edps.europa.eu/sites/edp/files/publication/14-03-26_competition_law_big_data_en.pdf.

201. *Big Data & Digital Clearinghouse*, EUR. DATA PROTECTION SUPERVISOR, https://edps.europa.eu/data-protection/our-work/subjects/big-data-digital-clearing-house_en/ (last visited Aug. 9, 2017).

202. Guy Lougher, *Regulatory Focus on Data Access Restrictions Could Impact Uber, Retailers, Insurers and Car Manufacturers, Says Expert*, OUT-LAW (Sept. 26, 2016), <https://www.out-law.com/en/articles/2016/september/regulatory-focus-on-data-access-restrictions-could-impact-uber-retailers-insurers-and-car-manufacturers-says-expert/>.

203. Eric Auchard, *Germany Takes on Facebook in Competition Probe*, REUTERS (Mar. 2, 2016, 1:45 AM), <https://www.reuters.com/article/us-facebook-germany-dataprotection/germany-takes-on-facebook-in-competition-probe-idUSKCN0W40Y7>.

204. See Consolidated Version of the Treaty on the Functioning of the European Union art. 102, May 9, 2008, 2008 O.J. (C 115) 89; A. Douglas Melamed, *Antitrust Law Is Not That Complicated*, 130 HARV. L. REV. 163, 169 & n.35 (2017).

205. Auchard, *supra* note 203.

III. CONCLUSION

Identifying information as the world's most valuable resource—and its manipulation and use as a leading source of economic power—commentators have called for a reexamination of both antitrust and regulation in the data economy.²⁰⁶ This Essay has offered a framework for beginning to identify issues implicating competition, consumer welfare, and market fairness in a platform age. As these questions are framed, the answers will suggest conditions under which traditional legal and regulatory approaches continue to provide appropriate market safeguards. At the same time, unique attributes of the platform economy may suggest contexts in which reworking traditional legal approaches will be necessary. Such doctrinal shifts should be made in light of the types of power achieved through new models of organizations, the use of data and analytics on which platform companies rely, and the durability of economic strength that can result. These remarkable changes have the potential not just to reshape the law within doctrinal categories, but to necessitate a blurring of categories themselves, and a reconsideration of how different legal tools—from competition law, to privacy protection, to other varied regulatory strategies—should best be employed in the digital economy.

206. See, e.g., *The World's Most Valuable Resource Is No Longer Oil, But Data*, *ECONOMIST* (May 6, 2017), www.economist.com/news/leaders/21721656-data-economy-demands-new-approach-antitrust-rules-worlds-most-valuable-resource/.