

The Ongoing Tale of Two-Sided Markets

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“IT WAS THE BEST OF TIMES, IT WAS the worst of times, it was the age of wisdom, it was the age of foolishness”¹ The literary inspiration for this article and this year’s Antitrust Law Section Spring Meeting session of the same name perhaps reflects the diametrically opposed views in the antitrust bar of the U.S. Supreme Court’s opinion in *Ohio v. American Express Co.*² Supporters of Amex think that the Court’s opinion rightfully acknowledges the economic and market realities of two-sided platforms and commands that analysis of competitive effects account for those realities. Representative of those critical of the Court’s opinion is Nancy Rose and Jonathan Sallet’s article in this issue, “*Ohio v. American Express Co.*: The Exception That Should Not Become a Rule,” that the Court erred in its analysis of market power and thus that extension of *Amex* to other markets will cause serious under-identification of anticompetitive conduct.

In this article, we address identifying two-sided or multi-sided platforms; how the legal and economic analysis has been developing since the Court’s decision in 2018; open questions for the courts to address; and possible implications for three major pending cases involving platform-based business models.

What are two-sided or multi-sided platforms, and why are they important for antitrust?

A two-sided platform, or more generally a multi-sided platform, serves two or more sets of users of the platform. Economists typically refer to multi-sided *platforms* as firms whose

business models enable interactions between multiple types of users.³ Each set of users differs in its demand for the platform, although—critical to being defined as a multi-sided platform as a matter of economics—each user-set’s demand is affected by the other’s.⁴ The classic example of a two-sided platform is a computer operating system (OS): software developers’ demand to write programs for the OS increases as more software consumers use the OS; and, vice versa, consumer demand for the OS increases the more developers write programs for the OS. Such cross-platform effects are known as “indirect” network effects, in contrast to “direct” network effects created by increasing demand on one side of the platform from a greater number of users on that same side. An example of direct network effects is increasing user demand for the OS from the fact that more people use it, e.g., because of software interoperability. A social or communications network offers another example of powerful direct network effects: many consumers use it because many other consumers use it. In *Amex*, the Supreme Court noted that the existence of significant indirect network effects was a necessary characteristic in requiring two-sided analysis of competitive effects.⁵

Other examples of multi-sided platforms include: marketplaces (sellers and buyers); payment systems (merchants and cardholders); internet traffic (senders and receivers); internet portals (advertisers and viewers); video games (game developers and gamers); media (content providers and viewers); and ride-sharing platforms (drivers and riders).⁶ The increasing number of antitrust cases involving those platforms demonstrates the importance to antitrust of properly analyzing competitive effects in the markets in which those platforms operate.⁷

Over time, economists’ terminology has evolved from “two-sided markets” toward “two-sided platforms.” This evolution was driven in part by the observation that one-sidedness and multi-sidedness are characteristics of a business model, not necessarily of an entire market. Because multi-sided platforms can compete with one-sided businesses, e.g., consumers who use ride-sharing platforms like Uber may also consider taxis and “black car” services for rides, it may be erroneous to characterize an entire market as two-sided. This point is particularly salient in the context of antitrust market definition, in which the word “market” has a specific, substantive meaning that is different from colloquial use of the word. In *United States v. Sabre Corp.*, the district court failed to observe the distinction between an antitrust “market” and a two-sided business model competing within that market, with outcome-determinative consequences. The court denied the government’s request to preliminarily enjoin Sabre’s acquisition of a rival on the basis that Sabre operated in a “two-sided market” while the rival was a “one-sided” business and therefore could not compete in the same market with Sabre as a matter of antitrust law—notwithstanding the court’s findings that the two firms did in fact meaningfully compete on price and quality and viewed one another as rivals.⁸

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Also critical to the analysis in *Amex* is whether the platform is a “transaction platform.” Certain economists, notably Filistrucchi et al., have carved out “transaction platforms,” which they define as being “characterized by the presence and observability of a [simultaneous] transaction between the two groups of platform users.”⁹ The Supreme Court noted that a credit cardholder uses the credit-card platform at the moment they buy from a merchant using that credit card. In contrast, a newspaper, although potentially a two-sided platform that brings together advertisers and readers, may not be a transaction platform if it does not satisfy the “simultaneous use” criterion.

In *Amex*, the Supreme Court cited Filistrucchi et al. in concluding that American Express was a simultaneous-use transaction platform.¹⁰ To date, the lower courts have construed the Supreme Court’s opinion to command two-sided analysis in antitrust cases implicating transaction platforms.

In their recent book *The Economics of Platforms*,¹¹ Belleflamme and Peitz offer two additional distinguishing characteristics of multi-sided platforms. First, according to the authors, platforms *actively manage* cross-platform network effects. Some firms may simply experience such network effects, while making no attempt to manage them. Those may not qualify as multi-sided platforms, or at least do not behave as multi-sided platforms do. For example, Uber tries to set prices to match drivers and riders, while taxi operators post regulated prices without regard to managing network effects.

Second, Belleflamme and Peitz argue that multi-sided platforms *enable*, rather than control, the interactions between user groups. For example, Uber does not control the type of car, how it’s maintained, or the driver. By contrast, one-sided businesses control the product or service provided. United Airlines determines and controls the inputs to provide flights to its customers: the aircraft, seating configuration, schedule, etc. The enablement/control distinction does not preclude platforms from setting and enforcing rules and restrictions for both user groups to actively manage network effects. For example, Uber has required both drivers and riders to wear a mask to prevent the spread of COVID-19. During a pandemic, drivers wearing masks increases rider demand for the platform; and riders wearing masks increases driver demand for the platform. However, a platform is defined by its ability to bring together two distinct sets of economic agents; and the platform is independent from those agents.

Two-sided platforms also may have two-sided prices. Because two distinct groups of users participate in a two-sided platform, the platform may charge fees to each side for its services and those fees may be asymmetrical. For instance, OpenTable charges fees to restaurants but is free for diners who can even get rewards for using the platform (i.e., negative prices). Similarly, merchants typically pay a fee per transaction for payment processing services, while cardholders often also pay fees and earn rewards (e.g., frequent-flier miles) on transactions for using their cards.

In classic one-sided antitrust analysis, one must account for price effects. And in *Amex*, the Supreme Court held that, for simultaneous-use transactions platforms, one must account for price effects on both sides (merchant fees and cardholder rewards in that case).¹² But what is “the two-sided price” for competitive analysis? For instance, Rochet and Tirole distinguish the *price level* (the sum of the prices to each side) from the *price structure* (the ratio between the prices of each side). The price level tells us how much the platform charges overall. The price structure tells us how the platform allocates the two-sided price between each side. The platform designs its pricing structure to promote greater usage. For instance, OpenTable likely would not be as popular if it offered its services free to restaurants and instead charged diners to make reservations. Instead, it rewards diners for using the platform, which makes it worth more restaurants’ while to use the platform, which increases the platform’s utility to diners, and so on. Such bilateral, cross-platform network effects feed into each other and can produce a positive feedback loop.

The same positive cross-platform network effects are also at play when platforms actively manage the quality of interactions on the platform, as in the COVID-19 mask example above.

Under competition, therefore, two-sided platforms have incentives to keep prices low and quality high on both sides. Cross-platform network effects imply that two-sided platforms may have an incentive to lower prices on one side of the platform to acquire and maintain a “critical mass” of participants on both sides of the platform. Also, if a platform raises the price on one side, it risks that side reducing its demand to a point at which users on the other side will reduce their usage, which can lead to a downward spiral fueled by network effects.¹³ For example, if Uber increased the fees it charges drivers, thereby lowering the amount drivers earn per ride, drivers would likely leave the Uber platform for other ridesharing platforms or other work opportunities. That would make it more difficult for riders to obtain rides, so riders would be more likely to use other ridesharing apps or transportation options. That would in turn make it more difficult for drivers to provide rides (e.g., by increasing idling time and distance to passenger pickups), which would further reduce driver use of Uber. Such a negative feedback loop would also result from Uber drastically raising the prices paid by riders.

All else equal, the more competition in a market with two-sided platforms, the lower the price level (the sum of total prices). Put differently, in perfectly competitive markets, there is limited scope for the platform to collect rents by increasing the price level. Even for a two-sided platform that chooses to subsidize one side by charging the other relatively more, if the market is competitive, then the higher price may be entirely passed through to the first side in the form of a subsidy to facilitate participation on the platform.

However, network effects may also introduce barriers to market entry. Some scholars have expressed concerns that

multi-sided platforms' network effects can be particularly strong for incumbent platforms such that new entrants cannot compete. However, the inquiry must be market specific. Tucker argues that certain digital platforms may be characterized by lower switching costs and narrower network effects than originally thought, because many users may leave a platform when it becomes less attractive.¹⁴ For example, users rapidly switched from social-media platform MySpace, despite its first-mover advantage and associated network effects, to then new entrant Facebook, which launched in 2004 and overtook MySpace in 2008. In addition, users may *multihome*, i.e., participate in more than one platform at a time (for example, using both Uber and Lyft for ride services). Multihoming introduces additional platform competition and a counterweight to potential network effects: users can migrate to another platform if prices rise or quality decreases. Rochet and Tirole note that “[a]n increase in multihoming on the buyer side facilitates steering on the seller side and results in a price structure more favorable to sellers.”¹⁵ Multihoming can also benefit both sides of the platform and the platform itself if, for example, multihoming induces greater participation in both platforms.¹⁶

How has the legal and economic analysis of competitive effects been developing since *Ohio v. Amex*?

In *Amex*, the Supreme Court reasoned that American Express is a transaction platform, “[t]he key feature” of which is that it “cannot make a sale to one side of the platform [a merchant that accepts Amex] without simultaneously making a sale to the other [a consumer that uses their Amex card to buy something from the merchant].”¹⁷ In that scenario, one can calculate a two-sided price for the transaction that is the sum of merchant fees and cardholder fees (less cardholder rewards). Because the plaintiffs “contend[ed] only that they directly proved actual adverse effects on competition,”¹⁸ i.e., higher prices, the existence of that two-sided price—and the challenged conduct’s effect on it—was critical to the Court’s decision.

The Court held that the plaintiffs had failed to meet their burden of proving higher two-sided prices from Amex’s rules, because the plaintiffs showed only higher prices to one side (merchants).¹⁹ Given the plaintiffs’ failure to get beyond the first step of the rule-of-reason analysis (i.e., there was insufficient two-sided proof of anticompetitive effects), there was no need to evaluate whether Amex’s proffered procompetitive justifications of promoting competition between brands were valid or, if they were, outweighed any anticompetitive effects.²⁰

The existence of a two-sided price for a simultaneous transaction between both sides of the platform was also critical in *US Airways, Inc. v. Sabre Holdings Corp.*²¹ US Airways alleged certain conduct by Sabre, a global distribution system (GDS) for airfares to travel agents, enabled Sabre to charge airlines supra-competitive fees for airfare bookings.²²

US Airways prevailed at trial on its damages claim: “it was entitled to damages in an amount by which the supracompetitive fees paid by it [\$3.49 per booking] exceeded the fees that it asserted would have been charged in a competitive market (\$1.35 per booking).”²³ The Second Circuit ordered a new trial because, “[i]n a market that took into account both sides of the Sabre platform, the prices would be supra-competitive only to the extent that the net prices charged to travel agents (here, \$0.85 per booking on average) and airlines (here, \$3.49 per booking) *combined* exceeded the prices that would have been charged in a competitive market.”²⁴

One court has held that health insurance markets are not two-sided transaction platforms under *Amex* because health insurance markets “[lack] the ‘key feature’ of a transaction platform: simultaneity of the exchange.”²⁵ “[C]onsumers of dental services typically pay insurers fixed premiums at regular intervals, regardless of when or even whether they visit the dentist.”²⁶ Whether health insurance is even a two-sided platform can be debated. Although consumers may provide a co-payment at the time of the transaction, the co-pay is not a fee for the platform’s services; it is a fee for the health-care provider’s services. And although there may be an economic relationship between lower provider reimbursement rates and lower premiums, it is not a direct relationship, let alone a contemporaneous one. Premiums are set to cover expected healthcare costs in the future, not for the health-care that consumers are using at the time they are using it.²⁷ That matters because it means there is no two-sided price, unlike with payment platforms and airfare GDS platforms.

What legal and economic questions remain to be addressed?

An important and fundamental legal and economic question is: In which market or markets does a two-sided platform compete? The market for Side A and the market for Side B, separately? Or in a single market specific to platforms that encompasses both sides? For example, does a ridesharing platform compete with other labor opportunities on the driver side, e.g., car services, taxis, and delivery platforms? Or with other transportation modes on the rider side, e.g., car services, taxis, public transit, and scooter rentals? Or does it compete only with other firms that connect drivers and riders? The delineation of the market will significantly affect the identification of actual and potential competitors.

Amex and the courts interpreting it thus far have made one distinction: if a firm operates a two-sided transaction platform, then the relevant market and concomitant analysis of competitive effects should include both sides of the platform. But from an economic perspective, defining and identifying two-sided transaction platforms is still not clearly delineated in the literature,²⁸ and there is active debate about the clarity and economic relevance of the Supreme Court’s binary distinction between transaction and non-transaction platforms. Some economists argue that substitution patterns on each side of a platform—potentially including

non-platforms—ultimately determine supply, demand, and pricing, and therefore each side should be analyzed as a “market” where appropriate.²⁹

The Supreme Court’s decision also states that “[a] market should be treated as one sided when the impacts of indirect network effects and relative pricing in that market are minor.”³⁰ However, from an economic perspective, it is challenging to measure the strength of indirect network effects, and there is no single well-established methodology for doing so.

Some economists have focused on the “observability” of transactions.³¹ Nowadays, for example, digital advertising (e.g., on Facebook and Google) is sold in observable, highly individualized auctions that occur when the user’s app or browser loads the page. Further, the user’s interaction with the ad is observable: Did they click on the ad? For how long was the ad visible? Did they subsequently visit the advertiser’s website? Did they buy the advertised product? In some cases, the user can also purchase the advertised product on the platform itself. Are digital-advertising platforms transaction platforms or are they closer to newspapers, which the Supreme Court suggested were not meaningfully two-sided transaction platforms?³² Or is their behavior one-sided in certain aspects and two-sided in others?

Given the ongoing debate over identifying two-sided platforms and their relevant markets for antitrust analysis, litigants and courts should consider the circumstances of each case, including:

- the nature of the platform and demand on each side of the platform;
- the restraint(s) at issue;
- the substitution patterns in each market;
- the strength of direct and cross-platform network effects;
- any potential barriers to entry created by network effects;
- multihoming on each side of the platform; and
- the evolution of two-sided price levels and price structures.

After greater legal and economic scholarship and precedent, more structured principles of analysis may emerge.

What are some possible implications for existing cases involving multi-sided platforms?

Epic Games, Inc. v. Apple Inc. Epic Games claimed that Apple was the monopolist in each of two “aftermarkets”—(1) the distribution of iOS apps and (2) payment processing for in-app purchases in iOS apps³³—and that it violated federal and California antitrust laws by prohibiting distribution of iOS apps through other stores and by prohibiting apps from steering users to other payment-processing services in-app, causing Epic Games and other app developers to pay Apple supra-competitive commissions on app sales and in-app purchases. After a bench trial, the district court found a relevant market for mobile games and not for iOS

apps alone.³⁴ Ultimately, the court ruled in Apple’s favor on Epic’s antitrust claims.

Although the court found that “Apple enjoys considerable market share of over 55% and extraordinarily high profit margins,”³⁵—and that Apple had market power in the relevant market³⁶—it held that Epic failed to account for price effects on both sides of the iOS platform and therefore failed to prove that Apple was a monopolist.³⁷ Epic’s expert economist applied the hypothetical-monopolist test to Apple’s 30-percent commissions for app and in-app purchases. The district court found that Apple’s “price increase would reduce consumer demand for apps,” which in turn would reduce app sales and profits for both developers and Apple.³⁸ The court rejected Epic’s analysis for not accounting for that cross-platform network effect. However, the district court also found that “the facts here differ from *Amex*” because “Apple set its 30% commission rate almost by accident . . . without considering operational costs, benefits to users, or value to developers, that is, both sides of the platform.”³⁹

In sum, the district court criticized both sides of the “v.” for not accounting for both sides of the platform in assessing price or competitive effects. Epic has appealed the trial court’s judgment to the Ninth Circuit Court of Appeals, which is poised to address that issue.⁴⁰

FTC v. Facebook, Inc. The Federal Trade Commission (FTC) alleges that “Facebook holds monopoly power in the market for personal social networking services . . . in the United States, primarily due to its control of two of the largest and most profitable social networks in the world, Facebook and Instagram.”⁴¹ The FTC explicitly notes that the source of Facebook’s alleged monopoly power is the “strong network effects” Facebook enjoys “because a personal social network is more valuable to a user when more of that user’s friends and family are already members”⁴²—direct network effects, as discussed above. Further, “a new entrant faces significant difficulties in attracting a sufficient user base to compete with Facebook” because “it is very difficult to win users with a social networking product built around a particular social ‘mechanic’ (i.e., a particular way to connect and interact with others, such as photo-sharing) that is already being used by an incumbent with dominant scale.”⁴³ The FTC claims that Facebook unlawfully maintained its monopoly by acquiring would-be competitors, such as Instagram, and by denying previously-granted interoperability to apps once they began to scale and threaten Facebook’s dominance.⁴⁴ In addition to alleging harm to consumers through lesser availability of innovative social-networking apps, the FTC alleges harm to the other side of the Facebook platform—advertisers—from “suppress[ion of] meaningful competition for the sale of advertising.”⁴⁵

An important threshold question in the litigation promises to be application of the two-sided analysis described in *Amex*. Unlike in *Amex*, the alleged source of market power is direct network effects, not cross-platform (indirect) network effects. In dictum, the Supreme Court also stated,

“[a] market should be treated as one sided when the impacts of indirect network effects . . . are minor,” including the example of “[n]ewspapers that sell advertisements” because “newspaper readers are largely indifferent to the amount of advertising that a newspaper contains.”⁴⁶

With respect to the sale of advertising, some scholars have argued that *Amex* is irrelevant because, in their view, Facebook is not a transaction platform: Facebook “doesn’t exist for the sole purpose of facilitating simultaneous transactions between [advertisers and users].”⁴⁷ Other scholars have argued that “the cost structure[s] of Twitter, Facebook, and Google only make sense” by considering them as two-sided platforms: the platform subsidizes one side (consumers) to grow the other (advertisers).⁴⁸ Also, to the extent that these entities operate high-speed advertising businesses with individualized advertising sold immediately (that is, near-instantly generating a user-specific ad when a user clicks on a page), it may be appropriate to view them as two-sided transaction platforms between advertisers and social-media users that involve a “simultaneous transaction.”⁴⁹

United States v. Google LLC and Colorado v. Google LLC. In *United States v. Google*,⁵⁰ the U.S. Department of Justice Antitrust Division and 14 states allege that Google violated Section 2 of the Sherman Act, 15 U.S.C. § 2, by entering into agreements with mobile-device manufacturers (OEMs), internet-browser developers, and manufacturers of connected consumer products (the “Internet of Things” or “IoT”) to make Google Search the exclusive default search application at various search access points. The plaintiffs assert that the allegedly exclusive deals maintained Google’s monopolies in the relevant markets for “general search services, search advertising, and general search text advertising in the United States.”⁵¹

In *Colorado v. Google*, 35 states and two U.S. territories allege three categories of anticompetitive conduct: (1) exclusive dealing as in *United States v. Google*; (2) Google’s limiting interoperability of its Search Ads 360 marketing software with Microsoft’s Bing; and (3) “thrott[ing] consumers from bypassing its general search engine and going directly to their chosen destination,” particularly when that chosen destination specializes in search for a particular vertical, e.g., travel.⁵²

Anticipated two-sided issues include: the extent to which Google’s promotion of consumers’ use of its search services enhances the accuracy and quality of Google Search, which has both positive direct network effects for consumers and positive cross-platform network effects for advertisers; the extent to which rival search providers’ scale is inhibited and whether that forecloses effective competition; the extent to which consumers multihome, e.g., use other search services for shopping or travel; and the extent to which advertisers multihome, e.g., use any of myriad other advertising media as a substitute for search advertising.

Some have argued that Google “is not a transaction platform . . . because the impacts of indirect network effects are

minor, as with a newspaper.”⁵³ That may be an oversimplification of the nature of Google’s advertising services. The issue is whether greater demand by the advertiser side of the platform increases demand on the user side. That question may vary depending on the type of search. For a shopping search, a greater number of advertisers, i.e., participating merchants, may increase the platform’s utility to consumers. The same may hold for travel and entertainment searches—airfares, hotel rates, car rentals, restaurants, etc.—as seen on platforms like Expedia, Booking.com, Priceline.com, OpenTable, Resy, and Yelp. Moreover, Google auctions personalized advertisement views nearly simultaneously in response to a user’s search.⁵⁴ Scholars have argued that because “search ads are . . . closer to the consumer’s ultimate intent to make a purchase,”⁵⁵ shopping searches are closer to facilitating transactions and therefore perhaps more like what the Supreme Court in *Amex* commanded be analyzed using a two-sided framework.⁵⁶

For informational searches or research, advertisements are less important. Some users may prefer no ads, but others may appreciate targeted advertising. Someone researching corrective measures for flat feet (like those of one of the authors who is identified in the “foot” note⁵⁷) might appreciate advertisements for orthotics and tennis shoes with arch support. Given variation in cross-platform demand among services—and thus in their two-sided nature—there may be multiple two-sided platforms at issue.

Conclusion

Although economic study of two-sided platforms is entering its third decade, U.S. courts have only just begun to address and sketch-out the antitrust analysis of conduct by some of those platforms. We’ve mentioned three major pending cases above and some of the issues they may clarify as they proceed. But there are many more in courts across the country, and all bear watching given the prevalence and economic importance of two-sided platforms in the American economy. The tale continues. ■

¹ CHARLES DICKENS, *A TALE OF TWO CITIES* (1859).

² 138 S. Ct. 2274 (2018).

³ Marc Rysman, *The Economics of Two-Sided Markets*, J. ECON. PERSPECTIVES 23(3) (2009), at 125-43.

⁴ Jean-Charles Rochet & Jean Tirole, *Two-sided markets: a progress report*, RAND J. ECON. 37(3) (2006), at 645-667 [Hereinafter Rochet and Tirole (2006)], <https://www.jstor.org/stable/25046265>.

⁵ 138 S. Ct. at 2286.

⁶ Jean-Charles Rochet & Jean Tirole, *Platform Competition in Two-Sided Markets*, J. EURO. ECON. ASS’N 1(4) 990-1029 (2003), at 1013-17 [Hereinafter Roche and Tirole (2003)], <https://www.rchss.sinica.edu.tw/cibs/pdf/RochetTirole3.pdf>.

⁷ District of Columbia v. Amazon.com, Inc., Case No. 2021 CA 001775 B (D.C. Super. Ct. filed May 25, 2021); *Amex*, 138 S. Ct. 2274; *In re Payment Card Interchange Fee and Merchant Discount Antitrust Litig.*, MDL No. 1720 (E.D.N.Y.); *United States v. Google*, No. 1:20-cv-03010 (D.D.C. Oct. 20, 2020); *Colorado v. Google*, No. 20-cv-03715 (D.D.C. filed Dec.

- 17, 2020); *Epic Games, Inc. v. Apple Inc.*, ___ F. Supp. 3d ___, 2021 WL 4128925 (N.D. Cal. 2021) (Rule 52 Order After Trial on the Merits), *appeal pending*, Case No. 21-16506 (9th Cir. filed Sep. 13, 2021); *FTC v. Facebook, Inc.*, Civ. A. No. 20-3590 (D.D.C. Jan. 11, 2022) (denying Fed. R. Civ. P. 12(b)(6) motion to dismiss).
- ⁸ 452 F. Supp. 3d 97, 114, 116, 117-18, 136 (D. Del. 2020) (denying preliminary injunction of Sabre's acquisition of Farelogix), vacated as moot, No. 20-1767, 2020 WL 4915824 (3d Cir. Jul. 20, 2020).
- ⁹ Lapo Filistrucchi, Damien Geradin, Eric van Damme & Pauline Affeldt, *Market Definition in Two-Sided Markets: Theory and Practice*. J. COMP. LAW & ECON. 10(2) (2014), at 293-339.
- ¹⁰ 138 S. Ct. at 2280.
- ¹¹ PAUL BELLEFLAMME & MARTIN PEITZ, *THE ECONOMICS OF PLATFORMS* 29-30 (2021).
- ¹² 138 S. Ct. at 2287.
- ¹³ Jean-Charles Rochet & Jean Tirole, *Cooperation among competitors: some economics of payment card associations*, RAND J. ECON., 33(4) 2002, at 549-70 ("the system must attract both sides of the market" and, therefore, "[a]ny contemplated increase" in the price paid by one side "must carefully consider" the effect of that price increase on both sides).
- ¹⁴ Catherine Tucker, *Network Effects and Market Power: What Have We Learned in the Last Decade?*, ANTITRUST, Spring 2018, at 72.
- ¹⁵ Rochet & Tirole (2003), at 1013.
- ¹⁶ Paul Belleflamme & Martin Peitz, *Platform Competition: Who Benefits from Multihoming?* (2018) (working paper), file:///H:/temp/convert/BelleflammePeitz_multihoming_20180105.pdf.
- ¹⁷ 138 S. Ct. at 2280.
- ¹⁸ Brief for Respondents, *Ohio v. Am. Express Co.*, No. 16-1454, 2018 WL 481636, at *20 (U.S. filed Jan. 16, 2018).
- ¹⁹ 138 S. Ct. at 2287-88.
- ²⁰ *Id.* at 2284.
- ²¹ 938 F.3d 43 (2d Cir. 2019).
- ²² *Id.* at 59.
- ²³ *Id.*
- ²⁴ *Id.* (citing *Amex*, 138 S. Ct. at 2287 ("focus[ing] on only one side of the two-sided credit-card market ... misses the mark because ... [e]vidence of a price increase on one side of a two-sided transaction platform cannot by itself demonstrate an anticompetitive exercise of market power").
- ²⁵ *In re Delta Dental Antitrust Litig.*, 484 F. Supp. 3d 627, 638 (N.D. Ill. 2020) (quoting *Amex*, 138 S. Ct. at 2280).
- ²⁶ *Id.*
- ²⁷ See *id.* ("And reimbursements paid on behalf of an insured who does receive covered services during her plan year are untethered in both time and cost from the insured's premium payment.").
- ²⁸ The term "transaction platform" was not widely used by economists before *Amex*. For instance, neither the seminal work of Rochet and Tirole (2006) nor the summary in Rysman (2009) nor the applied work of Evans and Schmalensee (2013, 2017) discusses "transaction platforms." The broader relevance of Filistrucchi et al.'s distinction of indirect network effects in platform use versus membership remains unclear.
- ²⁹ See, e.g., Gunnar Niels, *Transaction Versus Non-Transaction Platforms: A False Dichotomy in Two-Sided Market Definition*, J. COMP. LAW & ECON., 15(2-3) (2019), at 327-357, <https://academic.oup.com/jcle/article-abstract/15/2-3/327/5670741>.
- ³⁰ 138 S. Ct. at 2286 (internal citations omitted) ("Newspapers that sell advertisements, for example, arguably operate a two-sided platform because the value of an advertisement increases as more people read the newspaper. But in the newspaper-advertisement market, the indirect networks effects operate in only one direction; newspaper readers are largely indifferent to the amount of advertising that a newspaper contains.").
- ³¹ Sanjana Parikh, *Defining the Market for Two-Sided Platforms: The Scope of Ohio v. American Express*, BERKELEY TECH. LAW J. (34) (2019), at 1325.
- ³² Niels, *supra* note 29.
- ³³ *Epic Games, Inc. v. Apple Inc.*, ___ F. Supp. ___, 2021 WL 4128925, at *29 (N.D. Cal. Sept. 10, 2021).
- ³⁴ *Id.* at *83-86.
- ³⁵ *Id.* at *1.
- ³⁶ *Id.* at *118.
- ³⁷ *Id.* at *37-38.
- ³⁸ *Id.* at *38.
- ³⁹ *Id.* at *101 & n. 603.
- ⁴⁰ See Principal and Response Brief for Appellee/Cross-Appellant Apple Inc., at 41-42, 73, *Epic Games, Inc. v. Apple Inc.*, Nos. 21-16506 and 21-16695 (9th Cir. filed Mar. 24, 2022).
- ⁴¹ Substitute Am. Compl., *FTC v. Facebook, Inc.*, Case No. 20-cv-03590-JEB, ¶ 2 at 2 (D.D.C. filed Sep. 8, 2021).
- ⁴² *Id.* ¶ 4 at 2-3.
- ⁴³ *Id.*
- ⁴⁴ *Id.* ¶¶ 5-9 at 3-5.
- ⁴⁵ *Id.* ¶ 10 at 5.
- ⁴⁶ 138 S. Ct. at 2286 (internal citations omitted).
- ⁴⁷ Tim Wu, *The American Express Opinion, Tech Platforms & the Rule of Reason*, JOURNAL OF ANTITRUST ENFORCEMENT (2018), https://scholarship.law.columbia.edu/cgi/viewcontent.cgi?article=3512&context=faculty_scholarship.
- ⁴⁸ William Rinehart & Pranjal Drall, *Platform Competition and the Implications of Amex*, FTC comment (2018), <https://www.americanactionforum.org/comments-for-record/platform-competition-and-the-implications-of-amex/>.
- ⁴⁹ See *id.* at 6.
- ⁵⁰ Compl., *United States v. Google LLC*, Case No. 20-cv-3010 (D.D.C. filed Oct. 20, 2020).
- ⁵¹ Am. Compl., at 2-5, *United States v. Google LLC*, Case No. 20-cv-3010 (D.D.C. filed Jan. 15, 2021).
- ⁵² Compl., *Colorado v. Google LLC*, Case No. 20-cv-3715, ¶¶ 11-14 at 7-8 (D.D.C. filed Dec. 17, 2020).
- ⁵³ Fiona M. Scott Morton & David C. Dinielli, *Roadmap for a Monopolization Case Against Google Regarding the Search Market*, Omidyar Network (2020), <https://omidyar.com/wp-content/uploads/2020/09/Roadmap-for-a-Monopolization-Case-Against-Google-Regarding-the-Search-Market.pdf>; Ben Brody, *U.S. Google Monopoly Case Could Hit Supreme Court AmEx Hurdle*, BLOOMBERG NEWS, Aug. 28, 2020, <https://www.bloomberg.com/news/articles/2020-08-28/u-s-google-monopoly-case-could-hit-supreme-court-amex-hurdle> (reporting Makan Delrahim, former head of the Antitrust Division at the U.S. Department of Justice, noting that he "didn't see the [*Amex*] ruling touching on Google's search business" because Google's ad sales were akin to a newspaper).
- ⁵⁴ Shuai Yuan, Jun Wang & Xiaoxue Zhao, *Real-time bidding for online advertising: measurement and analysis*, Proceedings of the Seventh International Workshop on Data Mining for Online Advertising (2013), at 1-8, <https://dl.acm.org/doi/abs/10.1145/2501040.2501980>.
- ⁵⁵ Am. Compl. ¶¶ 28-29, *United States v. Google*.
- ⁵⁶ 138 S. Ct. at 2286 (platforms that facilitate transactions "exhibit more pronounced indirect network effects and interconnected pricing and demand," and therefore are properly considered two-sided).
- ⁵⁷ It's Ankur.