



ECONOMICS COMMITTEE NEWSLETTER

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Antitrust Enforcement in Two-Sided Markets

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I. Introduction

Companies that connect two different types of customers through a platform have long existed: newspapers and magazines have enabled advertisers to connect to readers, and yellow pages and payment cards have facilitated transactions between merchants and customers for years. Antitrust interest in platforms has increased with the ubiquity of computers and the Internet, and more recently, smartphones, which have led to the proliferation of companies connecting different types of customers. PCs, video game consoles and smartphones are all interfaces connecting those who create software, games, apps, and accessories to consumers. In fact, software applications, coupled with the Internet, often act as platforms themselves and have been instrumental in the development of virtual marketplaces and the “sharing economy.”

Platforms have been the subject of many high-profile antitrust cases, including Microsoft, Visa/MasterCard, and American Express.⁵ Motivated in part by these cases, economists have coined the term “two-sided markets” to describe these special market structures in which centrally located entities or platforms serve two different types of customers with interdependent values. Economists have also developed conceptual tools and frameworks to understand how platforms function differently from more standard environments. A key insight from this research is that traditional antitrust frameworks and tools cannot be applied without significant adjustments. As two-sided markets become prevalent in the connected economy, and as new market leaders emerge, antitrust authorities are increasingly focusing on these platforms, including the car-sharing platform Uber;⁶ the home-sharing platform Airbnb;⁷ Google’s search platform

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⁵ Press Release, U.S. Dept. of Justice, Justice Department Sues American Express, MasterCard, and Visa to Eliminate Rules Restricting Price Competition; Reaches Settlement with Visa and MasterCard (October 4, 2010).

⁶ Mark Scott, *E.U. Commission Opens Antitrust Inquiry into E-Commerce Sector*, N.Y. Times (May 6, 2015), http://www.nytimes.com/2015/05/07/business/international/european-commission-e-commerce-inquiry-american-tech-companies.html?_r=0; Ian Mount, *Airbnb, Uber Under Attack in Barcelona*, Fortune (May 28, 2014, 10:20 AM), <http://fortune.com/2014/05/28/airbnb-uber-barcelona/>.

and its Android operating system;⁸ the Apple electronic book platform;⁹ the video-on-demand platform Netflix;¹⁰ and multiple hotel and travel aggregation platforms.¹¹ Given the potential for significant consumer benefits and harms, understanding the characteristics of an appropriate framework in the context of two-sided markets is particularly relevant.

In this article, we begin by reviewing key economic concepts to understand two-sided markets. We then turn to antitrust issues specific to two-sided markets and discuss how pricing strategies and potential anti-competitive conduct should be evaluated in a two-sided market. Finally, we review cases and legislation that have developed as a result of early antitrust investigation of the payment card industry.

II. Background and key economic concepts

The need for a more sophisticated economic theory of two-sided markets became apparent in the 1990s in the wake of multiple litigation cases against Visa and MasterCard for alleged market power resulting in high markups on one set of customers (i.e., merchants) and zero-to-negative prices charged to another set of customers (i.e., consumer rewards for using the cards). This “real world” issue prompted economist Jean Tirole and his co-authors to develop a theoretical framework to explain how firms in two-sided markets set prices, and how these prices affect consumer welfare.

Two-sided markets are “markets with network externalities ... characterized by the presence of two distinct sides whose ultimate benefit stems from interacting through a common platform.”¹² The economic theory behind

⁷ See footnote 6; Will Coldwell, *Airbnb's Legal Troubles: What are the Issues?*, The Guardian (Jul. 8, 2014, 8:38 AM), <http://www.theguardian.com/travel/2014/jul/08/airbnb-legal-troubles-what-are-the-issues>.

⁸ Natalia Drozdziak, *EU Deepens Antitrust Investigation Into Google's Practices*, W.S.J. (Aug. 21, 2015, 2:42 PM), <http://www.wsj.com/articles/eu-deepens-antitrust-investigation-into-googles-practices-1440178863>; Aoife White, *Google Accused of Abusing Power on Search as Android Probed*, Bloomberg Business (Apr. 15, 2015, 10:50 AM), <http://www.bloomberg.com/news/articles/2015-04-15/eu-accuses-google-of-antitrust-violations-starts-android-probe>.

⁹ Nate Raymond & Alison Frankel, *Apple Agrees to Conditional \$450 Million e-Books Antitrust Accord*, Reuters (Jul. 16, 2014, 1:19 PM), <http://www.reuters.com/article/2014/07/16/apple-ebooks-settlement-idUSL2N0PR1JG20140716#PsR0KjRhMUC4sQLj.97>.

¹⁰ Liz McKenzie, *Wal-Mart, Netflix Targeted in DVD Antitrust Suit*, Law360 (Jan. 6, 2009, 12:00 AM), <http://www.law360.com/articles/81784/wal-mart-netflix-targeted-in-dvd-antitrust-suit>.

¹¹ Paul DeBenedetto, *Online Travel Booking Companies Escape Price-Fixing MDL*, Law360 (Oct. 28, 2014, 2:36 PM), <http://www.law360.com/articles/590952/online-travel-booking-companies-escape-price-fixing-mdl>.

¹² Jean-Charles Rochet and Jean Tirole, *Platform competition in two-sided markets*, 1(4) J. Eur. Econ. Ass'n 990 (2003).

two-sided markets relies on two well-studied economic concepts: network effects and multi-product pricing.

Understanding network effects is helpful to grasp the economics of two-sided markets, because a participant on one side of the market can affect the value of the network to other participants on the other side of the platform. For example, each additional merchant (i.e., side A) accepting a certain payment card increases the value of the whole card system (i.e., the platform) to the cardholders (i.e., side B).

Multi-product pricing refers to price setting by a firm selling multiple products with interrelated demand. When selling two products that are complements (e.g., tennis racquets and balls or left and right shoes), a firm considers the demand elasticity of each product and the strength of their interactions.

Because a platform connects two types of users, the demand from at least one side of a platform is related to the demand from the other side. As a result, the firm must set prices that will “get the two sides on board” and identify how much value each side derives from the platform (in particular, how price-elastic both sides are) and how each side affects the other side’s demand for the platform. Ultimately, the platform must attract enough customers from both sides to ensure success. The outcome of a two-sided market depends on the sum of prices on both sides (the “price level”) and the allocation of price level between the two sides (the “price structure”).^{13,14} For example, in the payment card market, charging a fee only to merchants may lead to a different use of the payment system than charging the same fee only to cardholders. The specific characteristics of both sides of the platform may prompt a provider to set prices well above production costs on one side of the market, while subsidizing the other side.

III. Market definition in a two-sided market

In antitrust analysis, a common practice in defining markets is to delimit the smallest set of products for which a hypothetical cartel or monopolist could

¹³ Jean-Charles Rochet and Jean Tirole, *Two-sided markets: a progress report*, 37(3) RAND J. Econ. 645 (2006). (The authors also present a framework to understand implications for consumer welfare when buyers pay a fixed fee in their interactions with the platform.)

¹⁴ This finding differs from standard economic models related to tax liability in which the market outcome does not depend on whether the buyer or the seller pays the tax.

raise prices by a small but significant amount (usually 5%) in a non-transitory way (Small but Significant and Non-transitory Increase in Price, “SSNIP”). To extend this framework to two-sided markets requires taking into consideration the overall price level rather than just the individual price charged to one side. An analysis that is restricted to only one side of the market may overstate a hypothetical monopolist’s ability to impose a supracompetitive price and misconstrue optimal welfare optimizing price as supracompetitive by ignoring the other side of the market. In the case of payment systems, a market analysis should typically consider both merchants and buyers. The network price includes the merchants’ fees and the buyers’ annual fees, but it is offset, at least in part, by cardholder rewards (e.g., free airline miles). Focusing exclusively on the merchants’ side carries the risk of not understating the true size of the market and overstating market power, because it may ignore products that are closer substitutes for buyers than for merchants. For instance, it is possible that a customer sees cash and credit as similar, while a merchant finds cash less safe than credit card transactions because of the risk of fake bills or theft.

A proper antitrust analysis of two-sided markets should incorporate the network effects at play. An increase in the size of the platform makes the platform more valuable to both sides, thus creating the potential to increase prices. Failure to do so will likely lead to overstating market power and the platform’s ability to charge supracompetitive prices.

IV. Potential exclusionary practices in a two-sided market

Analysis and conclusions related to potential exclusionary practices in a two-sided market may also deviate from those in traditional markets. The need for coordination and the benefits of network effects may offset the potential anticompetitive consequences of predatory pricing, tying, coordinated behavior, and exclusive contracts in ways that are unique to two-sided markets and would not be expected in a traditional one-sided market.

A. Predatory pricing

Allegations of predatory pricing in a two-sided market must be evaluated by considering both sides of a platform. Predatory pricing occurs when a firm sells a product below cost in the short run to drive competitors out of the market in the long run and prevent new market entries. Pricing below marginal cost (or

average variable cost) is generally considered anticompetitive.¹⁵ But, in a two-sided market, a one-sided analysis can erroneously lead to claims of predation, since the analysis would not consider the pricing tradeoffs between the two sides of the platform (e.g., potential value of subsidizing one side to increase demand on the other side). By expanding the size of the network, pricing below marginal cost on one side of a platform may increase total welfare.

B. Tying

In a two-sided market, tying on one side of the market can maximize welfare when considering both sides. The negative impact of tying on one side might be offset by a positive impact on the other side. For example, consider the tying practice of the “honor-all-cards” rule, in which payment card companies Visa and MasterCard required merchants who accepted their credit cards to also accept their debit cards. Examining the impact of this practice solely on the merchant side may lead to the conclusion that it is an anticompetitive restraint. However, Rochet and Tirole (2003) showed that, in the absence of tying, the interchange fee between the merchants’ and the cardholders’ banks might be too low on debit cards and too high on credit cards compared to the social optimum, but tying acts as a mechanism to balance the interchange fee structure and raise social welfare.

C. Coordinated behavior

Coordinated behavior in a two-sided market might lead platforms to adopt a price structure that increases consumer welfare relative to the competitive, non-coordinated outcome if the two sides have an asymmetric valuation of the platform, or if the network effects are asymmetric. Price setting without coordination among platforms may lead to prices that result in an underdeveloped and sub-optimal market (e.g., price may be too high on the side that is the most price sensitive or generating the most network externalities). For example, strong competition in the newspaper industry results in low prices for advertisers. This will lead the platforms (i.e., the newspapers) to charge high prices to readers to cover costs. If readers are price elastic, the price of a

¹⁵ See Philip Areeda & Donald F. Turner, *Predatory Pricing and Related Practices Under Section 2 of the Sherman Act*, 88(4) Harv. L. Rev. 697, 698 (1975). (Areeda and Turner introduced the concept of predatory pricing as an antitrust concern and proposed a methodology to test it. Areeda and Turner explained that predatory pricing only occurred when a firm forfeited current revenues for the purpose of expected future gains. Predatory pricing practices would only make economic sense to firms that had “greater financial staying power than [their] rivals” and a “very substantial prospect that the losses [they incurred] in the predatory campaign [would] be exceeded by the profits to be earned after [their] rivals [had] been destroyed.”)

newspaper may be higher than optimal yet competitive, meaning that the size of the industry will be smaller than what would maximize welfare. Coordinated pricing across platforms could allow lower newspaper prices, subsidized by higher advertising revenue, thus increasing welfare by enlarging readership and total advertisement.

D. Exclusive dealing

An exclusive dealing contract in a two-sided market may or may not be anticompetitive, depending on the context. In particular, exclusive dealing may be anticompetitive when restricting access to a potential entrant. On the other hand, given the network effects inherent to many two-sided markets, exclusive dealing may help a platform maintain a critical mass of participants on one or both sides of the market and secure network externalities that would not be forthcoming without exclusive dealing. For example, an online hotel clearing entity could require exclusive listing from the hotels on its system. This may, in turn, result in more customers searching on that site because hotels are more likely to be on it which, in turn, will increase the likelihood that any given hotel will secure a reservation. In this case, the usual anticompetitive concerns associated with exclusive listing may be offset by the network effects resulting from the additional customers who will patronize the site. In this case, customer fragmentation reduces or eliminates network effects and may reduce welfare.

V. Antitrust analysis of the payment card industry

In this section, we review regulations and litigation in an important two-sided market: the payment card industry. Early research on two-sided markets was inspired by litigation on Visa's pricing policies, and the payment card industry continues to be a central focus for regulators and policy makers. As Tirole cautions, "The industry's two-sidedness and other specificities make received antitrust doctrine largely irrelevant, and fresh thinking is required in order to design sound policy intervention."¹⁶ The DOJ has filed several cases against Visa, MasterCard, and American Express alleging anti-competitive behavior.¹⁷ This section reviews the economic analysis of two-sided markets in these earlier cases and in more recent legislation, namely the "Durbin Amendment" of the Dodd Frank Act.

¹⁶ Jean Tirole, *Payment card regulation and the use of economic analysis in antitrust* 1-20 (Toulouse School of Economics, Working Paper No. 4 – 03, 2011).

¹⁷ *United States v. Visa U.S.A., Inc.*, 163 F. Supp.2d 322 (S.D.N.Y. 2001); *United States vs. American Express Co., Inc.*, No. 10-CV-4496 (NGG) (RER) (E.D.N.Y. May 19, 2015).

A. United States v. Visa USA Inc., Visa International Corp. and MasterCard International Inc.

Visa and MasterCard had “issuance restrictions” that prohibited banks issuing Visa and MasterCard cards to also issue other network cards, particularly American Express and Discover. In October 1998, the DOJ filed a lawsuit against Visa and MasterCard claiming that these issuance restrictions harmed competition as they limited the potential customer base for American Express and Discover. As a two-sided market, payment card restrictions on the customer side had the potential to harm the network on the merchant side. In other words, the DOJ argued that the smaller American Express and Discover customer bases could make these networks less valuable to merchants and lead to lower overall merchant acceptance rates for these cards and higher Visa/MasterCard concentration in the marketplace, resulting in fewer incentives to develop such competing networks and ultimately decreasing consumer welfare.

Visa and MasterCard argued that restrictions were necessary to strengthen their networks. Visa and MasterCard were open to all banks, while Amex and Discover intended to seek out selected banks to reach a subset of bank customers. Visa and MasterCard were concerned that their own networks could be weakened by Amex picking off only premium banks (i.e., those with mostly premium customers) to steer cardholders towards Amex, free-riding on the expertise and processes developed jointly by the networks and these premium banks. However, the court ultimately ruled that issuance restrictions had anti-competitive effects because of the constraints of competition and exclusion of Amex and Discover.

B. United States v. American Express Co., MasterCard International Incorporated, and Visa Inc.

In October 2010, the DOJ filed a lawsuit against Visa, MasterCard, and American Express for violation of the Sherman Act due to “anti-steering” provisions that restricted merchants from indicating preferences for other cards, from criticizing the company’s cards, and from promoting other cards more than their own.¹⁸ Visa and MasterCard both settled in 2010, but American Express went to trial.¹⁹ The court was asked to consider the effect of anti-steering provisions on consumer welfare.

¹⁸ United States v. American Express Co., Inc., No. CV-10-4496 (E.D.N.Y Oct. 4, 2010).

¹⁹ Andrew Martin, *U.S. Reaches Deal in Credit-Card Antitrust Suit*, N.Y. Times (Oct. 4, 2010), <http://www.nytimes.com/2010/10/05/business/05card.html>.

Anti-steering provisions could be viewed as anti-competitive, as they did not allow merchants to favor competing forms of payments. Consequently, they could reduce incentives for card companies to compete on fees charged to merchants, since the merchants could not encourage the use of one card over another by cardholders. Additionally, some argued that the fees charged to merchants were then passed on to both card users and non-users via higher retail prices. As a result, higher merchant fees were subsidized by consumers using cards with lower merchant fees,²⁰ imposing a negative externality on these users and non-cardholder customers via higher retail prices.

However, the two-sided nature of the card networks and the existence of network externalities across the two sides can offset standard anticompetitive concerns. Anti-steering provisions may or may not enhance competition and may result in higher or lower welfare. Merchants know that consumers (particularly American Express customers) carry cards from multiple networks, and they may be less concerned about losing business if they stop accepting a particular network. Thus, the networks argued that the anti-steering provisions did not limit competition on merchant fees. To the extent that removing the provisions would lead to lower merchant fees, card networks may need to recover costs in the form of fewer rewards or higher credit card fees. As cardholders are likely more price sensitive than merchants, increasing customer-facing fees can cause a large drop in credit card use, which then lowers the value of the network for merchants. This could weaken the overall network and lower welfare created by the platform.

Ultimately, MasterCard and Visa settled with the DOJ and removed these provisions, and the court ruled that American Express' anti-steering provisions were anti-competitive because they inhibited competition between networks and increased retail prices for consumers.

C. Regulation: Durbin Amendment to the Dodd Frank Act

The Durbin Amendment to the Dodd Frank Act introduced in 2009 required that the interchange fee be “reasonable and proportional to the cost incurred by the issuer” for each transaction²¹ and capped at a level equal to the average variable cost of processing a transaction across issuers.

²⁰ This line of argument usually ignores the benefits of card payment compared to cash or checks, including increased security and lower transaction costs (e.g., time to deposit checks or cash at the bank).

²¹ Electronic Fund Transfer Act § 920.

The card networks and some economists expressed concern because banks used interchange fee revenues to invest in network technologies, so a decrease in such fees could limit network investment and, thereby, decrease welfare. Furthermore, the “reasonable and proportional” stipulation set by US regulators only considered the price charged to one side of the market (i.e., the merchants) and benchmarked the price to the issuers’ transaction costs. By ignoring the consumer side of the market, the stipulation may have overlooked possible welfare improvements from the allocation of payment between merchants and buyers that subsidized the buyers, who are more price elastic than merchants, and charged a higher price for merchants who benefit more from the network externalities associated with increased numbers of buyers on the platform.

Manne, Morris, and Zywicki (2014) analyzed the effects of the Durbin Amendment, which decreased average interchange fees by 50%, and found that banks recovered these merchant-side losses by imposing higher fees (or lower reward values) on the customer side.²² The results support Tirole’s claim that regulations on the interchange fee in two-sided markets only affect the price structure, not the price level.

VI. Conclusion

In two-sided markets, two different types of end-users rely on a platform to facilitate transactions between them, and both sides jointly pay for the platform’s service. In these markets, the presence of network externalities and a coordination problem that requires a successful platform to be attractive to both sides have implications for pricing behavior, market definition, and potential exclusionary practices. A consequence of this is that traditional antitrust frameworks and tools cannot be applied without significant adjustments. Specifically, network effects, network externalities and relative price elasticities must be considered and understood when evaluating allegations of monopolization or mergers in a two-sided market and their potential impact on consumer welfare.

²² Todd Zywicki et al., *Price Controls on Payment Card Interchange Fees: The U.S. Experience* 1-30 (George Mason Law and Economics Research Paper Series No. 14-18, 2014).