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**Network Effects and Efficiencies in Multisided Markets - Note by H. Shelanski, S. Knox and A. Dhilla**

**Hearing on Re-thinking the use of traditional antitrust enforcement tools in multi-sided markets**

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## *Network Effects and Efficiencies in Multisided Markets*

Note by Howard Shelanski, Samantha Knox and Arif Dhillal<sup>1</sup>

1. This paper examines the relationships among parties in a multisided market and discusses how those relationships should affect the analysis of competitive effects and efficiencies when competition agencies review conduct or transactions by multisided platforms.

### 1. Relationships and Network Effects across Multisided Platforms

#### 1.1. Defining Multisided Markets and Network Effects

2. A rapidly growing literature has produced several definitions of a multisided market or platform (this paper will use these terms interchangeably). Some of these definitions focus on pricing structure, others highlight the platform's role in connecting multiple groups, and still others stress the existence of network effects.<sup>2</sup> That said, there is a general consensus that multisided markets share two defining features: distinct groups that interact with each other across the platform, and cross-platform externalities or network effects among those distinct groups<sup>3</sup>

3. **Distinct Groups.** Multisided markets have at least two distinct groups or sides that rely on the platform to connect them directly or indirectly to each other.<sup>4</sup> For example, YouTube is a three-sided on-line video market connecting three distinct groups: (i) users (i.e. subscribers or end-user consumers), (ii) content/service providers, and (iii)

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<sup>2</sup> See Gönenç Gürkaynak et al., *Multisided Markets and the Challenge of Incorporating Multisided Considerations into Competition Law Analysis*, 5 J. ANTITRUST ENFORCEMENT 100, 101–05 (2017) (describing various definitions of multisided markets).

<sup>3</sup> The delegates at the 2009 OECD Policy Roundtable on Two-Sided Markets recognized that both (1) distinct groups and (2) network effects between the groups were essential elements of a two-sided market. Secretariat, *Executive Summary*, in POLICY ROUNDTABLES: TWO-SIDED MARKETS 11, 11 (Organisation for Economic Co-operation and Development Competition Committee, 2009). See also, e.g., Gürkaynak et al., *supra* note 1, at 101–05; Jan Ondrus et al., *The Impact of Openness on the Market Potential of Multisided Platforms: A Case Study of Mobile Payment Platforms*, 30 J. INFO. TECH. 260, 261 (2015); David Evans, *Background Note*, in POLICY ROUNDTABLES: TWO-SIDED MARKETS 23, 29 (Organisation for Economic Co-operation and Development Competition Committee, 2009); David S. Evans & Richard Schmalensee, *The Industrial Organization of Markets with Two-Sided Platforms*, 3 COMPETITION POL'Y INT'L 151, 152 (2007); Renata B. Hesse & Joshua H. Soven, *Defining Relevant Product Markets in Electronic Payment Network Antitrust Cases*, 73 ANTITRUST L.J. 709, 714 (2006). In contrast, Andrei Hagiu and Julian Wright believe that “network effects are neither necessary nor sufficient” in defining multisided platforms. Andrei Hagiu & Julian Wright, *Multi-sided Platforms*, 43 INT'L J. INDUS. ORG. 162, 164 (2015).

<sup>4</sup> Evans, *supra* note 2, at 29.

advertisers. While the three sides are distinct, members of one side may participate in multiple facets of the market simultaneously. Users that share content are also content providers to other users, and content providers might also be advertisers if they pay the platform or other content providers to carry their ads to users with whom they are not yet connecting.

4. ***Cross-Platform Network Effects.*** The different sides of a platform market are interdependent to the extent their decisions affect each other, even indirectly.<sup>5</sup> Network effects are the cross-platform externalities that result when the actions of participants on any side of the platform, or of the platform itself, affect participants on other sides of the platform (or the functioning of the platform itself). The externality can be direct, as when an increase in content providers makes the platform more valuable to content consumers, or indirect, as when a platform’s provision of better terms for users makes the platform more attractive to content or service providers and to advertisers. For ease of exposition, this paper will refer to all cross-platform externalities simply as “network effects.”

5. A positive network effect occurs when “the value that a customer on one side realizes from the platform increases with the number of customers on the other side.”<sup>6</sup> For example, eBay—through which individuals can buy and sell goods on line—becomes more valuable to buyers as the number of sellers increases because there are more items available for sale. At the same time, eBay becomes more valuable to sellers as the number of buyers increases because there are more potential customers available. Network effects need not be symmetric or even run in the same direction between two sides of a market. Advertisers probably benefit from an increase in users more than users benefit from an increase in advertisers, and in some cases users may even suffer detriment from increased advertising.<sup>7</sup>

6. Because network effects create interdependencies among the groups on a multisided platform, a feedback loop may develop when membership of one side of the platform grows or shrinks. To illustrate, assume a platform raises the price of platform access for suppliers of some good or service. If some of those suppliers leave, the platform becomes less valuable to customers on the other side of the market, who in turn also leave, further reducing the platform’s value to the remaining suppliers, and so forth.<sup>8</sup> These dynamics need not be perpetual or irreversible, but at some point they can go far enough to tip a platform market toward failure or dominance. As discussed below, the effects of this feedback loop may have important implications for both conduct and merger analyses.

<sup>5</sup> In the context of multisided markets, network effects have also been referred to as cross-group externalities or indirect externalities. *See, e.g.,* Mark Armstrong, *Competition in Two-Sided Markets*, 37 RAND J. ECON. 668 (2006); Secretariat, *supra* note 2, at 11.

<sup>6</sup> Evans, *supra* note 2, at 29. Network effects may be either direct or indirect. “Direct network effects arise where users of the product interact with each other, so having more users makes the product more useful and valuable.” Secretariat, *Executive Summary*, in THE DIGITAL ECONOMY 5, 8 (Organisation for Economic Co-operation and Development Competition Committee 2012).

<sup>7</sup> *See, e.g.,* Evans, *supra* note 2, at 24 (referring to situations where the sides exhibit unbalanced network effects); Secretariat, *supra* note 2, at 12 (same).

<sup>8</sup> *See, e.g.,* Evans & Schmalensee, *supra* note 2, at 159 (describing a feedback loop created by raising prices on one side of a platform).

## 1.2. Relationships on Multisided Platforms: Service-Based and Subsidy-Based

7. As defined above, a multisided market consists of at least two distinct groups that rely on a platform to interact. The relationship between the two groups can be categorized as either service-based or subsidy-based.

8. In a service-based relationship, the supply side (the “suppliers”) provides a service or good to the demand side (the “users”). Service-based relationships are common in platforms such as:

- Airbnb – connecting people searching for a place to stay with homeowners renting their properties;
- Amazon.com – connecting shoppers with merchants selling their goods;
- Uber – connecting riders with drivers offering rides;
- OpenTable – connecting diners with restaurants;
- Shopping Malls – connecting shoppers with stores selling their goods; and
- Apple App Store – connecting Apple product users with application developers offering applications.

9. In contrast, a subsidy-based relationship exists when one side indirectly defrays another side’s costs of using the platform but does not offer an additional service that directly attracts users to that platform.<sup>9</sup> Facebook, Twitter, YouTube, Snapchat, Pandora, the New York Times, and television and radio stations are examples of multisided markets involving subsidy-based relationships. Each of these entities connects users (or readers, viewers, and listeners) with advertisers, and each gives users below-cost (and often free) access to the platform and its services because of payments from advertisers.

10. Where a subsidy-based relationship exists, the larger multisided market will have at least three sides: subsidizers (e.g., advertisers), suppliers (e.g., content/service providers), and users (e.g. subscribers). Subsidizers do not typically attract users to a platform on their own because they do not usually offer a good or service that users specifically seek out. A distinct service-based relationship is therefore required to bring users into the market.<sup>10</sup> Supply of such content or services might come from third parties (e.g., journalists and musicians), the platform itself (e.g., Amazon and Netflix), or other platform users (e.g., Facebook, Twitter, Snapchat).

## 1.3. Relative Strength of Network Effects

11. The nature of a relationship across a multisided platform is significant because it affects the direction (i.e. positive or negative) and strength of network externalities among the sides of the market. As discussed above, all sides of a multisided market will usually experience some externality from the actions of other sides. The strength and

<sup>9</sup> Advertisers might convey information about available goods and services. *See, e.g.*, Evans & Schmalensee, *supra* note 2, at 155–156 n.10. Nonetheless, users do not join a platform seeking advertising in the same way that they seek the platform’s primary content or services (as shown by the fact that on some subsidy platforms, users opt to pay to avoid ads (e.g., Pandora Premium).

<sup>10</sup> *See* David S. Evans & Richard Schmalensee, *The Antitrust Analysis of Multisided Platform Businesses*, in THE OXFORD HANDBOOK OF INTERNATIONAL ANTITRUST ECONOMICS 404, 410 (Blair & Sokol eds., 2015) (observing that most advertiser-supported media combine content with advertising to attract consumers).

direction of those network effects will, however, vary across the sides of the platform depending in part on whether the relationship is service-based or subsidy-based.<sup>11</sup>

12. ***Service-based relationships typically result in positively correlated and relatively balanced network effects.*** Consider Airbnb, which connects people searching for a place to stay with property owners offering short-term rentals, perhaps to defray their own living costs. The two parties are in a service-based relationship. Because renters are seeking properties, renters benefit when new property owners join and expand the rental inventory. Similarly, property owners benefit when new renters join and expand the pool of potential customers. The interdependent nature of the two sides' relationship causes feedback effects whereby more renters drive more owners to join and more owners drive more renters to join. The network effects between renters and owners are therefore positively correlated and relatively symmetric. This observation extends generally to service-based relationships because, as with renters and property owners, one side wants the services/goods of the other and the other side wants a larger customer base.

13. ***Network effects in subsidy-based relationships are skewed towards the subsidizer and could correlate negatively.*** Subsidizers—e.g., advertisers on Twitter—benefit as the number of platform users grows and more people view the advertisements. As the pool of potential customers expands, the platform becomes more beneficial for advertisers, and more advertisers continue to join. Users, by contrast, experience weaker network externalities in subsidy-based relationships. Users benefit when enough advertisers join that they can subsidize the platform's operations and investments for the benefit of users and providers. Once that subsidy has been paid, however, users might not experience additional benefits (and could experience detriment) from additional advertising, unless that advertising somehow increases the supply of services or content that has attracted the user to the platform in the first place.<sup>12</sup> Therefore, even though both the supplier and the subsidizer benefit as the user base increases, it is the supplier that is more likely to drive user demand for access to the platform. Subsidizers are thus highly dependent on each additional supplier while suppliers may be indifferent to additional subsidizers (assuming enough advertisers are present to subsidize the platform for the users) except to the extent that incremental advertising might lead to better terms of platform usage or higher revenues for the suppliers. The network effect of an increase in suppliers is therefore likely to be stronger for subsidizers than the network effect of an increase in subsidizers would be for the suppliers.

14. ***Platform actions that initially appear to have opposing effects on different sides of the market may have important secondary effects.*** The following hypothetical examples using the Uber platform<sup>13</sup> illustrate this fact:

<sup>11</sup> See Evans, *supra* note 2, at 24 (referring to situations where the sides exhibit unbalanced network effects); Secretariat, *supra* note 2, at 12 (same).

<sup>12</sup> Cf. Evans & Schmalensee, *supra* note 9, at 429 n.29 (noting that studies of the newspaper industry suggest that advertising does not produce positive or negative externalities for readers, but other forms of advertising may be valued by consumers).

<sup>13</sup> Uber is an online platform that connects people seeking car rides ("riders") with people who are willing and available to offer rides ("drivers"). Uber sets the fare for a ride and then charges the driver a percentage of each trip's fare as a fee.

1. Assume Uber increases fares. That act appears directly to harms rider and benefit drivers. If the fare hike causes riders to leave the platform (or reduce the number of rides they take), however, the fare increase could also harm drivers in the end.
  2. Assume Uber maintains fares but increases the percentage of the fare it keeps for the company. That conduct appears directly to harm drivers and leave riders unaffected. If this action causes drivers to leave the platform (or reduce the number of rides they offer), however, it will also harm riders.
  3. Assume Uber prohibits drivers from also driving for competing ride hailing services. That policy might harm drivers while appearing to leave riders unaffected. But if drivers leave the platform in response, the action will also harm riders.
  4. Assume Uber prohibits riders from riding with competing services. The action directly harms riders but not drivers, unless riders abandon Uber in response.
15. While it is difficult to predict the extent of the benefit or harm caused, regulators should be aware that conduct harming one side of a service-based relationship has the potential to result in harm to the other side (and vice versa). Depending on conditions and indirect effects, conduct that at first look appears to affect parties differently may have effects that are positively correlated across different sides of the market, thereby exacerbating either the harms or the benefits.
16. Identifying the relationships across a platform as either service-based or subsidy-based can therefore be important to predicting the relative balance of network effects among the different sides of the market. As discussed below, the balance and direction of network effects can have important implications for how regulators should evaluate net welfare effects of conduct and transactions by multisided platforms.

## 2. Accounting for Efficiencies on All Sides of the Platform

17. Careful consideration of the economic efficiencies of a course of conduct or transaction will give courts and agencies a more complete view of the impact of the conduct or transaction on competition, output, and consumer welfare. Today, U.S. courts and agencies regularly weigh the claimed efficiencies of a course of conduct or a transaction against its competitive effects. In the merger context, U.S. agencies consider efficiencies primarily as part of the defendant's justifications for a transaction, especially where such benefits of the transaction are presented to offset potential unilateral effects of the merger.<sup>14</sup> In unilateral conduct analyses, efficiencies are most often part of the

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<sup>14</sup> See, e.g., U.S. Dep't of Justice & Fed. Trade Comm'n, Horizontal Merger Guidelines §10 (2010) [hereinafter 2010 Horizontal Merger Guidelines]. While merging parties have raised affirmative defenses based on efficiencies, no such defense has succeeded in saving a transaction that was otherwise found by the court to be anticompetitive. See, e.g., *FTC v. Penn State Hershey Med. Ctr.*, 838 F.3d 327, 347-48 (3d Cir. 2016); *FTC v. H.J. Heinz Co.*, 246 F.3d 708, 720-22 (D.C. Cir. 2001); *FTC v. University Health*, 938 F.2d 1206, 1222-24 (11th Cir. 1991).

“business justification” defense.<sup>15</sup> In both contexts, the defendant bears the burden of proving that the efficiencies exist.<sup>16</sup>

18. In the eyes of courts and agencies, not all efficiencies are created equal; in fact, the class of efficiencies that are credited, or “cognizable,” is rather narrow.<sup>17</sup> In both the unilateral conduct and merger contexts, courts and agencies give more weight to efficiencies that reduce costs or boost output, particularly where those efficiencies result in reduced prices, improved quality, or new products.<sup>18</sup> This narrow definition may need to be expanded, however, for multisided platforms, which might not themselves produce a good or service apart from their critical role of providing various groups with a means to interact. Importantly, platforms minimize transaction costs by replacing countless one-to-one interactions with a single one-to-many interaction: a single buyer finds many sellers in one place, and vice versa, thereby allowing the groups to find each other more efficiently than they could absent the platform. Efficiencies that can even further reduce transaction costs among sides of the platform should count in favor of the conduct or transaction at issue. Accounting for those efficiencies requires consideration of relevant cross-network externalities.

## 2.1. Role of Efficiencies in Conduct Analyses Involving Multisided Markets

19. Both the nature of the relationships and the relative strength of the network effects among parties in a multisided market have important implications for evaluating the efficiencies and effects of a challenged course of conduct, as we discuss below.

20. ***The extent to which regulators should consider each side of a multisided market when analyzing efficiencies depends on what types of cross-platform relationships are at issue.*** Courts in multiple jurisdictions have recognized that both sides of a two-sided market must be considered in (1) defining the relevant markets; (2) determining market power; and (3) assessing the existence of adverse effects on competition.<sup>19</sup> Agencies

<sup>15</sup> See *United States v. Microsoft Corp.*, 253 F.3d 34, 59 (D.C. Cir. 2001) (stating that greater efficiency can constitute a defendant’s “procompetitive justification for its conduct”).

<sup>16</sup> 2010 Horizontal Merger Guidelines, § 10 (“[I]t is incumbent upon the merging firms to substantiate efficiency claims so that the Agencies can verify by reasonable means the likelihood and magnitude of each asserted efficiency, how and when each would be achieved (and any costs of doing so), how each would enhance the merged firm’s ability and incentive to compete, and why each would be merger-specific”).

<sup>17</sup> See, e.g., 2010 Horizontal Merger Guidelines § 10 (“Cognizable efficiencies are merger-specific efficiencies that have been verified and do not rise from anticompetitive reductions in output or service.”); 3 PHILLIP E. AREEDA & HERBERT HOVENKAMP, *ANTITRUST LAW: AN ANALYSIS OF ANTITRUST PRINCIPLES AND THEIR APPLICATION* ¶ 658f (4th ed. 2015) (“Thus when courts speak of the business justification defense as requiring some showing of ‘efficiency,’ that term should be understood to refer to the costs or output of the monopolist itself (productive efficiency), not to the market as a whole (allocative efficiency).”).

<sup>18</sup> AREEDA & HOVENKAMP, *supra* note 13, at ¶ 658f; 2010 Horizontal Merger Guidelines § 10 (efficiencies that “reduce the incremental cost of production” are more likely to be cognizable); In both the merger and the unilateral conduct contexts, courts and agencies appear to require that efficiencies increase consumer welfare in order to be cognizable. See, e.g., 2010 Horizontal Merger Guidelines § 10; *Data Gen. Corp. v. Grumman Sys. Support Corp.*, 36 F.3d 1147, 1183 (1st Cir. 1994) (“In general, a business justification is valid if it relates directly or indirectly to the enhancement of consumer welfare.”).

<sup>19</sup> *United States v. Am. Express Co.*, 838 F.3d 179, 197-98, 202-05 (2d Cir. 2016) (holding that what mattered was the adverse effect on competition “as a whole” and that the whole market included both sides); *Case C-67/13 P, Groupement des Cartes Bancaires (CB) v. Comm’n*, 2014 E.C.R. 2204.

should similarly consider the extent to which the efficiencies from the conduct at issue accrue on all sides of a platform. The effects (positive or negative) of conduct will usually differ across a platform and therefore may not warrant equal scrutiny on every side of the market.

21. In a multisided market with a service-based relationship between two sides, the network effects are such that a platform's actions directed at one side will likely have a meaningful impact on the other side. As a result, regulators should consider the potential effects on the non-targeted side of a service-based relationship. This analysis should extend not just to the competitive effects of the conduct, but also to any demonstrable efficiencies. For example, an exclusive or preferential arrangement between a platform and a service provider might give the service provider better access to the platform's users but have the offsetting effect of reducing consumer choice. If, however, there are efficiencies in the form of reduced transaction costs between the platform and the service provider or increased specific investment by the service provider in the platform to improve its service offerings, benefits from those efficiencies to consumers on the other side of the market should be taken into account as well.

22. When a subsidizer is also part of the platform dynamics, the analysis has an additional dimension. Actions that reduce the engagement of either users or service providers with the platform could drive away subsidizers that are potentially sensitive to the number of users and the amount of time users spend on the platform.<sup>20</sup> The opposite is not necessarily true, however, given the asymmetry in the feedback effects inherent in a subsidy relationship. The platform's conduct toward subsidizers might have little impact on the other sides of the market, so long as sufficient subsidies remain in place. Accordingly, if the conduct is directed only at a subsidizer, agencies and courts can apply a more traditional one-sided analysis of both effects and efficiencies (so long as the conduct would not drive all subsidizers off of the platform). Put differently, where consumers and service providers on a platform do not value what the subsidizer does (e.g., advertising, data brokering), actions that harm the subsidizer are unlikely to harm other sides of the market so long as enough subsidies remain in place. Because the platform has incentives to maintain or increase the subsidies for the "free" services that keep end users on the platform, enforcers can more strongly presume that the platform's conduct toward subsidizers is beneficial for other sides of the platform.

23. Where efficiencies associated with conduct toward one side benefit other sides as well, they should be counted on all sides where sufficiently proven. For example, assume eBay only allows payments to be made through PayPal, an online payment system. eBay could justify its action as being efficient for: (1) eBay by reducing back-end costs associated with permitting various payment types, (2) buyers by streamlining the purchasing process, and (3) sellers by avoiding credit card transaction fees. If verifiable, regulators should consider each of the efficiencies in determining whether the action was anticompetitive.

24. ***Workflow for Conduct Analyses by Competition Agencies.*** When analyzing the effect of challenged conduct on a multisided market, regulators should first look at the relationship between the targeted side of the platform and the other sides of the

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<sup>20</sup> See, e.g., Lapo Filistrucchi et al., *Assessing Unilateral Effects in a Two-Sided Market: An Application to the Dutch Daily Newspaper Market*, 8 J. COMP. L. & ECON. 297, 301 (2012) (providing example of how a newspaper that raises the subscription price should account for the "negative effect on advertising revenues as decreased circulation leads to a decline in the demand for advertising").

platform.<sup>21</sup> When conduct targets a side of the market participating in a service-based relationship, regulators should closely evaluate the potential impacts on all sides of the market given the likely cross-platform network effects, regardless of which side the conduct targets. If, in contrast, a platform directs its conduct toward subsidizers, cross-platform effects are much less likely unless the action would drop subsidies to insufficient levels, which would render the conduct economically senseless and therefore unlikely to continue or to occur in the first place.

25. With respect to efficiencies, therefore, agencies need to take into account how efficiencies that flow directly to users or suppliers will also indirectly affect other sides of the market through cross-network effects. When the efficiencies directly benefit subsidizers, there is less likelihood of such cross-network effects benefitting users or suppliers. The implication is that if conduct is efficient for suppliers or users but might raise prices for subsidizers, the reviewing agency should consider whether the efficiencies offset that possible harm to subsidizers through cross-platform externalities. Where, on the other hand, the conduct's direct effect is to harm users or suppliers, it is less likely that efficiency gains for the subsidizers will offset those harms, unless that benefit to the subsidizer is necessary to attract or maintain necessary subsidy levels. It therefore may be more important for authorities to consider efficiency effects on all sides of a multisided platform when those efficiencies benefit users or suppliers than when they benefit subsidizers.

## 2.2. Efficiencies in Merger Analysis Involving Multisided Markets

26. The nature of the relationships among parties in a multisided market and the relative strength of network effects also have important implications for merger analysis, particularly with regard to the consideration of efficiencies.

27. ***Mergers involving service-based platforms have particular potential to generate efficiencies.*** Economic theory suggests that a merger of multisided platforms may generate unique efficiencies that would not result from a merger of two one-sided firms.<sup>22</sup> Because of network effects platforms can potentially generate positive externalities just by increasing in size. Further empirical research is needed to understand the conditions under which this positive outcome will result, although the potential for a merger to amplify positive cross-platform externalities is likely greatest where network effects generate a robust positive feedback loop. As discussed above, this is more likely to occur where merging platforms mediate similar kinds of service-based relationships between users and suppliers.

28. ***Network effects can constrain price increases to consumers.*** At the root of most merger analysis is an initial presumption that increased concentration will lead to

<sup>21</sup> If the multisided market has more than two sides, it is possible that the side is involved in multiple relationships. For example, if Pandora, an online radio station, takes an action against users, the users will be in both (1) a subsidy-based relationship with the advertisers, and (2) a service-based relationship with the musicians providing content.

<sup>22</sup> Evans & Schmalensee, *supra* note 9, at 428 (“[A]ll else equal a merger of multisided platforms would ordinarily increase indirect network externalities by increasing the size of all customer groups and thereby provide efficiency benefits”).

increased prices for consumers.<sup>23</sup> Several recent studies suggest that when it comes to mergers involving two multisided platforms, that presumption might not hold. For example, in one recent simulation of a merger to monopoly in the market for German TV magazines, the structural model predicted that post-merger, magazines would raise rates to advertisers, but lower per-copy prices to consumers (in order to drive up circulation).<sup>24</sup> Similarly, in another recent simulation of a hypothetical merger in the Dutch newspaper market, the model illustrated that an increase in subscription prices was likely to have a negative effect on both subscriber demand (resulting in lower circulation) and on advertising revenue (since decreased circulation leads to less demand for advertising).<sup>25</sup> The authors concluded that “raising the newspaper price is likely to lead not only to a loss in readers but also to a loss in advertising, and therefore the tendency to increase prices will be lower than in the absence of network effects.”<sup>26</sup>

29. ***Subsidizers may be more vulnerable to unilateral effects than service providers or users.*** The dependence of the demand for advertising on the number of platform users leads to a closely related corollary: subsidizers might be more vulnerable to the unilateral effects of a merger than other platform participants. As illustrated above, strong network effects can serve as an independent pricing constraint on a platform’s incentive and ability to raise prices. Because the network effects in a subsidy-based relationship are skewed heavily towards the subsidizer, however, the relatively weak network effects experienced by users and content providers might not provide the same constraint on price increases to advertisers. Indeed, several recent studies suggest that consolidation of multisided platforms results in higher prices to subsidizers.<sup>27</sup> While more research is needed to test this observation, this apparent effect may be explained by the fact that platforms can drive user demand by increasing rates to advertisers and decreasing subscription costs or increasing quantity or quality for users.<sup>28</sup>

30. ***Platform mergers that result in price increases may yield net efficiencies.*** Even if it is true that subsidizers would be subject to price increases following a merger, the merger could nonetheless yield welfare gains—including for the subsidizers themselves. For example, Song’s study finds that both the average surplus and the total surplus to advertisers went up at magazines that increased advertising prices post-merger because the lower copy prices raised the number of subscribers and in turn the audience for the advertisers.<sup>29</sup> The study found that although “[a]dvertisers . . . usually face higher ad

<sup>23</sup> See 2010 Horizontal Merger Guidelines § 1 (“Enhancement of market power by sellers often elevates the prices charged to customers.”).

<sup>24</sup> Minjae Song, *Estimating Platform Market Power in Two-Sided Markets with an Application to Magazine Advertising* 30–33 (Simon School, Working Paper No. FR 11-22, 2013), available at [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1908621](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1908621).

<sup>25</sup> Filistrucchi et al., *supra* note 22, at 325-26.

<sup>26</sup> *Id.* at 326.

<sup>27</sup> See, e.g., *id.*; Song, *supra* note 29; Przemyslaw Jeziorski, *Effects of Mergers in Two-Sided Markets: Examination of the U.S. Radio Industry*, 6 AM. ECON. J. MICROECONOMICS 35, 36 (2014) (empirical study of consolidation in U.S. radio industry from 1996 to 2006 found merger wave resulted in 6% increase in prices to advertisers).

<sup>28</sup> See Song, *supra* note 29.

<sup>29</sup> *Id.* at 32.

prices in more concentrated markets . . . they are not necessarily worse off if lower copy prices attract a large number of readers.”<sup>30</sup> This result does not imply that subsidizers will always gain from a merger of multisided platforms, but it does imply that the efficiencies analysis of such a merger should take into account the cross-platform externalities of any merger-related increase in the number of users to whom advertisers will have access. Presumably, subsidizers will always benefit from an increase in a platform’s subscriber/user base.<sup>31</sup> A merger of overlapping multisided platforms will necessarily result in such an increase. It is therefore plausible that any post-merger price increase to subsidizers could be entirely offset by the increase in the subscriber/user base that results from the merger. Cross-platform network effects must therefore inform the efficiencies analysis in mergers of multisided markets.

### 3. Conclusion

31. This paper has examined how the nature of the relationships among the different sides of a multisided platform can affect the direction, magnitude, and relative balance of cross-platform network effects. Whether a platform’s actions affect parties engaged in subsidy relationships or service relationships has important implications for evaluating the competitive effects and efficiencies. For example, the extent to which efficiencies that flow directly to one side of the market will have positive externalities that offset competitive harm to another side of the market will depend in part on whether the direct beneficiary is a consumer, supplier or subsidizer for the potentially harmed side of the platform. Efficiency gains to users and suppliers are more likely, through the network effects generated through service relationships, to generate compensating externalities than are efficiency gains to subsidizers. Accordingly, the efficiency analysis for conduct by multisided platforms should begin by identifying the nature of the relationship between the targeted side of the platform and other sides of the platform. In the merger context, we have discussed how consolidation of two multi-sided platforms can sometimes lead to stronger constraints on price increases to consumers and generate benefits simply through scale, even if the merger also increases the ability of the post-merger platform to exercise market power. In sum, looking at all sides of a platform and taking account of the kinds of relationships and externalities that flow across the platform will allow competition authorities to develop a more complete measure not just of competitive effects, but of the efficiencies of a platform’s business decisions.

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<sup>30</sup> *Id.* at 33.

<sup>31</sup> *See id.*