

**International Competition Network,
Unilateral Conduct Working Group**

**Webinar on Market Share Analysis in
Multi-Sided Markets**

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Market Shares in Digital Markets

I. Introduction

Multi-sided markets are markets in which firms serve two or more interdependent groups of consumers who benefit from each other's presence in some way.¹ Some multi-sided markets are called "platforms," and include both "online" and "offline" markets such as: newspapers, with an advertising side and readership side; social media platforms, with an advertising side and socializing side; credit cards, with a shopper side and merchant side; taxis or ride sharing applications, with a traveler side and driver side, among many others. On multi-sided platforms, one or more sides may be subsidized if participation attracts paying customers on the other side.²

A key feature of multi-sided markets or "platforms" is the existence of network externalities operating on the different sides of the market.³ Network externalities are the effects that result when actions of participants on one side of the platform affect participants on another side of the platform, or the platform itself.⁴ These arise when the utility or profit obtained by one type of consumer depends

¹ Sebastian Wismer & Arno Rasek, Market definition in multi-sided markets, OECD, November 15, 2017, at 2, *available at* [http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DAF/COMP/WD\(2017\)33/FINAL&docLanguage=En](http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DAF/COMP/WD(2017)33/FINAL&docLanguage=En)

² Committee for the Study of Digital Platforms, Market Structure and Antitrust Subcommittee Report, Chicago Booth Stigler Center for the Study of the Economy and the State, July 1 2019, at 16, *available at* <https://research.chicagobooth.edu/-/media/research/stigler/pdfs/market-structure-report.pdf?la=en&hash=E08C7C9AA7367F2D612DE24F814074BA43CAED8C>.

³ Jens-Uwe Franck & Martin Peitz, Market Definition and Market Power in the Platform Economy, Centre on Regulation in Europe, May 2019, at 13, *available at* https://cerre.eu/wp-content/uploads/2020/05/report_cerre_market_definition_market_power_platform_economy.pdf

⁴ H. Shelanski, S Knox, & A. Dhillia, Network Effects and Efficiencies in Multisided Markets, OECD, June 21-23,2017, at 3, *available at* [https://one.oecd.org/document/DAF/COMP/WD\(2017\)40/FINAL/en/pdf](https://one.oecd.org/document/DAF/COMP/WD(2017)40/FINAL/en/pdf).

on the number of consumers of the other type in the market.⁵ As such, network effects create interdependencies among the groups in a multi-sided market or “platform” often creating a feedback loop where the membership of one side influences the other.⁶ These effects are also referred to as cross-group external effects, or positive indirect network effects.⁷

The strength of the network effects depends on the size of the network, level of participation or usage, and the ability of the platform to facilitate interaction between the sides.⁸ For example, eBay - a platform through which individuals can buy and sell goods on line – becomes more valuable to buyers as the number of sellers increase as there are more items for sale and also becomes more valuable to sellers as the number of buyers increase as there are more potential customers available.⁹ Network effects need not be symmetrical and are in fact highly platform dependent.¹⁰ While all platforms are characterized by the presence of several groups of customers among which a certain kind of interaction can take place, platforms can be categorized by the type of interaction, and more specifically by the strength and direction of network effects, occurring between the several groups of customers.¹¹ Types of platforms include:

⁵ Franck, *supra* note 3, at 14.

⁶ Shelanski, *supra* note 4, at 3.

⁷ Franck, *supra* note 3, at 14.

⁸ Franck, *supra* note 3, at 16.

⁹ Shelanski, *supra* note 4, at 3.

¹⁰ Shelanski, *supra* note 4, at 3.

¹¹ Wismer, *supra* note 1, at 6.

- **Transaction platform:** A platform whose aim is to enable direct transactions between two distinct customer groups whose shared objective is to conduct a transaction. These platforms exhibit bilateral positive network effects. (E.g., Venmo, CashApp.)
- **Non-transaction platform:** A platform that mediates an interaction different than a transaction. Such a platform need not exhibit bilateral positive network effects. (E.g., Wall Street Journal online.)
- **Matching platforms:** A platform whose objective is to enable the best match between two user groups. That platform does not necessarily enable interactions that result in subsequent transactions but may. These platforms exhibit bilateral positive network effects. (E.g., Bumble.)
- **Audience Providing Platforms/Advertising Platforms:** A platform that provides one user group with the audience or attention of another user group. The characteristic network effect is unidirectional from a simple monetary perspective, benefitting advertisers. (E.g., Facebook.)¹²

These platform types are not mutually exclusive. A platform may be both a transaction platform and a matching platform, for example.

Network externalities affect demand from different consumer groups, in turn influencing a firm's strategic behavior, including pricing decisions. In certain multi-sided markets, the platform operator charges only one customer group while offering the service free-of-charge to customers on another side of the platform, while in others the platform operator charges varying fees to each side of

¹² Wismer, *supra* note 1, at 5.

the platform.¹³ For example, on a digital platform the number of users increases advertising revenue for advertisers, leading many such audience-providing platforms to charge the audience user group zero fees to maximize network effects and advertising revenue. Conversely, in another type of advertising platform – the newspaper market, the publisher considers that a higher subscription fee will increase the profit margin on readership but reduce advertising revenue due to lower circulation. In this scenario, though both sides of the market are charged a fee, the positive network externality from readers to advertisers constrains newspapers in setting high prices to readers. Because of these network effects unique to the multi-sided market, tools developed for one-sided markets cannot directly be applied to multi-sided markets without adjustments, especially tools that seek to quantify market share. This paper seeks to identify the factors in a multi-sided market that impact the relevant calculations and explore the methodologies available to calculate or estimate market share on a digital platform.

II. Market Definition – Single Market Approach v. Multi Market Approach

Market definition is never an end in itself. It is, instead, a vehicle to help identify competitive harms and to distinguish them from benign or even procompetitive activity. In matters involving potentially multi-sided markets, therefore, market definition – and the computation of market shares – cannot be undertaken in a vacuum. Instead, the analysis must be guided by the competitive problem at hand. *Ohio v. Amex* illustrates the point. There, the issue was that the nondiscrimination clause at issue protected to some extent the higher merchant discount rate Amex charges by preventing merchants from steering users to other cards. The problem, however, is that the merchant discount

¹³ Wismer, *supra* note 1, at 8.

rate was used to fund cardholder rewards and other benefits; focusing solely on the merchant side would ignore those benefits. Where effects on one side have little relation to effects on the other, market shares can be calculated on one side alone. But where effects on one side necessarily have a direct effect on the other, a different approach must be used.

In the context of a two-sided platform, there are two commonly-used approaches to market definition: defining separate markets for each customer group, or defining a single market encompassing all customer groups.¹⁴ There are circumstances under which a market can be viewed in isolation of the other side as well as circumstances under which the interplay between the sides is to be taken into account, such as those instances where the network effects are particularly strong and the interdependencies between the different customer groups weigh in favor of defining a single market encompassing all customer groups.¹⁵

One way to distinguish between categories of platforms from a market definition perspective is to consider matching and substitutability.¹⁶ Non-matching platforms (e.g., Google, Facebook) and matching platforms that enable an interaction between the user groups with different possibilities of substitution (e.g., Amazon) may be better analyzed under the multi-markets approach, while a single-market approach is most applicable in situations where there is a matching platform that enables interaction between user groups that have equal possibilities of substitution (e.g., dating websites, real

¹⁴ Franck, *supra* note 3, at 22.

¹⁵ Rethinking Antitrust Tools for Multi-Sided Platforms, OECD (2018), at 57, [hereinafter *Rethinking Antitrust*], available at <https://www.oecd.org/daf/competition/Rethinking-antitrust-tools-for-multi-sided-platforms-2018.pdf>.

¹⁶ Franck, *supra* note 3, at 34.

estate websites).¹⁷ The multi-markets approach is done by analyzing the competitive landscape on each “side” of the platform. Such an approach may illustrate that a platform operator is dominant on one “side” of the platform, but not all.¹⁸ This approach should be used carefully, however, and not ignore constraints from outside the smaller markets that will tend to reduce any market power suggested by high shares in the smaller market.

A single market approach may also be preferable for certain platforms, such as the two-sided transaction market described in *Ohio v. AmEx*, where the two sides must meet simultaneously to complete a transaction. Aside from payment systems, other two-sided transaction platforms include virtual marketplaces, auction houses, and operating systems.¹⁹ However, a single-market approach may lead to neglecting close substitutable product offerings on one side of the market.²⁰ Furthermore, even if platforms follow the same business model (i.e., a transaction platform) substitution possibilities may be very different on the two sides as each platform may internalize varying network effects which impact price structure.²¹

The above categorization approach does not consider multi-homing, the use of platforms for different purposes, the use of platforms with different intensity and other such user behavior. These factors effect substitution possibilities. As such, the multi-markets may be preferable as it is a more flexible instrument and can naturally account for different substitution possibilities.

¹⁷ Franck, *supra* note 3, at 34-35.

¹⁸ Rethinking Antitrust, *supra* note 15, at 57.

¹⁹ Franck, *supra* note 3, at 24.

²⁰ Franck, *supra* note 3, at 25-26.

²¹ Franck, *supra* note 3, at 27.

III. Market Definition with Zero Price Markets

In the world of digital platforms, it is a widespread phenomenon that platform operators do not charge prices vis-à-vis one group of customers – providing a product free of monetary charge to one side of the market, making it up by charging the other side.²² For example, apart from the perceived value of user data, there is no visible price for e-commerce platforms like Amazon, no search fee for Google, and no membership or usage fee for Facebook. Zero price strategies are often a feature of platforms where one side of the platform exerts positive network effects unilaterally or disproportionately on the other side of the platform. In such cases the platform operator has a strong incentive to minimize price to ensure participation by consumers on the former side of the platform, which in turn leads to strong demand from the other “paid” side of the market.²³ Many ad-financed platforms have this feature, as consumers pay a price in the form of the attention dedicated to the advertising. In another instance, consumers “pay” with data and the platform can use data to improve services or offer other services that the platform can monetize (“freemium strategy”).²⁴ Industries with zero-price strategies are often sufficiently complex that a mechanical market definition applied to conventional markets is likely to obscure competitive realities.²⁵ Given network effects, to ignore the unpaid size of the market would be inappropriate as often firms are competing on the unpaid side as well. Furthermore, the existence of a zero-price product or service is usually indicative of a related

²² Franck, *supra* note 3, at 46.

²³ Franck, *supra* note 3, at 47.

²⁴ Franck, *supra* note 3, at 46-47.

²⁵ Makan Delrahim, “I’m Free”: Platforms and Antitrust Enforcement in the Zero-Price Economy, Remarks as Prepared for Delivery at Silicon Flatirons, University of Colorado Law School, February 11, 2019, at 11, *available at* <https://www.justice.gov/opa/speech/file/1131006/download>.

positive-priced product or service, so intertwined that a proper antitrust analysis should consider both product markets.²⁶

IV. **Tools for Defining the Market**

a. Hypothetical Monopolist Test

The most rigorous tool to define the relevant market is the “small-but-significant-non-transitory-increase-in-price test”- SSNIP test – which defines the market as the smallest set of substitute products such that a substantial (5-10%) and non-transitory (1 year) price increase by a hypothetical monopolist would be profitable. The SSNIP test was developed for one-sided markets and does not account for interdependencies between distinct customer groups and the related network effects found in multi-sided markets.²⁷

As such, the SSNIP test requires additional considerations when applied to a two-sided platform. In a multi-sided market, a hypothetical monopolist could be thought of as raising (i) the sum of prices while adjusting price structure across the platform (ii) all prices while keeping price structure fixed across the platform (iii) each price separately, or (iv) prices on one side of the platform while keeping others fixed.²⁸ To assess the price increases, one would need information on price elasticity of demand on each side of the platform as well as information on the strength of the network effects.²⁹ Assessing the interplay between the sides of the platform and accounting for the strength of the

²⁶ Delrahim, *supra* note 25, at 11-12.

²⁷ Rethinking Antitrust, *supra* note 15, at 63.

²⁸ Franck, *supra* note 3, at 63.

²⁹ Franck, *supra* note 3, at 64.

network effects can prove to be difficult in a SSNIP analysis of a multi-sided market. Inaccuracies can result in the market being ill-defined.

In a two-sided market where on one side the price is zero, it is not possible to perform a SSNIP test based on price – increasing the price by 5-10% has no meaning when the starting price is zero. Some commentators have argued that in firms offering zero-price products and services, competition should be evaluated on the basis of non-price dimensions such as quality and privacy.³⁰ A small-but-significant-non-transitory-decrease-in-quality test – SSNDQ test – has been proposed for such instances where the firms are not competing on price, but quality. A firm offering zero-price products or services would be considered to possess monopoly power if it had the ability to profitably decrease the quality of its “free” services below competitive levels. In the social network context, one such quality metric would be the ability to decrease privacy protections.³¹ Though in theory the SSNDQ test could provide insight into platforms with a zero-priced side, operationally there remains the challenge of quantifying quality reductions.³² In some cases, the math may be less difficult. For example, in a two-sided transaction market, the focus can be on transactions, a measure of output – without having to analyze subjective issues such as quality.

b. Measuring Market Share – Revenue Share versus User Shares

In a two-sided platform serving two groups of customer in two separate but interdependent markets, one way to assess the relative position of the platform in the marketplace is to calculate the revenue shares – combining revenue on both sides of the market, or alternatively, using revenue shares

³⁰ Antitrust and “Big Tech”, Congressional Research Service (September 11, 2019), at 7, *available at* <https://fas.org/sgp/crs/misc/R45910.pdf>.

³¹ *Id.*

³² Franck, *supra* note 3, at 65.

of each interdependent side.³³ Where the price structure is neutral – meaning the price charged for each product or service is interchangeable– the revenue on one side can be substituted one-to-one by revenues on the other. In this instance, the overall revenue share is a meaningful metric to analyze market power.³⁴ Where the price structure is non-neutral – meaning the price charged on each side of the platform is structured to maximize profits of the overall platform – here too only the overall revenue shares are meaningful, and the sides should not be considered in isolation.³⁵ In zero-price markets, the only reasonable option is to use the sum of revenues on all sides of the platform (which equates to the revenue on the paid side) or some measure of output.³⁶ These shares should not be interpreted as market shares as they are aggregated over two interdependent sides of a single two-sided market. Even still, these shares are instructive and large revenue shares are indicative of market power.³⁷ Note that comparisons of such revenue shares are meaningful only in instances where undertakings active in the relevant market follow similar business models.³⁸

Another way to assess the relative position of a platform in the marketplace is to consider the shares of active users relative to the total number of active users.³⁹ Applying this strategy, user shares should be considered on both sides separately, allowing for an understanding of the relative strengths

³³ Franck, *supra* note 3, at 70.

³⁴ Franck, *supra* note 3, at 70.

³⁵ Franck, *supra* note 3, at 70.

³⁶ Franck, *supra* note 3, at 70.

³⁷ Franck, *supra* note 3, at 70.

³⁸ Franck, *supra* note 3, at 70.

³⁹ Franck, *supra* note 3, at 71.

of the interdependent undertakings.⁴⁰ One shortcoming of this methodology is that the number of active users may have little in common with the amount of activity taking place or revenues generated on a platform.⁴¹ In instances where the user share is not a proxy for actual usage, it may make sense to consider the market shares of transactions or other proxies of overall intensity such as data volumes, accumulated time spent on the platform, and other such metrics.

V. **Conclusion**

Multi-sided markets, or platforms, have become central to our society as facilitators of interactions and transactions between different interrelated customer groups. Platforms have become embedded in our daily lives and assist in search, socialization, transactions, and information gathering. More often than not, consumers are able to interact with the platform without any payment at all. The multi-sided nature of these markets and the network effects that result from the relationship between the consumers has resulted in a novel set of issues from an antitrust perspective. The questions that we must continue to grapple with are whether to approach the sides of a platform as independent or interdependent, and how to account for a zero-priced product or service.

⁴⁰ Franck, *supra* note 3, at 71.

⁴¹ Franck, *supra* note 3, at 71.