

Economic Analysis of a Multi-Sided Platform Business for Competition Law

Abstract

Keywords: Multi-sided platforms; Transaction platforms; Indirect network externality; Multi-homing; Platform tipping; Anti-steering; Platform most-favoured nation clause; Market definition; Market study; Merger analysis.

Recent research progress in multi-sided platforms has provided important insights for competition policy analysis and practice. A multi-sided platform matches, or, more generally, facilitates interactions among different groups of users. Typical examples include operating systems, payment systems, and auction houses. If more consumers install a particular operating system on their PCs or mobile phones, more developers would be willing to develop softwares and applications for that system, which increases the value of the operating system for consumers. This cross-group or indirect network effect is a defining feature of multi-sided platforms.

Because of indirect network effect, a multi-sided business may charge a low, even below-cost or negative price to one group of users in order to induce their participation. Higher participation of that group then attracts the other group of users to the platform, and allows the platform owner to charge a high price. Both monopoly platform and competition platforms may employ this skewed price structure. Therefore, ignoring the overall pricing strategy and

focusing only on one side or market, namely, the pricing behavior to one group of users, may cause inappropriate evaluations of competition effects. For instance, the competition authority might attribute the below-cost price or subsidy on one side to predation, while high price on the other side might be mis-interpreted as evidence of market power. These are common fallacies of applying traditional one-sided logic to multi-sided platforms.

When homogeneous platforms can use rich pricing instruments and all users single-home, the “dominant firm equilibrium” emerges in a price equilibrium, wherein all users concentrate on one platform (the dominant platform), but the dominant platform obtains zero profit in equilibrium. In this equilibrium, the dominant platform has 100% market share, whether computed in revenue, transaction volumes, or user shares, but no market power. This result poses conceptual challenges to conventional indicators of market power. If the case under consideration is ripe for the prevailing of the dominant firm equilibrium, market share indicators might not give appropriate evaluations of market power. The competition authority may rule out the dominant firm equilibrium by checking: whether competing platforms provide identical services and have sufficiently rich pricing tools (i.e., platforms can charge both participation fees and usage fees, and can subsidize), and whether all users single-home.

Indirect network effects are also instrumental in non-pricing strategies. When users are able to multi-home, the incumbent platform can use exclusive dealing to deter entry by inducing single-homing, i.e., preventing users from using alternative services. The incumbent platform needs not to sign up all users; instead, it suffice to use exclusive dealing to bind one group of users. Users of

the other group, when finding that all the interacting counterparts appear on the incumbent platform, have no other choice but following the suit. The incumbent platform can extract surplus from the second, non-signing group, and use this surplus to compensate the first group for exclusivity.

In the face of non-negative price constraint, competing platforms cannot subsidize users. In this case, a multi-product platform can use tying to circumvent the non-negative price constraint, i.e., letting consumers enjoy the benefits of the tying goods as non-pecuniary subsidies. This strategy increases the value of the offering of the multi-product platform without inviting aggressive reactions if the competitor, also facing the non-negative price constraint, is a single-product firm. Leverage theory may hold and the multi-product platform may be able to extend its market power from the tying goods market to the tied goods market.

Lastly, when all users single-home and there are no concerns of congestion or negative direct network effect, the concentration of users on one platform maximizes the interaction benefits. This efficiency may be important in merger analysis involving multi-sided platform. However, it may be undermined by user multi-homing.

These theoretical developments provide useful insights and the competition authority may consider them as potential theories of harm when assessing competition effects of certain conducts or merger cases.

In practice, the competition author could employ an “expected cost” framework in the analysis of market definition, market power, and competitive assessments. For instance, concerning whether to change price structure in the SSNIP test for market definition study, letting the hypothetical monopoly

platform adjust the price structure would more precisely capture its change in profit. By contrast, fixing the price structure typically would underestimate the hypothetical monopoly platform's profit increase, or overestimate its loss, after a small increase in the price level. Not allowing the price structure adjustment might lead to false acquittal by mistakenly broadening the scope of the relevant market and underestimating the platform's market power. On the other hand, that fact that platforms usually control several prices implies a wide range of price structure modifications. Given the severe time and resources constraints, it might be difficult, or even infeasible for the competition authority to exhaust all possibilities. If, however, the platform's conduct could already be inferred as anticompetitive in a (possibly unduly) broader market, there should be less risk of false conviction condemning this practice.

Concerning the choice between the single-market approach and multi-market approach in market definition, the competition authority could first classify the platform under consideration as transaction or non-transaction platform, and pay specific attention to whether the choice of business model of the platform might affect this classification. If the business under consideration can be regarded as a transaction platform, then the competition authority could further investigate whether different groups of users draw similar benefits from the services of the platform, and whether they have the same substitution options. If certain services of the platform are valuable only to one group but not the other, or if different groups have substantially different substitution options, then the competition authority might consider the multi-market approach.

Empirical methods such as conjoint analysis could be used to extract user information for an analysis of SSNIP tests, which could then replace SSNIP test

when platforms set zero prices. Proper designs of questionnaires might also help obtain information about indirect network effects, which are important components in the computation of actual loss (in critical loss analysis), diversion ratio (in UPP tests), and the estimation of user demands.

Finally, recent high-profile cases also involve multi-sided platforms. In a case of anti-steering clauses, the majority opinion of the U.S. Supreme Court in *Amex* explicitly took into account multi-sidedness of the credit card industry. Albeit controversial, its treatments of market definition and rule of reason analysis are influential in subsequential cases such as *Epic Games, Inc. v. Apple Inc.*. By contrast, the German *Booking.com* case seemed adopted a “vertical structure” framework, namely, treating the platform most-favoured nation clause as a purely vertical arrangement between the platform (online travel agencies such as Booking.com) and one group of users (hotels). How to incorporate multi-sidedness into the analysis and whether doing so would generate different competitive assessments remain interesting and important topics for future research.