VOLUME 3 | NUMBER 1 | SPRING 2007

Competition Policy International

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Published in *Competition Policy International* (print ISSN 1554-0189, online ISSN 1554-6853), Spring 2007, Vol. 3, No. 1. *Competition Policy International* is a free publication. To order or download additional copies, visit eSapience.org.

Comments on Evans & Schmalensee's "The Industrial Organization of Markets with Two-Sided Platforms"

Janusz A. Ordover

A freshman student in economics or a Nobel prize-winning macroeconomist who has lately stumbled across a journal or two in industrial organization economics may be somewhat perplexed or confused by many references to two-sided markets. Surely, is it not the case that all markets have two sides, namely buyers and sellers? Consequently, to the uninitiated, the concept of a two-sided market offers little, if any, additional analytical insight. Some of that confusion is perhaps dispelled by a more informative description, namely: markets with two-sided platforms. So for the rest of this paper, we shall forget about two-sided markets and speak of two-sided platforms (2SP) and of markets in which these 2SPs compete. Professors David Evans and Richard Schmalensee (hereinafter E&S), who have done more than most of the thinking about the economics of 2SPs and advocating the importance of the idea to other academics, lawyers, policymakers, and business people, offer a highly accessible survey of the state of play in their excellent contribution to this volume.[1]

1 This paper is a comment on a paper by Evans & Schmalensee (E&S) published in this issue, 3(1) Competition Pol'y Int'l 151–179 (2007), and also forthcoming as D. Evans & R. Schmalensee, *The Industrial Organization of Markets with Two-Sided Platforms*, *in* Issues in Competition Law & Policy (W.D. Collins ed., 2007). All E&S page cites refer to the version published in this issue.

It is perhaps worth noting that much of the impetus behind the outpouring of research on 2SPs can be attributed to antitrust litigations in several industries, especially electronic payment networks, and to (generally) misguided regulatory initiatives pertaining to these networks in the European Community and in Australia. I have advised American Express with respect to regulatory and other issues relating to interchange fees.

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It is important to recognize that, perhaps without knowing so, economists have studied 2SPs for quite some time (i.e., way before the term was invented) as have competition authorities and the courts. And, of course, business people, who generally are ahead of theoreticians in such matters, have also intuitively understood the specific pricing and marketing challenges that have to be solved in order to launch a 2SP and make it prosper. These challenges arise because (by definition) a 2SP links two (or more) distinct groups of consumers whose demands are interrelated in that each group confers (perhaps up to a point) a positive external benefit on the other. These effects are generally referred to as indirect network effects, in distinction to more standard network effects that realize themselves among the same customer group. When there are indirect network effects, a business strategy that stimulates demand on side A of the platform will, when properly implemented, stimulate demand on side B of the platform, which in turn creates a positive feedback to side A, and so on. Because of this interdependence, a 2SP entrepreneur must solve two problems: first, how to get both sides on board[2] and second, how to structure prices to the two sides.[3]

E&S offer a wealth of examples on how these two problems have been solved by a wide range of 2SPs in a variety of markets, such as dating clubs, newspapers, credit card networks, and video game consoles. Surprisingly, they do not discuss Global Distribution Systems (GDS), which offers an excellent case study of how platform operators respond to changes in the competitive and regulatory environment in which they operate (i.e., changes in the relative importance of attracting the two sides to the platform, inter-platform competition, and changes in platform ownership).[4] For example, loosely speaking, pricing on these platforms has flipped from the initial arrangement whereby travel agents paid for each booking (and were offered incentives to join the platform) and airlines paid to join the platform (and the membership fee was determined by the level of display preference) to the current arrangement where airlines pay for each booking while travel agents receive a per booking financial assistance.[5] This rebalancing of fees is consistent with the predictions of the theoretical literature on 2SPs but also reflects the changing structure of GDS ownership as well as the fact that travel agents no longer receive per booking payments from the airlines. Because many travel agents multi-home—subscribe to more than one GDS—and can

2 This is the typical chicken-and-egg problem with respect to which it is worth recalling Marshall McLuhan's adage that chicken is simply egg's idea for getting more eggs.

3 In fact, according to the definition first offered by J.-C. Rochet and J. Tirole, a platform (or a market) is two-sided when the volume of transactions on the platform depends on both the level of the total price and on the structure of prices charged to the two sides, holding total price constant. *See* J.-C. Rochet & J. Tirole, *Platform Competition in Two-Sided Markets*, 1 J. Eur. Econ. Ass'n 990 (2003).

4 GDSs were formerly known as Computerized Reservations Systems (CRSs).

5 However, the recent trend is for GDSs to aggressively discount the fees to the airlines in exchange for agreements to provide full fare information.

also bypass the GDS altogether, the platform vendor now must offer more powerful inducements to travel agents to use its platform in order to keep the airlines willing to pay per the booking fee to the platform owner. Importantly, these inducements entail not only direct payments, but also (costly) contracts with airlines for attractive content and massive investments in platform capability.[6]

Given the ubiquity and importance of 2SPs in modern economies—as demonstrated by E&S—it is important to ask whether competition policy (antitrust and regulation) has to be retooled to better capture the special features of 2SPs and whether public and private decision-makers have been led astray by failing to account for this two-sidedness in their analyses of business conduct. Here, again E&S deliver by providing the reader a comprehensive review of the lessons from 2SP economics for competition policy. E&S claim—correctly in my view—that important analytical and policy errors can result when policymakers take a one-sided view of markets with 2SPs. I am less convinced, however, that the extent of needed reassessment of competition policy in light of this new learning is as profound as that triggered by, for example, the developments in economics of vertical relationships in production and distribution. Invoking a two-sided nature of the business will not get one off the hook in an antitrust case and, in some situations may make the predicament even worse. Thus—like free-riding or network effects were before—2SPs may be a passing concept which calls for analytical vigilance but does not require a policy revolution. Let us consider a few examples.

INVOKING A TWO-SIDED NATURE OF THE BUSINESS WILL NOT GET ONE OFF THE HOOK IN AN ANTITRUST CASE AND, IN SOME SITUATIONS MAY MAKE THE PREDICAMENT EVEN WORSE.

Consider first the matter of predation. As we have seen, an important insight from 2SP literature is that structure of prices matters for the profitability of the platform and that changes in market conditions can prompt the platform owner to rebalance prices, possibly in a rather drastic fashion. Indeed, in many settings, a price to one side is less than the marginal cost of serving it (assuming that such marginal cost is even a meaningful concept). Of course, the proposition that price to one group of buyers may be below the direct marginal cost of serving these buyers is not new: some 25 years ago, Professor Robert Willig and I proposed the Ordover-Willig test for predatory pricing by a multi-product firm in which the correction term in the standard formula accounts for all the pertinent cross-elasticities.[7] Admittedly, given how difficult it is to implement even the

6 Since most or all airlines multi-home on all the GDSs, the platforms cannot effectively distinguish themselves based on membership (unlike credit card networks, for example) but can and do distinguish themselves based on the depth and quality of price and other information provided from the airlines.

7 J. Ordover & R.D. Willig, *An Economic Definition of Predation: Pricing and Product Innovation*, 91 YALE L.J. 8-53 (1981).

standard test for predation, the need to account for (inter-side) cross-elastic effects only exacerbates the challenge. However, if predation is alleged, the challenge has to be met somehow. One sensible avenue might be to invoke the finding that low (or even negative price) makes sound business sense for 2SPs irrespective of its impact on competition. The next step might be to show that the price structure delivers a per transaction price that exceeds the pertinent measure of marginal cost, as in the Ordover-Willig test, for example. Or perhaps the analysis might focus on a comparison of incremental revenues versus incremental costs defined over packages of goods or services that serve the interests of customers on both sides of the platform.[8] In no case, however, is being a 2SP likely to offer immunity from a claim of predation. At the same time, the alleged 2SP predator has a wealth of economics and business rationales on its side when defending such claim: namely, the need to balance or get on board the demand on both sides.

More interesting then predation is the set of competitive problems engendered by the question of access to the platform. E&S briefly address this topic in their discussion of the EC's investigation of Microsoft's integration of its media player into its Windows operating software and in connection with the *Magill* case that was also litigated in the European Community.[9] In the United States, the issues of access featured prominently in the *Microsoft* case and in the litigation brought by the United States against Visa and MasterCard that dealt, among other matters, with the rules that restricted participation of Visa and MasterCard issuing banks in competing credit card networks.[10] And, although 2SP terminology was nowhere on the horizon yet, the IBM cases of the 1970s that focused on access by stand-alone manufacturers of peripherals to IBM's CPU platform, stimulated inquiry into the same economic issues that access to the 2SPs raises, only more so. For example, the research on 2SPs has demonstrated that the ability and ease with which the members of the two sides can (and do) multi-home, effects inter-platform competition and both the level and structure of prices, often in the manner that conduces to overall social welfare.[11] Hence, in markets populated by 2SPs exclusivity could be quite adverse to social welfare. For example, for a new

8 In my testimony in United States v. American Airlines I suggested that a route is a better object of analysis than a single flight and that analysis of profitability of a route should reflect the flow traffic (i.e., network effects), but that care is needed to avoid double-counting. *See* United States v. American Airlines, 743 F.2d 1114 (5th Cir. 1984).

9 *See also* E&S, at §§ C.2 and 3 for a discussion of EC's investigation of Microsoft (Commission of the European Communities v. Microsoft, Case COMP/C-3/37.792) and *Magill* (ITP v. Commission of the European Communities, 1995 E.C.R. I-00743).

10 I have acted as a consultant to American Express in connection with U.S. Department of Justice (DOJ) investigation of Visa/MasterCard practices. *See* United States v. Visa U.S.A. et al., 98 Civ. 7076 (S.D.N.Y.).

11 For a very interesting summary of the extent of multi-homing on selected platforms, *see* E&S, Table 3 at 167.

platform the ability to attract participants on both sides could be a matter of life and death, given the importance of inter-side externalities (and the concomitant scale economies). On the other hand, the literature on 2SPs has also amply demonstrated that the success of a platform—including its ability to get off the ground—requires that the owner be able to design the platform and the rules of access that get both sides on board (with the least amount of regulatory interference and including the governance rules), promote effective balancing of demand on both sides, and give the platform enough flexibility to meet the challenges of changes in competitive environment. From the latter perspective, exclusivity as well as "technological tying", as it was called a while back, makes especially good, pro-competitive sense. Hence, in the context of 2SPs, access crystallizes the difficult trade-offs between openness and exclusion. There has been much written on this vexing problem in general terms but, as I noted, the economics of 2SPs raises further the analytical challenge.

In general, the issue of access and exclusivity is linked to the question of market power and to the forensic tools for detecting it in the data. E&S correctly point out that because the structure of prices matters, the platform operator sets the price to each side in a manner that reflects the indirect network effects. An increase in price on one side above some initial level reduces participation on that side and sets off a chain of adverse effects that bounce back and forth between the sides. E&S state that these indirect effects "limit market power, all else being equal." It is not obvious what the standard caveat means here: surely, it is also true that by improving quality on one side of the platform (charging a low price), the platform operator reduces elasticity of demand on the other side of the platform and thus, at least in principle, lessens the adverse effects of a price increase to the participants on that side. Like an owner of a mundane single-sided business (say a tobacco company) who uses advertising and other means to reduce the elasticity of demand facing it so as to get its Lerner index up, the owner of a 2SP can use prices (and other tools) to affect the various elasticities that are pertinent to the platform's profitability.[12] In fact, some commentators on market power possessed by 2SPs have made the opposite point of E&S, namely: because customers on one side must participate on every platform, each platform has more market power than competitive analysis (e.g., counting the number of rival platforms) might suggest.

SOME COMMENTATORS HAVE MADE THE OPPOSITE POINT, NAMELY: BECAUSE CUSTOMERS ON ONE SIDE MUST PARTICIPATE ON EVERY PLATFORM, EACH PLATFORM HAS MORE MARKET POWER THAN COMPETITIVE ANALYSIS MIGHT SUGGEST.

E&S are also on point when they note that "competition on both sides of the platform limits profits." This claim is uncontroversial but I am not sure whether

12 I say "various" because the owner of the platform is both concerned about membership and usage and thus has to pay attention to both intensive and extensive margins on both sides.

complete dissipation of incremental profits from the less competitive side to the more competitive side is a reasonable benchmark, as E&S seem to suggest. More likely such dissipation is imperfect but could be sufficient to undermine incentives for anticompetitive unilateral or coordinated conduct, given the costs of the conduct and the possible penalties. This seems to be the key public policy takeaway from this feature of 2SPs. Another takeaway might be that the operators of 2SPs may have enhanced incentives to engage in business strategies that lessen competition on that side of the platform from which the feedback effects (i.e., the inter-side network effects) are the most pronounced. Thus, the flip side of the finding that competition on one side of the platform affects profits on both sides is that reduction of competition on that side where dissipation is particularly potent could be especially profitable because of the possibility of recoupment on both sides.

Staying with the issue of competition, E&S could have noted that increased competition among platforms may have a rather surprising impact on price structure. As an example, increased competition among credit card networks for issuers have led to an increase in interchange fees; and a similar phenomenon was observed in PIN debit networks where intensified competition for exclusive bugging of PIN debit cards by issuing banks also had a similar effect.[13] Thus, in typical one-sided markets increased competition predictably leads to lower prices, but this need not be the case in markets with 2SPs. This of course does not mean that increased competition is somehow harmful but only that invigorated competition can have a complex impact on the different sides (groups) of platform customers. However, the impact on price (or prices) is, of course, only a part of the story. The other key part is the impact on the quality that the platform delivers to each side. Thus, a reduction in price on the side where profits are being dissipated may be nothing more than a partial corrective for the reduction in quality on the other side caused by price elevation. Indeed, a theme that runs deeply through the E&S paper is that quality of the platform, as gauged by the depth and breadth of services that it offers and the quality of participants on both sides, is an important dimension of competition analysis.[14]

E&S close their discussion of competition and market power by noting that "price equals marginal cost ... on a particular side is not a relevant economic benchmark ... for evaluating market power ...." This is surely true because the literature has amply demonstrated that 2SP's pricing to each side depends on a complex web of intra-side elasticities and inter-side cross-elasticities. Moreover,

13 For more on this point, *see* B. Klein et al., 73 Antitrust L.J. 571 (2006) (credit card networks) and R. Hesse & J. Soven, *Defining Relevant Markets in Electronic Payment Network Antitrust Cases*, 73 Antitrust L.J. 709 (2006) (PIN debit networks). I served as an expert witness for the DOJ in United States v. First Data Corp., 03 Civ. 02169 (D.D.C. 2003).

14 This theme comes to the fore in the important body of research by Andrei Hagiu at Harvard Business School.

pricing strategies deployed by the operator can often be quite complex. For example, the operator may charge some combination of membership fees (fee for joining the platform) and usage fees (on a per transaction basis). Such pricing arrangements make sense given that the platform has to bring the right mix of participants to the two sides of the platform and then make them use it efficiently. In such an environment, comparisons of price to marginal cost are apt to be misleading, at least in some situations but not all. For example, percentage commissions charged by real estate brokers relative to the expected costs of making a successful match may be a reasonable basis from which to measure market power in real estate brokerage services. On the other hand, to take credit card platforms as an example, it does not make any economic sense—as some regulators insist on doing—to first allocate the various buckets of platform costs to each side and then to compare fees that each side pays to these potentially highly, arbitrary measures of costs. Clearly, many of these costs are joint and common and perhaps more importantly, the expenditure of costs on one side ultimately benefits both cardholders and merchants (e.g., development of intelligent systems for fraud detection at the point of sale).

Surely, the implication from the literature is not that 2SPs cannot have market power but, rather, that a great deal of caution has to be exercised in inferring such market power from standard indicia of market power. E&S do not suggest that once a firm is found to be a 2SP it should get a free pass from the strictures of competition policy. However, they do not point to alternative measures of market power that stem from the literature that could be used to make the requisite findings or how the traditional measures should be modified to account for two-sidedness. Following on my earlier remark, we have a general idea how to adjust the Lerner index to account for the cross-elastic effects in a variety of settings.[15] While this may not be enough to capture all the complexity, it is a start.

It is also a start that can help define the relevant antitrust market(s). The market definition step has lately had some tough times, what with some antitrust commentators calling for its jettisoning altogether as an unnecessary distraction from the ultimate task of antitrust analysis, which is the assessment of competitive effects from unilateral or multi-firm business strategies (including mergers and so on). Without getting entangled in this debate, I want to comment briefly on the issue of product market definition in industries populated by 2SPs.

The main point I want to make is that there is no need to despair at the task. As E&S note, "...the fact that a business can be thought of as 2SP may be irrelevant [to the market definition step]. ... In other cases, the fact that a business is a 2SP will prove important both by identifying the real dimensions of competi-

15 This point is well-illustrated in G. Parker & M. Van Alstyne, *Two-Sided Network Effects*, 51 Mgmt. Sci. 1494 (2005).

tion and focusing on sources of constraint."[16] The question is, in those situations where two-sidedness matters a great deal, whether the traditional tools that economists now use for market definition should be jettisoned or merely adapted to deal with complications like those depicted in Figure 1 in E&S.[17] In particular, can the small but significant and non-transitory increase in the price (SSNIP) methodology for market definition—which has earned its place in the global antitrust toolbox—be used in defining markets in industries with 2SPs? During the hearing in the *First Data* case, one of the experts for the defendants concluded that the SSNIP test could not be readily used to gauge the scope of the relevant market in which PIN debit networks competed and should be abandoned.[18] Unfortunately, he failed to offer an alternative approach that would address the apparent inappropriateness of the SSNIP test.[19]

The obvious problem for the SSNIP test is that it is typically applied to one price (or to a collection of prices of putative substitutes). In a 2SP market, an increase in the price on one side has implications for demand on the other side and thus for the overall profitability of the platform and impact of the price increase itself. This is not an unfamiliar complication: for example, a hypothetical monopolist supplier of tennis rackets has to factor in the effects of a SSNIP on tennis rackets on its tennis ball business, for example. This suggests that one way to implement the SSNIP test in the example would be to inquire whether a monopolist of tennis equipment system would be able to elevate profitably by five percent the price of the system or would it would suffer enough loss in demand to other sporting pursuits as to render the increase unprofitable. The answer to this question is neither obvious nor simple (in terms of data requirements) but, conceptually at least, it is not impossible to address.

CONSEQUENTLY, THE EMPIRICAL ASSESSMENT OF HOW THE TWO SIDES WILL RESPOND TO A HYPOTHETICAL INCREASE ON ONE SIDE IS THAT MUCH MORE COMPLICATED.

In the case of 2SPs the feedback effects that reflect inter-side network effects are, of course, likely to be much more complicated that in the tennis playing system example. For starters, in the example above, the same consumers are generally purchasers of both tennis rackets and tennis balls, but this is not the case with 2SPs where participants on the two sides are distinct groups of consumers. Consequently, the empirical assessment of how the two sides will respond to a hypothetical increase on one side is that much more complicated. Perhaps even

16 *See* E&S, at 174, footnote omitted.

17 *See id.*, Figure 1 at 175.

18 United States v. First Data Corp., 03 Civ. 02169 (D.D.C. 2003).

19 For more detail on how the DOJ used the SSNIP methodology in that litigation, *see* Hesse & Soven, *supra* note 13. *See also* E. Emch & S. Martin, *Market Definition and Market Power in Payment Card Networks,* 5 REV. NETWORK ECON. 45 (2006).

more complicated is the formulation of an optimal price strategy by a hypothetical monopolist relative to the prevailing strategies: this is because the hypothetical 2SP must not only find the optimal price level but also the optimal price structure. If the structure is invariant to the degree of market power then the SSNIP test would proceed on the assumption proportional increase in prices on both sides. In other situations, a hypothetical SSNIP can be applied to one side while holding the other price(s) constant. If this is profitable, then factoring in (a downward) price adjustment on the other side should only improve profitability of the SSNIP because it will neutralize some of the inter-side externality. Of course, it is not necessarily obvious which side is a more attractive candidate for the proposed price elevation—should a hypothetical shopping mall monopolist increase its take of stores' revenues or get rid of free parking? But in some instances it may be readily apparent which side to apply the SSNIP given industry dynamics, evidence from the industry participants, or so on.

As should be clear from this brief reaction to the E&S paper, there is still much to be done on the topic of competition in markets with two-sided platforms. The paper gives an excellent introduction to the topic (despite being cryptic here and there) and should serve as a launch pad for further explorations in both the realm of policy and the realm theoretical modeling.