OII Internet Issue Brief No. 1.2, November 2003

Comment 2 on *The Internet: Still Wide Open and Competitive* (Eli Noam, OII Issue Brief No. 1, August 2003)

Competition in Internet industries: evidence from e-retailing

Michael R. Baye

Bert Elwert Professor of Business Economics and Public Policy, Kelley School of Business, Indiana University

John Morgan

Professor of Business and Economics, Haas School of Business and the Department of Economics, University of California, Berkeley

In OII Internet Issue Brief No. 1, Professor Noam (2003) provides a thoughtful look at concentration within Internet industries. He documents that, even in its entrepreneurial heyday, the Internet sector was more concentrated than was commonly thought. Moreover, he shows that, using a variety of measures, concentration in the Internet sector increased substantially between 1996 and 2002.

Here, we offer some context to help explain the patterns present in Professor Noam's data. We also share some of our own data from the e-retailing sector, and show that it is consistent with Professor Noam's findings for the pre-2002 period. However, our data – which also covers the more recent period from January 2002 to November 2003 – suggests that, at least for the e-retail sector, the upward trend has been reversed, and there is currently a downward trend in concentration levels.

Reasons for increased concentration since 1996

The most striking aspect of Professor Noam's analysis is the clear upward trend in concentration in the Internet sector since 1996, as shown in his Graph 1. Much of the post-1996 increase in concentration may be attributable to consolidation in Internet-related sectors in the U.S. during the late 1990s.

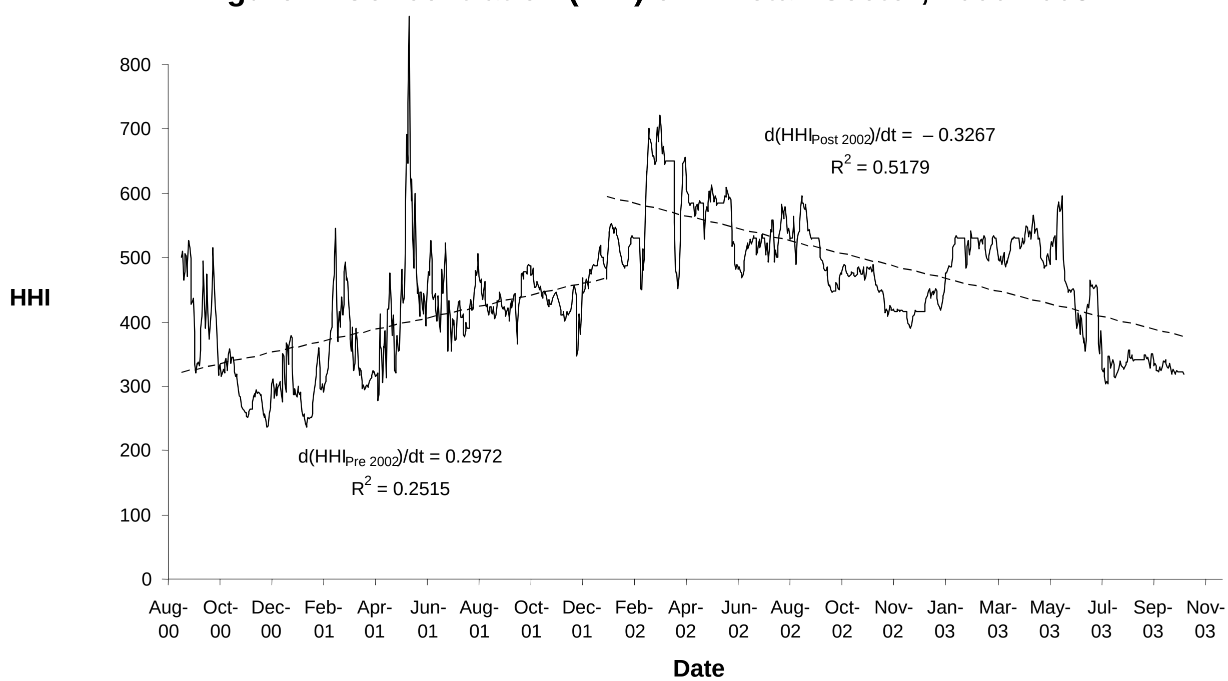
As a case in point, consider WorldCom, which acquired over 60 companies. In 1995, WorldCom paid $2.5 billion for William's Communications' network service operations, including 11,000 miles of fibre-optic cable. In 1996, WorldCom acquired MFC Communications for $12.5 billion. This deal permitted it to gain control of the world's largest Internet backbone provider, UUnet (which MFS itself had acquired earlier in 1996). In a sequence of similar acquisitions, WorldCom acquired Brooks Fiber Properties, Compuserve, ANS Communications, GridNet, Unicom-Pipex, InNet, NL Net, Metrix-Interlink and Embratel. Consolidation by WorldCom culminated in 1998, when it acquired MCI Communications. Indeed, levels of concentration in the industry rose to such high levels that, on 26 June, 2000, the U.S. Department of Justice (2000) initiated a civil action to enjoin WorldCom from acquiring Sprint Communications.

There were similar movements toward vertical consolidation in Internet services provider and content segments of the Internet sector. For example, one of the main concerns raised by the U.S. Federal Trade Commission (2000) in the AOL-Time Warner merger was that the consolidation of AOL's content with Time Warner's distribution network via cable broadband would stifle competition. This ultimately resulted in divestiture of certain cable broadband assets before the merger was approved.

E-retail markets

We have been measuring day-to-day fluctuations in the competitiveness of a variety of e-retail markets since the late 1990s. These statistics are updated weekly at our website, www.nash-equilibrium.com. Figure 1 below uses our data to chart the average Herfindahl-Hirschman Index (HHI) in e-retail markets (averaged over 5000 different products sold online since 2000). One needs to be cautious in drawing inferences from the HHI measure in that it is a poor predictor of market power in e-retail markets where firms compete in prices rather than quantities.

Figure 1: Concentration (HHI) of E-Retail Sector, 2000-2003



Data Source: Nash-equilibrium.com

Several aspects of Figure 1 are worth noting. First, the level of concentration is quite low, averaging about 500 over the period. The levels are similar to those reported by Professor Noam for the Print Sector and the Film Sector. Second, between August 2000 and December 2001, the general trend in concentration is increasing. Why is this? In our view, the main reason for increasing concentration was not consolidation but rather exit by many e-retailers in a climate where capital suddenly became scarce due largely to the burst in the Internet bubble. Indeed, between 2000 and 2002, concentration was increasing at a rate of 100 HHI points per year – comparable to that implied in Professor Noam's Chart 1.

The third, and perhaps most important, feature of Figure 1 is that the trend toward increasing concentration has reversed itself since 2002. Since 2002, the general trend in concentration is once again decreasing, at a rate of almost 120 HHI points per year.

What are the broader implications on the Internet sector more generally of the reversal of the trend toward increasing concentration seen in Figure 1? As noted in Professor Noam's Graph 2, concentration varies widely among different sectors of the Internet economy, with distinctly more concentration among local broadband providers compared with much lower levels of concentration for the Internet sector as a whole. The message here is clear: One must be careful not to lump different sectors of the new economy into the same pot.

Conclusions

Our data from the e-retail sector suggests that the trend toward increasing concentration in the Internet sector may be slowing or even reversing – which would appear to be a hopeful sign. However, care must be taken in extrapolating the trend reversal we observe in the e-retail sector to the Internet sector as a whole owing to the diverse nature of competition in the Internet sector.

A second caveat in interpreting our results is one that antitrust regulators routinely grapple with: How does one define 'the market' over which firms are competing? Market definition – both product market definition and geographic market definition – is important in any measure of concentration.

Consider first the issue of product definition. If one defines the relevant market to be the market for Internet access, the number of competitors in any given town is quite large (including cable, DSL, the multitude of dial-up providers, and so on). Based on this market definition, HHIs would be considerably less than 1000. Alternatively, if one defines the market to consist solely of broadband providers, the HHI for most cities in the U.S. (and indeed the world) would be in the range of 5,000. Similarly, if one considers the number of broadband providers worldwide, HHIs would be much smaller than if one considered the number of broadband providers in a given city or region. Thus, different methods of aggregating across products and/or across countries will lead to quite different measures of concentration.

References

Noam, E. (2003), *The Internet: Still Wide Open and Competitive*, OII Issue Brief No. 1 (Oxford: Oxford Internet Institute). Available online at www.oii.ox.ac.uk

U.S. Department of Justice (2000), *U.S. v. WorldCom, Inc. and Sprint Corporation, Complaint*, United States District Court for the District of Columbia, 26 June.

U.S. Federal Trade Commission (2000), *Complaint In the Matter of America Online, Inc. and Warner Inc.* (Docket No. C-3989), 14 December.

Recommended further reading

Baye, M. R. (2003) (ed.), *Advances in Applied Microeconomics: Organizing the New Industrial Economy*, Amsterdam: Elsevier/JAI Press.

Baye, M. R., Morgan, J. and Scholten, P. (forthcoming), 'Price Dispersion in the Small and Large: Evidence from an Internet Price Comparison Site', *Journal of Industrial Economics*.

U.S. Department of Justice (1984), *Non-Horizontal Merger Guidelines*, 14 June.

U.S. Department of Justice and the Federal Trade Commission (1992), *Horizontal Merger Guidelines*, Issued: 2 April (revised 8 April 1997).