

Russell Ackoff Doctoral Student Fellowship Proposal (2009)

**Consumer (Ir)rationality and the Coase Conjecture in  
the PC Video-Game Market**

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## **Descriptive Summary**

An ample theoretical literature spawning from the seminal work of Coase (1972) and Stokey (1979, 1981) shows that a durable goods monopolist's profit is reduced by customers' rational expectations of future price declines. While refusing to lower price is the optimal strategy ex-ante, it is not credible – a firm has the incentive to lower price after exhausting sales at the monopoly price.<sup>1</sup> This result, known as the Coase Conjecture, suggests that price will decline to marginal cost in 'in the twinkling of an eye.'

The Coase Conjecture relies heavily on the assumption of perfect information, implying not only that consumers know: (A) the firm's cost structure, and (B) the distribution of other consumers' valuations, but also that ALL consumers are able to process such information and derive the unique perfect rational expectations equilibrium (PREE). Rather, consumers may not be able to process such information well, and may have expectations of future prices that are both uncertain and biased. Such behavioral reasoning may explain why durable goods monopolists, in many different empirical settings, are able to earn near-monopoly profits despite the logic of the Coase Conjecture.

Laboratory experiments published to date suggest that typical individuals, as well as undergraduates taught inter-temporal price discrimination (IPD) theory, are grossly unable to process the information and act optimally.<sup>2,3</sup> Few empirical studies exist to date, and most existing studies are not robust to irrational decision-making.

It is likely that consumers are able to extrapolate price trends from similar, older products if enough such products exist. Though, the existence of such heuristics raises interesting questions. Video game publishers expecting to release many games in the future would have an incentive not to lower price too quickly, since doing so would lead customers to expect a rapid price fall (which would lead to reduced profits). But would small publishers, or those going out of business, be able to free-ride off the expectations created by large publishers? Do consumers expect different price declines for games that have advertised heavily, hence sooner exhausting high valuation consumers? Or do consumers change their expectations of price declines for games that have network effects, and thus should have smaller price declines?

The first questions I intend to address are whether small firms lower prices at a faster rate than do large firms, and whether consumers anticipate these differences. Second, I will investigate whether prices drop faster for advertised games (as expected), and if consumers react appropriately. If consumers do not condition their expectations on firm characteristics, then decreasing publisher concentration should hasten price declines (hence benefitting consumers) despite the empirical fact that video games are poor substitutes for each other, and thus do not compete with each other much more so than do

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<sup>1</sup> Necessary assumptions: common discount rate, constant MC, additive aggregate utility, free disposal, no commitment/contracting, single product monopoly, perfect durability, perfect information on costs/valuations.

<sup>2</sup> Studies to date: (Goth, Ockenfels, and Ritzberger, 1995; Rapoport, Erev, and Zwick, 1995; Smith, 1981; Cason, SS Reynolds, 2005; Cason and Sharma, 2001; Reynolds, 2000)

<sup>3</sup> Most of these papers assumed that a market IPD game is theoretically equivalent to a bargaining game between a seller and a random buyer. Some have speculated that this assumption could intensify the absurdity of participants' actions. Though, the one experiment replicating a full market yielded similar results.

any other pair of leisure goods.<sup>4</sup> Thus, results from this line of research may be of great interest to regulators.

I also hope to employ the assembled dataset to answer additional questions in subsequent papers. Some other questions I may address are as follows. Can consumer heuristics finally explain why the Coase Conjecture fails to hold in many empirical settings? Are firms pricing optimally? In previous research, Nair (2007) suggested that video game publishers could substantially increase profit by changing their pricing path, but his model relied on perfectly rational expectations and is not robust to behavioral modifications. In sum, assembly of the desired dataset will allow me to address several questions in this thin area of research.

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<sup>4</sup> Nair (2007) finds video game cross-price effects are very low, suggesting video games are very weak substitutes.

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