



The role of the Internet in changing industry competition



Fang Wang^{a,*}, Xiao-Ping (Steven) Zhang^b

^a School of Business and Economics, Wilfrid Laurier University, 75 University Avenue West, Waterloo, Ontario, Canada N2L 3C5

^b Department of Electrical and Computer Engineering, Ryerson University, 350 Victoria Street, Toronto, Ontario, Canada M5B 2K3

ARTICLE INFO

Article history:

Received 2 October 2012

Received in revised form 29 July 2014

Accepted 9 October 2014

Available online 22 October 2014

Keywords:

Internet

Industry competition

Winner-take-all

Herfindahl–Hirschman index

Industry profitability

Cross-sectional analysis

Sector heterogeneity

ABSTRACT

Does the Internet lead to a more competitive industry or market? The popular view asserts that the Internet intensifies competition, but competing theories challenge this view, indicating the need for empirical support. This research examines the role of the Internet in changing the overall industry competition as measured by the Herfindahl–Hirschman index (HHI), industry profitability, the new entry ratio, and the ratio of firm number change. The results reveal significantly positive relationships between Internet use and change in the HHI and industry profitability and significantly negative relationships between Internet use and the new entry ratio and the ratio of firm number change. These findings suggest that instead of increasing industry competition, Internet use results in less competitive industry structures.

© 2014 Elsevier B.V. All rights reserved.

1. Introduction

Does the Internet change industry competition? More specifically, does it lead to a more or less competitive market? This is a critical question for organizations, with significant strategic and managerial implications. The role of the Internet received wide discussion among academic researchers and industry managers around the turn of the millennium, and several important articles (e.g., [5,15,23,25,34]) were published between 1997 and 2005.

The main debate in this discussion asserts that the Internet intensifies competition. Theoretically, Porter [34] offers representative arguments by summarizing how the Internet changes industry competition through five forces. Practically, the apparent price competition online, which drew much attention from the public and was confirmed by several studies [8,9,26], was used as evidence to support this view. For example, Brynjolfsson and Smith [9] found that prices on the Internet were 9–16% lower than prices in conventional outlets, and retailers' price adjustments were up to 100 times smaller than conventional retailers' price adjustments.

Since then, the view that the Internet intensifies competition has been widely accepted in the business world and has shaped strategic business discussions and the direction of academic research. Firms

seek strategic responses to the intensified competition brought by the Internet. For example, in his discussion on competitive advantage, Porter [34] suggests that firms can no longer sustain operational effectiveness and instead must gain and rely on a distinct strategic positioning. A great deal of research attention has been given to strategies that help firms survive and combat the intensified competition online, such as online pricing strategy [15,25], product offering strategy [5], relationship marketing [45,11], and tools such as Internet shopping agents [23].

Despite the popular belief that the Internet intensifies competition, competing theories suggest different answers. For example, economists suggest that the broad, fast communication and easy replication enabled by the Internet ultimately create a winner-take-all society [18] or a superstars effect [39]—that is, the Internet makes customers converge in their tastes and buying habits, and popular products become disproportionately profitable. Following this school of thought, Elberse [17] tests the long-tail theory (i.e., the Internet changes the shape of the demand curve in favor of niche products [3]) by examining sales patterns in the music and home-video industries. She finds that the “tail” of merchandize assortments becomes longer, but flatter, while an ever smaller set of top titles/products continues to account for a large market share. That is, the superstars effect [39] dominates over the long-tail effect [3] in the online music and home-video industry.

The winner-take-all theory, when applied to industry competition analysis, implies that the Internet helps strengthen the position

* Corresponding author. Tel.: +1 519 8840710x3726; fax: +1 519 8840201.

E-mail addresses: fwang@wlu.ca (F. Wang), xzhang@ee.ryerson.ca (X.-P. Zhang).

of industry winners further, thus reducing the competitive power of smaller or weaker competitors. This could lead to a less competitive market.

Because different theories lead to different answers, we need to determine which phenomenon plays out in the market. Previous studies on price competition on the Internet do not provide strong evidence to support the intensified competition because (1) price is only one perspective of competition and does not reflect the change in the industrial competitive structure (i.e., it is not clear if and how price competition changes firm market share and market power) and (2) firms cannot endlessly reduce price; thus, the result of price competition is price standardization. Most firms now realize that Internet competition is not solely about price competition. After more than a decade of Internet diffusion in business practice, many industry changes caused by the Internet have been realized. Many firms/industries have developed relatively mature Internet strategies. Thus, an examination of the industry changes caused by the Internet is now feasible.

To understand the effect of the Internet on industry competition, this research employs two widely used industry competition measures—that is, the Herfindahl–Hirschman index (HHI) and industry profitability—supplemented by the new entry ratio and the ratio of firm number change to examine industry competition change over the years. The average firm inlink count of an industry serves as the proxy of Internet use in the industry. We find significantly positive relationships between Internet use and change in the HHI and industry profitability and significantly negative relationships between Internet use and the new entry ratio and the ratio of firm number change. These results consistently and strongly suggest that Internet use results in less competitive industries. The additional exploratory study indicates the sector heterogeneity (i.e., the effect size of Internet use on competition changes varies across industry sectors).

To the best of our knowledge, this research is the first to provide empirical evidence on how the Internet changes industry competition from the industrial structure perspective. Our finding that the Internet leads to less industrial competition contradicts the widely held theoretical assumption and supports the winner-take-all theory. This finding is important in shaping how firms and academics view the Internet in business practices and evaluate Internet-induced changes in industry structures.

In the following sections, we first briefly review competition concept and measures, compare the competing theories on the Internet's effect on competition, and introduce our hypotheses. We then discuss the research methodology and present the analysis results. Finally, we discuss the research contributions and limitations and offer future research directions.

2. Theoretical background

2.1. Competition

Competition is a central concept in economics and business analysis. It is “a rivalry between individuals (or groups or nations),

and it arises whenever two or more parties strive for something that all cannot obtain” [42]. Competition comes with many forms (e.g., market trading, auctions), instruments (e.g., prices, advertising, R&D, effort levels), and objects (e.g., profits, market share, corporate control) [44]. Thus, competition on one instrument (i.e., price competition) cannot represent the overall industry competition level.

Classical economic theories distinguish several levels of competition, from perfect competition (i.e., a theoretical market structure that features no barriers to entry, an unlimited number of sellers and buyers, and a perfectly elastic demand curve), to monopolistic competition (i.e., a large number of firms, each with a small market share and slightly differentiated products), to oligopoly (i.e., a market with a small number of sellers controlling the majority of market share), to monopoly (i.e., one seller controlling the market) [32]. Overall, competition intensity is interpreted through firm market power and industry profitability [6,32,33,44]. Market power is the extent to which individual firms can influence market price or other terms on which their products are sold [32]. The more competitive the market, the less power an individual firm has to influence the market. A perfectly competitive market contains many firms, such that an individual firm has no power to influence the market. Consequently, each firm must accept the market terms set by the forces of market demand and market supply. The state of competition determines industry profitability [33]. In highly competitive industries, such as tires and metal cans, profitability is low.

In the empirical economic and strategy literature, concentration ratios and profit margins are the two most popular types of measures for competition intensity. Concentration ratios measure the distribution of production across firms within an industry and reflect market power and competition intensity [14,20,19,29,32,37,10]. Concentrated industries, in which a few firms control a large market share, are thought to earn abnormal profits because barriers to entry thwart new entrants, and existing firms can more easily collude. In practice, the concentration ratio HHI is widely applied in competition law, antitrust cases, and technology management [33]. Profit margins are a performance measure, indicating the result of competition. High competition results in low industry profitability [38].

Industry competition is driven by market structure elements, such as firm number, entrance or exit barrier, and product differentiation [32], or in strategy literature, five competitive forces [33]. In the Information Age, the Internet is considered a new and powerful factor that affects industry competition [34].

2.2. Internet and competition

Table 1 summarizes two competing theories that explain the effect of the Internet on industry competition. First, Porter's [34] analysis on five forces of industry competition suggests that, in general, the use of the Internet intensifies the rivalry among competitors. Second, the winner-take-all theory suggests that the Internet helps industry winners further strengthen their

Table 1
Competing theories and explanations for the effects of the Internet on industry competition.

| Theories | Key logic | Effects of the Internet on industrial competitive structure |
|----------------------|---|---|
| Porter's five forces | The Internet intensifies the rivalry among competitors, brings more companies into competition, and migrates competition to price | More competitive structures |
| Winner-take-all | Because fast communication makes customers converge in their tastes and buying habits, a small advantage over competitors can be rewarded by a large market share. The Internet helps strengthen the competitive positions of a selected group of winners and reduce the competition power of small and/or weak firms | Less competitive structures |

Download English Version:

<https://daneshyari.com/en/article/553843>

Download Persian Version:

<https://daneshyari.com/article/553843>

[Daneshyari.com](https://daneshyari.com)