

Chapter 2

The Microeconomic Impacts of E-Business on the Economy

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INTRODUCTION

The use of information and communications technology (ICT) in business—the most expansive definition of e-business—is transforming the world economy. E-business at the microeconomic level of retail, wholesale, and labor market transactions has an enormous impact on the performance of companies and the economic welfare of consumers and workers. The gains in efficiency and economic benefits at the microeconomic level exert influence all the way up to the macroeconomic level of GDP and fiscal and monetary phenomena. However, new policy challenges accompany the rewards from e-business in the economy.

The economics of e-business are shaped by the way that ICT lowers the cost of transferring, storing, and processing information (Borenstein & Saloner, 2001). When the cost of information falls, there are profound consequences for how firms conduct business with each other, with consumers, and with workers. This article covers both the economic theory that suggests how e-business changes the

economy (to understand why e-business has proliferated) and the empirical magnitude of the impacts (to show the economic benefits).

The impacts of e-business on the economy play out in several principal arenas that are defined by the type of interaction between economic primitives. The interactions are transactions in the case of economic actors or transformations in the case of economic goods. First is the business-to-consumer (B2C) channel, with focus on retail transactions. Next is the arena for interactions among firms, both business-to-business (B2B) e-commerce and competition in the output market. A closer look at the market for one key input firms use, labor, provides a look at how e-business changes transacting between business and its workers. The last arena is for the effect of e-business on firms' productivity—how efficiently the firm transforms its inputs into outputs. The close of the article discusses directions for future research, covering some of the new policy questions that e-business raises for the economy. Throughout, the emphasis remains on the microeconomic effects of e-business.

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BACKGROUND

Information is the key component of the modern economy. While pure knowledge is disembodied, transferring, storing, and processing information is costly for firms and consumers. E-business has such a great impact on today's economy because ICT lowers the costs associated with information. Viewed through the lens of cost reduction, transformations of the production process enabled by e-business such as outsourcing, electronic procurement, and online trading not only make sense but also become predictable. Similarly, given the importance of information in search and matching markets such as consumer purchasing and the labor market, the advent of electronic intermediaries such as auction sites and online resume exchanges makes sense. Wherever the costs involved with transacting information are high, the gains from adopting e-business practices are highest and the market will naturally implement ICT there first.

Reduced informational costs cannot only facilitate given transactions, but can expand the set of transactions included within a specific market. By lowering the costs of bringing together geographically distant buyers and sellers, e-business increases the size of any given market. Larger markets make the trade of goods and services more reliable and efficient, in part because bigger markets often have lower average costs associated with them. However, the aggregation of information in larger markets is beneficial in its own right, especially compared to the bilateral negotiation between economic agents that e-business may replace. The inefficiency of bilateral negotiation—that some mutually beneficial trades may not occur—is due to the asymmetric information (e.g., on the reservation prices) held by the parties. Thicker markets mitigate such inefficiencies (Vulkan, 2003).

THE MICROECONOMIC IMPACTS OF E-BUSINESS

Interactions between Consumers And Firms

B2C e-commerce over the Internet has grown steadily since its inception in the 1990's. Official estimates in the US peg e-commerce at \$135 billion in 2008, which is 3.4 percent of total retail sales (US Dept. of Commerce, 2009).¹ B2C interactions allow better matching of consumers to products and services (Santarelli & D'Altri, 2003). Search tools for buyers, retail auction sites such as eBay, and on-line brand communities (Jang, *et al.*, 2008) all lower the consumer's cost of searching for goods and prices. With a lower search cost, consumers search more (Su, 2008) and obtain a better match. On the seller's side, e-commerce allows the collection of more information about customers than is provided by "old economy" retail channels. Such information is valuable for firms, allowing them to push tailored marketing messages to consumers based on past behavior and offer mass customization of their product lines (e.g., Dell's system of allowing buyers to choose features of their computers) (Vulkan, 2003).

Improved matching of customers to products has two impacts on market outcomes. In some markets, e-commerce primarily lowers prices, while in others it spurs product differentiation and price discrimination (Bakos, 2001). Prices fall in some markets, particularly those for homogeneous goods, for two reasons. When it becomes cheaper for consumers to search among the prices of competing retailers, demand for any one seller's product becomes more elastic, retailers must compete more directly with each other on price, and prices fall. Prices also drop due to disintermediation. When e-commerce cuts middlemen out of the sales channel, such as when a customer directly buys books from Amazon or computers from Dell without visiting a physical store, then costs arising from wholesaling are avoided. While

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