Chapter IV

E-Commerce Infrastructure and Economic Impacts in Developing Countries: Case of India

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Abstract

This chapter presents a conceptual model that explains how e-commerce adoption in developing countries is affected by various infrastructure enablers and socio-economic variables. It describes the status of infrastructure enabler variables such as computer and Internet penetration, quality and speed of Internet connectivity, security infrastructure, online payment mechanisms and dispute resolution mechanisms in India and their impact on e-commerce adoption. Furthermore the chapter highlights the relationship between e-commerce adoption and various socio-economic variables such as prices, market reach, disposable income level, and cultural orientation of consumers. The chapter discusses the taxation of e-commerce, taking into account the complexity of the tax structure in India. A couple of mini-cases exemplify the utility of e-commerce in some practical applications. With this review of e-commerce adoption, stakeholders such as the government, the policy makers and industries will be able identify ways to nurture the positive effects and mitigate the negative effects to sustain the growth of e-commerce in many developing countries such as India.
Introduction

As with income, there are huge disparities in the adoption of e-commerce across developed and developing countries. Consider this: while total online retail sales for 2002 for the United States was $43.47 billion, it was just $15 billion in Asia-Pacific region, and a mere $4 million for Africa! Business-to-business (B2B) e-commerce transactions that contributed to more than 93% of US e-commerce revenue, amounted to $995 billion. In the Asia-Pacific region, B2B accounted for $120 billion, and in Africa, a mere $0.5 billion (UNCTAD, 2003).

Five years after Amazon opened its virtual store in the US, consumer e-commerce made its debut in India in 1999. This is when Fabmart and Rediff started their e-tailing operations, selling merchandise such as music CDs and books. Business-to-Consumer (B2C) electronic commerce in India is currently estimated to be about US$ 460 million and is expected to cross US$ 1 billion soon.

The growing importance of e-business in India provides motivation for work reported in this chapter. From our review of the literature, we note that there is lack of sufficient research regarding e-commerce and related issues, especially in developing countries (Sridhar & Sridhar, 2004). Primarily because the phenomenon is new and evolving, there is little quantitative data apart from whatever is found for the US and other OECD countries. In this chapter, we propose to answer the following questions:

1. What are the infrastructure enablers of e-business and their status in a developing country like India that has been at the forefront of the global software industry since the last decade?
2. What is the relationship between e-business and socio-economic variables that affect the development and sustenance of e-business in developing countries such as India?

It is relatively well-known that infrastructure enablers that determine the extent of e-commerce adoption include computer and Internet penetration, quality and speed of Internet connectivity, existence of security infrastructure, and existence of online payment mechanisms. We develop a conceptual model in this chapter that highlights the detailed relationships between these various variables. Besides describing the status of the state-of-the-art infrastructure that enables e-commerce in the Indian context, we highlight the impact of e-business on prices, market reach, and the government’s tax base, using relevant cases. Note that, given the data limitations of this rapidly expanding field, we embark upon a qualitative rather than a quantitative approach in explaining the effect of various factors on e-business adoption.

Next section summarizes the small, but growing literature in the area. Then we suggest a causal model that highlights factors affecting e-commerce adoption. Subsequently, we elaborate on the infrastructure enablers, their importance for e-commerce adoption in the context of developing countries and their status in India. We then discuss the socio-economic factors relevant in developing countries that affect e-commerce adoption. Here