World Development Vol. 32, No. 3, pp. 505–517, 2004

Printed in Great Britain
0305-750X/$ - see front matter
ELSEVIER
www.elsevier.com/locate/worlddev
doi:10.1016/j.worlddev.2003.10.004

E-Business and Export Behavior: Evidence from Indian Firms

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Summary. — The paper identifies and analyzes the factors that have influenced the export performance of firms in the post-liberalization era of the Indian economy. Entrepreneurial characteristics, historical data of firms, and other firm-specific factors such as the size of operation, export intensity, technological collaboration, wage rates, and profit margins, were included in the analysis. The findings of the study suggest that the performance of firms in international markets has been better for those that have adopted more advanced e-business tools. The size of operations and the skill intensity of a firm's workforce also play an important role in its export performance.

JEL classification: O33, F15, O53
Key words — e-business, export performance, international orientation, India

1. INTRODUCTION

The policies adopted by developing countries in relation to international trade have, in recent years, played a crucial role in their social and industrial development. A number of developing countries have been able to strengthen their comparative advantage by focusing on the building of technological capability, on adoption of new technologies, and on the development of skills to use these new technologies effectively and efficiently (Noland, 1997). Several studies (Moreno, 1997; Trefler, 1993, 1995) have demonstrated the importance of technological differences in international trade. Moreno (1997) found that technology had a significant effect on the evolution of Spanish industrial exports. Moreno's (1997) study suggests that nonprice factors such as product quality and product differentiation exert a significant influence on international competitiveness.

The last decade of the 20th century has further witnessed technological changes that have been by and large led by Information and Communication Technologies (ICTs), which are considered to be the most pervasive technologies. Their applications are not limited to shop floors only as ICTs can also be used for nonproduction processes such as product design, marketing, after sales support and so on. Hence they are considered to be a major source of nonprice factors of competitiveness. It has been argued by several scholars (Doms, Dunne, & Troske, 1997; James, 1994) that ICTs can substantially contribute to an augmentation in product quality and product differentiation and hence influence the competitiveness of firms.

ICTs have been widely adopted by various types of firms engaged in the manufacturing

* E-mail: klal@intech.unu.edu The study was carried out at the V.K.R.V Center for Studies in Globalization, Institute of Economic Growth, Delhi. An earlier version of the paper was presented in a seminar at WIDER during May 10–11, 2002. The comments of Prof. Francesco Daveri and other participants of the seminar have improved the quality of the paper to a great extent. I am grateful to Professors N.S. Siddharthan Banji Oyelaran-Oyeyinka, and Rajah Rasiah for their comments on its earlier version. My thanks are due to two anonymous referees for their valuable comments. I acknowledge the contributions of Ms. Shampa Paul and Ms. Marijke Roolvink-Batty. Editorial assistance provided by Ms. Wangu Mwangi and Ms. Eveline in de Braek is highly appreciated. I express my sincere thanks to the Managing Directors of all the sample firms for sharing with me their views on e-business and for providing useful data pertaining to their firms. Final revision accepted: 2 October 2003.

and service sectors, in both developed and developing countries. The justifications for their adoption include the perceived links between ICTs and gains in productivity (Kraemer & Dedrick, 1994; Lichtenberg, 1995), the improvement in product quality, and increased flexibility in manufacturing processes (Lal, 1996). A great deal of literature on this subject is concerned with the factors that determine the adoption of ICTs (Brynjolfsson & Hitt, 1996; Doms *et al.*, 1997; Lal, 1999a). By contrast, we propose to analyze the consequences of the use of electronic-business (e-business) practices on the export performance of firms, using India as a case study.

In essence, e-business is about business innovation, about serving new and changing markets. Through e-business, companies seek to reshape the way they go to markets and the manner in which customers buy products and services. E-business also aims at helping adopters to reach new customers more efficiently and effectively. E-business transforms the exchange of goods, services, information, and knowledge through the use of ICTs. An OECD (2002) study, focusing on e-commerce, defines it as

> ...the sale or purchase of goods or services, whether between business, households, individuals, governments, and other public or private organizations, conducted over computer mediated networks. The goods and services are ordered over those networks, but the payment and the ultimate delivery of the good or service may be conducted on or off-line (p. 89).

The OECD (2002) study examines the application of ICTs in commercial activities, which is one of the business processes. Whereas e-business encompasses applications of ICTs in all business processes such as office automation, production processes, coordination with other plants, customer relation management, supply chain management, and management of distribution networks. This study investigates consequences of the adoption of e-business rather than e-commerce. The main objectives of the study are to identify and analyze the factors that influenced the adoption of e-business by small and medium-sized enterprises (SMEs) in India and consequences of the adoption on export performance. SMEs were selected for the study, as they constitute a major source of employment and foreign exchange. The following section presents a partial literature survey of the adoption of e-business.

2. PARTIAL LITERATURE SURVEY

Although the adoption of e-business is a recent phenomenon, there have been several studies that have investigated its impact on business performance. We would like to present a partial survey of literature that focuses on SMEs and the adoption of e-business. Our literature survey is centered on SMEs because the sample firms in the study are predominantly of this type. It has been argued in the literature that the adoption of ICTs in general and e-business in particular allows a reduction in coordination costs and leads to efficient electronic markets (Damaskopoulos & Evgeniou, 2003; Lee & Clark, 1997). Damaskopoulos and Evgeniou in their study of East European and Cyprus SMEs found that most of the sample firms (over 900) established their web sites to take advantage of cost reduction, easy search of new markets, and to augment competitiveness. The study reported that the percentage of firms that created their web sites due to the above reasons, vary from 67% in Poland to 86% in Cyprus. The study concluded that "...e-business affects first the boundaries of the firm with the market in which it operates."

Hodgkinson and McPhee (2002) have examined the impact of the adoption of web enabled technologies on the export market development by SMEs in Australia. A study by Teltscher (2002) deals with the fiscal implications of e-business, while Drew (2003) investigates the causes and consequences of the adoption of e-business by SMEs in East of England. Following an analysis of the total value of transactions conducted through electronic means and its implication on fiscal policies of developing and developed countries, Teltscher (2002) observed that "...an increasing number of e-commerce businesses are small entrepreneurs..." and "...the fiscal impact of international e-commerce is likely to be felt more strongly in the developing countries..." The findings of Drew (2003) suggest that SMEs are placing e-business at the center of their technology policy. The majority of the sample firms reported that the driving force behind the adoption of e-business has been opportunities for growth and the need to keep up with competition. Hodgkinson and McPhee (2002) conclude that international networking by SMEs brought knowledge to the region that facilitates intra-firm learning. The study further suggests that adoption of the Internet by SMEs is higher (68.8%) than large firms (66.7%).