



E-tail versus retail: The effects on shopping related travel empirical evidence from Israel

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ABSTRACT

E-commerce, like many other information technology (IT)-based activities, also offers the potential substitution of telecommunications for travel, resulting in a trade-off between virtual and physical travel. The aim of this paper is to explore whether and how the increasing opportunities for purchasing and information gathering offered by information technologies affect shopping-related travel. The paper will attempt to explore the question of substitution by modelling output of consumer decisions on mode of purchase. Then, this will be combined with clustering the population according to their affinity to IT and finally by identifying the differences in the socio-economic attributes of the different clusters.

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1. Introduction

The retail supply structure has changed dramatically in recent years. New information technologies (ITs) have facilitated new forms of exchange between retailers and consumers (Gould and Golob, 2002; Brengman et al., 2005; Ylikoski, 2005). E-commerce represents a small but rapidly growing proportion of retail sales. The hypothesized trade-off between IT and travel raises the possibility that people may travel less if electronic shopping displaces physical shopping. The substitution of physical travel by virtual travel has been discussed in various studies (Salomon, 1985, 1986; Mokhtarian and Salomon, 2002), many of which have concentrated primarily on telecommuting (Salomon, 1984; Salomon and Salomon, 1984; Nilles, 1988, 1991; Mokhtarian, 1991; Potter, 2003; Mokhtarian et al., 2004, 2005; Choo et al., 2005; Golden and Veiga, 2005; Plaut, 2005). But there has been less research on shopping-related substitution (Liao and Cheung, 2001; Mokhtarian, 2004; Farag et al., 2006). Meanwhile, the retail industry has undergone major structural reforms, with small outlets being increasingly replaced by large multi-location and often global chains. These organisational changes have gone hand in hand with a changing spatial structure, largely as a complement to the suburbanisation process. This current research focuses on the 'last mile' (term borrowed from telecommunications network connections to the ultimate consumer), the final

segment, namely the Business to Consumer (B2C) relationship. This paper will attempt to assess the balance between e-tail and retail as it is today, and the changes for the coming years. This will be done by modelling consumer choice between mode of purchase (i.e., e-tail or retail) when shopping for electrical appliances followed by clustering the population according to their affinity to IT and identifying whether a difference in shopping behaviour exists and what the future trends may be.

1.1. Potential impacts of e-commerce

One major trend that has been in the limelight recently is the use of new technologies in retailing. This involves a shift from traditional to electronic retail activities (Mulhern, 1997; Choi and Geistfeld, 2004; Rohm and Swaminathan, 2004; Mummalaneni, 2005; Ramus and Nielsen, 2005; Wang et al., 2006). E-retail, e-tail, e-commerce, and tele-shopping are all terms for electronic, mainly Internet-based, transactions (Visser and Lanzendorf, 2004). E-retail consists of three main activities, namely: a product search (often referred to as a product evaluation or information-gathering facility), an online purchase, and delivery (Keeney, 1999; Kolesar and Galbraith, 2000; Torzadeh and Dhillon, 2002).

Earlier studies predicted that IT would trigger a revolution in the retail sector because it generates higher accessibility to activities. The Internet has the potential to lower shopping costs by reducing costs of the transaction, the related transportation, and the search (Evans and Wurster, 2000).

Access has two meanings when applied to e-commerce. First, it refers to physical access, i.e., the consumer's ability to access the

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retail facility or the retailer's ability to access the consumer's home—physical delivery is still necessary for most types of product. Second, it refers to IT-based access—the telephone or the rapidly expanding computer and Internet. But to access the Internet one needs basic computer literacy and to be an e-consumer one needs the right skills to operate the hardware and navigate the services (Sim and Koi, 2002; Visser and Lanzendorf, 2004). Hardware and Internet access are other constraints on e-commerce. The consumer needs to purchase and maintain the tools (hardware, software, etc.; Visser and Lanzendorf, 2004). E-shopping offers several benefits compared with offline stores. For one thing, it saves time. However, to save that time, the consumer must attain the necessary skills and experience for shopping via the Internet. So the more experienced the consumer is in using IT, the more time effective the Internet becomes (Koivumäki et al., 2002).

1.2. E-tail versus retail

Although projections about the development of online shopping, or e-shopping, and its impacts on society were largely exaggerated (Wrigley et al., 2002), sales have grown exponentially since the mid-1990s.

Past projections on the spread of e-commerce estimated that it would radically change the way we shop (Graham and Marvin, 1996; Alba et al., 1997; Golob and Regan, 2001; Burt and Sparks, 2002; Gould and Golob, 2002; Teo, 2002; Wrigley et al., 2002; Choi and Geistfeld, 2004; Rohm and Swaminathan, 2004; Korgaonkar et al., 2006). Today, these projections seem merely an optimistic prediction. The share of e-commerce between consumers and businesses is still modest (Ramus and Nielsen, 2005). In 2009, an average of 3.3% of sales in the UK were e-tail (Office for National Statistics) and 3.6% in the USA during the second quarter of 2009, as reported by the Department of Commerce. What is more, Internet-only firms are in trouble. What seemed like a golden opportunity will apparently have only a relatively minor impact over the next 3–5 years (Rosen and Howard, 2000; Bialogorsky and Naik, 2003). That said, e-commerce represents a small but rapidly growing proportion of retail sales. According to CIA World Factbook estimations, in 2008, there were about 1.604 billion computer-network users worldwide. Therefore, in absolute numbers, retail sales have the potential to expand.

Nowadays, consumer e-commerce is concentrated mostly around items such as books, software, music, travel, hardware, clothing, and electronics, with an expanding groceries sector (Gould and Golob, 2002). It seems that people are browsing the Internet more for information than for online shopping (OECD, 2002; Teo, 2002; Forsythe and Shi, 2003). Research on the influence of the Internet in the US revealed that for every single US dollar that a consumer spends online, another five or six are spent on offline purchases that are influenced by online browsing (Buder, 2005). The Internet affords the consumer easy access to information on merchandise, where it is possible to gather vertical information (make comparisons) at a low cost, screen the offerings, and locate the lowest prices (Alba et al., 1997; Childers et al., 2001; Chiang and Dholakia, 2003; Peterson and Merino, 2003; Gupta et al., 2004). However, when online shopping is compared with offline shopping (traditional store shopping), the latter is preferred in most cases. The typical customer wants to be able to touch and examine the goods. Tangibility, physical contact with the product, acts as a stimulus for a purchase. In addition, personal interaction with the retailer or salesperson may generate a sense of a more successful purchase (Mokhtarian, 2004).

Many studies have tried to identify the reasons behind the successes and failures of e-commerce as a substitute for physical

retail. One of the main factors behind the somewhat low adoption rate of online shopping is trust (Grabner-Kraeuter, 2002; Visser and Lanzendorf, 2004). Grabner-Kraeuter (2002) argues that trust is not just a short-term issue; it is also the most significant long-term barrier for realising the potential of e-commerce. This is because buying via the Internet involves several risks, mainly in the transaction process. When a potential purchaser considers online shopping, he takes account of two perceived risks: the product risk and the security risk. Product risks are connected with the consumer's inability to examine the products online. Security risks are connected with his/her fear that the open Internet network will allow his/her personal data to be compromised (Bhatnagar and Ghose, 2004).

E-commerce offers retailers more market activity (and efficiency) in the form of increased access to customers and information, as well as lower operating and procurement costs. The consumers benefit from more competitive prices, more information on goods and services, and a wider choice of products (Rao, 1999; Rosen and Howard, 2000; Mokhtarian, 2001).

1.3. Is substitution possible?

There is a growing body of research addressing the question of substitution and complementarity of travel-based and e-based options (Koppelman et al., 1991; Arnfalk, 1999; Golob and Regan, 2001; Mokhtarian and Salomon, 2002; Teo, 2002; Lenz, 2003; Banister and Stead, 2004; Visser and Lanzendorf, 2004). This holds true for e-commerce as well. If significant numbers of people make their purchases or gather information online instead of going to the shops, travel and its negative consequences may be reduced. Many empirical studies have found that e-shopping is a substitute for personal travel (Dixon and Marston, 2002; Sim and Koi, 2002; Bhat et al., 2003; Corpuz and Peachman, 2003; Weltevreden and Van Rietbergen, 2007). However, the proportion of consumers who report making fewer shopping trips differs significantly. Moreover, these studies do not provide insight into the magnitude of the substitution effect, that is, the number of shopping trips or distance travelled that is replaced by e-shopping.

Other studies of the impact of e-shopping on traditional shopping and shopping-related travel have demonstrated that it is unlikely that e-shopping reduces travel, and in some cases, it even generates more travel (Gould and Golob, 1997; Handy and Yantis, 1997; Gould et al., 1998; Zmud et al., 2001; Farag et al., 2006, 2007). This applies especially when online information gathering (IG) is the 'virtual' activity conducted by a consumer, and the purchasing is physical. Moreover, it has been suggested that particularly Consumer to Consumer (c2c) e-commerce positively affects personal travel (Weltevreden and Rotem-Mindali, 2009).

Studies of the impacts of e-shopping on transport usually assume that it is more efficient for the retailer, or a third party, to deliver goods to several customers' homes or offices in one trip than to make individual trips (Cohen, 2000; Browne, 2001; Mokhtarian, 2004; Cairns, 2005). Moreover, it is important to recognize that the relative efficiency of delivery by freight transport largely depends on the extent to which the substituted personal trip was part of a chained trip and on the trade-off between efficiency and timeliness of the delivery. It is accepted that the more quickly delivery is demanded, the less efficient the delivery trip may be (Mokhtarian, 2004).

2. Data and methodology

The aim of this paper is to ascertain whether and – if so – how the increase in shopping opportunities offered by IT affects shopping-related travel. If IT presents opportunities for one or

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