

Chapter 10

Internet Incidence on SME's Sales: A Propensity Score Matching Analysis

María Verónica Alderete

Instituto de Investigaciones Económicas y Sociales del Sur, & (IESS)-CONICET-Universidad Nacional del Sur (UNS), Argentina

ABSTRACT

The purpose of this paper is to determine how much is the “bonus” or “prize” to the sales per worker of Internet-using firms compared to not Internet-using firms. The authors employ some matching techniques based on an Argentinean database. The authors first present a binary logit model, in which the dependent variable is a dichotomous variable equal to 1 if the firm adopted Internet and 0 otherwise, to evaluate the factors that influence a firm's probability of adopting Internet. A propensity score matching (PSM) model is then used to assess the impact of using Internet on the sales per worker. The authors find statistically significant differences in the sales average between firms that are similar in many dimensions such as location, size, and sales market except for the Internet adoption decision. By probing that Internet access improves SME's sales, the chapter is validating the Public Sector ICT modernization programs for SME. The contribution of this paper consists of using a well known technique as PSM to analyze a recent field of research which is the contribution of Internet adoption to the firm's sales per worker.

DOI: 10.4018/978-1-4666-4510-3.ch010

1. INTRODUCTION

In the modern economy, in addition to traditional production factors (physical capital, labor), the Information and Communication Technologies (ICT) are one of the new productive emerging factors. ICT contribution to and impact on firm performance is of critical importance together with complementary capitals such as the human capital (human skills), and the organizational capital (workplace organization), and knowledge (Arvanitis, 2005).

Since the emergence of the New Economy approach, many researchers were aware to analyze the relationship between ICT investment and firms' performance. During the last 80, the literature could not find a significant tie between ICT investment and industrial productivity (Roach, 1991; Morrison and Berndt, 1990; Strassmann 1990; Brynjolfsson 1993). This phenomenon known as "the productivity paradox" was established by Solow who argued that "you can see the computer age everywhere these days, except in the productivity statistics".

However, many studies found the existence of a positive relationship between firm productivity and ICT investments (Dvir et al 1993; Brynjolfsson et al, 1994; Lichtenberg 1995, Greenan and Mairesse 2000, Licht and Moch 1999, Aral, Brynjolfsson and Wu, 2006; Brynjolfsson and Hitt, 1996; 2003; 2000; Dedrick et al 2003).

The hypothesis behind the long term positive effects of ICT investment on firm productivity is that ICT would be part of a wider system of technology and organizational changes that enhances firm productivity. Investment in computers is a necessary but not a sufficient condition to increase productivity. Human skills, capacity and new organizational forms are collateral to the ICT adoption process at firm level. Alderete (2012) explains that awareness and technology skills and knowledge in electronic markets, or what some authors called IT alignment (Cragg et al, 2002), refers to disutility of effort.

Recent research in the contribution of ICT investment on firm performance has produced evidence of its positive contribution to several measures of firm performance. This is probably reflecting improvements in the exploitation of ICT by firms. Identifying and implementing the complementary organizational changes needed for a successful ICT adoption are difficult and costly. These adjustment difficulties lead to variations across firms in the use of ICT, its organizational complements and resulting outcomes. At the same time, the ICT impact on firms' performance is neither automatic nor lineal (Rivas and Stumpo, 2011).

Strategic attention has to be placed so that the new opportunities provided by ICT are not purely limited and accessible only by the larger corporations within national economies, but also to small and medium enterprises (SME) (Kotelnicov, 2007, Ifinedo, 2011). During the last decade, the ICT diffusion has been one of the main objectives in the policy agenda of the European Union, with particular emphasis on the adoption of digital technologies among SME (Commission of the European Communities, 2001). Since 2005, the Avanza Plan in Spain has been built to improve the Information and Communication Technologies (ICT) adoption level in Small and Medium Sized Enterprises (SME). This Plan has mobilized more than 3016,6 MM euros to foster ICT adoption in SME, and to extend the use of Internet and new technologies. Besides, ICT firms' leaders such as HP, Intel, Microsoft, Nokia and Vodafone are joining forces through a "Plan of Competitiveness" to help Spanish SME. The objective of the plan is improving SME competitiveness by offering firms the benefits of last technologies, such as cloud computing. This initiative will be supported by the Tourism, Commerce and Industry Ministry of Spain for three years to impact on 3 million SME.

In Latinamerica, Rivas and Stumpo (2011) summarizes some of the direct programs for ICT implementation at firm level (see Table 1).

14 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

www.igi-global.com/chapter/internet-incidence-on-smes-sales/95781

Related Content

Virtual Organization: Resource-Based View

Jinyoul Lee, Mike ("Tae-In") Eom, Bonn-Oh Kim and Pairin Katerattanakul (2007). *International Journal of E-Business Research* (pp. 1-17).

www.irma-international.org/article/virtual-organization-resource-based-view/1872

Social Media as Persuasive Technology for Business in Malaysia

Shahizan Hassan, Norshuhada Shiratuddin and Sobihatun Nur Ab Salam (2015). *International Journal of E-Business Research* (pp. 18-39).

www.irma-international.org/article/social-media-as-persuasive-technology-for-business-in-malaysia/126491

What Makes Customers Repurchase Grocery Products from Online Stores in Korea

Jin Yong Park and Dhanabalan Thangam (2019). *International Journal of E-Business Research* (pp. 24-39).

www.irma-international.org/article/what-makes-customers-repurchase-grocery-products-from-online-stores-in-korea/240186

The Effects of the COVID-19 Pandemic and the Future of Aviation

Salim Kurnaz and Deimant Žilinskienė (2022). *Digitalization and the Impacts of COVID-19 on the Aviation Industry* (pp. 53-72).

www.irma-international.org/chapter/the-effects-of-the-covid-19-pandemic-and-the-future-of-aviation/301108

Platform as a Strategy: Collective Innovation in Mobile Payment Ecosystem

Junying Zhong and Marko Nieminen (2018). *Optimizing Current Practices in E-Services and Mobile Applications* (pp. 160-180).

www.irma-international.org/chapter/platform-as-a-strategy/195741