

# The make-or-buy decision in ICT services: Empirical evidence from Luxembourg

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## Abstract

In this paper, we seek to analyse the main drivers of firms' choice in terms of outsourcing and/or offshoring of Information and Communication Technologies (ICT) services. As globalisation is a new way firms choose to organize their activities, a broad literature focuses on the outsourcing and the offshoring of activities (Grossman and Helpman, 2005; Marin and Verdier, 2003). Even if a lot of papers consider the outsourcing of materials (Antras and Helpman, 2004; Hubbard and Baker, 2003), firms resort more and more to the outsourcing of business services. Indeed, technological changes favour the compatibility and tradability of many services across the world (Goodman and Steadman, 2002; Abramovsky, Griffith, and Sako, 2004). Consequently, a lot of firms outsource, for example, their call centre or invoice and payroll services.

As information systems (IS) outsourcing is a growing phenomenon, we choose to focus on in this study. The ICT services studied covers three types of ICT services the firm can use in its production process. In accordance with Arnett and Jones (1994), these ICT activities can be classified into: hardware, software and "comprehensive management activities". The latter concerns e-business, database, website and ICT systems administration. As firms are cost minimising, the demand for outsourced services depends on the relative cost of producing the services in-house compared to outsourcing. This cost may vary across firms depending on, notably, the size of the firm and its investment in ICT. Concerning ICT investment an ambivalent hypothesis can be formulated. First, according to Abramovsky and Griffith (2006), we can suppose that firm's investment in ICT can diminish the cost of outsourcing and favour this phenomenon. Second, conversely if the firm has skilled workers it can reduce the cost of managing in-house ICT services.

We conduct our analyses on a representative dataset that comes from the Luxembourg part of the "ICT Usage and e-Commerce in Enterprises" survey collected in 2007. As we have a lot of information on firms' ICT usage, a data mining technique is performed to group together ICT users relative to their proximity in usage of twenty ICT. We analyse the make or buy choices of firms through a bivariate probit on non exclusive choice of outsourcing and offshoring. To take care of the potential endogeneity of ICT investment as underlined by Abramovsky and Griffith (2006), we construct predicted ICT investment choices through a multinomial probit and use these as instruments in the bivariate probit.

**Key words:** ICT services, outsourcing, offshoring

**JEL Classification:** D21, L23, O33

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## References

- ABRAMOVSKY, L. AND R. GRIFFITH (2006): “Outsourcing and offshoring of business services: the role of ICT,” *Journal of the European Economic Association*, 4, 594–601.
- ABRAMOVSKY, L., R. GRIFFITH, AND M. SAKO (2004): “Offshoring of business services and its impact on the UK economy,” Tech. Rep. IFS Briefing Note BN51, AIM Briefing Note.
- ANTRAS, P. AND E. HELPMAN (2004): “Global sourcing,” *Journal of Political Economy*, 112, 552–580.
- ARNETT, K. P. AND M. C. JONES (1994): “Firms that Choose Outsourcing: A Profile,” *Information & Management*, 26, 179–188.
- GOODMAN, B. AND R. STEADMAN (2002): “Services: Business Demand Rivals Consumer Demand in Driving Job Growth,” *Monthly Labor Review*, 3–16.
- GROSSMAN, G. M. AND E. HELPMAN (2005): “Outsourcing in a Global Economy,” *Review of Economic Studies*, 72, 135–159.
- HUBBARD, T. AND G. BAKER (2003): “Make or Buy in Trucking: Asset Ownership, Job Design, and Information,” *American Economic Review*, 551–572.
- MARIN, D. AND T. VERDIER (2003): “Globalization and the New Enterprise,” *Journal of the European Economic Association, Paper and Proceedings*, 1, 337–344.