

Abstract

The aim of this dissertation is to gain a deeper understanding of the relationship between the ICT sector and various aspects of economic performance, including innovation, productivity, and growth. ICT industry is a broad field of research that encompasses all technologies used to manage, collect, process, store, and transmit data and information. In the first chapter, we analyse the innovative performance of more than 169 regions in 19 OECD countries in terms of high-tech patent applications, focusing on ICT agglomeration and intra-regional technology branching dynamic. The aim of this chapter is to contribute to the literature by identifying what elements, and how, facilitate new technological specialization, identifying ICT technologies as playing a key role in enabling regions to have a better innovative performance and to acquire new technological specializations that enable them to “survive” in present-day global competition controlling for both the aspect of technological proximity between sectors and the spatial dimension. In the second chapter, the focus is on investigating the relationship between ICT agglomeration and Green Total Factor Productivity (GTFP) growth in Europe. This chapter uses a sample of 95 large regions from 10 European countries from 2000 to 2010. The results of this chapter indicate that ICT agglomeration is an important indicator of a region's capacity to increase green productivity. In the third chapter the focus is on examining the contribution of R&D to the growth performance of ICT firms, considering the moderating effects of size, age, and persistence in the firms' growth process. This approach allows us to analyse ICT enterprises in depth. Hence, moving from a sample of 367 ICT firms from EU large countries (Germany, Sweden, Great Britain), for the period 2011-2019 (the resulting dataset contains 1141 observations), this paper aims to disentangle the sensitiveness of firms' performance, measured as total assets growth to R&D investments, looking at how heterogeneity in size, age and sectors have a moderating impact on R&D investment, controlling for growth persistence, capital structure, profitability and other financial variables.