

# Advanced Digital Technologies and Firm-Level Employment Outcomes

by Laura Abrardi | Carlo Cambini | Elena Grinza | Lorien Sabatino | Politecnico di Torino | Politecnico di Torino | University of Turin | [lorien.sabatino@polito.it](mailto:lorien.sabatino@polito.it)

Abstract ID: 251

Inviato: 08/01/2024

Evento: XXII Workshop Annuale SIEPI

Argomento: 6. Innovazione, cambiamenti tecnologici e politiche connesse

Parole chiave: Ultra-fast broadband (UBB), fiber-based networks, firm-level employment, human capital, matched employer-employee data.

*This paper investigates the effects of ultra-fast broadband (UBB) availability on firms' employment levels and their workforce composition. We utilize a unique and comprehensive municipality-level data set on the deployment of UBB connections in Italy, which began in 2015. By using information on firms' locations, we match this municipality-level data set with a rich administrative matched employer-employee balanced data set from 2012 to 2019. To address the endogeneity of UBB, we leverage the physical distance between each municipality and the nearest optical packet backbone node. Our instrumental variable regressions suggest a positive and significant effect of UBB on overall firm-level employment. When considering different categories of workers, by job contract type and the skill content of jobs, as well as the technological intensity of firms, we detect substantially differentiated UBB effects. We find complementarity effects of UBB with high-level jobs, particularly in the high-tech sector. Moreover, only for low-tech firms, we document a substitution effect of UBB with qualified blue-collar jobs.*