



Economics Seminars

Friday 14 March 2025 at 12:00

Aula Arcari

Facoltà di Scienze Economiche Giuridiche e Politiche - Viale Sant'Ignazio 86

Sandro Montresor

Università degli Studi di Trento

**Combining digital and green technologies in regions:
how to close the gap with respect to the frontier? (with S.
Basilico, A. Marzucchi)**

Abstract. This paper focuses on the combination of green and digital technologies at the regional level. Using patent data, we put forward an original measurement of the regional speed of green-digital (i.e. twin) combination: the temporal distance between the time at which a combination is realised for the first time in the frontier region and the time at which this same combination is accomplished in the focal region. We proceed by investigating the drivers and the technological impact related to this speed. We find that the speed of combination is enhanced by dealing with broad and diverse twin technologies. The speed at which the gap is closed, also crucially depends on the interdependencies between green and digital domains, captured by the overlap in their knowledge bases. Counterintuitively, the longer the combination paths, the faster the region combines green and digital technologies. This finding is then rationalised further looking at the policy and network characteristics. Finally, we find that the earlier the combination happens, the greater is likely to be the impact on subsequent inventions, but only for granted patents. Overall, these results are discussed in terms of policy recommendations, given the high attention placed by policymakers on the twin transition.