

**Title:** When cluster analysis meets geography: a statistical-based method for clustering the convention industry in Emilia-Romagna region

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**Abstract:** The analysis of agglomerate economies and concentration of activities due to proximity, has been strongly investigated, starting from the centenary work of Marshall (1890), with reference to alternative territorial details (e.g. firm-specific, sectoral or urban economies) and different frameworks, (recently) such as population and poverty (Thiede, Kim and Valasik, 2018; Benassi and Naccarato, 2019), biology (Yadav, Devi, Li, Zhang and Covaci, 2018), environmental (Walters and Christensen, 2018), criminology (Breetzke and Edelstein, 2019). The main contribution to the definition of economic/industrial cluster/agglomeration has been provided by Porter (1990, 1998, 2003). The author developed cluster's definition around two main concepts: a non-spatial dimension and a spatial one, the first represented by the identification of common and complementary factors, while the second is based on geographic proximity. An intuitive representation of geographic clustering literature can be obtained referring to two dimensions: (i) the use of micro-locations data in the analysis and (ii) the investigation of possible industrial linkages. The resultant classification is given by: (i NO; ii NO) industrial concentration methods, (i NO; ii YES) industrial linkages methods, (i YES; ii NO) point density methods (i YES; ii YES) location-based methods. Since data limitations, this last class has been relatively poor of empirical and statistical investigation until now. The main of these few examples has been provided by Delgado, Porter and Stern (2016). Nonetheless, the proposed combination approach seems scares in providing a formal and objective way to merge the two kinds of information. In this paper, we propose a statistical spatial clustering procedure to reduce this shortcoming in industrial literature. We provide an empirical evaluation of the combined approach in the case of the meeting industry in Emilia Romagna, Italy. This sector is characterized by a heterogeneous internal structure, with relevant relationships with both the tourism sector and tourism-related sectors. Preliminary results show that the classical (non-spatial) cluster algorithm (based on economic distances and industrial linkages) identifies expected groups of municipalities in the area; while the inclusion of spatial information reveals a new and more useful representation of the sectoral linkages in terms of policy strategies.

**Keywords:** Statistical spatial cluster, Convention facilities, Meeting industry, Emilia-Romagna, sectoral linkages

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