Analysis of PCA with georeferenced data. An application in tourism industry

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Ponencia presentada en 7º Conference of the International Association for Tourism Economics realizado en 2019 en la Facultad de Ciencias Económicas - Universidad Nacional de La Plata. La Plata. Buenos Aires, Argentina

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The spatial analysis of the tourism characteristic activities allows us to generate information about the structure of tourism industry, which is necessary for decision making. In this work, toursim characteristic activities in the departments of Córdoba were mapped. The methodological innovation lies in the generation of statistics for multidimensional spatial data. Multivariate methods with and without spatial restrictions were studied and compared in their performance in the application context. The comparison showed that the spatial principal components analysis (MULTISPATI-PCA) yielded a higher degree of spatial structuring of the components that summarize tourism activities than principal components analysis (PCA). The maps of the summarized variables showed a higher level of structure with MULTISPATI-PCA. Departments were classified according to the participation of tourism activities in the value added of tourism using the spatial principal components obtained as input of the cluster fuzzy k-means analysis. Finally, a mapping was performed based on the participation of the tourism value added in the gross regional product of the different departments and the variations in the participation of the different activities that make up the aggregate was analyzed for the period 2001-2014.

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