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## Travel Agencies in Alicante, Spain: a productivity analysis

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**Abstract:** This study is a continuation of previous studies analysing the variation in the productivity of 22 travel agencies located in Alicante (Spain) over the period 2004-2007. The extension of the previous analyses is based on the calculation of non-radial and non-oriented Malmquist Productivity Indices, so that the results obtained are not influenced by the imposition of a predetermined approach (input or output) or by the fact that the type of model used may have a radial structure which, due to not including slack variables, may generate unsatisfactory estimates of the productivity levels of certain units. After calculating the Malmquist indices as described above, they are broken down into three components (Pure Efficiency Change, Scale Efficiency Change and Technological Efficiency Change) in order to obtain more information with which to design possible lines of action focused on improving future levels of productivity of the Alicante-based travel agencies. Finally, using the Mann Whitney-U Test, the existence of a relationship between the levels of productivity of these agencies and their ownership type, location and level of experience is examined.

**Purpose:** To provide lines of action based on the results aimed at improving the future levels of productivity of the travel agencies in Alicante.

**Methodology:** Estimates of non-radial and non-oriented Malmquist Productivity Indices and the values of their components will be calculated. Furthermore, in order avoid problems that may arise from these results which are based on finite samples that are sensitive to sampling variations, bootstrapping techniques (smoothed bootstrap) are used. Lastly, the Mann-Whitney-U test is used in order to accept or reject the influence that different factors have on productivity levels.

**Originality:** Although other studies have been previously carried out using Malmquist indices and bootstrapping techniques to analyse the productivity of travel agencies in other countries or cities, this is the first to be undertaken in Spain using the smoothed bootstrap method based on non-radial and non-oriented models, so as to examine this field of study from a new perspective.

**Limitations:** The impossibility of increasing the amount of data for carrying out the study, given the scarcity of statistical sources available and the reticence of the travel agencies to provide us with more information.

**Keywords:** Travel agencies, productivity, Malmquist Index, Data Envelopment Analysis, DEA, Smoothed bootstrap.