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Technological Cooperation between Countries: An Analysis with Patent Applications

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ABSTRACT

Patent data can come in a number of formats and may be obtained from a variety of global institutions. WIPO (World Intellectual Property Organization) provides patent application data classified according to origin and office of application. The number of applications in a country office by the different nationalities of the applicants is also provided for the top 25 offices and origins. This data matrix is essentially asymmetric with the diagonals representing the applications made in the country office by the country's own residents. Whereas the off diagonal entries representing the applications by other country nationals to the country offices. The data may reveal the degree to which countries are collaborating with one another in the field of research and development. This might lead to a measure of the degree of “technological similarity” which can be used in the International Economics literature. This paper will attempt to analyze the symmetric and skew symmetric components of the 25x25 patent application matrix with the available techniques in the Multidimensional Scaling (MDS) literature, in addition to providing a summary of the techniques.

KEYWORDS Patent Mapping; MDS; Visualization

JEL C93, O34, O57