

Spatial Analysis: From the Beginning to the Frontiers of Spatial Econometrics

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Abstract

Spatial econometrics which is essentially concerned with statistical techniques to take account of economic interactions among agents located on space is quite a new field of research. However, spatial analysis in general, has a long history. In the statistic literature, R.A. Fisher was probably the first to recognize the implications of spatial dependence. While discussing the shapes of blocks and plots in agricultural experiments, he commented “After choosing the area we usually have no guidance beyond the widely verified fact that patches in close proximity are commonly more alike, as judged by the yield of crops, than those which are further apart,” see Fisher (1937, pp.73-74). Even after 70 years, the basic tenet of spatial dependence has not changed much from Fisher’s characterization. In the current statistical and econometric literature, spatial dependence is also loosely defined as the coincidence of value similarity with location similarity. Every beginning, however, has its own beginning. We will start at the “very beginning,” and discuss the disconnected developments in spatial analysis during the last century. Then we will move to spatial econometrics, and critically analyze the key developments. Applications and software will be thoroughly covered. Finally, we will turn to the frontiers of spatial economics, and will provide some ideas for future research in theory and applications of spatial analysis, in general and specifically, of spatial econometrics.