Spatial statistics

Taken in its broadest methodological meaning, this term designates any analysis using the statistical tool and presenting a spatial dimension, whether this dimension concerns the tool itself, the object of analysis or variables used as descriptors of this object. Various combinations are indeed possible:

- only the object is spatial: the focus is set on localised spatial entities (regions, cities, municipalities, plots) but this location does not play an " active " role in statistical analysis. These entities are generally described by means of variables concerning demography, activity, society, land use, pedology etc. which are not specifically spatial. Those entities and those qualitative variables and quantitative variables may be analysed efficiently through classical statistical methods such as correlation, regression, data analysis. Spatial character of entities then plays a role only at the stage of interpretation of results, after that of statistical analysis. Space plays a mere " support " role;

- localised objects and spatial variables: in a framework much similar to the one mentioned above, intrinsically spatial variables may be added. This classically concerns distance to a place that is supposed to play a structuring role (pole, highway access, river, coast for example). Other variables also allow characterising spatial organisation of an environment: form and density of a pattern of points (firms, settlements, farms) or heterogeneity degree of land use for example.

- localised objects and spatial statistical tools: there are specific statistical tools for analysing localised objects. One of the most classical ones is measure of spatial autocorrelation, which gives global account of the trend of neighbouring places toward similarity (positive autocorrelation) or on the contrary toward opposition (negative autocorrelation). Variograms, which link dispersion of a variable with distance to a given centre, allow underlining discontinuities in spatial distribution of the considered phenomenon. Other methods allow taking autocorrelation into account in classical statistical analyses and avoiding that it introduces bias into parameters estimation.

Bibliographie