

On Factor Analysis of Longitudinal Data

by

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ABSTRACT

Factor analysis of longitudinal data is discussed, where measurements are taken from individuals at several occasions. Unbalanced cases, in which some individuals do not appear at all occasions and the number of measured individuals may change from one occasion to another, are considered. For such cases, a relatively simple method, referred to as pseudo-independence (PI) method, is suggested. The PI method can be implemented easily utilizing existing computer packages, and is shown to have various advantages over the normal maximum likelihood estimation and the time series modeling. The inference procedures in the PI approach are asymptotically valid for non-normal data allowing any time trend. For the balanced normal case, the efficiency of the PI method is shown to be nearly as high as that of the maximum likelihood estimation.