

Fractional Hot Deck Imputation for Multivariate Missing Data

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Hot deck imputation is very popular in handling item nonresponse in survey sampling. Fractional hot deck imputation, considered in Fuller and Kim (2005), is extended to multivariate missing data.

The joint distribution of the study items are nonparametrically estimated by some discrete approximation. The discrete transformation serves the role of creating imputation cells. The fractional imputation first imputes the cells for missing items and then imputes the real observations within each imputed cell. Calibration weighting is used to reduce the imputation variance. Replication variance estimation is also discussed. Results from a limited simulation study are also presented.

Key Words: Constrained imputation, EM algorithm, Imputation cell, Replication variance estimation.