

Article

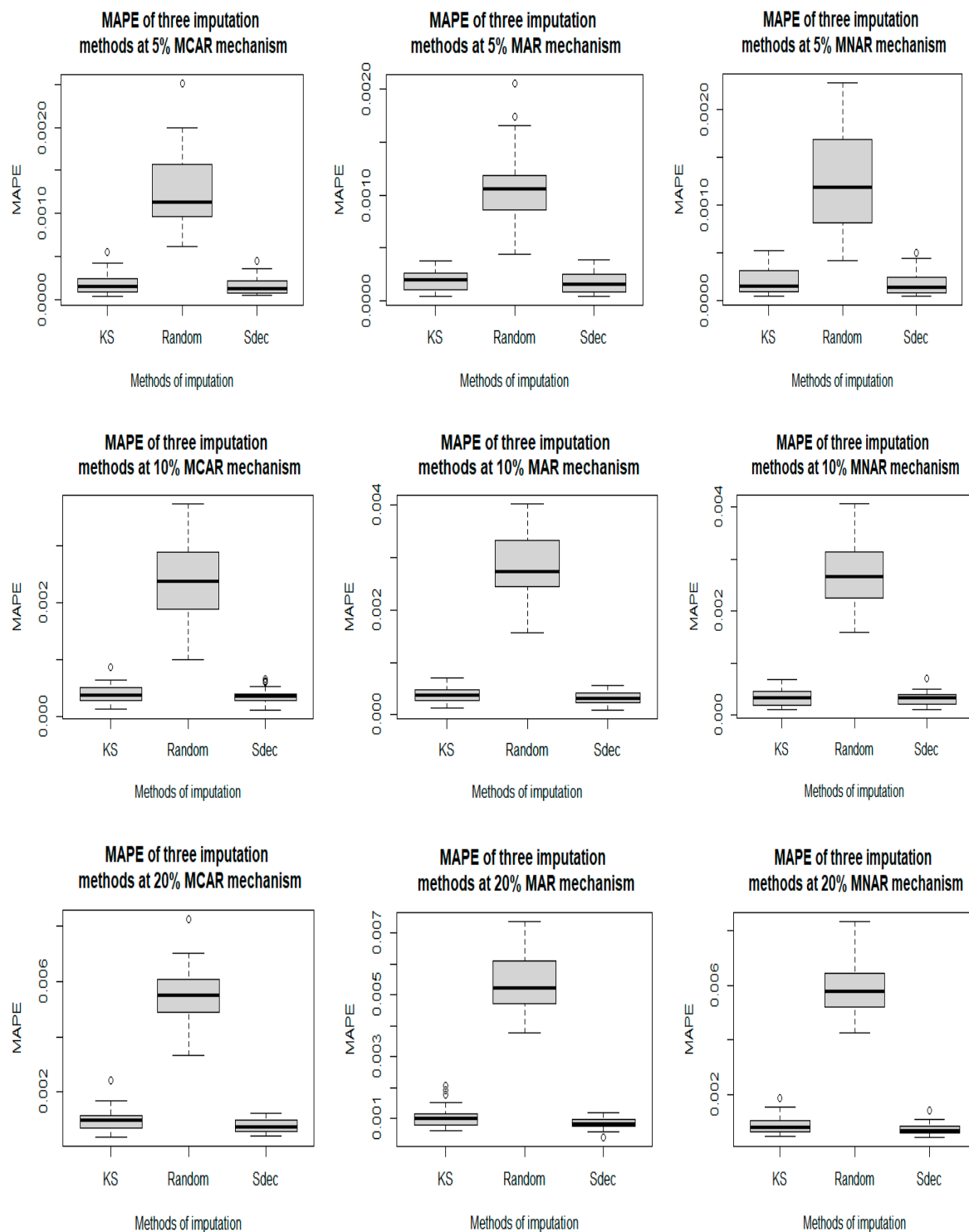
Comparing Single and Multiple Imputation Approaches for Missing Values in Univariate and Multivariate Water Level Data

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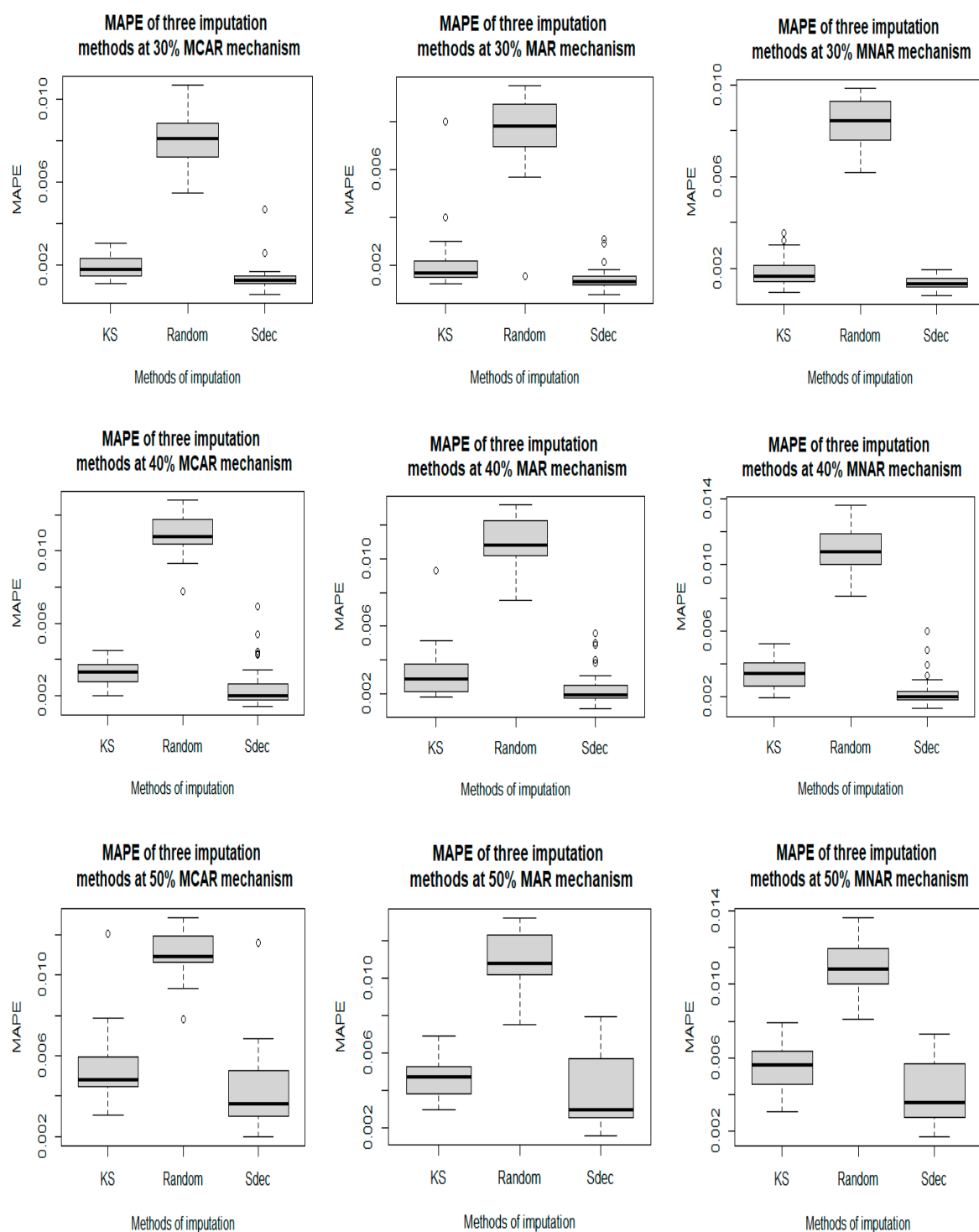
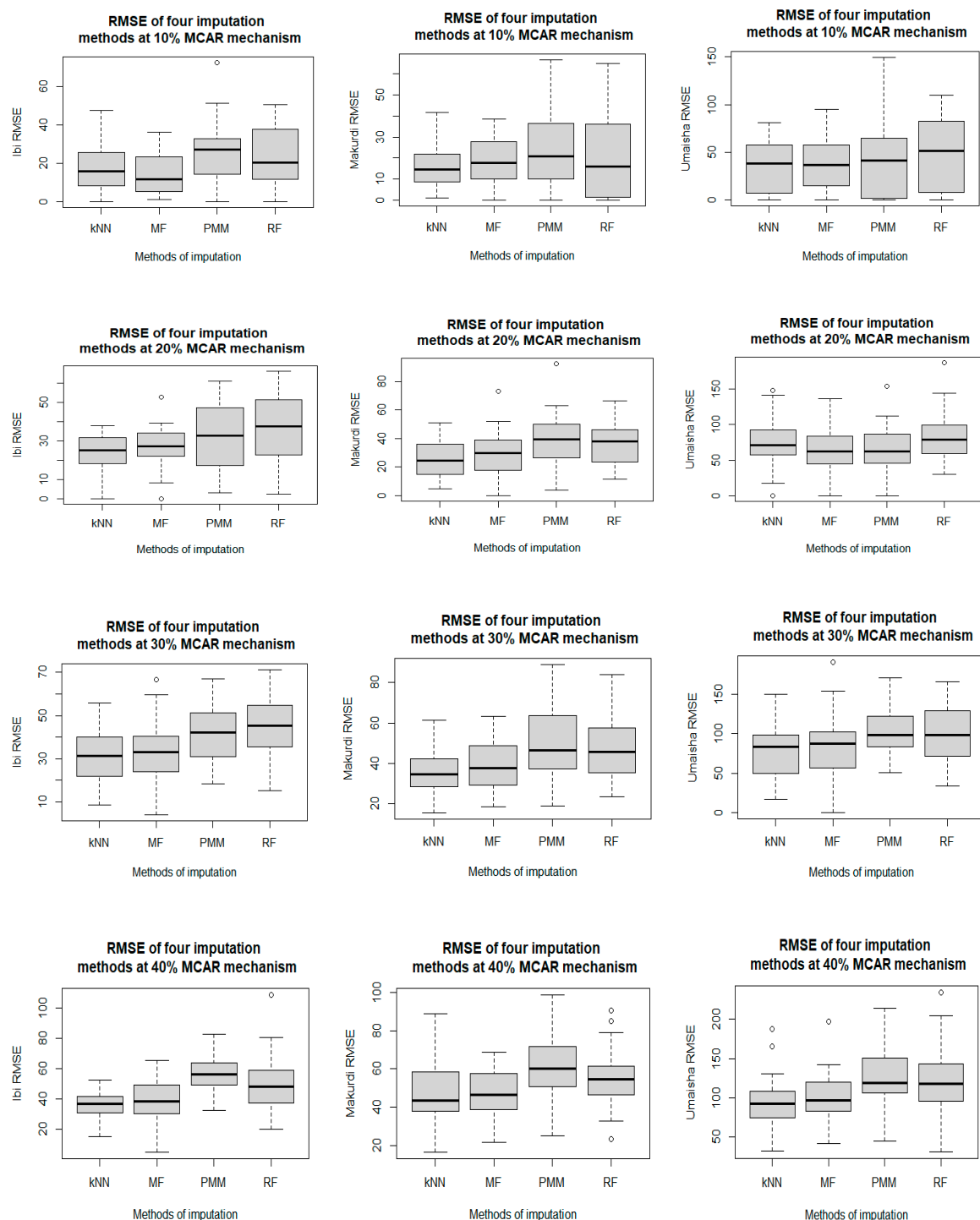


Figure S1. Boxplots of MAPE values for Kalman smoothing (KS), random, and seasonal decomposition (Sdec) methods at 5%, 10%, 20%, 30%, 40%, and 50% levels of missingness respectively for the missing completely at random (MCAR), missing at random (MAR) and missing not at random (MNAR) missing value mechanisms.



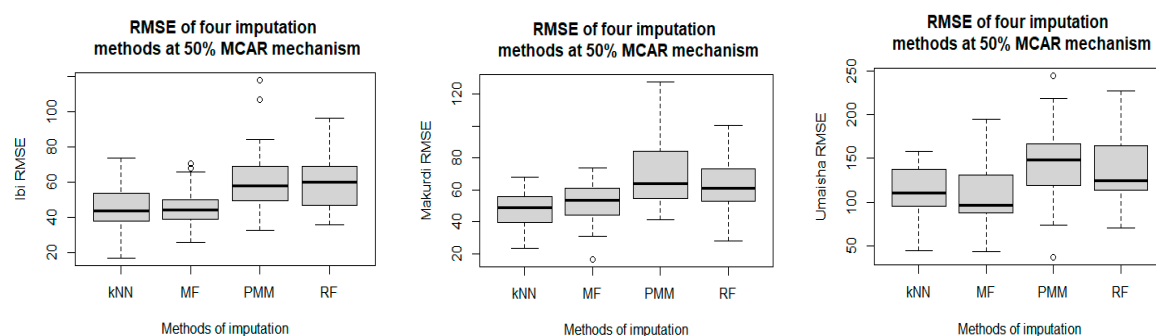
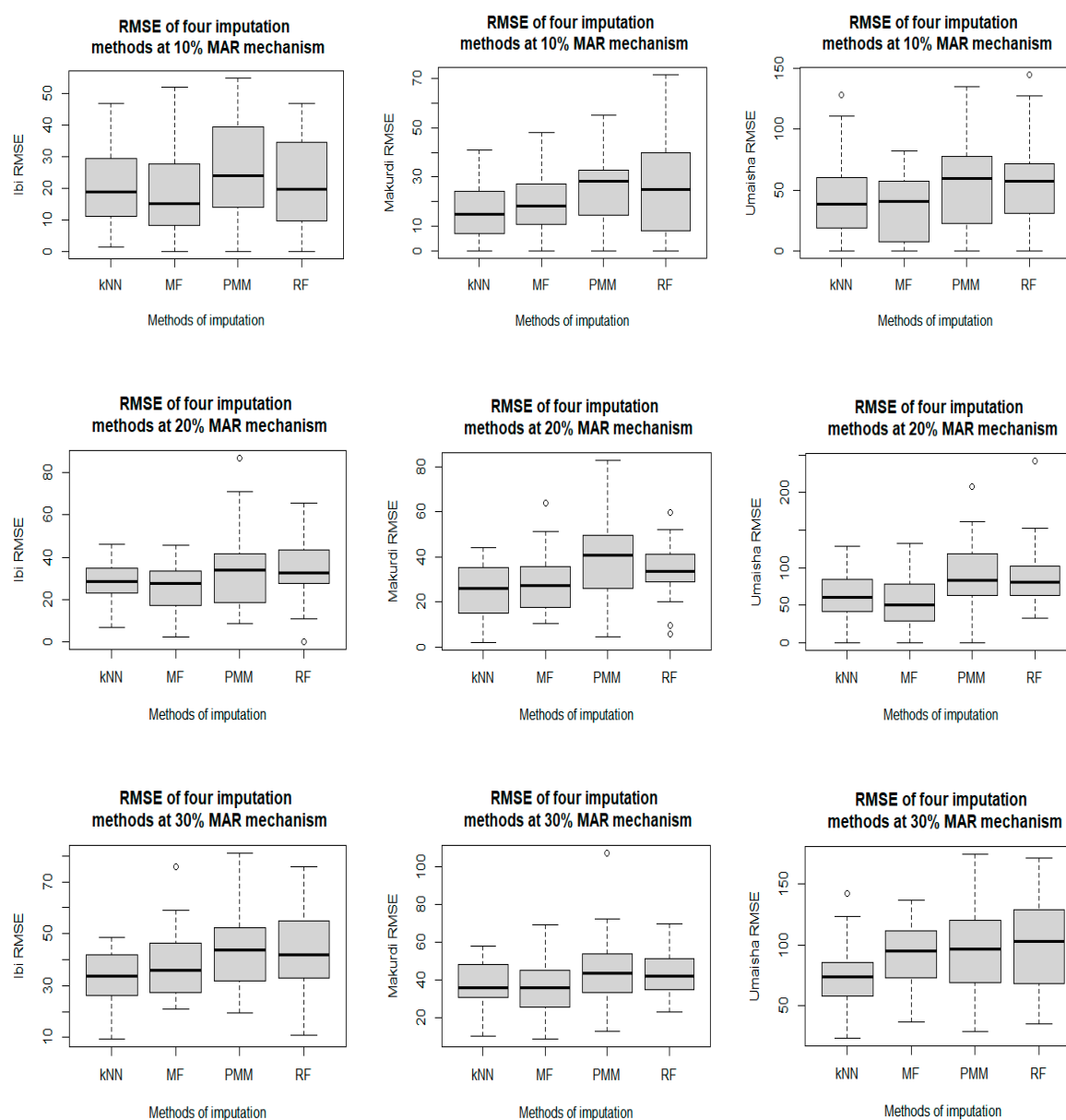


Figure S2. Boxplots of RMSE values for k nearest neighbour (kNN), missForest (MF), predictive mean matching (PMM) and random forest (RF) methods at 10%, 20%, 30%, 40%, and 50% levels of missingness respectively for the missing completely at random (MCAR) missing value mechanism.



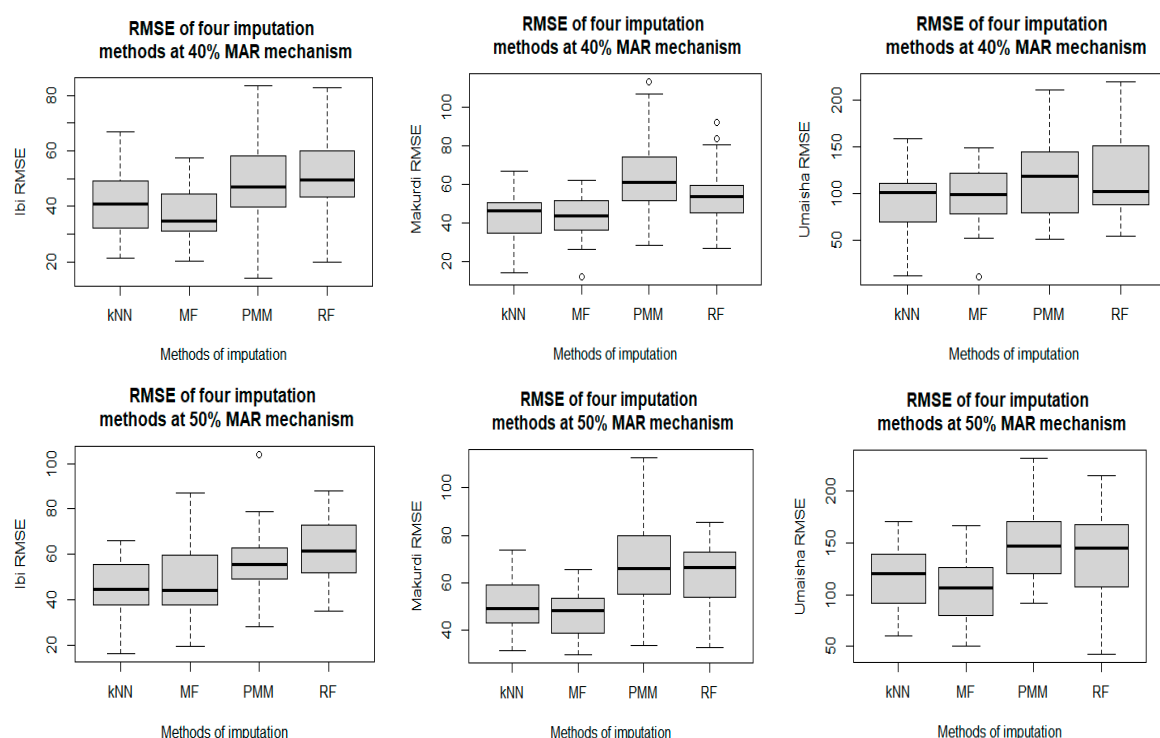
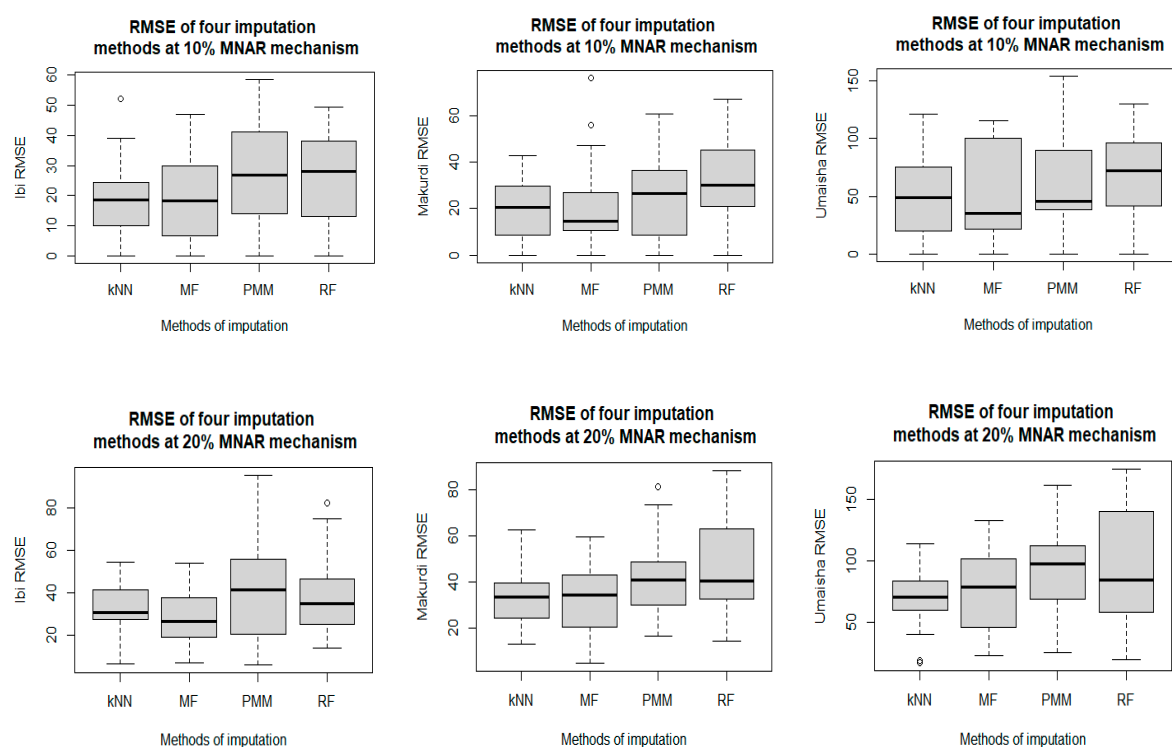


Figure S3. Boxplots of RMSE values for k nearest neighbour (kNN), missForest (MF), predictive mean matching (PMM) and random forest (RF) methods at 10%, 20%, 30%, 40%, and 50% levels of missingness respectively for the missing at random (MAR) missing value mechanism.



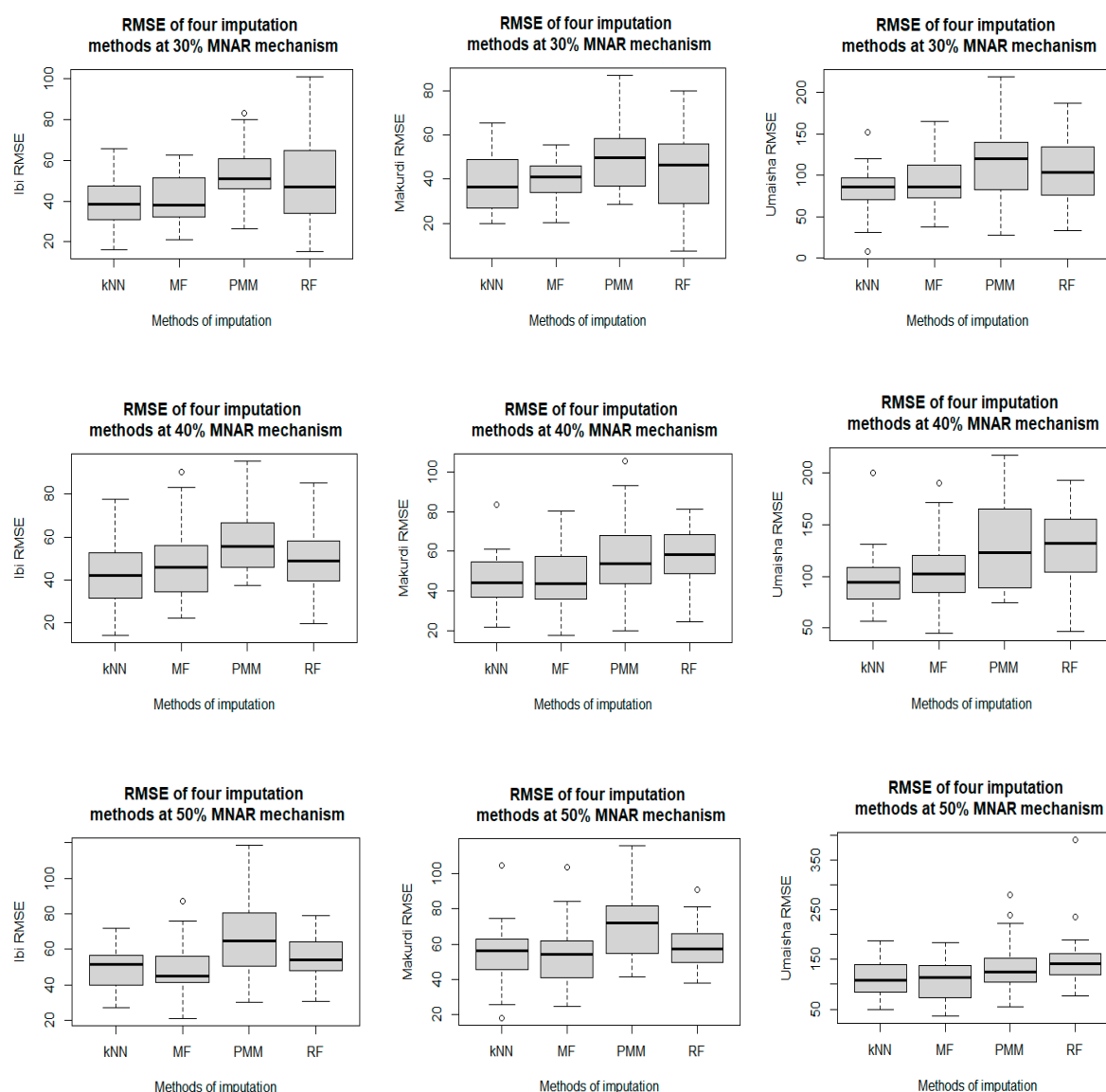
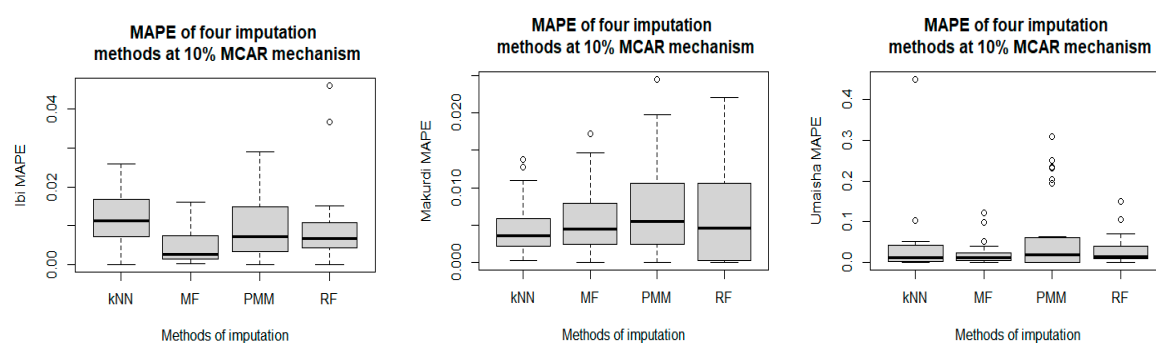


Figure S4. Boxplots of RMSE values for k nearest neighbour (kNN), missForest (MF), predictive mean matching (PMM) and random forest (RF) methods at 10%, 20%, 30%, 40%, and 50% levels of missingness respectively for the missing not at random (MNAR) missing value mechanism.



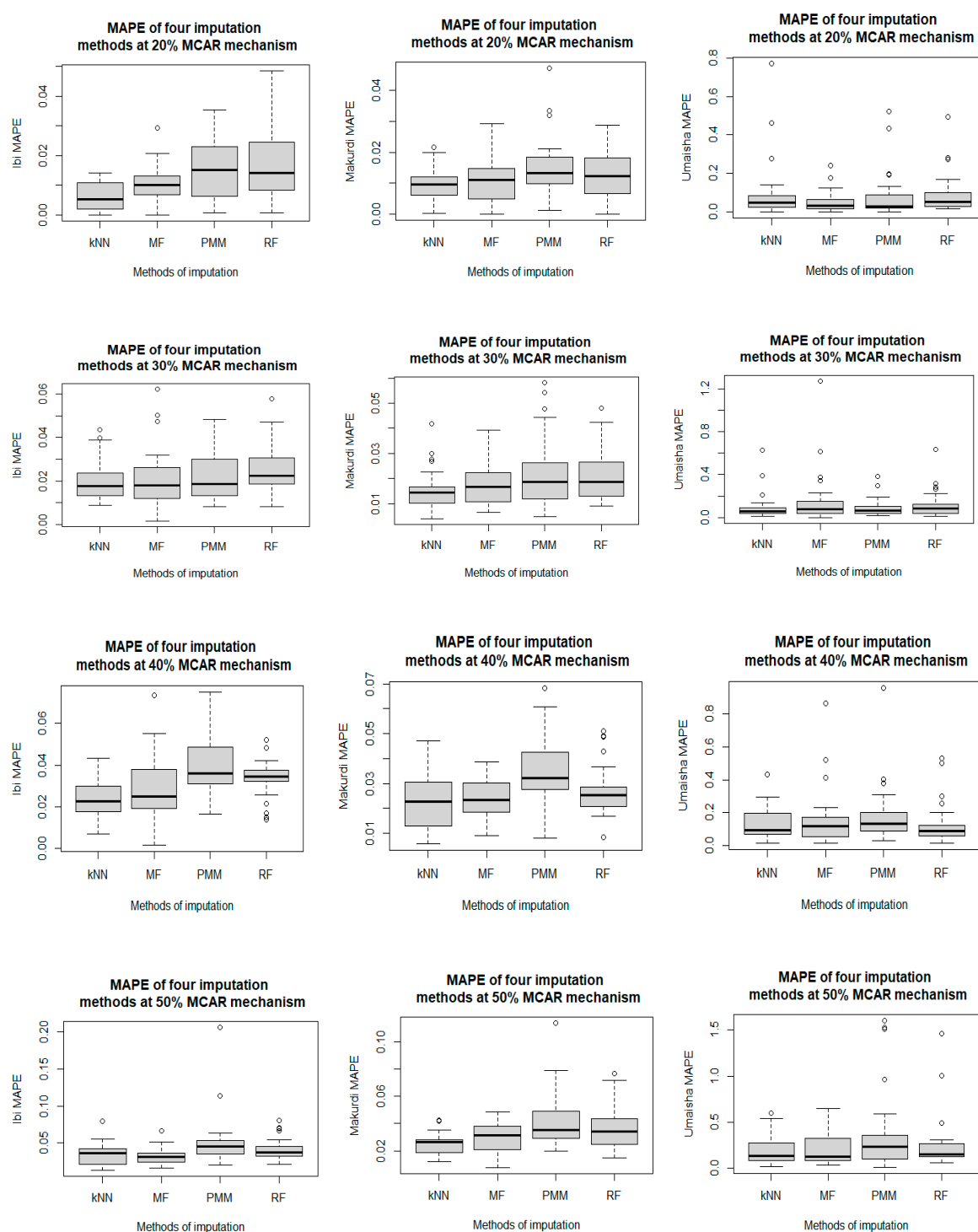
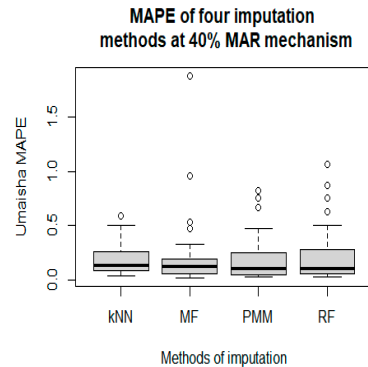
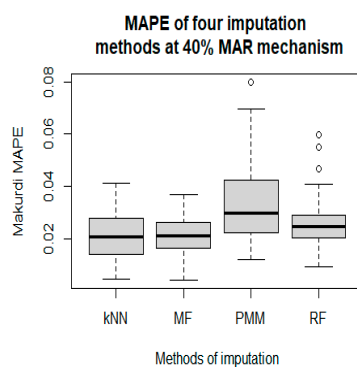
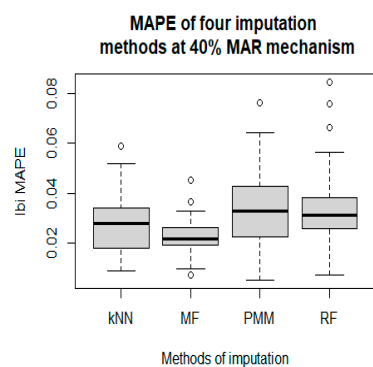
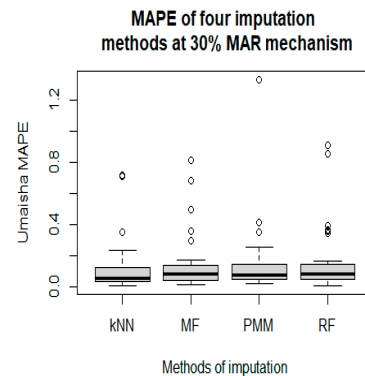
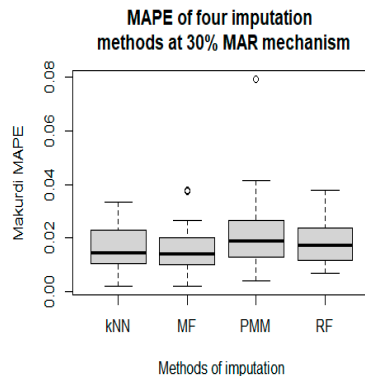
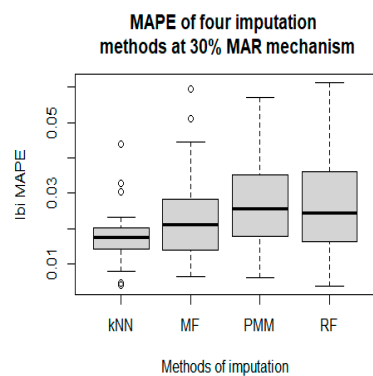
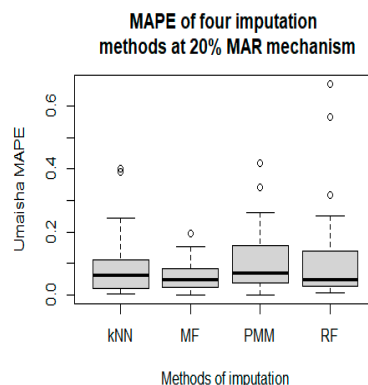
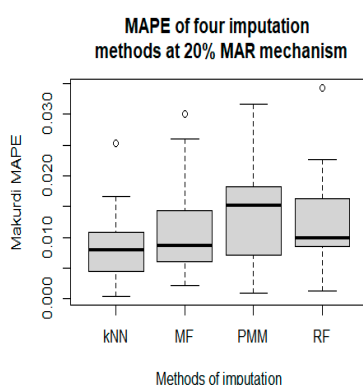
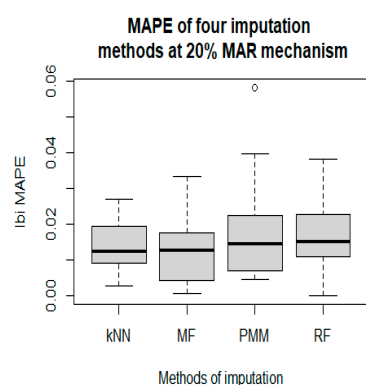
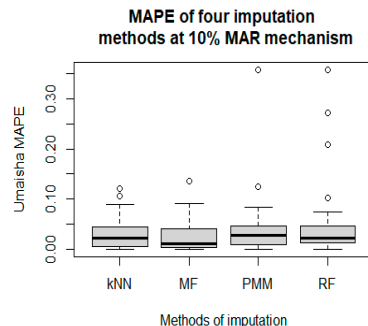
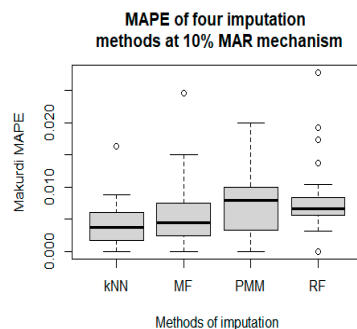
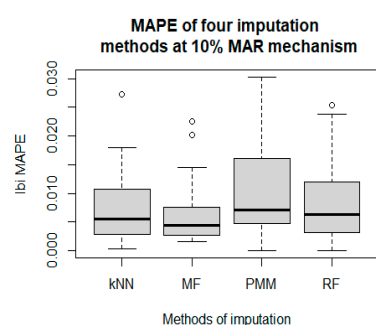


Figure S5. Boxplots of MAPE values for k nearest neighbour (kNN), missForest (MF), predictive mean matching (PMM) and random forest (RF) methods at 10%, 20%, 30%, 40%, and 50% of missingness respectively for the missing completely at random (MCAR) missing value mechanism.



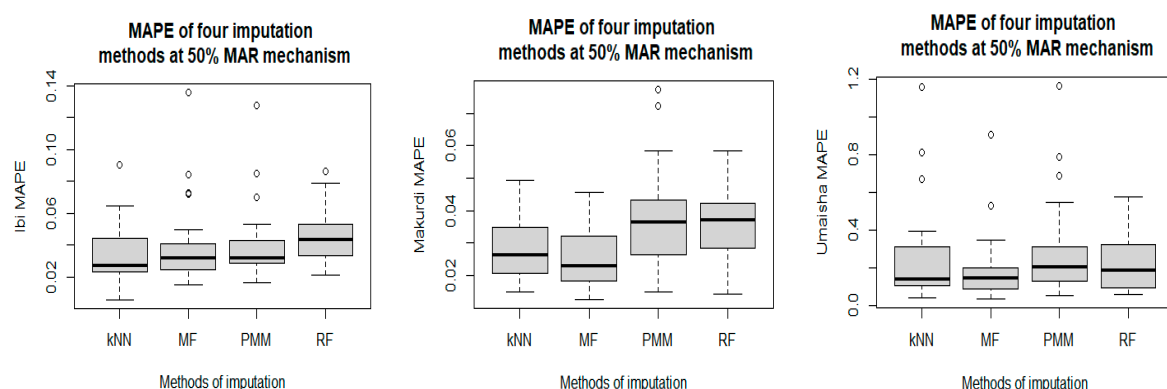
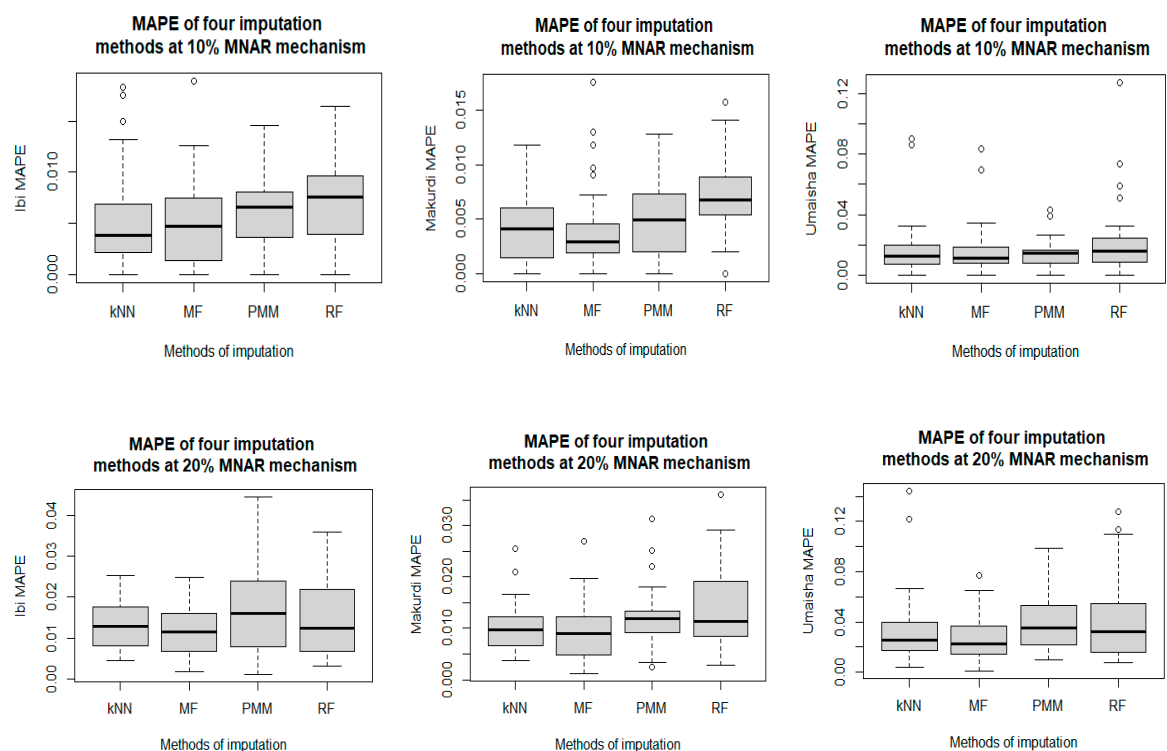


Figure S6. Boxplots of MAPE values for k nearest neighbour (kNN), missForest (MF), predictive mean matching (PMM) and random forest (RF) methods at 10%, 20%, 30%, 40%, and 50% levels of missingness respectively for the missing at random (MAR) missing value mechanism.



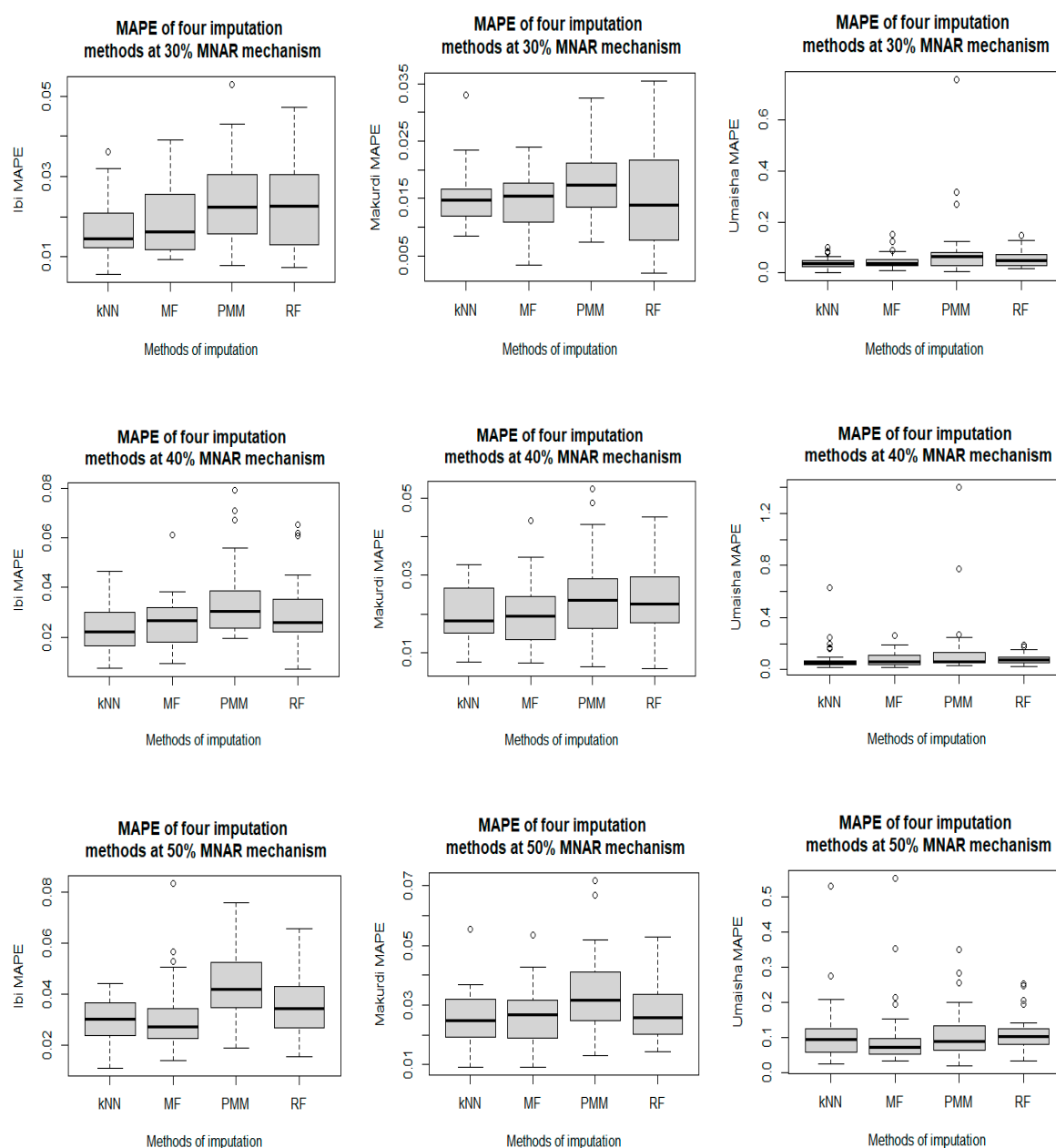


Figure S7. Boxplots of MAPE values for k nearest neighbour (kNN), missForest (MF), predictive mean (PMM) and random forest (RF) methods at 10%, 20%, 30%, 40%, and 50% levels of missingness respectively for the missing not at random (MNAR) missing value mechanism.