

MCAR 45% missing - MICE-CART

```
# sample MCAR dataset from PUMS
source("../utils/sampleMCAR.R")
n = 10000
missing_col = c(1,3,7,9,10,11)
missing_prob = 0.45
set.seed(1)

output_list <- sampleMCAR(n, missing_prob)
df <- output_list[['df']]
df_observed <- output_list[['df_observed']]
```

MICE-CART

Create 5 imputed dataset

```
library(mice)

##
## Attaching package: 'mice'

## The following objects are masked from 'package:base':
##      cbind, rbind
imputed_df <- mice(df_observed, m=5, method="cart", print=F)

## Warning: Number of logged events: 150
```

Extract the 5 imputed dataset

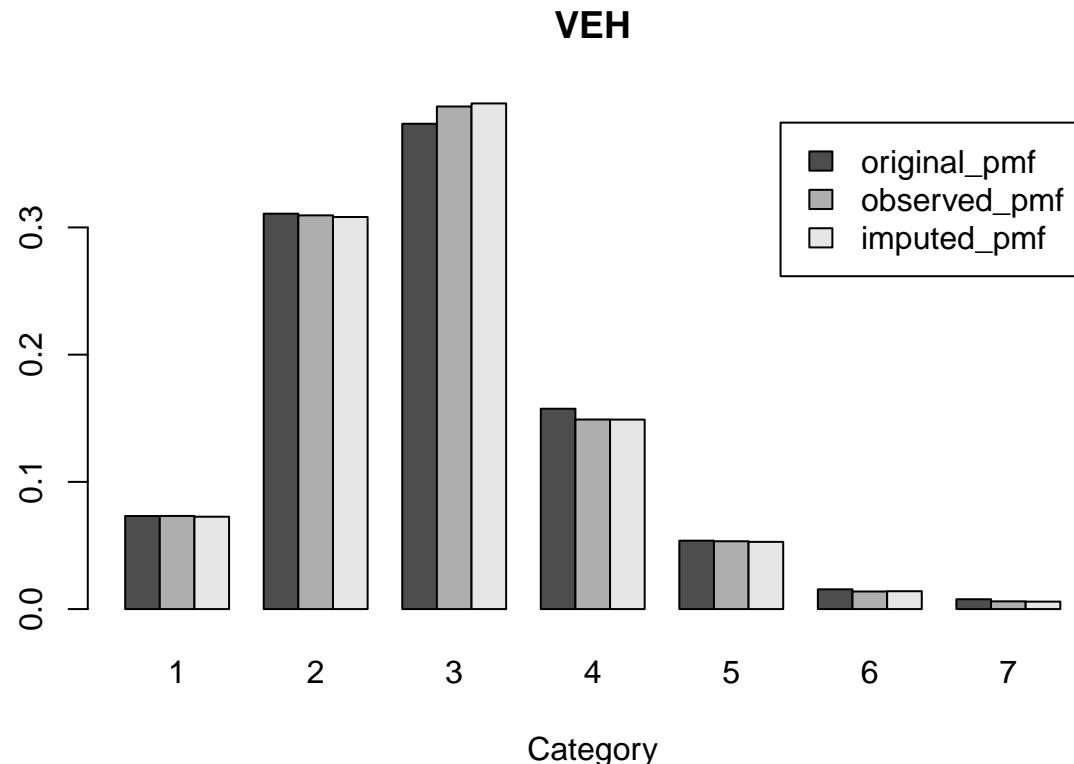
```
imputation_list = list()
for (i in 1:5) {
  imputation_list[[i]] = complete(imputed_df, i)
```

Diagnostics

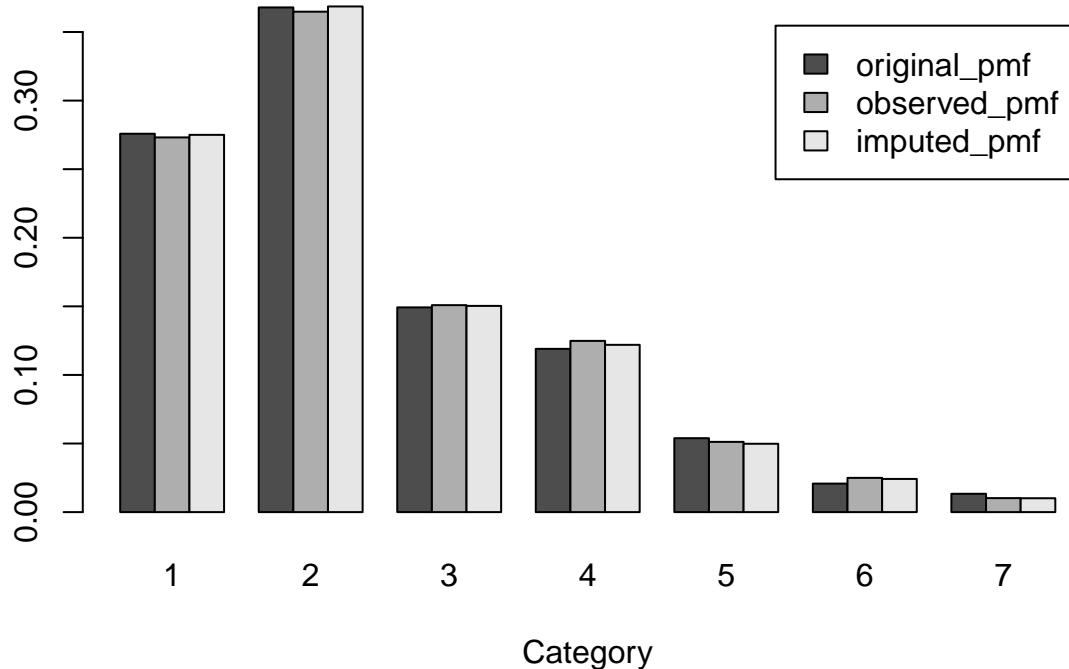
```
source("../utils/create_report.R")
create_report(imputation_list, max_nway=4, missing_col, df_observed)
```

```
## ##### Coverage #####
## Coverage 1 way: 94.44 percent
## Coverage 2 way: 96.79 percent
## Coverage 3 way: 98.25 percent
## Coverage 4 way: 99.04 percent
##
## ##### RMSE #####
## RMSE 1 way: 0.003612
## RMSE 2 way: 0.001471
## RMSE 3 way: 0.000537
## RMSE 4 way: 0.000188
##
## ##### MAE #####
##
```

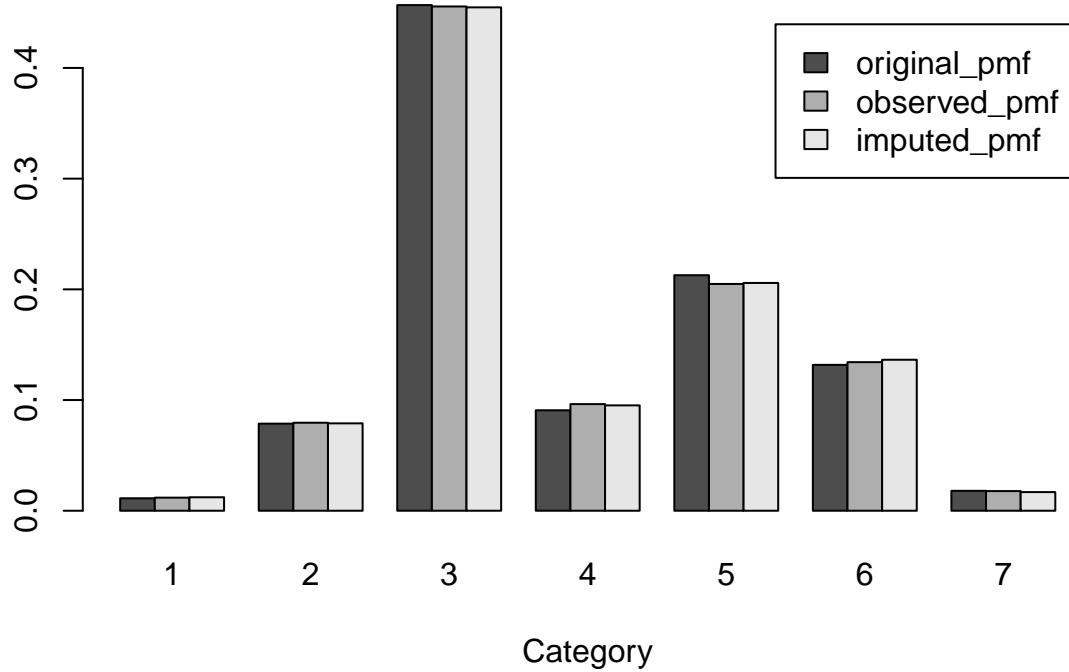
```
## MAE 1 way: 0.002496  
## MAE 2 way: 0.000807  
## MAE 3 way: 0.000214  
## MAE 4 way: 5.4e-05
```



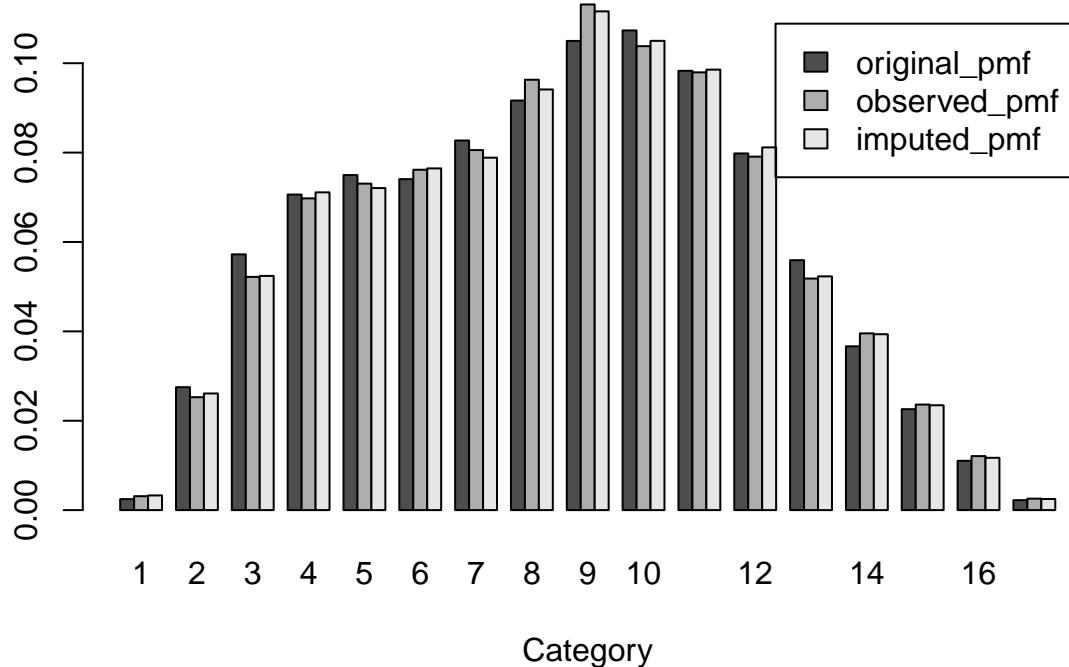
NP



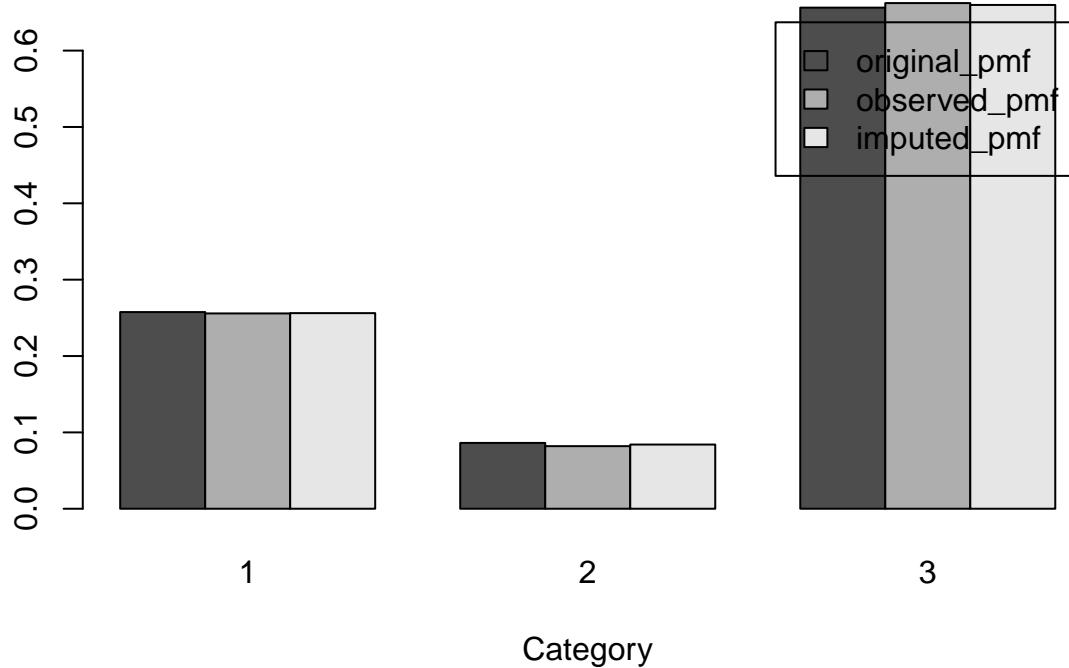
SCHL



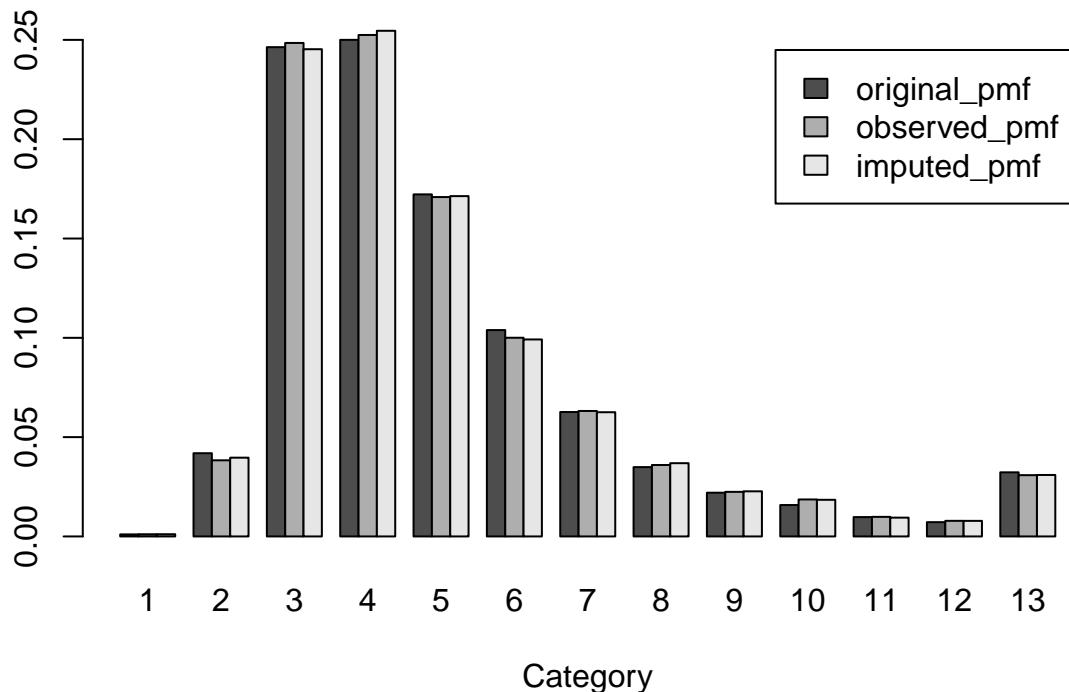
AGEP



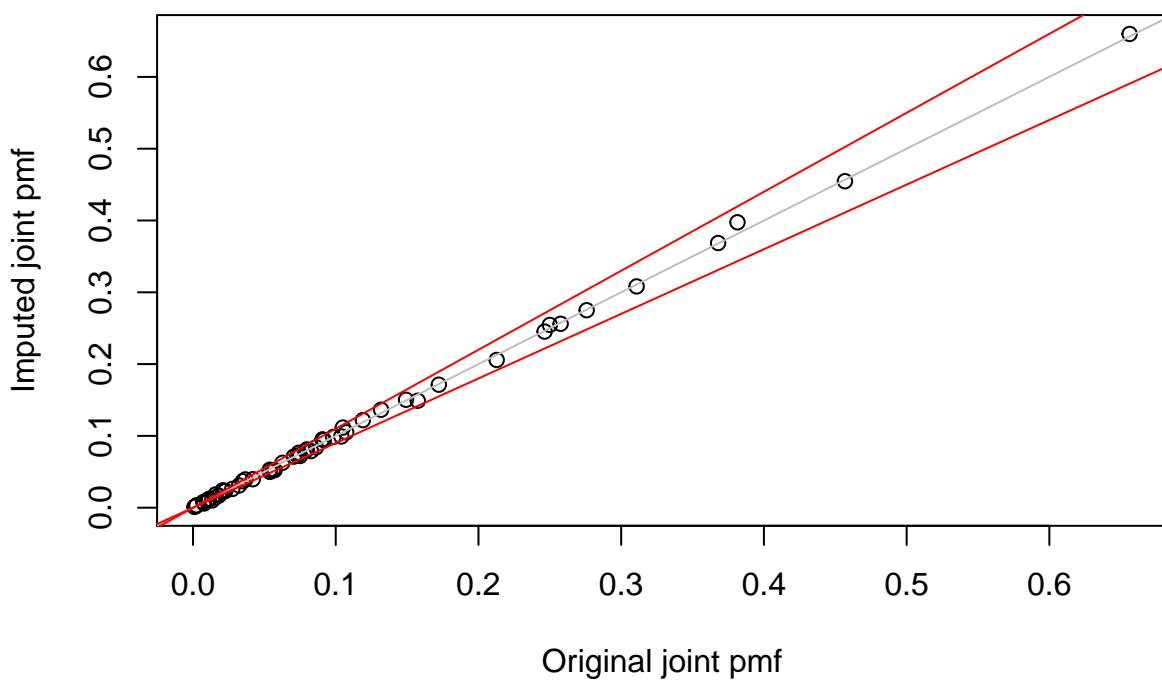
WKL



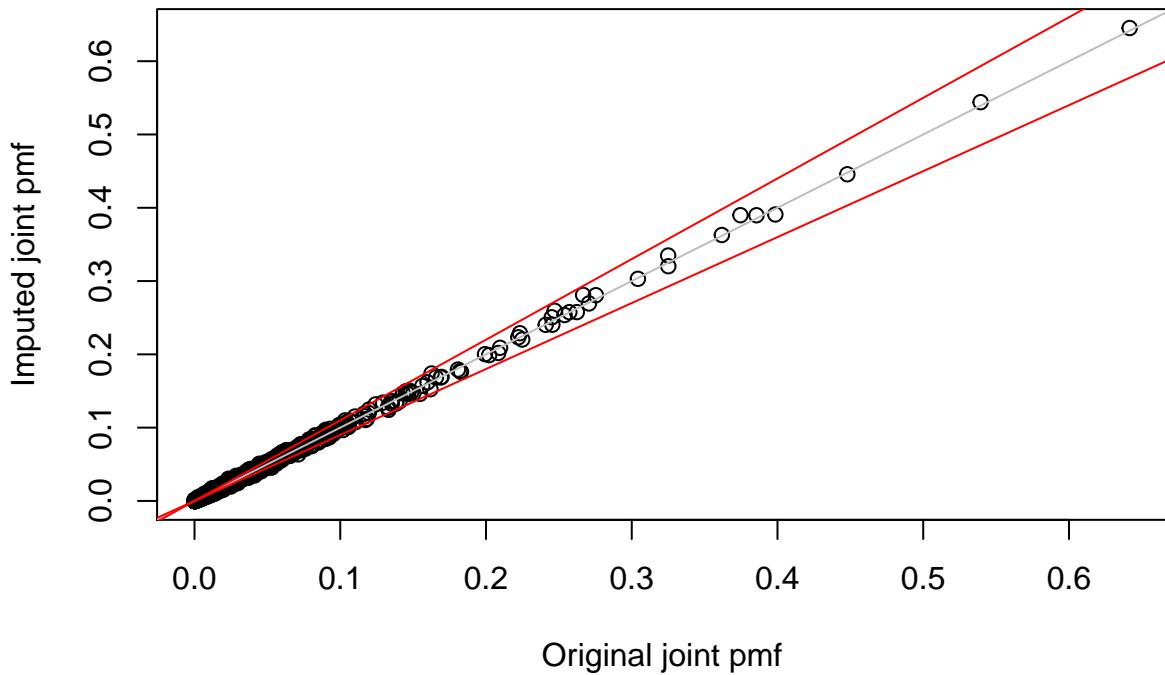
PINCP



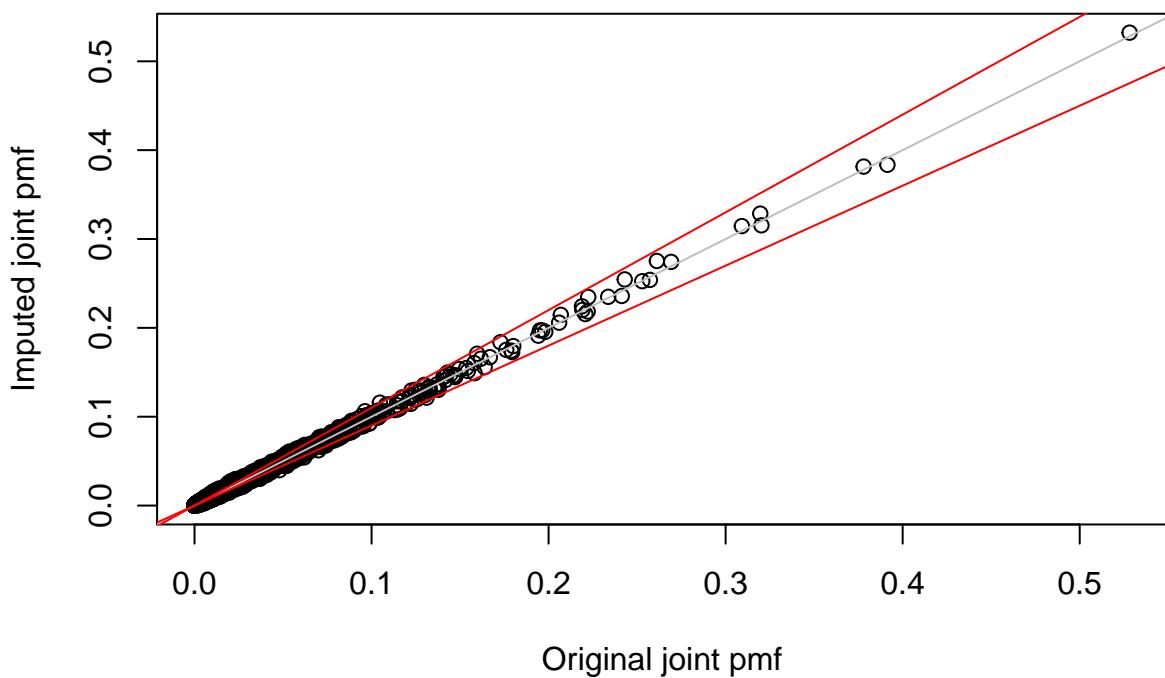
Assess imputed pmf: 1 way



Assess imputed pmf: 2 way



Assess imputed pmf: 3 way



Assess imputed pmf: 4 way

