

MCAR 30% missing - MICE

```
# sample MCAR dataset from PUMS
source("../utils/sampleMCAR.R")
n = 10000
missing_col = c(1,3,7,9,10,11)
missing_prob = 0.3
set.seed(0)

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

MICE

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,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)
}
```

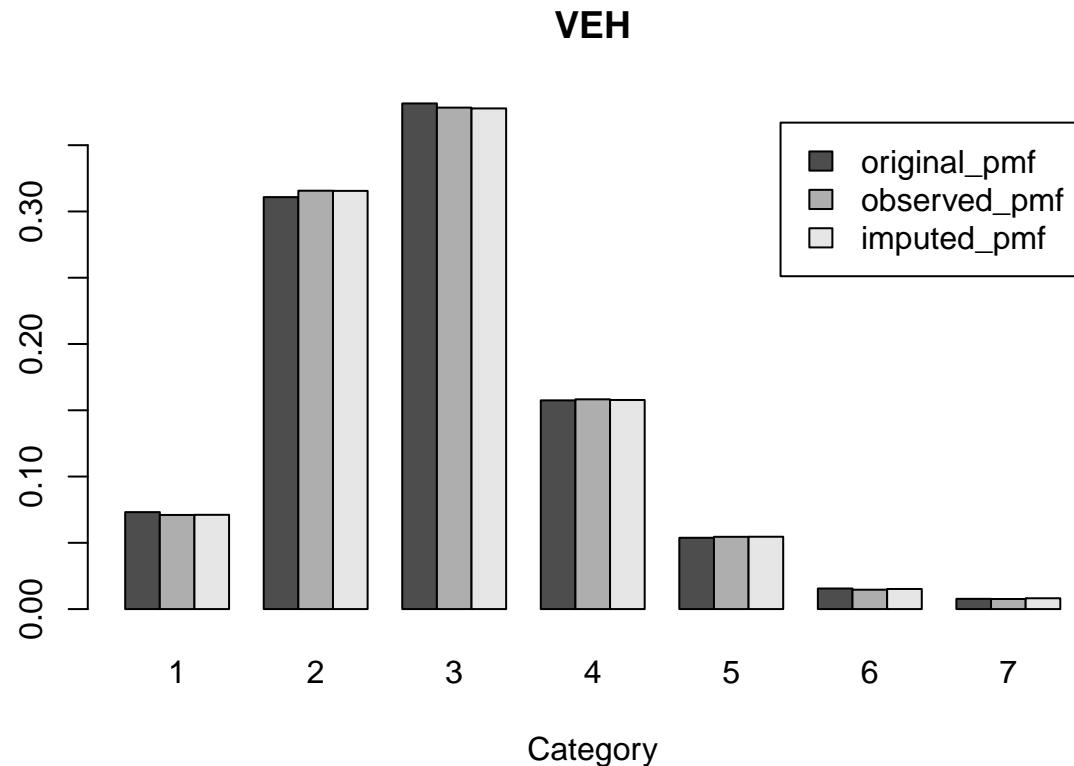
Diagnostics

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

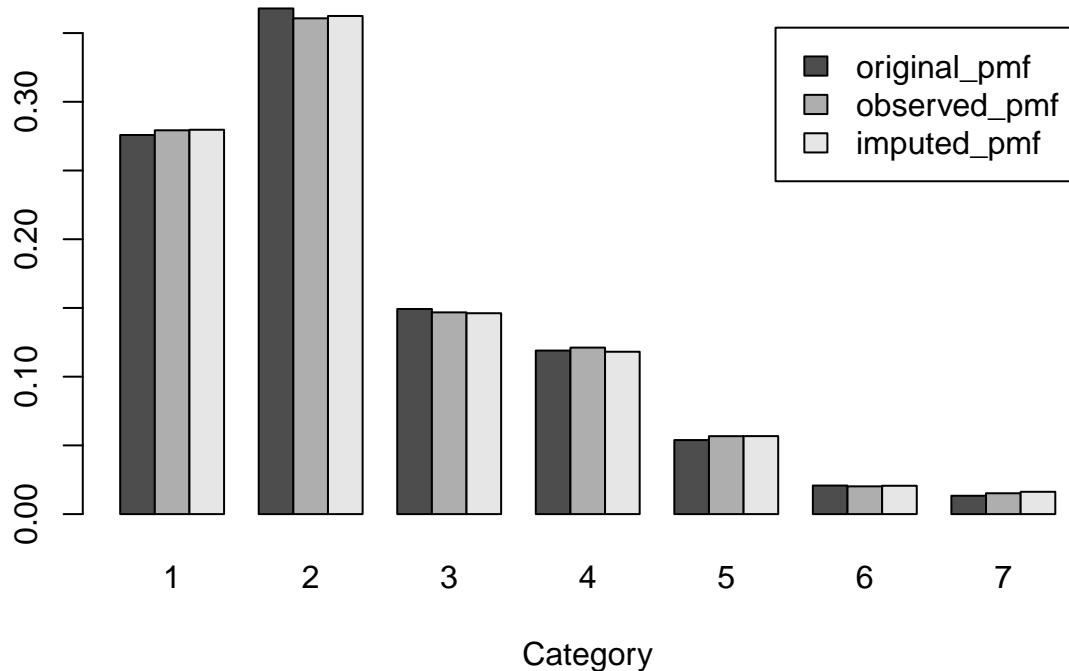
```
## ##### Coverage #####
## Coverage 1 way: 92.59 percent
## Coverage 2 way: 93.48 percent
## Coverage 3 way: 96.67 percent
## Coverage 4 way: 98.38 percent
##
## ##### RMSE #####
## RMSE 1 way: 0.002953
## RMSE 2 way: 0.001555
## RMSE 3 way: 0.000583
## RMSE 4 way: 2e-04
##
## ##### MAE #####

```

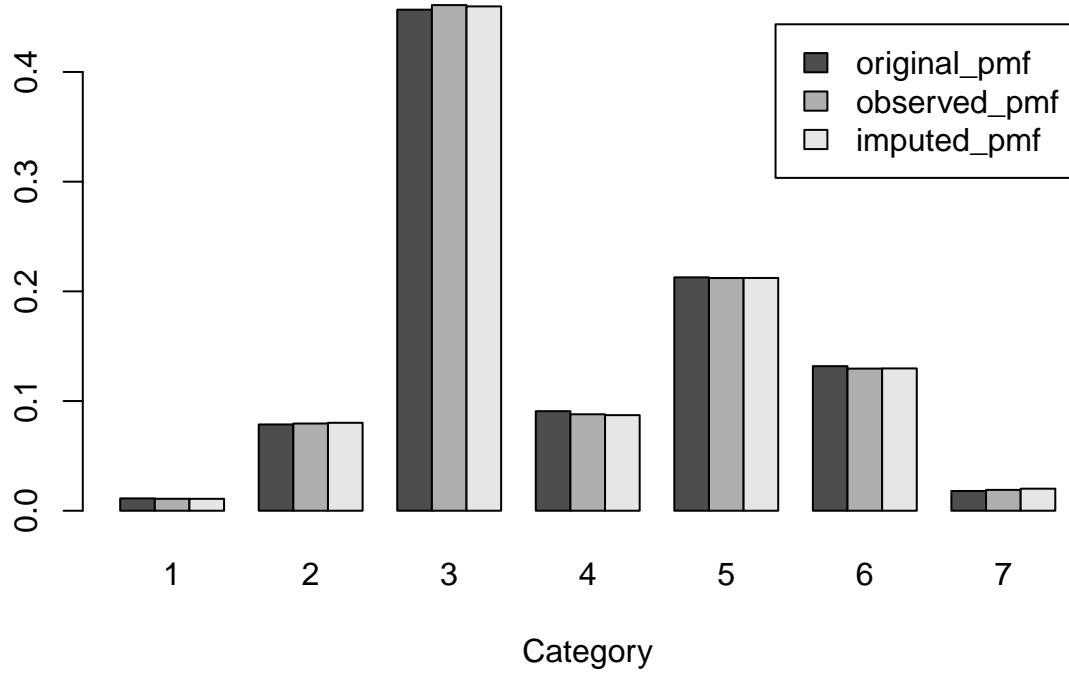
```
## MAE 1 way: 0.002255  
## MAE 2 way: 0.000834  
## MAE 3 way: 0.000227  
## MAE 4 way: 5.8e-05
```



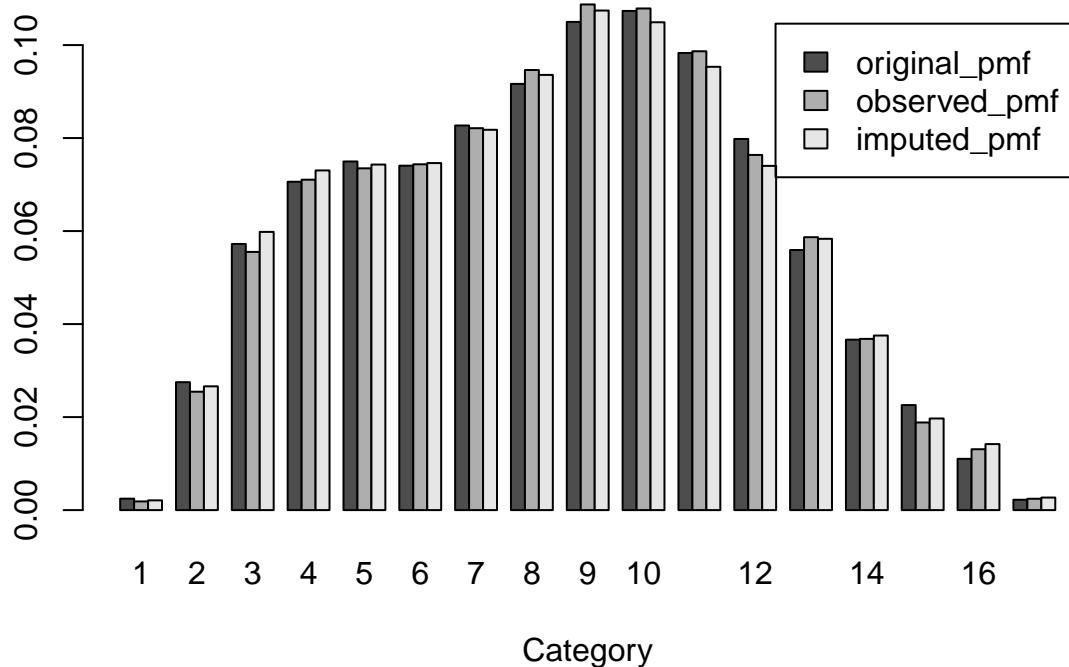
NP



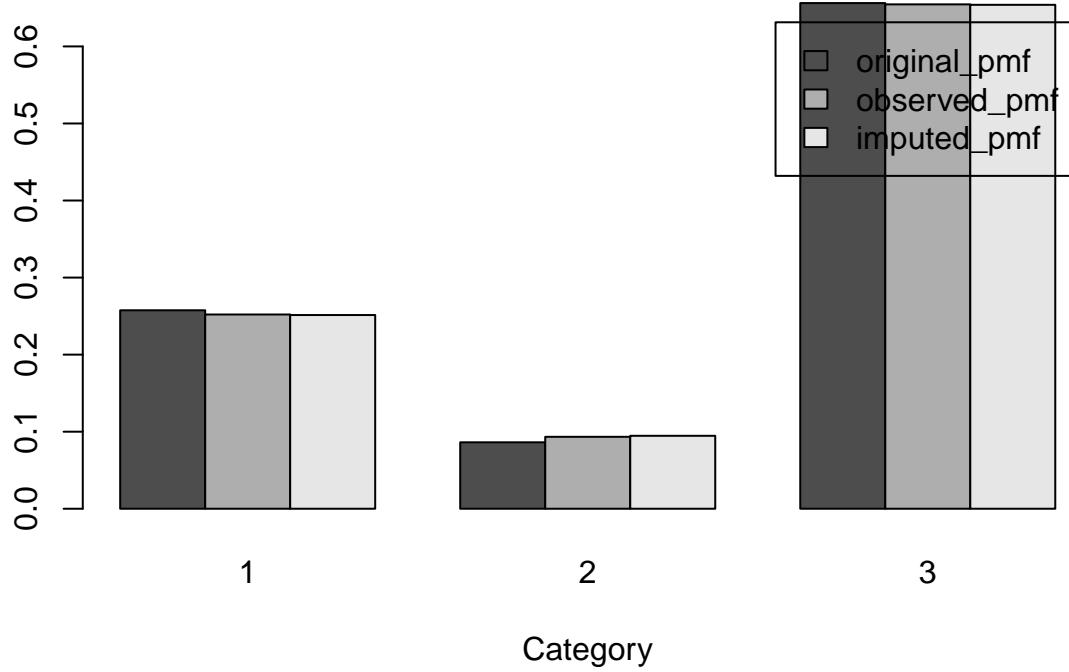
SCHL



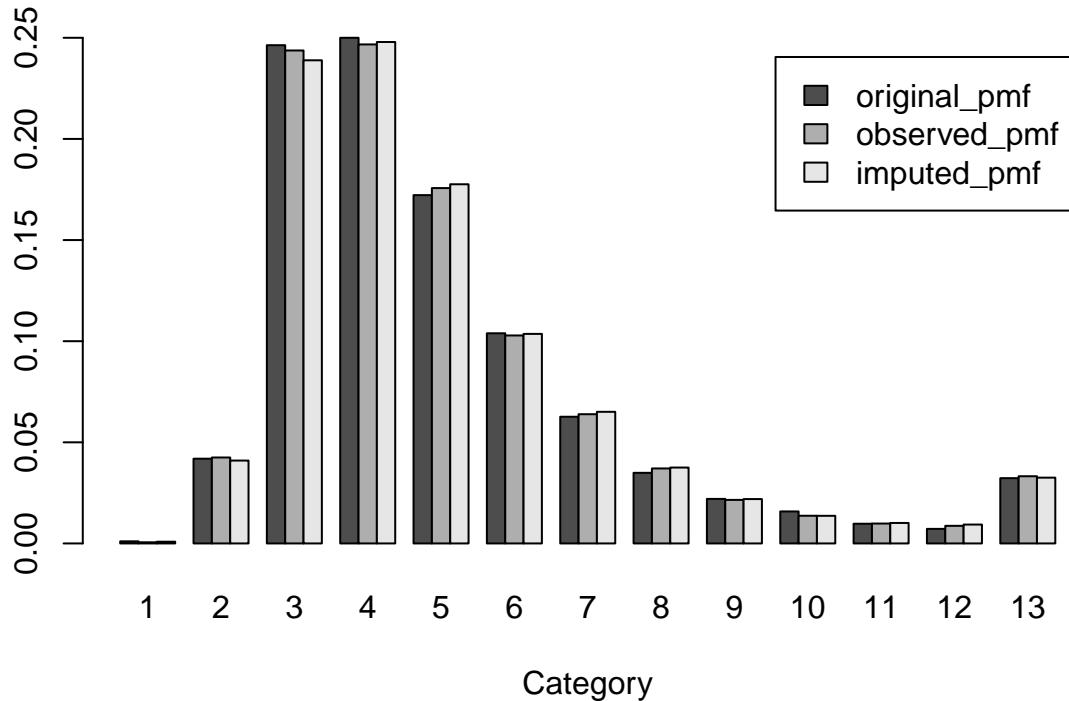
AGEP



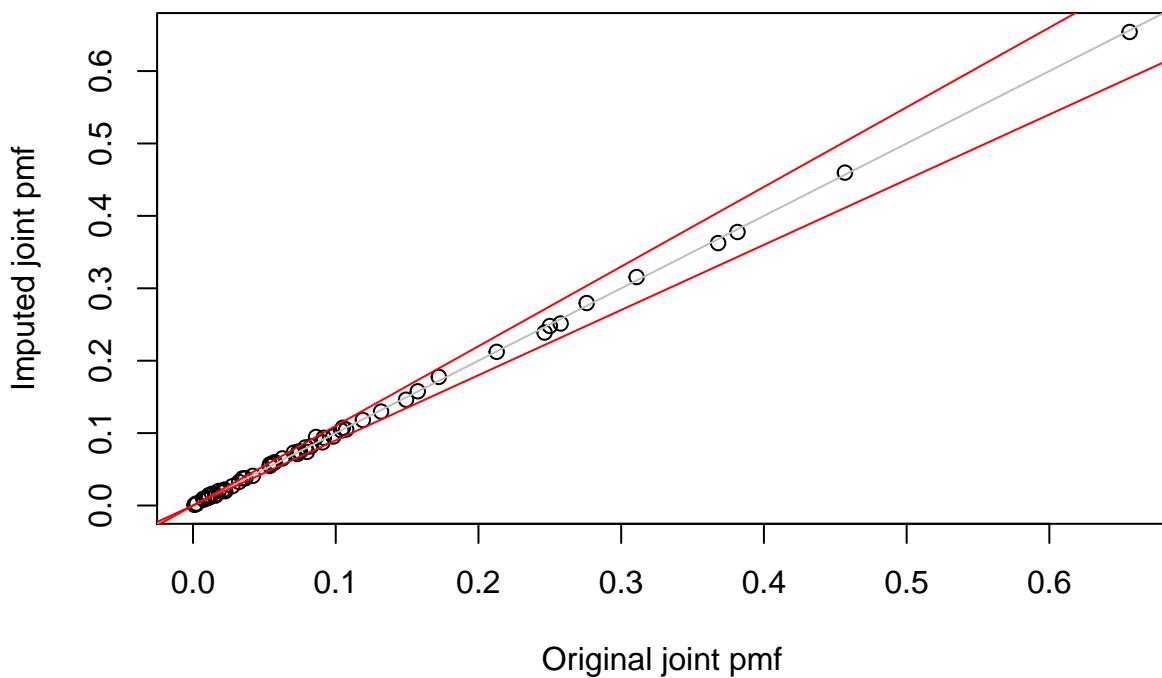
WKL



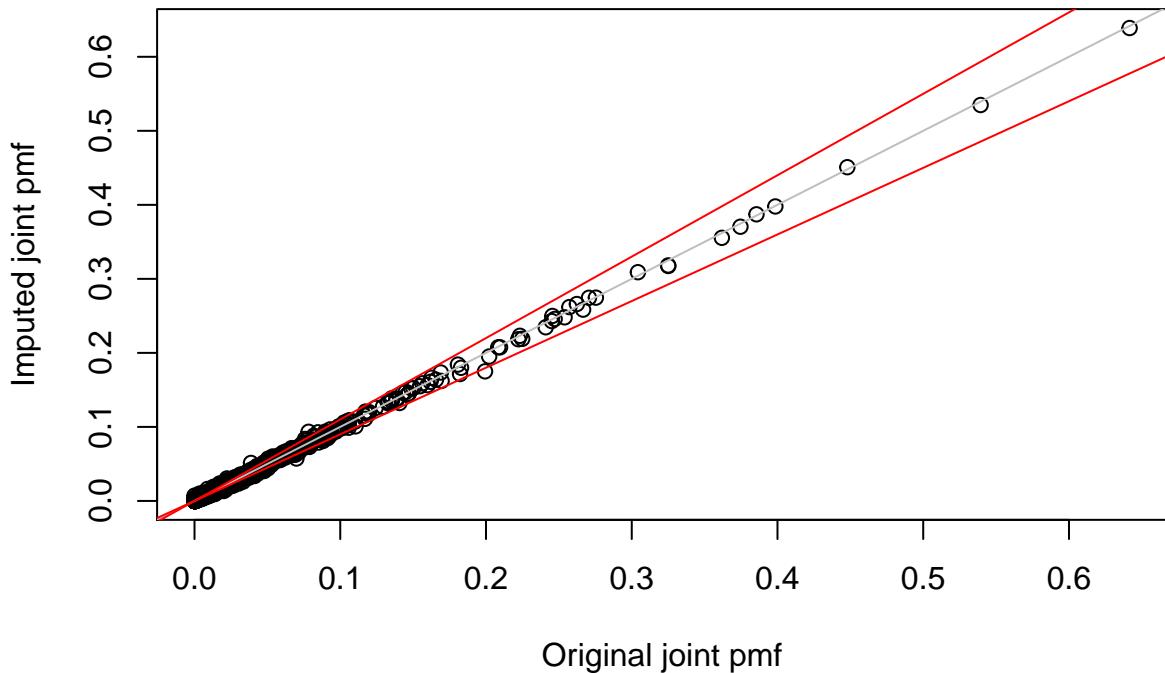
PINCP



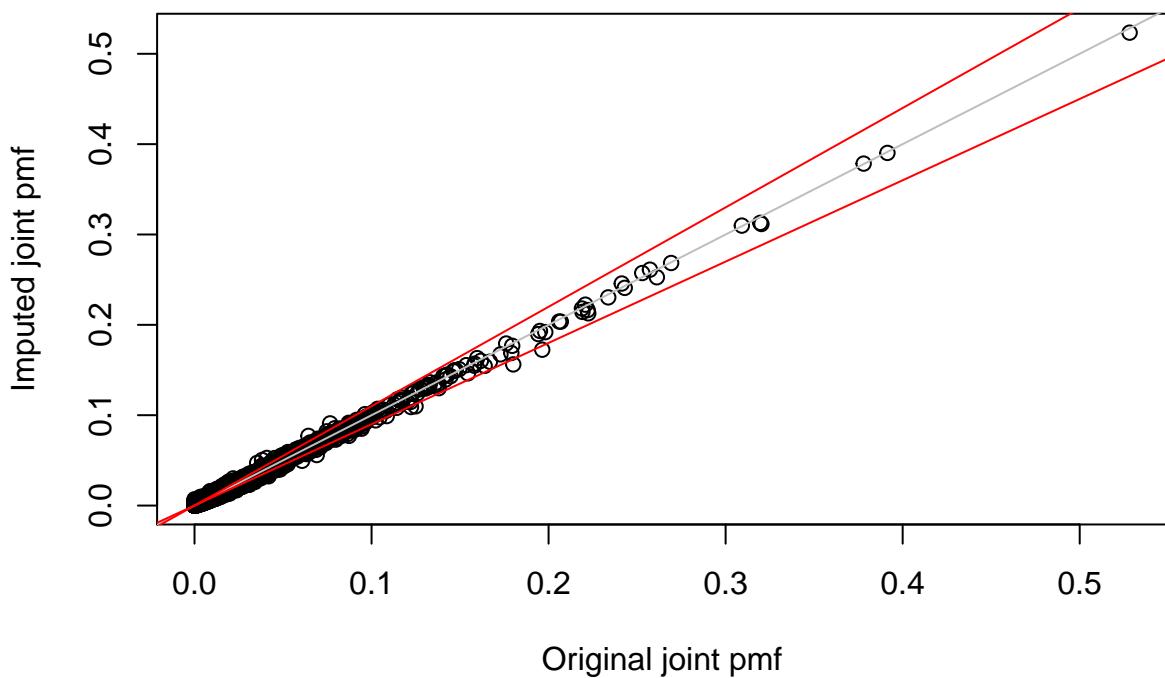
Assess imputed pmf: 1 way



Assess imputed pmf: 2 way



Assess imputed pmf: 3 way



Assess imputed pmf: 4 way

