job submitted

```
library(foreign)
library(readstata13)
# This function takes a dataset and extract the share data of estimated post-tax labour income
get_ratio <- function(data){
r <- data$pxitax / data$pitotal
post_tax_labour <- data$pilabour * r
post_tax_labour <- na.omit(post_tax_labour)
#sprintf("pitotal missing ratio: %f", sum(is.na(data$pitotal)) / length(data$pitotal))
#sprintf("pxitax missing ratio: %f", sum(is.na(data$pxitax)) / length(data$pxitax))
#sprintf("pilabour missing ratio: %f", sum(is.na(data$pilabour)) / length(data$pilabour))
post_tax_labour[post_tax_labour <= 0] <- NA # exclude the people with negative labour income
post_tax_labour <- na.omit(post_tax_labour)
cutoff_1 <- quantile(post_tax_labour, probs = seq(0.9, 1), na.rm = TRUE) # top 10% cutoff
cutoff_2 <- quantile(post_tax_labour, probs = seq(0.99, 1), na.rm = TRUE) # top 1% cutof
s1 <- 0
s2 <- 0
s3 <- 0
for(i in 1:length(post_tax_labour)){
    if (post_tax_labour[i] > cutoff_2){
     s3 <- s3 + post_tax_labour[i]
}
if(post_tax_labour[i] > cutoff_1 & post_tax_labour[i] <= cutoff_2){
     s2 <- s2 + post_tax_labour[i]
}
if (post_tax_labour[i] <= cutoff_1){
     s1 <- s1 + post_tax_labour[i]
}
}
s <- s1 + s2 + s3
sprintf("final ratios: %f, %f, %f", s1/s, s2/s, s3/s)
return(c(s1/s, s2/s, s3/s))
}
# This function plots the evolution of share data (of estimated post-tax labour income) across years
plot_ts <- function(country, start_year, end_year){
    n <- end_year - start_year + 1
    l1 <- rep(NA, n)
    l2 <- rep(NA, n)
    l3 <- rep(NA, n)
    for(i in 1:n){
        year <- start_year + i - 1
        year_str <- substr(paste0(year), 3, 4)
        name <- paste0(country, year_str, "p")
        data <- read.LIS(name)
        l <- get_ratio(data)
        l1[i] <- l[1]
        l2[i] <- l[2]
        l3[i] <- l[3]
    }
    matplot(seq(start_year, end_year), cbind(l1, l2, l3), type = "l", lty = 1, col = c("blue", "green", "red"),
xlab = "year", ylab = "share")
    legend("topright", legend = c("bottom 90%", "top 10%-1%", "top 1%"), col = c("red", "blue", "green"), lty =
1)
}
# sample dataset
```

```
#data <- read.LIS("fr06p")
#print(str(data)) # show variable information
country <- "fr"
start_year <- 1996
end_year <- 2018
plot_ts(country, start_year, end_year)
```

listing

```
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################################ NOTICE TO USERS ################################

> options(echo=FALSE, encoding="UTF-8")
Loading required package: readstata13
> options(error = expression(q('no')))
> library(foreign)
> library(readstata13)
> # This function takes a dataset and extract the share data of estimated post-tax labour income
> get_ratio <- function(data){
+ r <- data$pxitax / data$pitotal
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+ #sprintf("pitotal missing ratio: %f", sum(is.na(data$pitotal)) / length(data$pitotal))
+ #sprintf("pxitax missing ratio: %f", sum(is.na(data$pxitax)) / length(data$pxitax))
+ #sprintf("pilabour missing ratio: %f", sum(is.na(data$pilabour)) / length(data$pilabour))
+ post_tax_labour[post_tax_labour <= 0] <- NA # exclude the people with negative labour income
+ post_tax_labour <- na.omit(post_tax_labour)
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+ cutoff_2 <- quantile(post_tax_labour, probs = seq(0.99, 1), na.rm = TRUE) # top 1% cutof
+ s1 <- 0
+ s2 <- 0
+ s3 <- 0
+ for(i in 1:length(post_tax_labour)){
+     if (post_tax_labour[i] > cutoff_2){
+      s3 <- s3 + post_tax_labour[i]
+ }
+ if(post_tax_labour[i] > cutoff_1 & post_tax_labour[i] <= cutoff_2){
+      s2 <- s2 + post_tax_labour[i]
+ }
+ if (post_tax_labour[i] <= cutoff_1){
+      s1 <- s1 + post_tax_labour[i]
```

```
+ }
+ }
+ s <- s1 + s2 + s3
+ sprintf("final ratios: %f, %f, %f", s1/s, s2/s, s3/s)
+ return(c(s1/s, s2/s, s3/s))
+ }
> # This function plots the evolution of share data (of estimated post-tax labour income) across years
> plot_ts <- function(country, start_year, end_year){
+     n <- end_year - start_year + 1
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+     for(i in 1:n){
+         year <- start_year + i - 1
+         year_str <- substr(paste0(year), 3, 4)
+         name <- paste0(country, year_str, "p")
+         data <- read.LIS(name)
+         l <- get_ratio(data)
+         l1[i] <- l[1]
+         l2[i] <- l[2]
+         l3[i] <- l[3]
+     }
+     matplot(seq(start_year, end_year), cbind(l1, l2, l3), type = "l", lty = 1, col = c("blue", "green",
"red"), xlab = "year", ylab = "share")
+     legend("topright", legend = c("bottom 90%", "top 10%-1%", "top 1%"), col = c("red", "blue", "green"), lty
= 1)
+ }
> # sample dataset
> #data <- read.LIS("fr06p")
> #print(str(data)) # show variable information
> country <- "fr"
> start_year <- 1996
> end_year <- 2018
> plot_ts(country, start_year, end_year)
[1] "Loading dataset fr96p..."
[1] "Loading dataset fr97p..."
[1] "Loading dataset fr98p..."
[1] "Loading dataset fr99p..."
[1] "Loading dataset fr00p..."
[1] "Loading dataset fr01p..."
[1] "Loading dataset fr02p..."
[1] "Loading dataset fr03p..."
[1] "Loading dataset fr04p..."
[1] "Loading dataset fr05p..."
[1] "Loading dataset fr06p..."
[1] "Loading dataset fr07p..."
[1] "Loading dataset fr08p..."
[1] "Loading dataset fr09p..."
[1] "Loading dataset fr10p..."
[1] "Loading dataset fr11p..."
[1] "Loading dataset fr12p..."
[1] "Loading dataset fr13p..."
[1] "Loading dataset fr14p..."
[1] "Loading dataset fr15p..."
[1] "Loading dataset fr16p..."
[1] "Loading dataset fr17p..."
[1] "Loading dataset fr18p..."
```
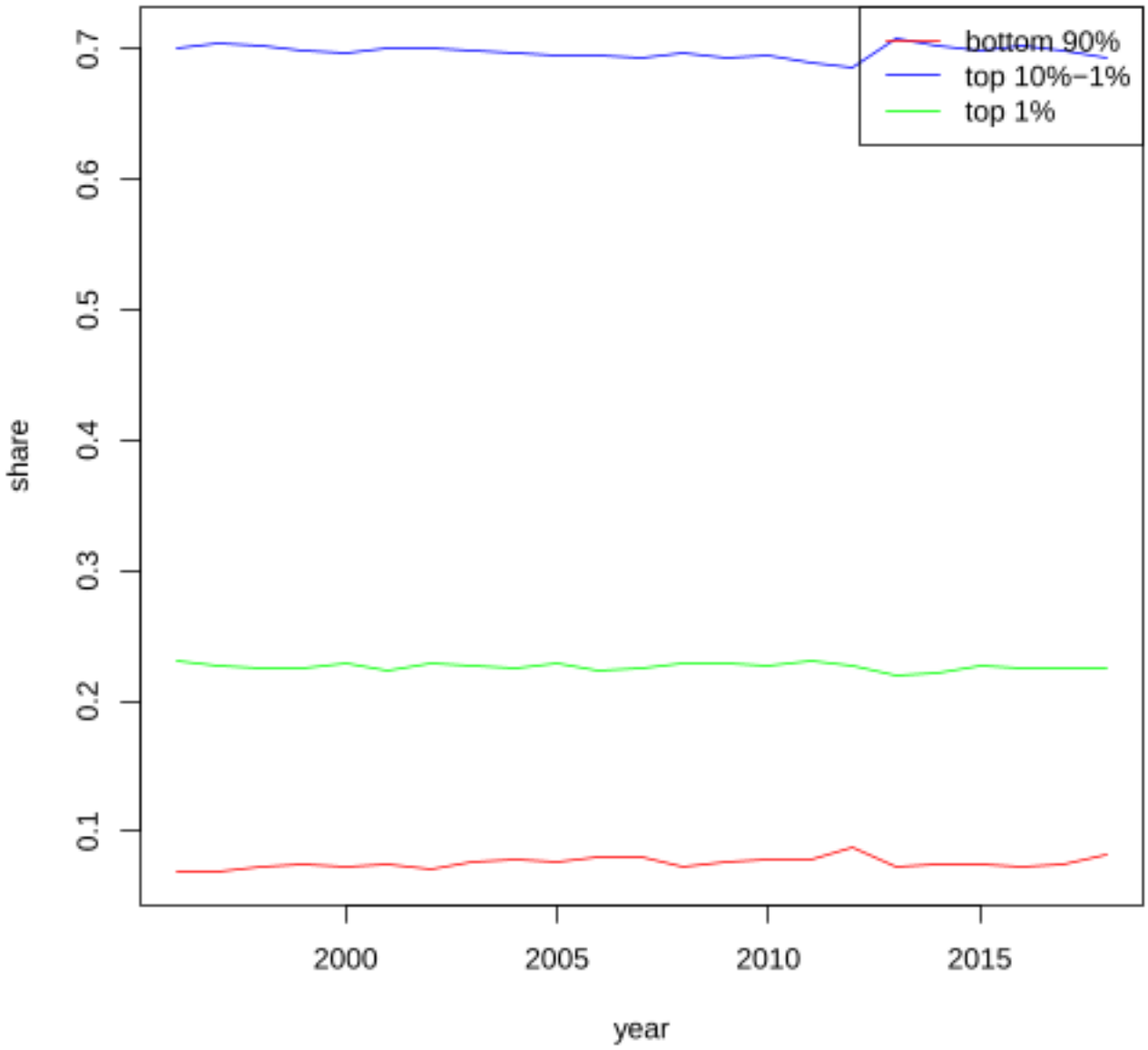

```
>
> proc.time()
   user  system elapsed
 29.581   0.975  32.371
```

graphs


bottom 90%
top 10%−1%
top 1%
share
0.1
0.2
0.3
0.4
0.5
0.6
0.7
2000
2005
2010
2015
year