Exercise 02

Exercise 2.1

In considering the trajectory of income inequality in France between 2009 and 2019, a testable hypothesis emerges, suggesting that income disparities heightened during this period. This hypothesis is grounded in a synthesis of theoretical and empirical insights gleaned from scholarly works.

Hypothesis: Comparing equalized household income in France between 2009 and 2019, income disparities have increased during this period.

Several interrelated factors contribute to this hypothesis. Firstly, wealth distribution was less unequal in the postwar period but today has reached levels similar to those of the late nineteenth century (Piketty, 2017). This transformation indicates a notable concentration of wealth in contemporary economic systems, potentially linked to changing global dynamics and economic policies.

Globally, mounting concerns about income inequality underscore the interconnectedness between international trends, policy changes, and the shaping of income distribution within individual nations. The consensual view on the impact of globalization on within-country inequality is that globalization increases inequality in most if not all nations (Hung, 2021).

Locally, the economic landscape of France during this timeframe was marked by stagnation and high unemployment rates (see **Figure 1**). Such economic conditions often exacerbate income inequalities, as job losses disproportionately impact lower-income households. The increase in wealth inequality is further amplified through the winner-takes-all character of wealth accumulation (Beckert, 2022). The challenges faced by France in terms of economic growth set the stage for potential shifts in income distribution.

In summary, the hypothesis is underpinned by a synthesis of theoretical frameworks and empirical evidence. The examination of income distribution data will provide a robust basis for assessing whether income inequality in France has indeed escalated over the specified timeframe.
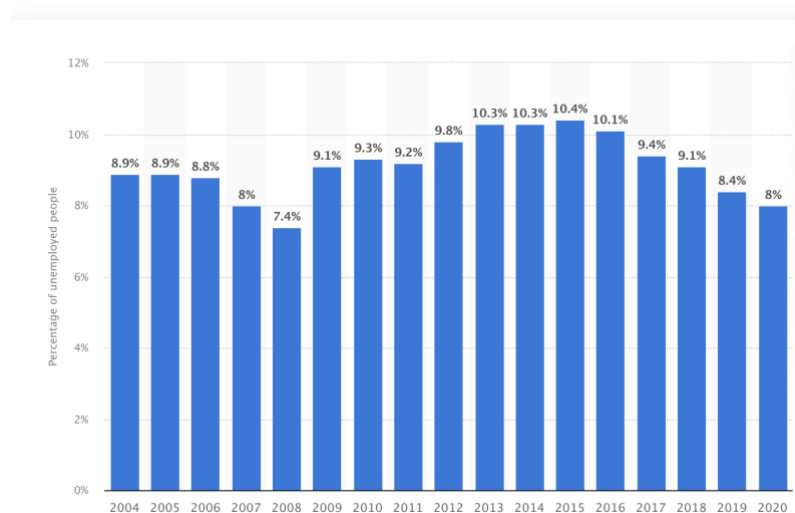

Figure 1. Unemployment rate in France from 2004 to 2020

Exercise 2.2

a)

In 2009, the median income stood at approximately €1167.61 (adjusted by deflation). Fast-forward to 2019, and this figure increased to €1350.00. The rise suggests that the middle-income segment experienced modest improvement during this period. Meanwhile, the mean income in 2009 was approximately €1451.58. By 2019, it had risen to €1689.10. This upward trend indicates that the overall average income increased, reflecting positive economic developments.

b)

In 2009, France's Gini coefficient stood at approximately 0.354, indicating moderate inequality. By 2019, it had risen to 0.393, signaling a slight increase in income disparities.

c)

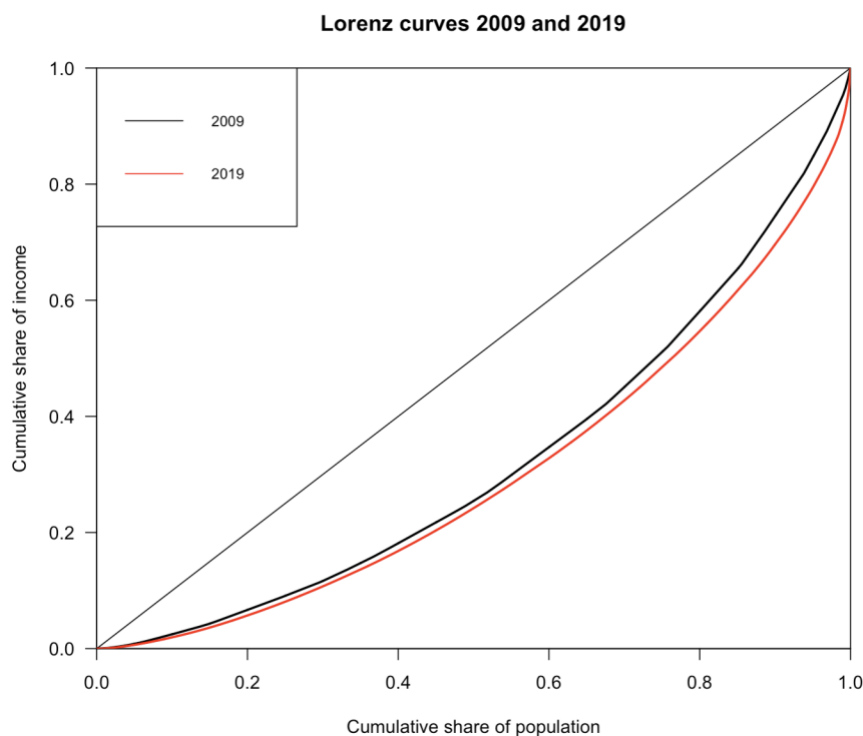The Lorenz curves of France in 2009 and 2019 are shown in **Figure 2** below.

Figure 2. Lorenz Curves of France in 2009 and 2019

d)

In 2009, the income share of the top 10% in France was approximately 30% of the overall income. By 2019, this share increased to around 33% (observed by "eyeball"). This indicates a 3 percent increase in the income concentration at the top of the distribution over the decade. The data overall aligns with estimates from the World Inequality Database (see **Figure 3**), which reported a 1.5

percent increase, with a share of 32.5% in 2009 and 34% in 2019, respectively. The trend suggests a higher concentration of income among the wealthiest individuals.

Figure 3. Top 10% national income share of France in 2009 and 2019
(World Inequality Database)

Exercise 2.3

In evaluating the hypothesis that income disparities increased in France between 2009 and 2019, the findings offer a mixed picture. The observed increase in France's Gini coefficient from 0.354 in 2009 to 0.393 in 2019 does suggest a slight rise in income inequality, aligning with the initial hypothesis. Additionally, the Lorenz Curves figure shows the top 10% income share reveals a 3 percent increase over the decade, supporting the notion of a higher concentration of income among the wealthiest individuals. These indicators provide empirical evidence that lends some support to the hypothesis of heightened income disparities during the specified period.

However, examining median and mean income trends introduces nuances to the narrative. The rise in median and mean income implies positive developments for the middle-income segment, challenging a straightforward narrative of worsening inequality. This complexity suggests that specific segments of the population, particularly the middle and upper-income brackets, may have experienced more significant economic advancements.

Limitations in this investigation merit consideration. While aggregate measures provide a broad overview, they might mask nuanced variations within specific income groups. The exclusive focus on household income may inadvertently overlook individual-level intricacies, potentially diluting the accuracy of the assessment. Furthermore, the Gini coefficient, a commonly employed metric, has inherent limitations in fully encapsulating the intricacies of income distribution dynamics. These constraints emphasize the importance of future research adopting more nuanced methodologies, such as individual-level analyses, to ensure a comprehensive understanding of the multifaceted nature of income disparities.

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<https://CRAN.R-project.org/package=ineq>.

```r
library(haven)
library(descr)
library(ineq)


#### Step 1: data preparation ####
rm(list=ls())
# Read in data & select analytical sample
ISSP2009 <- read_dta("assets/ISSP2009.dta") #35281 obs.
ISSP2019 <- read_dta("assets/ISSP2019.dta") #40589 obs.
# Filter the data for Philippines(608)
ISSP2009 <- subset(ISSP2009, ISSP2009$country == 250) #2817 obs.
ISSP2019 <- subset(ISSP2019, ISSP2019$country == 250) #1598 obs.



#### Step 2: variables construction ####
# year 2009
# Var: WEIGHT
ISSP2009$WEIGHT <- NA
# HOMPOP: How many people in household
# filter out the missing values and the outliers
ISSP2009$WEIGHT[ISSP2009$HOMPOP > 0 & ISSP2009$HOMPOP < 99] <-
ISSP2009$HOMPOP[ISSP2009$HOMPOP > 0 & ISSP2009$HOMPOP < 99]
ISSP2009$WEIGHT <- as.numeric(ISSP2009$WEIGHT)

# Var: Income01
ISSP2009$INCOME01 <- NA
ISSP2009$INCOME01[ISSP2009$FR_INC > 0 & ISSP2009$FR_INC < 999999] <-
ISSP2009$FR_INC[ISSP2009$FR_INC > 0 & ISSP2009$FR_INC < 999999]
ISSP2009$INCOME01 <- as.numeric(ISSP2009$INCOME01)

# Var: Income2, Equalized Household income (1 for each person in hh)
ISSP2009$INCOME02 <- NA
ISSP2009$INCOME02 <- ISSP2009$INCOME01/ISSP2009$WEIGHT
ISSP2009$INCOME02 <- as.numeric(ISSP2009$INCOME02)

# Var: Income3, Deflated Equalized Household income (Index Consumer price
index 2010 = 100)
ISSP2009$INCOME03 <- NA
ISSP2009$INCOME03 <- ISSP2009$INCOME02 / 0.984919671
ISSP2009$INCOME03 <- as.numeric(ISSP2009$INCOME03)

# year 2019
# Var: WEIGHT
ISSP2019$WEIGHT <- NA
ISSP2019$WEIGHT[ISSP2019$HOMPOP>0 & ISSP2019$HOMPOP<99] <-
ISSP2019$HOMPOP[ISSP2019$HOMPOP>0 & ISSP2019$HOMPOP<99]
```

```r
ISSP2019$WEIGHT <- as.numeric(ISSP2019$WEIGHT)

# VAR: INCOME
ISSP2019$INCOME01 <- NA
ISSP2019$INCOME01[ISSP2019$FR_INC>0 & ISSP2019$FR_INC<999999] <-
ISSP2019$FR_INC[ISSP2019$FR_INC>0 & ISSP2019$FR_INC<999999]
ISSP2019$INCOME01 <-as.numeric(ISSP2019$INCOME01)

ISSP2019$INCOME02<-NA
ISSP2019$INCOME02 <-ISSP2019$INCOME01/ISSP2019$WEIGHT
ISSP2019$INCOME02 <-as.numeric(ISSP2019$INCOME02)

ISSP2019$INCOME03<-NA
ISSP2019$INCOME03 <-ISSP2019$INCOME02 / 1.10048567
ISSP2019$INCOME03 <-as.numeric(ISSP2019$INCOME02)


#### Step 3: Analysis ####

#Analysis 2009
mean(ISSP2009$INCOME03, na.rm=TRUE)
median(ISSP2009$INCOME03, na.rm=TRUE)
Gini(ISSP2009$INCOME03)
Lc(ISSP2009$INCOME03, plot = TRUE)

#Analysis 2019
mean(ISSP2019$INCOME03, na.rm=TRUE)
median(ISSP2019$INCOME03, na.rm=TRUE)
Gini(ISSP2019$INCOME03)
Lc(ISSP2009$INCOME03, plot = TRUE)

#Lorenz curves in one figure (red=2019)
LORENZ09 <- Lc(ISSP2009$INCOME03)
LORENZ19 <- Lc(ISSP2019$INCOME03)
# 2009
plot(LORENZ09, col="black", lwd=2,
     xlab="Cumulative share of population",
     ylab="Cumulative share of income",
     main="Lorenz curves 2009 and 2019")
# 2019
lines(LORENZ19, col="red", lwd=2)
legend("topleft", legend=c("2009", "2019"), col=c("black", "red"),
lty=1:1, cex=0.8)
```