

# Topics in Macro 2

## Week 1 - TD 1

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PhD Candidate at TSE

Tuesday (17:00-18:30)

# 10 Sessions

## L3EEM S6 20-21 TD GR01 Topics in Macro 2\_Oscar Fentanes (online)

Semaine	Jour	Activité	Code groupe	Enseignants	Durée	Début	Fin	Salles
(3)18 janvier 21	Mardi 19/01/2021	Topics in Macro 2 TD	L3EEMS6TD1	FENTANES TELLEZ OSCAR	1.5	17h00	18h30	Online
(4)25 janvier 21	Mardi 26/01/2021	Topics in Macro 2 TD	L3EEMS6TD1	FENTANES TELLEZ OSCAR	1.5	17h00	18h30	Online
(5)01 février 21	Mardi 02/02/2021	Topics in Macro 2 TD	L3EEMS6TD1	FENTANES TELLEZ OSCAR	1.5	17h00	18h30	Online
(6)08 février 21	Mardi 09/02/2021	Topics in Macro 2 TD	L3EEMS6TD1	FENTANES TELLEZ OSCAR	1.5	17h00	18h30	Online
(8)22 février 21	Mardi 23/02/2021	Topics in Macro 2 TD	L3EEMS6TD1	FENTANES TELLEZ OSCAR	1.5	17h00	18h30	Online
(9)01 mars 21	Mardi 02/03/2021	Topics in Macro 2 TD	L3EEMS6TD1	FENTANES TELLEZ OSCAR	1.5	17h00	18h30	Online
(10)08 mars 21	Mardi 09/03/2021	Topics in Macro 2 TD	L3EEMS6TD1	FENTANES TELLEZ OSCAR	1.5	17h00	18h30	Online
(11)15 mars 21	Mardi 16/03/2021	Topics in Macro 2 TD	L3EEMS6TD1	FENTANES TELLEZ OSCAR	1.5	17h00	18h30	Online
(12)22 mars 21	Mardi 23/03/2021	Topics in Macro 2 TD	L3EEMS6TD1	FENTANES TELLEZ OSCAR	1.5	17h00	18h30	Online
(13)29 mars 21	Mardi 30/03/2021	Topics in Macro 2 TD	L3EEMS6TD1	FENTANES TELLEZ OSCAR	1.5	17h00	18h30	Online

# The Course

More empirical and less theoretical

## **First Part: Economic Inequality**

- Definition of inequality
- Wage inequality
- Income inequality
- Wealth inequality
- Building inequality indexes

## **Second Part: Fiscal multipliers**

# TD First Part: 9 Exercises in 6 Weeks

## What's going on?

- 1 Text: The Height of Inequality (Week 1)
- 2 Exercise: Skilled biased technological change and wage dispersion (Week 2)
- 3 Stylized facts: Top wages and incomes (Week 3)



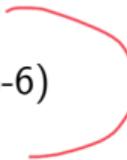
## How do we measure it?

- 4 Exercise: Interdecile ratios of income (Week 3)
- 5 Exercise: Lorenz curve and Gini basics (Week 4)



## What do we do?

- 6 Exercise: Taxes, consumption and inequality (Week 4)
- 7 Exercise: Variance based inequality indicators (Week 5-6)
- 8 Exercise: Social Welfare Function and inequality aversion (Week 5-6)
- 9 Exercise: The Atkinson inequality index (Week 5-6)



## 1 Text: The Height of Inequality (Week 1)

1. The students are expected to read this text (and the associated graphic) in details and be able to explain the main ideas in it in a few words.
2. The author says the US and UK median income is lower than the mean income. What about France?
3. Explain the concepts of median income and mean income. How can the mean income be larger than the median income?
4. The text describes that the wage of the top earners has been multiplied between 1966 and 2001 in the US. What about income. Is this trend similar in France?

# Question 1

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- ① The parade
- ② Trends in inequality and cross country comparisons

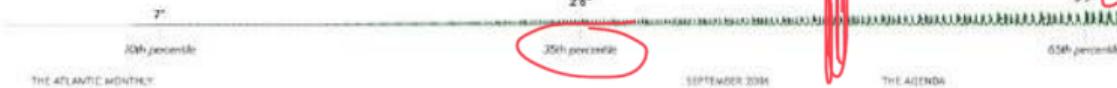
# Question 1

Read the text and the associated graphic in details and explain the main ideas in it in a few words.

- ① The parade
- ② Trends in inequality and cross country comparisons
- ③ Why is this happening?

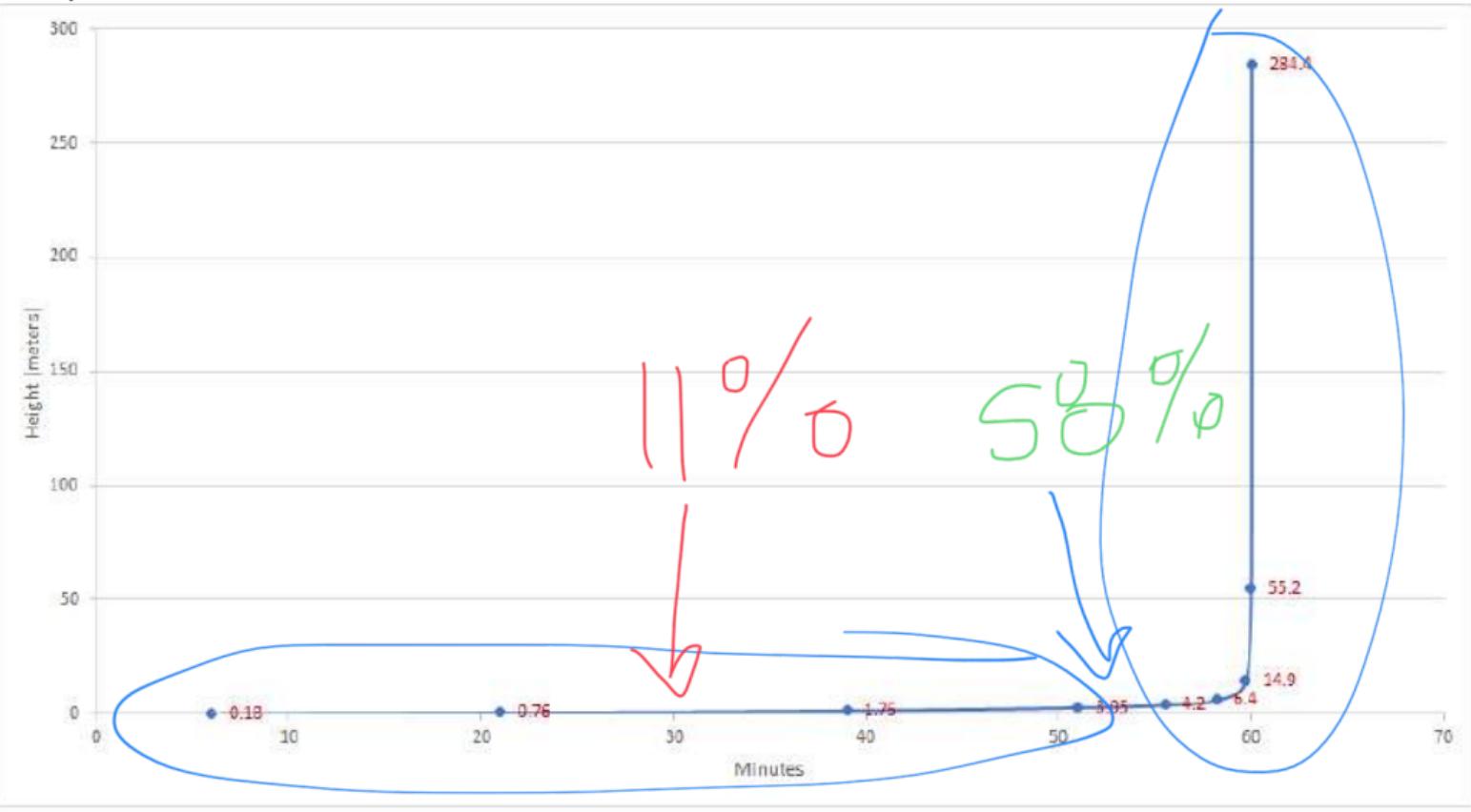
## The parade

Percentile	Height (ft)	Time (min)	Height (m)
10	7"	6	0.18
35	2'6"	21	0.76
65	5'9"	39	1.75
85	10'	51	3.05
92.5	13'9"	55.5	4.2
97	21'	58.2	6.4
99.5	49'	59.7	14.9
99.95	181'	59.97	55.2
99.995	933'	59.997	284.4

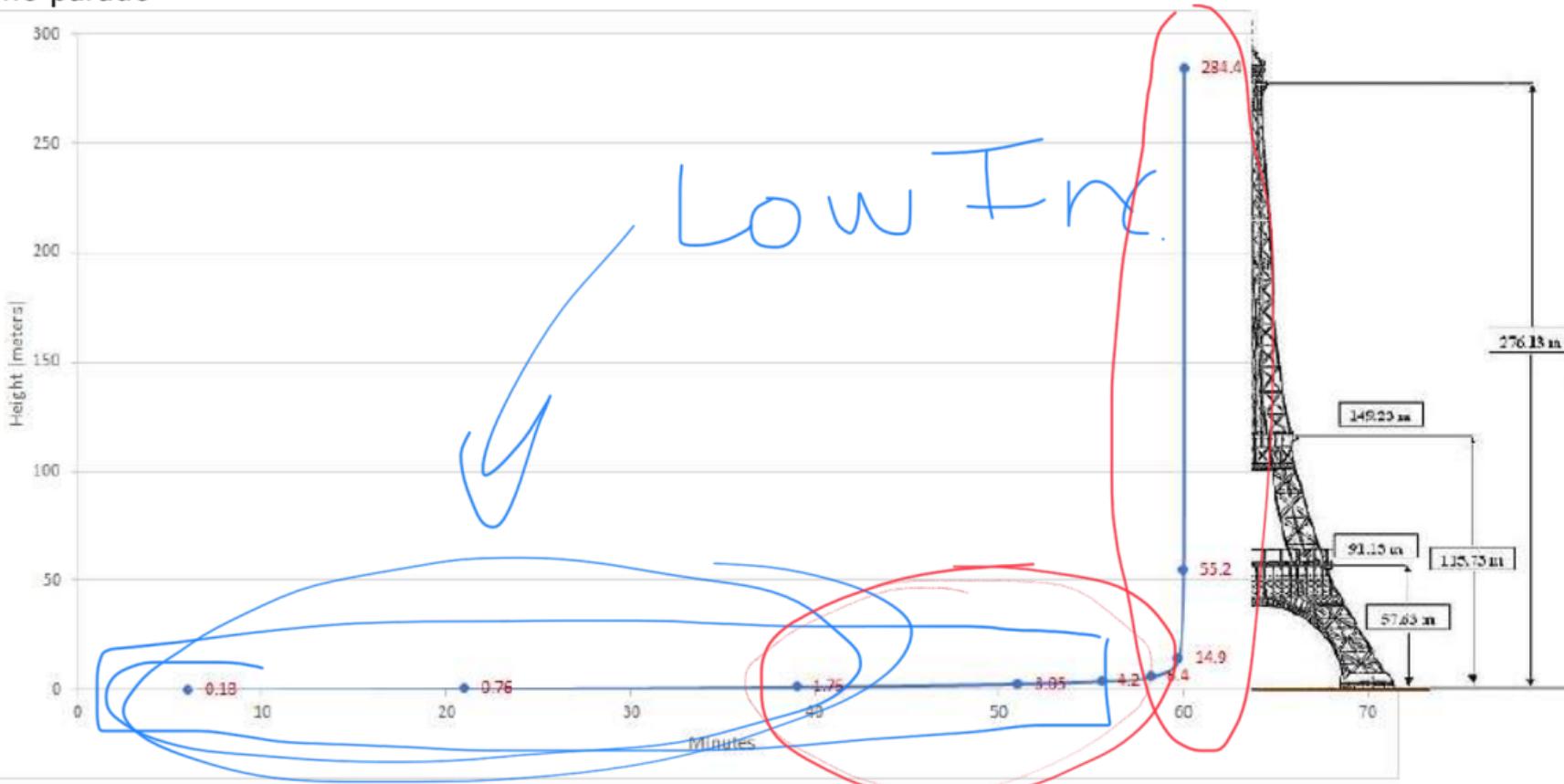


2 hour

# The parade



# The parade



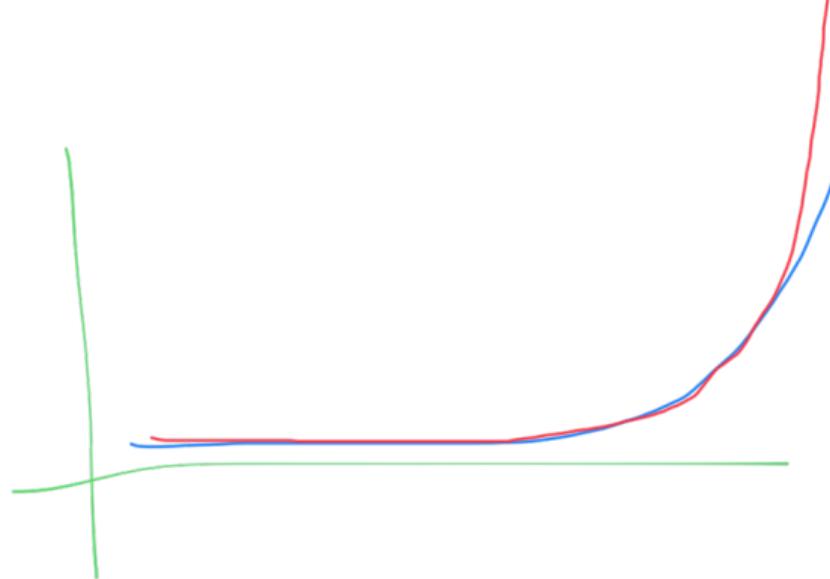
## Trends in inequality

Table: Real Income Growth, USA, 1966-2001

Percentile	Minutes	Percentage Increase
50	30	11
90	54	58
99	59.4	121
99.9	59.94	236
99.99	59.994	617

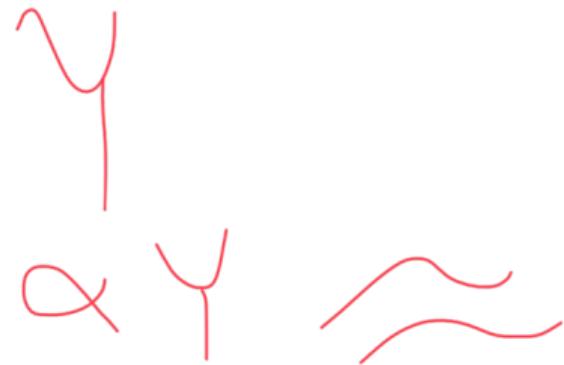
Why is this happening?

- Profits at the expense of wages?



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- Profits at the expense of wages? **NO**
  - No trends in the labor share of national income



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  - No trends in the labor share of national income
- Distribution of productivity growth?

$$\pi = PY - \underbrace{wl}_{\text{Wage}} - rk$$

A hand-drawn diagram illustrates the components of productivity growth ( $\pi$ ). It consists of three overlapping green circles. The top-left circle contains the term "Profits". The bottom-right circle contains the term "Wage". The middle circle, which overlaps both, contains the term "rk". A blue arrow points from the word "Profits" to its corresponding circle. Below the circles, the equation  $\pi = PY - \text{Wage} - rk$  is written, where "Wage" is underlined to indicate it is the sum of the two overlapping areas.

Why is this happening?

$$\pi > w_l$$

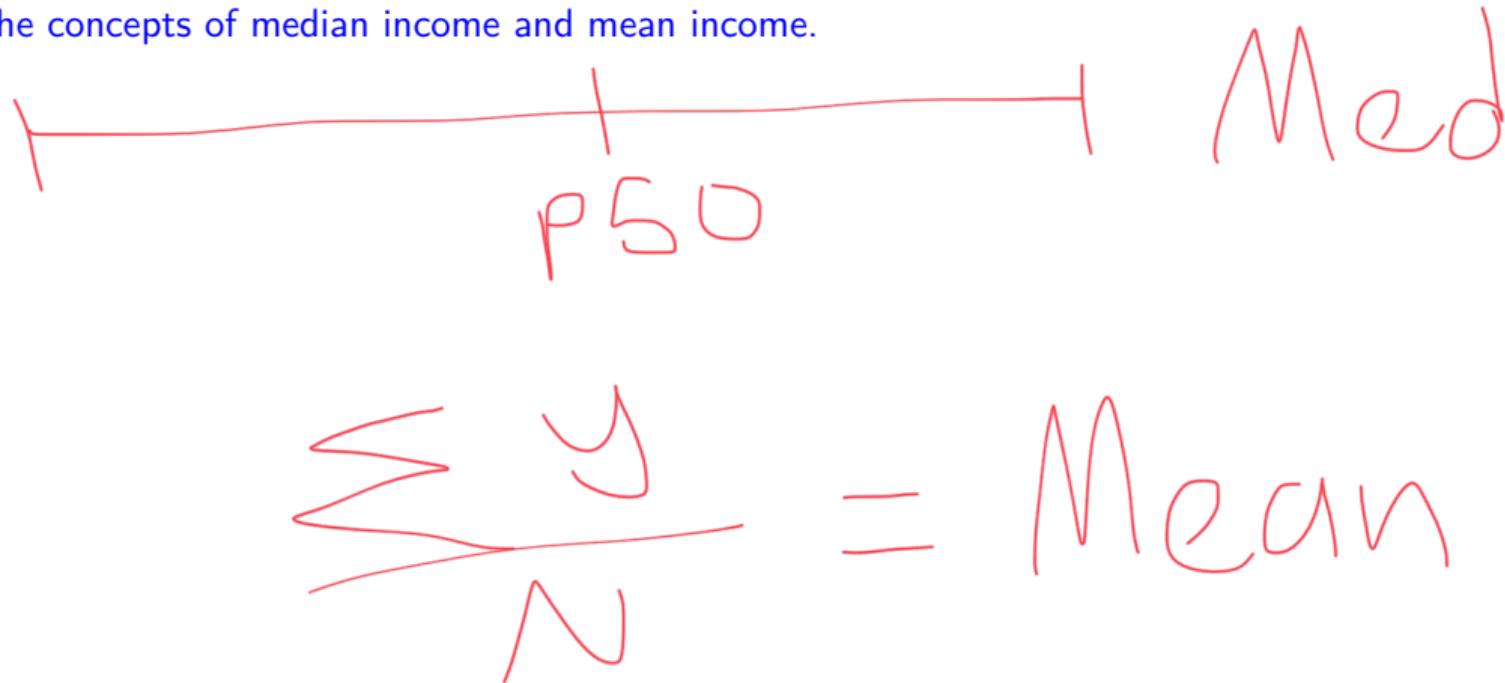
- Profits at the expense of wages? **NO**
  - No trends in the labor share of national income
- Distribution of productivity growth? **YES**
  - Productivity grows but the benefits are unevenly distributed

$$w_{N|N} >> w_{l_1}, w_{l_2}, \dots, w_{N|N}$$

~~π > w<sub>l</sub>~~

## Question 3 (Skip 2)

Explain the concepts of median income and mean income.



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The **median income**

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The **median income** is the income such that half of the households has a lower income and the other half has a higher income.

A handwritten diagram illustrating the concept of median income. It features a horizontal red bracket spanning the width of the page. Inside the bracket, the text "50%" is written in red. Below the bracket, the letters "P50" are written in red, indicating the 50th percentile. Below "P50", the text "30min" is written in red, likely referring to the minimum wage or a related concept.

## Question 3 (Skip 2)

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The **mean or average** income

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The **mean or average** income is just the total income in the economy divided by the total number of households.

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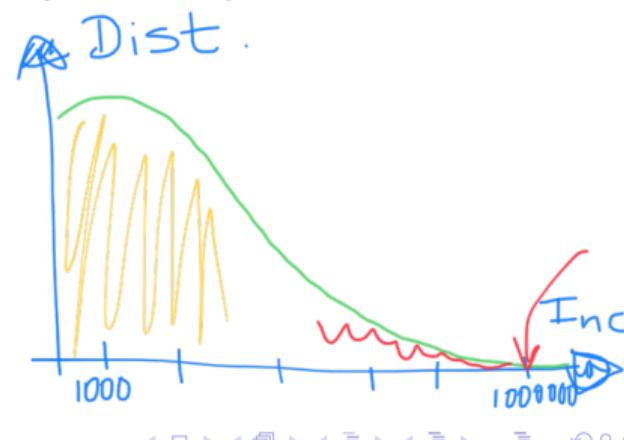
The **median income** is the income such that half of the households has a lower income and the other half has a higher income.

The **mean or average** income is just the total income in the economy divided by the total number of households.

How can the mean income be larger than the median income?

$$y_{\text{Med}} = 1000$$
$$\bar{y} = \frac{y_1 + y_2 + \dots + y_N}{N}$$
$$\bar{y} = 2000$$

Diagram: A yellow stick figure with 1000 written above it is positioned next to the median income value. A green stick figure with 10,000,000 written below it is positioned next to the mean income value.



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The **mean or average** income is just the total income in the economy divided by the total number of households.

How can the mean income be larger than the median income?

- The income distribution some individuals (or households) have extremely high income compared to the rest of the population.
- These individuals are pulling the mean income up above the median income.

# Question 3

Are the rich in France pulling the mean up?

## Question 3

Are the rich in France pulling the mean up? **YES**

## Question 3



Are the rich in France pulling the mean up? YES

In France in 2015, the 10% poorest households (1st decile) earned an annual disposable income lower than 13,630 Euros (i.e. 1,136 Euro per month)

The 10% richest households (9th decile) earned more than 63,210 Euros (i.e. 5,269 Euro per month).

Some individuals earn much more than the cutoff rate of the 9th decile.

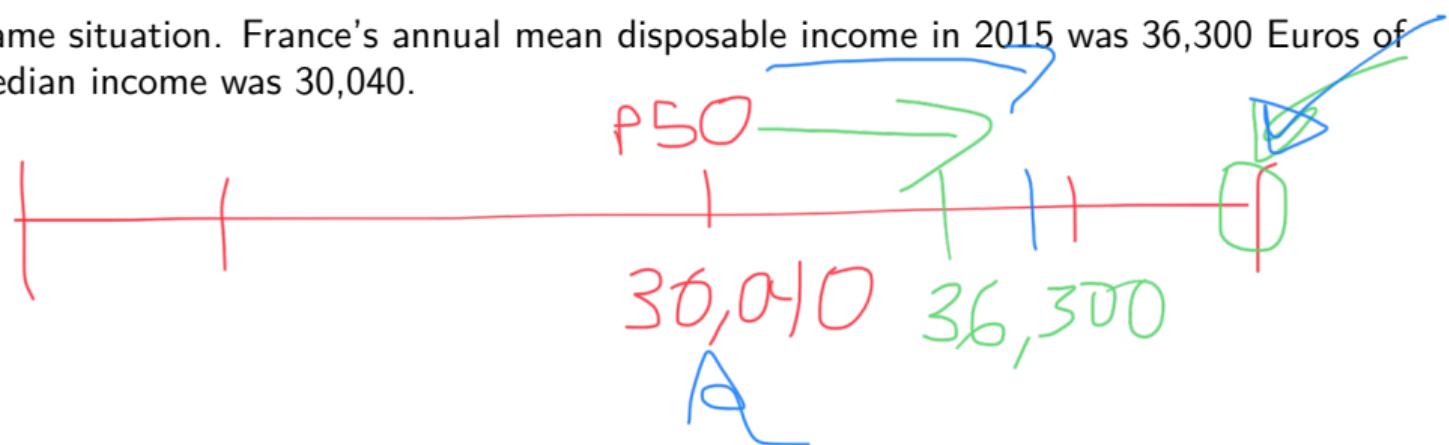
## Question 2

The author says the US and UK median income is lower than the mean income. What about France?

## Question 2

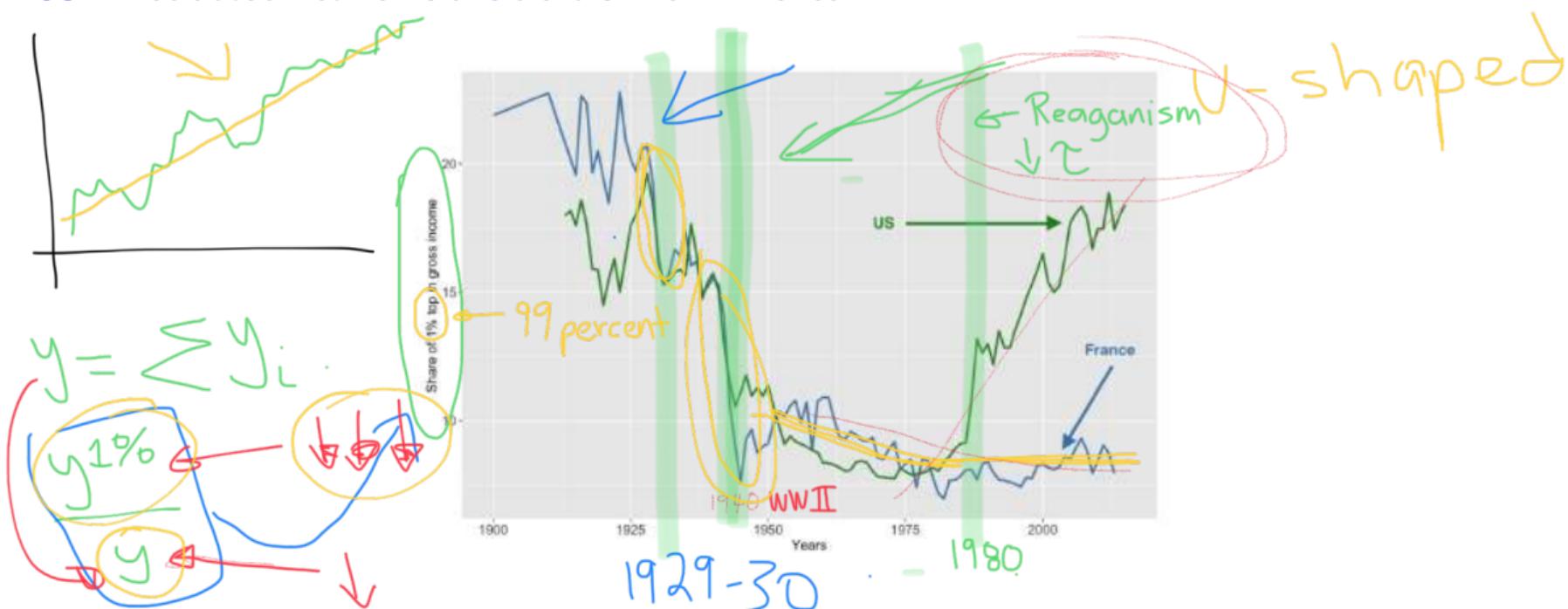
The author says the US and UK median income is lower than the mean income. What about France?

France is in the same situation. France's annual mean disposable income in 2015 was 36,300 Euros of 2015 while the median income was 30,040.



## Question 4

The text describes that the wage of the top earners has been multiplied between 1966 and 2001 in the US. What about income. Is this trend similar in France?



## Question 4

A couple of facts:

- **Inequality** (especially income and wealth inequality) has been mostly **decreasing** in the 20th century, starting with WWI, amplified by the Great Depression and then WWII. This is a common trend over a lot of countries.
- Since the early **1980**, countries diverge in terms of inequality. We can make a broad grouping of Anglo-Saxons countries (US, UK, Australia, etc.) that have seen a somewhat **sharp increase in inequality** since the 1980's. Another group, the Continental Europe group (France, Germany, Italy, etc.) display another story: inequality has been mostly stagnant in those countries after the 1980's.

## Question 5

$$Y = GDP, \text{ Labor share?} : \frac{WL}{Y} = 1 - \alpha \approx 66\% \approx \frac{2}{3}$$

What is the big change in the labor share of national income described by the text in the US?

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The text argues that the labor share in the US national income has remained constant.

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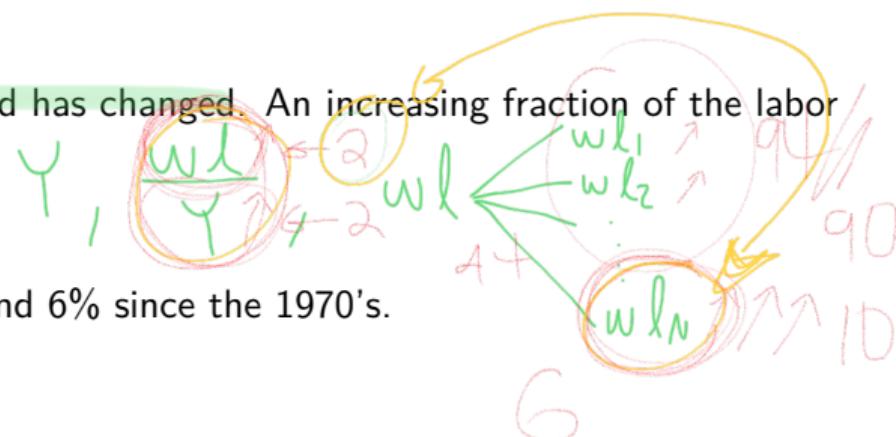
The text argues that the labor share in the US national income has remained constant.

**BUT...**

The composition of how this labor share is distributed has changed. An increasing fraction of the labor share has been going to top earners in the US.

**In France...**

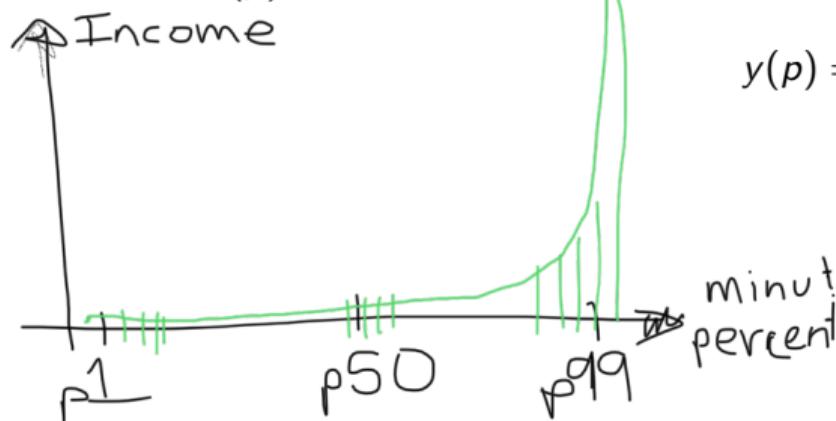
The share of 1% top earners has been stable at around 6% since the 1970's.



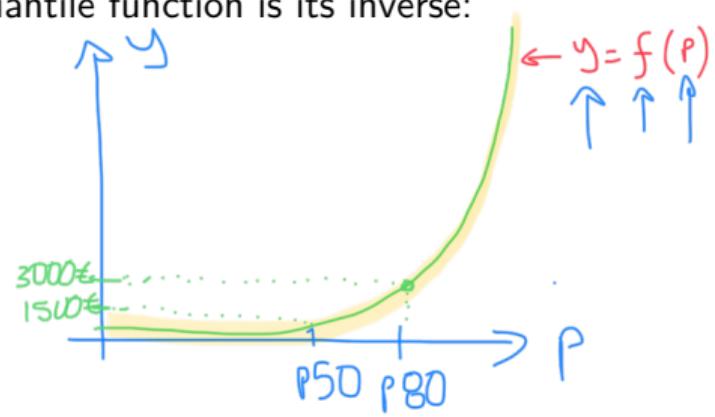
## Question 6

To what statistical tool is Pen's parade closely related to?

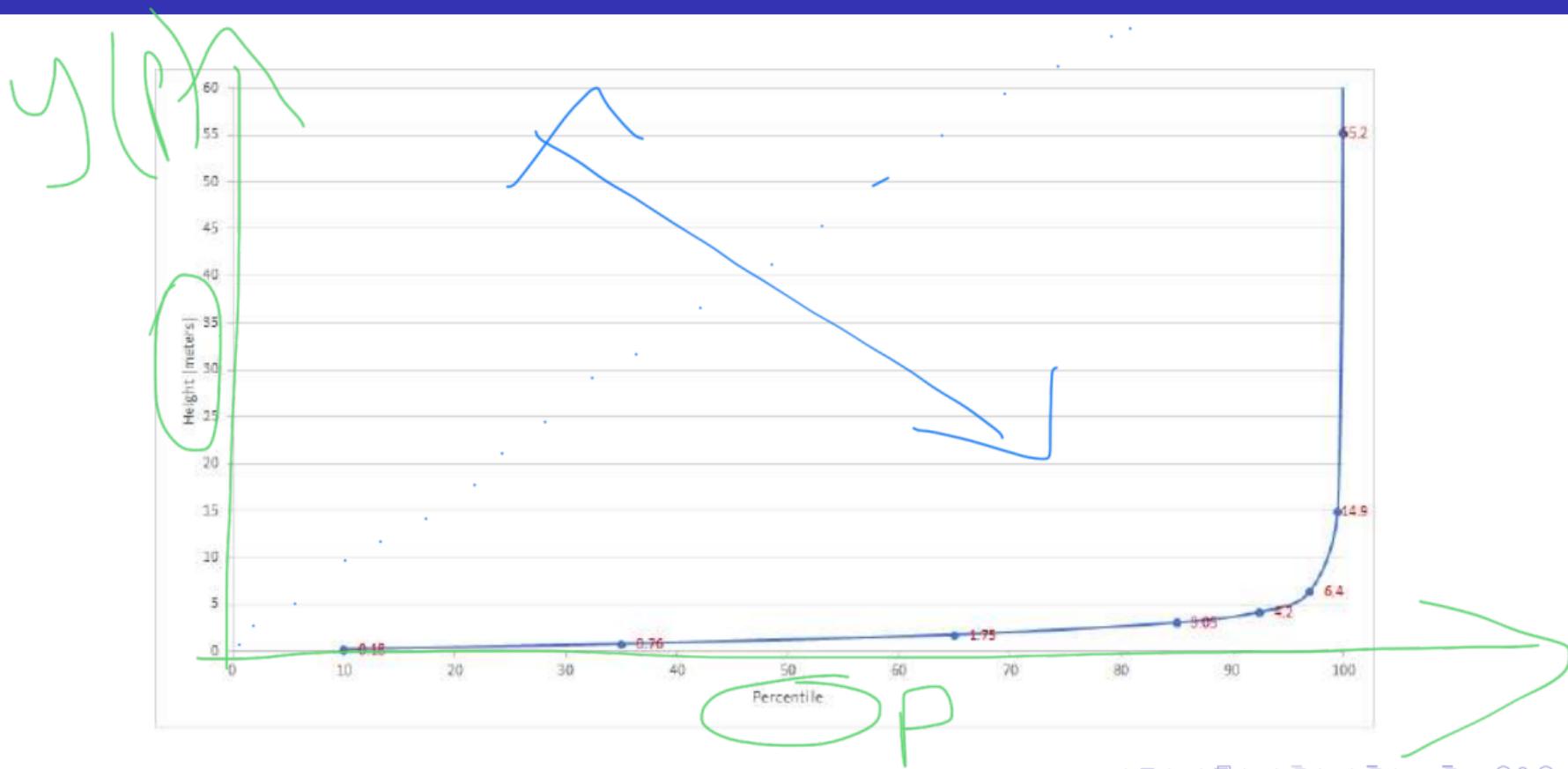
Pen's parade is related to a cumulative distribution of income and even more to its inverse, the quantile function. If  $F(p)$  is the cumulative distribution function, the quantile function is its inverse:



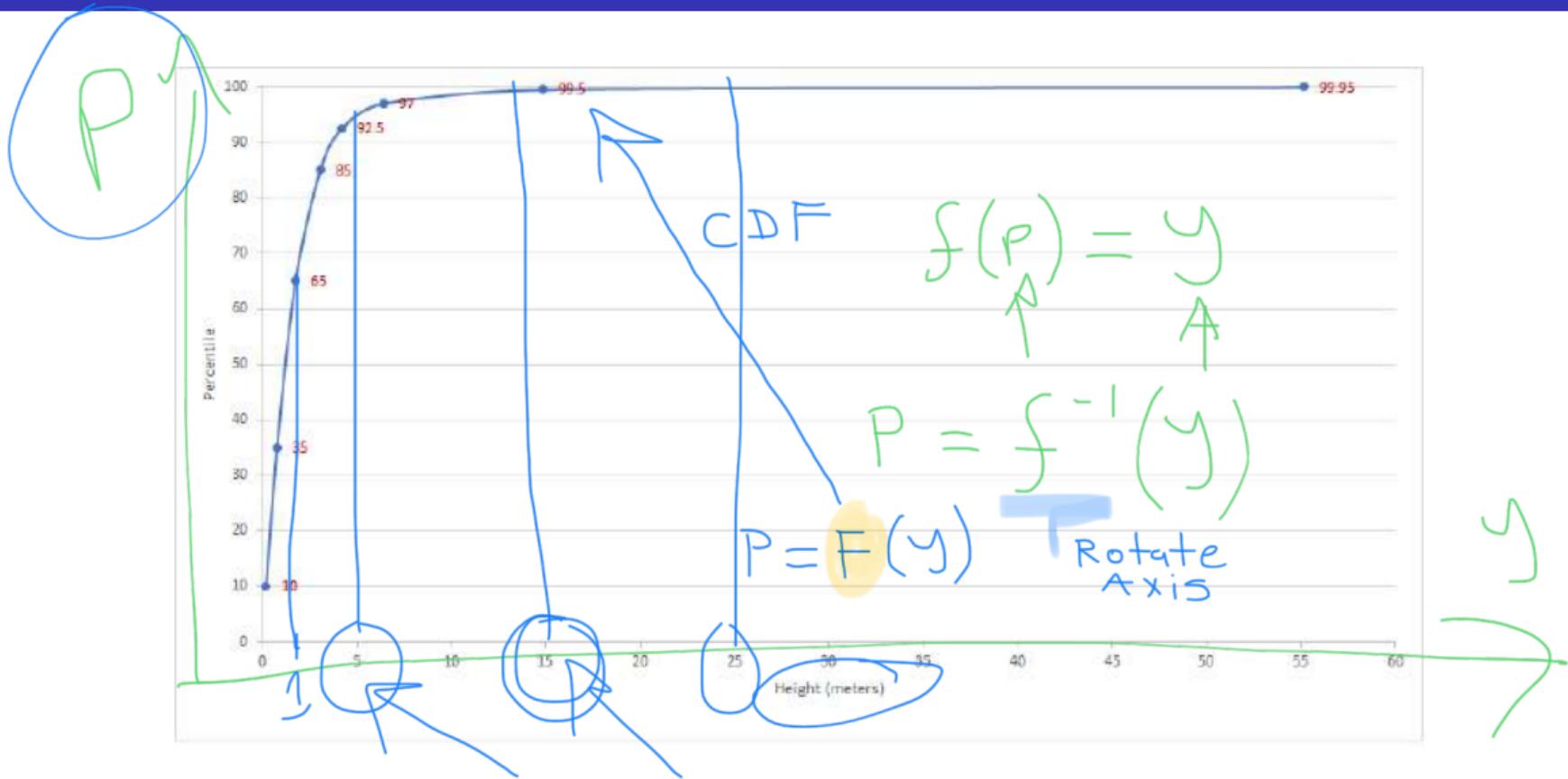
$$y(p) = F^{-1}(p)$$



## Question 6



## Question 6



# Conclusion

- High and increasing income inequality
- Mostly explained by top earners capturing most of the productivity gains
- In France, inequality mostly stagnant as opposed to the USA.

Ineq ←



GINI  
L.C.