Income Inequality in France, 1900-2014: Evidence from Distributional National Accounts (DINA)

Bertrand Garbinti[1], Jonathan Goupille-Lebret[2] and Thomas Piketty [2]

[1]Paris School of Economics, Crest, and Banque de France, [2]Paris School of Economics

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Motivation

1. Previous work on long run income inequality trends in France (Piketty 2001, 2003, Landais 2007) focus on top income shares (top 10%, top 1%) and on fiscal income
2. Here we extend existing series up to 2013, and most importantly we combine fiscal data with national accounts and surveys in order to produce 1900-2013 series covering the entire income distribution (from bottom to top) and all forms of labor and capital incomes (taxable and tax exempt)

The DINA project

- Part of a broader multi-country project: World Wealth and Income database
  - Distributional National Accounts (DINA)
- Provide long-term series on distribution of income and wealth
  - Homogeneous across countries and over time
  - Consistent with National Income and Wealth Accounts
  - Covering all the distribution from bottom to top
  - US: Piketty, Saez, Zucman (2016), Sweden: Lundberg and Waldenström (2016), UK: Alvaredo, Atkinson and Morelli (2016), Spain: Toledano (2016) . . .
- For France: two papers
  - Last month: Wealth
  - Today: Income

WORLD BY COUNTRY DATA WORLD WEALTH & INCOME DATABASE METHODOLOGY ABOUT US NEWS EN

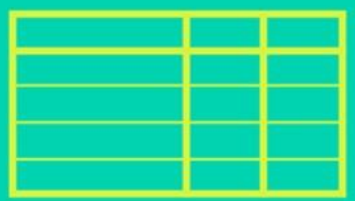
WORLD VIEW

Compare inequality between countries on an interactive world map

COUNTRY GRAPHS

Follow the evolution of inequality within countries with user-friendly graphs

DATA TABLES



Download our open-access datasets

Literature

- Previous attemps to combine distributional tax data to national accounts:
  - US: King (1927, 1930), Kutznets (1941, 1953), Piketty & Saez (2003)
  - France: Piketty (2001,2003), Landais (2007), Landais, Piketty and Saez (2011)

  Some progress using tax data, but insufficient
  - Tax data miss tax exempt income
  - Silent on post-tax and transfer income
  - Silent on distribution of the bottom 90
- Other attempts to combine surveys with NA: OECD (Fesseau, Wolff and Mattonetti (2012), Fesseau and Mattonetti (2013)); National level: France: Bellamy and ali (2009), US: Fixler et al. (2015),...

$\Rightarrow$ Need for combining tax data, surveys and National Accounts in a more systematic way: **Distributional National Accounts (DINA)**

This paper

We combine income tax data covering 1915-2013 period with national accounts, survey data and inheritance tax data 1800-2010 in order to produce:

- consistent unified income inequality series for France 1900-2013 (and 1800-2013 for wealth inequality series)
- detailed breakdown by age, gender, income and asset categories for 1970-2013

Main Findings

1. We confirm and update previous findings about long run inequality dynamics: huge fall 1914-1945, rise 1945-1968, decline 1968-1983, rise 1983-2013. Recent decades: moderate rise, except at the very top; reinforcing impact of missing capital income and changing family structure
2. Long run inequality fall: entirely due to fall in concentration of wealth and capital income. But rising inequality of saving rates and rates of return could lead to further increase in wealth concentration in coming decades. Steady-state simulations
3. Declining gender inequality. . . but not so much for high wages
4. France vs US: much bigger rise in inequality in the US; bottom 50% real income is now much smaller in the US than in France

Outline of the talk

Data and methodology

The long-run picture

The role of capital income and wealth concentration

Labor income: the limited decline of gender inequality

France vs US and the bottom 50%

Conclusion and perspectives

Outline

Data and methodology (1/2)

- **Income tax returns: 1915-2013**
  - Income tax created in 1914, first applied in 1915
  - Finance Ministry estimate for 1900 and 1910
  - Annual exhaustive tabulations from 1915 to 2013
  - Microfiles from 1970 to 2012
    - ERFS surveys: 1970, 1975, 1979, 1984 (40,000 tax units)
    - Annual from 1988 (400,000 tax units per year, all top incomes included)
    - Exhaustive for recent years (2010-2012)
- **National account series**
  - INSEE (French national statistical institute) annual series 1949-2015
  - Historical series since 1820 provided by Piketty-Zucman (2014)
- **Household surveys:**
  - Wealth surveys (“Enquete Patrimoine”) 1986, 1992, 1998, 2004 and 2010
  - Housing surveys (“Enquete Logement”) 1970, 1973, 1978, 1984, 1988, 1992, 1996, 2001, 2006 and 2013

Data and methodology (2/2)

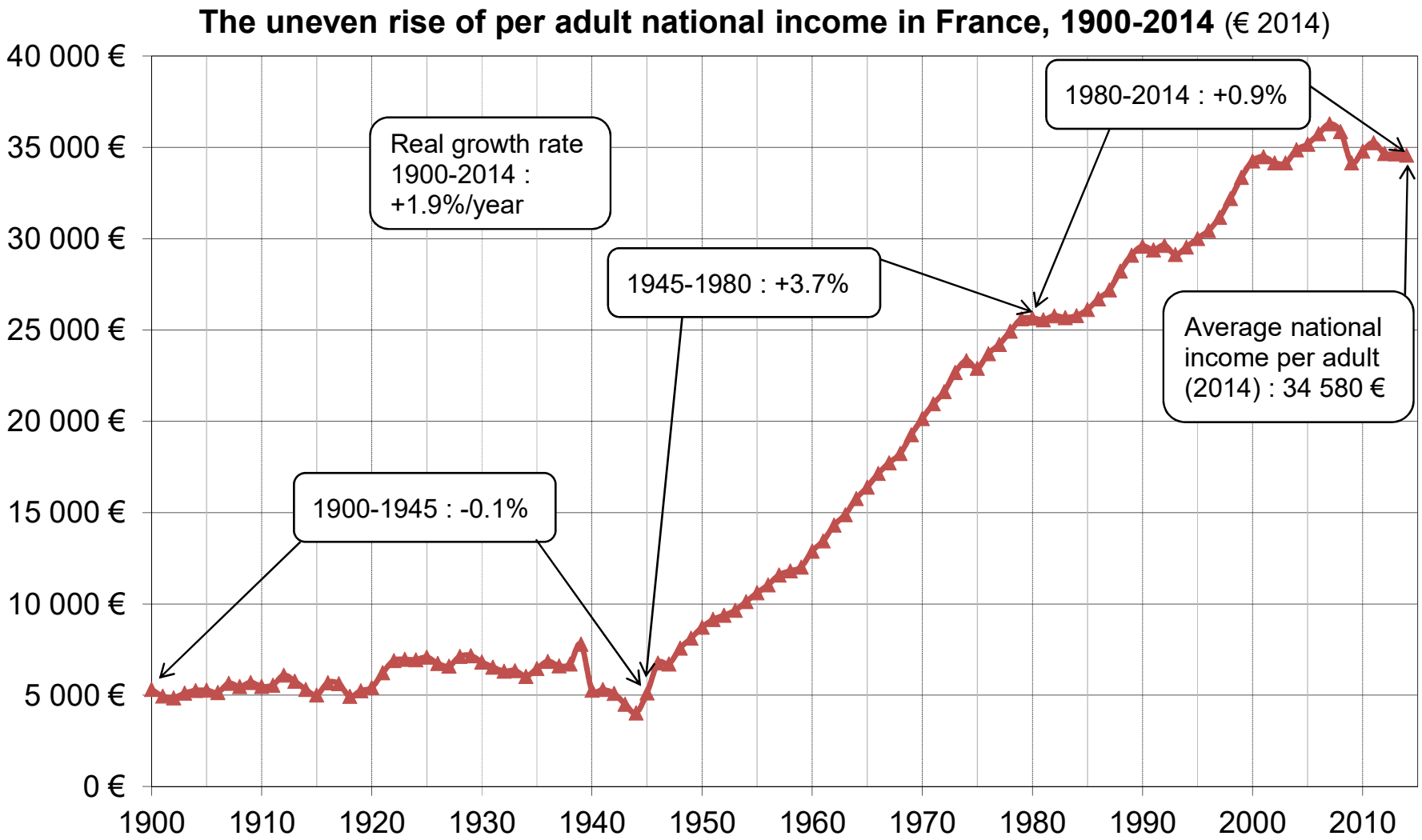
- We start from income tax micro-files 1970-2012
- Using income tax tabulations 1900-2013, we apply generalized Pareto interpolation techniques (Fournier 2016; = non-parametric generalization of techniques used in historical income distribution literature: Kuznets 1953, Piketty 2001, etc.) in order to generate series by income percentiles (from bottom to top) : results are quasi-identical to micro-files series over period 1970-2012 ▸ details
- We impute tax-exempt labor and capital incomes (including imputed rent, retained earnings, corporate tax, etc.) using national accounts and wealth and housing surveys
- Preferred series: distribution of pretax national income (before all taxes and transfers, except pensions and unemployment insurance), among adults (equal-split series: income of couples divided by two)
- We also compare with fiscal-income series and tax-units series, and fully individualized series
- Next step: after-tax after-transfers series (to be done)

Outline

The long-run picture (1/2)

- Long-run fall in inequality: top 10% income share dropped from about 50% in 1910 to about 35% in 2010, to the benefit of bottom 50% share (15% $\rightarrow$ 20%) and middle 40% share (35% $\rightarrow$ 45%)
- Uneven and chaotic process: huge inequality fall 1914-1945 (capital shocks), rise 1945-1968 (reconstruction of wage hierarchy and capital share), decline 1968-1983 (compression of wage inequality, steep rise of minimum wage, declining capital shares), rise 1983-2007 (reverse evolution as 1968-1983)
- Rising top income inequality 1983-2013: moderate impact on top 10% income share, but very large impact on top 1% and top 0.1%. Exacerbates the perception of growth slowdown for the rest of the population (The “30 Glorious Years” are not over for everyone). Drop in very top shares since 2008, but in 2013 they are still much higher than in 1980s.

The long run picture



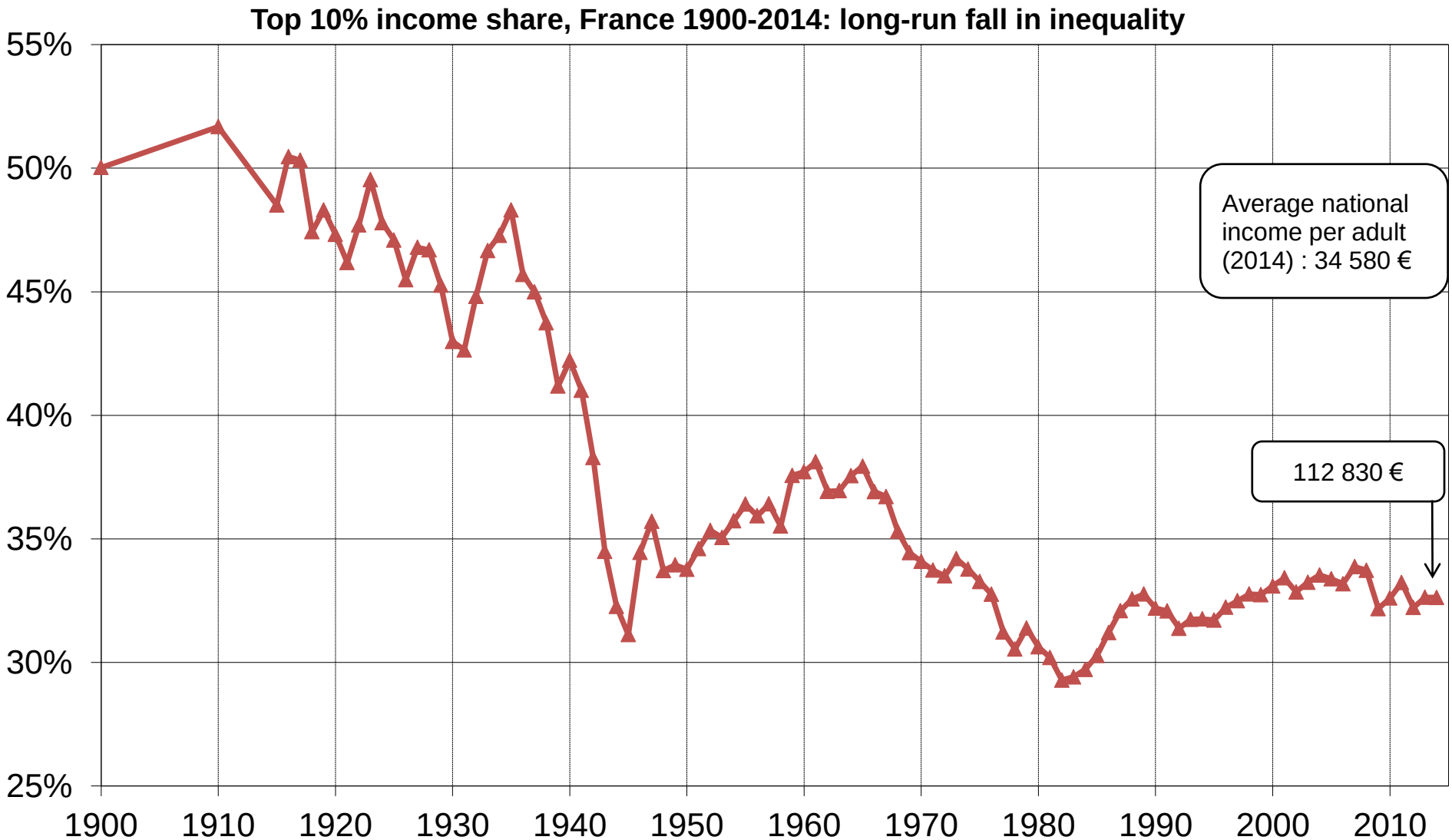
National income divided by adult population. National income = GDP - capital depreciation + net foreign income.

TABLE 1 – Income thresholds and income shares in France, 2013

Income group	Number of adults	Income threshold	Average income	Income share
Full Population	51 721 510	0 €	34 580 €	100,0%
Bottom 50%	25 860 755	0 €	15 500 €	22,4%
Middle 40%	20 688 604	27 520 €	38 810 €	44,9%
Top 10%	5 172 151	58 070 €	112 830 €	32,6%
incl. Top 1%	*517 215*	*167 090 €*	*373 330 €*	*10,8%*
incl. Top 0.1%	*51 722*	*563 730 €*	*1 277 960 €*	*3,7%*
incl. Top 0.01%	*5 172*	*2 072 470 €*	*4 470 980 €*	*1,3%*
incl. Top 0.001%	*517*	*7 222 080 €*	*13 639 860 €*	*0,4%*

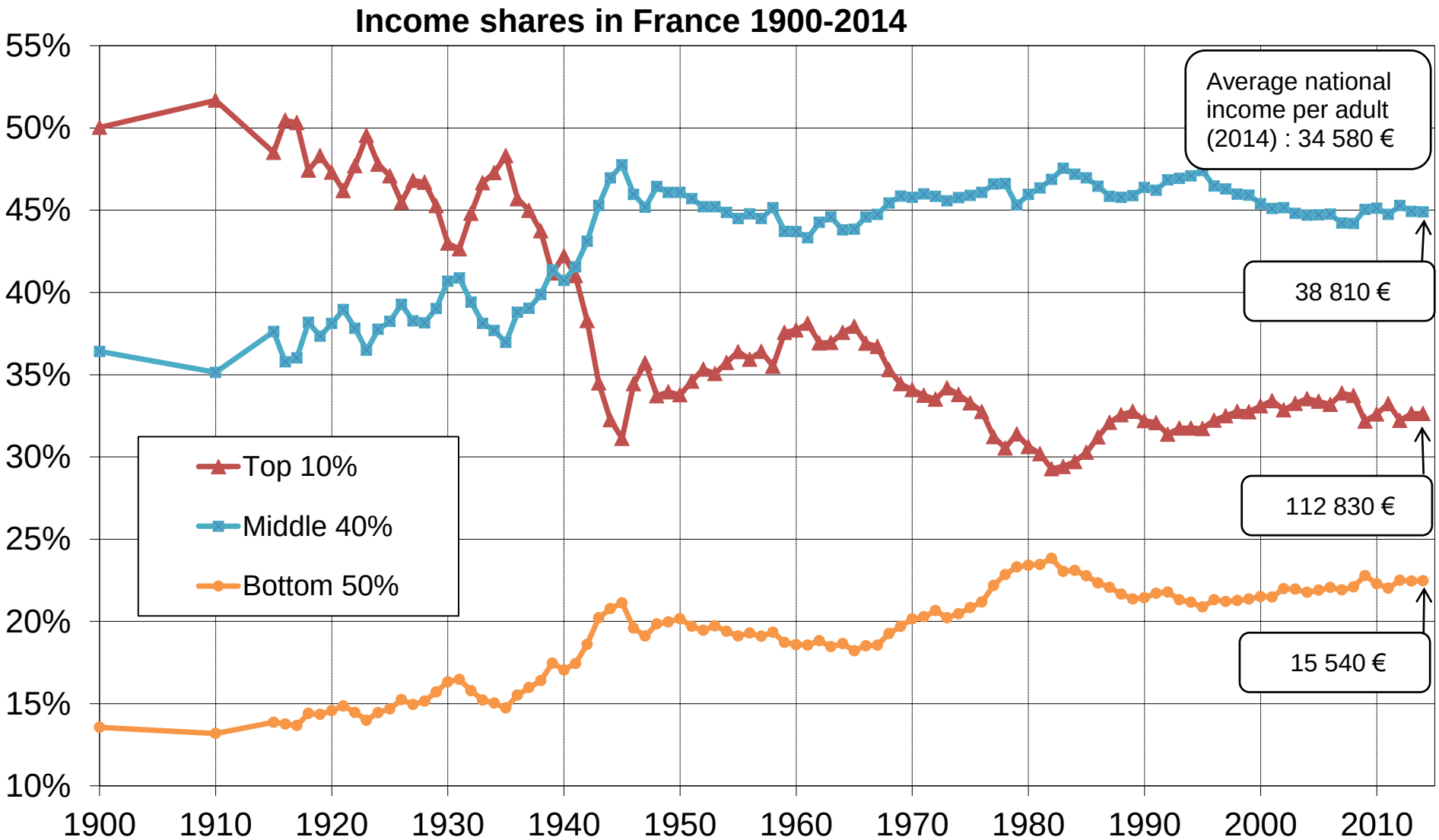
This table reports statistics on the distribution of national income in France in 2013. The unit is the adult individual (20-year-old and over; income of married couples is splitted into two). Fractiles are defined relative to the total number of adult individuals in the population.

The long run picture



Distribution of pretax national income (before all taxes and transfers, except pensions and unempl. insurance) among adults. Equal-split-adults series (income of married couples divided by two).

The long run picture



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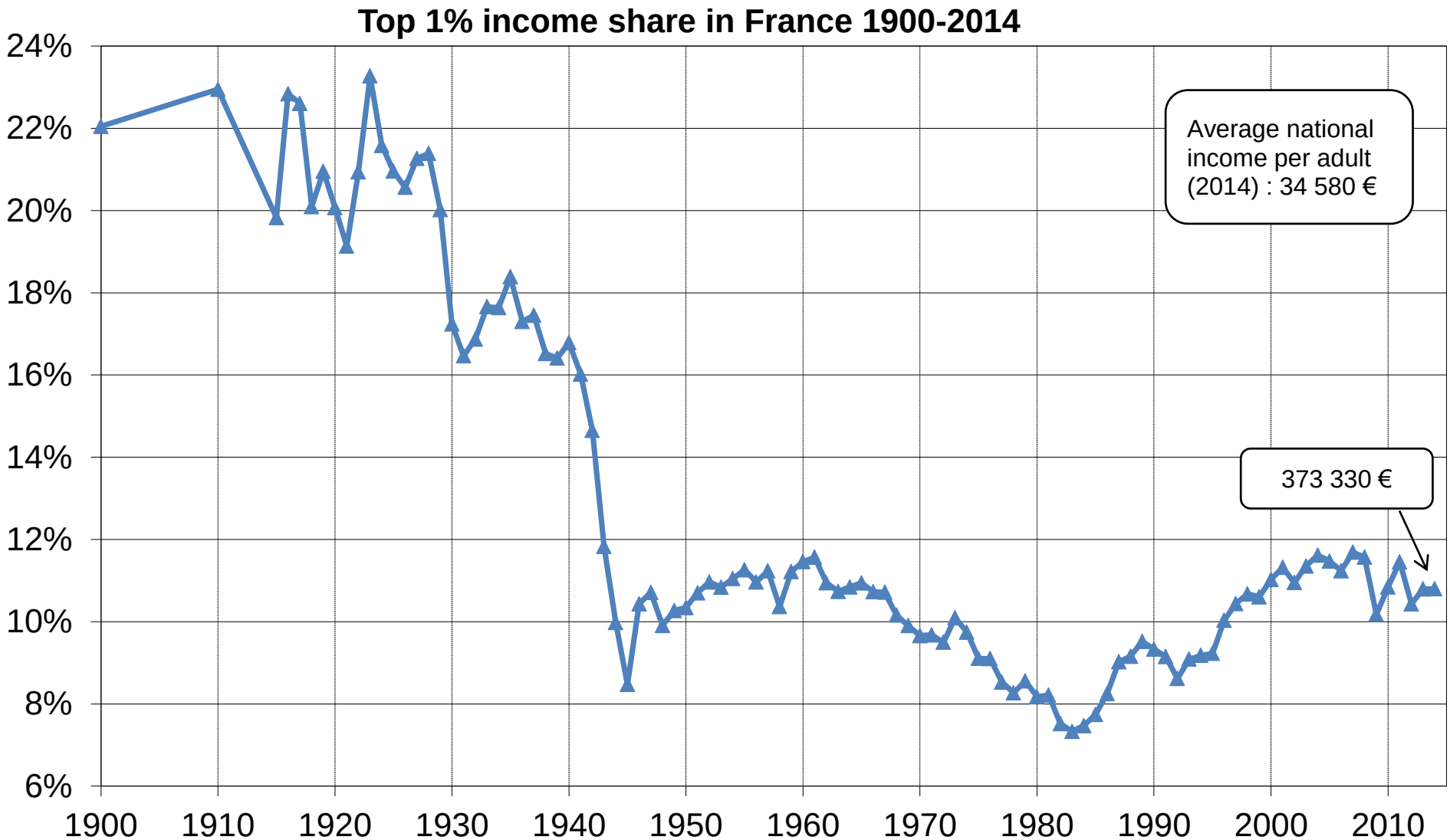
The long run picture



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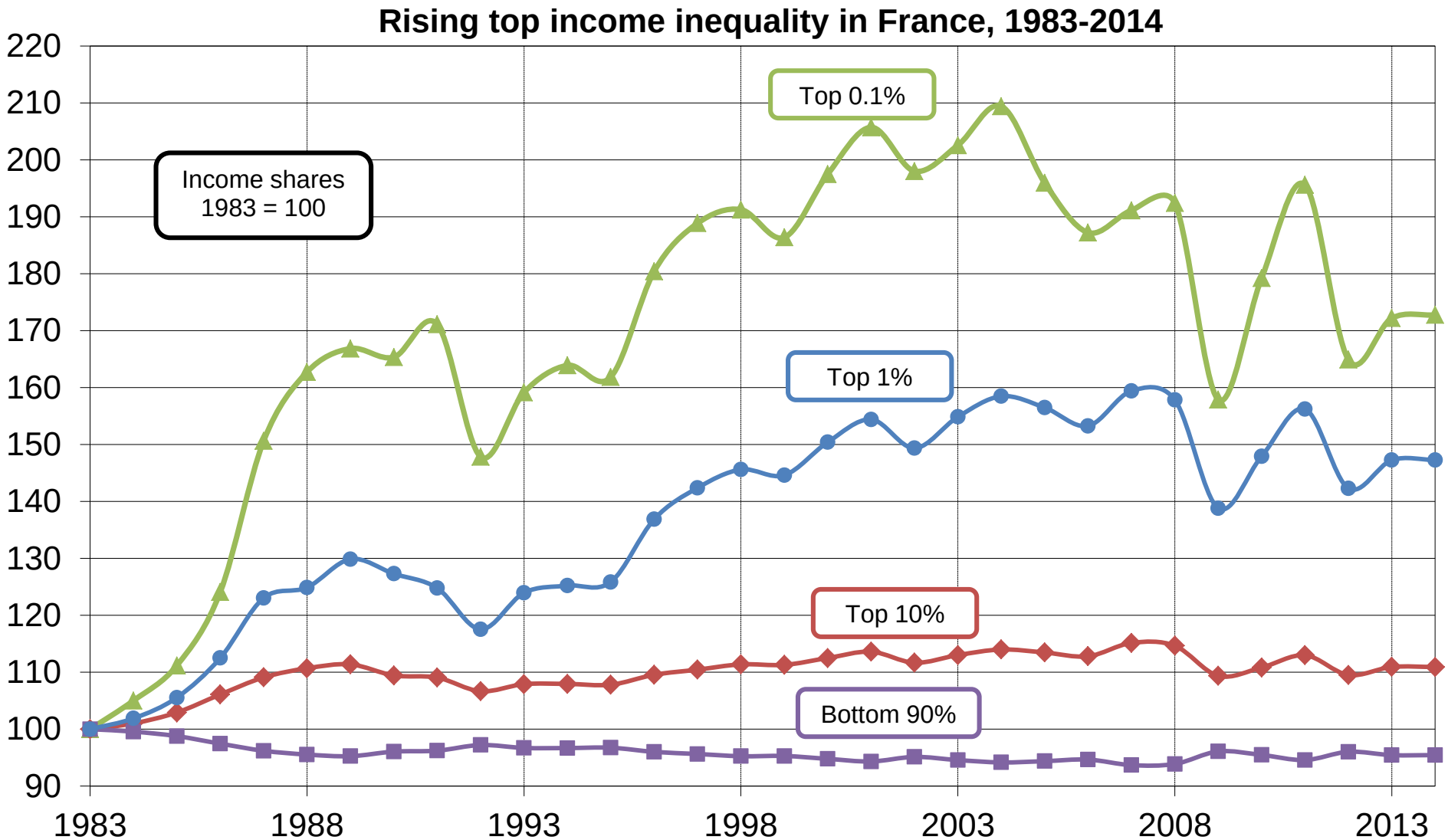
The long run picture



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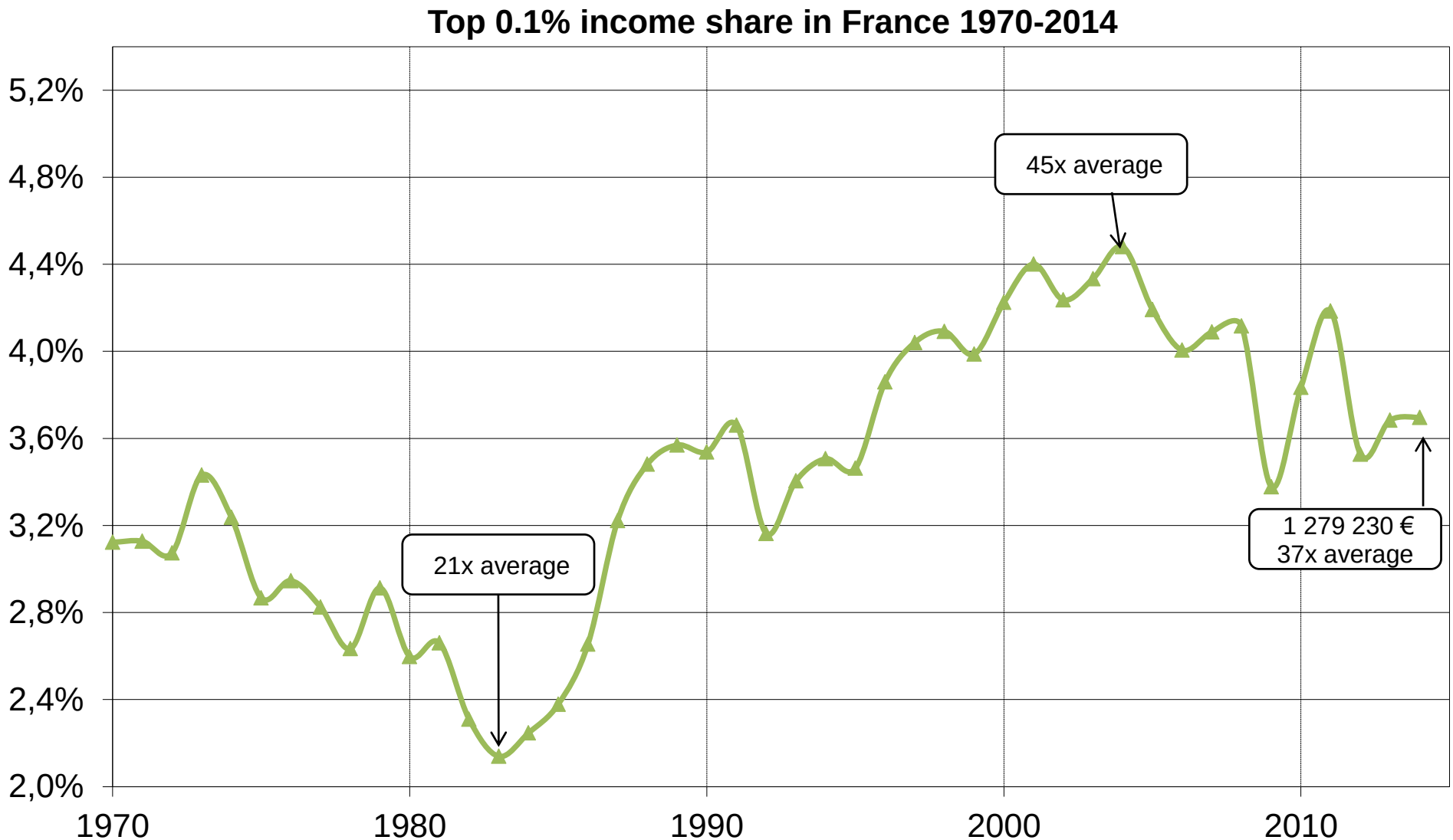

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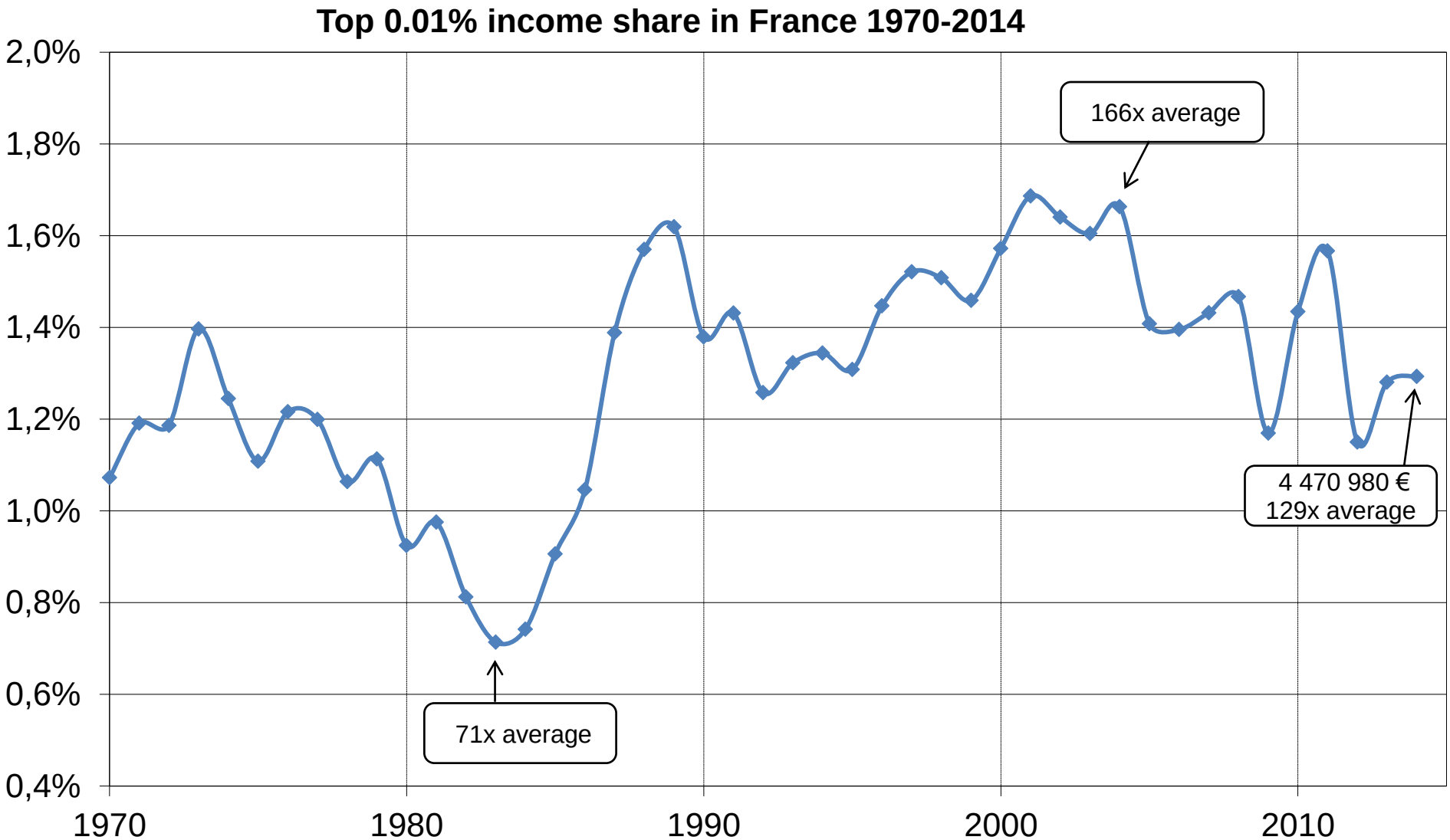

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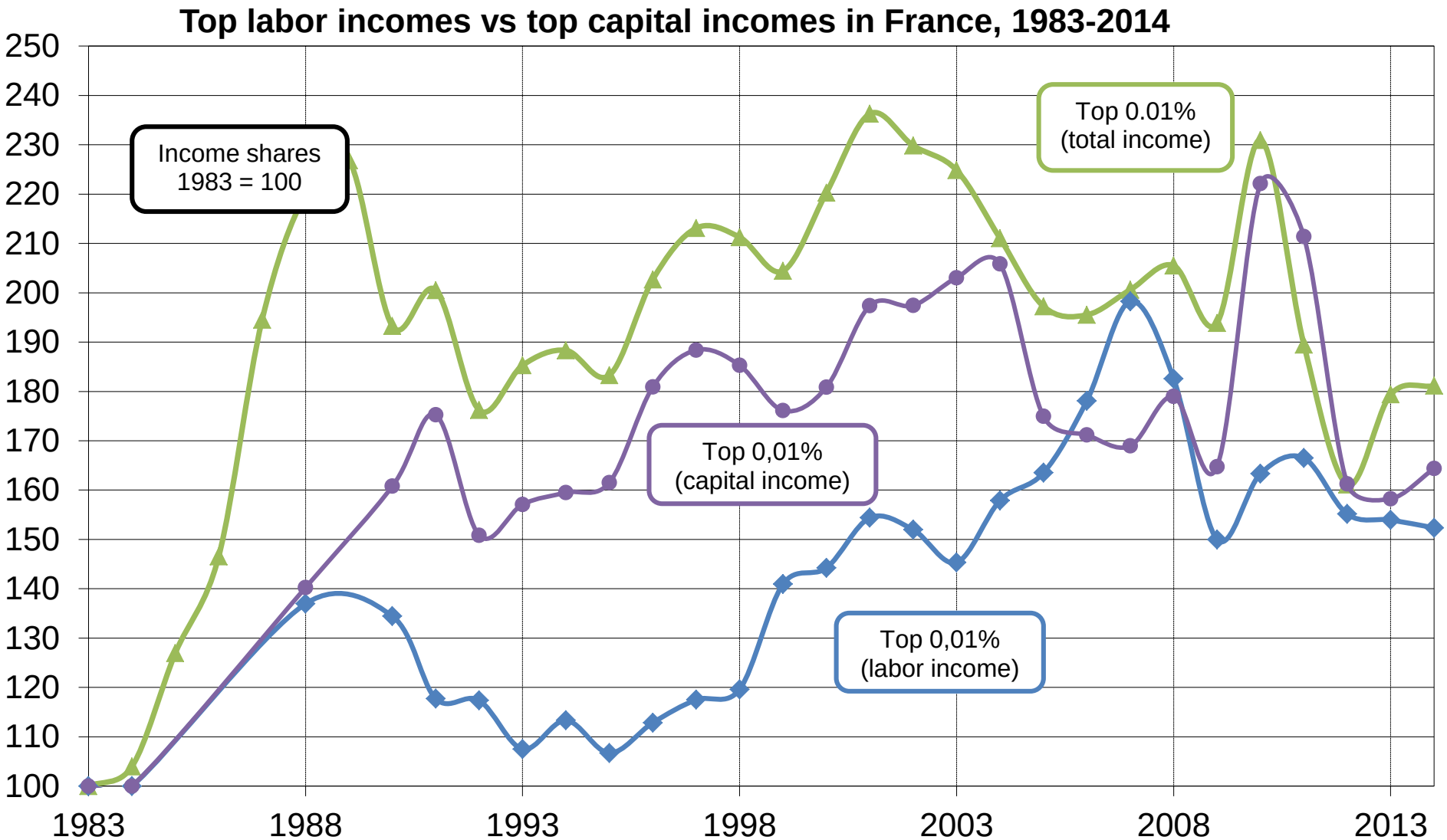
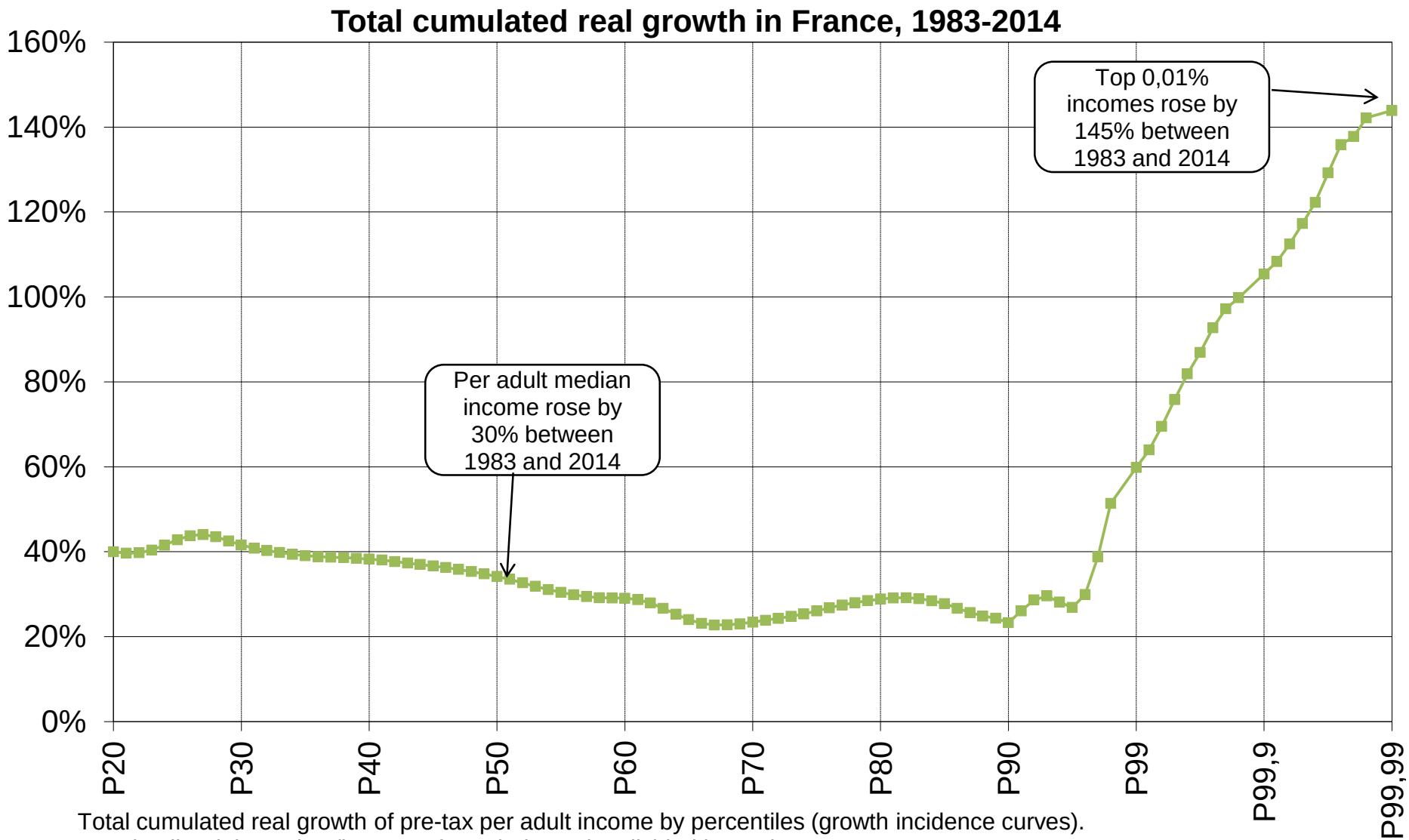
The long run picture



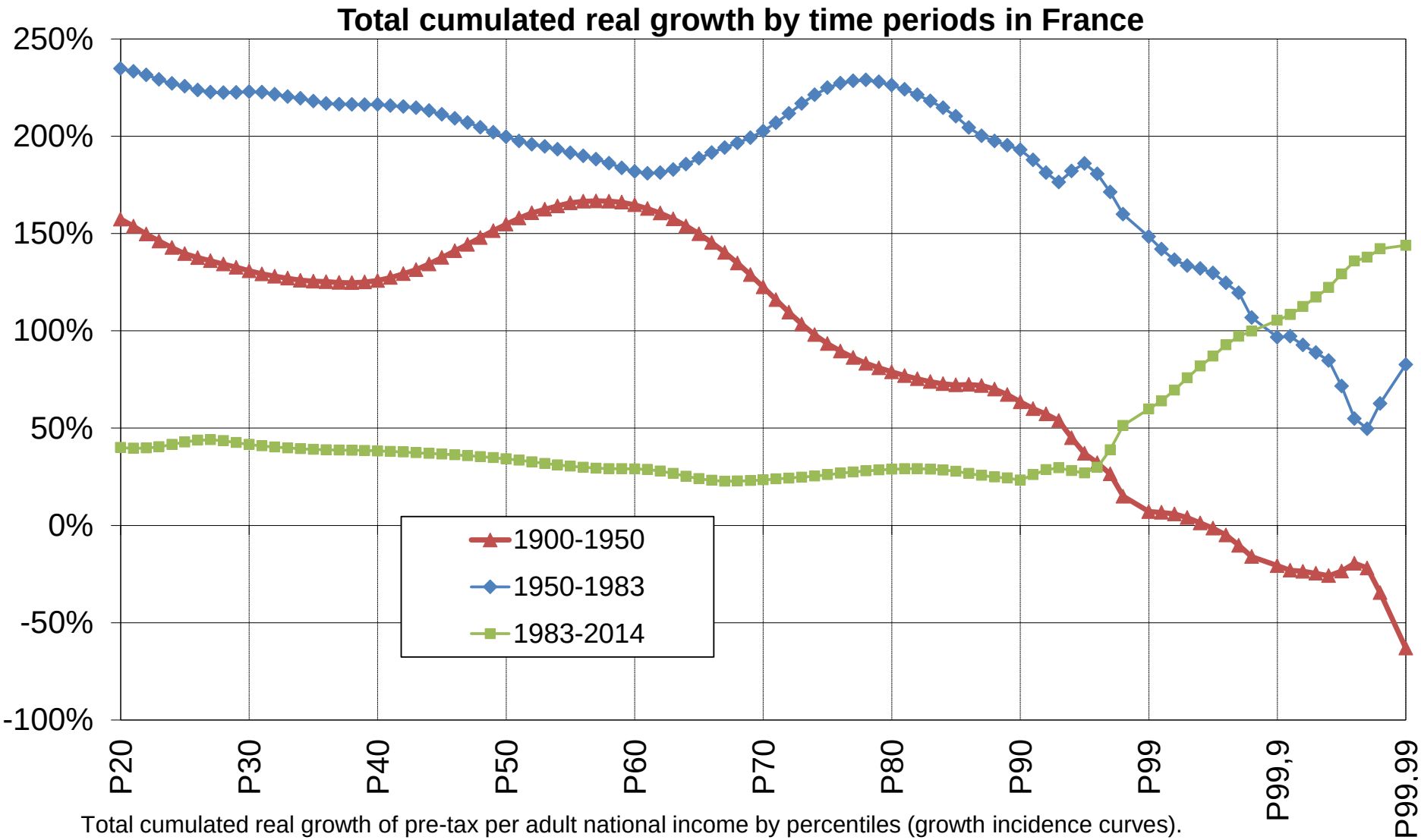
Distributions of total income, capital income and labor income among adults.
Equal-split-adults series (income of married couples divided by two).

The long run picture



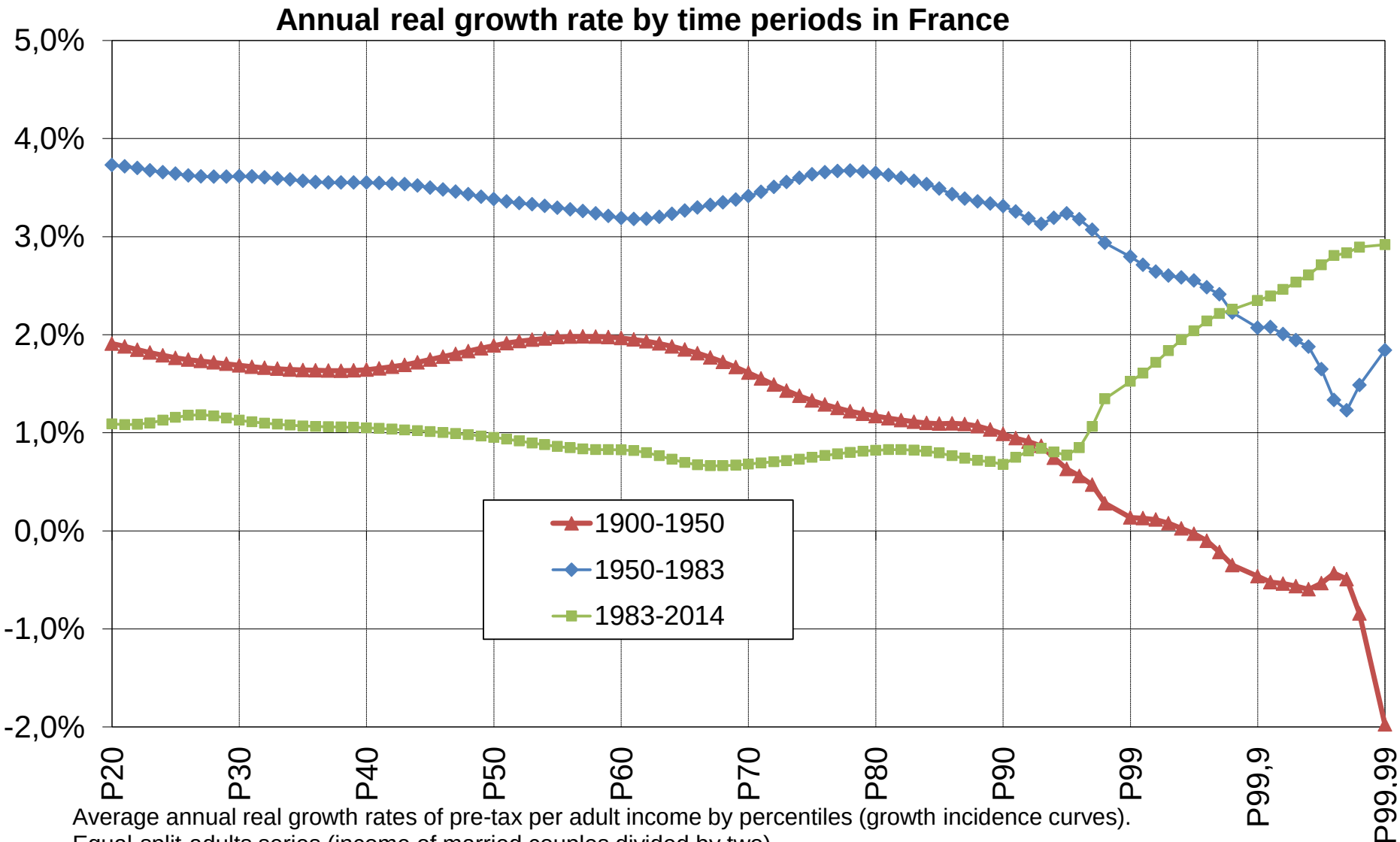
Total cumulated real growth of pre-tax per adult income by percentiles (growth incidence curves).
Equal-split-adults series (income of married couples divided by two).

The long run picture



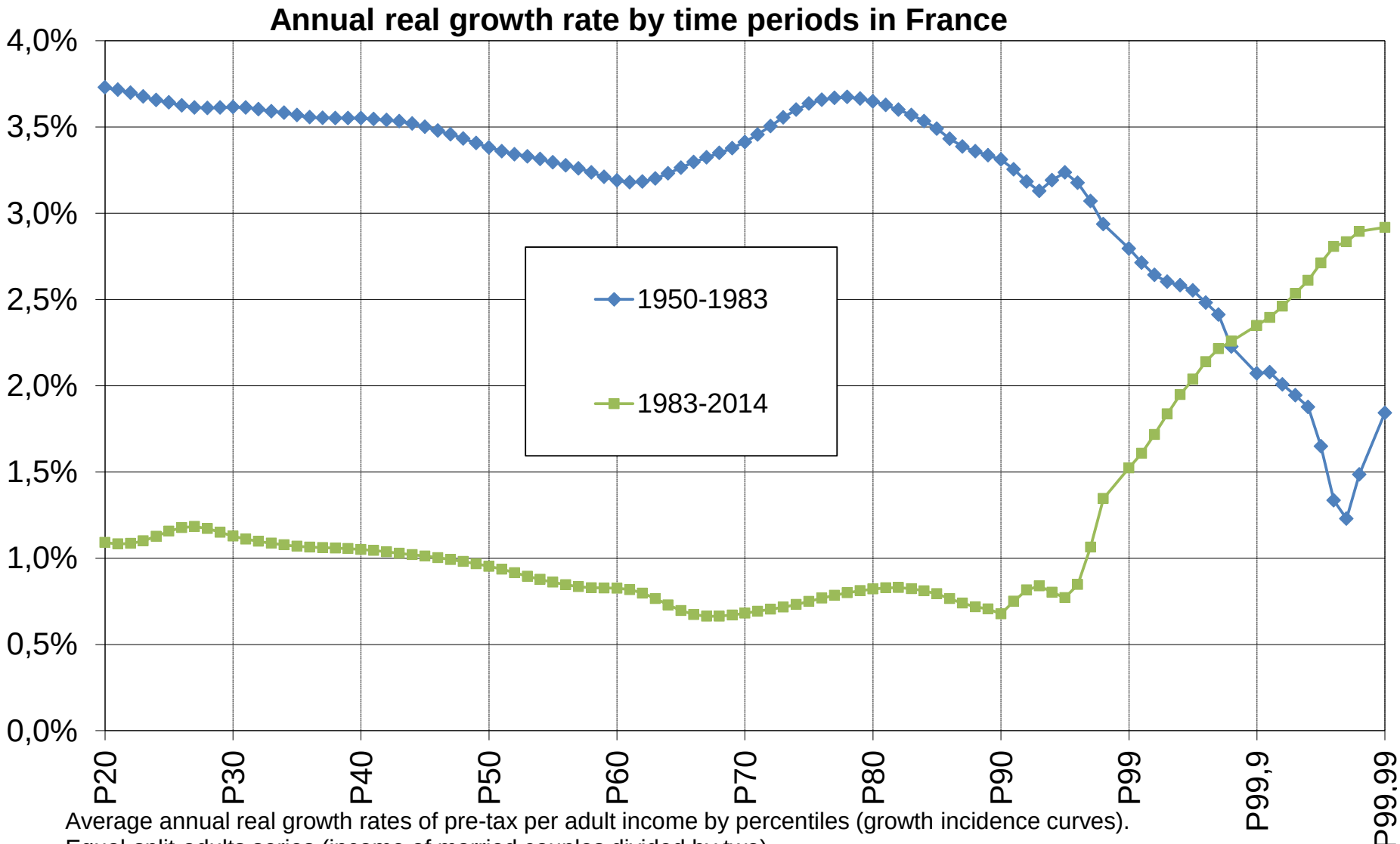
Total cumulated real growth of pre-tax per adult national income by percentiles (growth incidence curves).
Equal-split-adults series (income of married couples divided by two).

The long run picture



Average annual real growth rates of pre-tax per adult income by percentiles (growth incidence curves).
Equal-split-adults series (income of married couples divided by two).

The long run picture

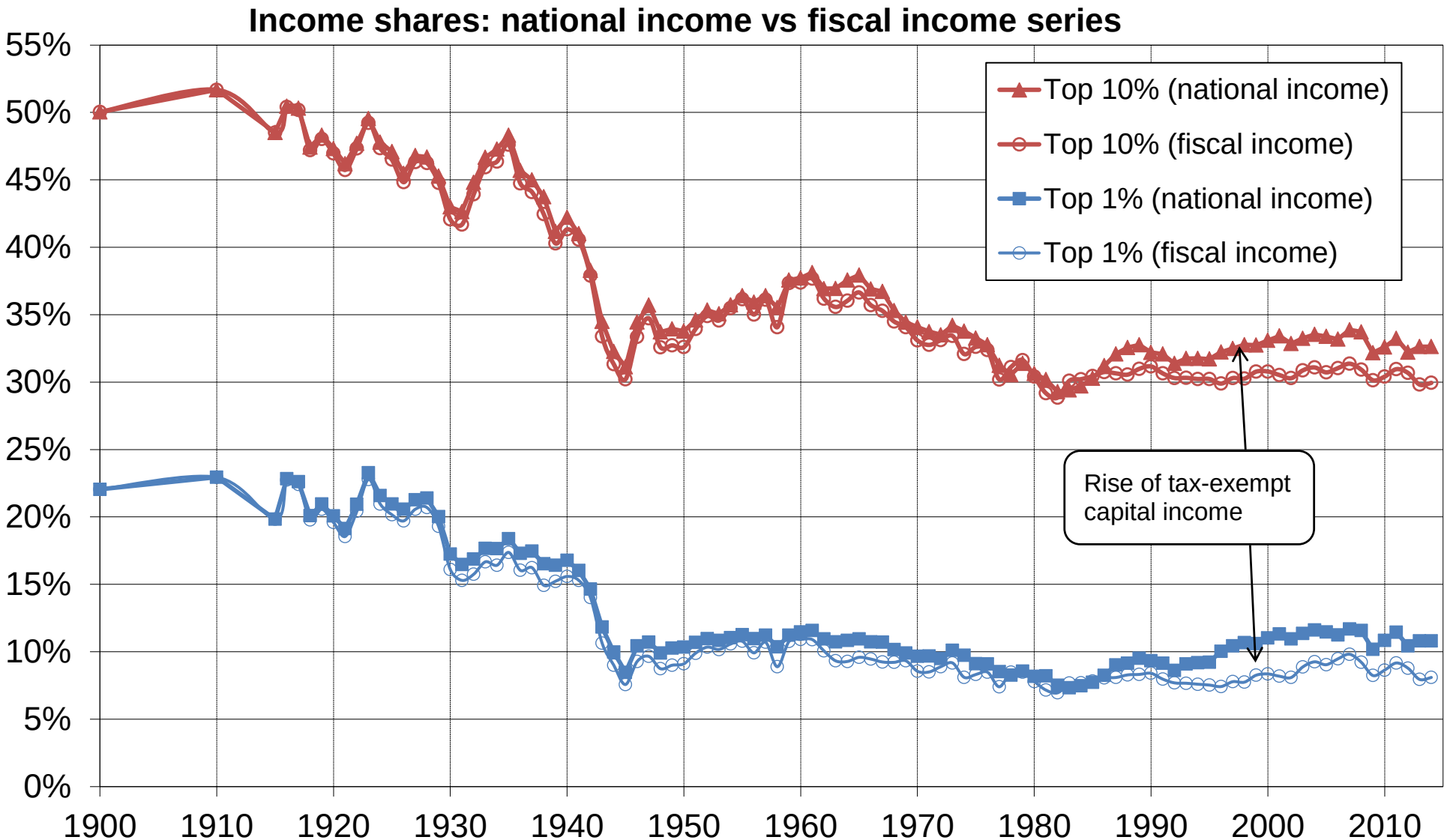


Average annual real growth rates of pre-tax per adult income by percentiles (growth incidence curves).
Equal-split-adults series (income of married couples divided by two).

The long-run picture (2/2)

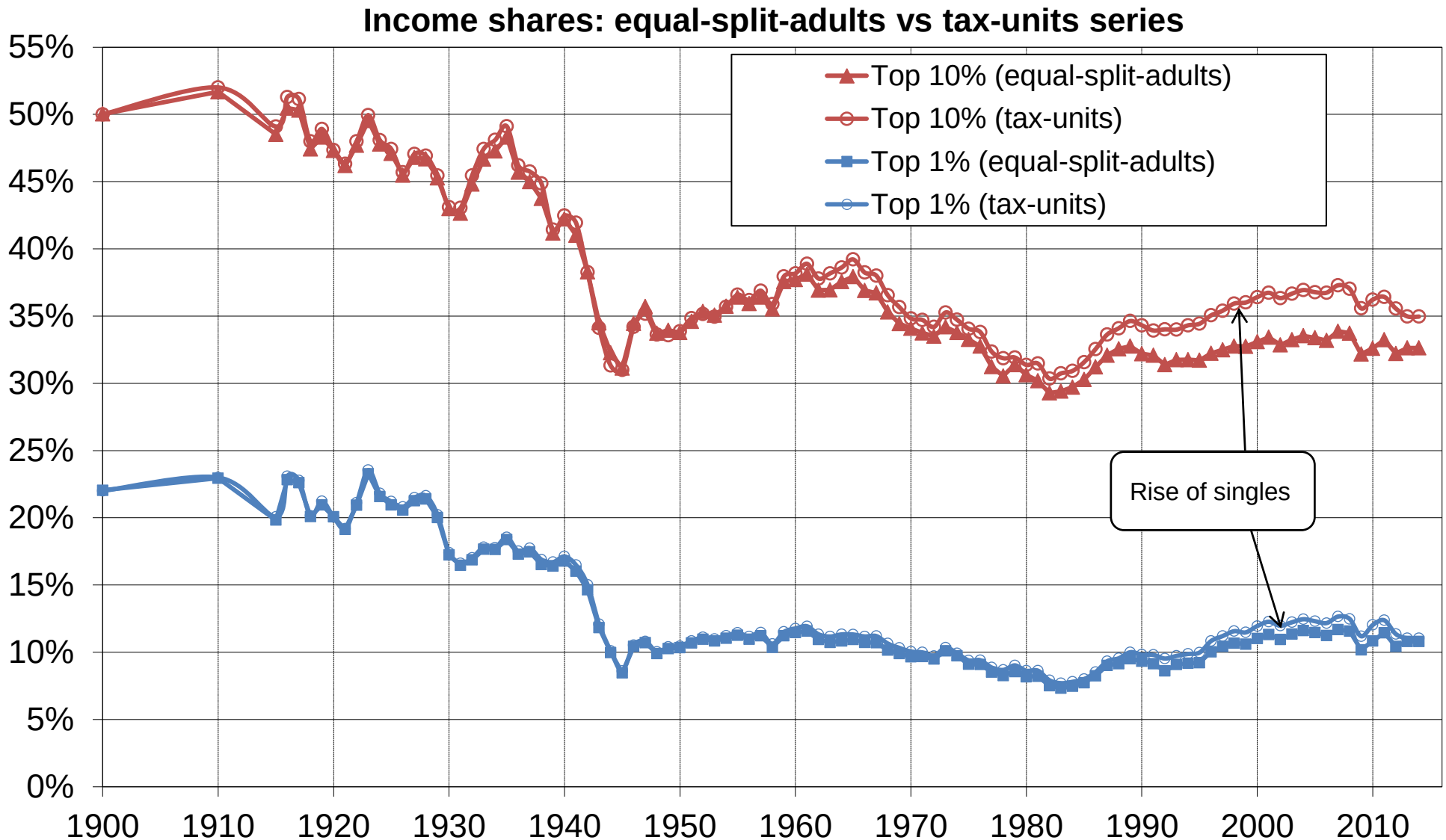
- New inequality series using national income show bigger rise in inequality than previous fiscal income series, because of rise of tax-exempt capital income (life insurance, retained earnings, capital gains, rent, etc.)
- Rising inequality would be even higher at the tax-unit level (rise of singles) than in our benchmark equal-split adult-level series (income of couples divided by two)

The long run picture



Distribution of pretax national income (incl. tax-exempt labor and capital income) vs pretax fiscal income (reported on income tax returns). Equal-split-adults series (income of married couples divided by two).

The long run picture

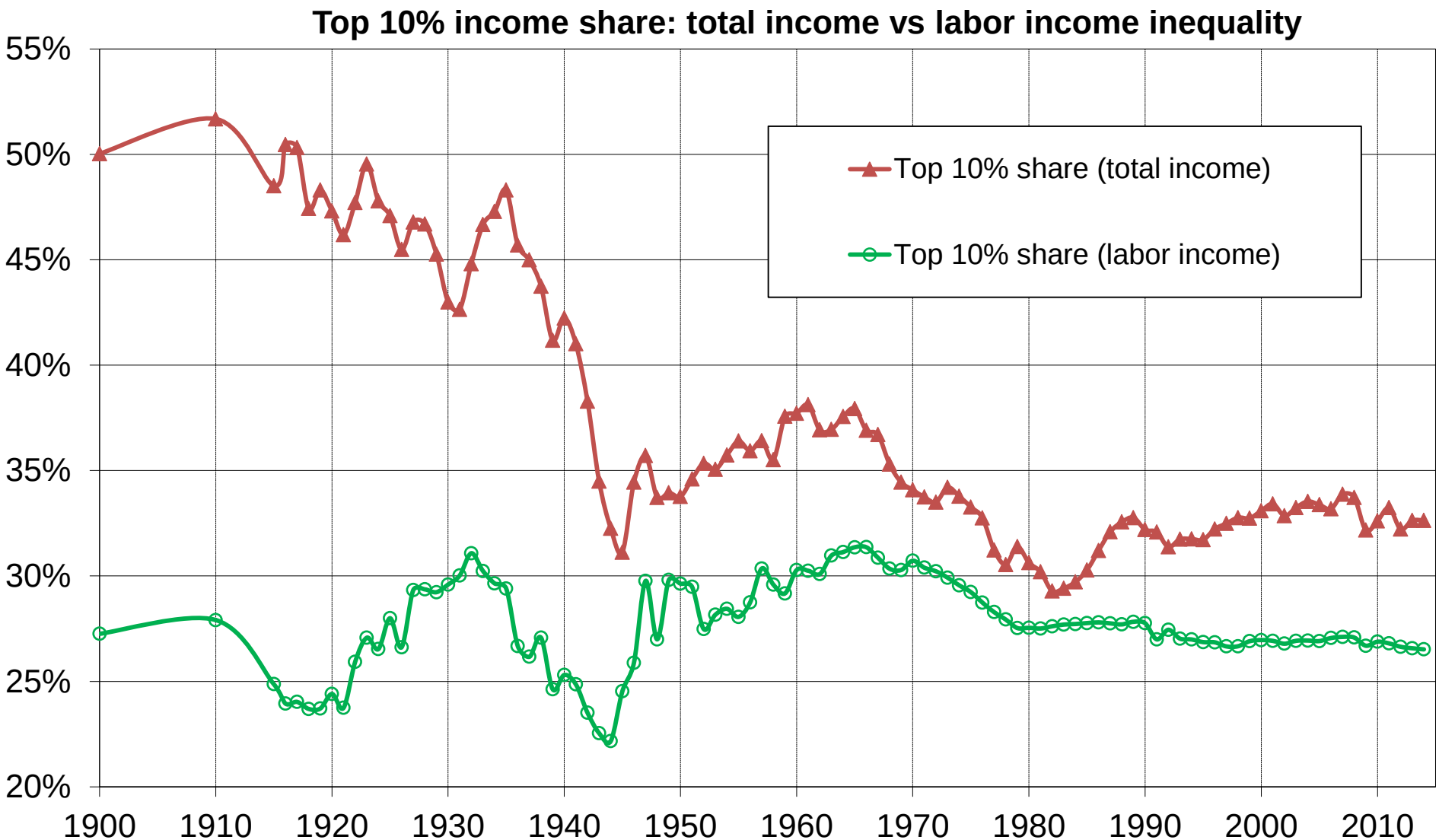


Distribution of pretax national income (before all taxes and transfers, except pensions and unempl. insurance) among adults. Equal-split-adults series (income of married couples divided by two) vs tax-units series (singles and married couples).

Outline

The role of capital income and wealth concentration

1. Long-run fall in income inequality is entirely due to the fall of top capital incomes: inequality of labor income did not change in the long run
2. Capital income has always been the main income source for very top incomes (including today); but because of the decline of capital concentration, the level of top capital incomes has dropped
3. Wealth inequality is still much higher than income inequality today: top 10% share around 60-70% for wealth and capital income, vs 35% for total income and 25% for labor income



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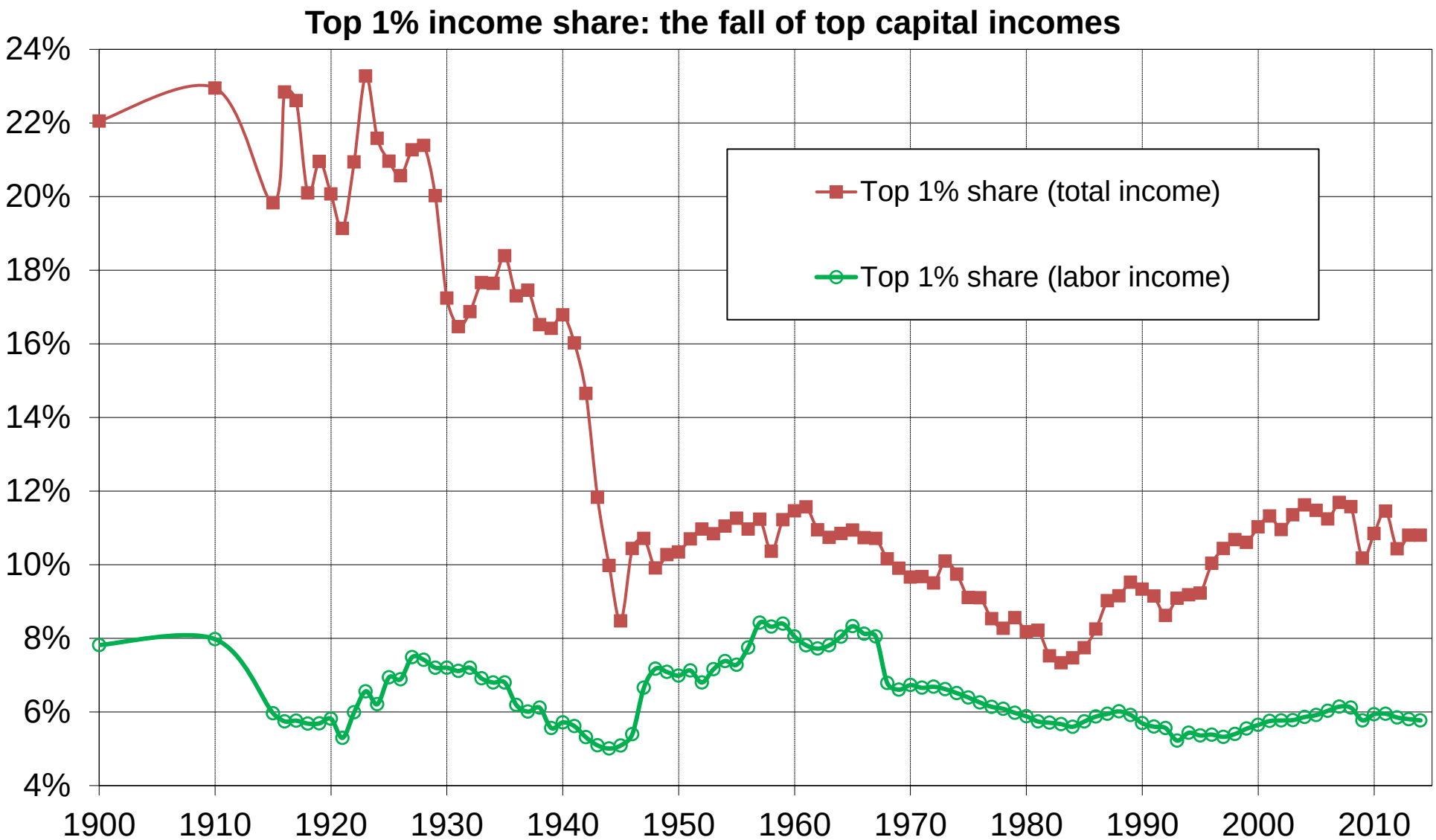

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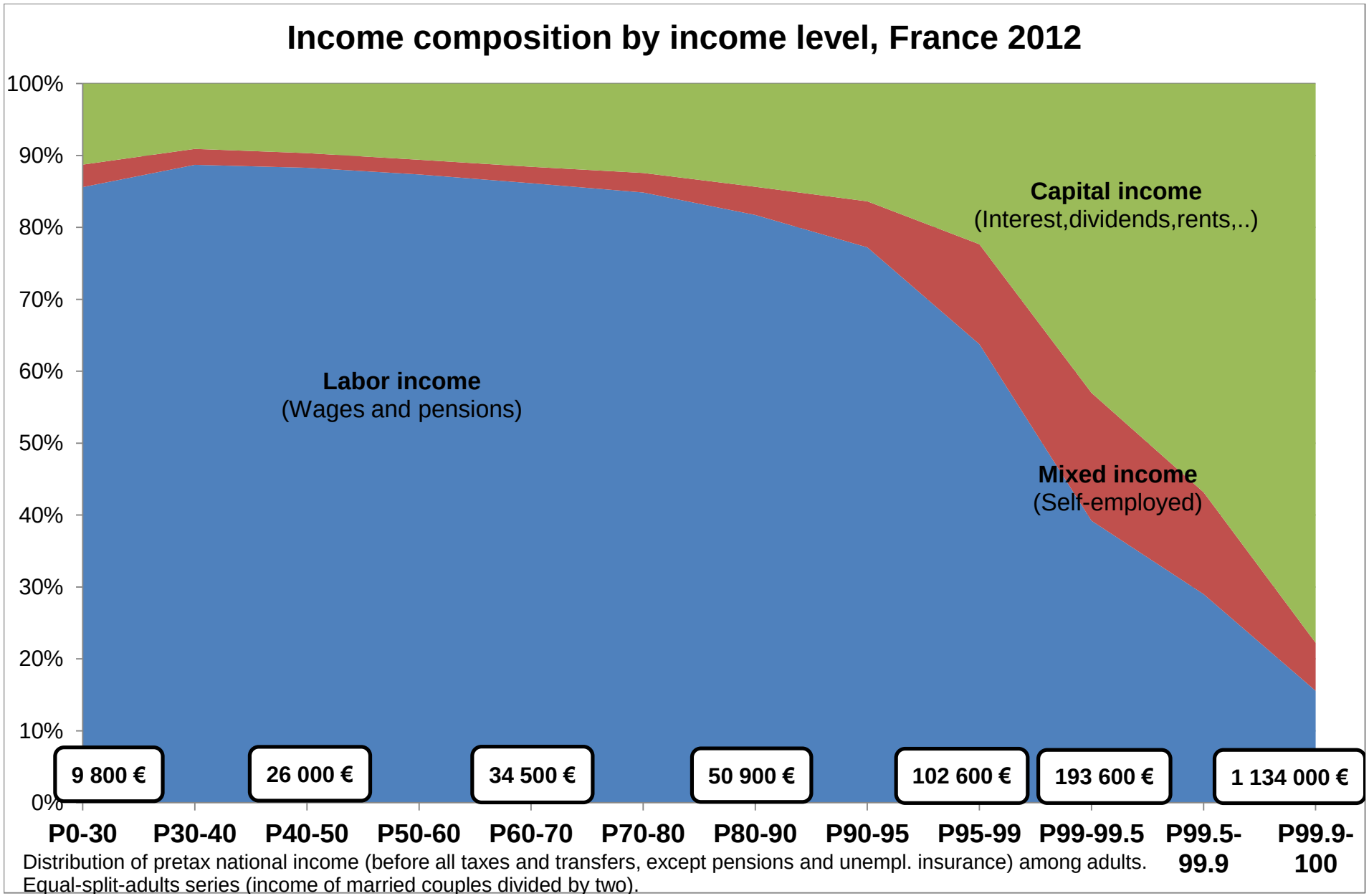

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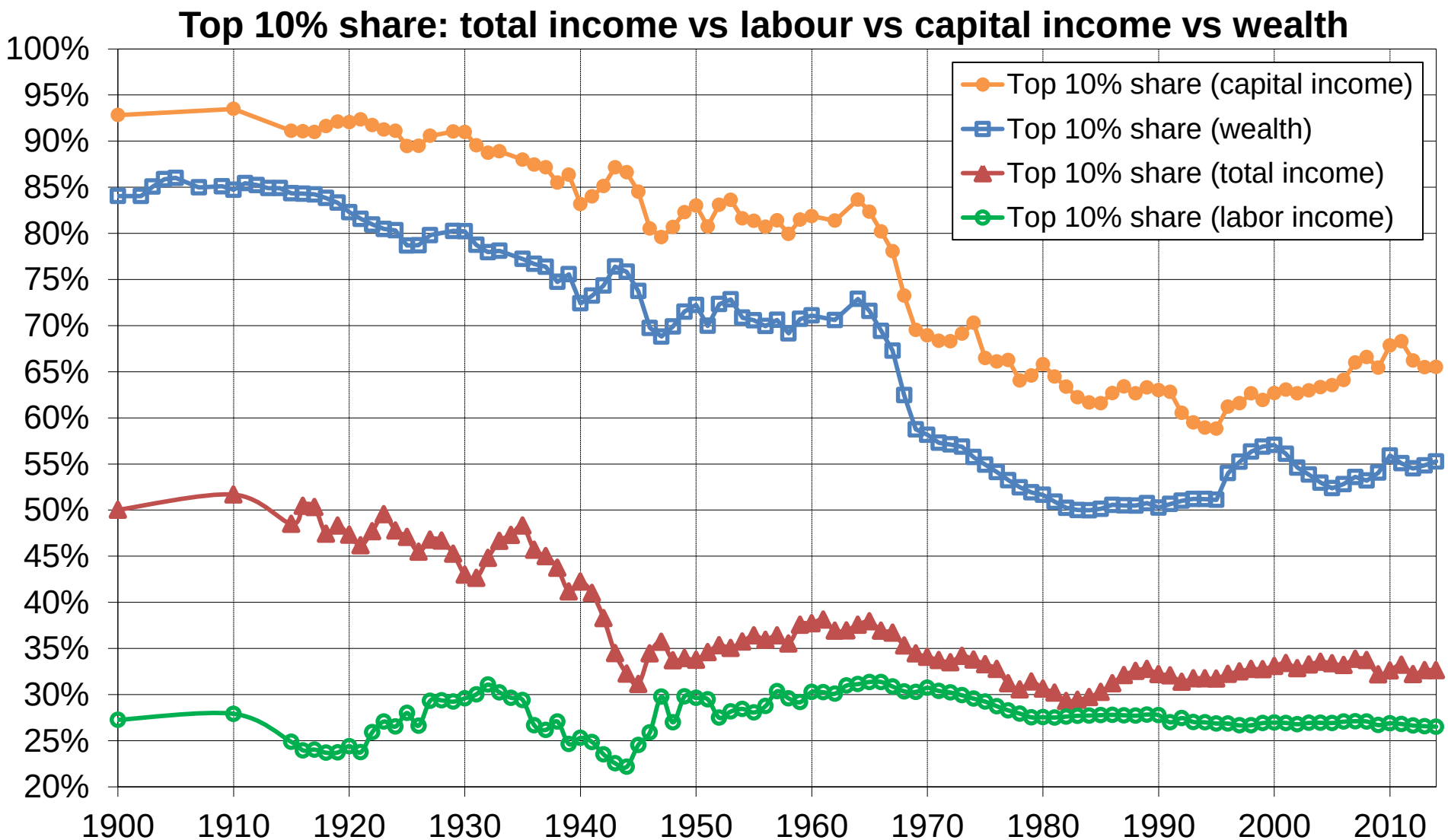
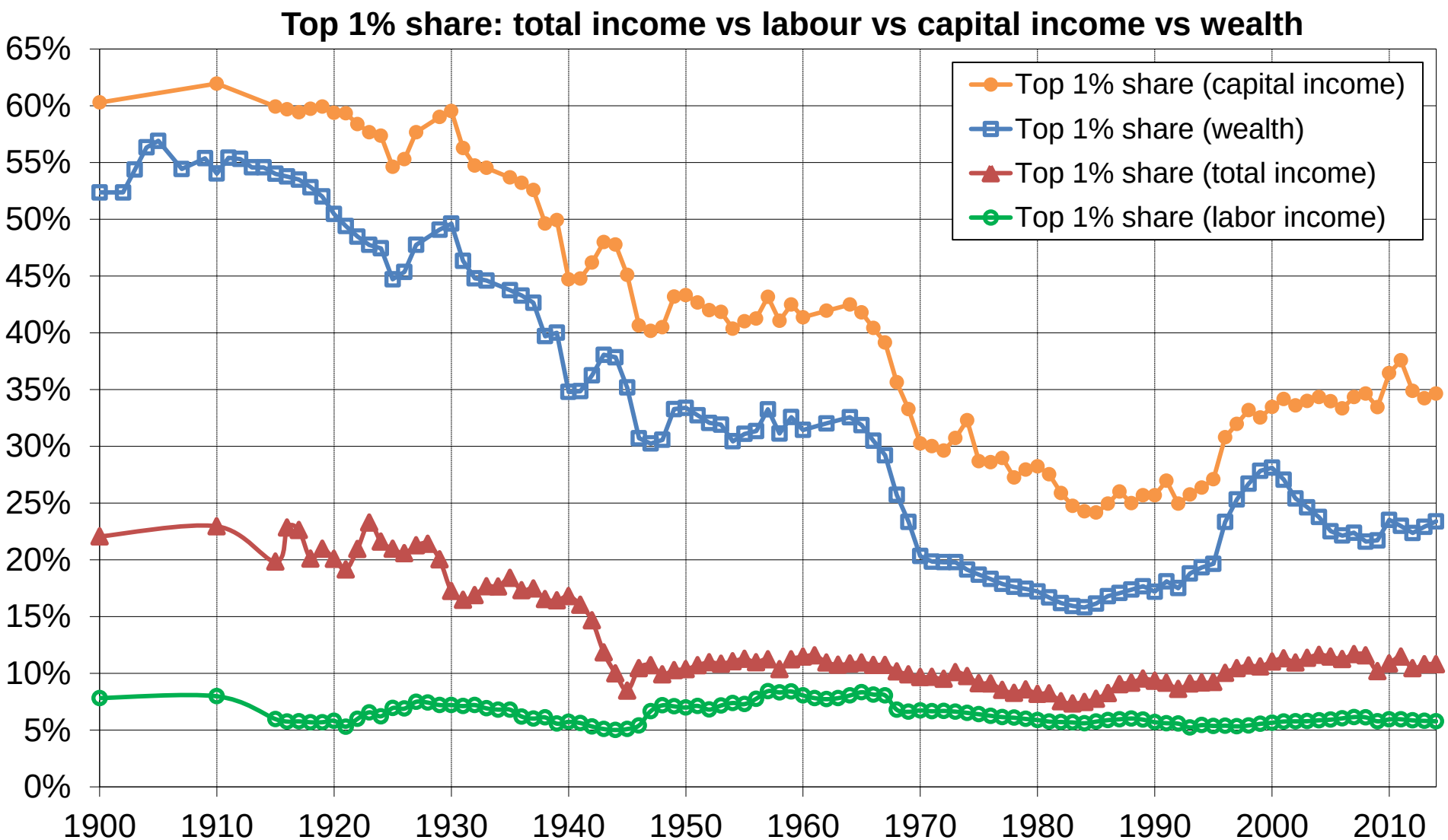


Distribution of total income, labor income, capital income and net wealth among adults.
Equal-split-adults series (income and wealth of married couples divided by two).



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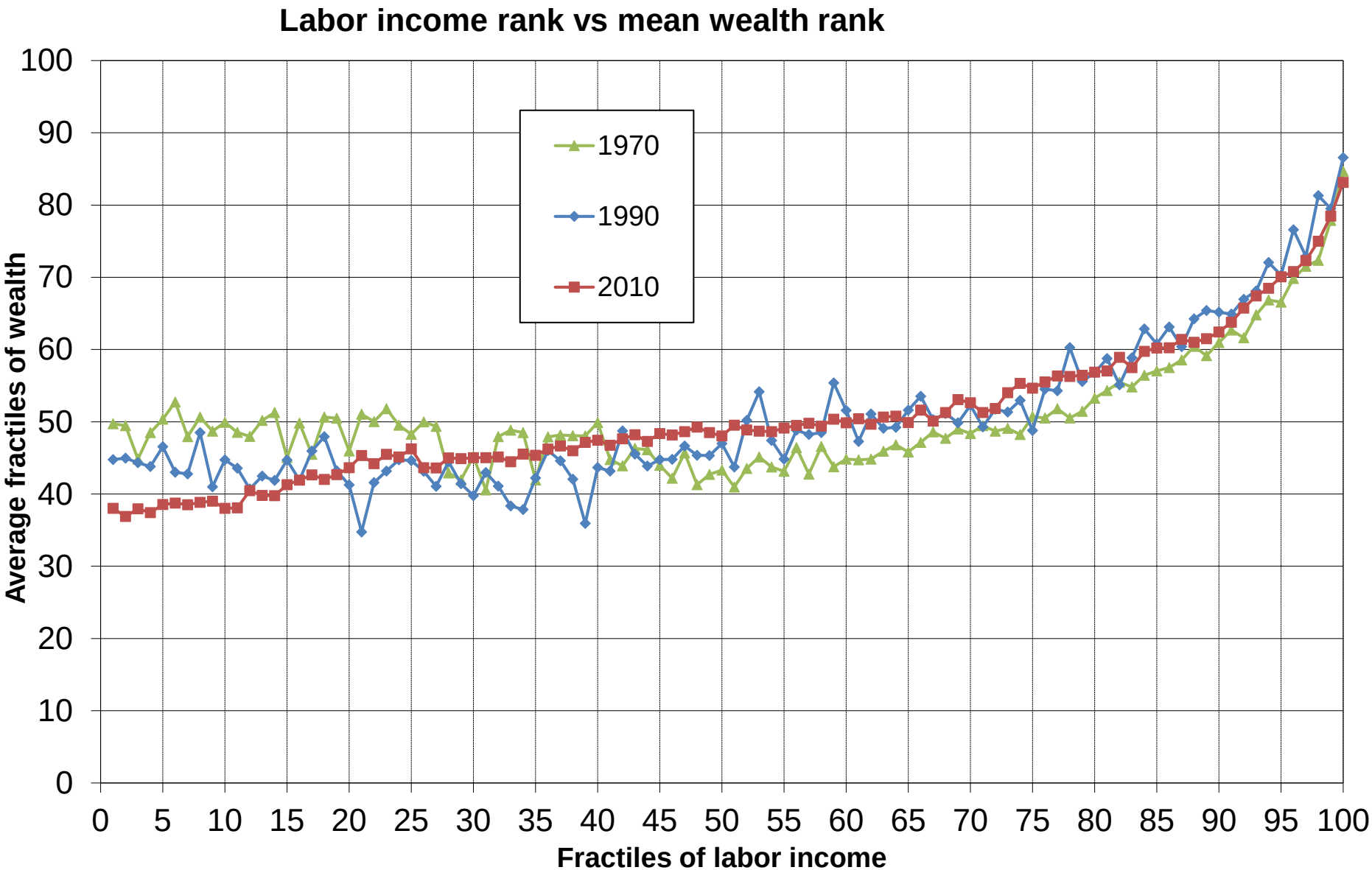
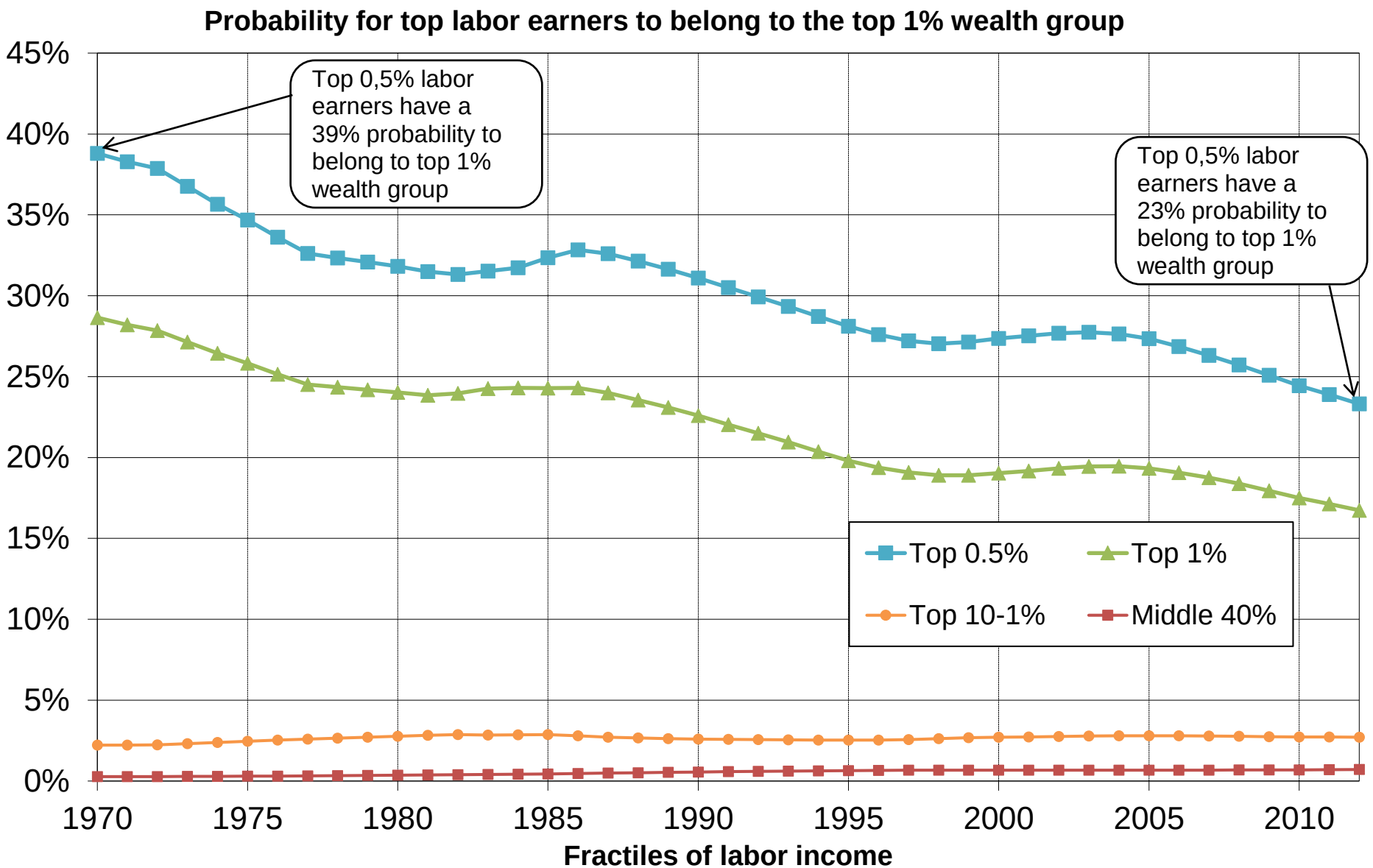
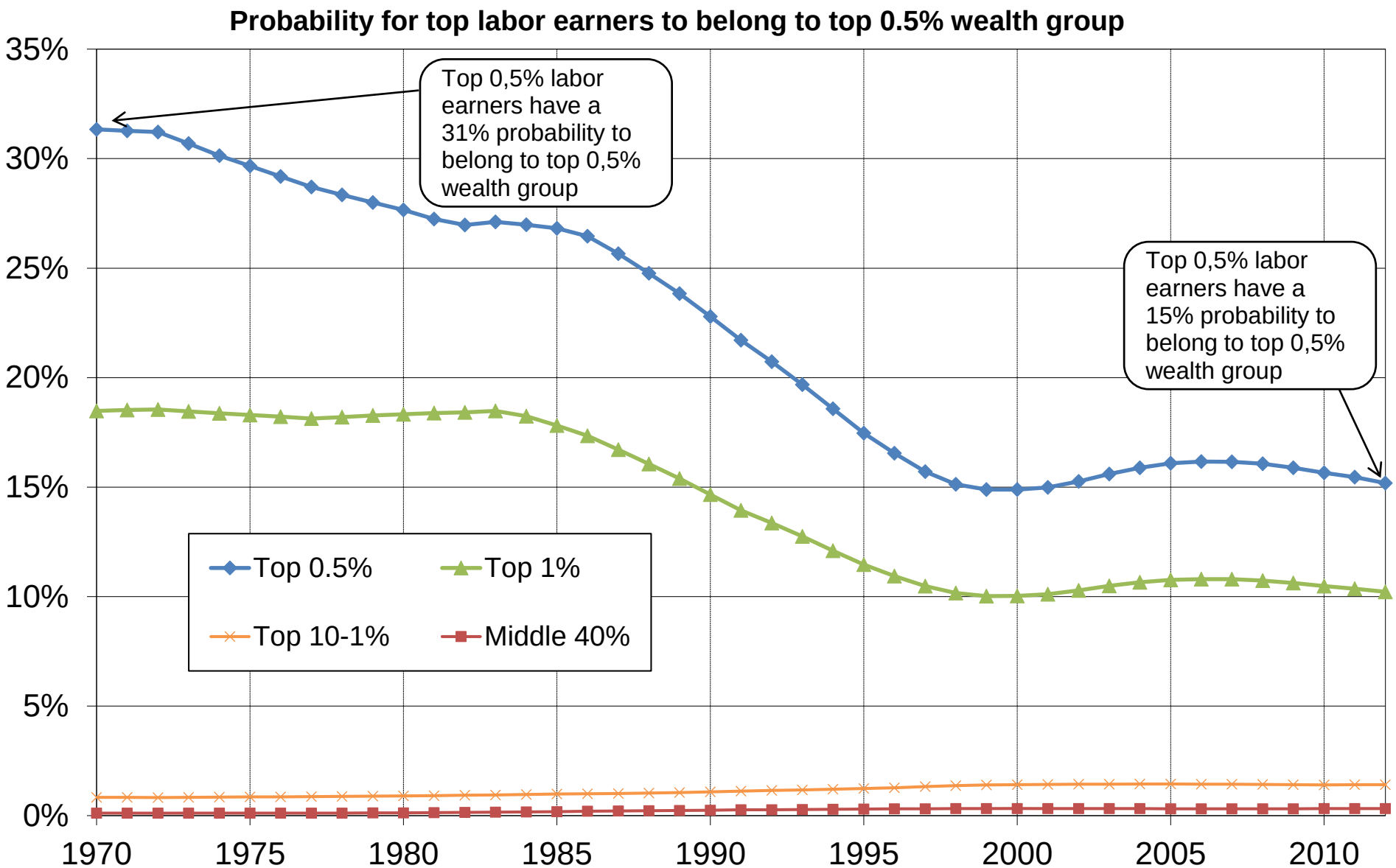

Labor income rank vs mean wealth rank
Average fractiles of wealth
Fractiles of labor income
1970
1990
2010
0
10
20
30
40
50
60
70
80
90
100
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100

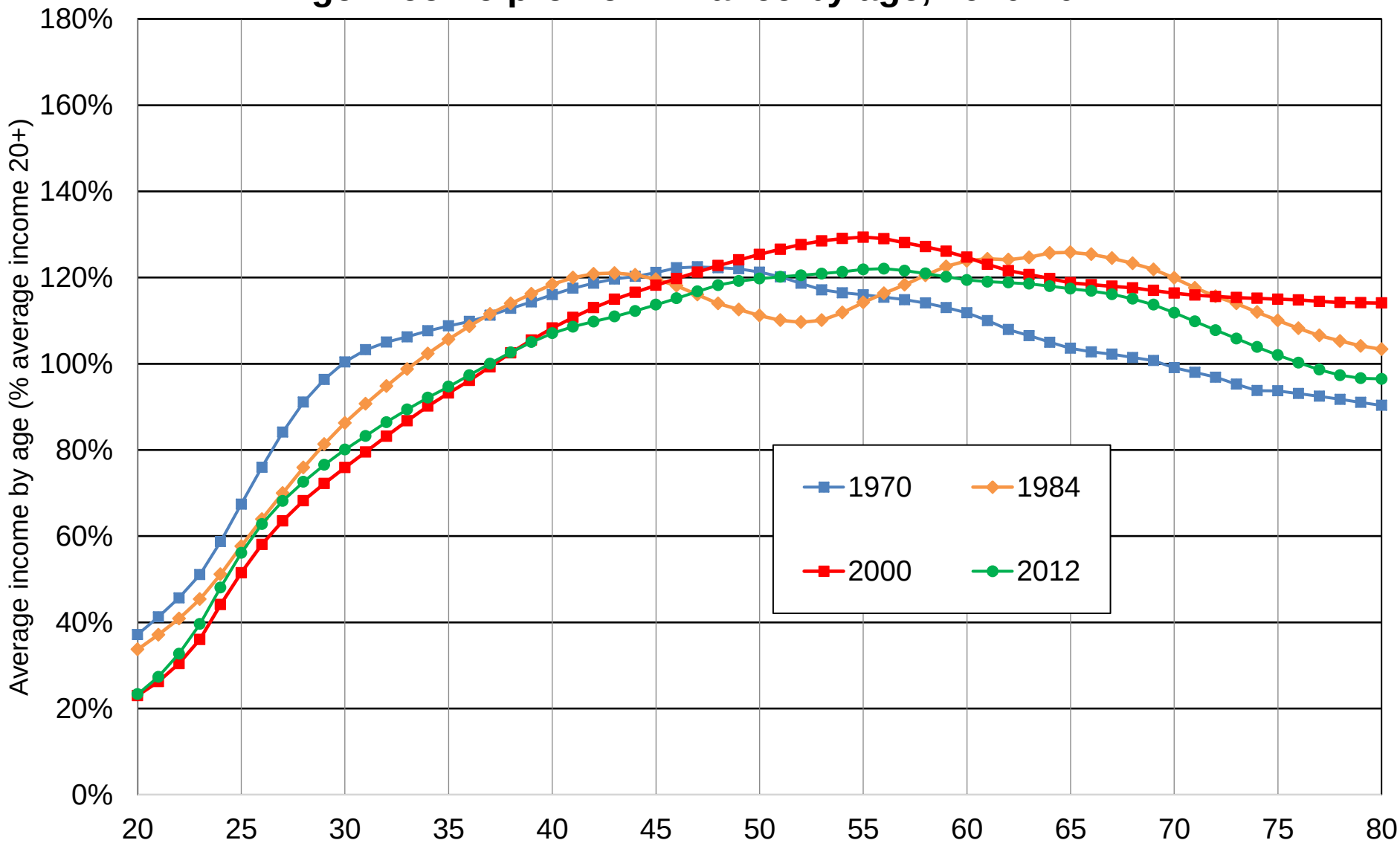

Probability for top labor earners to belong to the top 1% wealth group
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
1970
1975
1980
1985
1990
1995
2000
2005
2010
Fractiles of labor income
Top 0,5% labor earners have a 39% probability to belong to top 1% wealth group
Top 0,5% labor earners have a 23% probability to belong to top 1% wealth group
Top 0.5%
Top 1%
Top 10-1%
Middle 40%


Probability for top labor earners to belong to top 0.5% wealth group
35%
30%
25%
20%
15%
10%
5%
0%
1970
1975
1980
1985
1990
1995
2000
2005
2010
Top 0,5% labor earners have a 31% probability to belong to top 0,5% wealth group
Top 0,5% labor earners have a 15% probability to belong to top 0,5% wealth group
Top 0.5%
Top 1%
Top 10-1%
Middle 40%

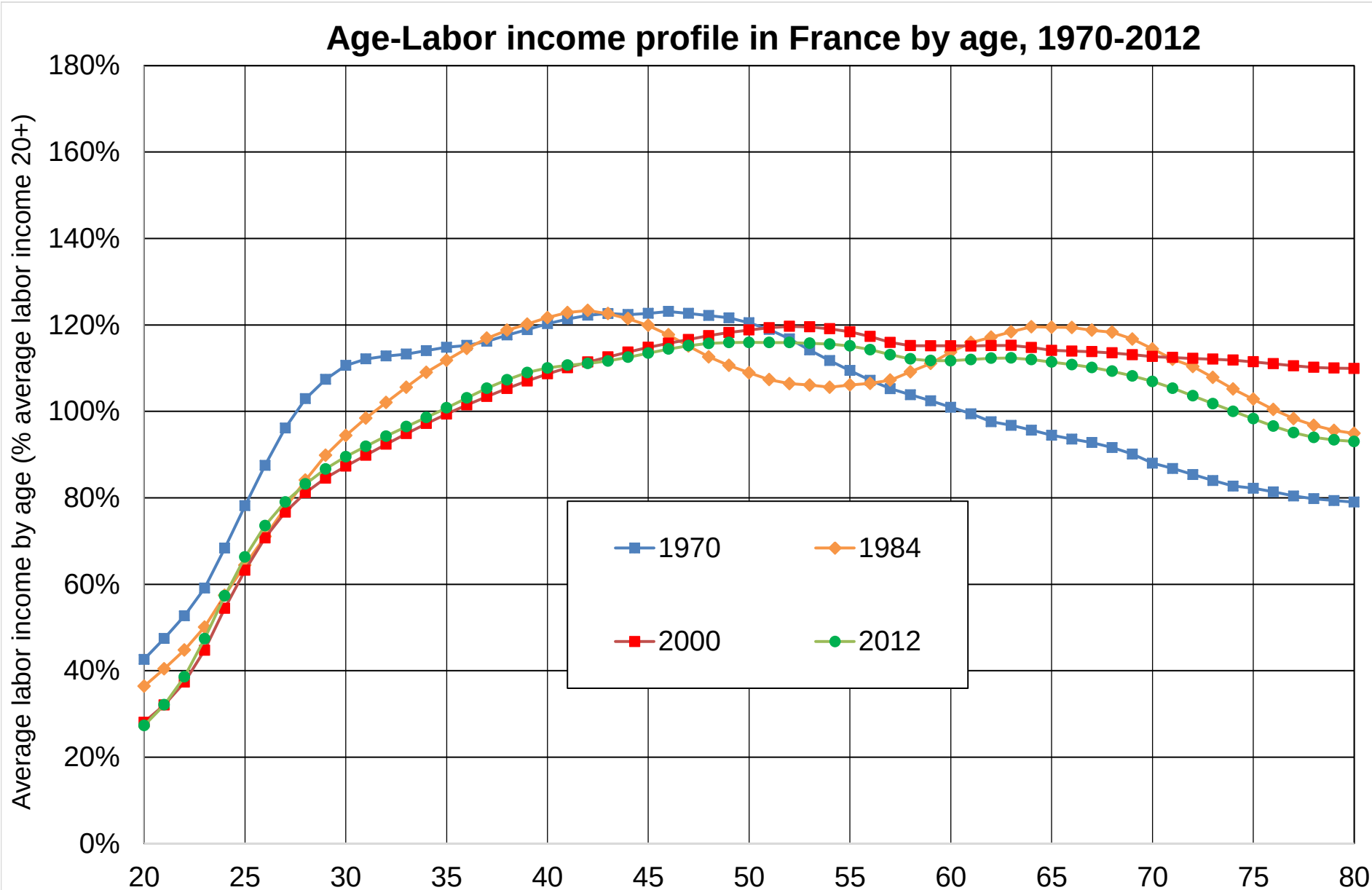
Outline

Labor income: the limited decline of gender inequality

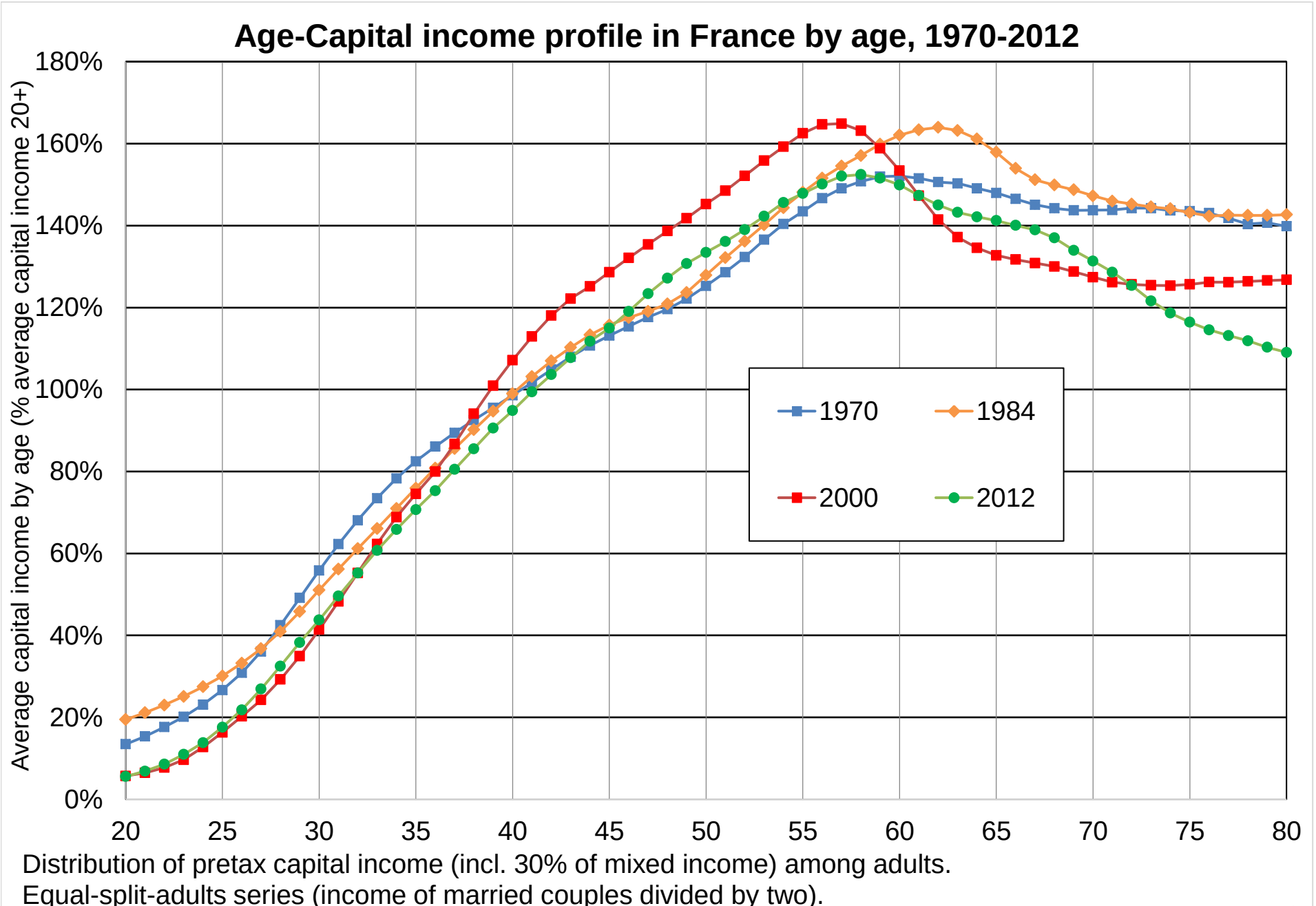
- For subperiod 1970-2012, we have detailed breakdown by age and gender
- Age patterns did not change very much: age-labor income profile is always steeply rising (although less strongly than age-capital income and age-wealth profiles), and income inequality very high within each age group (like wealth)
- Main change over the period: large rise of female labor market participation, decline of gender inequality, but still very high at the top



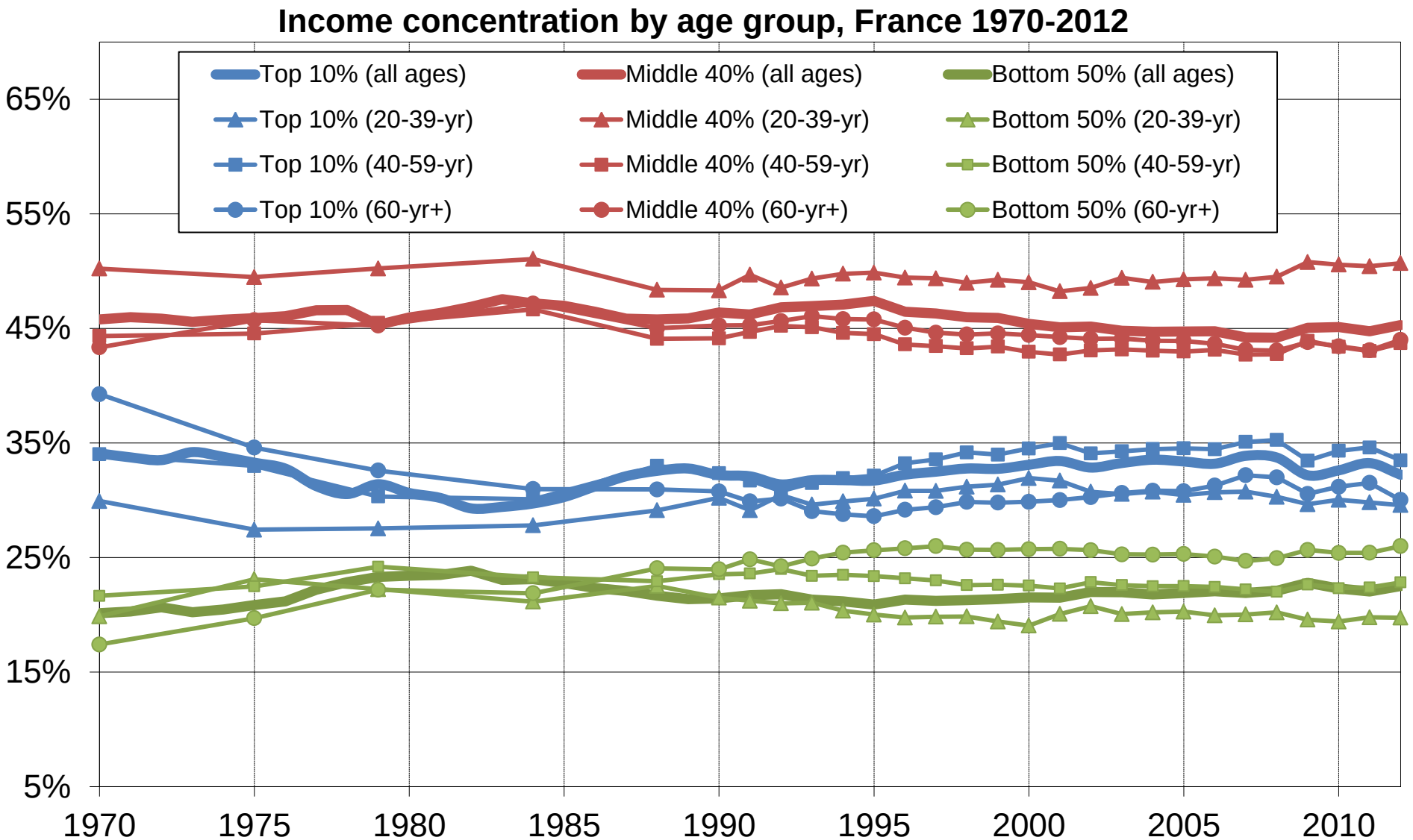
Distribution of pretax national income (before all taxes and transfers, except pensions and unempl. insurance) among adults. Equal-split-adults series (income of married couples divided by two).



Distribution of pretax labor income (incl. pensions, unempl. insurance and 70% of mixed income) among adults.
Equal-split-adults series (income of married couples divided by two).



Distribution of pretax capital income (incl. 30% of mixed income) among adults.
Equal-split-adults series (income of married couples divided by two).



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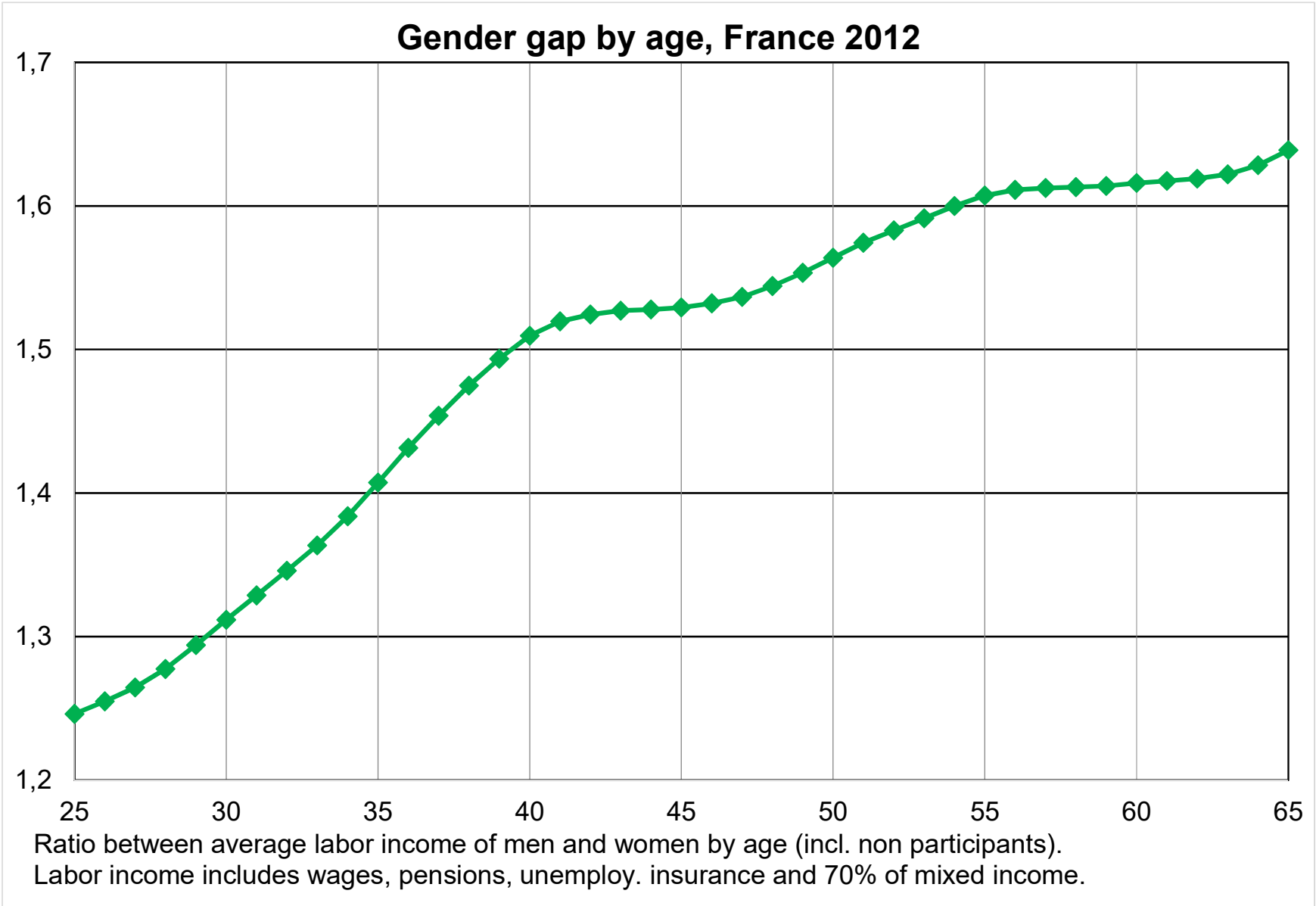
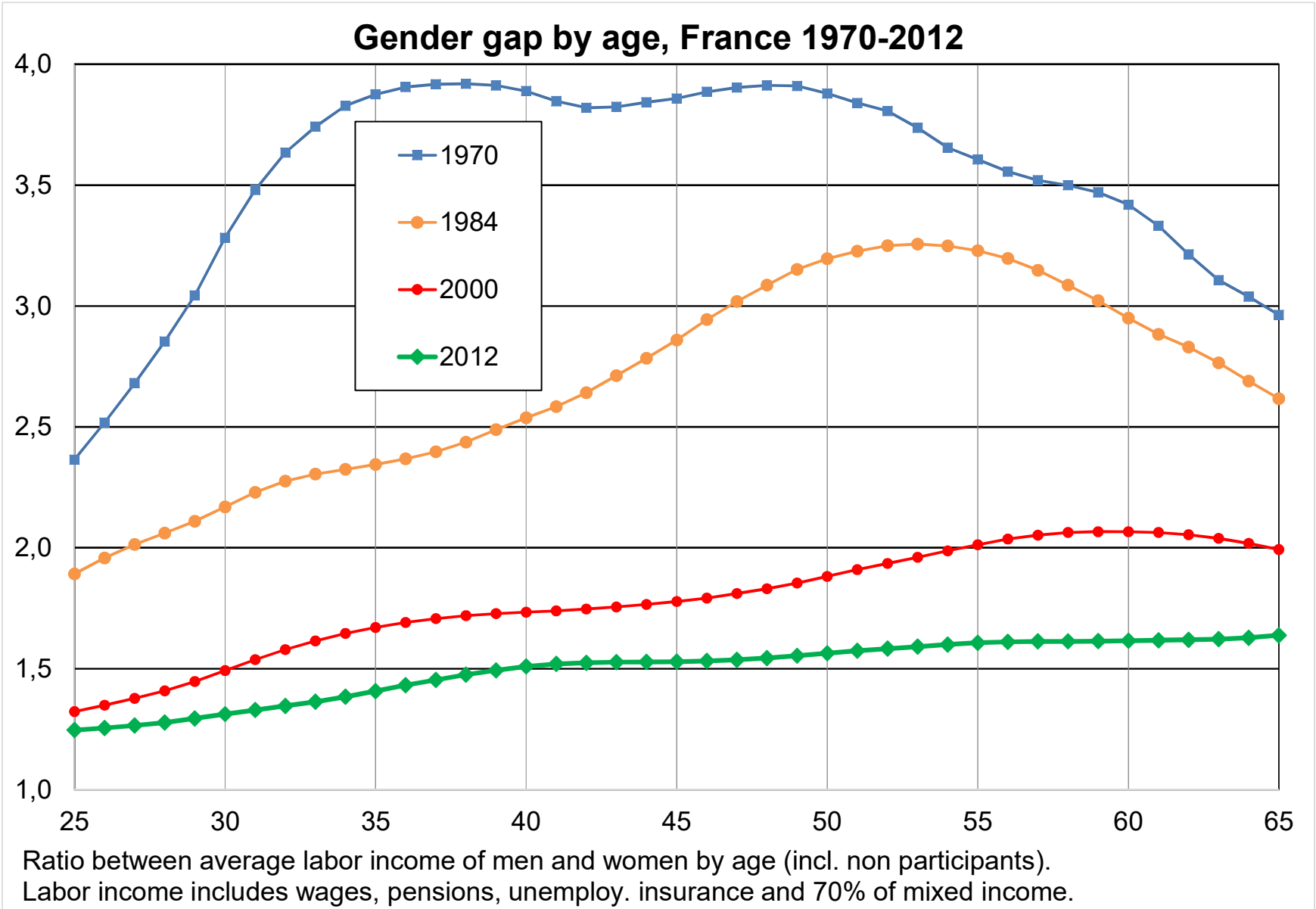

Gender gap by age, France 2012
1,7
1,6
1,5
1,4
1,3
1,2
25
30
35
40
45
50
55
60
65
Ratio between average labor income of men and women by age (incl. non participants).
Labor income includes wages, pensions, unemploy. insurance and 70% of mixed income.



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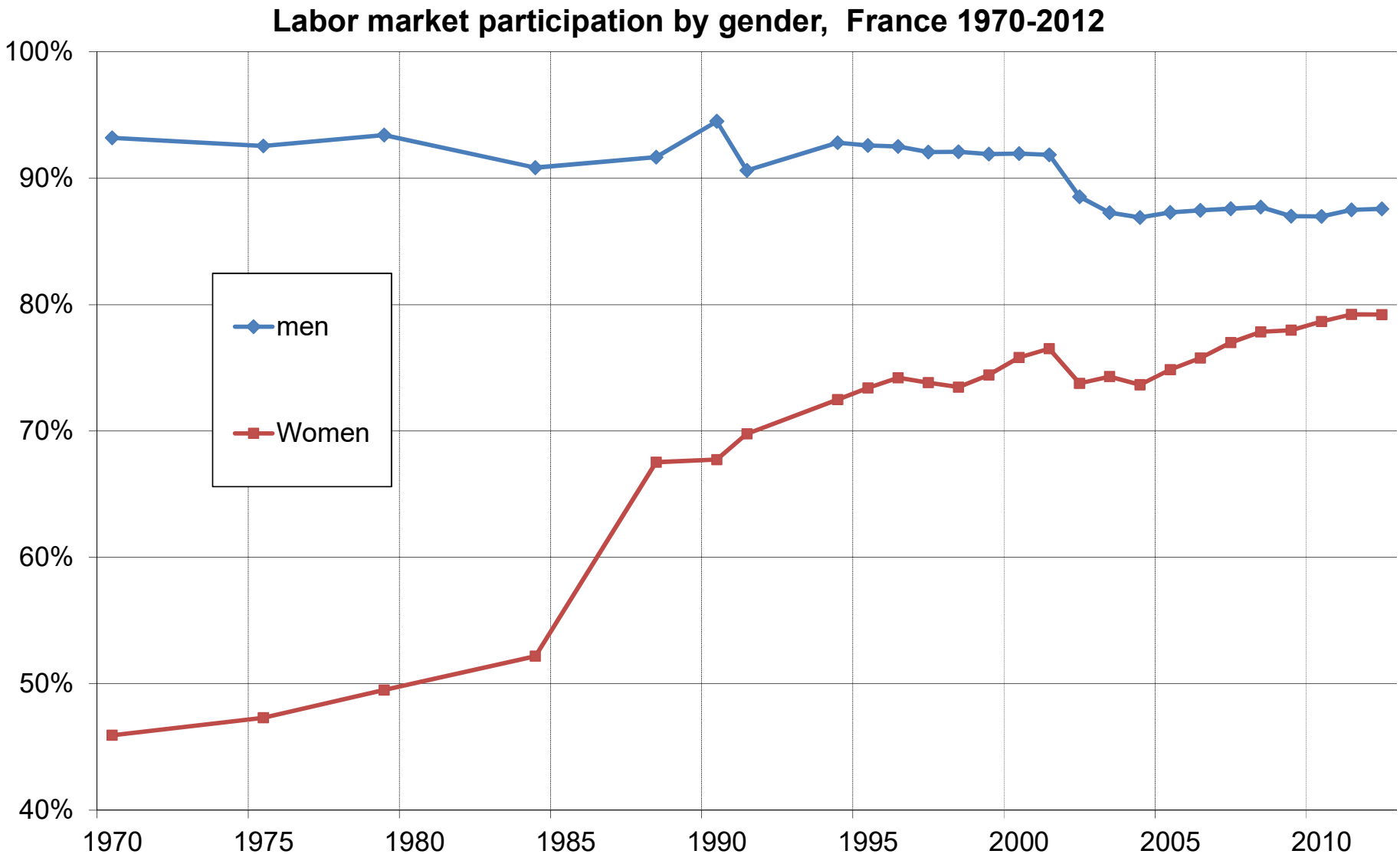


Fraction of men and women 25-to-65-year-old with positive labor income.
Labor income includes wages, pensions, unemploy. insurance and 70% of mixed income.

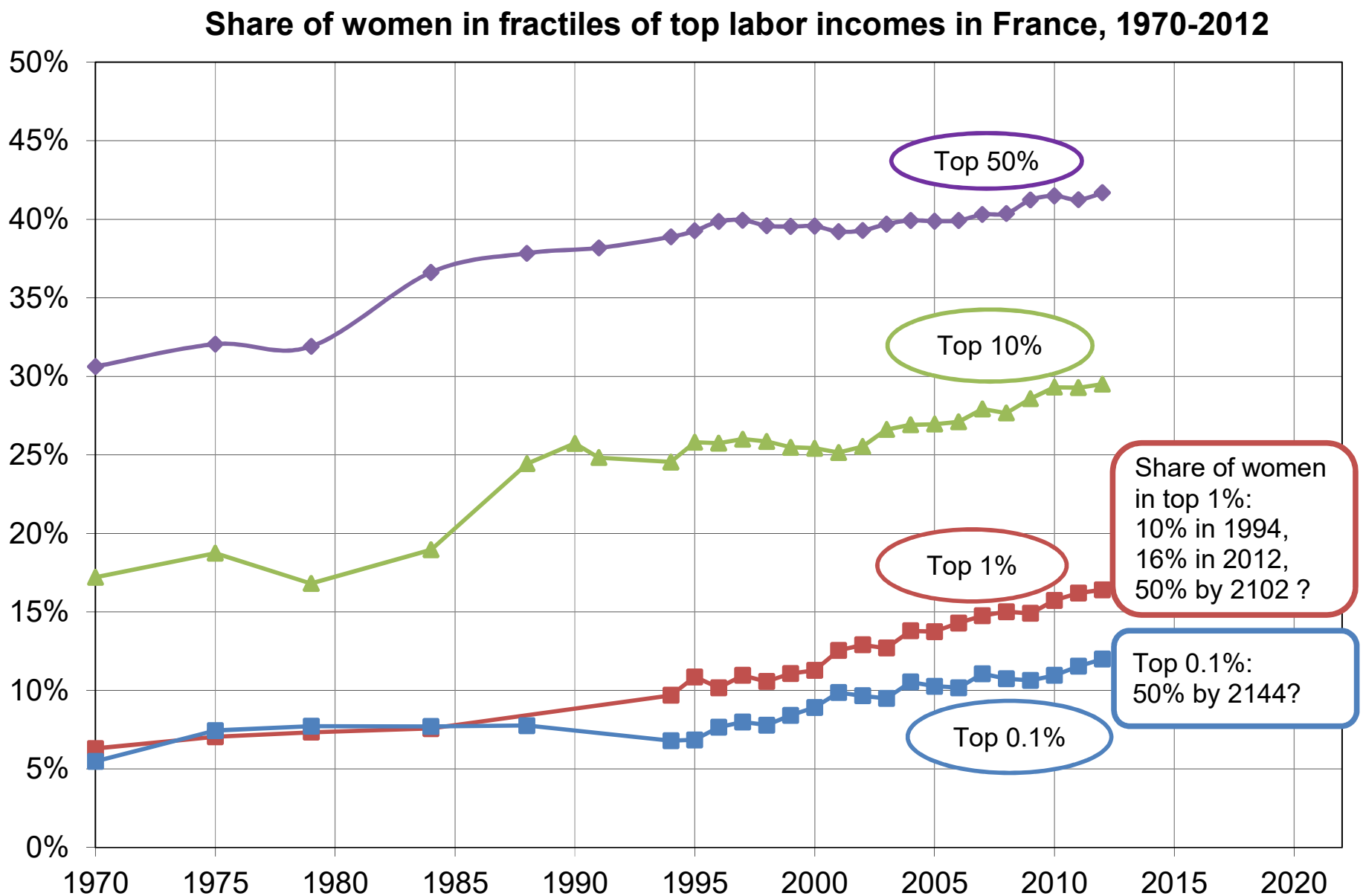
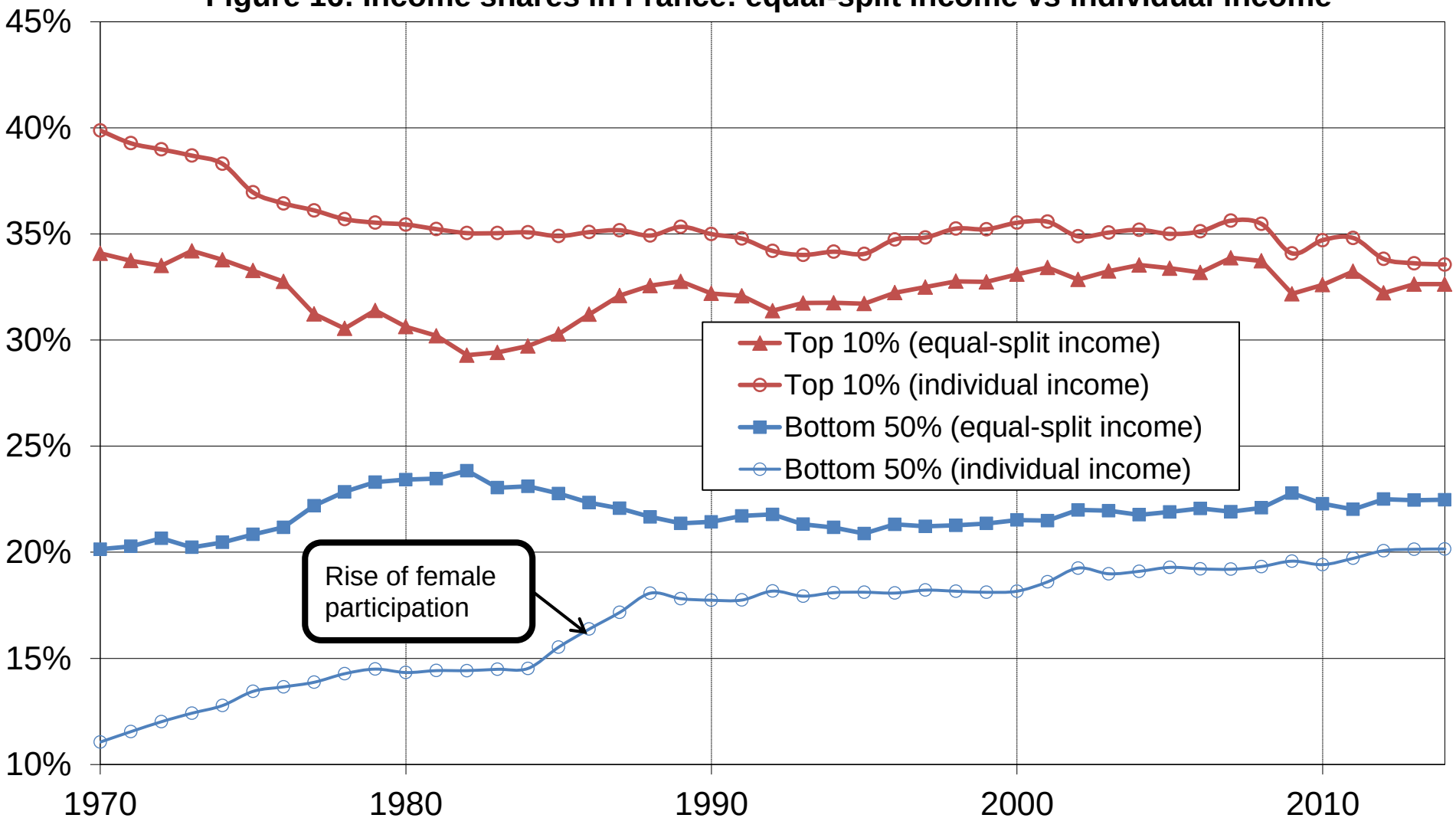

Share of women in fractiles of top labor incomes in France, 1970-2012
50%
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020
Top 50%
Top 10%
Top 1%
Top 0.1%
Share of women in top 1%: 10% in 1994, 16% in 2012, 50% by 2102 ?
Top 0.1%: 50% by 2144?

Figure 16: Income shares in France: equal-split income vs individual income

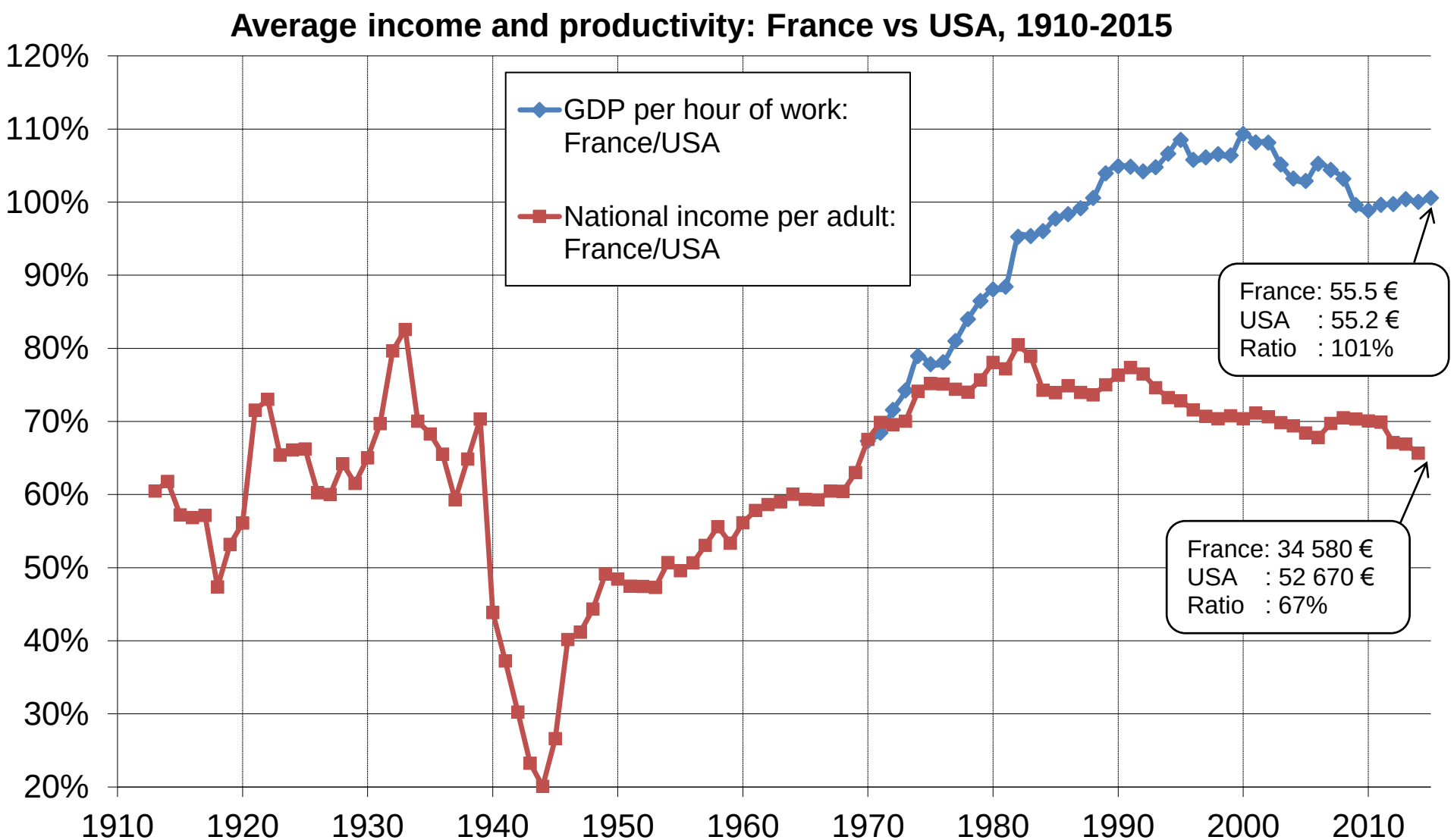


Distribution of pretax national income: equal-split income series (income of married couples divided by two) vs individual income series (capital income of married income divided by two, but labor income allocated to each individual).

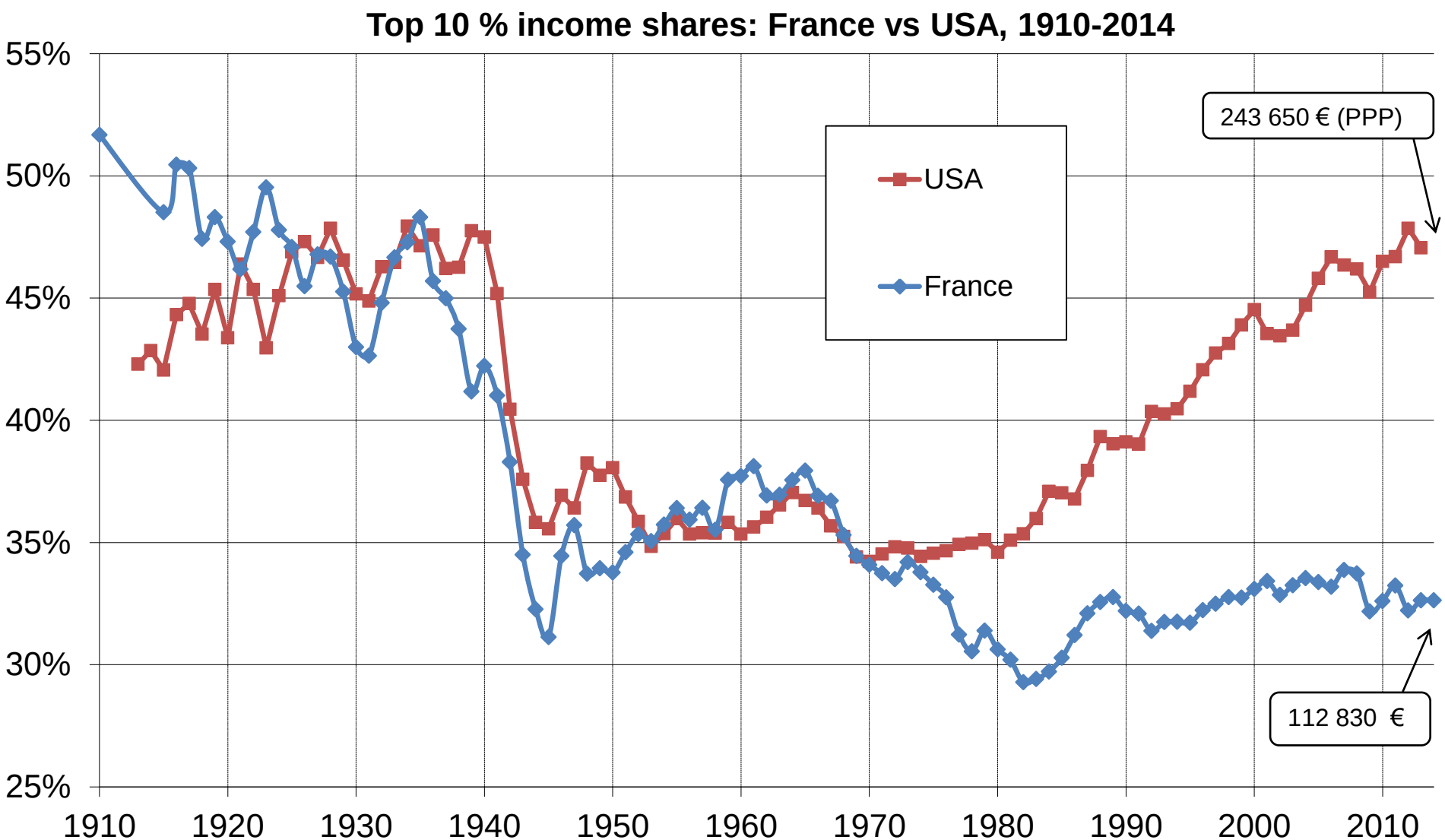
Outline

France vs US and the bottom 50%

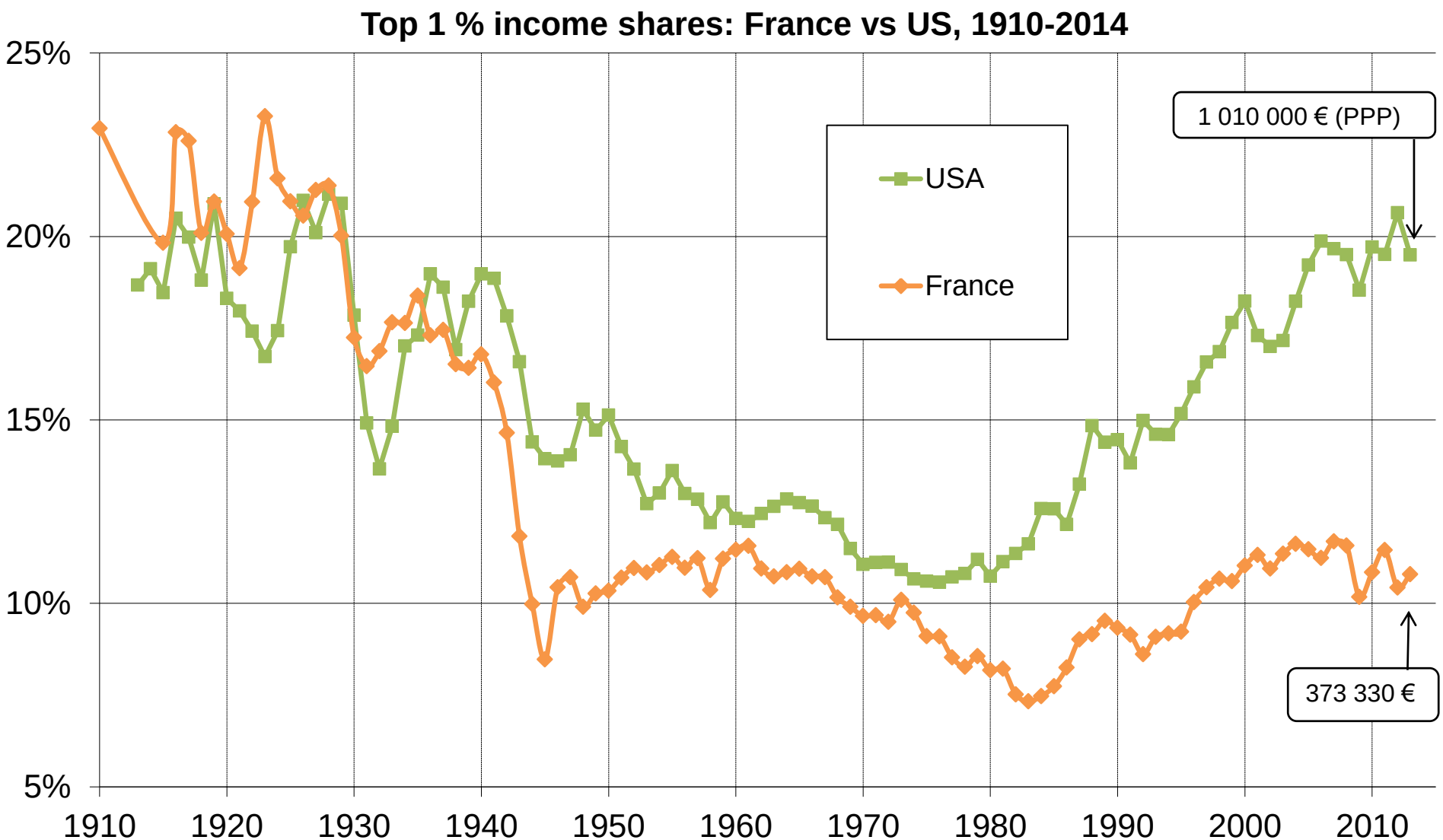
1. Top income shares increased much more in the US than in France since the 1980s
2. Complex combination of factors: education system (more unequal in the US?), labor market rules (fall in US minimum wage), changing governance and incentives for top executive pay-setting (huge fall in US top income tax rates). Not analyzed here (see Piketty 2014)
3. Distribution matters: per adult national income is 25% smaller in France (more hours of work in the US, similar productivity), but bottom 50% average income is 30% higher in France
4. This would probably be reinforced if we look at after-tax after-transfer inequality (to be done). But it is interesting to see that this is already the case for pre-tax pre-transfers inequality. More generally, long-term changes in inequality reflect large changes in both pretax inequality (itself influenced by policies and institutions) and after-tax inequality



Ratios France/USA for GDP per hour of work (OECD series) and per adult national income (WID.world).
Both series are expressed in PPP 2015 €.



Distribution of pretax national income (before all taxes and transfers, except pensions and unempl. insurance) among adults.
Equal-split-adults series (income of married couples divided by two).



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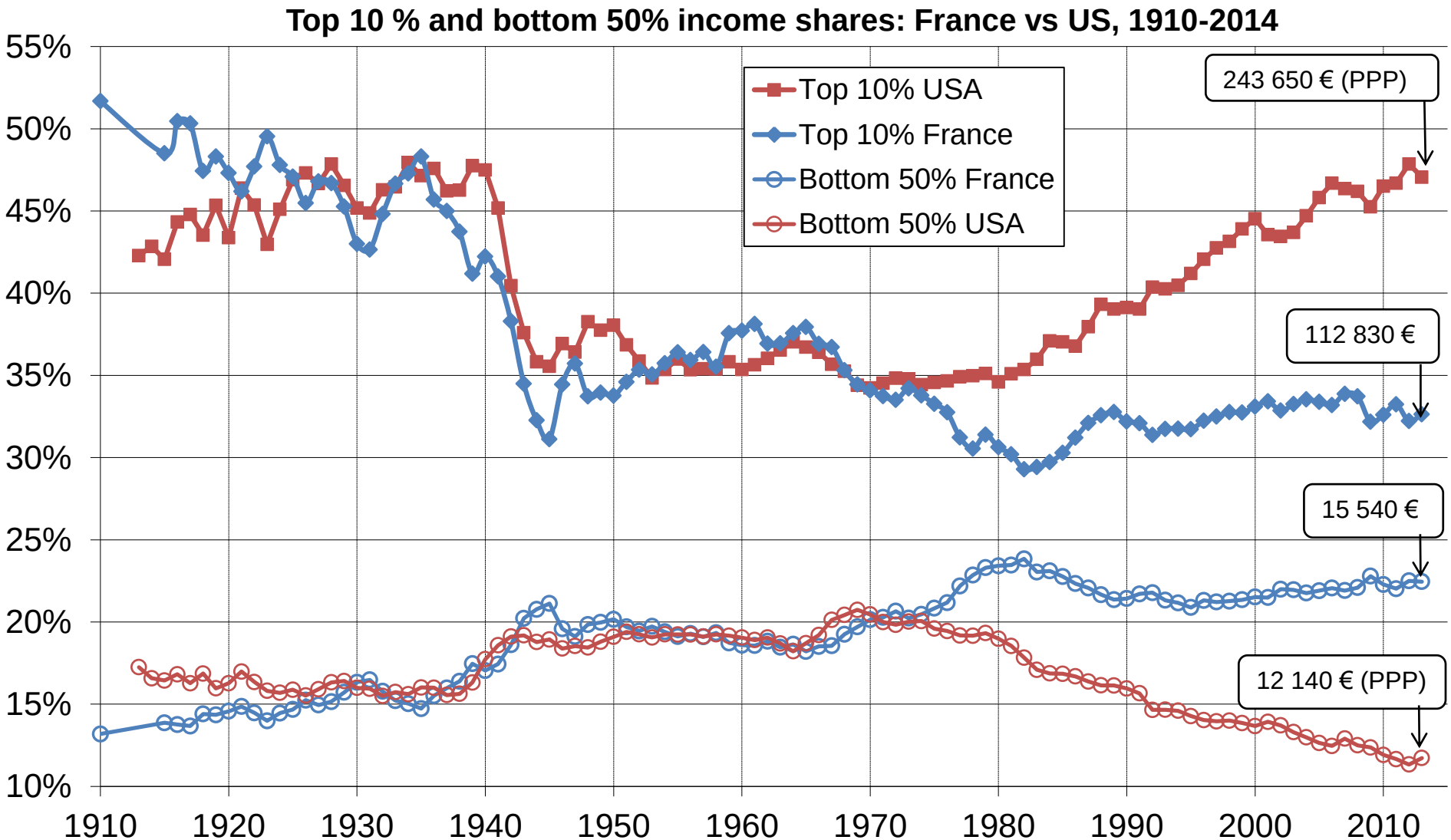
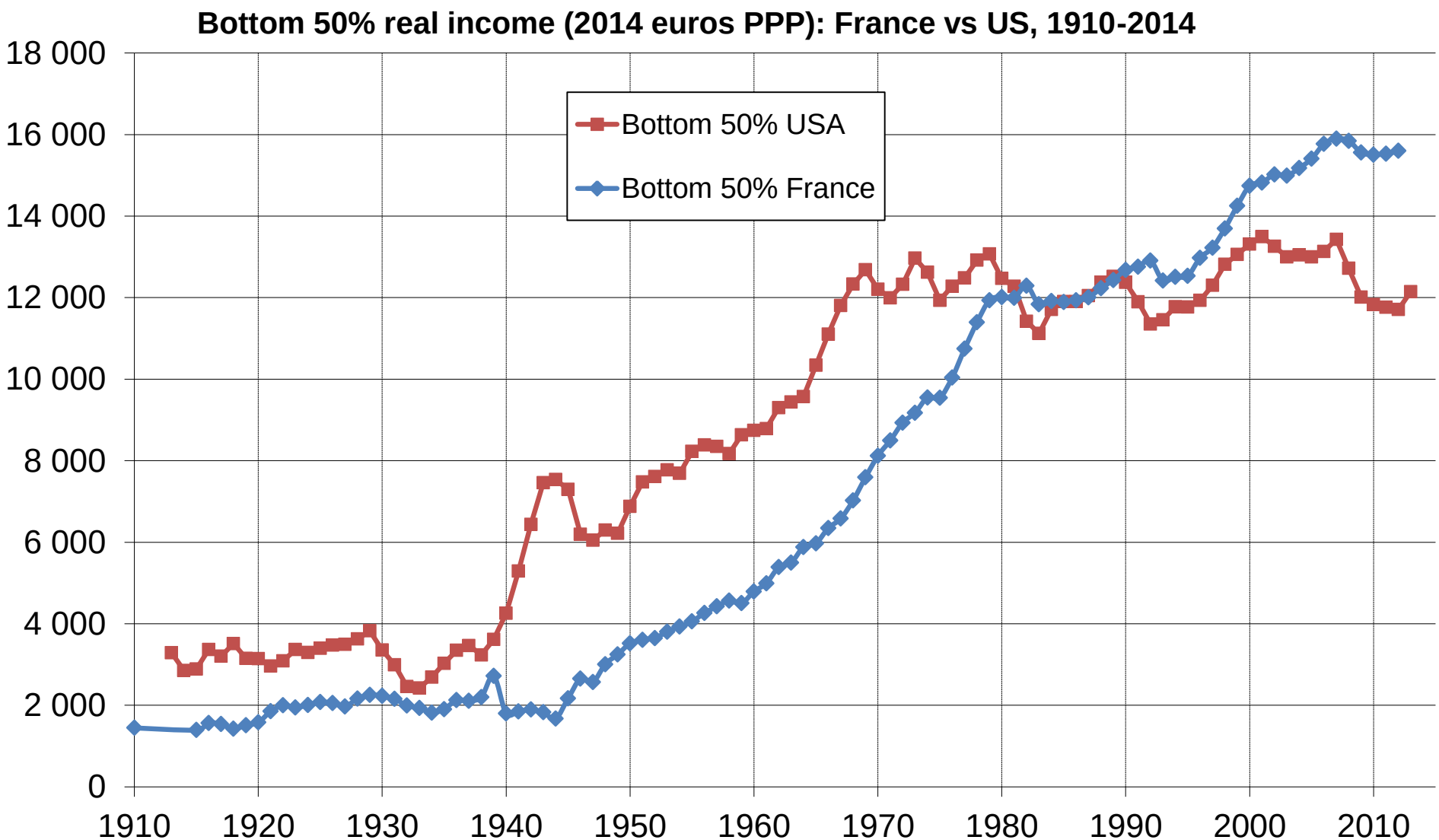
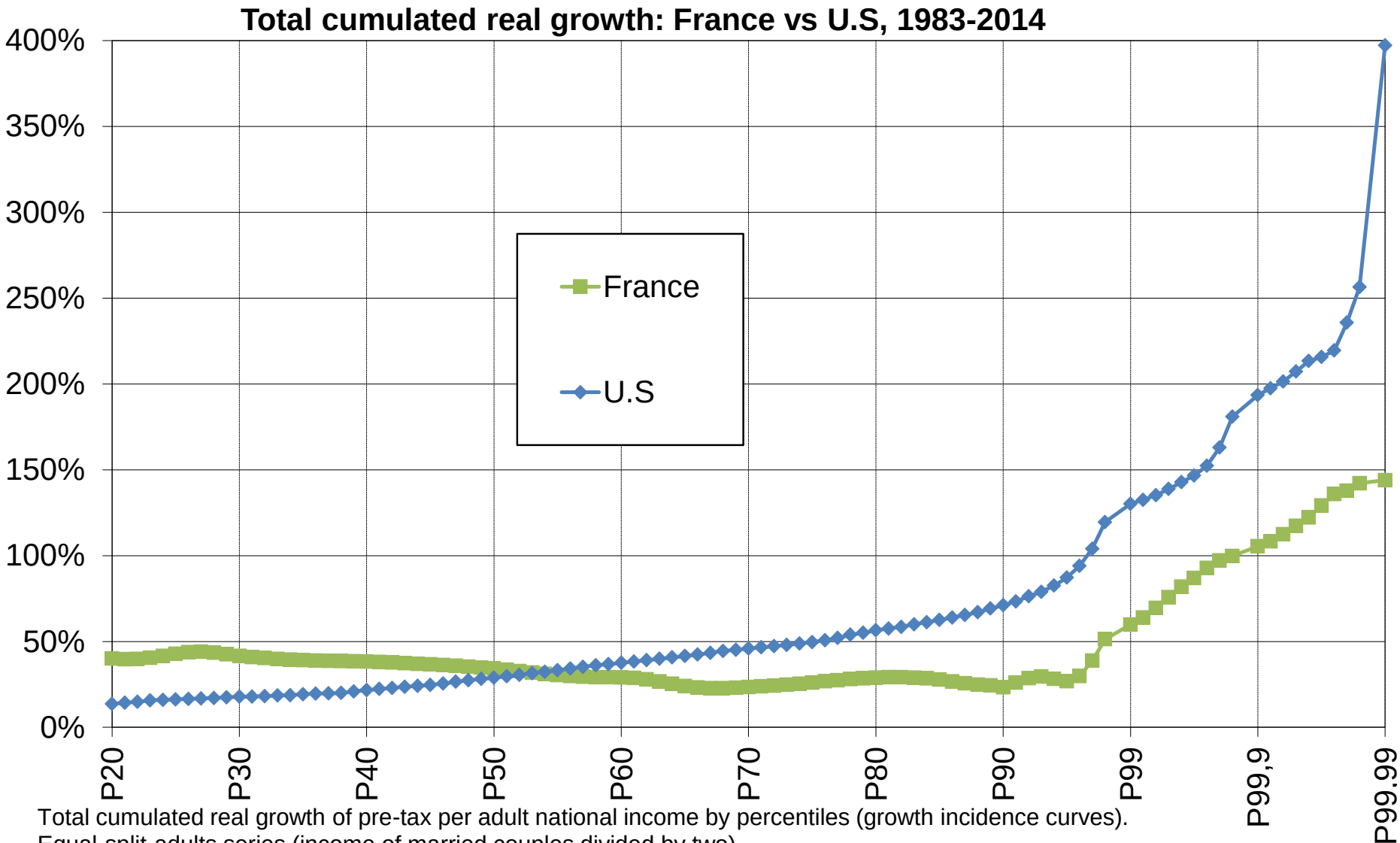


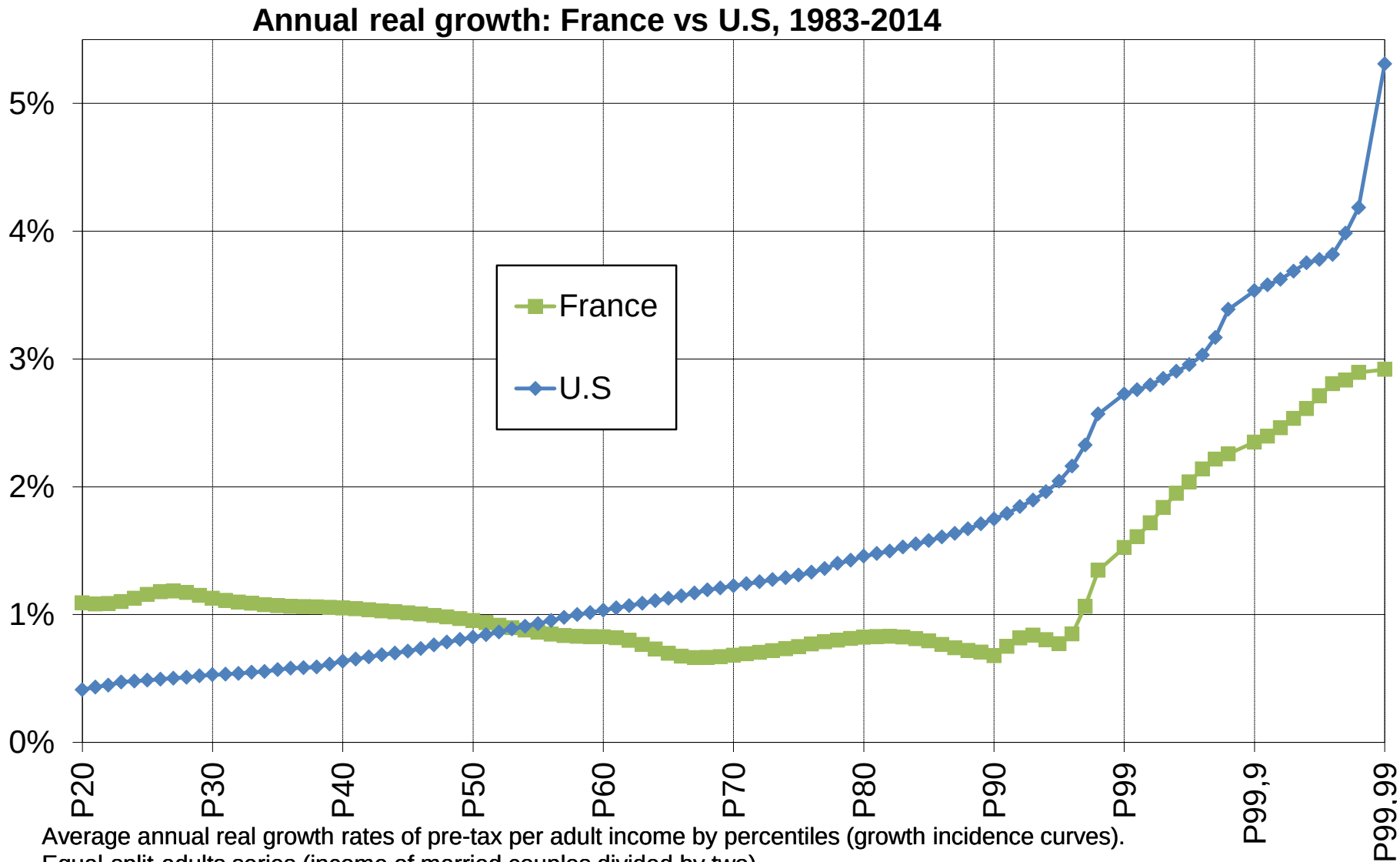
Distribution of pretax national income (before all taxes and transfers, except pensions and unempl. insurance) among adults. Equal-split-adults series (income of married couples divided by two).



Distribution of pretax national income (before all taxes and transfers, except pensions and unempl. insurance) among adults. Equal-split-adults series (income of married couples divided by two).



Total cumulated real growth of pre-tax per adult national income by percentiles (growth incidence curves).
Equal-split-adults series (income of married couples divided by two).



Average annual real growth rates of pre-tax per adult income by percentiles (growth incidence curves).
Equal-split-adults series (income of married couples divided by two).

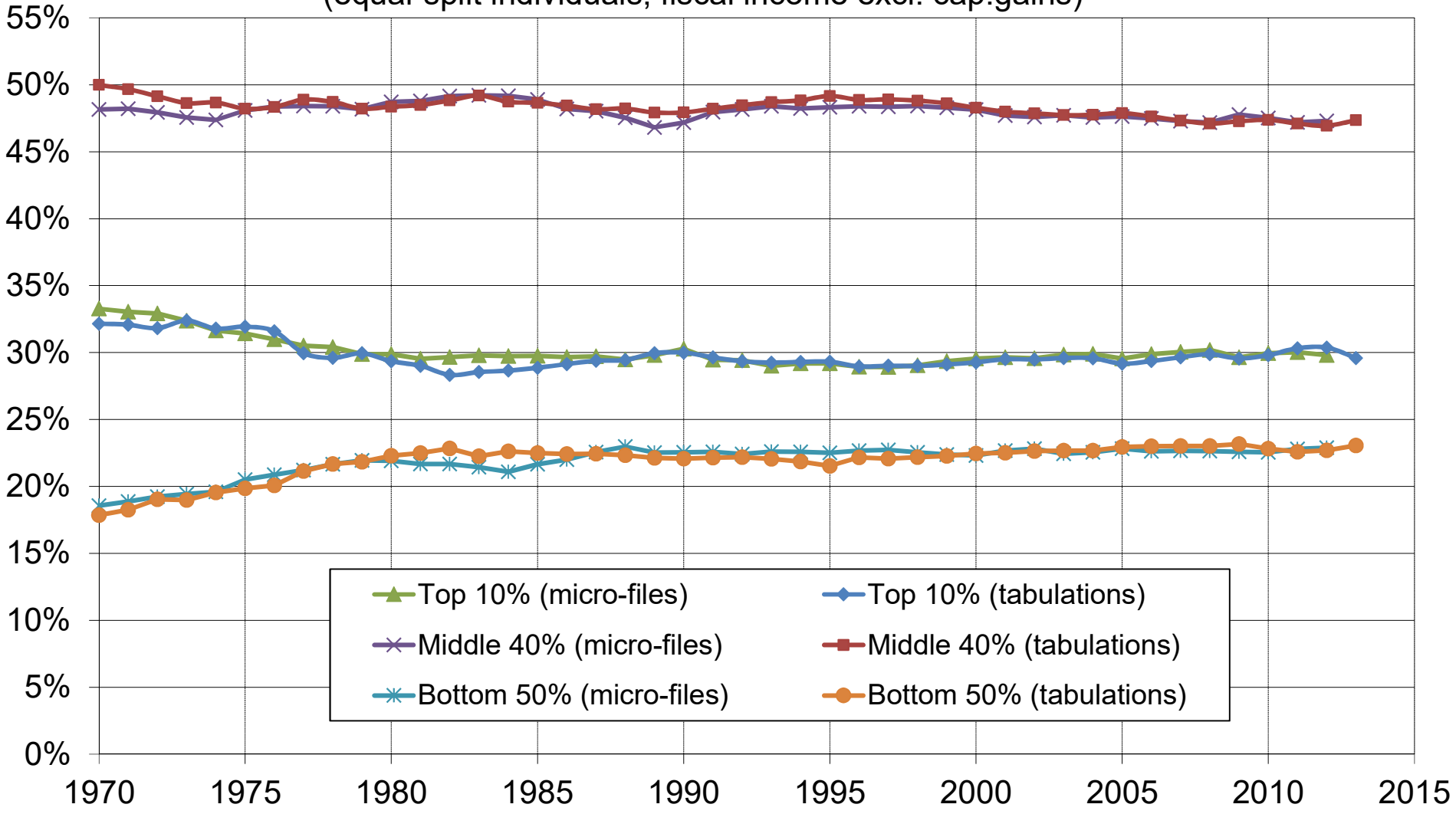
Outline

Conclusion and perspectives

1. Main contribution: by combining fiscal data, national accounts and survey data, we have constructed "Distributional national accounts" (DINA) for France, i.e. unified series for the distribution of total income, labor income, capital income and wealth over the 1900-2013 period
2. We observe large changes in inequality, both over time and across countries, largely due to different institutions and public policies. Inequality is political, not natural
3. This work is due to be extended to lots of countries: World wealth and income database

Appendix

Figure C3. Income shares: tabulations vs micro-files
(equal-split individuals, fiscal income excl. cap.gains)



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