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# Income Inequality under Colonial Rule

## French Algeria, Cameroon, Indochina and Tunisia, 1920-1960

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# Income inequality under colonial rule

**Between:** Settlers of European descent / Autochthon populations

**Within 1:** Inequality among settlers in a comparative setting?

**Within 2:** Inequality among autochthons less documented:

Frozen hierarchies & elites (Cooper, Mamdani) or space for social mobility?  
(e.g. Meier zu Selhausen & Weisdorf 2016)

Here income tax tabulations for some French colonies, compared to:

Piketty on France & UK

Colonial India: Banerjee & Piketty (2010), Alvaredo, Bergeron & Cassan (2017),  
Chancel & Piketty (2017)

Atkinson (2014) for British col. In Africa + Alvaredo & Atkinson (2007) for S. Africa

Complements rather than substitutes to:

**Social tables approach**, e.g. Samir Amin (1966) on Maghreb; Williamson (2015) on colonial and 19th c. Latin America; Lindert, Milanovic & Williamson on ancient economies

## European settlers in income tax data

	1932	1946	1955
Europeans in total tax units (%)			
Algeria	15,7%	13,5%	12,7%
Tunisia	9,2%	8,9%	8,0%
Indochina	0,13%	0,10%	
Cameroon		0,14%	
European tax payers to estimated number of European tax units (%)			
Algeria			
Tunisia		19.7%	33.1%
Indochina	89.1%	102.0%	
Cameroon		70.5%	
0.1% of tax units as % of Europeans			
Algeria	0.64%	0.74%	0.79%
Tunisia		1.13%	1.26%
Indochina	86.4%	87.7%	
Cameroon		70.0%	

Sources: See text; authors' calculations.

Notes: Data for Cameroon is for 1945. Data for Indochina are for 1932 and 1942 (not 1946).

# Income tax implementation

UK: 1910 and France: 1914. Gradually extended to colonies after WW1.  
However, great variation according to context:

**Algeria** : 3 French « *départements* » since 1852.

« *Impôt complémentaire sur le revenu* »: 1920, on top of other direct taxes on wages and benefits, at the same time as « *impôts arabes* » (Ottoman) are suppressed. Data starts in 1932. Europeans (15%) and « Muslims » not distinguished. Copy of metropolitan income tax is introduced in 1946.

**Tunisia** : French protectorate since 1881.

« *Contribution personnelle d'Etat* »: 1928, progressive lump-sum tax, then more refined income tax (1937). Data starts in 1946. Tunisians and Europeans (8%) are distinguished.

**Cameroon**: French mandate territory since 1920.

« *Impôt personnel nominatif* » for rich Africans, and « *impôt général sur le revenu* » for Europeans (0.1%). Data for 1945 only.

**Indochina**: 5 territories, colonies and protectorates, since 1897 for the 5.

« *Taxe personnelle* » on Europeans since 1920 (low rates), « *impôt général sur le revenu* » after 1938-41 (with non-Europeans also taxed and distinguished).

Data for 1921-1943.

## Contribution personnelle d'Etat

Année d'imposition 1947

TRANCHES DE REVENUS TAXES	EUROPEENS		TUNISIENS		TOTAUX	
	Nombre de contri- buables	Revenus taxés (millions de francs)	Nombre de contri- buables	Revenus taxés (millions de francs)	Nombre de contri- buables	Revenus taxés (millions de francs)
De 60.000 à 200.000.....	10.845	1.704,5	4.407	427,8	21.252	2.132,3
De 200.000 à 500.000.....	2.722	767,6	474	139,9	3.196	907,5
De 500.000 à 1.000.000.....	360	237,3	96	64,7	456	302,0
De 1.000.000 à 2.000.000.....	112	152,7	26	35,9	138	188,6
Plus de 2.000.000.....	43	119,4	7	47,7	50	167,1
Totaux en 1947.....	20.082	2.981,5	5.010	716,0	25.092	3.697,5
Totaux (année d'imposition 1938) .....	13.127	482,1	4.625	137,4	17.752	619,5

# Income tax tabulations

Income brackets	Total number of taxpayers	Total income declared
Above $\tilde{y}_0$	$N_0$	$Y_0$
Between $\tilde{y}_0$ and $\tilde{y}_1$	$N_1$	$Y_1$
...	...	...
Between $\tilde{y}_k$ and $\tilde{y}_{k+1}$	$N_k$	$Y_k$
...	...	...
Above $\tilde{y}_K$	$N_K$	$Y_K$

## IF... (a very big IF!!!)

- 1) ... We know total  $N$  of tax units (incl. non-eligible)  
 Cumulated population shares:  $P_k = 100 \cdot \sum_{j \geq k} N_j / N$   
 Interpolation : top  $q$  % for  $P_0 \leq q \leq P_K$
  
- 2) ... We know total  $Y$  of fiscal income  
 Cumulated income shares:  $S_k = 100 \cdot \sum_{j \geq k} Y_j / Y$   
 Interpolation :  $S_q$  for  $P_0 \leq q \leq P_K$

# Income tax deductions

Only taxable income is reported with sometimes deductions linked to family composition.

Count « family types » separately for Europeans & Autochthons

Assume distribution of types independent of income and does not vary too much in time

Compute weighted average deduction for each country-year

Shift income bracket and mean taxed income by the average deduction

Algeria 1932-45 & Tunisia 1947-56:

Lump sum deductions on taxable income for family charges:

Married couples

Number of children below 18 y.o.

Algeria population census 1948:

Distribution of family types for Muslims / non-Muslims:

Married / Single parent with one child, 2 children, 3, 4 or more

Assume Europeans are 80% of taxpayers (like in Tunisia)

# Population totals N

Count tax units = households

Algeria population census in 1948:

Married men above 15 y.o.

Divorced and widowed men & women 15-69 y.o.

100% single men & women 30-69 y.o.

80% of single men & women 25-29, 50% 20-24, 20% 15-19, 50% above 70

Europeans: 59% of total population; Muslims : 54% of total population

**For comparability with Atkinson on British colonies: take 60% of 15+ y.o. population**

Same for other colonies

Check for Indochina where we have all Europeans:

French in the military exempt (around 20%) from taxes

European civilians in employment fits well with the 60% 15+ y.o.

Age pyramids available for each colony → Number of 15+ reliably estimated



# Income totals Y

Ex. of Algeria:

National accounts for the years 1950-57

Projected backward using Samir Amin's estimates of GDP per capita

Consumer price in Algiers to get nominal values

Gross primary household income in the 1950s = 83% of GDP on avg

Metropolitan France:

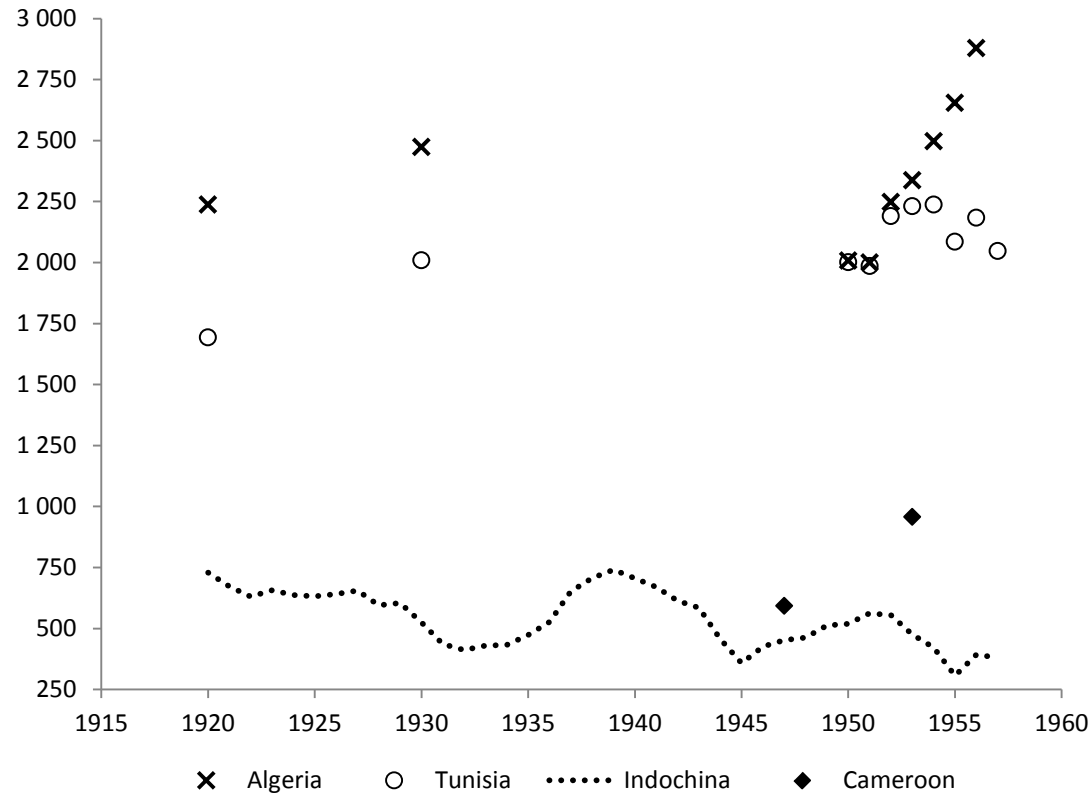
Household fiscal income = 60% of gross primary

(conceptual differences between fiscal and national accounts)

Back to Algeria:  $0.83 \times 0.60 = 0.50$ , we take 50% of GDP as income total

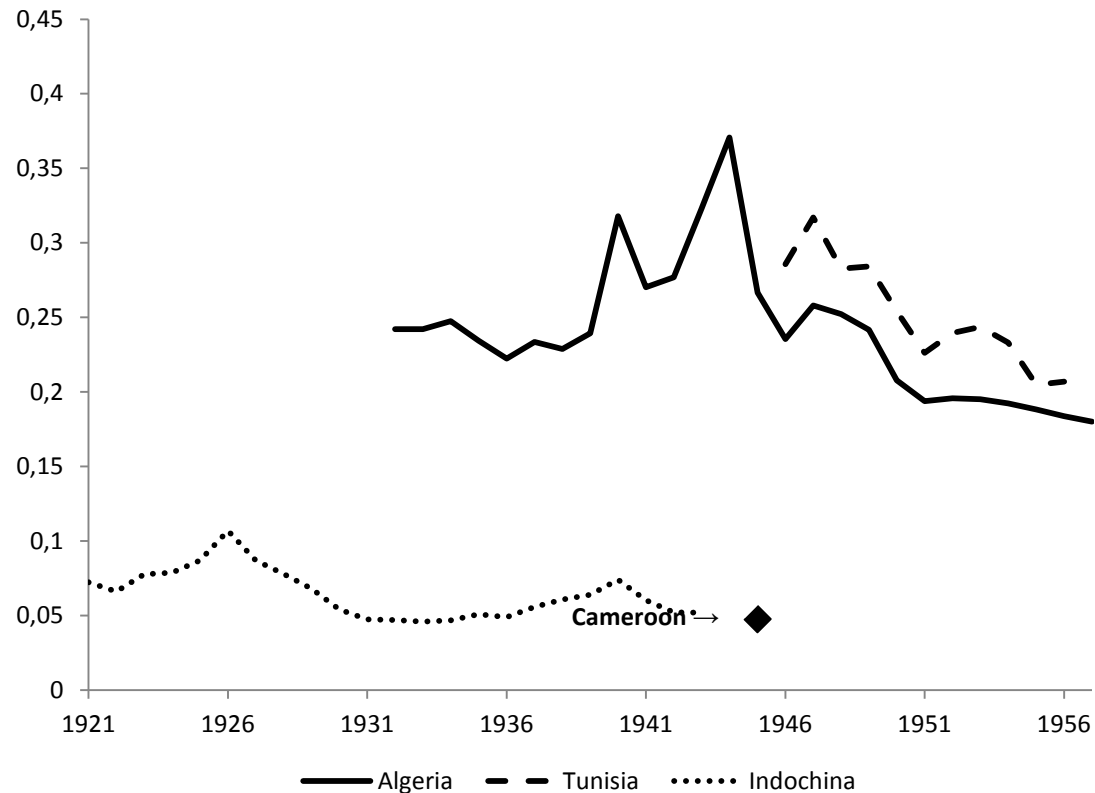
Same principles for other colonies: 50% of GDP everywhere

# GDP per capita PPP



PPP conversion factors from baskets of goods

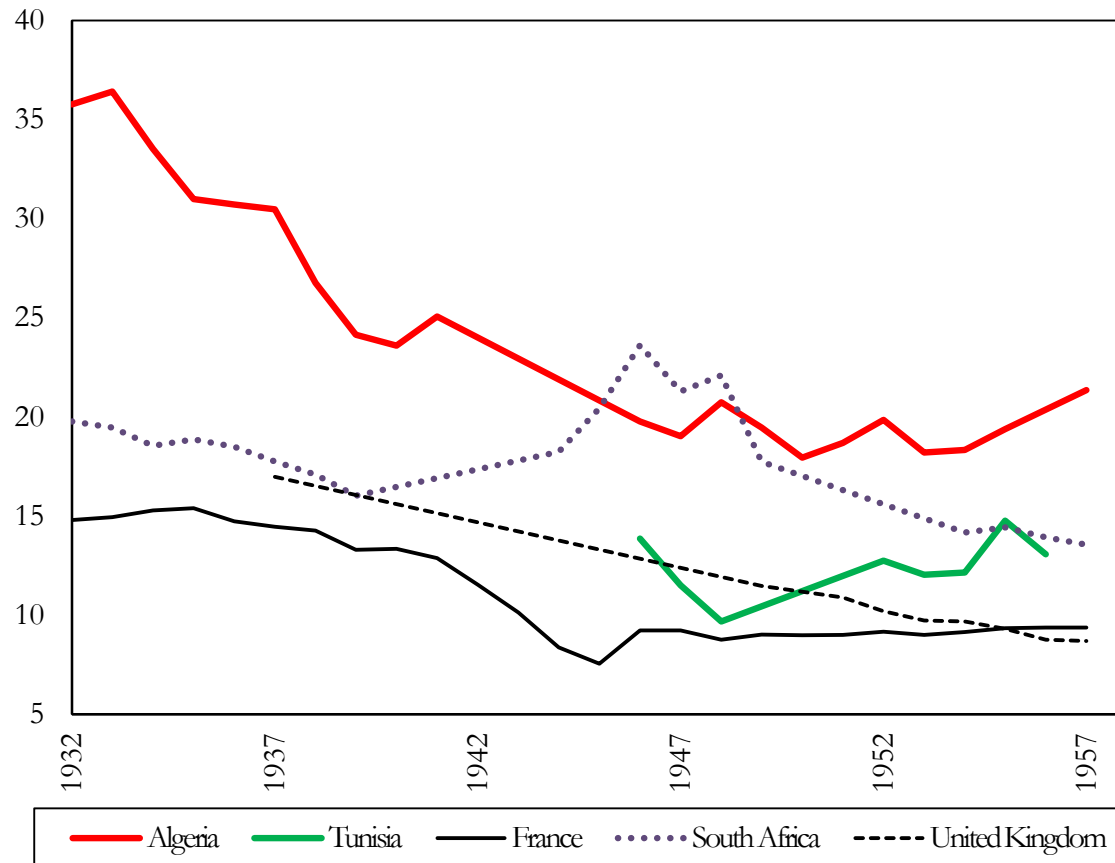
# Income per tax unit compared to France



Metropolitan France 3-5 times richer than Algeria / Tunisia

15-20 times than Cameroon / Indochina (here no PPP correction)

# Top 1% share



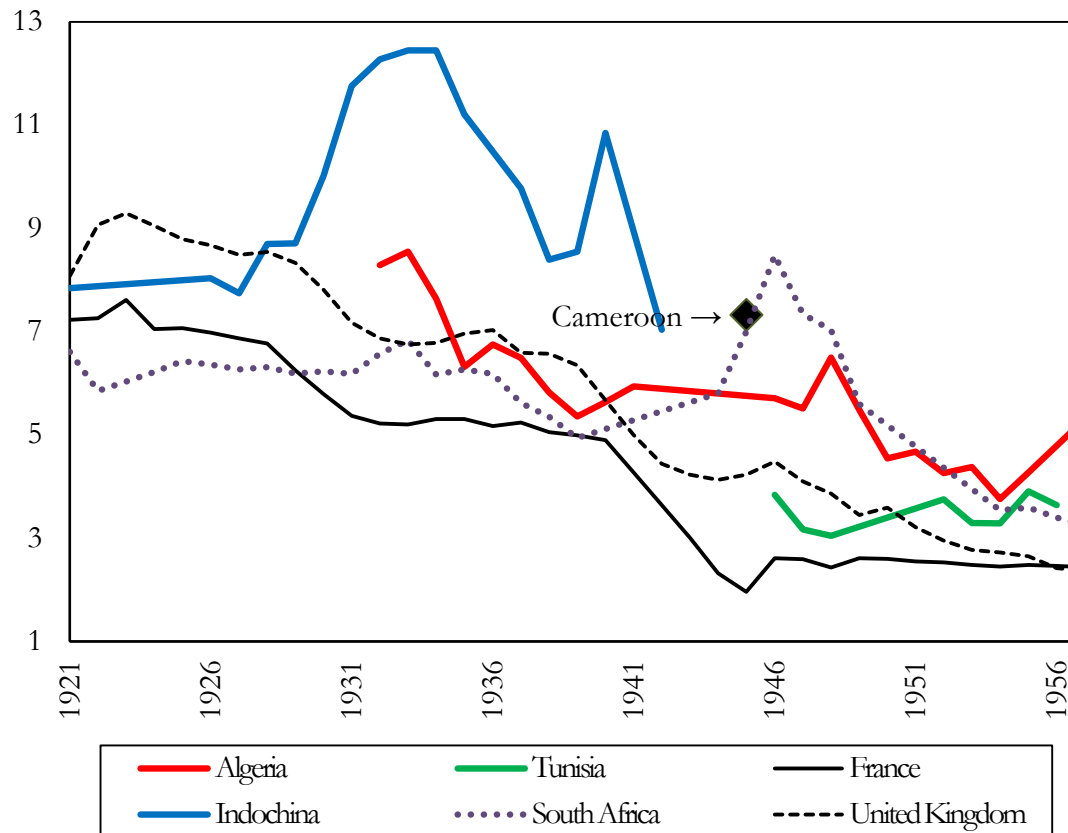
Algeria starts very high, even in comparison with S. Africa level.

Decline in 1930s and WW2, like France & UK.

Above 20% in 1950s while Tunisia 13%, & while France and UK below 10%.

Questions around income total Y? South African Y too high? Algeria too low?

# Top 0.1% share



Algeria again higher than France in the 1930s. Tunisia again lower than Algeria in 1950s.  
 Indochina at par with S. Africa, UK & France in the 1920s, then peaks during Great Depression (?)  
 Cameroon 1945 very high as well

# Top-earners compared to metropolitans

Ratio of top-earners' average income to metropolitan levels

Metropolitan:	Top 1%		Top 0.1%		Top 0.01%	
	Top 1%	Average income	Top 0.1%	Average income	Top 0.01%	Average income
Algeria 1932	0.6	8.7	0.5	24.1	0.4	73.1
Indochina 1932	-	-	.11	5.8	.07	12.6
South Africa 1932 <sup>(a)</sup>	-	-	0.3	23.9	0.3	74.5
Algeria 1946	0.5	4.7	0.6	16.1	1.1	56.7
Tunisia 1946	0.4	4.0	0.4	11.0	0.6	33.0
Cameroon 1945	-	-	.18	3.5	.15	8.9
South Africa 1946 <sup>(a)</sup>	-	-	<b>0.8</b>	37.9	<b>0.9</b>	112.2
Algeria 1955	0.4	3.6	0.4	9.6	0.4	28.4
Tunisia 1955	0.3	3.0	0.3	8.0	0.3	19.3
South Africa 1955 <sup>(a)</sup>	<b>0.8</b>	7.0	<b>0.7</b>	17.4	-	-

Reading: In 1932, the average income of top 1% in Algeria is 0.6 times the average income of top 1% in France, and 8.7 times the average income per tax unit in France.

Top-income taxpayers, mainly settlers, were not too rich by metropolitan standards. Except S. Africa in 1950s.

Across colonies: Inequality among settlers was limited (computations using top x% among Europeans, or 1,000 or 200 richest in each)

# Inequality among Europeans

Figure A2 – Top income shares within Europeans in Tunisia 1946-1956

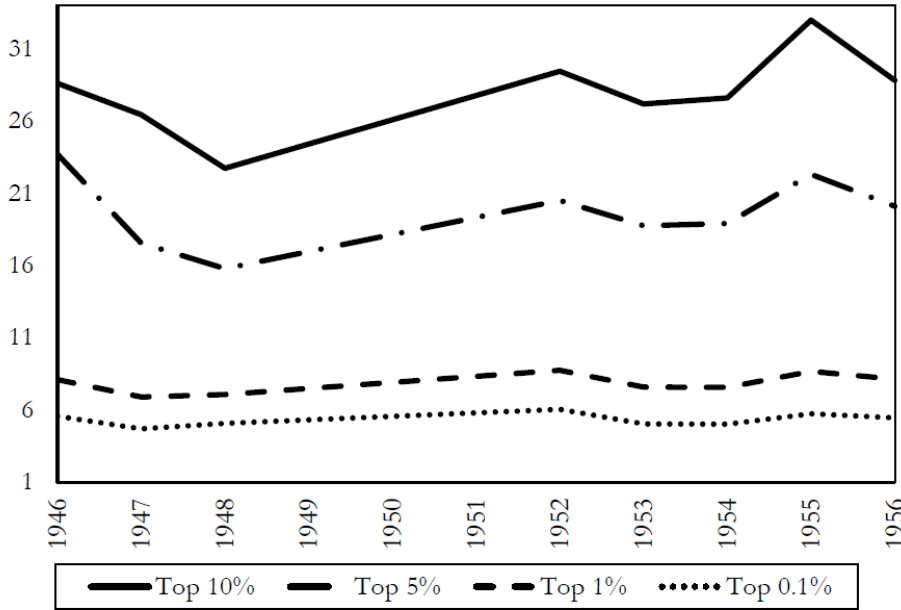
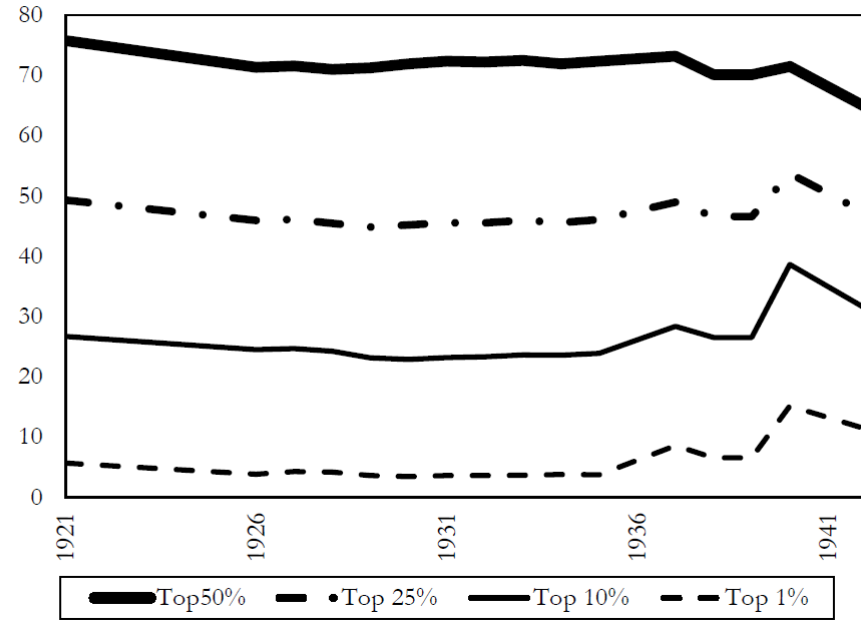


Figure A3 – Top income shares within Europeans in Indochina 1921-1943

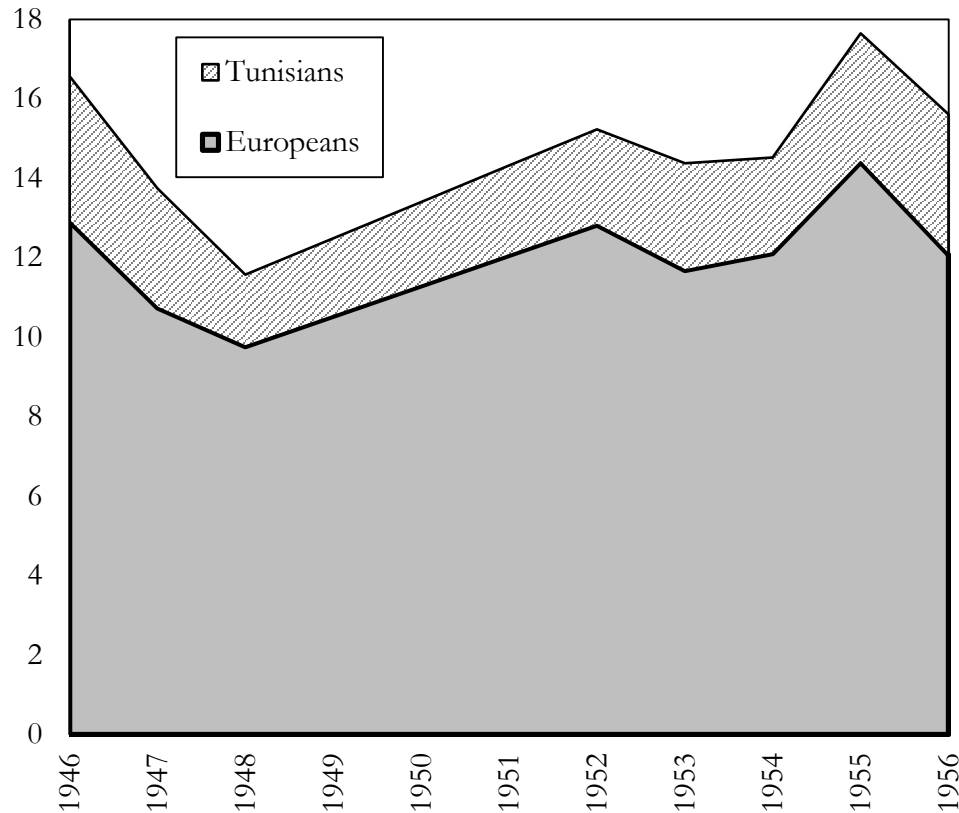


In Tunisia: need to estimate Europeans income total

In Indochina: 100% Europeans taxed

Within colony: inequality was low

# Rich autochthons?



Share of Tunisians in the top 1% (same in top 0.1%): 20%.

Top 1%: many salaried, top 0.1%: mostly traders and other non-salaried.

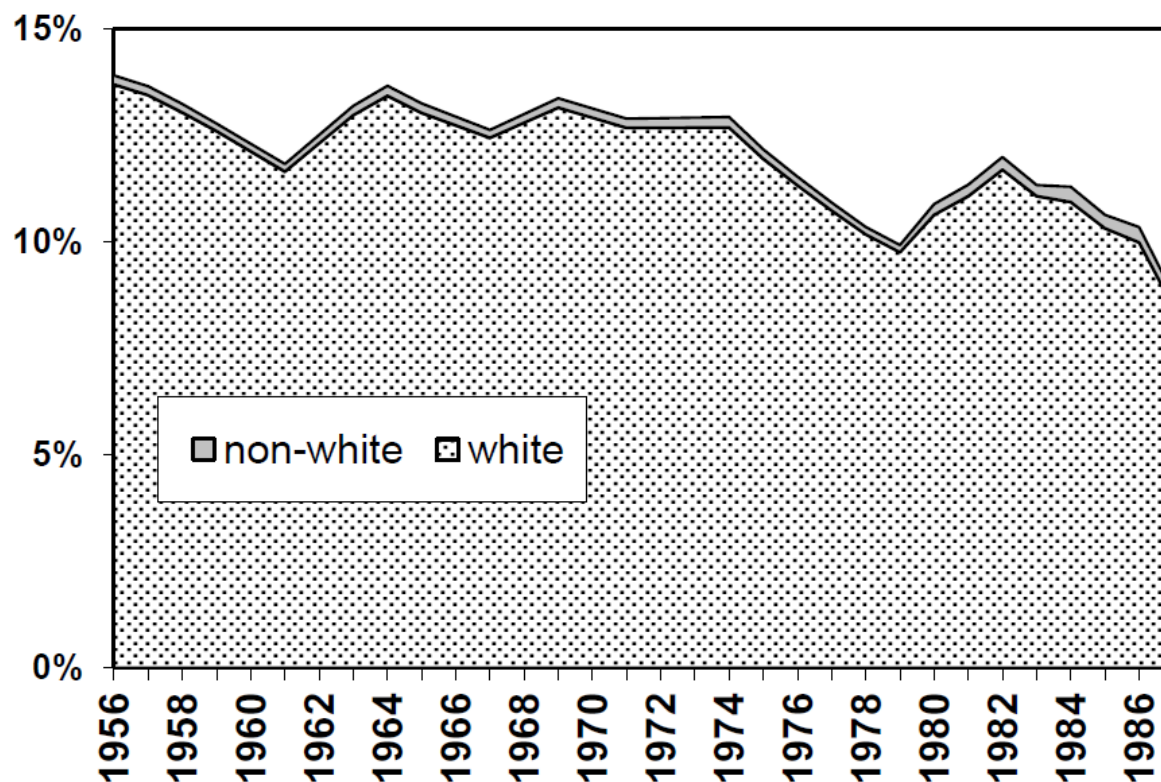
Cochinchine (extreme South Vietnam) in 1940 : 47% of non-Europeans in top 0.1%.

Cameroon: negligible share in top 0.1%



# South Africa

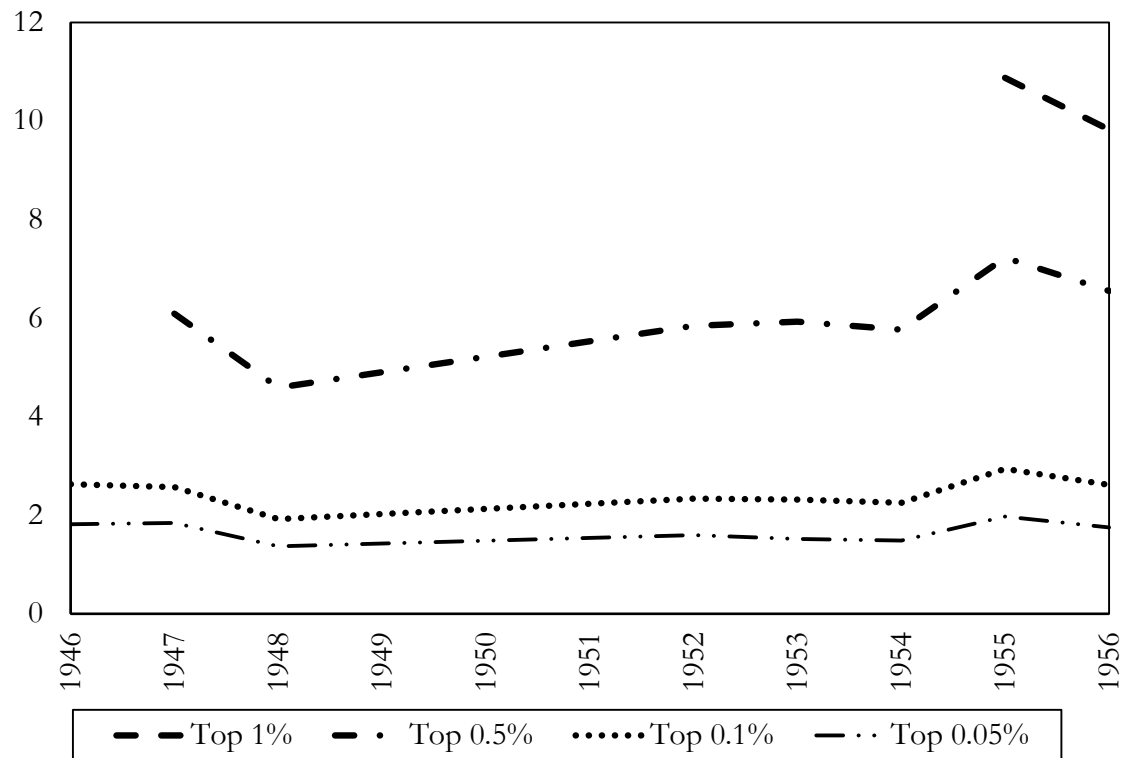
Figure A4 – Whites and non-whites within the top 1% share in South Africa



Racial divide seems less pronounced in Tunisia

Yet: Jews categorized as Tunisians, and make # 20% of non-Muslims

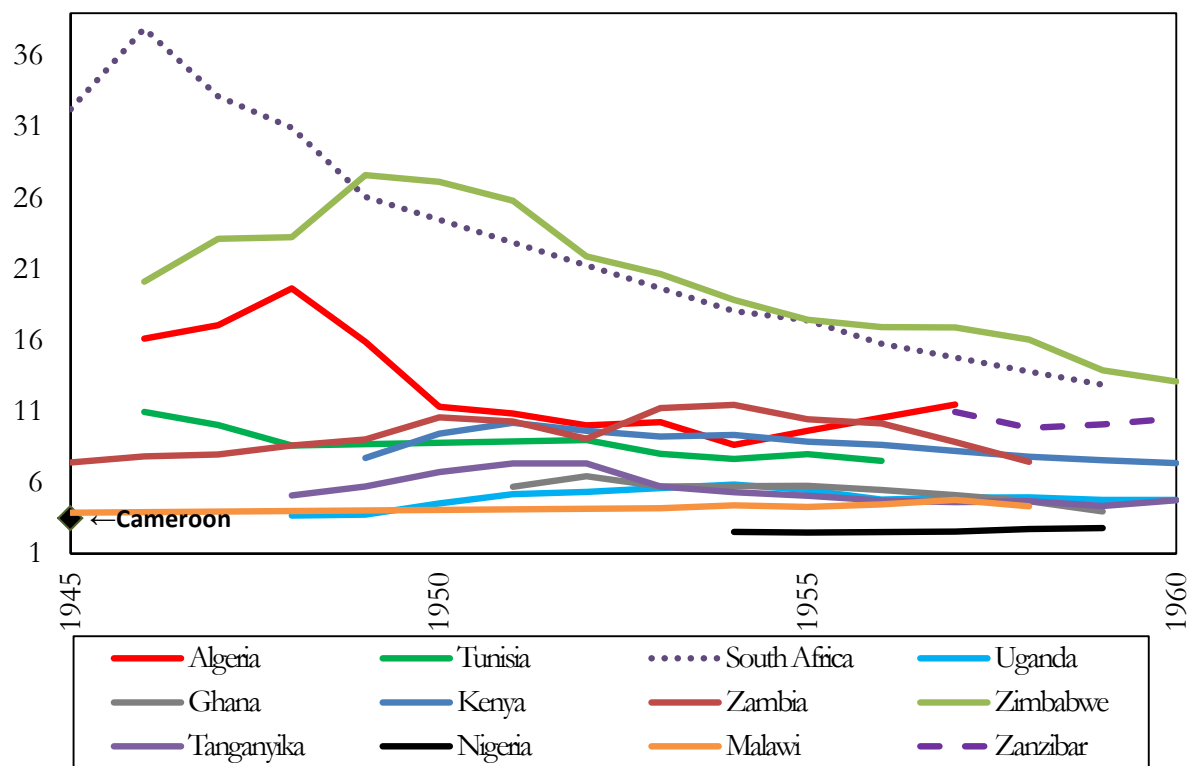
# Inequality among Tunisians



Inequality relatively higher than among settlers, let much lower than in India (Alvaredo, Bergeron & Cassan 2017). 1940 Cochinchina : more like India (6%)

**Here again, much sensitive to estimate of Muslims' income total (from Samir Amin)**

# French and British colonies



Uncertainties on income totals (see e.g. Jerven's *Poor numbers*)

Here: ratios to metropolitan average income (UK or France)

3 types of colonies: Separate development / Settlers who left / Non-settlers

# Conclusion

High top-income inequality in colonies. Higher than in metropolis, esp. in 1950s., especially in Algeria

Settlers make the bulk of top-income earners / taxpayers  
Rich 'relatively speaking', yet not so rich by metropolitan standards

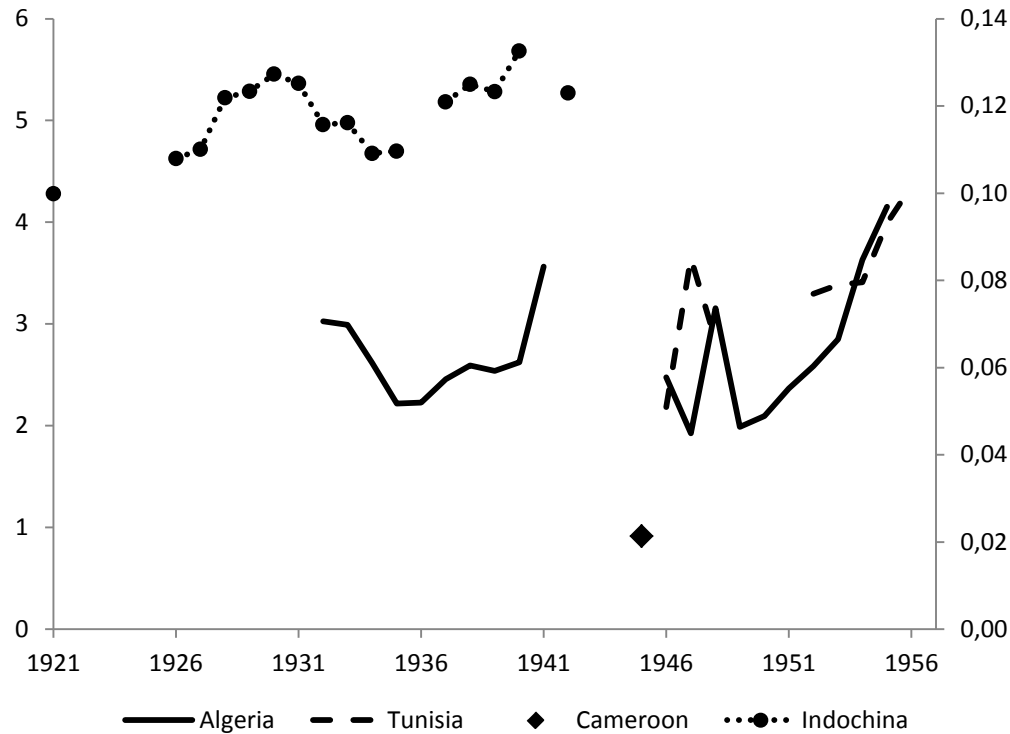
Inequality among settlers was limited

Inequality among autochthons harder to get at.

Cameroon: very low, but coverage issues; Tunisia: rather low; Indochina (Cochinchine 1940): high, as in India.

# Appendixes

# Income tax coverage



Share of actual tax payers in total tax units (households)

Imperfect enforcement (esp. on indigenous taxpayers) → lower bound

Indochina = right scale

Samir Amin's social table for Algeria and Tunisia for 1955

	Algeria		Tunisia	
	Number (000)	Income per head (000 francs)	Number (000)	Income per head (000 francs)
<b>Muslims</b>				
Small (landsize) farmers	210	60	80	90
Medium famers	210	200	105	150
Large farmers	50	560	45	450
Agricultural laborers				
Permanent	100	100	25	120
Non-permanent	500	40-60	110	60-70
Blue collars	225	150	118	160
Low rank white collars	90	270	35	300
Small business managers and middle- rank executives	135	270	53	300
Executives and managers	7-8	1000-1500	2-3	1000-1500
<b>Non-muslims</b>				
Non-muslim farmers	33	2800	6	2800
Blue collars	88	400	16	400
Low rank white collars	80	530	21	530
Small business managers and middle- rank executives	110	1150	31	1150
Executives and managers	27	3000	8	3000

Source : Samir Amin, 1966. *L'économie du Maghreb*, Paris : Editions de Minuit. Pages 130 & 136 for rural households, pages 155-157 & 166-167 for urban.

# Income inequality under colonial rule

Social tables:

- Labor earnings attached to occupations; land & capital incomes?
- Individual incomes / household incomes
- Names / contents / meaning of occupations vary across time & space
- Even with high disaggregation, within group inequality, esp. at the top



# Difference with surveys

Table A4 – Distribution of income among Tunisian Muslims according to a household survey in 1957

Income brackets (francs)	Rural			Urban			Total					
	N (thousands)		Income (millions)	N (000)		Income (millions)	N (thousands)		Income (millions)			
0 to 20000	1666	54%	21	26%	348	23%	6,3	7%	2014	43%	27,3	15%
20000 to 30000	605	73%	15	44%	222	37%	5,6	13%	827	61%	20,6	27%
30000 to 40000	305	83%	11	57%	93	43%	3,3	16%	398	70%	14,3	35%
40000 to 50000	177	89%	8	67%	117	51%	5,3	22%	294	76%	13,3	43%
50000 to 60000	101	92%	6	74%	118	59%	6,5	28%	219	81%	12,5	50%
60000 to 70000	69	94%	4	79%	55	62%	3,6	32%	124	84%	7,6	54%
70000 to 80000	41	96%	2	82%	73	67%	5,5	38%	114	86%	7,5	58%
80000 to 90000	27	96%	2	84%	46	70%	3,9	42%	73	88%	5,9	62%
above 90000	110	100%	13	100%	457	100%	55	100%	567	100%	68	100%
Total	3101		82		1529		95		4630		177	

Source : Samir Amin, 1966. *L'économie du Maghreb*, Paris : Editions de Minuit. Page 122 for rural households, page 159 for urban.

From the survey: top 12% = 38%, among Tunisian Muslims

Income tax tabulations do not go beyond top 1% = 14%, and include Tunisian Jews

# Pareto interpolation (1)

Assume income is Pareto:

$$\Pr(Y \leq y) = 1 - \left(\frac{y}{y_{min}}\right)^{-\alpha}$$

Equivalently: fractal top-income inequality: top 0.01% M times richer than 0.1%, top 0.1% M times than 1%, etc.

Let  $y_q$  be the  $q$ th percentile in the distribution of  $y$ :

$$\Pr(Y > y_q) \equiv \frac{q}{100} = \left(\frac{y_q}{y_{min}}\right)^{-\alpha}$$

We also have: (proof not shown)

$$E(Y | Y > y_q) = [\alpha / (\alpha - 1)] y_q$$

Hence:

$$S_q = \frac{q \cdot E(Y | Y > y_q)}{100 \cdot E(Y)} = \frac{q \cdot E(Y | Y > y_q)}{100 \cdot E(Y | Y > y_{min})} = \left(\frac{q}{100}\right)^{1-1/\alpha}$$

# Pareto interpolation (2)

Estimate  $\alpha$  for the income bound  $k$  closest to  $q$ :

$$\frac{\alpha_k}{\alpha_k - 1} = \frac{E(Y | Y > \tilde{y}_k)}{\tilde{y}_k}$$

then extrapolate to:

$$S_q = \left( \frac{q}{100} \right)^{1 - 1/\alpha_k}$$

(The  $\alpha_{k(q)}$  may then vary with  $q$ )

# French and British colonies

