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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<br>DE REVENUS TAXES              | EUROPEENS                       |   | TUNISIENS                       |   | TOTAUX                          |   |
|---|---------------------------------|---|---------------------------------|---|---------------------------------|---|
|   | Nombre<br>de contri-<br>buables | Revenus<br>taxés<br>(millions<br>de francs) | Nombre<br>de contri-<br>buables | Revenus<br>taxés<br>(millions<br>de francs) | Nombre<br>de contri-<br>buables | Revenus<br>taxés<br>(millions<br>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<br>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:

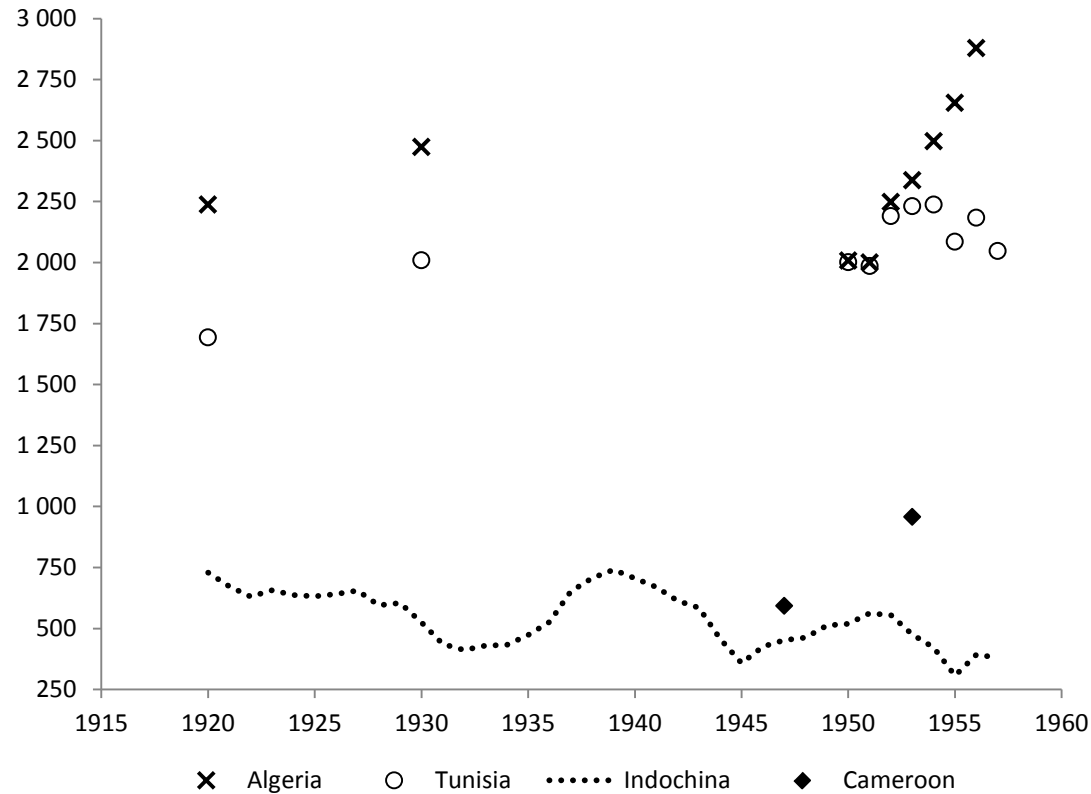
Household fiscal income = 60% of gross primary

(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

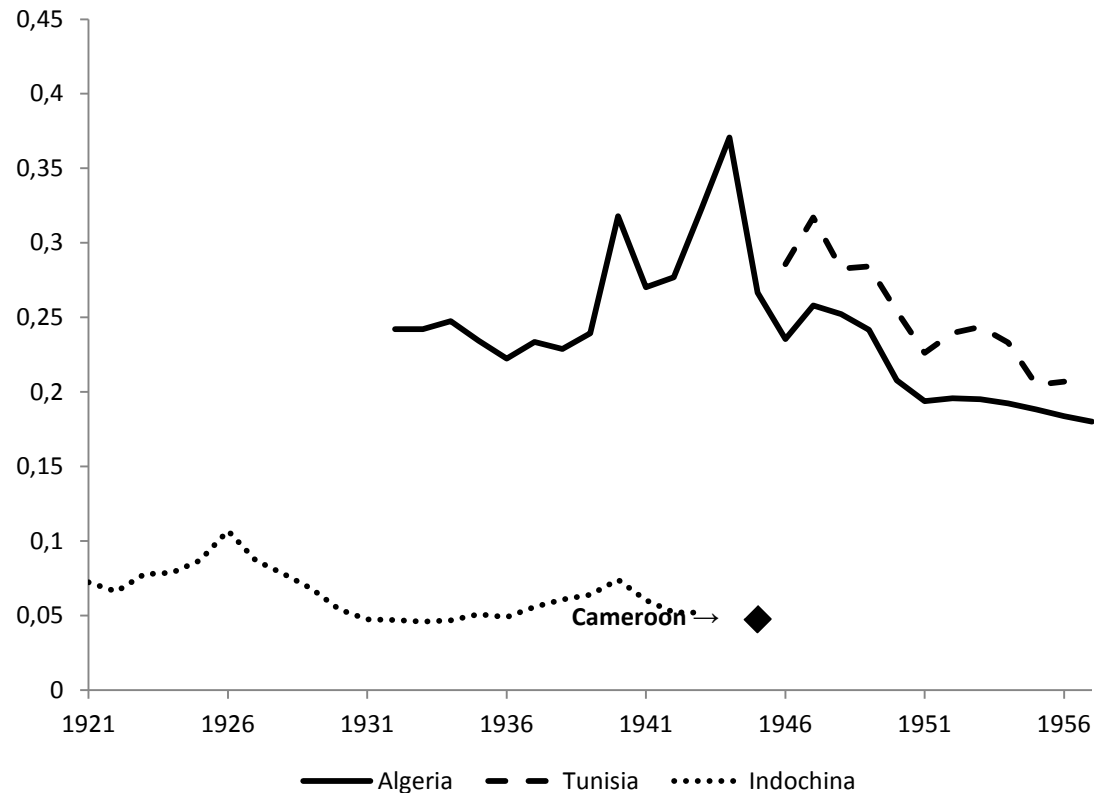
Same principles for other colonies: 50% of GDP everywhere

# GDP per capita PPP



PPP conversion factors from baskets of goods

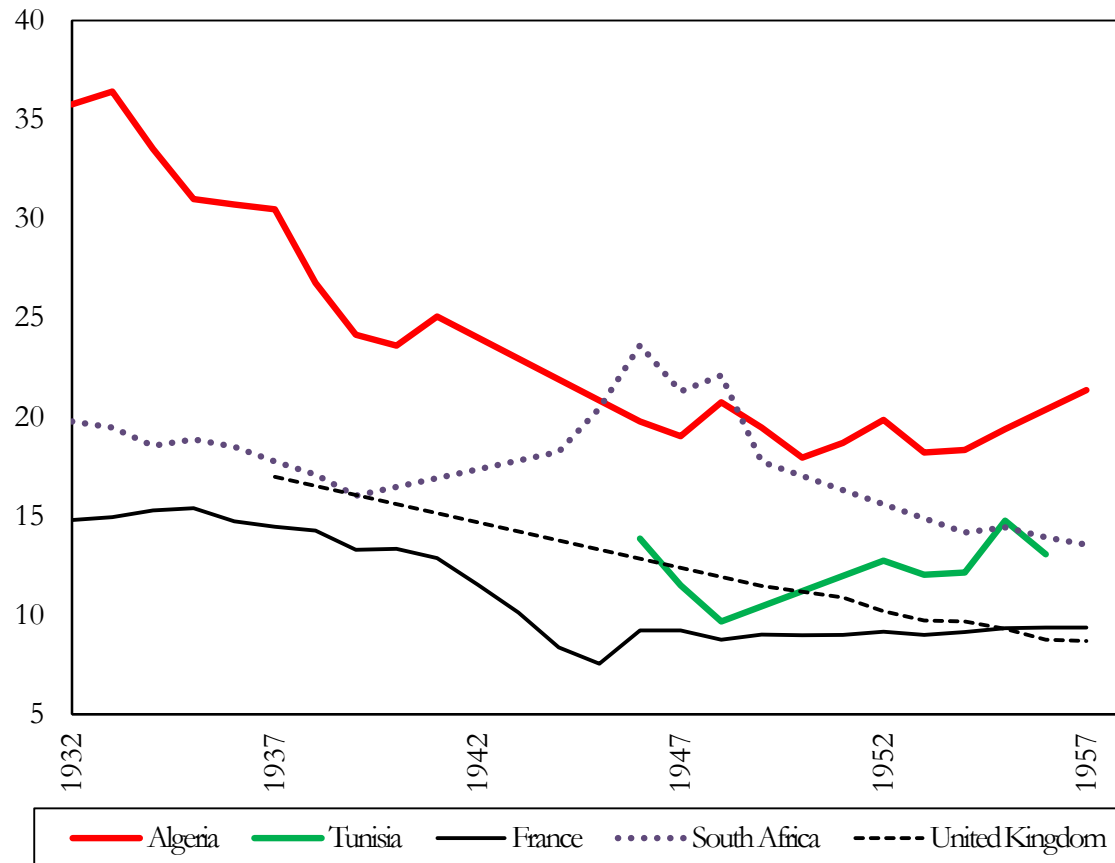
# Income per tax unit compared to France



Metropolitan France 3-5 times richer than Algeria / Tunisia

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

# Top 1% share



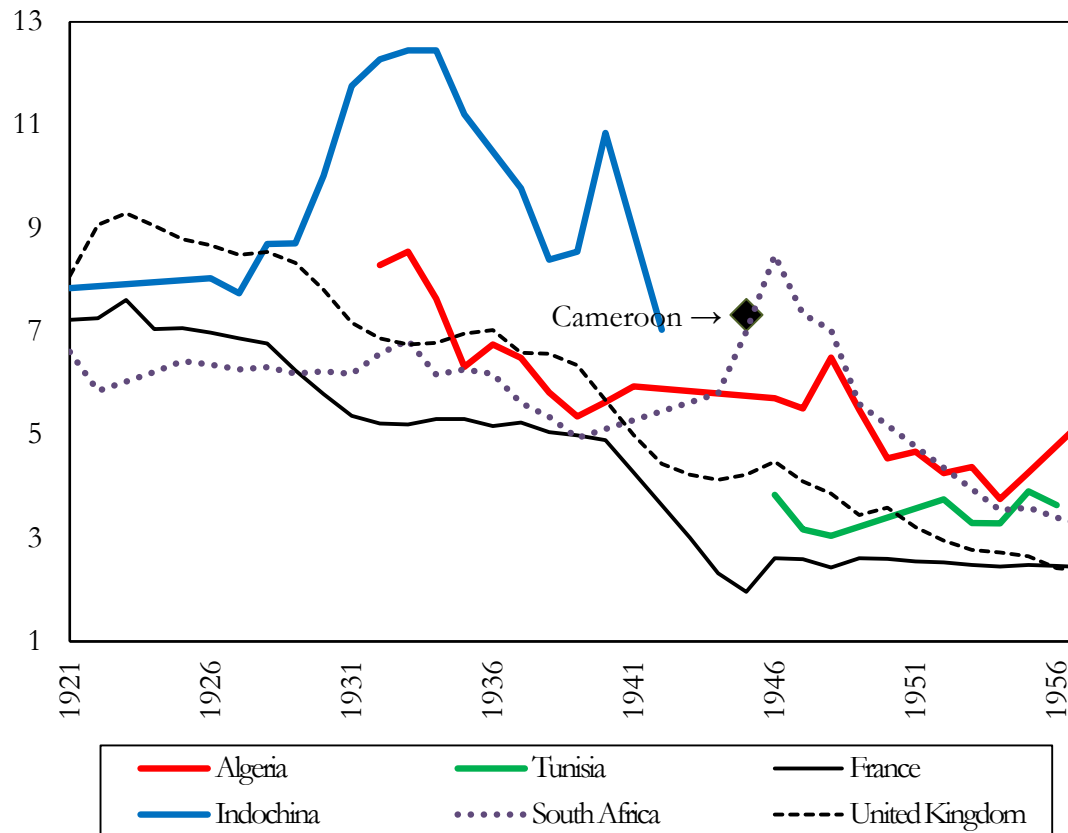
Algeria starts very high, even in comparison with S. Africa level.

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

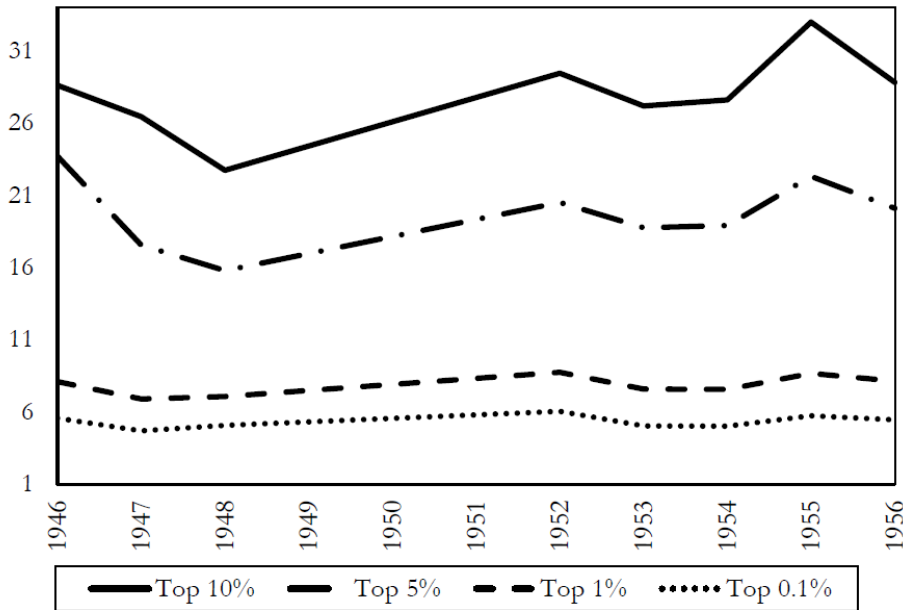
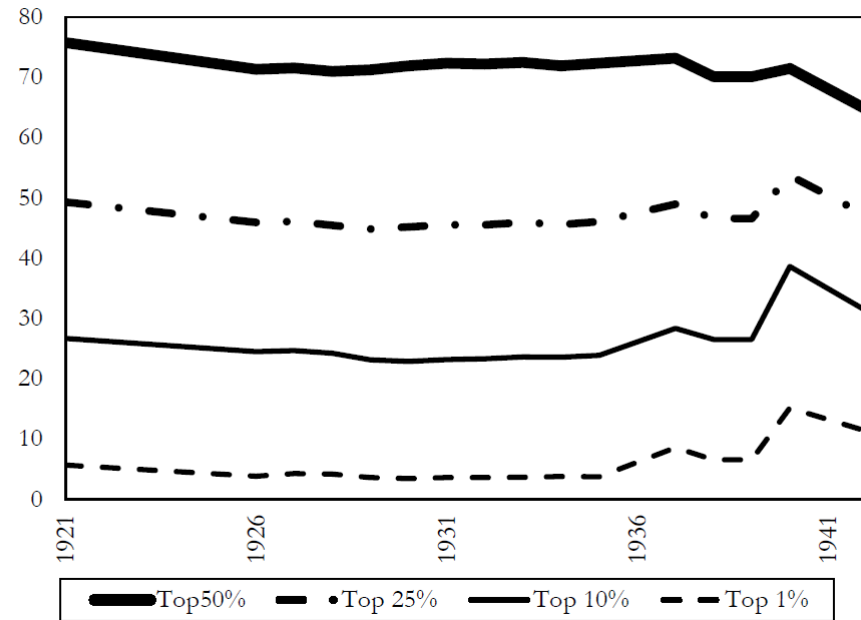


Figure A3 – Top income shares within Europeans in Indochina 1921-1943

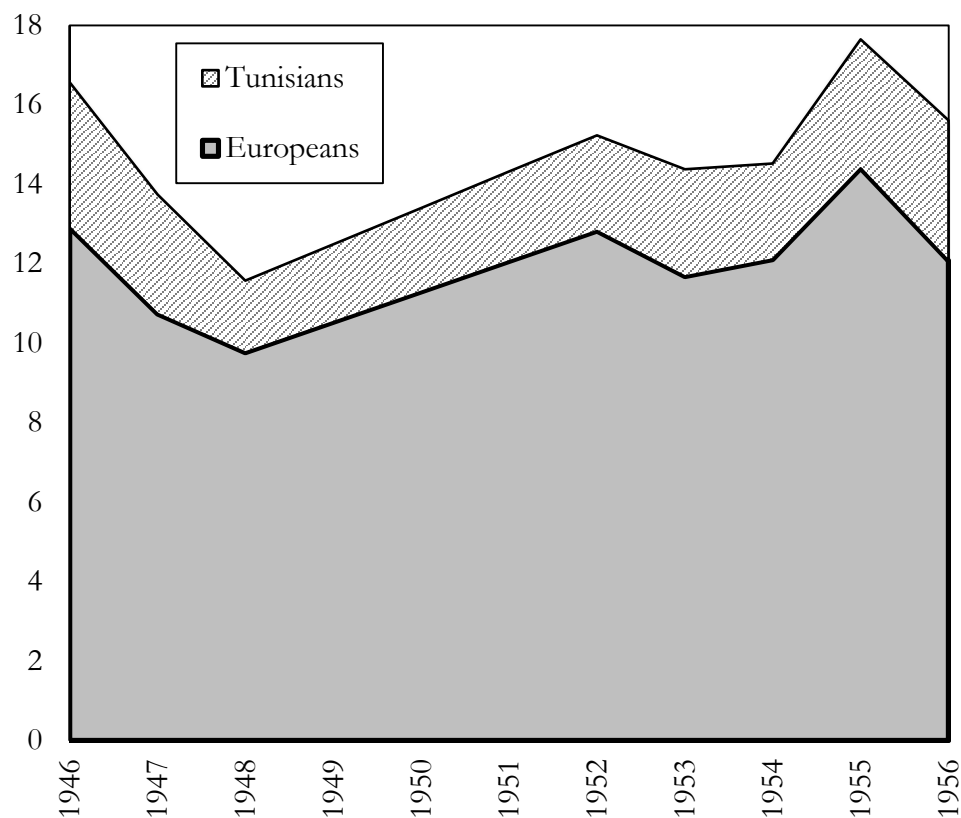


In Tunisia: need to estimate Europeans income total

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.

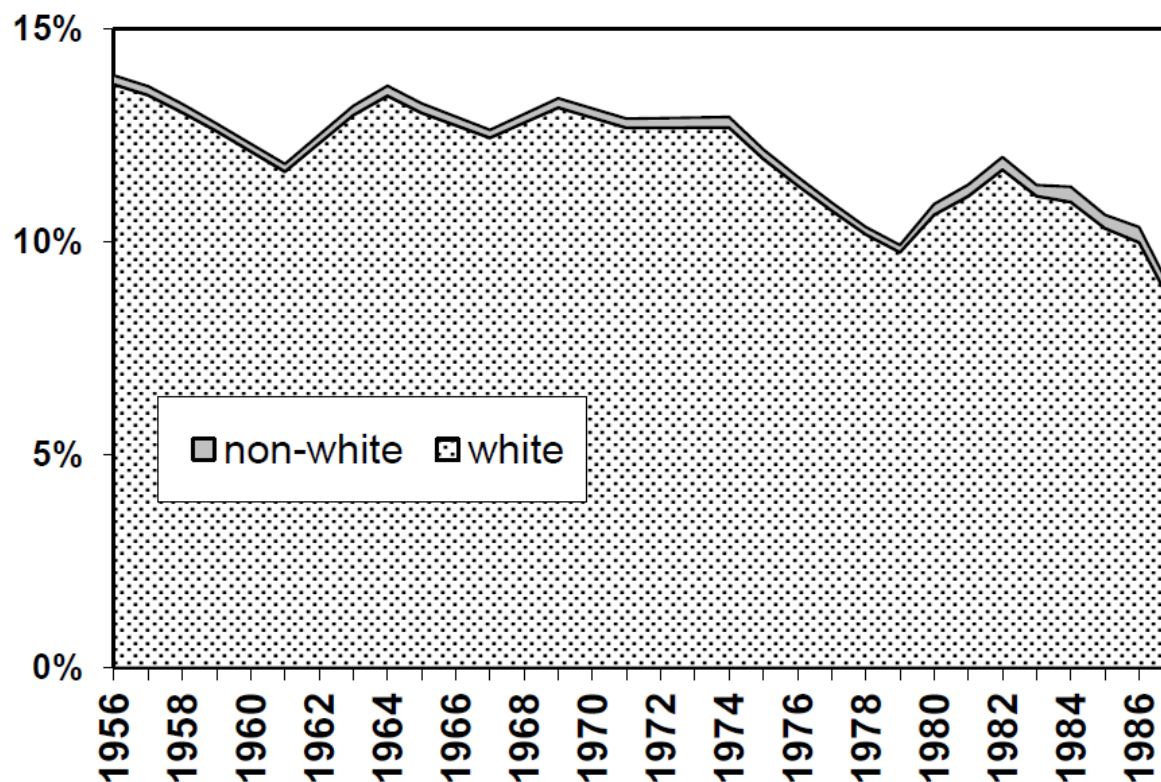
Cochinchine (extreme South Vietnam) in 1940 : 47% of non-Europeans in top 0.1%.

Cameroon: negligible share in top 0.1%



# South Africa

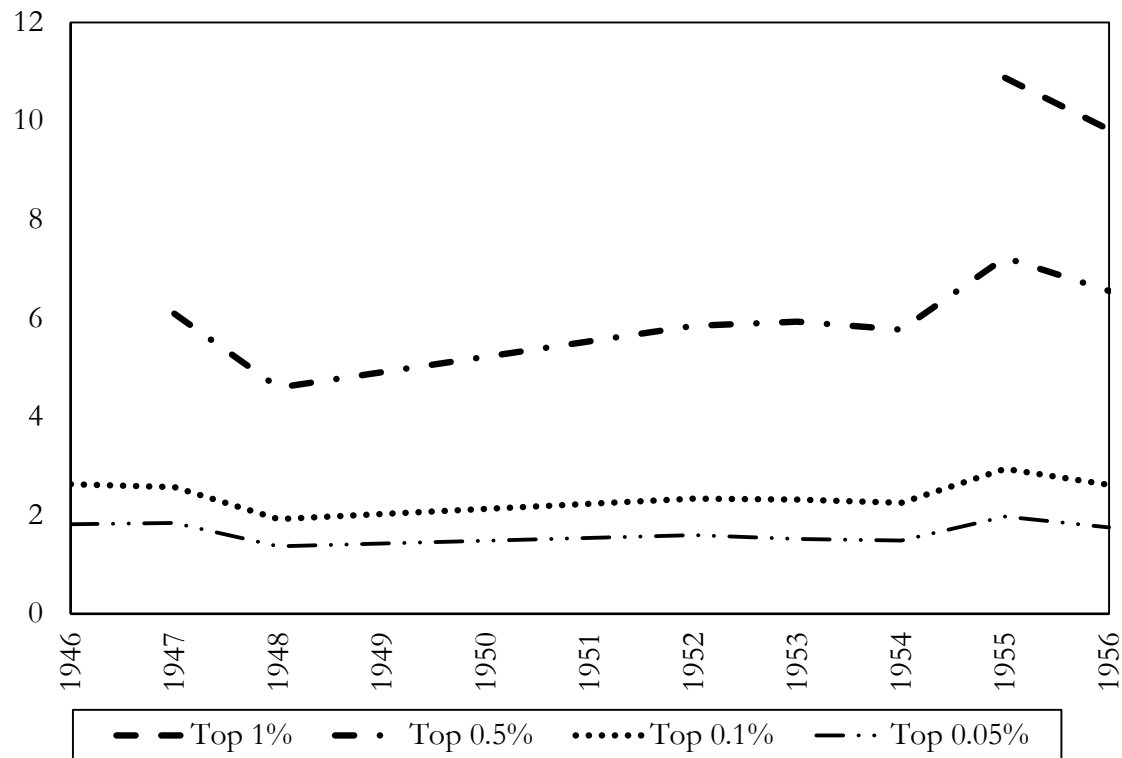
Figure A4 – Whites and non-whites within the top 1% share in South Africa



Racial divide seems less pronounced in Tunisia

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

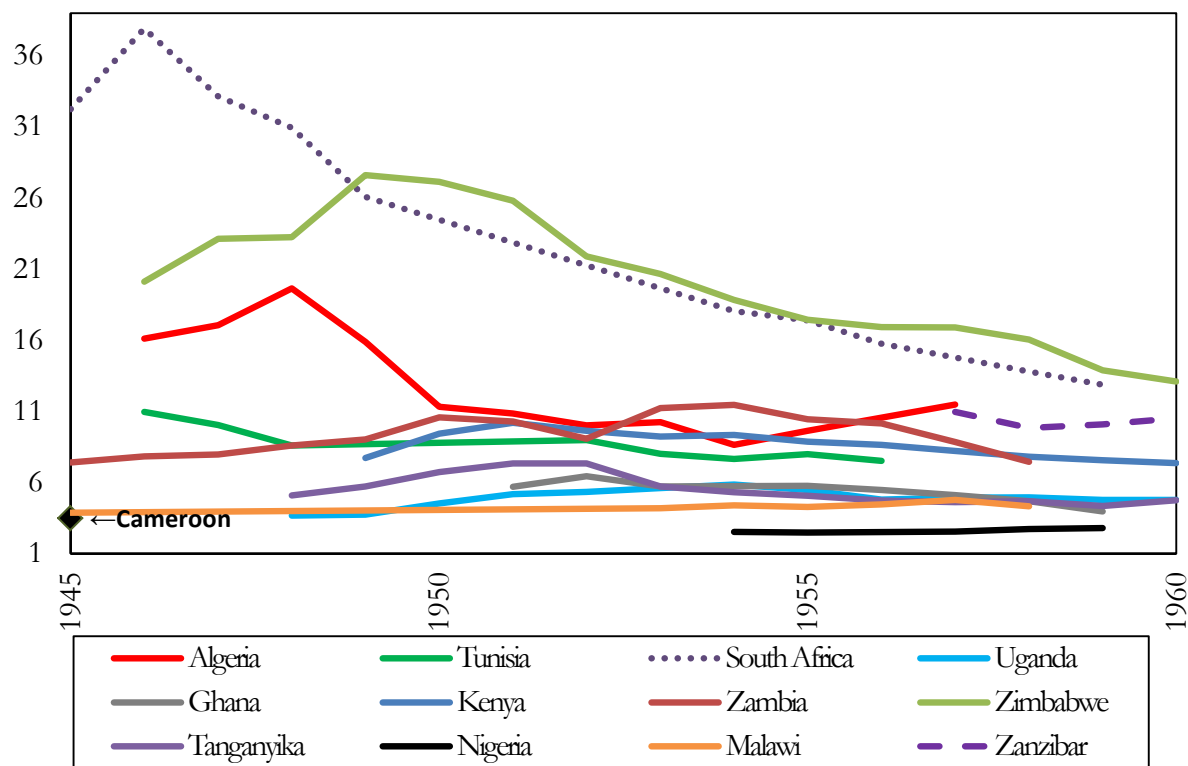
# Inequality among Tunisians



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

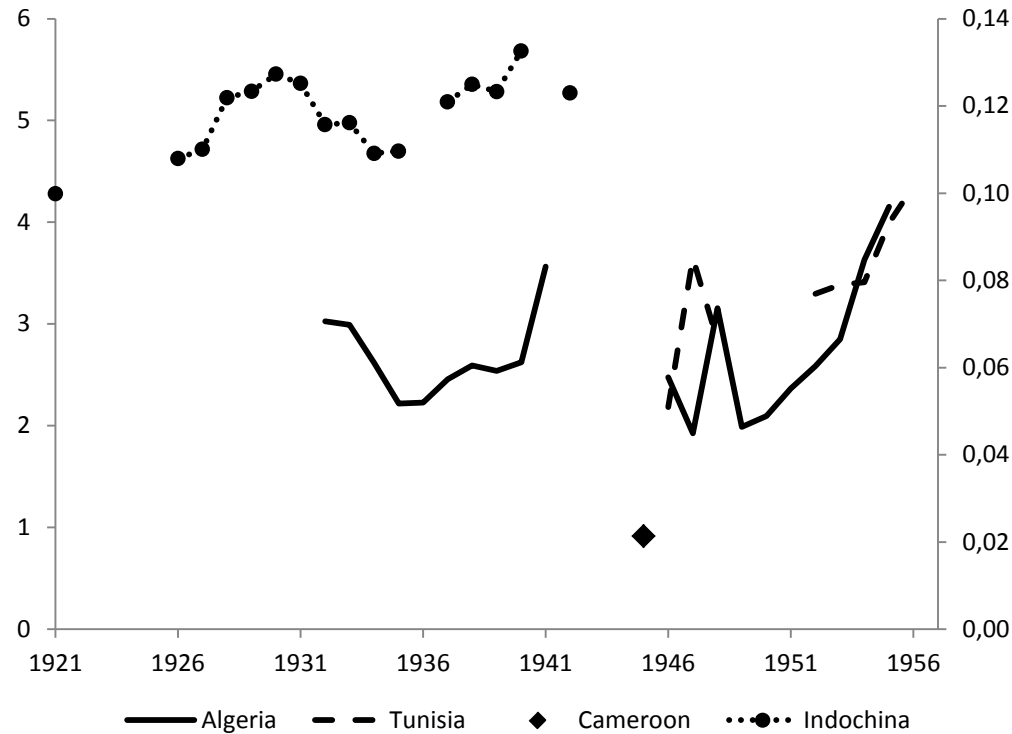
Inequality among settlers was limited

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<br>(000) | Income per<br>head<br>(000 francs) | Number<br>(000) | Income per<br>head<br>(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-<br>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-<br>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% |
| <b>Total</b>             | <b>3101</b>   |      | <b>82</b>         |         | <b>1529</b> |                   | <b>95</b>     |      | <b>4630</b>       |      | <b>177</b> |      |

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

