

Fiscal Capacity and Dualism in Colonial States: The French Empire 1830-1962

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Appendix 2 – Comparisons of fiscal extraction

In order to gauge the level of fiscal extraction in the French empire, we compare revenue to GDP ratios in French colonies to revenue to GDP ratios in other colonies, British ones in particular, and in independent countries.

Revenue to GDP data

We make use of the historical dataset constructed by Mauro et al. (2013), which provides us with central government revenue to GDP ratios for an unbalanced panel of 55 countries over 1800-2011, all independent countries except British India (1861-1947) and Hong-Kong (1961-1997). The IMF dataset draws in particular from the compilation of Mitchell (1998). Yet, as the authors also needed data on public expenditure and debt, they disregarded many countries-years for which central government revenue is reported in Mitchell, and for which estimates of nominal GDP at market prices can be found. We then complement Mauro et al. with the data points listed in Table A2.1. This allows us to add observations for some British colonies in Africa from the late 1930s to independence, British Malaya (1950-1963), and for two Japanese colonies, Korea and Taiwan before 1945.

All central government revenue figures are from Mitchell, with the exception of Ghana 1939 to 1950, 1955 and 1958 which are from Cogneau, Dupraz, Mesplé-Somps (2018).¹ Malawi (former Nyasaland), Zambia (former Northern Rhodesia) and Zimbabwe (former Southern Rhodesia) formed the Central African Federation (CAF) between 1953 and 1963, with part of its revenue, in particular trade taxes, being reported as a federal aggregate (reported in Mitchell 1955 to 1963; see also IBRD 1958). We treat the CAF as a single country between 1950 and 1969.

Before 1960, nominal GDP figures are mainly from Atkinson (2015a, b & c) for British colonies in Africa, and otherwise from Mitchell. Like we did for French colonies (see Online Data Appendix 1), we anchor our GDP estimates on the level of nominal GDP for the year

¹ Between 1939 and 1949, revenue data of Ghana from Mitchell include the gross revenue of state railways and a harbor, without netting out their outlays. This makes Mitchell figures exceed our estimates by 30 to 80%. Before 1939 and after 1949, the two series are much closer.

1960 reported in the World Development Indicators from the World Bank (2017), when available (all, except Mauritius and Tanzania): we import the World Bank figures for 1960-1969 and extrapolate them backward using the variation in nominal terms found in Atkinson or Mitchell.

Table A2.1 – Additional data points to complement Mauro et al. (2013)

Country	Years	Sources for nominal GDP estimates before 1960
Ghana	1939, 1943, 1945-1969	Atkinson (2015a)
Iraq	1950-1969	Mitchell
Kenya	1936, 1943-45, 1950-69	Atkinson (2015c)
Korea	1911-1938	Mitchell
Malawi	1938, 1948-69	Atkinson (2015b)
Malaysia	1950-1969	Mitchell
Mauritius	1950-1969	Mitchell
Myanmar	1950-1969	Mitchell
Nigeria	1950-1969	Mitchell & Atkinson (2015a)
Sri Lanka	1950-1969	Mitchell
Sudan	1950-1969	Mitchell
Taiwan	1903-1938, 1951-1969	Mitchell
Tanzania	1948-1969	Atkinson (2015c) & Mitchell
Uganda	1948-1969	Atkinson (2015c)
Zambia	1929-1969	Atkinson (2015b) & Mitchell
Zimbabwe	1919-1939, 1944-1969	Atkinson (2015b) & Mitchell

Finally, as our comparators dataset reports the revenue of the central government, we discard the revenue of lower administrative layers from the French colonies estimates. For sub-Saharan Africa, we include the estimates of *corvée* revenue, using van Waijenburg (2018), as described in the main text (page 11).²

² We use van Waijenburg estimates of *corvée* revenue relative to total budgetary revenue (2018, p. 65) and Frankema and van Waijenburg (2014, p.383) estimates total revenue of to get at the level of *corvée* revenue, that we translate from £ 1911 to current franc and express as a share of our own estimates of net public revenue. From van Waijenburg table, we use the year 1925 for the 1920s and the year 1934 for the 1930s. In 1925, revenue is reevaluated upward by 24% in FWA, 18% in FCA, 63% in Cameroon, 17% in Togo and 10% in Madagascar. In 1934, the same figures are respectively 14, 16, 20, 44 and 2%.

Of course, we acknowledge the uncertainty affecting these estimates. Apart from French colonies, the only revenue data that we could check in original archives are the ones of Ghana and Nigeria. Even if we only compare central government revenue, the level of decentralization can vary across countries and years.

Wagner's law

Because state size tends to increase with GDP, an empirical regularity often called “Wagner’s law” (Wagner 1893; Lindert 2004), we restrict the comparison to countries close enough in terms of GDP per capita, i.e. lying in the 0 to 2,000 US dollars range (in 1990 dollars PPP). We compare actual revenue to GDP ratios to a “Wagner’s law” prediction from GDP per capita. As we want to compare states of the French empire with an independent international standard, we exclude all colonies from the sample that serves to generate this prediction. It means we not only exclude French colonies, but also British and Japanese colonies, using only independent countries (including former colonies after their independence). In any case, the estimated Wagner’s law is not much different when we include non-French colonies in the estimation. To estimate a Wagner’s law, we adopt the following procedure.

First, we match revenue to GDP data with real GDP per capita estimates. For all countries except French colonies, real GDP per capita after 1950 is from Angus Maddison (Maddison project database version 2013; Bolt and van Zanden 2014). For the British colonies in Africa, Broadberry and Gardner (2019) extend Maddison’s estimates before 1950. For the French colonies, in order to translate our estimates of GDP per capita (in 1937 francs PPP) into the Maddison’s metric (in 1990 dollars PPP) we compute a conversion factor as the ratio of Maddison’s estimate to ours for France in 1937. We apply this conversion factor to our GDP per capita estimates for the French colonies.

Second, we compute simple decadal averages.

Third, on these averages and for the sub-sample of independent countries, we regress revenue to GDP ratios on a quartic of GDP per capita and decadal dummies, for the nine decades between 1880 and 1969.³ This regression provides us with parallel “Wagner’s law” predictions of revenue to GDP ratios, one for each decade. Decadal shifts are meant to reflect

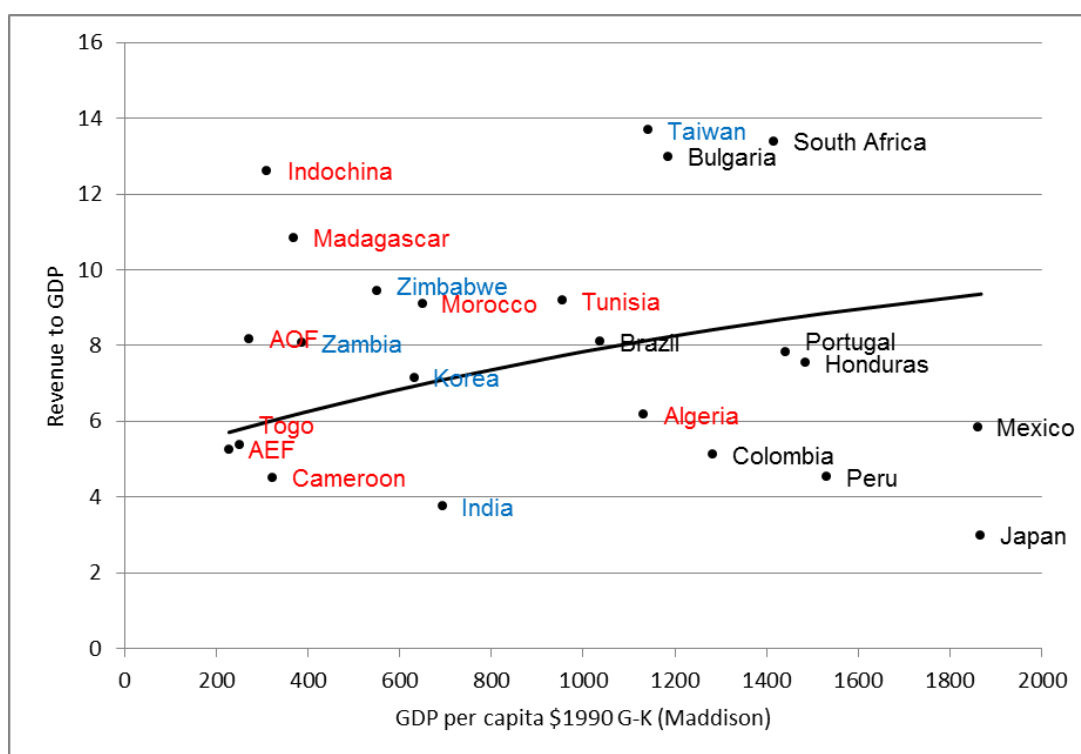
³ As we work with decadal data, we record a country-decade as independent if there is a minority of years under colonial rule in the decade. Asian colonies are considered as decolonized in the 1950s, except Hong-Kong and Malaysia; African colonies and Malaysia in the 1960s; Hong-Kong only in the 2000s.

technological progress in tax collection, thanks in particular to the improvement of transportation and communication technologies.

Results

Figure A2.1 plots average revenue to GDP ratios against GDP per capita in the decade 1920-29. All French colonies lie near or above the “Wagner prediction”, except Algeria, where lower administrative layers represented a substantial share of revenue, and Cameroon, where the French mandate had just started. They compare very well with richer independent countries in Latin America.

Figure A2.1 – Revenue to GDP ratios and GDP per capita in the 1920s



Notes: Revenue is central government revenue, and includes an estimate of *corvée* revenue for AOF, AEF, Cameroon, Madagascar and Togo. French colonies are in red, other colonies in blue, independent countries in black. **Sources:** Authors' data and Mauro et al. (2013), see text.

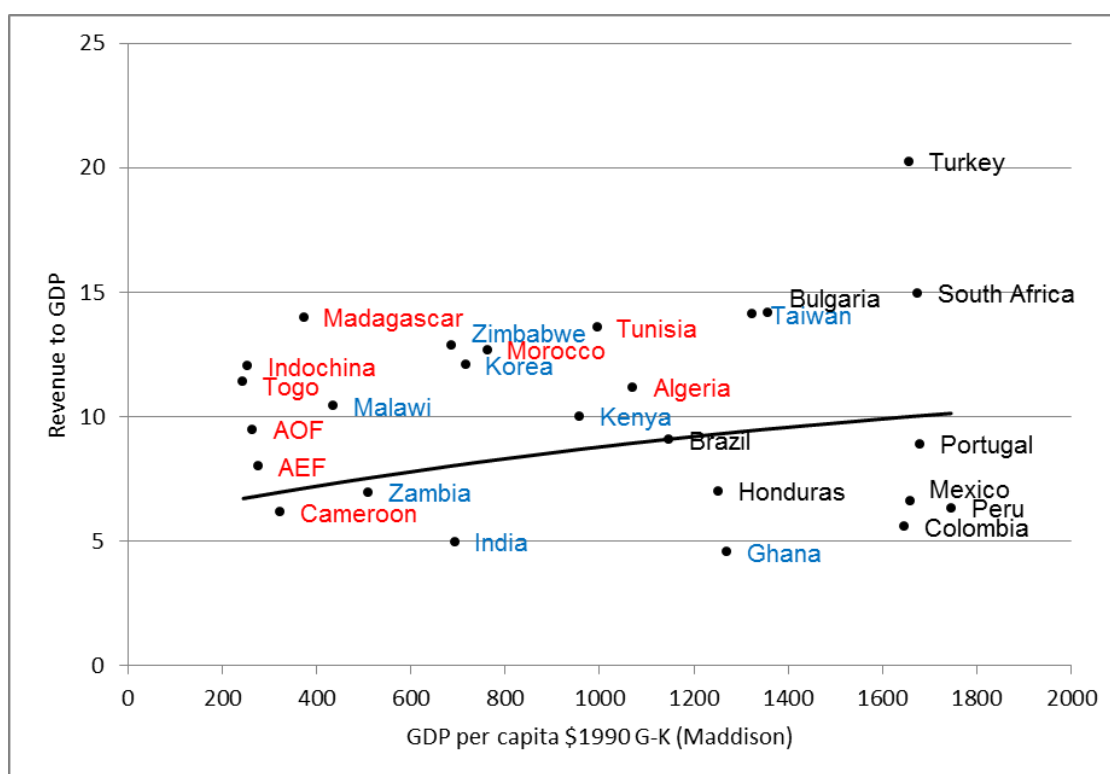
Below the 1000 dollars threshold, only poor colonies are found. Among the British ones, the Northern (Zambia) and Southern (Zimbabwe) Rhodesias lie well above the predicted international average, while India lies significantly below.⁴ Japanese Korea (annexed in 1910) is close to the prediction, but Japanese Taiwan (annexed earlier in 1895), having almost twice higher income capita, exhibits outstanding fiscal extraction. We conclude that there was no

⁴ For British India, Roy (2019, p. 79) gives a close enough figure of 5% of GDP. For British Burma in 1926-27, Booth (2007) gives a figure of 11.3% of NDP, close to French Indochina, although the ratio to NDP is overestimating the ratio to GDP.

French exceptionalism in fiscal extraction, and rather that colonies outperformed independent countries; one significant exception was British India.

How would errors in GDP estimates affect our results? Because we find that colonial states of the French empire extracted a relatively high share of GDP, we are mainly worried about *underestimating* GDP in the colonies. As a robustness exercise, we use the alternative GDP per capita figures computed using wage and urbanization data to estimate GDP per capita. In 1925, these alternative GDP per capita estimates are lower than our main estimates, which would reinforce our conclusion of high fiscal extraction (see Online Data Appendix, Table 6, p. 35). We conclude that fiscal extraction of French colonial states was indeed above the independent countries' average in the 1920s.

Figure A2.2 – Revenue to GDP ratios and GDP per capita in the 1930s

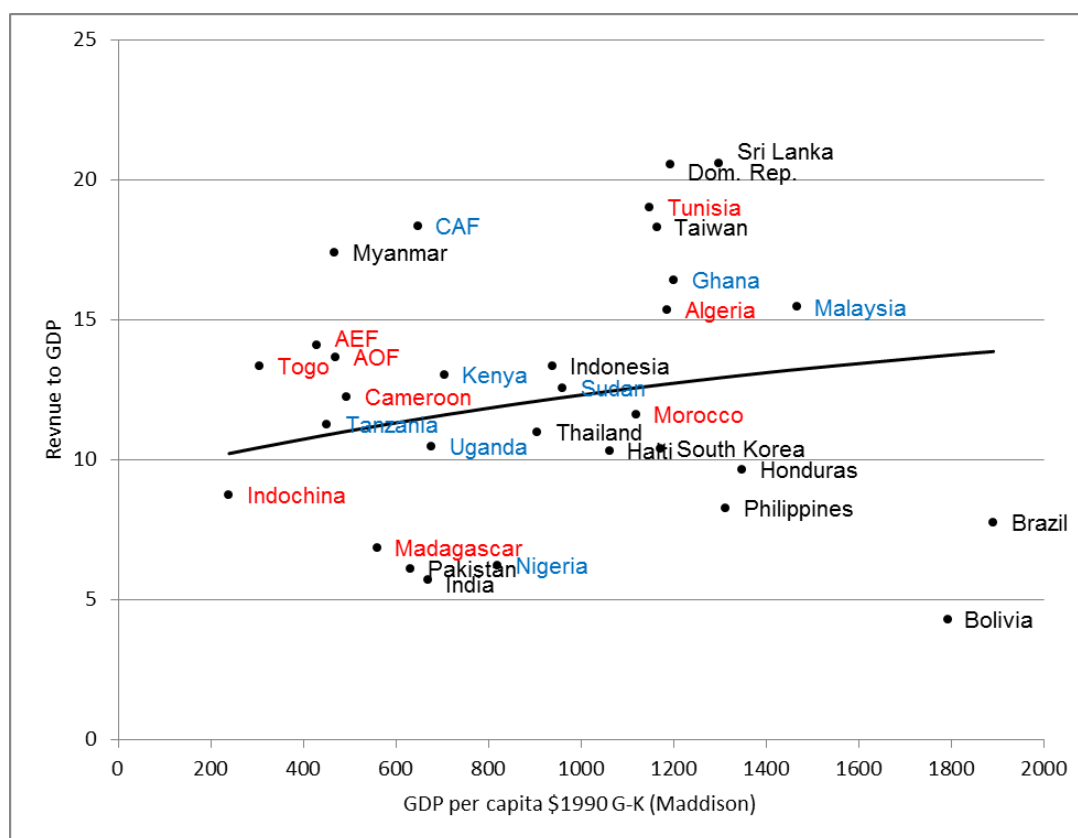


Notes: Revenue is central government revenue, and includes an estimate of *corvée* revenue for AOF, AEF, Cameroon, Madagascar and Togo. French colonies are in red, other colonies in blue, independent countries in black. **Sources:** Authors' data and Mauro et al. (2013), see text.

Figure A2.2 presents the same international comparisons as Figure A2.1, here for the decade 1930-1939. Again, with the only exception of Cameroon this time, all French colonies lie above the “Wagner prediction”. Like for the 1920s, using alternative estimates of GDP (for the year 1937, see Online Data Appendix, Table 7, p. 36) would not change this conclusion. Among other colonies, five out of eight also exhibit high fiscal extraction; British India and

British Gold Coast (Ghana) appear as significant outliers, characterized by low fiscal performance (revenue to GDP ratios around 5%).

Figure A2.3 – Revenue to GDP ratios and GDP per capita in the 1950s



Notes: Revenue is central government revenue. French colonies are in red, other colonies in blue, independent countries in black. **Sources:** Authors' data and Mauro et al. (2013), see text.

Finally, figure A2.3 presents the comparisons for the 1950s. Madagascar lies significantly below the “Wagner prediction,” yet revenue collection had been substantially decentralized at the province level since 1946, and taking into account provincial revenue would place it above. Indochina in independence war unsurprisingly exhibits low fiscal extraction. Morocco is also slightly below the international average, yet our alternative computation of GDP suggests that our main GDP estimate might be overstated (online Appendix 1, Table 6, p. 35). All French colonies still lie much above independent India or Pakistan, and most of them do better than Thailand, South Korea, Philippines, Honduras, or Bolivia. British colonies in the 1950s also exhibit high revenue to GDP ratios. Wealthy Ghana (Gold Coast) and Malaysia (British Malaya) stand close to Algeria and below Tunisia; Sudan is at par with Morocco, and the poorer East African colonies (Kenya, Tanzania, Uganda) compare with Cameroon, Togo, French Central Africa and French West Africa. The Central African Federation (or Federation of Rhodesia and Nyasaland, composed of Malawi, Zambia

and Zimbabwe) exhibits outstanding fiscal revenue, thanks to the boom of copper and gold mining. Only Nigeria lies much below the international average, with a minimal revenue to GDP ratio estimated at 6.2% of GDP, at par with newly independent India and Pakistan.^{5,6} We again conclude that fiscal extraction in colonial states was in general above the independent countries' average in the 1950s, with only a few exceptions among French or British colonies.

We are more confident in our GDP per capita estimates for the 1950s because they are based on contemporary national accounting exercises rather than historical estimations, and because they are anchored on GDP figures in the 1960s. Once again, we nonetheless checked the robustness of our results by using alternative estimates of GDP per capita based on wage and urbanization data (see online Appendix 1, Table 6, p. 35). The alternative estimates for 1955 point to a potential underestimation of GDP per capita in the cases of Algeria, Tunisia and French West Africa, but not large enough to modify our conclusion of comparatively high fiscal extraction, for it is also in these colonies that fiscal revenue to GDP ratios are the highest.

We conclude that the colonial states, and in particular the French ones, were not at all underperforming in terms of fiscal extraction, compared to independent countries. Even if they were relatively poorer, it is not the lack of fiscal capacity that limited their possibilities to produce public goods and promote economic development, rather the cost and the biasedness of their action.

⁵ Starting in 1952 in Nigeria, the revenue collected by administrative regions (Northern, Western, Eastern, Southern and Cameroons) is no longer included in central government revenue. However, data for 1955 show that the total revenue collected by regions only represents 10% of central government revenue.

⁶ In contrast with India and Pakistan, independent Burma (Myanmar) and Sri Lanka rank high in terms of fiscal extraction, with respectively 17.4 and 20.6 % of GDP.

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